Final Report: Sri Lanka Case Study for Six Country, Multi-Component Project

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Telecommunications Sector and Regulatory Performance in Sri Lanka: A Tale of Missed Opportunities?

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[1] The views expressed in this study are those of the author and do not necessarily reflect those of the Institute of Policy Studies of Sri Lanka.

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1. Introduction

Telecommunications sector reforms in Sri Lanka began in 1980 with the de-linking of government owned posts and telecommunications services. From then on, the sector experienced fundamental changes with the restructuring and partial privatization of the state-owned incumbent operator; permitting market entry in the mobile telephony market; competition in the fixed wireless local loop (WLL) segment of the fixed market; and the establishment of a five-member regulatory commission with its own fund and with relatively more workable independence than a typical government department in Sri Lanka. These policy initiatives, at least up to the late 1990s, reflected a commitment on the part of policy makers to pro-competitive reforms, with Sri Lanka's telecommunications sector being seen as one of the more open among developing countries in the Asia Pacific region, with a huge potential for growth. (Jayasuriya and Knight-John, 2004).

The initial expectations with regard to growth in the telecommunications sector have been justified to some extent by the statistics released by the Central Bank of Sri Lanka (CBSL). Citing the CBSL Annual Report 2005, p.31-32:

> *"The transport, storage and communication sector reported a 12.7 per cent growth during 2005 as against the 13.7 percent growth in 2004. This growth was mainly driven by the growth in telecommunications which continued to expand….*
>
> *….The telecommunications sub-sector grew further by 27 percent during the year with network expansions and new value added services introduced with technological advancements. This growth was mainly driven by the upward trend in mobile phone usage and popularization of Fixed Access Wireless phones with the latest Code Division Multiple Access (CDMA) technology and competitive prices among service providers…."*

The (potential) dynamism of the telecommunications sector is reiterated in the Central Bank's projections for 2006 (Central Bank, November 2006, p.13 and 21):

> *"The Transport, storage and telecommunication sector expanded by 13.0 percent during the first half of 2006 and was largely driven by the performance of the telecommunication sub-sector. This sub-sector, which has continued to grow at a high pace, expanded further by 21.5 percent in the first half of 2006 with expansion of coverage and the introduction of new technology and value added*

services, despite the competitive prices[2] among service providers. Reflecting high growth in subscriber levels of Fixed Access- Wireless Local Loop phones with CDMA technology, fixed line service providers' revenue recorded a significant growth during the first half of the year. Mobile phone usage expanded throughout the period at a high rate and the Fixed Access-Wire Line Local Loop category also recorded a moderate growth. The post and telecommunication sector is projected to grow by 18.9 percent in the second half of 2006….."

"The present growth momentum in the telecommunications sector is expected to continue in the second half of the year. The three service providers[3] are expected to add over 200,000 new connections during the second half of 2006. The telecommunications sector in terms of subscriber network is expected to grow by 35 percent assisted by 39 percent increase in fixed access lines and 34 percent increase in cellular phones in 2006…"

Clearly the sector's actual impact on growth – through indirect spillover effects such as the Business Process Outsourcing (BPO) Industry and the informal economy for example – will be higher than what is captured in the measured statistics.

The positive note sounded by the Central Bank is also observed in the data on Foreign Direct Investment (FDI) for January – August 2006, released by Sri Lanka's Board of Investment (BOI). According to BOI sources:

"Over 60 percent of the investments have so far come from telecommunications, software developments and business processing outsourcing of BPO firms"

(Lanka Business Online, 18th October 2006, "Getting There: Sri Lanka raises US$ 340 mn in foreign investments: BOI", at: http://www.lankabusinessonline.com/fullstory.php?newsID=427432335&no_view=1&S)

The investment potential in the telecommunications sector is further reflected in the heavy demand for stocks of the two biggest players in the sector – Sri Lanka Telecom Ltd (SLT) and Dialog Telekom Ltd (Dialog) – in the Colombo Stock Exchange (CSE) over

[2] The choice of words here – "despite the competitive prices" – raises deeper ideological concerns on how policy makers view competition; the recent spate of mobile price reductions was brought on because of competitive pressures; apparently it was a "win-win" solution – users benefit from lower call charges and most rational operators adopt strategies that make business sense.

[3] The Central Bank's reference here is to the three fixed access service providers.

the past months. (Lanka Business Online, 2nd November 2006, "Telco Day: Telecom stocks rule Sri Lankan shares; rupee shade firmer", at http://www.lbo.lk/fullstory.php?newsID=1358374471&no_view=1&SEARCH_TERM=13)

Unfortunately, the story on Sri Lanka's telecommunications sector is not entirely positive. The findings from a recent study on Sri Lanka's BPO industry (LIRNE*asia*, 2006) indicate that telecommunications facilities are seen as the second most frequently cited (next to mass transport service) infrastructure constraint. Data from the respective countries' national telecommunications regulators as of September 2006, also indicates that Sri Lanka has now been overtaken by Pakistan in terms of mobile tele-density and internet usage; Pakistan, with a GNI per capita (PPP) of USD 2350 in 2005 had a mobile tele-density of 25.22 and internet users numbering 7.5 million while Sri Lanka, which had a per capita GNI (PPP) of USD 4520 in 2005 had a mobile tele-density of 21.5 and 0.3 million internet users as of September 2006 (Rohan Samarajiva, 15th November 2006, "Why Not? Choices: Half full or half empty?" at http://www.lankabusinessonline.com/fullstory.php?newsID=1077562948&no_view=1&SEARCH_TERM=24).

The objective of this study is to explore and understand the factors – policy reforms, regulatory process, industry business strategies – that underpin sector and regulatory performance. Is Sri Lanka's telecommunications sector at a cross-roads in terms of development; is this going to be yet another tale of missed opportunities; what reform and regulatory events have helped or hindered sector performance; has the sector grown in spite of regulatory inconsistencies; are the strategies used by operators to grow the sector sustainable in the medium to long term in the absence of a credible, consistent and transparent regulatory environment?

The next section of this study will outline the methodology used and the limitations faced in gathering data for this research. Section 3 of the report sets out key supply-side sector performance indicators and unpacks the story behind these numbers. Section 4

triangulates the conclusions on the efficacy of telecommunications regulation in Sri Lanka, using the findings from the TRE survey constructed to capture perceptions on telecommunications regulation for the period June 2005 to June 2006. The concluding section discusses implementation gaps as well as policy, regulatory and infrastructure bottlenecks that need to be addressed on a priority basis, if the dynamism in the telecommunications sector is to be sustained in the future.

