

## Executive Summary

The average TRE score for all three telecom sectors across the seven regulatory dimensions in Bangladesh 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).

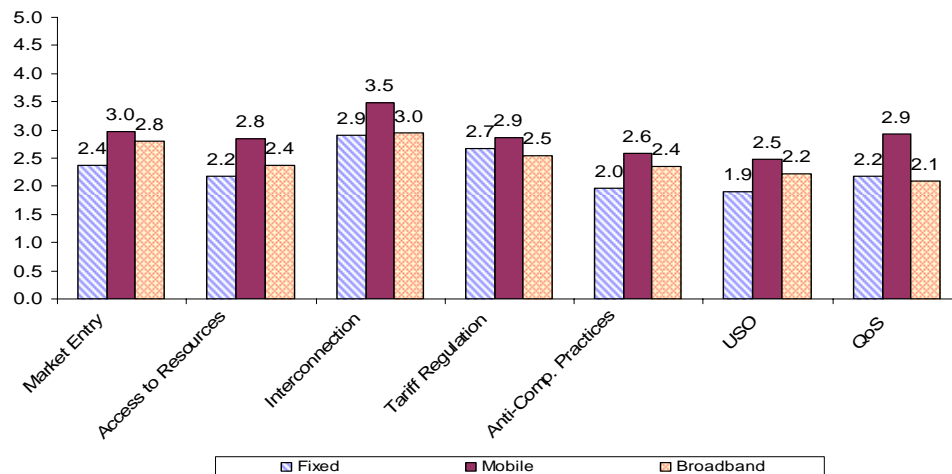


Figure 1

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 from BTRC) 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. This reflects BTRC's successful effort to ensure better interconnection among the present service providers (for both voice and data). 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).

In summary, only one dimension (Interconnection) scored above the mid-point of 3.0. Among fixed, broadband, and mobile, just the later 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.

But things need to move towards a better future that ensures a competitive, socially responsible, vibrant, and dynamic telecom sector in Bangladesh. Certainly, BTRC and the concerned ministries have crucial roles to play there, alongside the other market stakeholders. With that vision in mind, we recommend that the GoB and the BTRC take the following key measures:

- **Rethinking 2G License Renewal Process:** A market and investment friendly license renewal process needs to be ensured. The commission has proposed the first renewal period to be 15 years, followed by the subsequent renewal terms of 5 year each. With long term investment is at stake in the telecom sector, longer renewal terms can positively enforce investment behavior.

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 presently proposed price for license renewal and spectrum access is not consistent with the precedence set by the local or regional markets. This high pricing moreover creates the risk of investment withdrawal, absence of service innovation, and can cause uncertainty over the growth as well as stability of this thriving market. In addition, GoB, through BTRC should clearly state the criteria for 3G licensing and spectrum allocation in Bangladesh as soon as possible.

- **Ensuring prompt Tariff Regulations:** In terms of tariff regulations and implementation, 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 floor and ceiling prices of voice calls and SMS. Similar directives need to be in place for the broadband sector.

- **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 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.
- **Contextualization of USO and SOF:** The concepts of USO and SOF should be clearly defined in the context of Bangladesh, and there should be clear guidelines on how the GoB and BTRC want to disburse money from 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.  
Streamlining is required between the Digital Bangladesh visions of equitable connectivity and access to information for the base of the pyramid population with the objectives of SOF, primarily in education and healthcare.
- **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.
- **Streamlining 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 streamlined, consulted, and implemented across the overall telecom sector and should not just be confined to mobile phone industry.

- **Effective Coordination between MoPT and BTRC:** For all the above mentioned proposals and recommendations, an efficient coordination between the concerned ministries and BTRC is of utmost importance. This cooperation needs to make the best use of the critical mass of BTRC personnel with technical knowledge, and also should have long term plans to train and develop dynamic and effective human resources for overseeing the industry regulations.

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## Introduction:

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 (Samarajiva & Zainudeen, 2008), 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 (Raihan, 2010; BTRC, 2010). Right now, Bangladesh's functional literacy rate is approximately 48% (Hussain, 2010), and it is the 48<sup>th</sup> 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. In 2010, approximately 10% of the government revenue came from telecommunications (see figure 2).

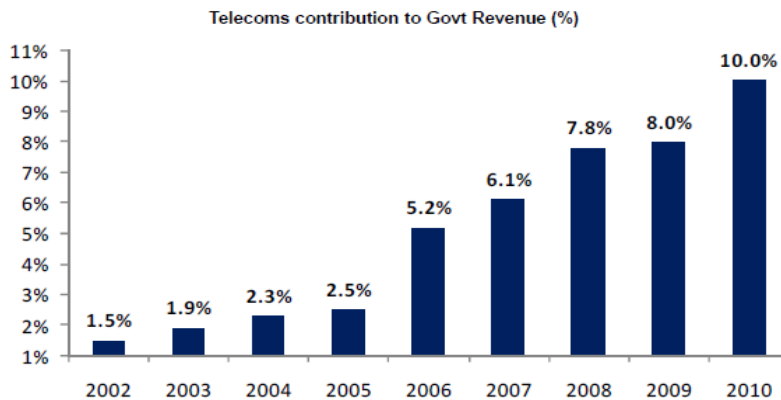


Figure 2 (source: At Capital)

It is also a major contributor of FDI in Bangladesh. Figure X shows the amount of FDI from telecom (in %) from year 2001 till 2010.

