

ICT Sector Performance Review for Bangladesh
Including the results and Analysis of the 2011 TRE Survey

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List of Acronyms

ANS	Access Network Service
BDT	Bangladesh Taka
BSCCL	Bangladesh Submarine Cable Company Ltd.
BTA	Bangladesh Telecommunication Act
BTCL	Bangladesh Telecommunications Company Ltd.
BTRC	Bangladesh Telecommunications Regulatory Commission
BTTB	Bangladesh Telephone and Telegraph Board
CDMA	Code Division Multiple Access
EDGE	Enhanced DataRate for GSM Evolution
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GoB	Government of Bangladesh
GP	Grameen Phone
GPRS	General Packet Radio Service
GSM	Global System for Mobile Communications
HHI	Herfindahl-Hirschman Index
ICT	Information and Communication Technology
ICX	Interconnection Exchange
IGW	International Gateway
IIG	International Internet Gateway
ILDTS	International Long Distance Telecommunication Service
IP	Internet Protocol
ISP	Internet Service Provider
MoPT	Ministry of Post and Telecommunication
MoSICT	Ministry of Science and Information & Communication Technology
NTTN	Nationwide Telecommunication Transmission Network
OSS	One Stop Shop
PGCB	Power Grid Company of Bangladesh
POP	Point of Presence
PPP	Purchasing Power Parity
PSTN	Public Switched Telephone Network
QoS	Quality of Service
TRE	Telecom Regulatory Environment
SIM	Subscriber Identity Module
SMS	Short Message Service
SOF	Social Obligation Fund
UF	Utilization Factor
UISC	Union Parishad Information Service Center
USF	Universal Service Fund
USO	Universal Service Obligation
VAS	Value Added Service
VoIP	Voice of Internet Protocol

Executive Summary

Since emerging as an independent country in 1971, Bangladesh has achieved some notable development amid major socio-economic challenges. The rapid growth of the telecommunication industry has been a key success story. With some of the world's lowest tariffs, there are around 70 million active access paths of telecommunications here (with mobile SIM and PSTN penetrating of 43% and 1% of the population respectively). An estimated 10 million internet users access the cyberspace primarily through mobile internet.

The TRE Survey (or the Telecom Regulatory Environment survey) conducted in Feb-Mar 2011 asked senior stakeholders to evaluate the effectiveness of the regulatory and policy environment in three telecom subsectors (fixed, mobile and broadband) along seven dimensions: market entry, access to scarce resources, interconnection, tariff regulation, anti-competitive practices, universal service obligation (USO), and quality of service (QoS) for the last 2 years (January, 2009-January, 2011). The survey respondents were grouped into three categories:

- **Category 1:** Stakeholders directly involved and can be affected by telecom sector regulation, such as operators, industry associations, equipment suppliers, etc.
- **Category 2:** Stakeholders who analyse the sector with broader interest, such as lawyers, telecom sector consultants, equity research analysts, etc.
- **Category 3:** Stakeholders with an interest in improving the sector to help the public, such as people from academia, research organizations, journalists, civil society organizations, etc.

The respondents were asked to evaluate each dimension in each sub-sector on a Lickert scale of 1 to 5, with 1 being highly ineffective, 5 being highly effective and 3 being the mid-point and considered “average” performance. Three, the mid-point, is considered the minimum requirement for “average” performance. In the Bangladesh TRE survey, the average TRE score turns out to be 2.6, which is below the satisfactory level of 3. The fixed line telephony scored the lowest (2.3) and mobile telephony scored the highest (2.9), followed by the broadband (2.5), as seen in Figure 1.

Average TRE Scores

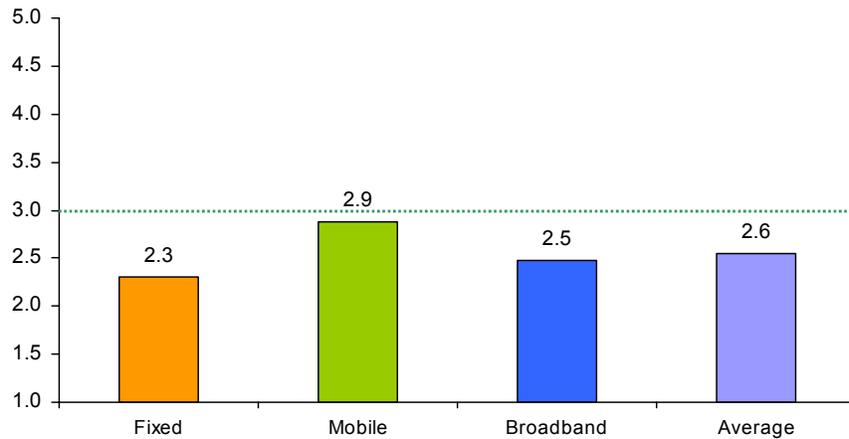


Figure 1

Nationwide decline in fixed line usage and the license cancellation of five PSTN operators and contributed to lowest scores for fixed sector. On the other hand, regulator's facilitation for competition among the market players, low access price for the users, nationwide coverage and interconnection, usage flexibility, and better QoS are considered to be some of the key reasons that helped mobile industry get the highest scores. Though mobile has the highest score, it's still below average (i.e. below the mid-point of 3.0). The sense of uncertainty created by the amended Telecommunication Act, 2010 (which handed over many of the major regulatory power to the Ministry of Post and Telecommunication or MoPT from Bangladesh Telecommunication Regulatory Commission or BTRC) and the proposed 2G license renewal guidelines (discussed later) are possibly the reasons for the below-average performance.

In terms of different regulatory dimensions surveyed, Interconnection received the highest score of 3.1. It is a positive shift from the time when the interconnection was one of the thorny issues due to the state incumbent's refusal to provide access to its switches for the new market entrants (pre-BTRC era). The lowest individual score of 1.9 went to USO for fixed line, reflecting the general perception of this sector as a "Sunset Industry" and due to the absence of any clear universal service obligation framework by the regulators.

In order to move towards a better future that ensures a competitive, socially responsible, vibrant, and dynamic telecom sector in Bangladesh, this study presents a number of recommendations:

- **Rethinking 2G License Renewal Process:** A transparent, rational, and market oriented license renewal process needs to be ensured. The 2G license renewal and spectrum fees

should be determined through active consultation, and can be either market determined (based on auction) or a hybrid of auction and reserved price set by BTRC. The proposed high pricing could create the risk of investment withdrawal, limit service innovation, and cause uncertainty over the growth as well as stability of this thriving market. Having the renewal price based on subscriber numbers may force operators to “game” the system just prior to future renewals. Given that the 2G renewals are now a done deal, GoB (Government of Bangladesh), through BTRC should at least clearly state the criteria for 3G licensing and spectrum allocation in Bangladesh as soon as possible.

- **Ensuring prompt Tariff Regulations:** The commission and the ministry both are needed to act relatively fast due to the dynamic and competitive nature of the voice telephony market. The commission did set example of protecting consumers’ interests through defining the ceiling prices of voice calls and SMS. BTRC moreover avoided any practice of predatory pricing by setting up floor prices for telecom providers. For the broadband sector, price ceilings/floors should be set, based on long-run-incremental-cost of an efficient operator or on any regional best practice, instead of relying only on the incumbents.
- **Acting against the Anti-Competitive Practices:** Clear directives on monopoly and related practices are required, along with the active implementation of the infrastructure sharing guidelines to prevent non-tariff barriers for the market entrants in voice, internet, and value added service (VAS) sectors. The GoB should also act on removing the SIM tax to accelerate the mobile penetration rate in the country. The broadband operators should be allowed to negotiate with the international carriers, which can help to reduce bandwidth pricing and efficient internet traffic management.
- **Clear Guidelines for USO and SOF:** The concepts of universal service obligation and Social Obligation Fund should be clearly defined in the context of Bangladesh, and there should be clear guidelines on how the GoB and BTRC will disburse money from the social obligation fund (SOF). The authorities should promote local content development that will in turn generate local internet traffic and will also boost the fledgling local VAS market.
- **Effective QoS Obligations:** BTRC needs to share its guidelines of QoS for voice and data services with concerned stakeholders. Market competition has, to some extent ensured a level of QoS in mobile telephony, but BTRC’s oversight is crucial to protect the rights of consumers and to guarantee a certain level promised services by the providers.

- **Implementation of Pro-People Provisions:** The proposed 2G license guideline contains some forward looking, pro-people, and pro-environment provisions (e.g. spectrum trading, number portability, QoS obligations, common platform for VAS providers, technology neutrality, emergency toll free numbers, green telecom practices, etc.). These need to be implemented across the overall telecom sector and should not just be confined to mobile phone industry.

1. Country Overview

Since emerging as an independent country in 1971, Bangladesh has achieved some notable development amid major socio-economic challenges. Among others, this South Asian country's GDP has more than tripled in real value; food production has increased three times; child mortality has decreased substantially and it is performing better than its neighbors in terms of ensuring gender parity in education (Dhume, 2010). In the service sector, the emergence and rapid growth of the telecommunication industry has been another key success story for Bangladesh. With one of the world's lowest tariffs (Expanding Horizons, 2009), at present there are around 70 million active access paths of telecommunications here (with mobile SIM and PSTN connections of 43% and 1% respectively). Moreover, there are 10 million internet users, accessing the cyberspace primarily through mobile internet (D.Net, 2010). Right now, Bangladesh's functional literacy rate is approximately 48% (BANBEIS, 2011), and it is the 48th largest economy in the world with a per capita income of US\$ 1,700 (IMF, 2010). Liberalization in policy making and implementation process, political willingness, considerable foreign investment, and local human resource mobilization have contributed to the overall growth of the telecom industry, mainly in the mobile and internet sector. Over time, this industry became a major contributor to government exchequer. It has also become a major contributor of foreign direct investment (FDI) in Bangladesh. Figure 2 shows the amount of FDI from the telecommunication sector (in %) from year 2001 till 2010.