2. Methodology and limitations

The analysis in this study is based largely on a review of the literature on telecommunications policy, reforms and regulation in Sri Lanka and on semi-structured interviews with key players in the telecommunications policy space. The starting date (t=0) or "Year Zero" for the purpose of this analysis is 1996, given the occurrence of significant reform and regulatory events such as the licensing of WLL operators and progressive amendments to the telecommunications regulatory legislation in that year (and the partial privatization of the incumbent in 1997; in "Year One").The raw data for the supply side indicators illustrated and described in Section 3 are taken from sources such as the Telecommunications Regulatory Commission of Sri Lanka (TRC), Central Bank of Sri Lanka, Telecommunications Operators' Annual Reports, the International Telecommunication Union (ITU) and investment analysts' reports (as listed in the References section of this study). The definitions of the indicators used in this study, the sources for the definitions and some qualifications with respect to these definitions are listed in Annex 1.

The TRE survey was conducted on the lines of the standard perceptions survey methodology developed for LIRNE*asia*'s "Six Country" project (see http://www.lirneasia.net/projects/current-projects/measuring-ict-sector-regulatory-performance/ for more information on the project).

The survey questionnaire, contained in Annex 2 of this report, was sent to selected respondents (not a random sample), primarily via email, with approximately 5% of the questionnaire being mailed and faxed. The total sample size for the Sri Lankan TRE

survey was 135 and the response rate was 75%. The survey was stratified into ten slabs – "stakeholders" that were thought to be key players in the telecommunications policy space – telecommunications operators, investment analysts, private bar, corporate sector, media, academia, users, donors, former regulatory staff and the Information and Communication Technology Agency of Sri Lanka (ICTA).

The major limitation encountered in this research was the gaps in published time-series data. Although the time series and house-hold data published by the Central Bank of Sri Lanka were extremely useful for the purpose of our analysis and calculations, the sparse data available at the TRC (either published or on the TRC website) limited more useful derivations. For instance, an important shortcoming is the inability to calculate market shares of the fixed and mobile segments using revenue and minutes of usage (MOU) data; market share calculations are based only on subscriber numbers derived from local industry sources, given the inability to get disaggregated subscriber, revenue and MOU data from either the TRC or the operators.

Attempts to get operator data were only successful with respect to the two public-quoted companies, SLT and Dialog. Although the author makes an assumption that statistics from these two entities – the biggest players in the fixed and mobile telephony markets[4], respectively – can be stretched to derive a basic picture of the industry as a whole, the absence of micro-level data from the other operators (2 in the fixed sector and 3 in the mobile sector) precludes a full flavor of the nuances and variations in the industry.

3. Supply-side indicators in context: key reform and regulatory episodes in the sector

A snapshot of Sri Lanka's telecommunications sector as of December 2005, is seen in Table 1, which sets out the cumulative number of licenses granted by the TRC under Section 17 of the Sri Lanka Telecommunications Act No.25 of 1991 (as amended).

[4] The current marketing strategy of the mobile operator Mobitel (Pvt) Ltd as "SLT-Mobitel" and the fact that SLT is the sole owner of Mobitel does however blur the lines of this fixed: mobile classification.

Table 1: Telecommunications Service Providers (as at December 2005)

Service category	No. of licenses
Fixed access	3
Cellular mobile	4
Data communications (facility based)	6
Data communications (non-facility based) & Internet service providers (ISPs)	23
Radio paging	4
Trunk mobile radio	2
Leased circuit providers	1
Licensed payphone service providers	3
External gateway operators (EGOs)	32

Source: TRC

Note: Table 1 shows the number of licenses, under each service category, **issued** by the TRC; these figures may not necessarily reflect the number of **operational licensees** (for example, discussions with stakeholders in the telecommunications policy space indicate that the actual number of EGO licensees in operation is less than six owing to interconnection problems.) (see Samarajiva, 2004 and Dharmawardena, 2004 for a detailed analysis of this issue).

The rest of this study focuses almost entirely on the seven public switched telecommunications network (PSTN) service providers– three fixed access and four mobile operators – given the important role played by these actors in shaping the contours of the industry over time. Table 2 provides a basic profile of the seven PSTN operators and Figure 1 shows the market shares and Herfindahl-Hirschman index (HHI)[5] measuring market concentration (calculated on the basis of subscriber numbers) for the fixed and mobile segments in 2006.

[5] Calculated as the sum of the squared market shares of each firm in the market.

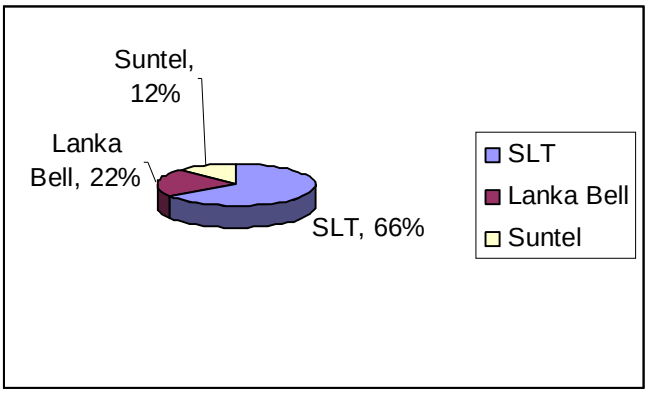
Table 2: Major Telecommunications Service Providers in Sri Lanka

Operator	Main service category	Investors
Sri Lanka Telecom	Fixed access	NTT (Japan); Government of Sri Lanka; Public shareholders
Suntel	Fixed (wireless) access	Telia AB (Sweden); Metropolitan Groups of Companies (Sri Lanka); Townsend Ltd. (Hong Kong);National Development Bank (Sri Lanka); IFC (World Bank)
Lanka Bell	Fixed (wireless) access	Milford Holdings (Pvt) Ltd. (Sri Lanka)
Dialog	Mobile	Telekom Malaysia (Malaysia)
Celltel	Mobile	Millicom (USA)
Mobitel	Mobile	Sri Lanka Telecom
Hutch	Mobile	Hutchison Telecommunications International Ltd (listed in the New York and Hong Kong stock markets)

Source: Company Annual Reports and websites

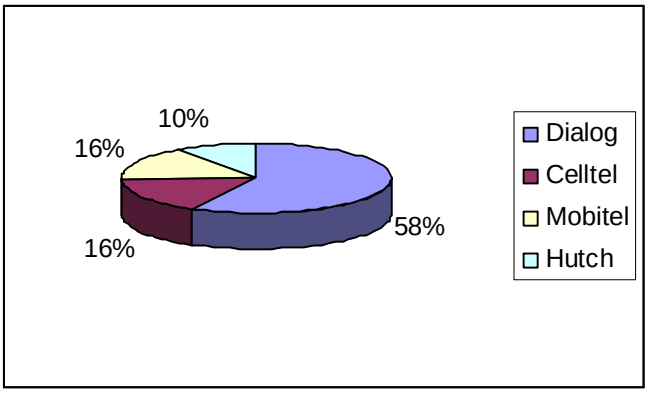
Figure 1: Fixed and mobile market shares and HHI (calculated on the basis of subscriber numbers): 2006

Fixed Market HHI= 4,984



Source : Discussions with local industry operators

Mobile Market HHI = 3,976



Source : Discussions with local industry operators

Note : Celltel is now branded as 'Tigo'

Significant telecommunications reforms and regulatory events that serve as a backdrop to understanding the political economy dynamics of the sector as well as the explanation behind the supply-side indicators that are set out in this section of the report, are listed in Table 3 below.