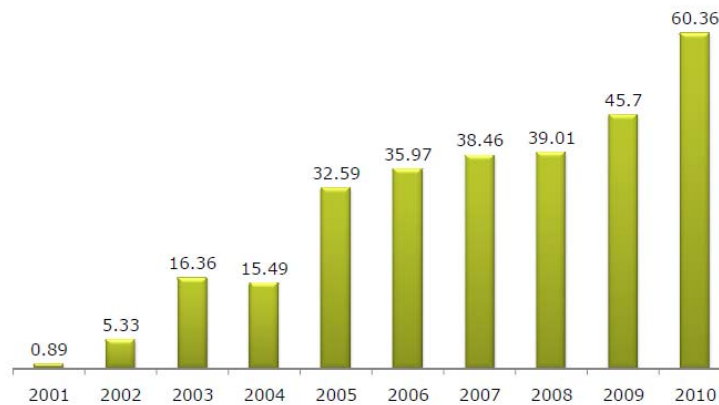


Figure 3 (source: D.Net)

### **Telecommunication Market Structure, Services, and Regulatory Environment in Bangladesh:**

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].

In terms of information infrastructure, there is already a network of 15,000 km optical fiber, which covers 59 of the 64 districts in Bangladesh. Bangladesh Telecommunications Company Ltd. (the incumbent PSTN operator), Power Grid Company of Bangladesh (PGCB), Bangladesh Railway, and the mobile operators are the primary developers of this fiber backbone. The Government of Bangladesh (GoB) is also actively considering connecting with an international terrestrial cable through private sector, in addition to its SEA-ME-WE-4 undersea cable [BTRC, 2010]. Figure X shows the present layout of fiber optic network in Bangladesh.

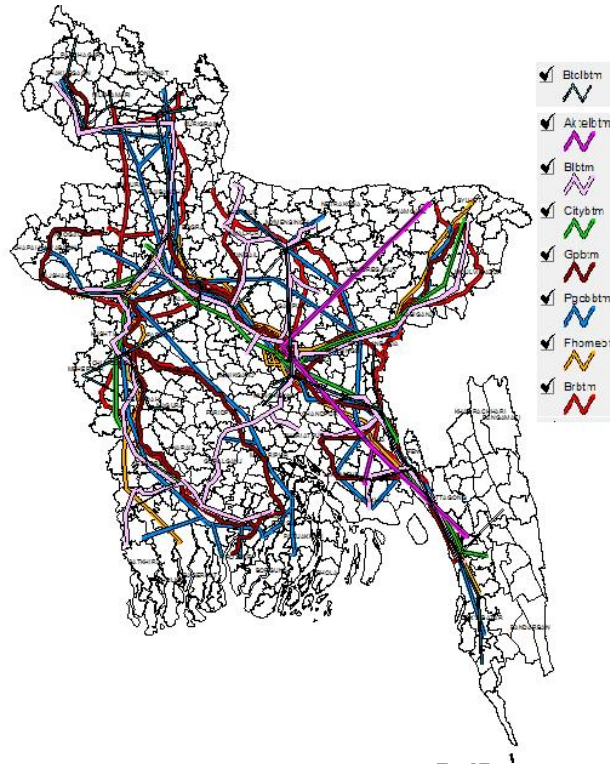


Figure 4 [BTRC, DBSP, 2010]

As mentioned before, mobile phone providers lead the voice-service market. This service has achieved 98% demographic and 90% geographic coverage in Bangladesh. There are six operators in this highly concentrated market with HHI of 3088. All the providers except one are using GSM technology (2G) for voice and data communication. Grameen Phone/Telenor is the dominant player in the market, followed by Banglalink/Orascom, Robi/Axiata, Airtel, Citycell (CDMA carrier), and Teletalk (the government incumbent). Figure X shows the market share distribution in mobile industry in terms of the percentage of total active SIMs.

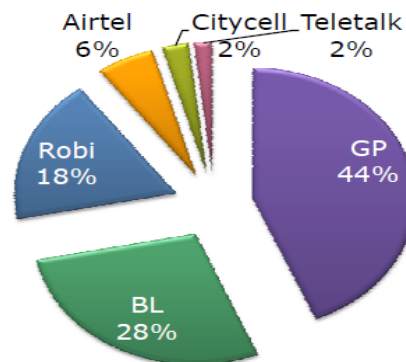


Figure 5 [BTRC, 2010]

BTCL is overwhelmingly the leading entity in fixed line telephony (872,000 of the 1.03 million subscribers). After the license cancellation of five PSTN operators in May, 2010, there are seven more private PSTN companies functional in the market with insignificant share of subscribers (BTRC, 2010). In addition, the GoB till now awarded 40 IP Telephony licenses with the objective of popularizing cost effective voice service using the Internet. But most of the IP Telephony providers are yet to roll out their services and the few who did are concentrating on the corporate sector.

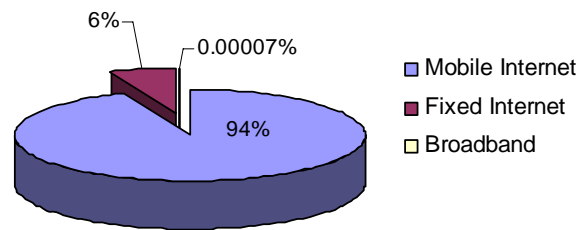


Figure 6 [BTRC, D.Net, 2010]

Bangladesh has one of the lowest internet penetration rates in the South Asian region (6%). 94% of the active internet connection is through mobile phone providers. The 101 national and 138 zonal Internet Service Providers (ISP) alongside two WiMax service providers cover for the rest. Figure X shows the growth of mobile and fixed phone users in Bangladesh over the last ten years.