Telecom FDI as a percentage of total FDI into Bangladesh

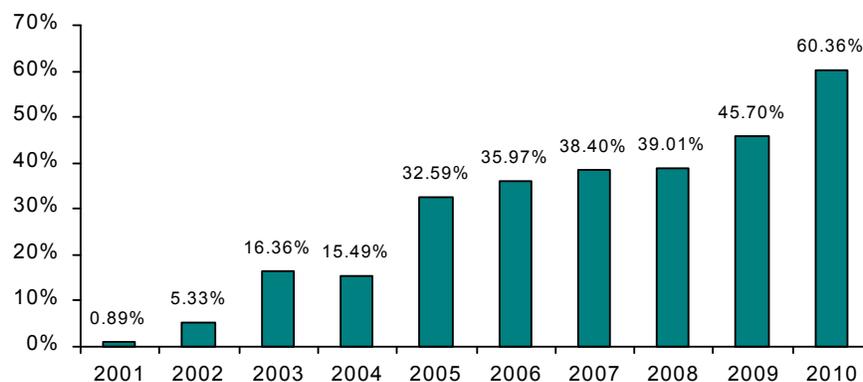


Figure 2 (source: Bangladesh Bank, 2010)

2. Market Structure and Market Dynamics

Telecommunication industry is considered to be one of the key enablers for the present government's "Digital Bangladesh" vision. The government has already laid out key strategies in important national priority areas (e.g. education, healthcare, agriculture, business, disaster management, etc.) to integrate ICT/telecom based solutions for ensuring a sustainable future growth (DBSP, 2010).

2.1. Mobile Market

As mentioned before, mobile phone providers lead the voice market. There are six operators in this highly concentrated market with HHI of 3088. All the providers except one are using second generation (2G) GSM technology for voice and data communication. Grameen Phone (GP) /Telenor is the dominant player in the market, followed by Banglalink, Robi, Airtel, Citycell (CDMA carrier), and Teletalk (the government incumbent). Figure 3 shows the market share distribution in mobile industry in terms of the percentage of total active SIMs.

Market Shares (based on SIMs) in the Mobile Sector

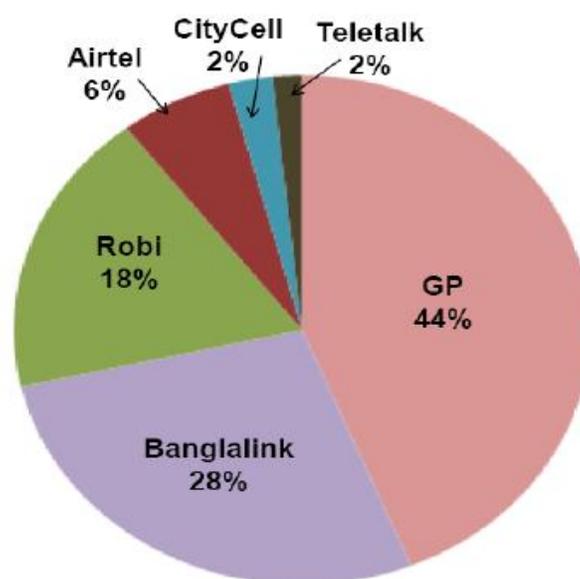


Figure 3 (source: BTRC, 2011)

The price of mobile phone services in Bangladesh is at present one of the lowest in the world. According to a Nokia Siemens Network study, published in 2009, Bangladesh actually has the third lowest total cost of ownership (TCO) per month with US\$8 (see figure 4).

Global Comparison of TCO

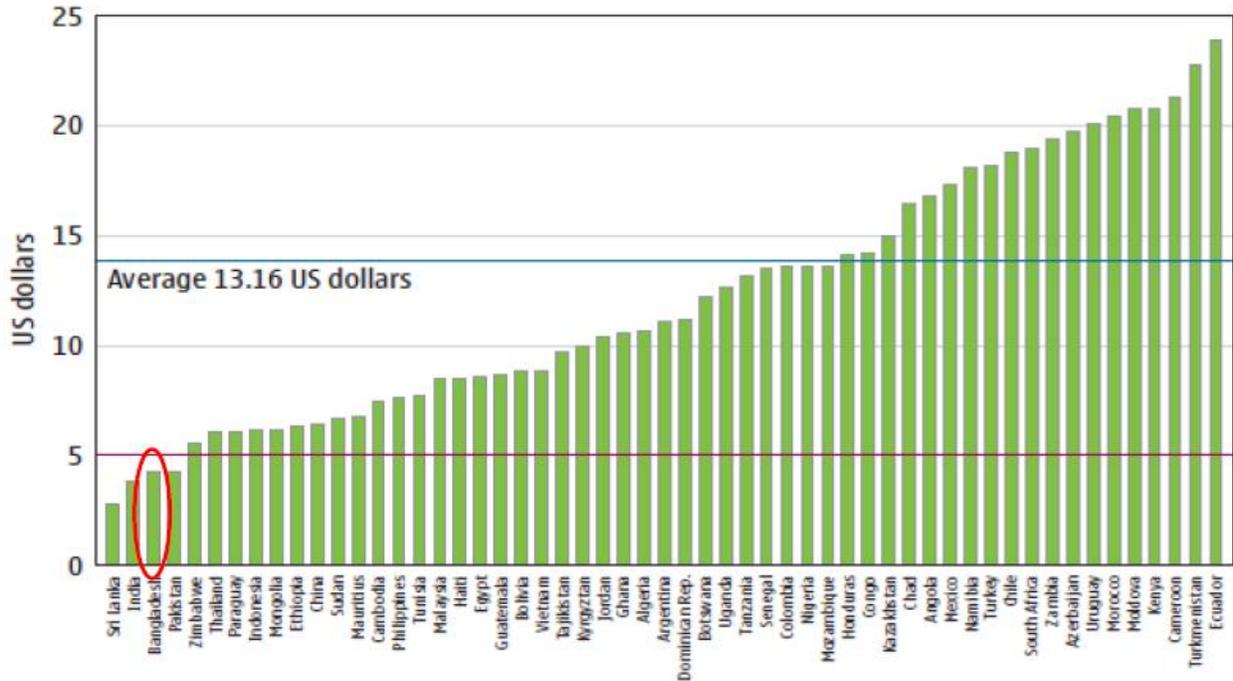


Figure 4 (Source: Expanding Horizons, 2009)

Figure 5 shows the growth of mobile SIMs and fixed phone access paths in Bangladesh over the last ten years.

Growth of SIMs/Access Paths in Bangladesh

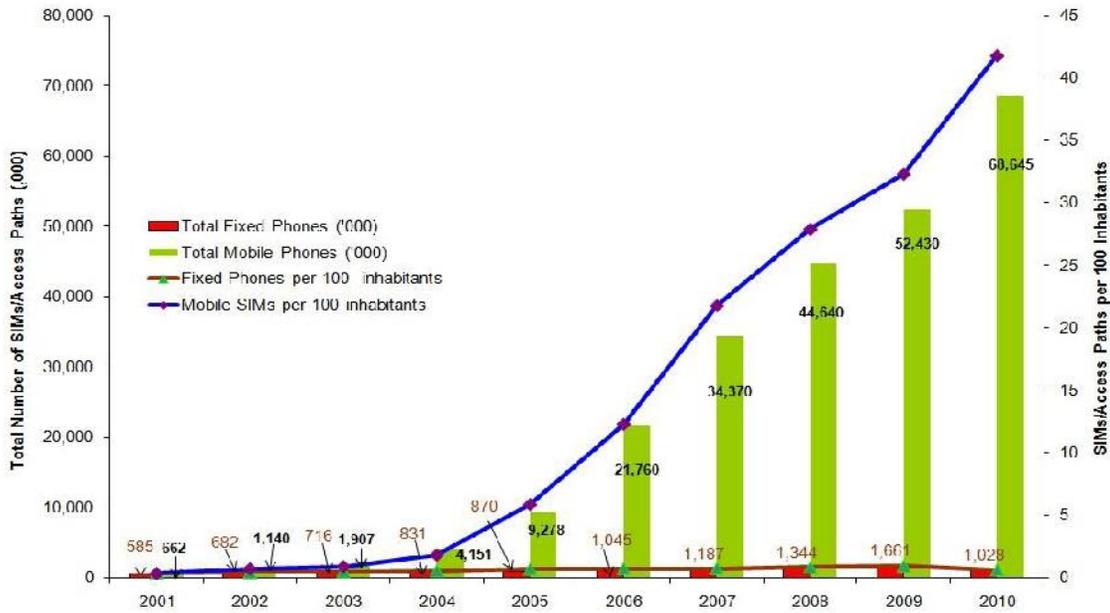


Figure 5 (Source: BTRC, 2011)

The 2007-2008 annual report published by BTRC shows the rapid decrease of average tariff per minute from BDT 11.37 (US\$ 0.16) in 2001 to BDT 0.88 (US\$ 0.01) in 2008 (figure 6).

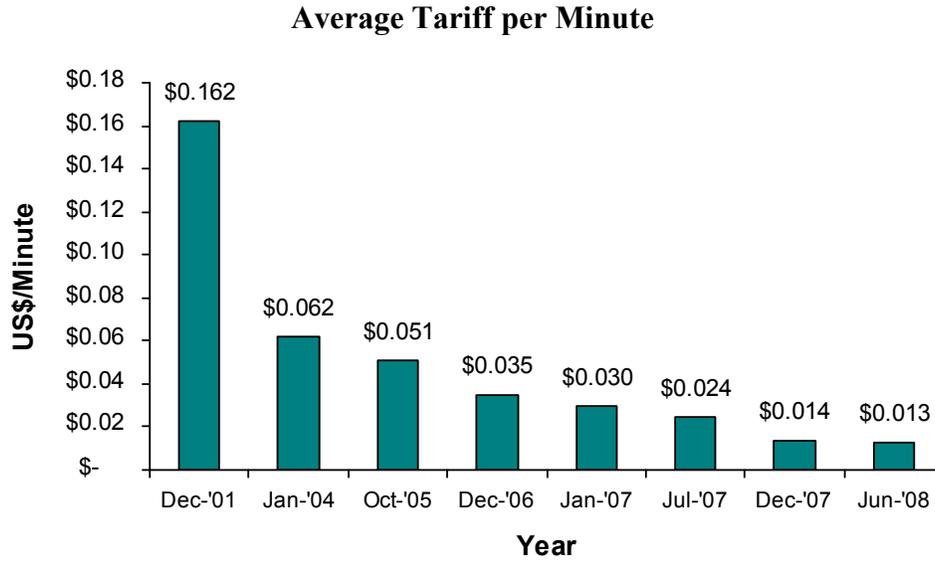


Figure 6 (BTRC Annual Report, 2008)

The monthly cost of mobile (pre and post-paid) in Bangladesh turned out to be one of the lowest in South Asia as per LIRNEasia's latest report on the mobile price baskets, adjusting PPP (figure 7).