Table 3: Key Reform/Regulatory Events: 1980-2006

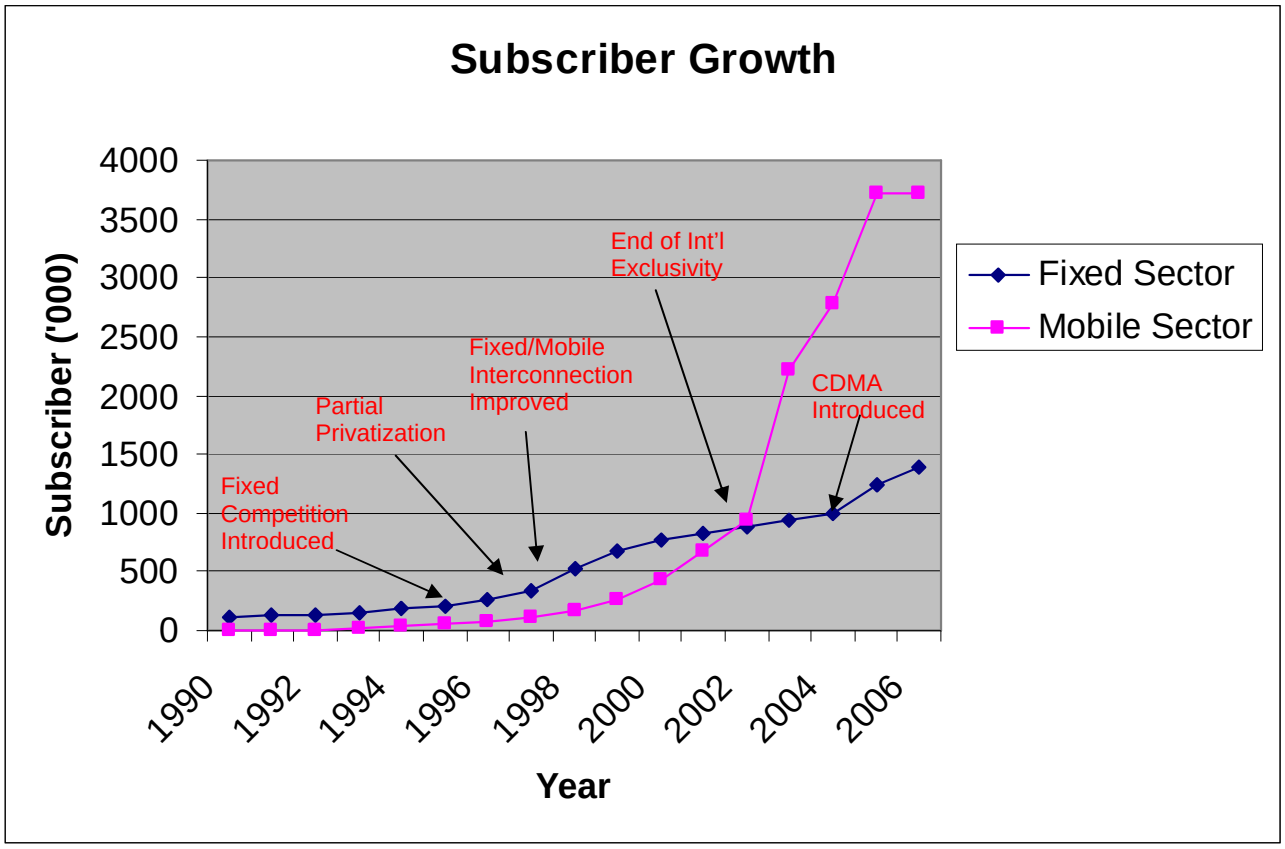
Year	**Event/s**
1980	De-linking of posts and telecom service provision
1989	1st private operator enters market (Celltel)
1991	Legislation to set up "one-man" regulator; corporatization of incumbent
1994	National Telecom Policy (covering USOs, cost-based tariffs, QOS etc.)
1996	Licensing of WLL operators (Suntel & Lanka Bell); amendment to 1991 legislation (5 member Commission- however conflict of interest with Secretary to Ministry as *ex-officio* Chair of TRC)
1997	Incumbent (SLT) partially privatized (NTT: 35%, GOSL: 61.5%, Employees 3.5%); GOSL commits to not issuing licenses for international telephony until August 2002; Sri Lanka makes WTO commitments/GATS Reference Paper
1998-1999	Fixed telephony interconnection determination issued by TRC; incumbent appeals determination in courts – fails to stay it; 1st stage of tariff rebalancing commences (5 stage rebalancing exercise); TRC issues and implements interconnection determination (involving fixed: mobile)
1999-2001	Proliferation of court cases
2002	Incumbent (previously a minority owner) acquires 60% shares of Mobitel, making it the sole owner of the mobile operator; SLT IPO(subsequent re-mix of shares as NTT 35.2%, GOSL 49.5%, Public 15.3%)
2003	Exclusivity on international telephony ends; Interconnection Rules put in place; first assignment by auction of 1800 GSM

	frequencies; final tariff rebalancing implemented- a year late; final stage of tariff rebalancing challenged in court; EGO licenses issued for a fee of USD 50,000
2005	CDMA licenses issued; court case amongst 7 PSTN operators and ICTA on alleged exclusivity clauses in regional telecom network licenses; consumer lobby takes TRC and SLT to court over 5th (final) tariff re-balancing exercise; CPP taken up and dropped (yet again)
2006	Sri Lanka's 1st commercial 3G mobile license issued (Dialog); SLT foreign currency debt outlook revised from stable to negative by Fitch Ratings; TRC issues calls for 5th mobile operator

The rest of this section will explore some of the significant themes that emerge from developments in Sri Lanka's telecommunications sector, drawing from the supply-side indicators as well as from the reforms and regulatory episodes listed in Table 3.