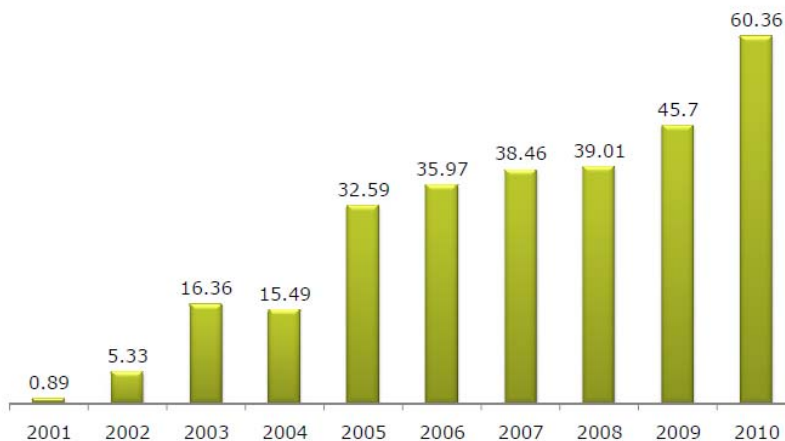


Figure 7 (BTRC, ITU, own calculation)

In order to ensure efficient interconnection, streamline all the voice and data traffic, and to prevent illegal VoIP traffic, the GoB also introduced a new telecom network topology [ILDTS Policy, 2007, 2010]. Under this plan, the Interconnection Exchanges (ICX) are responsible for managing all the local voice traffic, whereas the International Gateways (IGW) deal with the outgoing and incoming international calls. Country's data traffic is managed through International Internet Gateways or IIGs (Figure X) [SMP, 2010]. Under the guidelines of ILDTS Policy' 2010, the GoB is planning to issue new IIG, ICX, and IGW licenses to encourage competition in voice and data service sectors.

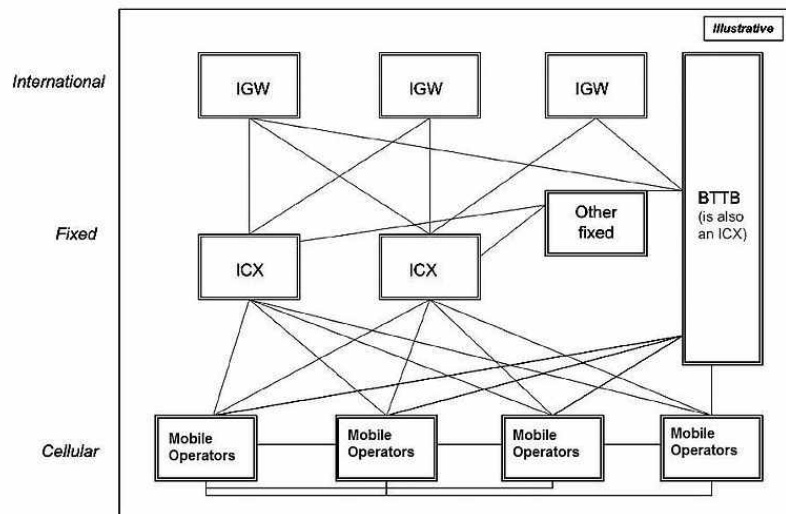


Figure 8 [SMP, 2010]

### **Citizen Services using Telecommunication:**

A range of services catered towards the general population have increased rapidly in recent years, both in public as well as private domains. In education sector, the GoB is using telecommunication to strengthen its knowledge network for teachers' training, educational administration, and distance education. Many of the schools and offices under the Ministry of Education are connected via EDGE/GPRS modems. Public examination and admission test results are increasingly disseminated among people 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 all 4,498 unions in the country. The plan is to provide broadband connectivity to all the UISCs. In addition, the government is exploring the possibilities of turning the countrywide 18,000

community health clinics into last mile information access points for the local communities, [DBSP, 2010].

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.

### **Policies and Laws on Telecommunications:**

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.

**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.

**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.

**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, 2002)

**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 finally 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.”*

The ILDTS policy was formulated to facilitate, liberalize and legitimize international voice and data communication services including VoIP. The main focus of the policy was to provide affordable communication means to Bangladeshis residing both at home and

abroad, encourage local entrepreneurs, and ensure due earning of government revenues [MoPT, 2007]. But the GoB recognized that this 2007 policy did not succeed significantly to prevent illegal voice termination and 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 licenses of the following categories (which was limited in the 2007's policy):

- 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.

**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 favourable atmosphere for the local and foreign investors who intend to invest in the telecommunication sector in Bangladesh.”*

Under this 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 [MOPT, 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, there are provisions for heavy fines and legal actions against the operators and individuals involved in malicious practices [BTA, 2010]. This de-liberalization policy of GoB is having 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).

In short, through policy and regulatory liberalization processes like many of the other countries at present, Bangladesh has enabled and experienced the rapid growth of its telecommunication industry. The services from this sector are moreover being utilized as strategic tools for long term development. In Table X, some major events in the telecom regulatory and policy sectors over the last 22 years have been summarized.