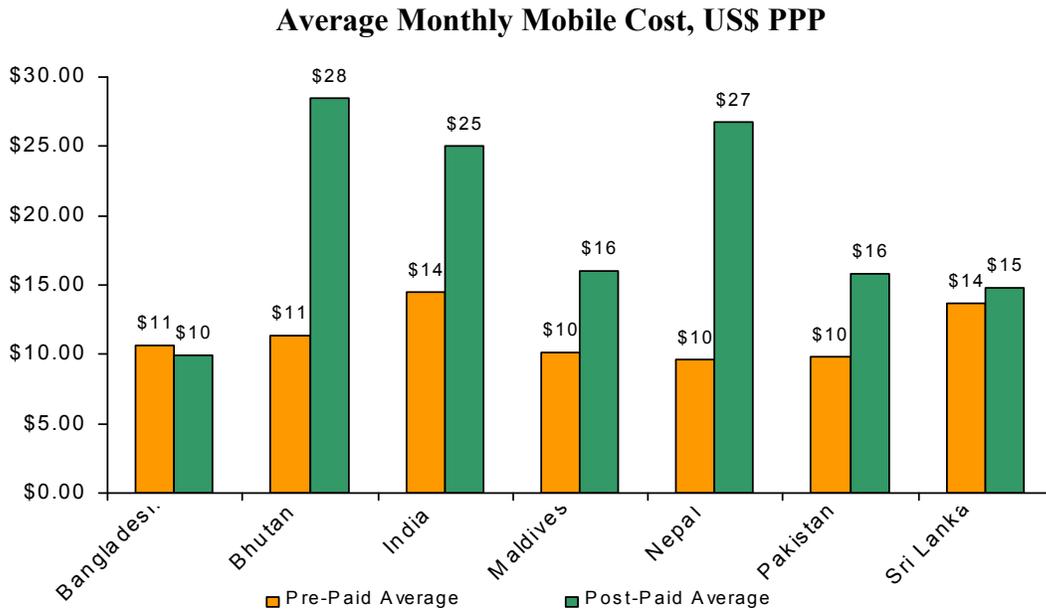


Figure 7 (Mobile Benchmarks, 2010)

2.2. Fixed market

BTCL is overwhelmingly the leading entity in fixed line telephony (872,000 of the 1.03 million fixed subscribers, or 84%percent). After the license cancellation of five PSTN operators in May, 2010, there are seven remaining private PSTN companies functional in the market, each with insignificant share of subscribers (BTRC, 2011). The GoB has awarded 40 IP Telephony licenses up to date. But most of the providers are yet to roll out their services. The few who did are concentrating on the corporate sector. As there is no possible convergence yet with other telecom services due to regulatory prohibition the experts in this field are predicting a slow growth of IP Telephony service in the individual customer segment.

2.3. Internet Market

Bangladesh has one of the lowest internet penetration rates in the South Asian region (6%). Of this, 94% is through mobile phone networks. The 101 national and 138 zonal fixed Internet Service Providers (ISPs) alongside two WiMAX service providers account for the rest, as shown in Figure 8. (DBSP, 2010)

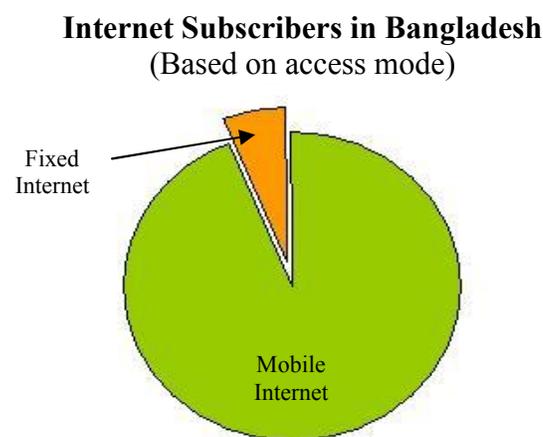


Figure 8: (Source: BTRC, D.Net, 2010)

2.4. Gateways and Exchanges

The government controlled Bangladesh Telephone and Telegraph Board (BTTB) used to be both, telecom service provider as well as the regulator in Bangladesh. The Bangladesh Telecommunications Act of 2001 created and empowered of regulating the industry to BTRC. But BTTB was still controlling the international voice and data traffic within the country. But the situation changed in 2007-2008. During this time, International Long Distance

Telecommunication Services Policy, 2007 (ILDTS Policy, 2007) was introduced. Concurrently, BTTB was divided into three private entities to provide fixed, internet, and cellular service, and also to manage the submarine cable infrastructure in Bangladesh¹. According to the experts, the original goal of ILDTS 2007 was to partially liberalize the international voice and data traffic segment for the local operators with the introduction of a new network topology. Under this plan, the Interconnection Exchanges (ICX) are responsible for managing all the local voice traffic, whereas the International Gateways (IGWs) deal with the outgoing and incoming international calls. Country's data traffic is managed through International Internet Gateways or IIGs. Bangladesh Telecommunications Company Ltd. (BTCL), the state PSTN operator (after the BTTB breakup) got the permission to also operate as IGW, ICX, and IIG, thus distorting the level playing field for other operators in those markets. In addition, the regulator permitted 3 IGW, 4 ICX, and one more IIG operators. But in practice, this semi-liberalization process was not effective in decreasing service prices for the Access Network Service (ANS) providers (as pricing negotiation with international entities by IGW and IIGs are closely monitored and controlled by the GoB). With the new ILDTS policy of 2010, the regulators officially wanted to promote more competition. However, the provision that empowered GoB to decide on the numbers of IGW, ICX, and IIG licensees virtually eliminated the opportunity for the market to decide on the basis of supply and demand of such service providers, and also eliminated the possibility of consumers benefitting from cost effective solutions for interconnection and int'l and local bandwidth price through negotiations. In addition, the GoB explicitly prohibited the participation of foreign investment in this segment through the latest ILDTS policy of 2010.

3. Infrastructure: Availability, Usage, and Quality

A network of 15,000 km optical fiber covers 59 of the 64 districts in Bangladesh. BTCL, Power Grid Company of Bangladesh (PGCB), Bangladesh Railway, and the mobile operators are the primary developers of this fiber backbone. BTCL and GP (leasing Bangladesh Railway's) own the largest, active fiber backbones in the country. PGCB's fiber is underutilized. The other mobile operators either share fiber networks of the BTCL and GP or have built their own.

¹ In 2008, BTTB was divided into three separate companies. BTCL was responsible for the fixed phone and Internet services. Teletalk entered the market as a mobile service provider. Bangladesh Submarine Cable Company Ltd or BSCCL was responsible to oversee the submarine cable infrastructure.

The country's international connectivity is through a single undersea cable, the SEA-ME-WE-4. Its landing station is in Cox's Bazar (at the South-Eastern part of Bangladesh). Till recently, access to this landing station and the cable's routing to the POPs were solely controlled by BTCL (IGWs and IIGs obtained access from BTCL). The regulator determines the price of bandwidth access. But the carrying cost for the bandwidth (from center to the other parts of the country) and other backhaul costs are determined by BTCL and BSCCL. Due to the control of these two operators, the prices are not competitive, and the private operators are subject to high bandwidth charges. The Government of Bangladesh (GoB) is currently considering connecting with an international terrestrial cable through private sector, in addition to its SEA-ME-WE-4 undersea cable (BTRC, 2011). In addition, BTRC till now gave two licenses to Nationwide Telecommunication Transmission Network (NTTN) since 2009. The primary objective to establish entities like NTTN is to develop, build, operate, maintain, and provide telecom transmission network services (mainly based on fiber) to the access network service operators, licensed telecommunication operators, and to other authorized users.

4. Applications and Services

A range of e-services catered towards the general population have increased rapidly in recent years, both in public as well as private domains. In the education sector, the GoB is using telecommunication to strengthen its knowledge network for teachers' training, educational administration, and distance education. At primary and secondary levels, e-text books are available online, which can be downloaded at free of cost. . Public examination and admission test results are now disseminated using web and SMS based systems. In order to ensure equitable public access to information (online and offline), the GoB is heavily investing on developing information centers (commonly known as Union Parishad Information Service Center or UISC) at union level in Bangladesh. At present, every union (all 4,501) has a UISC (DBSP, 2010). Each UISC is managed by a local entrepreneur, selected jointly by the union's top public administrative officer (UNO) and the elected chairperson of that union. It is too early to judge the success of the UISC initiative. There have been anecdotes of challenges as well as achievements. The UISCs with a monthly income of BDT 10,000 or more (approximately US\$ 145) from their information based services are now considered by GoB as the successful ones (around 85 nationwide). UISCs with average monthly income of BDT 5,000 (approximately US\$

72) are considered to be the “hopeful ones”, where the managers have to work harder to make their UISCs successful. Lack of electricity, poor connectivity, scarcity of localized contents and services, and most importantly, the absence of effective local entrepreneurs are some of the key challenges identified by the experts in the UISC domain.

In addition, with the leadership from the Prime Minister’s Office, the GoB has undertaken ICT related projects citizens in the domains of health, finance, communication, etc. Very recently, the government launched its own laptop brand “Doyel” and started disseminating the machines in different phases to all government offices and schools in the country. GoB is moreover formulating e-Health strategies to streamline the existing and future ICT enabled health services in both public and private sectors. Projects are already underway to coordinate between different identification systems and in coming up with unique ID system for Bangladeshi citizens, which will encompass information on birth, vaccination, education, professional status, etc. Another very popular e-service is mobile money transfer. Bangladesh Bank is facilitating the remittance transfer (from the hundreds of thousands of expatriate workers abroad) using the mobile phone infrastructure. Railway ticket sale through mobile phone are also being widely used by all. Moreover, efforts are already in place to transfer the complex land records and management systems to become automated and online.