2.1 Competition drives the sector

Figure 2: Unpacking the numbers: the benefits of competition



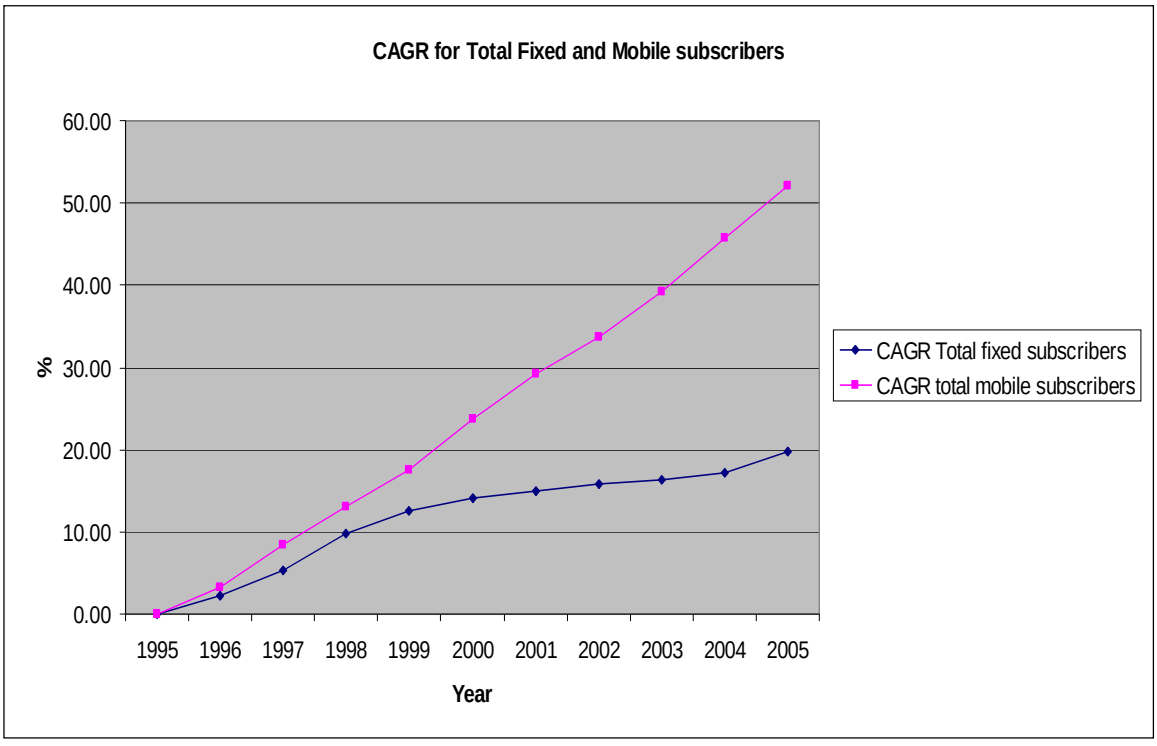
Source: Calculated based on data obtained from TRC
Note 1: The data for 2006 is only up to June, 2006
Note 2: New business opportunities following the ceasefire of 2001 and the opening up of the Northern Province contributed to the growth spurt in both the mobile and in the fixed sectors in the 2002-2005 period

As illustrated clearly in Figure 2 above, competition has been the main driver of growth in the industry: the growth spike in the fixed sector is seen before the WLL entrants began operations in 1996 (incumbent faces a credible threat of contestability jolting it into action) and before the incumbent was privatized in 1997. Growth in the fixed sector was also spurred by the issuing of CDMA licenses to all fixed operators in 2005.

Competition in the mobile sector was relatively higher than that of the fixed access market right from the start as reflected in the Compound Annual Growth Rate (CAGR) figures shown in Figure 3. Regulatory intervention in mobile telephony has been relatively muted, with the TRC adopting principles of "soft regulation" in the case of mobile tariffs. Clearly, this "hands-off" approach has been beneficial to the sector as seen both from the subscriber growth data in Figure 2 and in the CAGR trends in the mobile sector.

The repositioning of Mobitel as a fully owned subsidiary of the fixed sector incumbent – perceived as having "deep pockets" – and its aggressive price dropping strategies contributed towards further intensified competition in the mobile segment, with other operators, including the market leader, engaging in a price war, ramping up advertising and introducing new services.

Figure 3: CAGR for mobile sector exceeds that of the fixed sector



Source: Central Bank of Sri Lanka, Annual Reports (various years)

Another strand of the story that unfolds from the trends depicted in Figure 2 is the huge spike in mobile subscriber growth (as well as increased growth in the fixed line segment) following the removal of exclusivity on international telephony in 2003. The dip in 2001-2002 and the growth spike post-2003 is also because of the uncertainty in the investment climate – the "wait and see" stance taken by investors – until a firm policy decision was taken by the government regarding the end of the exclusivity period. Moreover, the opening up of the North-East market – a market of over 400 million subscribers- following the signing of a ceasefire agreement in early 2002 is an extremely significant factor contributing to the growth spurt of 2002-2005.[6]

Interviews with some of the key players in the telecommunications sector indicate that international call charges dropped by approximately 70% with the liberalization of international telephony. Data from the incumbent operator, in Tables 4 and 5 indicate the positive impacts of opening up the international market; Table 6 provides a comparison of Sri Lanka's international call charges with those of Bangladesh:

Table 4: SLT call minutes (international)

Year	**Total outgoing call minutes**	**Total incoming call minutes**
2001	52,012,626	246,210,226
2002	**55,912,601**	**317,921,688**
2003	**82,169,161**	**343,310,161**
2004	**107, 582, 441**	**387, 180, 257**
2005	106,596,356	441, 755, 924

Source: SLT

Note: we were not able to get comparable data from the other operators owing to reasons of confidentiality.

[6] It would be interesting to document the growth figures in the telecom sector, following the recent commencement of hostilities in the North East and the resulting "orders" to switch off mobile operations in those areas for security reasons.

Table 5: Sample IDD call charges: SLT

		Pre-March 2003	As at October, 2006
Country Band	**Sample Countries**	**IDD Per minute Charge (Rs.)**	**IDD Per minute Charge (Rs.)**
P1	**UK, USA, Germany etc.**	**Premium- 69.60 Ordinary- 61.80 Reduced- 55.20**	**20.00**
P2	**Australia, Hong Kong, Thailand, South Korea etc.**	**Premium- 60.60 Ordinary- 54.00 Reduced- 44.40**	**22.00**
A1	**India, Pakistan etc.**	**Premium- 45.60 Ordinary- 40.80 Reduced- 34.20**	**30.00**
P3	**Botswana, Iran etc.**	**Whole day – 92.40**	**35.00**
P4	**Oman, UAE etc.**	**Premium- 69.60 Ordinary- 61.80 Reduced- 55.20**	**40.00**
A2	**Bhutan**	**Whole day – 51.00**	**49.00**
B2	**Fiji, Papua New Guinea etc.**	**Whole day – 67.80**	**64.00**
C2	**Ireland, Greece etc.**	**Whole day – 79.80**	**77.00**
D2	**Afghanistan, Vietnam, Zimbabwe etc.**	**Whole day – 92.40**	**88.00**

Note **Premium – 0800 to 1800, weekdays & Saturdays**
Ordinary – 0600 to 0800 and 1800 to 2200, weekdays & Saturdays
Reduced – 0000 to 0600 and 2200 to 2400, weekdays & Saturdays and 000 to 2400 on Sunday

Table 6: BTTB and Sri Lanka outgoing prices to UK and Singapore (liberalized markets) compared. (USD/minute)

	BTTB peak	BTTB reduced	BTTB VoIP	BTTB VoIP to mobile	SLTL all day	Dialog std	Dialog package (to fixed)	Dialog package(to mob)	Celltel std	Celltel reduced
Call to UK	0.35	0.27	0.11	0.27	0.19	0.21	0.07	0.19	0.21	0.21
Call to	0.27	0.22	0.11	0.11	0.19	0.10	0.07	0.10	0.10	0.07

Singapore										

Sources: BTTB, SLTL, Dialog Telkom and Celltel websites

The extent to which competition can help to grow the sector however, is circumscribed by regulatory actions. Whilst operator strategies may embrace competition as long as it makes business sense, in general, existing operators that have already reached the status of major players in the market may not view competition as a necessarily positive development. Industry reactions to the TRC's call for a fifth mobile player, as gathered from the interviews we conducted for this study, reflected a less –than positive attitude towards a further liberalization of the mobile market.