Table 1 [Rakib-ITU, 2010]

Year	Key Events
1989	<ul style="list-style-type: none"> <li>• The only CDMA License was awarded</li> </ul>
1996	<ul style="list-style-type: none"> <li>• 3 GSM Licenses were awarded</li> </ul>
1998	<ul style="list-style-type: none"> <li>• National Telecom Policy</li> </ul>
2001	<ul style="list-style-type: none"> <li>• Bangladesh Telecom Act 2001</li> </ul>
2002	<ul style="list-style-type: none"> <li>• BTRC was established</li> <li>• National ICT Policy</li> </ul>
2004	<ul style="list-style-type: none"> <li>• SEA-ME-WE 4 contract was signed</li> <li>• 4<sup>th</sup> GSM License was awarded</li> <li>• 8 PSTN Licenses was awarded</li> </ul>
2005	<ul style="list-style-type: none"> <li>• 5<sup>th</sup> GSM License was awarded</li> <li>• 7 PSTN Licenses was awarded</li> </ul>
2006	<ul style="list-style-type: none"> <li>• National Broadband Policy</li> </ul>
2007	<ul style="list-style-type: none"> <li>• ILDTS Policy</li> <li>• Interim tariff regulation</li> <li>• Reframing of spectrum</li> <li>• Numbering plan</li> <li>• Amendment of license regulation</li> <li>• 4 PSTN Licenses</li> </ul>
2008	<ul style="list-style-type: none"> <li>• 2 WiMaxLicenses</li> <li>• 3 ICX, 4 IGW, 2 IIG licenses</li> <li>• &gt;300 Call Centre/HCC/HCCSP Licenses</li> <li>• Infrastructure Sharing Guideline</li> </ul>
2009	<ul style="list-style-type: none"> <li>• IP Phone Licensing</li> <li>• ICT Policy</li> <li>• VTS License</li> <li>• Review ILTDS Policy</li> <li>• Sub Marine Cable Framework</li> <li>• Review NFAP</li> <li>• m-payments Guideline</li> <li>• 2 NTTN Licensee</li> </ul>
2010	<ul style="list-style-type: none"> <li>• ILDTS Policy 2010</li> <li>• Bangladesh Telecommunication Act (amended), 2010</li> </ul>

## Effectiveness of Telecom Policy and Regulatory Environment:

To better understand the policy and regulatory environment (TRE) of the Bangladeshi telecommunication industry, a perception survey of the related stakeholders was administered on February-March of 2011. Respondents were requested to evaluate the TRE performance of the regulators in fixed line, mobile telephony, and broadband markets along seven different dimensions: market entry, access to scarce resources, interconnection, tariff regulation, anti-competitive practices, universal service obligation, and quality of service 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 survey questionnaire was mainly distributed via email. Thirty nine people in all the three categories responded. The breakdown of the respondents is given in Table X:

Table 2

Response Category	No. of Respondents
1	17
2	7
3	15

The total number of respondents in Category 2 was the lowest and was weighted accordingly in the data analysis. Majority of the respondents participated in the study

online (25). The rest conveyed their opinion through email or face-to-face interview (7 respondents each).

### TRE Results:

The overall evaluation is done on a Lickert Scale of 1 to 5, where 1 and 5 represent “highly ineffective” and “highly effective” TRE performance respectively. 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 X).

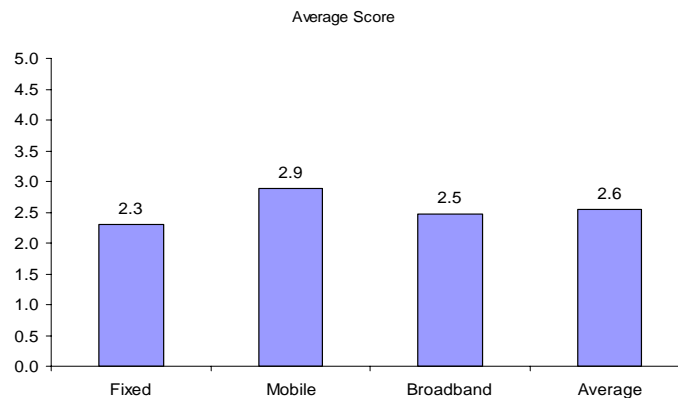


Figure 9

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. This reflects BTRC’s successful effort to ensure better interconnection among the present service providers (for both voice and data). 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).

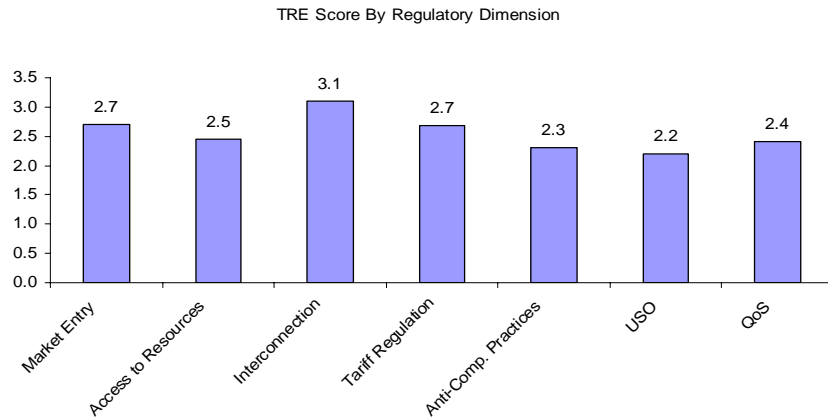


Figure 10

Universal Service Obligation received the lowest average score (2.2). As mentioned earlier, Bangladesh has achieved 98% demographic and 90% geographic coverage of telecommunication (predominantly through mobile). Consequently, 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 [2G License 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 X).