Value Added Service (VAS) market is another emerging market for the mobile phone and internet users. The mobile based health and educational helpline services are fast becoming popular. “BBC Janala”, a BBC initiative for learning English via mobile phone/Internet is increasingly used by relatively young segments of both urban and rural population. In addition, ring tones, songs, and video clip downloading practices via mobile phones and internet are also on the rise in Bangladesh.

5. Institution and the Policy & Regulatory Environment:

The legal framework in the Indian Subcontinent and Bangladesh’s telecommunication sector originates from the “Telegraphy Act of 1885”. This act and other subsequent legislations are the legacy of the British Common Law system which is widely followed in the region. The following are the major legal statutes and policies that govern the telecom sector in Bangladesh.

The Telegraphy Act of 1885: The objective of the Telegraphy Act was to empower the government to provide telecommunications services to the citizens of the country. It gave exclusive power to grant licenses for telegraphs, maintain telegraph lines & equipments, and enforce penalties. (Law on Telecom, 2004, pg. 183)

The Wireless Telegraphy Act of 1933: This act complemented the 1885 Telegraphy Act and rectified some loopholes that were inherent in the previous act. The 1933 act was primarily geared towards broadcasting services like radio. (Law on Telecom, 2004, pg. 177)

The National Telecommunication Policy of 1998: The “Strategic Vision” of the policy was to facilitate universal telephone service throughout the country in order to ensure the orderly and rapid growth of telecommunications services for rapid socioeconomic development. The National Telecommunications Policy outlined for the first time Bangladesh government’s intentions for market liberalization and structural reform in the telecom sector. It opened the sector to private participation, mentioned a plan to privatize BTTB in future, and most importantly envisaged establishment of an independent telecom regulator. The telecom policy stipulated broad principles and future development goals but did not provide substantial directives and guidelines on how to achieve these. (Law on Telecom, 2004, pg. 203)

National ICT Policy of 2002: The ICT policy of 2002 recognized telecommunication as a vital component of the national ICT development strategy. Some of the most pertinent policy statements in regard to telecommunications stipulated that:

- a. *“the telecommunication sector should be deregulated and made open to private sector investors as early as possible.*
- b. *In order to establish direct connectivity with international information and communication backbone Bangladesh will join Fiber Optic Submarine Cable network.*
- c. *Basic telecommunication facilities will be extended to the rural and under-served areas to bring the greater mass into the stream of ICT activities both by the public and private sector.*

- d. *The bandwidth capacity and availability will be ensured all over the country at a reasonable cost to encourage the growth of Internet, ICT industries, e-Commerce and e-Government.*” (MoSICT, 2011)

International Long Distance Telecommunication Services (ILDTS) Policy 2007 and 2010:

The ILDTS policy of 2007 ended the long-standing monopoly of BTTB in the international telecommunications services. It also legitimized the utilization of VoIP based services in the country. Some of the major Objectives of the policy are:

- *“Provide low cost telecommunication services using modern technologies.*
- *Encourage local businesses and enterprises in telecommunication*
- *Ensure proper revenue earning of the government.*
- *Encourage Next Generation Network (NGN) Technology.”*

Officially, the ILDTS policy was formulated to facilitate, liberalize and legitimize international voice and data communication services including VoIP. The focus was to provide affordable communication means to Bangladeshis residing both at home and abroad, encourage local entrepreneurs, and ensure due earning of government revenues (ILDTS Policy, 2007). But according to the GoB, this 2007 policy did not succeed either in preventing illegal voice termination or in facilitating low priced/high quality international calls for the residential and business customers. Hence a new ILDTS Policy was introduced in 2010 that opened the provision of awarding multiple licenses of the following categories (which was limited in the 2007’s policy) in private sector:

- International Gateway (IGW)
- Interconnection Exchange (ICX)
- International Internet gateway (IIG)
- National Internet Exchange (NIX)
- Submarine Cable

Besides, licensing category of the following types were also included in the amended policy:

- International Terrestrial Cable – to set-up international terrestrial cable link through neighboring countries to get access to multiple submarine cable landing station,

which would be a good alternative of submarine cable to set up redundant international connectivity as soon as possible.

- VoIP Service Provider- to permit local entrepreneur to terminate international incoming calls; however the modality is not clear in the policy. (ILDTS Policy, 2010)

Bangladesh Telecommunications Act of 2001 (amended in 2010): The Bangladesh Telecommunications Regulatory Commission (BTRC) was established on 31 January 2002 with the expressed purpose of the efficient regulation and management of telecommunications system and related services in Bangladesh. According to the act, these are the broad objectives of BTRC:

- "(a) to encourage the orderly development of a telecommunication system;*
- (b) to ensure access to reliable, reasonably priced and modern telecommunication services and internet-services for the greatest number of people;*
- (c) to ensure the efficiency of the national telecommunication system and its capability to compete in both the national and international spheres;*
- (d) to prevent and abolish discrimination in providing telecommunication services, and to progressively effect reliance on competitive and market oriented system;*
- (e) to encourage the introduction of new services and to create a favorable atmosphere for the local and foreign investors who intend to invest in the telecommunication sector in Bangladesh."*

Under the act, BTRC's constitutionally mandated role was to ensure a fair, transparent marketplace for all the players in the telecom sector. As the telecom regulator it was envisaged that BTRC would oversee the issuance of necessary licenses; allocate scarce resources i.e. spectrum; implement an efficient interconnection regime; set and regulate tariffs for telecom related services; and uphold the interests of subscribers and telecom operators by maintaining a judicious balance thereof (BTA, 2001).

However, this act was amended in August, 2010. Under the provisions, the MoPT instead of BTRC became the final decision making body on licensing, tariff, and policy related issues.

Furthermore, provisions for heavy fines and stern legal actions against the operators and individuals involved in illegal activities (as defined by the new telecom act) have been included, which were not welcomed by the service providers. (Financial Express, 2011) According to many experts, this de-liberalization policy of GoB will have long term negative impact on the performance perception of the regulators within the telecom industry and it was reflected on the latest TRE survey in Bangladesh (more to be discussed in the next section).

6. Effectiveness of Telecom Policy and Regulatory Environment

In order to understand how key stakeholders in the sector view the regulatory and policy environment in Bangladesh, a perception survey was conducted in Feb- March 2011. Known as the TRE Survey (or the Telecom Regulatory Environment survey), it asks senior stakeholders to evaluate the effectiveness of the regulatory and policy environment in 3 telecom subsectors (fixed, mobile and broadband) along seven dimensions: market entry, access to scarce resources, interconnection, tariff regulation, anti-competitive practices, universal service obligation, and quality of service. The period being evaluated was specified as January 2009- January 2011). The respondents are asked to evaluate each dimension in each sub-sector on a Lickert scale of 1 to 5, 1 being the most ineffective and 5 being the most effective. In order to refresh their memory, a list of recent regulatory and policy actions for the period being evaluated are sent along with the questionnaire (Annex A). The survey respondents were grouped into three categories:

- **Category 1:** Stakeholders directly involved and can be affected by telecom sector regulation, such as operators, industry associations, equipment suppliers, etc.
- **Category 2:** Stakeholders who analyse the sector with broader interest, such as lawyers, telecom sector consultants, equity research analysts, etc.
- **Category 3:** Stakeholders with an interest in improving the sector to help the public, such as people from academia, research organizations, journalists, civil society organizations, etc.

In Bangladesh, the survey questionnaire was mainly distributed via email. A total of thirty nine people responded. The breakdown of the respondents is given in Table 1. In order to ensure that no one respondent category has undue influence on the final TRE “score”, the responses are weighted so that each category makes the same contribution (i.e. one-third) to the final score. The weights assigned are indicated in Table 1.

Table 1
Summary of TRE Survey in Bangladesh

Respondent Category	No. of Respondents (completed surveys)	Weights applied
1	17	0.76
2	7	1.85
3	15	0.87
Total	39	

25 (or 64%) of the respondents participated in the survey online, 18% through email and 18% via face-to-face interview.

TRE Results

The average TRE score for all three telecom sectors across the seven regulatory dimensions turns out to be 2.6, which is below the satisfactory level of 3. The fixed line telephony scored the lowest (2.3) and mobile telephony scored the highest (2.9), followed by the broadband (2.5) (figure 9).

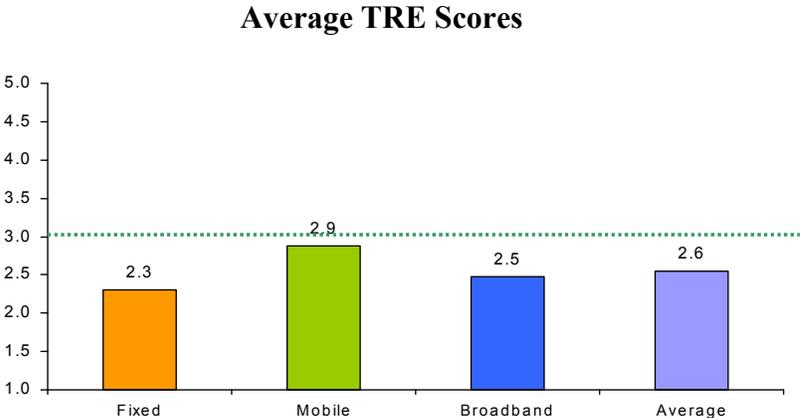


Figure 9

The license cancellation of five PSTN operators and nationwide decline in fixed line usage contributed to lowest scores for fixed sector across majority of the regulatory dimensions (as explained in the later sections). On the other hand, regulator’s facilitation for extensive competition among the market players, low access price for the users, nationwide coverage and interconnection, usage flexibility, and better QoS are some of the key reasons that helped mobile industry to top the list. But reasons behind this score (for mobile) to be just below the threshold of 3 can be the sense of uncertainty created by the amended Telecommunication Act, 2010 (which handed over many of the major regulatory power to MoPT) and for the proposed 2G license renewal guidelines. More on these have been explained in the later part of this paper. In terms of different regulatory dimensions surveyed, Interconnection received the highest average score of 3.1. It is a positive shift from the time when the interconnection was one of the thorny issues due to the state incumbent’s refusal to provide access to its switches for the new market entrants (pre-BTRC era).