The failure to implement a unified licensing regime, in spite of policy recommendations and statements to this effect for several years and the fact that SLT owns Mobitel with cross-subsidizing (anti-competitive) behavior in the form of tied sales being made for instance, has raised significant concerns in the industry on the regulator's stance on competition. These concerns re-surfaced with the recent roll-out of CDMA phones under fixed licenses; the rationale for assigning fixed licenses for a technology that essentially falls into the cellular category is being questioned by players in the sector. All this stands in contrast to the issuing of class licenses for the first time in Sri Lanka for the EGOs; the principle here was that licenses are required only in the case of scarce resources and that authorizations should be the practice in all other instances. [7]

2.2 Technology by-passes regulation

A fundamental principle of good regulation is: "competition wherever possible; regulation where necessary"[8]. An intrinsic feature of the telecommunications sector– as in other communications industries that rely heavily on technology – is the

[7] The EGO story, where several operators that paid license fees are yet to be connected to the network points to yet another folly in the reform process: the implementation gap that puts a brake on progress on all fronts.

[8] Quotation taken from the Progress Report May 2002-April 2004, Public Interest Program Unit, Ministry of Policy Development and Implementation and Ministry of Economic Reform, Science and Technology, Sri Lanka.

transformation of conventional industry structures, the blurring of market boundaries, and the boom in consumer choice – due to rapid changes in technology. Clearly, even the most visionary (or well-endowed in terms of technical and financial resources) regulator will not be able to keep pace with the technological changes in the industry; the situation in countries that have less far-thinking and less well-endowed regulators is likely to be far worse.

The first-best solution in such instances is to follow the precept set out above; in other words, to apply targeted regulation only when there is clear evidence of market failure; when scarce resources are involved; or, when there is evidence of anti-competitive behavior that is detrimental to the industry. Unfortunately, the story on Sri Lanka's telecommunications regulation runs contrary to these best-practice principles; just two instances of illogical regulatory practice are seen in the case of enhanced voice services (Voice- Over –Internet- Protocol – VOIP) and in the classification of licenses by the TRC.

To cite *The Economist, October 14, 2006, p. 12 of "Survey: Telecoms"*:

> "*The demise of traditional telephony can be charted in two ways: by looking at the proportion of call traffic carried using voice-over-internet-protocol (VOIP) technology, which exceeds 50% on some routes and seems to be heading towards 100%; and by looking at the cost per minute of calls, which appears to be heading inexorably downwards, thanks to VOIP's far lower costs and higher efficiency*".

In essence what VoIP does is blur the line between voice and data service provision; instead of using a dedicated circuit to connect to callers, VOIP encodes the telephone call as a two-way stream of data packets and sends it over a high-speed internet connection. In countries such as Sri Lanka where the quality of internet connections still lag behind internationally – or even regionally- acceptable standards, VOIP provides consumers with a choice between high quality, more pricy voice services and lower quality, cheaper, data-voice services. This is the essence of competition and technology – consumer choice; and, blocking such services by way of regulation is counter-productive.

In Sri Lanka, the perception that prevails amongst stakeholders in telecommunications space is that VOIP is a "grey area"; it has not been specifically prohibited by the regulator, neither has it been endorsed.[9] In practice however, VOIP is widely used throughout the country– in households, offices, and in the mushrooming communication bureaus. Although VOIP poses a threat to both fixed access operators that still rely on revenues from voice calls, and mobile operators that also rely heavily on revenues from voice calls despite the hype on 3G data services[10] , interviews with the seven PSTN operators suggest that they perceive VOIP as an opportunity to grow their business as technology changes. What this implies for the regulator is that a clear statement needs to be made on VOIP; the industry needs clear guidelines and not vague statements made on an ad hoc basis.

The lack of a decision on unified licensing, in spite of numerous policy briefs and high-level discussions on the subject over the last decade, and the asymmetric rules applied in this instance (SLT, a fixed line provider owns Mobitel, a mobile service provider; Dialog acquired MTT – a backbone provider – following its less-than-transparent acquisition of a CDMA license; and other fixed access providers are prohibited from owning mobile subsidiaries and vice versa) is another instance where regulatory rules that have outlived their usefulness continue to stifle the sector.

4. Perceptions on regulatory efficacy: Telecommunications Regulatory Environment (TRE) survey in Sri Lanka

Section 2 and Annex 2 of this study set out the methodology and survey questionnaire, respectively, used for the TRE exercise in Sri Lanka. Table 7 gives a profile of the respondents along with the response rate for each stakeholder group. Figure 6 illustrates the findings of the TRE survey.

[9] Previous disputes and court cases over the provision of VOIP services in Sri Lanka are detailed in Jayasuriya and Knight-John, 2004.

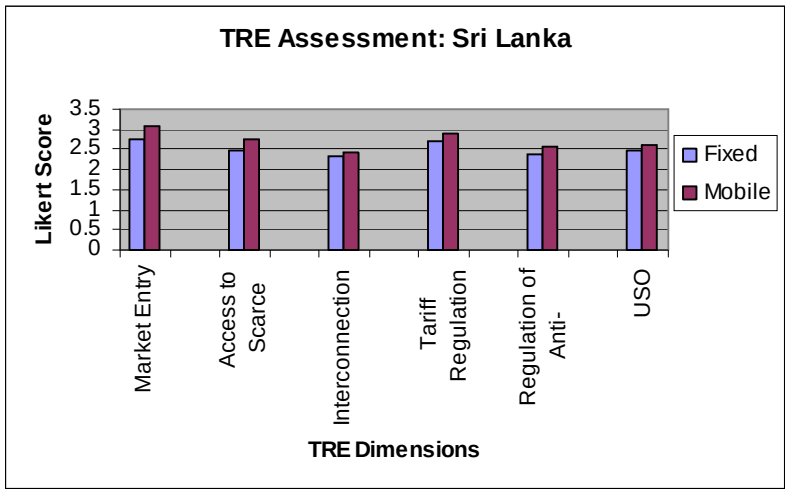
[10] The high cost of 3G-enabled mobile handsets is seen as one of the main reasons for the low up-take of these services.