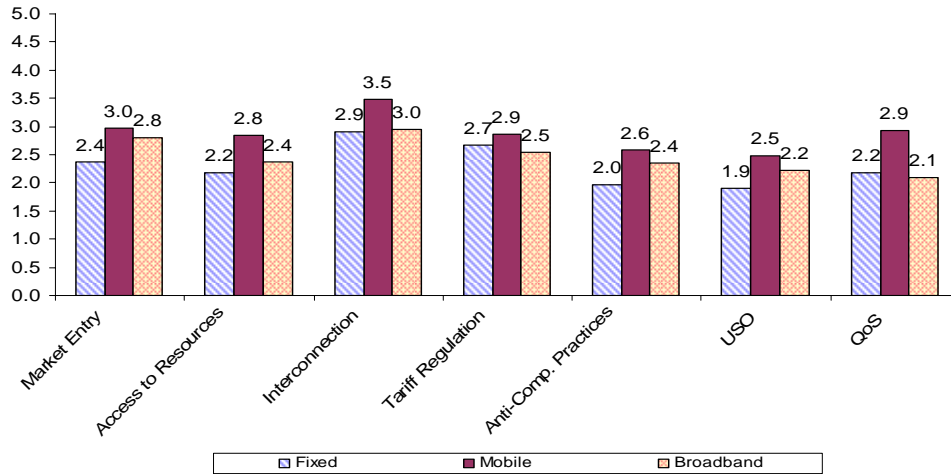


Figure 11

In summary, only one dimension (Interconnection) scored above the mid-point of 3.0. Among fixed, broadband, and mobile, just the later 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 X.

Table 3

<b>Dimension</b>	<b>Comments</b>
<b>Market Entry</b>	<b>Mobile</b>
	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Lack of transparency in license renewal process</li> <li>• 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.</li> </ul>
	<b>PSTN</b>
	<ul style="list-style-type: none"> <li>• High regulatory risk, as all but few PSTN licenses cancelled</li> </ul>
	<b>Broadband</b>
<ul style="list-style-type: none"> <li>• As far as broadband service is concerned, the price of license had been prohibitively high</li> </ul>	
<b>Scarce Resources</b>	<b>Mobile</b>
	<ul style="list-style-type: none"> <li>• For spectrum allocation, the price seems way too steep, and it raises question as to issuance of 3G license as well.</li> </ul>
	<b>Broadband</b>
<ul style="list-style-type: none"> <li>• Mostly the same situation as mobile telephony.</li> </ul>	
<b>Interconnection</b>	<b>General Comments</b>
	<ul style="list-style-type: none"> <li>• Interconnection prices are arbitrary and not based on cost base.</li> <li>• 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.</li> </ul>
<b>Tariff Regulation</b>	<b>Broadband</b>
	<ul style="list-style-type: none"> <li>• 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.</li> </ul>

	<b>General Comments</b>
<b>Regulations of Anti Competitive Practices</b>	<ul style="list-style-type: none"> <li>• BTRC Officials are now very slow in taking decisions, as the authority has shifted to the ministry.</li> <li>• Tariff adjustment procedure and equipment imports are very time consuming.</li> </ul>
	<b>Broadband</b>
	<ul style="list-style-type: none"> <li>• Infrastructure for fixed &amp; Broadband is expensive</li> <li>• ISPs should have been allowed to provide WiMax services.</li> <li>• No clarity on already built infrastructure sharing &amp; pricing</li> <li>• 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.</li> </ul>
	<b>Fixed</b>
	<ul style="list-style-type: none"> <li>• Government owned BTCL has a tradition of some known anti competitive practices for fixed/interconnection/gateway services which regulatory authority could not handle properly.</li> <li>• 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.</li> <li>• 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.</li> </ul>
<b>General Comments</b>	
<ul style="list-style-type: none"> <li>• Bangladesh is highly regulated and does not have competition law</li> <li>• Appropriate law and rules for curbing anti-competitive practices should be introduced to ensure fair competition in the given markets.</li> <li>• BTA amendment is neither operator nor customer friendly.</li> </ul>	

<b>Universal Service Obligation (USO)</b>	<b>Mobile</b>
	<ul style="list-style-type: none"> <li>• 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.</li> <li>• USO fund not created but service partially provided.</li> </ul>
	<b>Broadband</b>
	<ul style="list-style-type: none"> <li>• No USO and tariff regulation for broadband operators</li> <li>• USO doesn't exist in Bangladesh. Therefore, it's irrelevant.</li> </ul>
<b>Quality of Service (QoS)</b>	<b>Broadband</b>
	<ul style="list-style-type: none"> <li>• Quality of service, especially in the broadband market should be given priority.</li> </ul>
	<p style="text-align: center;"><b>General Comments</b></p> <ul style="list-style-type: none"> <li>• BTRC has failed yet to have a standard quality of service guideline, so that remains a grey area as ever.</li> <li>• Regulatory Authority is fairly effective except for Quality of Service which is not monitored or regulated.</li> <li>• In QoS, the regulator wants to ensure high QoS by the service providers, but is not providing enough support to facilitate such standards.</li> </ul>
<b>Others</b>	<b>Fixed</b>
	<ul style="list-style-type: none"> <li>• PSTN is either a dead or a sunset industry in Bangladesh. Therefore, everything is "highly ineffective" pertaining to this sector.</li> </ul>
	<b>Broadband</b>
	<ul style="list-style-type: none"> <li>• Broadband sector needs more development and need price reduction.</li> <li>• Our Broadband service is very poor, 3G should introduce immediately.</li> </ul>
	<b>General Comments</b>
<ul style="list-style-type: none"> <li>• Highly complex regulatory environment. Inclusion of MoPT over BTRC is very destructive</li> <li>• Services are not accessible to people with disability.</li> </ul>	

## Market Entry:

The average score of Market Entry is 2.7 (Mobile: 3.0, Fixed: 2.4, and Broadband: 2.8). 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 against entering the wireless broadband (WiMax) market. According to many experts, the two operators who got the license through a transparent bidding system paid extensively for the assigned spectrum, which resulted in relatively slow roll out of the WiMax services.