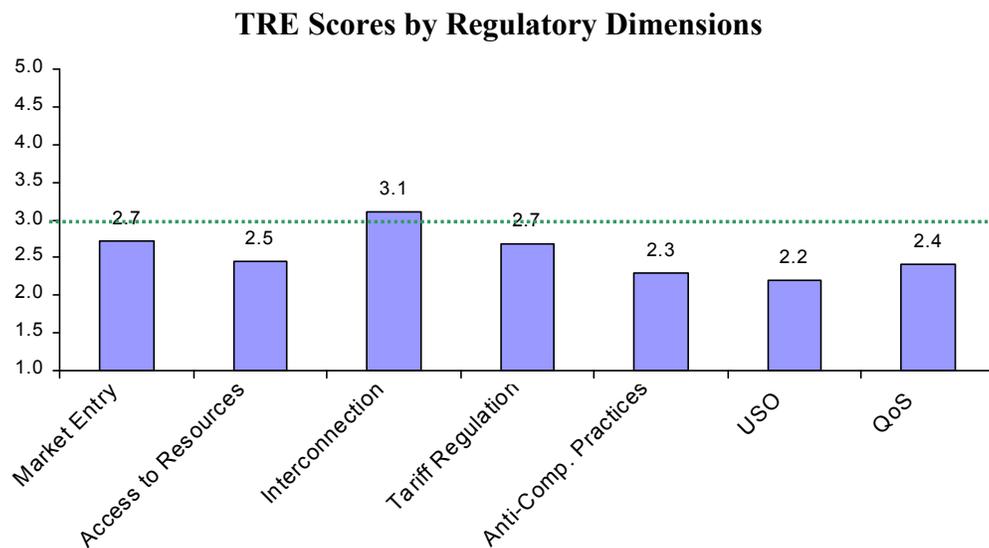


Figure 10

Universal Service Obligation received the lowest average score (2.2). As the mobile phone service is available all over the country, many experts and stakeholders feel that the creation of Universal Service Fund (USF) or something similar is not required. The Telecom Act of 2010 does mention about the Social Obligation Fund (SOF, the USF equivalent) (BTA, 2010). The proportion of revenue to be collected for this fund is moreover proposed in the 2G mobile license renewal guidelines (Draft Regulatory & Licensing Guideline, 2010). But there is no clear

roadmap from the regulators on how the USO will function or how the money from the SOF will be disbursed among the service providers. All these were reflected in the scores (Figure 10 and 11).

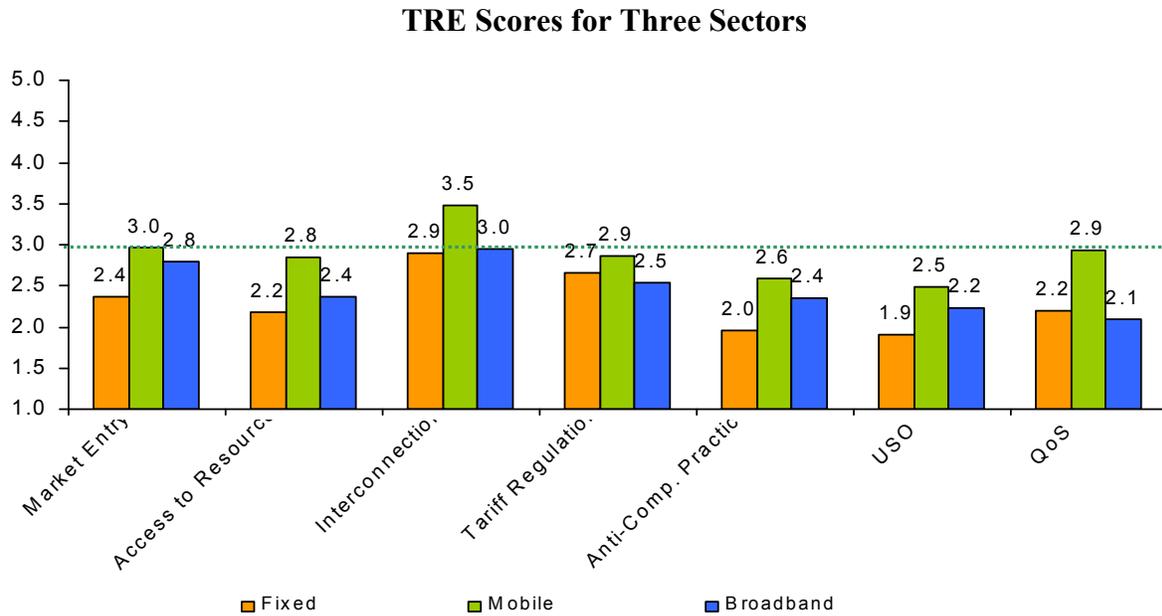


Figure 11

In summary, only one dimension (mobile Interconnection) scored above the mid-point of 3.0. Among fixed, broadband, and mobile, just the latter had four individual scores higher than or nearly equivalent to 3 (Market Entry: 3; Interconnection: 3.5; Tariff Regulation: 2.9; and QoS: 2.9) with the highest went to Interconnections for the already explained reasons. The lowest individual score of 1.9 went to USO for fixed line, reflecting the general perception of this sector as a “Sunset Industry” and due to the absence of any clear USO framework by the regulators. Before looking into each TRE sector individually, the key comments made by the respondents have been summarized in Table 2.

Table 2
Summary of Respondents' Comments

Dimension	Comments
Market Entry	Mobile
	<ul style="list-style-type: none"> • Clear Guideline for market entry should be in place. Appropriate legal and regulatory measures and policy should be in place encourage market entry and secure business of the new entrants. • Lack of transparency in license renewal process • It seems that there will be no more new licenses for mobile phone service will be issued. The only way to enter here seems to be buying the shares of existing company. All licensing power has been taken away from BTRC to the Ministry, which actually takes us back before BTRC was established.
	PSTN
	<ul style="list-style-type: none"> • High regulatory risk, as all but few PSTN licenses cancelled
	Broadband
<ul style="list-style-type: none"> • As far as broadband service is concerned, the price of license had been prohibitively high 	
Scarce Resources	Mobile
	<ul style="list-style-type: none"> • For spectrum allocation, the price seems way too steep, and it raises question as to issuance of 3G license as well.
	Broadband
<ul style="list-style-type: none"> • Mostly the same situation as mobile telephony. 	
Interconnection	General Comments
	<ul style="list-style-type: none"> • Interconnection prices are arbitrary and not based on cost base. • The interconnect exchange has created a distortion. Qualifying that tariff regulation for fixed is rated a 1 - in view of the international long distance tariffs.
Tariff Regulation	Broadband
	<ul style="list-style-type: none"> • As far as broadband service is concerned, the tariff for the access is also high. It appears the purpose of issuing broadband wireless license is now almost defeated.

Tariff Regulation	General Comments
	<ul style="list-style-type: none"> • BTRC Officials are now very slow in taking decisions, as the authority has shifted to the ministry. • Tariff adjustment procedure and equipment imports are very time consuming.
Regulations of Anti Competitive Practices	Broadband
	<ul style="list-style-type: none"> • Infrastructure for fixed & Broadband is expensive • ISPs should have been allowed to provide WiMax services. • No clarity on already built infrastructure sharing & pricing • In terms of anti-competitive practices, the regulator is allowing only NTTN providers for fiber@home service and not the broadband/mobile phone service providers.
	Fixed
<ul style="list-style-type: none"> • Government owned BTCL has a tradition of some known anti competitive practices for fixed/interconnection/gateway services which regulatory authority could not handle properly. • The industry witnessed differential treatment, when it came to action against illegal VoIP services. The PSTN operators were shut down, where as the mobile service providers got away by paying fines. • As in early 2010, 5 fixed line operator’s license was suspended and subsequently cancelled. The whole thing was done in a very strange manner. BTRC, never took into notice the subscribers interest and as a result a large number of subscribers faced huge difficulty. Though the companies sought legal recourse but these are still pending but the outcome, whatever way, just for the delay would render the matter ineffective. In one case a company having 7000 subscribers (the smallest actually) was punished as apparently it could not justify a daily traffic of 42000 minutes. More worryingly, first the servers were shut down, and then they companies were asked to generate CDR and subscriber names but they were not allowed to access their equipment to retrieve the same. Also, PSTN license award system has been changed into bidding category from open licensing. But so far no step’s been taken to award more PSTN licenses. 	

Regulations of Anti Competitive Practices	General Comments
	<ul style="list-style-type: none"> • Bangladesh is highly regulated and does not have competition law • Appropriate law and rules for curbing anti-competitive practices should be introduced to ensure fair competition in the given markets. • BTA amendment is neither operator nor customer friendly.
Universal Service Obligation (USO)	Mobile
	<ul style="list-style-type: none"> • Bangladesh's mobile coverage has made services available to over 99% of the population. There is thus no need per se of a USO program for mobile telephony. The government should not be imposing a tax without developing the rationale for the program. • USO fund not created but service partially provided.
	Broadband
	<ul style="list-style-type: none"> • No USO and tariff regulation for broadband operators • USO doesn't exist in Bangladesh. Therefore, it's irrelevant.
Quality of Service (QoS)	Broadband
	<ul style="list-style-type: none"> • Quality of service, especially in the broadband market should be given priority.
	General Comments
	<ul style="list-style-type: none"> • BTRC has failed yet to have a standard quality of service guideline, so that remains a grey area as ever. • Regulatory Authority is fairly effective except for Quality of Service which is not monitored or regulated. • In QoS, the regulator wants to ensure high QoS by the service providers, but is not providing enough support to facilitate such standards.
Others	Fixed
	<ul style="list-style-type: none"> • PSTN is either a dead or a sunset industry in Bangladesh. Therefore, everything is "highly ineffective" pertaining to this sector.

Others	Broadband
	<ul style="list-style-type: none"> • Broadband sector needs more development and need price reduction. • Our Broadband service is very poor, 3G should introduce immediately.
	General Comments
	<ul style="list-style-type: none"> • Highly complex regulatory environment. Inclusion of MoPT over BTRC is very destructive • Services are not accessible to people with disability.