Table 7: TRE respondent profile

Stakeholder Category	**Respondents (No.) (this number indicates the total number of questionnaires sent out under each stakeholder category)**	**Response Rate (%) (rounded off)**
Operators/industry associations	30	54.54
Educational/research organizations/telecom consultants/law firms	21	91.30
Journalists/telecom user groups/civil society	16	80.00
Financial institutions & private investment houses/banks & credit rating agencies	17	94.44
Former members/senior staff of regulatory agencies/other government agencies/donors	17	89.47
Total	**135**	**74.81**

Figure 6:

TRE Results June 2005-June 2006: Fixed/Mobile



The results of the TRE exercise, as illustrated in Figure 6 above, indicate the following:

- The mobile sector scores higher in terms of perceptions on regulatory efficacy across all six dimensions
- Perceptions of regulatory efficacy show "average effectiveness" scores across all six dimensions for both the mobile and fixed sectors
- "Market entry" shows higher scores in both the fixed and mobile sectors
- "Interconnection" has a low overall score in both the fixed and mobile sectors

The explanation behind these results is reflected in some of the reforms and regulatory episodes highlighted in Section 3 of this report as well as in some of the "comments" made by survey respondents in the questionnaire.

The relatively high scores on the mobile sector can be traced back to perceptions of a "hands-off" approach to mobile tariff regulation, to the availability of pre-paid packages at affordable rates, to the issuing of Sri Lanka's first commercial 3G mobile license and

to the call for a fifth player in the mobile market. The issuing of CDMA licenses combined with the opening of the mobile market to a fifth player is possibly the reason for the higher scores on "market entry". The low scores on "interconnection" are in line with what is perceived (from comments received in the questionnaire) as "the incumbent and the regulator messing around with interconnection"; given the fact that the Interconnection Rules of 2003 are yet to be fully implemented and that access pricing is still a sticky area in the industry, these scores seem to be an accurate reflection of the ground situation.

It is interesting also to compare the results of this TRE exercise with a previous one done by Samarajiva et al (2004) for the period 1993-2002. [11] While "market entry" scores relatively high in the perceptions survey done for June 2005-June 2006, it came out as being "unsatisfactory" in both the 1997-1999 and 2000-2002 periods for the fixed sector (largely due to the exclusivity on wireline and international telephony)[12]; and, as being "unsatisfactory" (mainly due to the ad hoc issuing of licenses) in 1993-1996, "satisfactory" in 1997-1999 and "neutral" in 2000-2002 for the mobile sector.

In the case of "interconnection" however, there seems to be a general trend ranging from poor and unsatisfactory in the fixed sector with only the 1997-1999 period (where the regulator took progressive steps with regard to fixed-mobile interconnection and related tariff decisions) for the mobile sector showing some positive signs. Again, as in the 2005-2006 exercise, the mobile sector showed better performance across all dimensions in comparison to the fixed sector, in the 1993-2002 study.

Although the mobile sector does score higher than the fixed sector in terms of the six dimensions of the 2005-2006 TRE survey, these results are tempered by the following comments received in the questionnaires.

[11] While the earlier study was broken up into three time periods – 1993-1996; 1997-1999; 2000-2002 – picking up on the overall perceptions on the variables provides a useful longitudinal perspective. (It must also be noted that the previous study did not include the variable "USOs".)

[12] TRE in the fixed sector in the 1993-1996 period is not discussed as there was no competition in the fixed sector until 1996.

- "the constant uncertainty on CPP is an obstacle to faster growth in the mobile sector"
- "the TRC is turning a blind eye to possible cross-subsidization between SLT and Mobitel"
- "the allocation of frequency needs to be less ad hoc"

In general, the results of the TRE survey complement the analysis of sector performance set out in Section 3, with the main story being that the sector has grown in spite of regulatory inconsistencies and that the sustained dynamism of the sector stands to be undermined by regulatory inefficacy.

5. The future: bridging the gaps

The "big picture" on Sri Lanka's telecommunications reforms and regulatory tale can be clustered into two time periods: 1996/1997 and 2003/2004. As mentioned previously in this study, the 1996/1997 period saw the licensing of the two WLL operators (and the onset of competition in the domestic fixed access market); the enactment of legislation that provided for a five-member regulatory commission; and, the partial privatization of the incumbent. The 2003/2004 period saw the opening up of the international market; the promulgation of Interconnection Rules; the auctioning of spectrum in the GSM 1800 band; and, the release of CDMA frequencies. The positive impacts of these reforms are reflected in the performance indicators set out earlier on in this report.

The periods in between and outside of these two clusters however, cannot be discounted as times of complete inaction. The archived consultancy reports on TRC's website alone on issues ranging from asymmetric regulation and modalities of spectrum management to cost analyses of CPP and licensing of regional telecommunications networks stand testimony to the research and paper work that has gone into developing the sector. What is poignantly apparent however is that much of this work has been relegated to the status of policy rhetoric – or worse; going by the principles of path dependence the widening gap between policy and implementation threatens to undermine future development in the sector.

Trends in Sri Lanka's telecommunications sector indicate that constraints to future growth lie on the supply-side; infrastructure bottlenecks such as the absence of an adequate backbone network, high costs of accessing the existing backbone, and the relatively high leased line prices in Sri Lanka (see LIRNE*asia*, 2005 for more details on domestic leased line tariffs). These constraints are compounded by policy inconsistencies (for instance, the duties imposed on CDMA handsets by one arm of the government, the BOI, while another arm of the government, the TRC, was issuing CDMA licenses to improve rural connectivity) and by regulatory indecision and inconsistency (for example, the "back and forth" on issues such as CPP, spectrum auctions and unified licensing).

As stated in several of the comments in the TRE questionnaires, institutional factors concerning telecommunications regulation in Sri Lanka – such as the glaring conflict of interest with the Secretary to the Ministry being the *ex-officio* Chair of the regulatory commission, the high churn of TRC Director-Generals (politically appointed) in recent years and the lack of technical capacity to carry out even a simple analysis of the sector and operator data that is diligently collected by the TRC – suggest that the future of the industry depends on the extent to which operators can adopt business strategies that can grow the sector in spite of regulation.