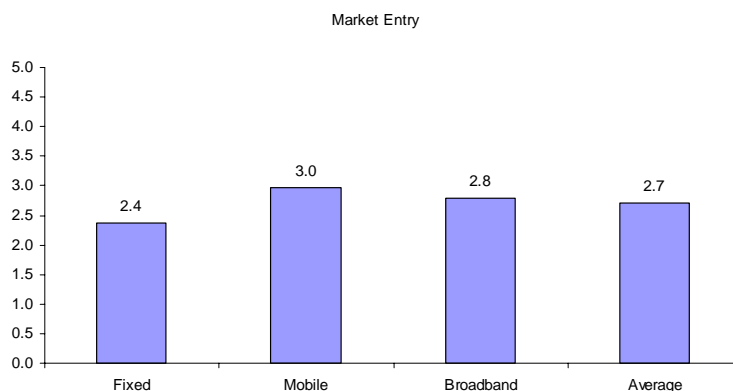


Figure 12

In the highly competitive mobile sector, the score is just 3, mainly due to the uncertainties surrounding 2G license renewal process. According to the guideline proposed by the regulators, the renewing parties have to pay BDT 3000 million (US\$ 43 million appx.) per megahertz (MHz) for the 900 MHz band, BDT 1500 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 of the entities applying for license renewal. There are also considerable amount of license renewal fee and annual license fee [BTRC, 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. Table X summarizes the total renewable spectrum, the corresponding UF, and the proposed fee for each operator.

Table 4  
[BTRC, D.Net, Financial Express]

Operators	CDMA Band (Assigned in 800 MHz)	GSM/EGSMB Band (Assigned in 900 MHz)	GSM Band (Assigned in 1800 MHz)	Total Assignment (MHz)	Total Spectrum for Renewal on 2011 (MHz)	Utilization Factors
GP		<b>7.4</b> <i>(Renewal Due: 2011)</i>	<b>14.6</b> <i>(Renewal Due: 7.2MHz, 2011)</i>	<b>22</b>	<b>14.6</b>	<b>1.6</b>
Orascom (Banglalink)		<b>5</b> <i>(Renewal Due: 2011)</i>	<b>10</b> <i>(Renewal Due: 7.5MHz, 2011)</i>	<b>15</b>	<b>12.5</b>	<b>1.1</b>
AXIATA (Robi)		<b>7.4</b> <i>(Renewal Due: 2011)</i>	<b>7.4</b> <i>(Renewal Due: 5.4MHz, 2011)</i>	<b>14.8</b>	<b>12.8</b>	<b>0.95</b>
PBTL (Citycell)	<b>8.82</b> for Dhaka <b>6.30</b> for outside Dhaka <i>(Renewal Due: 2011)</i>			<b>15.12</b>	<b>8.82</b> for Dhaka <b>6.30</b> for outside Dhaka	<b>0.45</b>

#### Access to Scarce Resources:

The average score of this TRE dimension is 2.5 (Mobile: 2.8, Fixed: 2.2, and Broadband: 2.4). Bangladesh Telecom Act of 2001 and its amended version (2010) defined “rights of way” and the related provisions as well [BTA, 2010]. But the transparent and non-discriminatory access to spectrum allocation/ frequency allocation for the mobile sector are closely related with the Markey Entry factors, the reasons behind having a score below 3 for mobile are also similar.

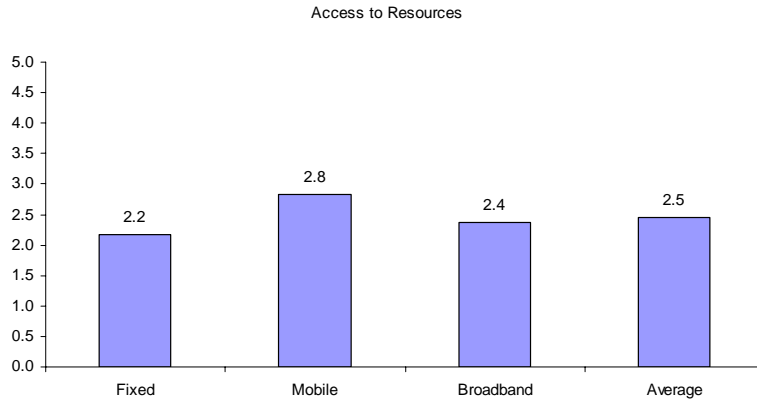


Figure 13

For broadband, the score is quite low, even after BTRC drastically reduced the monthly price of rental bandwidth of leased internet access through submarine cable. The present maximum rental rate is BDT 12,000 (approximately US\$ 172) per Mbps per month. The high carriage cost for rolling out and the transition phase of moving the overhead cables to underground infrastructure of NTFN providers may result in below average score for broadband. For fixed services, there was no spectrum or telephone number allocation in recent years. On the contrary, many assigned allocations were cancelled in a rather arbitrarily, and that may got reflected on its modest TRE score.

**Interconnection:**

The average score of Interconnection is 3.1 (Mobile: 3.5, Fixed: 2.9, and Broadband: 3.0). 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, and costly. BTRC should be recognized for this. The telecom act (2001 and the amended version) has explicit definitions and provisions on interconnection, which helped the regulator in guiding the industry into right direction [BTA 2010].

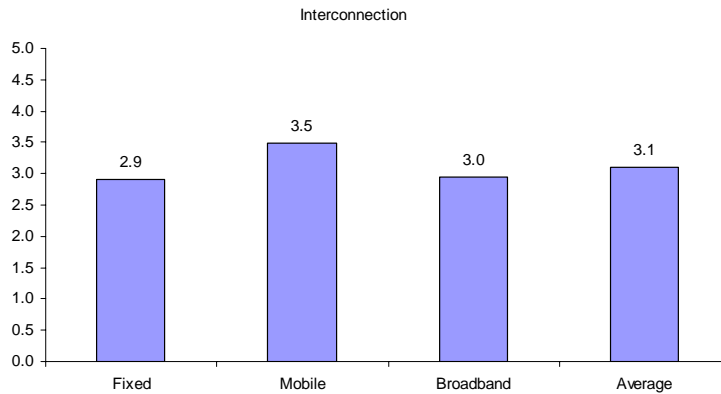


Figure 14

In a highly competitive voice market, the mobile service providers recognized the value of retaining customers, closely tied with accurate and timely connections/services. Moreover, the latest ILDTS Policy (of 2010) may have provided a clear and structured guideline to both data and voice service providers on how the different ANS should be connected and interact. IIGs are responsible for international data traffic, whereas the NIX is used for local ones. For voice service, IGWs are now assigned for international calls, and it functions closely with ICXs, and ANSs.

### **Tariff Regulation:**

The average score of Tariff Regulation is 2.7 (Mobile: 2.9, Fixed: 2.7, and Broadband: 2.5). For fixed and mobile voice services, there are clear tariff regulations [BTA 2010, 48/49] and according to many, BTRC has pro-people approach towards it. This also reflects on the global comparison, as Bangladesh market offers one of the lowest access tariffs in voice service in the world [Rohan, 2009]. Hence the scores for these two sectors should have been higher. The low scores are there may 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.

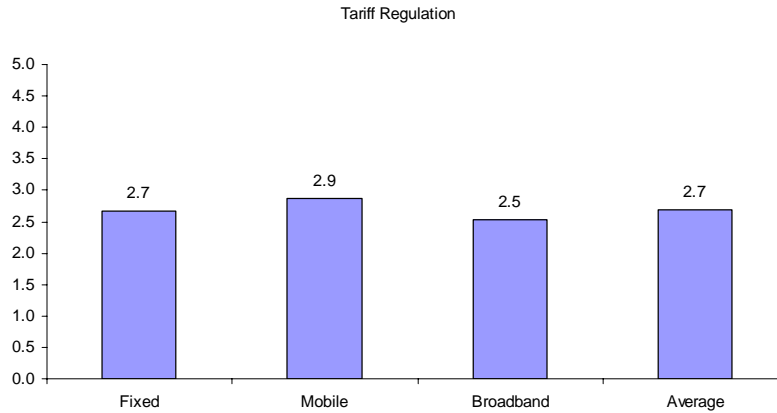


Figure 15

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.

#### **Regulation of Anti-Competitive Practices:**

The average score for this dimension is 2.3 (Mobile: 2.6, Fixed: 2.0, and Broadband: 2.4). Results indicate that BTRC was not successful enough to establish effective rules to address anti-competitive practices. The Telecom Act (amended) does mention BTRC’s objective on ensuring a fair competitive, 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. There the commission stated its goal of prohibiting the market player with SMPs from practicing anti-competitive behavior. 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 (ISG, 2008) in 2008. But service providers access to the nationwide fiber network of certain incumbents are still facing non-tariff barriers, such as long waiting queue and unregulated sharing price for infrastructure sharing.

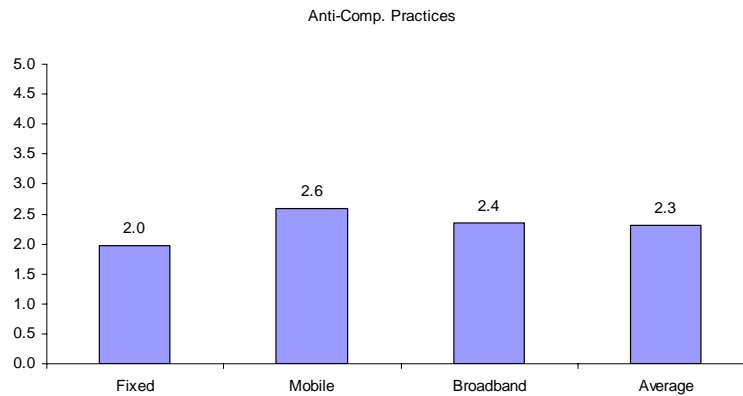


Figure 16

Another anti-competitive practice is looming in the nascent VAS market. There is no specific guideline on how the mobile operators and independent VAS providers should cooperate and function. With the voice service providers being both: client and developers of VAS, the individual VAS providers want to have a market structure that can ensure level playing field for all the stakeholders. The positive sign is that the commission has mentioned it as one of the points in 2G license renewal guideline:

**“24. SHARED PLATFORM FOR VAS PROVIDER(S)**

The Licensee shall collaborate on installing a shared infrastructure between all operators to facilitate One Stop Shop (OSS) services for all VAS provider(s) enhancing easy interconnectivity.” [2G Guideline, 2010, pg. 14]

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 hindering the possibilities of direct and to some extent stalling efficient negotiation with the international entities, which could be converted into cheaper broadband services.