6.1. Market Entry

The average score of Market Entry is 2.7 (Mobile: 3.0, Fixed: 2.4, and Broadband: 2.8, see figure 12). For fixed lines, there were no new entrants in the last two years and the market got more consolidated instead of being competitive due to the failure of the private PSTN operators to roll out and also due to the cancellation of five PSTN licenses (including the one with the largest user base among the private operators) for illegal VoIP involvement. In broadband, the reason for the score not reaching 3 may be due to Internet Service Providers’ restriction (by GoB) against entering the new wireless broadband (WiMax) market. In addition, many experts think that the two operators who got the license for this newly introduced service through a bidding system paid extensively for the assigned spectrum, which resulted in relatively slow roll out of the WiMax services.

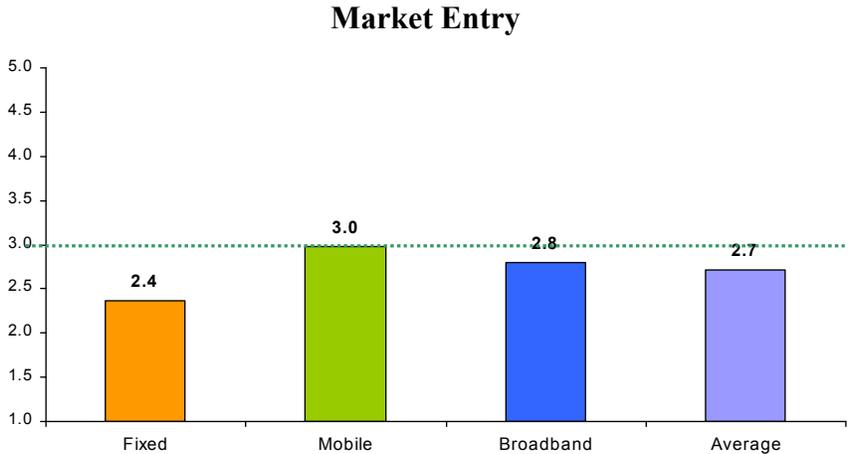


Figure 12

In the highly competitive mobile sector, the score is just 3, mainly due to the uncertainties surrounding 2G license renewal process. Here the spectrum assignment fee and the operating license fees are tied together. According to the guideline proposed by the regulators, the renewing parties have to pay BDT 3,000 million (US\$ 43 million appx.) per megahertz (MHz) for the 900 MHz band, BDT 1,500 million (US\$ 22 million appx.) for the 1,800 MHz band of GSM, and similar amount for the 800 MHz band of CDMA. Moreover, each operator is assigned with a multiplier or Utilization Factor (UF), and its value depends on the market strength (market share) of the entities applying for license renewal. The arbitrary nature of UF calculation means the operators with larger user base have to pay more, thus creating disincentive to grow. UF moreover makes the low value subscribers of mobile services vulnerable, as right before any license renewal process, the operators will try to leave them out of the calculation to make them look small. There are also considerable amount of license renewal fee and annual license fee (Draft Regulatory & Licensing Guideline, 2010). In comparison with the immediate past license renewal and spectrum fees in Bangladesh or with the same set by the neighboring countries, the financial numbers mentioned seemed too high and can result in events like withdrawal of investment or absence of innovation by the operators.²

6.2. Access to Scarce Resources

The average score of this TRE dimension is 2.5 (Mobile: 2.8, Fixed: 2.2, and Broadband: 2.4), as shown in figure 13. Bangladesh Telecom Act of 2001 and its amended version (2010) defined “rights of way” (RoW) and the related provisions (BTA, 2010), but could not yet guarantee the RoW fully. As the transparent and non-discriminatory access to spectrum allocation/ frequency allocation for the mobile sector are closely related with the Markey Entry factors (previously mentioned), the reasons behind having a score below 3 for mobile are also similar. Putting up towers, base stations, and related resource sharing have been found to be relatively easy in Bangladesh. It’s only the recent challenges related to the proposed high prices for spectrum assignment that caused low score in the mobile sector for this dimension.

² On a high level inter-ministerial meeting in August, 2011, a set of changes have been proposed on 2G license renewal. The GoB has decided to charge BDT 150 crore (approximately US\$ 21 million) Mhz per for all the three kinds of spectrum bands used by the local mobile phone operators. But the total amount of spectrum charge will depend on a newly proposed “Market Contribution Factor” or MCF, which has replaced the previously proposed utilization factor or UF. In addition, the renewal fee for each operator will be BDT 10 crore (approximately US\$ 1.4 million) and they have to contribute 1% of their revenue to SOF.

Access to Scarce Resources

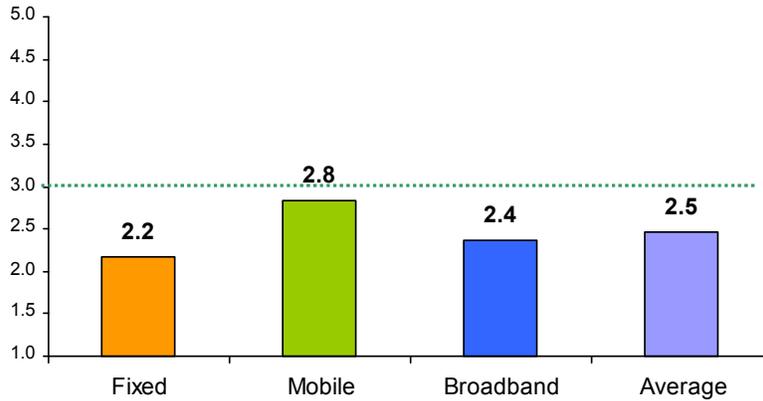


Figure 13

In terms of international connectivity via Bangladesh's only submarine cable, till recently BTCL had monopoly from the cable landing station (managed by BSCCL) to its POPs around the country. In addition, the private operators need to pay high carriage cost for using BTCL's nationwide fiber optic backbone, thus making the overall access cost of the public infrastructure very costly. Moreover, the GoB is encouraging to private operators with fiber optic network to resale their infrastructure only to the NTTN providers. It created disincentives among the operators in developing and maintaining infrastructure. Only recently, the BSCCL has allowed the presence of other gateway service providers (in addition to BTCL) in its cable landing station, using the NTTN infrastructure. It should decrease the access cost significantly in the long run. For fixed services, there was no additional spectrum (for wireless local loop users) or telephone number allocation in recent years. On the contrary, many assigned allocations were cancelled in a rather arbitrarily manner, and this regulatory uncertainty may got reflected on its modest TRE score. For broadband, the score is quite low, even after BTRC drastically reduced the monthly price of rental bandwidth of leased access through submarine cable. The present maximum rental rate is BDT 12,000 (approximately US\$ 172) per Mbps per month for domestic access from any IIG. (BTRC, 2011). The relative high cost incurred by the service providers for rolling out and the transition phase of moving the overhead cables to underground infrastructure of Nationwide Telecommunication Transmission Network (NTTN) providers may result in below average score for broadband³.

³ According to LIRNEasia's Broadband Benchmarks Report (October, 2010), broadband access cost in Bangladesh is one of the highest in the region

6.3. Interconnection

The average score of Interconnection is 3.1 (Mobile: 3.5, Fixed: 2.9, and Broadband: 3.0, see figure 14), the highest across all dimensions (see figure 14). There can be multiple reasons for this relatively high score. For voice services, the ability for any subscriber to call anywhere without any significant connection or cost issue at present is a great improvement from the days when mobile-mobile and mobile-fixed connections among different operators were faulty, time consuming, costly, and sometimes not even possible (for absence of interconnection). But with the growth of mobile services (led by GP) and as the BTTB started loosening on its international traffic to other voice service providers, interconnection between the existing market players was established. BTRC should be positively recognized for this. The telecom act of 2001, which established the BTRC, explicitly introduced the definitions and provisions on interconnection, which helped the regulator to facilitate the related negotiation among different operators (BTA, 2001).

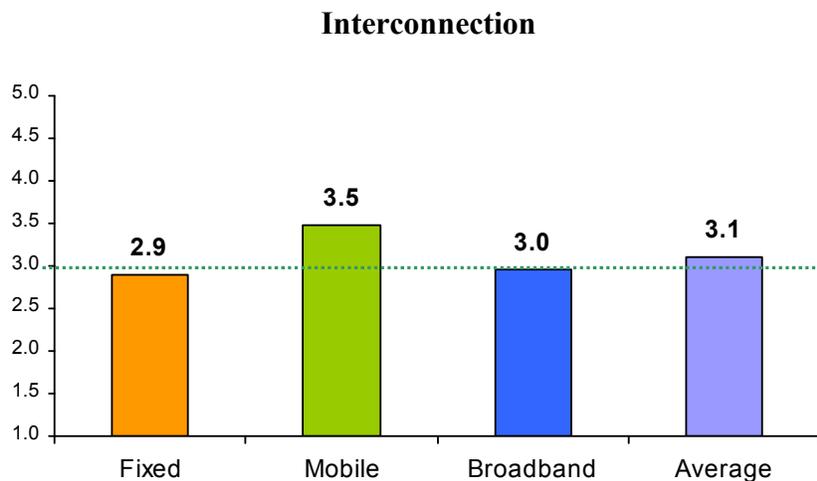


Figure 14

In a highly competitive voice market, the mobile service providers recognized the value of retaining customers, closely tied with accurate and timely connections/services. For the internet service providers, the presence of peer-shared national internet exchange (NIX) meant higher internal traffic in lower cost, which was not the case before. In this case, the fixed ISP negotiate bilaterally for interconnection related charges and revenue sharing.

6.4. Tariff Regulation

The average score of Tariff Regulation is 2.7 (Mobile: 2.9, Fixed: 2.7, and Broadband: 2.5, see figure 15). For fixed and mobile voice services, the Telecom Act requires any operator to submit the list of maximum and minimum charges for a particular service. Until those charges are approved by the government the provider is not allowed provide the service (BTA, 2010, Section 48 and 49). As shown previously, retail prices are very low in Bangladesh. This possibly resulted in respondents from Category 3 giving high scores for this dimension. But high competition and low profit margin in the service industry possibly caused respondents from Category 1 (and perhaps 2) to give lower scores, which eventually translated into below-average scores. Another reason of low score can be due to the new provisions by the latest telecom act, which requires the operators to have MoPT's approval for any kind of tariff offering or changes. According to many stakeholders, it is a time consuming process and can cause unexpected delays in a competitive market where one needs to act quickly to ensure a market edge.