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Annexes

Annex 1: Indicator definitions, sources, qualifications

Indicator	Definition/Formula	Source for Definition	Qualifications
Total Tele-Density (= Total telephone subscribers per 100 inhabitants)	Total telephone subscribers/ population * 100	ITU	Tele-density figures can be somewhat misleading with respect to effective penetration, given that the number of telephone users in a country often exceed that of telephone subscribers
Market Share	Individual operator subscribers as a % of total sector subscribers		Fixed and mobile telephony were considered as separate markets for this calculation
Compound Annual Growth Rate(CAGR)	CAGR=(Current Value/Base Value)^(1/# of years) - 1	Internet-www.wikipedia.org	
Herfindahl-Hirschman Index:HHI (H)	$H = \sum_{i=1}^{n} (s_i^2)$ where s_i is the market share of firm *i* in the market, and *n* is the number of firms	Internet-www.wikipedia.org	HHI was calculated on the basis of subscriber numbers in this study
Total Internet Users	The total number of internet users in a given year (as reported by the NSO/NRA)	ITU	
(Annual) Average Revenue Per User (ARPU)	Total annual revenue/total number of subscribers	Calculated using TRC figures	a) In the absence of reliable user data, subscriber numbers were

substituted for user numbers.

b) Turnover was assumed to be a proxy for revenue as per TRC classifications

Annex 2: TRE survey questionnaire

TO WHOM IT MAY CONCERN

LIRNE*asia* and IPS Fellow and Head of Industry, Public Enterprise Reform and Regulatory Policy Research, Malathy Knight-John, are conducting a Telecom Regulatory Environment Assessment (TRE) perception survey in Sri Lanka as part of a **Six Country, Multi-Component Study** in India, Pakistan, Sri Lanka, Indonesia, Philippines and Thailand. The TRE Assessment, developed by LIRNE*asia* and already implemented in a number of countries, is a perceptual index, which evaluates the performance of telecom regulatory agencies.

The TRE is based on the perceptions of regulatory efficacy by a set of *representative* and *informed* group of respondents. This group would include top-level management of telecom (fixed and mobile) operators, the private sector, investment analysts, the private Bar, media, the academic community, consumer groups and generally any organization or individuals with direct or indirect knowledge of the sector for the period June 2005-June 2006.

You have been approached for this survey because you belong to the informed panel of telecom experts in Sri Lanka. The TRE Assessment will be conducted annually and is expected to provide regulatory agencies, potential investors, operators and civil society a tool for assessing the gains made by the national telecom regulatory agency across six dimensions.

Participation in this survey is voluntary and you have the right to terminate the survey at any time. LIRNE*asia* and IPS will ensure that your replies will remain confidential and no identifying information will be included in the final report, unless the Researcher has obtained explicit, written consent.

LIRNE*asia* is the Asian affiliate of LIRNE.NET, collaboration among leading universities in Denmark, the Netherlands, South Africa and the United Kingdom and now LIRNE*asia*. LIRNEasia is a non-profit, ICT (Information and Communication Technology) research organization incorporated under Sri Lankan law but operating throughout Asia. LIRNE*asia*'s programs over 2006-2007 is primarily funded by IDRC (International Development Research Center) of Canada. LIRNE*asia*'s overall mission of actionable research seeks to identify the institutional constraints to effective use of ICT's

to improve the lives of the people of Asia, not simply in abstract terms but in a country context, and to work collaboratively with multiple stakeholders to catalyze the changes conducive to greater participation by users and suppliers.

The IPS, an autonomous research institute, established under an Act of Parliament in December 1988 is one of Sri Lanka's leading policy "think tanks", with the operational freedom and resources to engage in socio-economic research requiring long term commitment, and geared to provide informed analysis to national planners and policy makers in the country and the wider region. An emerging role of the Institute has been that of an independent source of long-term policy advice. This role has been strengthened by the Institute's financial and administrative independence, which enables it to be both constructive and critical. Today, the IPS has evolved to be the most respected independent economic policy research centre in Sri Lanka operating outside the formal government sector. More information on IPS can be found on the Institute's website: www.ips.lk

If you have any questions or concerns about this project, please do not hesitate to contact me. More information about LIRNE*asia can* be found on our website: **www.lirneasia.net**

Divakar Goswami
Director for Organizational Development & Project Coordinator, LIRNE*asia*
July 10, 2006, Colombo, Sri Lanka

LIRNE*asia* and IPS would be very grateful if you could kindly fill in the questionnaire below and send it back to us at: malathy@ips.lk on or before August 31, 2006.

Telecom Regulatory Environment Assessment

- The respondents are kindly requested to make their assessments of the telecom regulatory environment (TRE) for the period between June 2005-June 2006 for the fixed and mobile telecommunications sector on the scale provided. This should take less than 5 minutes of your time.
- A fact-sheet of key events in the Telecom Regulatory Environment is attached for your reference for the period June 2005-June 2006.
- The dimensions used in this questionnaire are broadly based on the WTO Regulatory Reference Paper and are briefly described below.

Dimension	Aspects Covered
Market Entry	Transparency of licensing; applicants should know the terms, conditions, criteria and length of time needed to reach a decision on their application; license conditions, exclusivity issues.
Scarce Resources	Timely, transparent and non-discriminatory access to spectrum allocation, numbering and rights of way; frequency allocation, telephone number allocation; site rights
Interconnection	Interconnection with a major operator should be ensured at any technically feasible point in the network, quality of interconnection comparable to own like services offered; reasonable charges for interconnection rates, interconnection be unbundled, interconnection offered without delay; sharing of incoming and outgoing IDD revenue; payment for cost of interconnection links and switch interface; payment for cost of technical disruption of interconnection
Tariff Regulation	Regulation of tariffs or pricing of services; tariffs or pricing charged should ensure that the dominant carrier does not abuse its market position or adopt uncompetitive pricing
Regulation of Anti Competitive Practices-	Anti-competitive cross subsidization, using information obtained from competitors with anti-competitive results; not making available to competitors on a timely basis technical information about essential facilities and commercially relevant information,; excessive prices, price discrimination and predatory low pricing, refusal to deal, vertical restraints, cross subsidies, technical disruption of interconnection , sharing of towers and facilities by parent company and subsidiaries in different segments of the market

Universal Service Obligation (USO)	Presence of a USO whether as a fund or as a program; its effectiveness in making services available to lower income groups; administration of the universal service program/fund in a transparent, non-discriminatory and competitively neutral manner and not more burdensome than necessary for the kind of universal service defined by the policymakers.