### 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). 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]

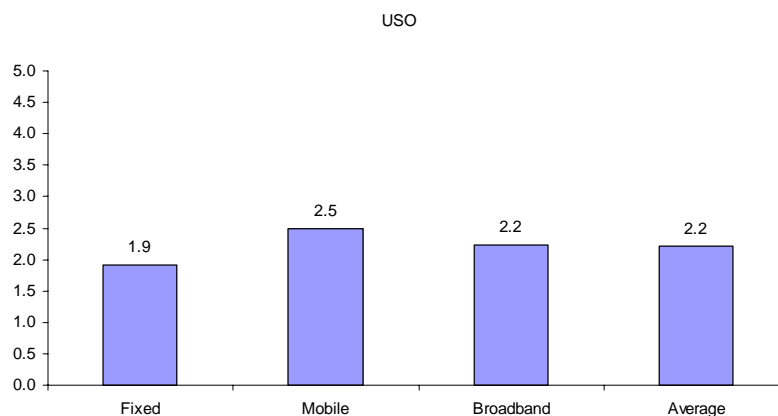


Figure 17

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 [BA 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 [LRG 2010]. But BTRC is yet to clarify how it’s planning to disburse and use this fund.

The near to universal voice service coverage in the country means BTRC needs to define what can be the “universal service” for telecom in the present context of Bangladesh and how SOF can be utilized to ensure affordable, equitable, and appropriate voice and data

service. The absence of guidelines and the question towards its relevance resulted in the lowest scores from every sector analyzed.

### Quality of Service:

The average score for QoS is 2.4 (Mobile: 2.9, Fixed: 2.2, and Broadband: 2.1). 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 X). Even though BTRC is actively working on developing a guideline for 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.” [2G LRG 2010, pg. 12]

At present, the mobile providers are proactive to make sure a good level of services, mostly because of the extreme competition. 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.

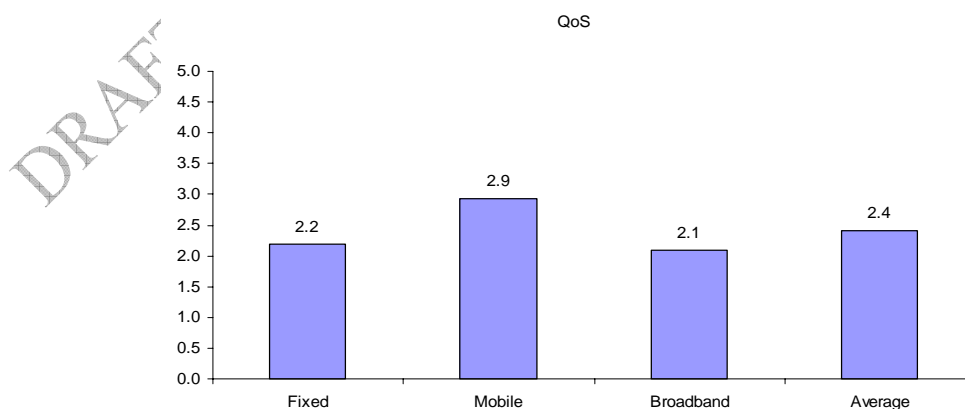


Figure 18

But the QoS scenario is most alarming in the broadband arena (rightly reflected by the lowest score). Related to uncontrolled tariff, the quality of broadband is quite poor across the country in general. The small service providers usually get small amount of leased or sub-leased bandwidth and tend to serve beyond capacity. 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, hardly many people can access the broadband internet from office, home or any other places (even though the net speed will be higher, as 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.

## **Conclusion and Recommendations:**

The results of TRE survey in Bangladesh portray a mixed image for the country's telecom regulator BTRC. 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 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 and the concerned ministries have crucial roles to play there, alongside the other market stakeholders. With that vision in mind, we recommend that the GoB and the BTRC take the following key measures:

- **Rethinking 2G License Renewal Process:** A market and investment friendly license renewal process needs to be ensured. The commission has proposed the first renewal period to be 15 years, followed by the subsequent renewal terms of 5 year each. With long term investment is at stake in the telecom sector, longer renewal terms can positively enforce investment behavior.

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 presently proposed price for license renewal and spectrum access is not consistent with the precedence set by the local or regional markets. This high pricing moreover creates the risk of investment withdrawal, absence of service innovation, and can cause uncertainty over the growth as well as stability of this thriving market. In addition, GoB, through BTRC should clearly state the criteria for 3G licensing and spectrum allocation in Bangladesh as soon as possible.

- **Ensuring prompt Tariff Regulations:** In terms of tariff regulations and implementation, 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 floor and ceiling prices of voice calls and SMS. Similar directives need to be in place for the broadband sector.
- **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 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.

- **Contextualization of USO and SOF:** The concepts of USO and SOF should be clearly defined in the context of Bangladesh, and there should be clear guidelines on how the GoB and BTRC want to disburse money from 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.  
Streamlining is required between the Digital Bangladesh visions of equitable connectivity and access to information for the base of the pyramid population with the objectives of SOF, primarily in education and healthcare.
- **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.
- **Streamlining 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 streamlined, consulted, and implemented across the overall telecom sector and should not just be confined to mobile phone industry.
- **Effective Coordination between MoPT and BTRC:** For all the above mentioned proposals and recommendations, an efficient coordination between the concerned ministries and BTRC is of utmost importance. This cooperation needs to make the best use of the critical mass of BTRC personnel with technical knowledge, and also should have long term plans to train and develop dynamic and effective human resources for overseeing the industry regulations.