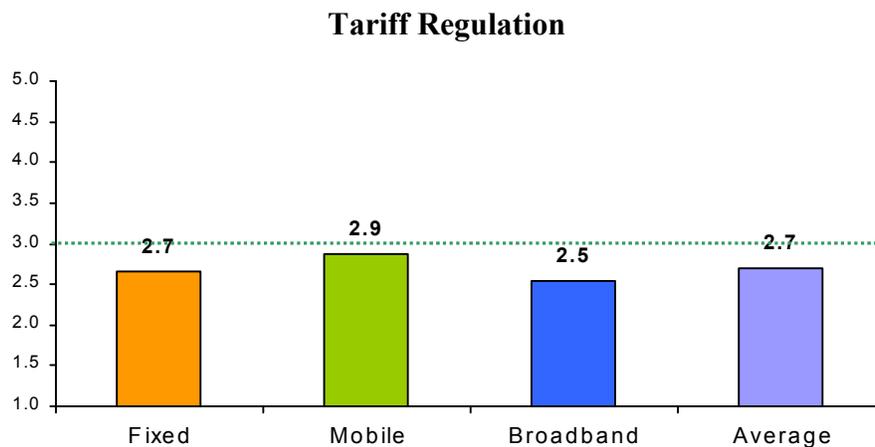


Figure 15

Broadband received the lowest score, may be because of the absence of any active intervention to regulate the tariff. Many community-based “broadband” entrepreneurs offer packages at very low price, but cannot maintain the minimum level of service. People have also complained about not getting the desired broadband speed even after paying the premium. All these may have reflected on the sector specific perception score.

6.5. Regulation of Anti-Competitive Practices

The average score for this dimension is 2.3 (Mobile: 2.6, Fixed: 2.0, and Broadband: 2.4, see figure 16). Results indicate that BTRC was not successful in establishing effective rules to address anti-competitive practices. The Telecom Act (amended) does mention BTRC's objective of ensuring a fair, competitive, and level playing field for all the licensees (Section 29 and 30). This issue is moreover recognized in the "Significant Market Power" (SMP) section of the 2G license guideline (Draft Regulatory & Licensing Guideline, 2010) which states the goal of prohibiting anti-competitive behavior by market players with SMPs. But till now, there are no concrete guidelines to follow up such objectives. The regulator also did not mention or clarify how any service provider can be classified as a monopoly in any given market under its jurisdiction, and in which ways consumers and other market players can be protected if such practices occur.

Primarily, the mobile service stakeholders are visibly dissatisfied with the amount of money GoB is proposing them to pay for the 2G license renewal and spectrum allocation, when the other operators (who are not scheduled to renew their licenses anytime soon) got access to similar resources at much cheaper rates.

BTRC has issued an infrastructure sharing guideline (BTRC, 2008) in 2008. But operators who required access to the nationwide fiber networks of the incumbents still face non-tariff barriers, such as long waiting queues. In addition, price barriers exist in that the infrastructure sharing prices are unregulated.

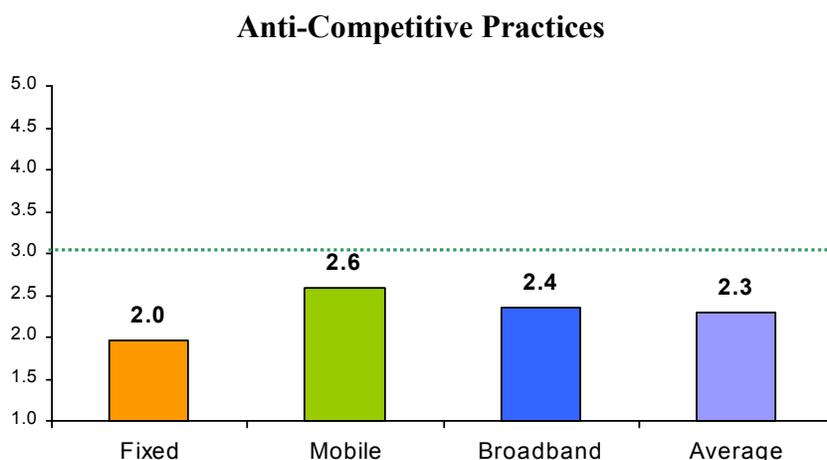


Figure 16

Another anti-competitive practice is looming in the nascent VAS market. Our research shows there is yet to have level playing field in revenue sharing and with issues related intellectual property rights between the individual VAS providers and mainly the mobile operators who are both: client and developers of VAS. According to many VAS providers, independent negotiations on the above mentioned issues can be facilitated with some guidelines from the regulators or through national consultations on best practices.

The somewhat unexpected license cancellation of five PSTN operators on the ground of illegal VoIP activities raised the question of discriminatory behavior from the regulatory body itself, as the leading mobile service providers got hefty fines for the same offence but their licenses were not revoked.

In addition, broadband service providers are not allowed to directly deal with the competitive international carriers, as that responsibility is now with the IIGs under the ILDTS policy.

According to the industry experts, this provision is to some extent stalling efficient negotiation with the international entities, which could be converted into cheaper broadband services.

6.6. Universal Service Obligation

Among all regulatory dimensions surveyed, USO received the lowest score of 2.2 (Mobile: 2.5, Fixed: 1.9, and Broadband: 2.2, see figure 17). In the Telecom Act of 2001 defined universal service in the following way:

“Universal service means providing telecommunication service to any citizen of Bangladesh or to other persons irrespective of their place of stay or occupation in Bangladesh.” (BTA, 2001)

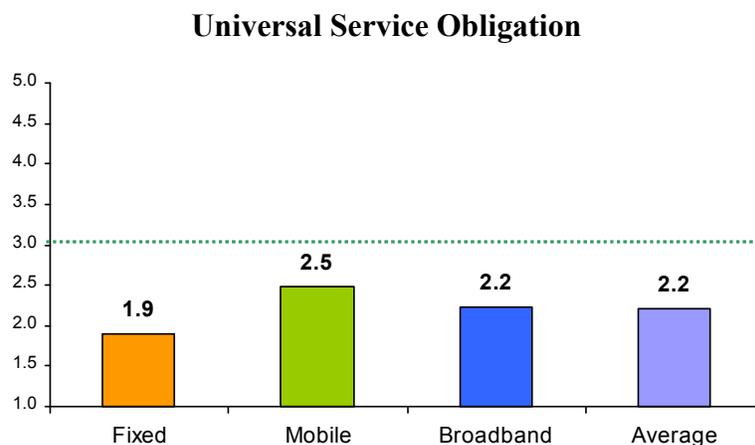


Figure 17

The idea of something equivalent to a universal service fund was introduced in the Telecom Act of 2010 (amended), under the name of “Social Obligation Fund” or SOF. The act also specified ways to collect the fund for SOF (BTA 2010). It was further clarified in the proposed 2G license renewal guideline, where it has been mentioned that the mobile operators are required to pay 1.5% of their annual audited gross revenue to SOF (Draft Regulatory & Licensing Guideline, 2010). But BTRC is yet to clarify how it’s planning to disburse and use this fund. The GoB or the regulator has also not decided on how to define “urban” and “rural” areas for voice and internet services. These definitions will certainly help to understand the real picture of mobile, fixed, and internet usage and access path penetration around the country.

As the availability of the voice service (mostly through mobile network) has been achieved in most parts of Bangladesh, BTRC now needs to define what can be the “universal service” for telecom in the present context and how SOF can be utilized to ensure affordable, equitable, and appropriate voice and data service. The absence of guidelines and the question towards the relevance of the SOF resulted in the lowest scores from every sector analyzed.

6.7. Quality of Service

The average score for QoS is 2.4 (Mobile: 2.9, Fixed: 2.2, and Broadband: 2.1, see figure 18). It shows the absence of clear directives to ensure quality voice and data services for the mass (as reflected by the respondents’ comments in Table 2). Even though BTRC is actively working on developing a guideline for the telecommunication sector, it is yet to be finalized and publicly shared. In the proposed 2G licensing guideline, QoS has been mentioned as one of the key criteria a mobile operator has to fulfill:

“19. QUALITY OF SERVICE OBLIGATION

19.01 The Commission intends to ensure that licensees shall provide an acceptable quality of service as per Directives/Regulation of the Commission. Each Licensee shall have the obligation to ensure the quality of service as stated in the Regulations/ Directives/Instructions/ Orders/Guidelines for QoS to be issued within the shortest possible time.” (Draft Regulatory & Licensing Guideline, 2010, pg. 12)

At present, thanks to high competition, the mobile providers are acting proactively to ensure a good level of services, as mentioned by our category 3 respondents (and were reflected through

their survey responses). . For fixed line sector, the QoS situation became worse after the 5 private PSTN licenses were revoked, without any buffer time for customer transition. There were no directives issued on providing alternative telecommunication service for the defunct PSTNs' subscribers.

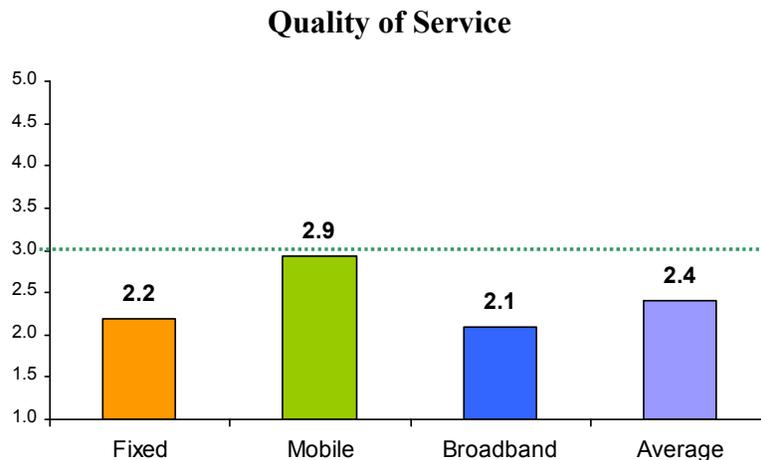


Figure 18

But the QoS scenario is most alarming in the broadband sector (rightly reflected by the lowest score). According to different user groups contacted for this research, the quality of broadband has found to be quite poor across the country in general. This combined with the high (unregulated) prices, mean that consumers (Category 3 respondents) are possibly giving very low scored. The small broadband providers usually buy/lease/sub-lease a small amount of bandwidth and tend to serve beyond capacity (i.e. sign up too many customers). Due to such practices, there is a considerable dissatisfaction about the broadband service as a whole. In addition, because of the nationwide power shortage, even the key broadband service providers are unable to maintain uninterrupted and high speed internet connection for their users. It has been observed that ISPs can comfortably expand their user base during summer time without increasing their bandwidth capacity. As power crisis is at its peak during that time of the year, few people can access the broadband internet from office, home or any other places (even though the net speed will be higher, fewer people are using the network). But the situation changes in the winter time. With high demand and low bandwidth, the QoS again falls drastically. Moreover, the low quality overhead cable, vulnerable to the adverse weather and frequent disconnections, pose major hindrances towards ensuring good QoS for broadband. BTRC however stepped up its initiatives to cut the overhead cables from major metropolitans and is requiring all the internet service

providers to use underground NTTN infrastructure. It will take some time to have considerable impact from this transition.

7. Conclusion and Recommendations:

The results of TRE survey in Bangladesh portray a poor perception among stakeholders of the country's telecom regulatory and policy environment. The commission has to be credited for its role in the liberalization process of Bangladesh telecom industry and in creating an enabling environment for rapid growth and investment. Despite the signs of good regulations, pro-competition and pro-people policies as well as actions, BTRC/MoPT has been perceived to fall short in dealing with issues related to market entry, scarce resource allocation, tariff regulations, anti-competitive practices, universal service, and QoS. The latest policy initiative, under which the MoPT became the final decision making body on licensing, tariff, and key policy related issues also adversely affected BTRC's ability to act as an independent regulatory body. The market confidence on the commission's leadership became considerably low due to this regulatory roll back. But things need to move towards a better future that ensures a competitive, socially responsible, vibrant, and dynamic telecom sector in Bangladesh. Certainly, BTRC, MoPT and other concerned ministries have crucial roles to play, alongside the other telecom sector stakeholders. With that vision in mind, we recommend that the GoB (be it BTRC or MoPT) take the following key measures:

- **Rethinking 2G License Renewal Process:** A transparent, rational, and market oriented license renewal process needs to be ensured. The 2G license renewal and spectrum fees should be determined through active consultation, and can be either market determined (based on auction) or a hybrid of auction and reserved price set by BTRC. The proposed high pricing could create the risk of investment withdrawal, limit service innovation, and cause uncertainty over the growth as well as stability of this thriving market. Having the renewal price based on subscriber numbers may force operators to “game” the system just prior to future renewals. Given that the 2G renewals are now a done deal, GoB (Government of Bangladesh), through BTRC should at least clearly state the criteria for 3G licensing and spectrum allocation in Bangladesh as soon as possible.
- **Ensuring prompt Tariff Regulations:** The commission and the ministry both are needed to act relatively fast due to the dynamic and competitive nature of the voice telephony market.

The commission did set example of protecting consumers' interests through defining the ceiling prices of voice calls and SMS. BTRC moreover avoided any practice of predatory pricing by setting up floor prices for telecom providers. For the broadband sector, price ceilings/floors should be set, based on long-run-incremental-cost of an efficient operator or on any regional best practice, instead of relying only on the incumbents.

- **Acting against the Anti-Competitive Practices:** Clear directives on monopoly and related practices are required, along with the active implementation of the infrastructure sharing guidelines to prevent non-tariff barriers for the market entrants in voice, internet, and value added service (VAS) sectors. The GoB should also act on removing the SIM tax to accelerate the mobile penetration rate in the country. The broadband operators should be allowed to negotiate with the international carriers, which can help to reduce bandwidth pricing and efficient internet traffic management.
- **Clear Guidelines for USO and SOF:** The concepts of universal service obligation and Social Obligation Fund should be clearly defined in the context of Bangladesh, and there should be clear guidelines on how the GoB and BTRC will to disburse money from the social obligation fund (SOF). The authorities should promote local content development that will in turn generate local internet traffic and will also boost the fledgling local VAS market.
- **Effective QoS Obligations:** BTRC needs to share its guidelines of QoS for voice and data services with concerned stakeholders. Market competition has, to some extent ensured a level of QoS in mobile telephony, but BTRC's oversight is crucial to protect the rights of consumers and to guarantee a certain level promised services by the providers.
- **Implementation of the Pro-People Provisions:** The proposed 2G license guideline contains some forward looking, pro-people, and pro-environment provisions (e.g. spectrum trading, number portability, QoS obligations, common platform for VAS providers, technology neutrality, emergency toll free numbers, green telecom practices, etc.). These need to be implemented across the overall telecom sector and should not just be confined to mobile phone industry.

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Annex A

Summary of Regulatory & Policy Events in Bangladesh (January, 2009 – January, 2011)

2009	
January	The first license of Nationwide Telecommunication Transmission Network (NTTN) handed over to Fiber@Home Limited.
	BTRC reduce International internet bandwidth price by 33%
June	License(s) on Vehicle Tracking Service issued.
July	The Bangladesh Government adopted the national ICT Policy-2009. The Policy includes action items for realizing the goals of national development with one vision, ten objectives, 56 strategic themes and 306 action items. The vision and objectives are aligned with the general national goals while the strategic themes are areas within the broad objectives that can readily benefit from the use of ICTs.
August	Bangladesh Telecommunication Regulatory Commission (BTRC) started awarding IP Telephony licenses to the Internet Service Providers (ISPs). 40 Licenses have been issues so far.
	National Frequency allocation Plan (NFAP) reviewed and amended to ensure efficient spectrum allocation.
October	Grameen Phone (GP) launched its Initial Public Offering (IPO) in Bangladesh.
December	Summit Communications Ltd. received the second NTTN license.
2010	
January	BTRC approved Airtel's proposed USD 300 million investment to buy Abu Dhabi group's 70 per cent stake in the Warid Telecom.
	BTRC issued draft licensing guidelines for two new submarine cable licenses. The proposed licenses would permit construction and operation of undersea cables into the country, cable landing stations and necessary links within the country.
February	BTRC issued a comprehensive document on the procedures of allocating short service code to operators for commercial and non-commercial telephony services.
	BTRC cancelled share transfer fee for telecom operators.
	BTRC issued interim directives on 'IP Telephony Service Tariff and Marketing Promotion Duration'.

March	Tariff on SMS was decreased by BTRC. For each local and international SMS now, any subscriber is not required to pay more than BDT 0.5 and 2.5 respectively.
	A new guideline on SIM/RIUM registration was introduced to ensure customer security and to curb mobile telephony based crimes.
	BTRC proposed a guideline to bring all call-centre training institutes under a framework to ensure quality of the burgeoning industry. Under this, all call centre training institutes needed to be accredited by the Training Institute Accrediting Committee (TIAC), which would work as a certifying authority for the institutes.
May	National Broadband Policy 2010 introduced.
	National policy on International Long Distance Telecommunication Services (ILDTS Policy 2010) was proposed as an amendment to ILDTS Policy 2007. Through this policy amendment, way of awarding more licenses of the following categories was made open, which was limited in the original policy : <ul style="list-style-type: none"> • International Gateway (IGW) Interconnection Exchange (ICX) International Internet Gateway (IIG) National Internet Exchange (NIX) Submarine Cable <p>Besides, licensing category of the following types were also included in the amended policy:</p> <ul style="list-style-type: none"> • International Terrestrial Cable – to set-up international terrestrial cable link through neighboring countries to get access to multiple submarine cable landing station, which would be a good alternative of submarine cable to set up redundant international connectivity as soon as possible. • VoIP Service Provider- to permit local entrepreneur to terminate international incoming calls; however the modality is not clear in the policy.
	BTRC cancelled the licenses of five landline operators (RanksTel, Dhaka Phone, National Telecom, Peoples Tel, and WorldTel), whose services it switched off in March for their involvement in illegal international call termination through VoIP technology.
June	The Bangladesh Telecommunication (amendment) Bill 2010 placed before parliament for review by the parliamentary standing committee on posts and telecommunication ministry. It has provisions for legal actions against individuals using telecommunication for malicious purposes. It also had a proposal that the MoPT instead of BTRC would be the final decision making body on licensing, tariff and policy related issues.
	A guideline regarding use of Global Positioning System (GPS) devices issued by BTRC

July	The Parliamentary Standing Committee on Post & Telecommunications recommended setting up the telecom appeal board (headed by a high court judge) to allow telecom operators and ICT organizations to appeal against actions of the GoB and BTRC.
August	Tariff on outgoing international calls decreased for 80% of destinations by BTRC.
September	The Securities and Exchange Commission (SEC) ordered Warid Telecom to comply with legislation obliging any company with paid-up capital of more than BDT400 million (US\$6 million) to convert into a public limited company (PLC).
November	The GoB approved the “Rural Telecommunication Network Development and utilization Guidelines 2010” to ensure the development and availability of high speed broadband network at the village level.
	BTRC invited EOI for consultancy to give expertise support regarding launching the own satellite for Bangladesh
December	From January, 2009 till December 2010, BTRC has issued 447 licenses. Out of these, 2 were given to NTTN service providers, 8 to Vehicle Tracking Services, 40 to IP Telephony Service Providers (Nationwide and Zonal), 147 to different Call Centers, and 250 licensed to Internet Service Providers.
	BTRC invited EOI for consultancy regarding 3G license awarding
	BTRC prepared and sent the Licensing Guidelines of the following categories to MoPT for final approval: New IGW License, ICX License, IIG License, NIX License, Submarine Cable License, International Terrestrial Cable License, and VSP License
	From this year, all mobile operators, BTCL and BWA operators effectively started sharing the passive network capacity and infrastructure as per the directive of BTRC.
2011	
January	BTRC published the draft policy on renewal of the licenses of mobile operators incorporating a clause of 5.5 percent revenue sharing. It also included clauses aiming to collect around 28000 crore BDT from the 4 operators (in total) during the next 15 years, half of which should be paid initially.
	BTRC has reduced by one-third the monthly price for rental bandwidth of leased internet access through submarine cable and specified a monthly maximum of TK and specified a maximum of TK 12,000 per Mbps per month.