Key Events in the Telecom Regulatory Environment in Sri Lanka during June 2005-June 2006

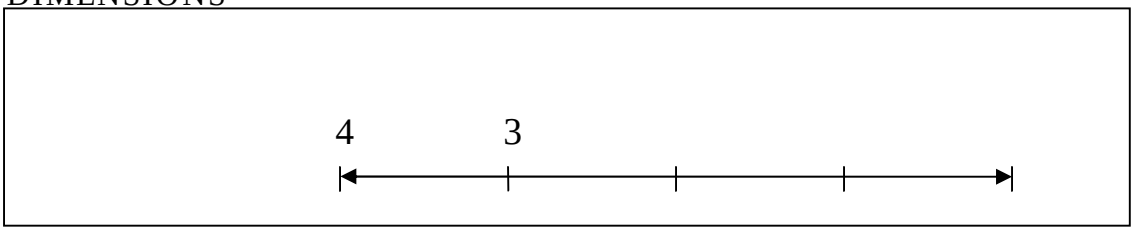
- Calling Party Pays (CPP) hearing in August 2005
- Telecom operators holding back June 2005 payments to the Telecom Development Fund (TDF)
- Issuing of Code Division Multiple Access (CDMA) licenses from March 2005
- Regulator dilemma on defining un-served and underserved areas for cellular service providers
- Issuing of Sri Lanka's first commercial 3G mobile license
- Regulator attempts in 2005 to revive an overdue access-code plan for External Gateway Operators (EGOs) under the 2003 international voice telephony liberalization
- Lanka Bell seeking regulator assistance to increase interconnection capacity with Sri Lanka Telecom
- Court case between the 7 major operators and the ICT Agency over alleged exclusivity clauses in regional telecom network licenses in early 2005
- Consumer lobby taking the regulator and Sri Lanka Telecom to Courts in 2005 over the fifth and final tariff rebalancing exercise
- Sri Lanka Telecom's foreign currency debt outlook revised from stable to negative by Fitch Ratings in May 2006
- Decision – in June 2006 - to open the mobile market to a fifth player with a license fee fixed by the regulator at USD 4 million

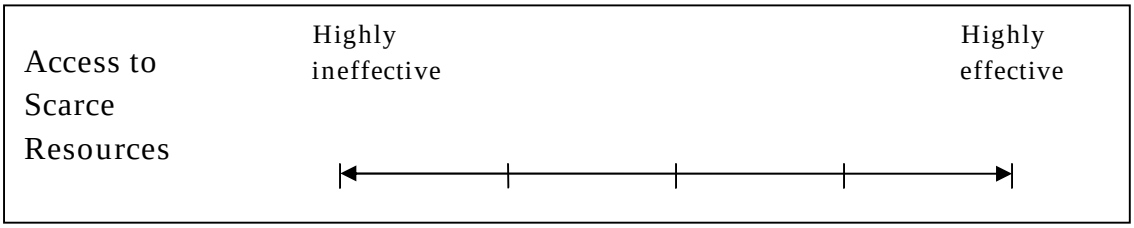
Please CIRCLE the number that best represents regulatory performance for each dimension. The *lower* number representing Highly Ineffective and the *higher* number represent Highly Effective.

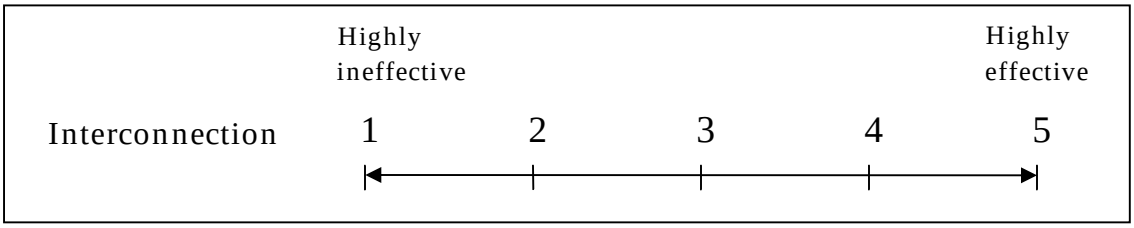
FIXED SECTOR: REGULATORY ENVIRONMENT

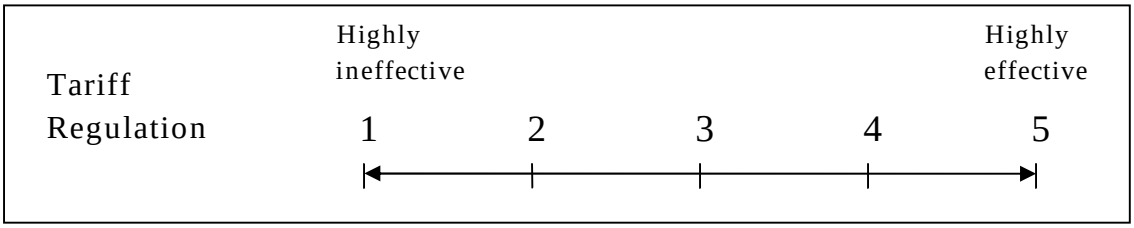
Period June 2005-June 2006

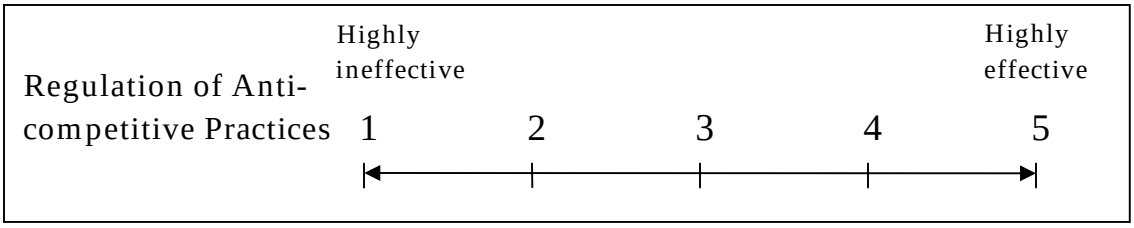
DIMENSIONS

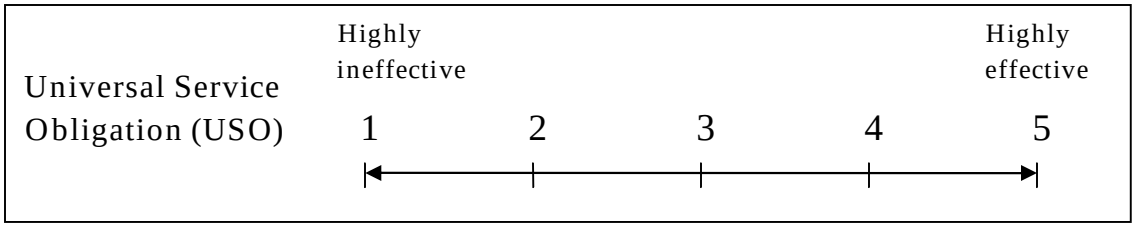












Please CIRCLE the number that best represents regulatory performance for each dimension. The *lower* number representing Highly Ineffective and the *higher* number represent Highly Effective.

MOBILE SECTOR: REGULATORY ENVIRONMENT
Period June 2005-June 2006

DIMENSIONS

Market Entry	Highly ineffective	1	2	3	4	5	Highly effective
Access to Scarce Resources	Highly ineffective	1	2	3	4	5	Highly effective
Interconnection	Highly ineffective	1	2	3	4	5	Highly effective
Tariff Regulation	Highly ineffective	1	2	3	4	5	Highly effective
Regulation of Anti-competitive Practices	Highly ineffective	1	2	3	4	5	Highly effective
Universal Service Obligation (USO)	Highly ineffective	1	2	3	4	5	Highly effective

If you have any specific comments on the Telecom Regulatory Environment in Sri Lanka, please write them below:

Comments: