

Privatisation, Regulation and Investment: A case study of the telecom regulatory environment (TRE) and investment in Guyana

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1. Introduction

During the last two decades the global telecom sector has undergone significant changes. Prior to this period the telecom sector of many countries was characterised by state-owned monopoly providers of telephone and telegraph services. Gradually, countries have moved away from this arrangement to privatisation and regulation of the sector, and in some cases, the sector has become competitive.

Evolution of the global telecom sector has been both a by-product and a driver of globalisation. For developing countries the evolution has been understandably slow. However, with privatisation the telecom infrastructure of developing countries has been transformed, albeit at a cost which is eventually passed on to the consumer. Usually, privatisation is complemented with the establishment of sector specific regulatory agencies. In Guyana's case, there is one regulatory agency for all public utilities.

This pilot study is primarily concerned with Guyana's telecom¹ regulatory environment (TRE), and employs a methodology devised by LIRNEasia (see Samarajiva and Dokeniya 2005). The approach of this methodology is to survey knowledgeable respondents, on their perceptions on the TRE of a particular country. To this end, respondents assessed Guyana's TRE based on the six dimensions of the regulatory environment, as outlined in the World Trade Organisation (WTO) Reference Paper of the Basic Telecommunications Agreement. It is hoped that having been able to draw upon the perceptions of knowledgeable persons will have increased the objectivity and veracity of the findings. While the assessment of the TRE can be seen as an end in itself, the impact of the TRE on the level of investment in the telecoms sector was also considered.

The study first examines Guyana's telecom sector, paying particular attention to the privatisation of the state-owned telecom company. It is important to note the privatised telecom company is a powerful force within the local telecom sector, and as such, cannot be treated as just another public utility monopoly subject to government regulation. Next, the study considers Guyana's TRE. The terrain within which the major stakeholders function is detailed and the different elements of the regulatory environment are described and assessed. Finally, concluding remarks and recommendations for further such assessments are made.

2. Guyana's Telecommunications Sector

2.1 Introduction

Guyana lies at the northernmost tip of South America and is bordered by Venezuela to the west, Suriname to the east and Brazil to the south. The country is about 214,970 square kilometres – approximately the size of the United Kingdom – and has a population of about 800,000. Most of the country's inhabitants live along its low coastal plain, a long stretch of land bordered to the north by the Atlantic Ocean, where most of the administrative, commercial, agricultural and manufacturing activities take place. Not surprisingly, most of the country's telecom infrastructure can be found along the low coastal plain.

The story of Guyana's telecom sector is common to other developing countries. Prior to 1991, the state-owned Guyana Telephone & Telegraph Company (GTC) was the sole provider of telecom services. At that time, 21,000 telephone lines were available with a waiting list of about 40,000. The telephone system was archaic, consumers had to make bookings for overseas calls hours before they could make the call, and even local

calls were sometimes difficult to make. It is against this backdrop that GTC was privatised and the landscape of Guyana's telecom terrain changed.

In January 1991, Atlantic Tele-Network Inc. (ATN), a company operating out of St. Thomas, US Virgin Islands, obtained a

Box 1. Highlights of ATN's acquisition of GT&T

- GTC was valued at USD 20 million and as such ATN paid USD 16.5 million for an 80% share of the company;
- The new company (GT&T) absorbed USD 15.8 million in GTC debt, of which USD 11.5 million was owed to Northern Telecom;
- ATN agreed to raise necessary financing for its expansion program and to guarantee all debts, old and new, of GT&T;
- Additionally, ATN agreed to prepare and implement, through GT&T, an expansion and service improvement plan (see excerpt from GT&T's Purchase Agreement below).

Annexure E Section 7: Expansion and Service Improvement Programme (years 1, 2 & 3)

ATN further commits that GT&T shall achieve the following with respect to:

Connections of lines: Within 36 months of its acquisition GT&T shall add at least 20,000 subscribers to the existing subscriber base, estimated at present to be 21,400 as follows: approximately 5,000 subscribers added in the first twelve month period, 7,000 in the second and 8,000 in the third.

- The government and ATN agreed that GT&T would be entitled to a minimum of 15% rate of return on its investment along with 6% advisory fees for the parent company ATN.
- It was agreed that there would be no increases in rates for three years, except in the event of one or a combination of the following events occurring:
 1. A substantial devaluation in the Guyana Dollar
 2. A rise in the long distance charges payable to foreign correspondence
 3. The cost of provision of service to internal locations being substantially higher than stated in the expansion plan
 4. Natural disaster leading to extensive destruction of plant and equipment.

Sources: GT&T's Blue Book and GT&T's Purchase Agreement.

controlling interest in GTC by purchasing 80% of the company's shares; the Government of Guyana (GoG) retained 20%. The Guyana Telephone and Telegraph Company (GT&T) was incorporated on 28 January 1991 and was given monopoly rights for 20 years with the option of renewal for another 20 years.

The move by ATN to acquire a controlling interest in GT&T was certainly a risky move for a number of reasons. First, GT&T inherited a poor telecom infrastructure – amongst the worst in the hemisphere. This implied that considerable time and financial resources would be required to improve the telecom system. Second, Guyana at the time was still labelled as a risky place to do business. In fact GTC was put up for sale long before ATN bought it, but no other investor had submitted a proper offer. Finally, Guyana was going through a period of structural adjustment and stabilisation, and general elections were just around the corner. Certainly, these conditions would have added to the uncertainty of operating in such a volatile environment. Embarking upon the Herculean task of reviving a public utility, in light of the foregoing, was thus a very dicey move. As of January 2006, GT&T's total investment was approximately USD 225 million.

GT&T's licence entitles it to monopoly provision of voice and data services. However, the government has opened up the mobile cellular sector. Apart from providing mainline telephone services, GT&T's main licence also allows it to operate a mobile cellular service. To-date three other companies have secured cellular licences, however, only one (Cel*Star Guyana Inc.) offers a semblance of competition to the incumbent GT&T.

Cel*Star Guyana Inc. was licensed to provide a GSM 900 MHz service on 21 February 2001 – its parent company is Trans World Telecom, Caribbean (TWTC). Cel*Star's initial investment was in the region of USD 20 million with plans for further investment of USD 18 million. Although Cel*Star was granted a licence to operate in 2001, the company only started providing services in 2004. The launch of services was delayed primarily as a result of a court case regarding the company's ownership. At the time of writing, Cel*Star has about 30,000 mobile cellular subscribers.

Caribbean Telecommunications Ltd. was licensed on 23 April 1996 for cellular sub-band A and operates a CDMA service out of Corriverton Berbice. The company initially had about 200 subscribers. At the time of writing, however, the true number of subscribers could not be ascertained.² Caribbean Wireless Telecom, LLC was licensed on 19 April 2000 for PCS band C; however, this company has not yet started operations.

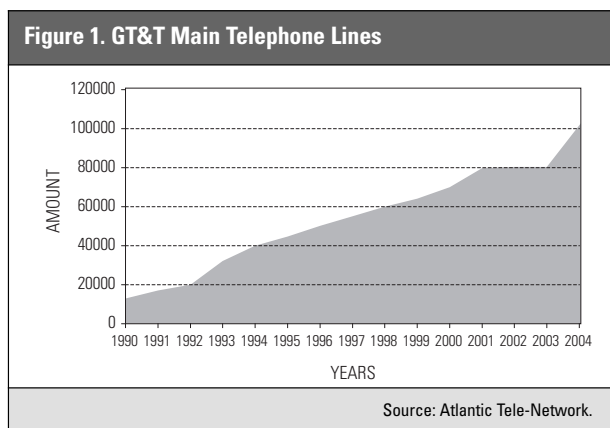
2.2 Telecom investment

Over the years, GT&T has significantly improved Guyana's telecom system (see Table 1). However, there have been numerous examples of public disquiet primarily over the supply of landlines to potential subscribers. In 1996, the Telecommunications Development Bureau of the International Telecommunications Union (ITU) reported that Guyana achieved the highest annual average growth in teledensity in the Caribbean and Latin American region for the period 1990-1996 (cited in GT&T 1998: 5). Table 1 and Figure 1 also highlight GT&T's achievements over the years.

Figure 2 shows the increase in GT&T's investments³ for the period 1990-1999, the steep increase during the early years of the company's existence indicates the relatively rapid investment that GT&T undertook during those early years. Table 2 shows the rapid development in the telecom sector following privatisation. It is useful to observe that prior to privatisation Guyana recorded a negative growth rate, the lowest for the countries selected, and after privatisation recorded the second highest growth rate. Despite these achievements, GT&T has not lived up to its promises and as such there are still long waiting lists for landline services, although recent growth in mobile cellular services has brought some relief to consumers.

Performance Indicator	1991	2004
Fixed operating lines	13	98,39
Mobile operating lines	0	143,945
Total lines (Fixed & Mobile)	13	242,335
Persons with access to telephones	52	600
Public call boxes	0	600
International circuits	99	1,338
IDDD	400	89,9
Call completion rate (%)	20%	65%

Source: GT&T (2004).



2.3 Main phone lines and cellular subscriptions

This section examines the provision of landline and mobile cellular services for a selected number of countries in the Caribbean, with special emphasis on Guyana. Of the 14 countries selected, Guyana stands at number six for the number of main telephone lines, but, with a very low penetration rate (lines per 100 persons) as compared to the other countries selected. Apart from 2004, Guyana's penetration rate was higher only than Haiti's (see Table 3).

While the mainline sector grew slowly, the mobile sector grew rapidly as illustrated in Table 3. Melody (2005) posited that, "in developing countries, the innovations of poor people in both urban and rural areas in adapting prepaid mobile service to meet their needs have fostered unanticipated dramatic growth in mobile to the point where mobile penetration exceeds fixed line penetration in many countries, and has a broader geographic coverage." Naturally, the bulk of new investment would

Country	Year of Privatisation	% Annual growth prior to privatisation	% Annual Growth After Privatisation
Argentina	1990	5.2	8.2
Barbados	1989	6.7	6.4
Belize	1988	12.1	9.5
Bolivia	1995	2.4	29
Chile	1987	5.7	13.7
Guyana	1991	-2.4	24.1
Jamaica	1989	5.0	16.6
Mexico	1991	5.1	5.6
Peru	1994	4.2	23.7
Trinidad & Tobago	1990	15	5
Venezuela	1991	3.8	6.8

Source: Gutierrez and Berg (2000).

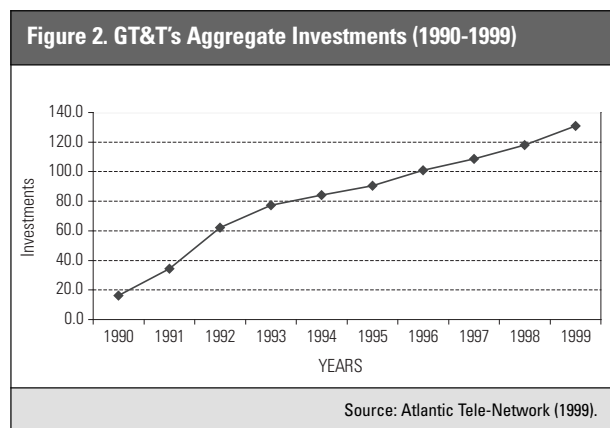


Table 3. Main Telephone Lines for Selected Caribbean Countries (2001-2004)

	2001		2002		2003		2004	
	Main telephone lines ('000)	Lines per 100 persons	Main telephone lines ('000)	Lines per 100 persons	Main telephone lines ('000)	Lines per 100 persons	Main telephone lines ('000)	Lines per 100 persons
Antigua	37.3	48.1	38.0	48.8	38.0*	48.78*	38.0	49.4
Bahamas	123.3	40.2	126.6	40.6	131.7	41.5	139.9	44.1
Barbados	129.0	48.1	133.0	49.4	134.0	49.7	135.7	50.1
Belize	35.2	13.7	31.3	11.4	33.3	11.3	33.7	12.9
Dominica	23.3	29.9	23.7	30.4	23.7*	30.39*	21.0	29.5
Grenada	32.8	32.8	33.5	31.7	32.6	29.0	32.7	31.8
Guyana	79.9	9.2	80.4	9.2	80.4*	9.2*	102.7	13.4
Haiti	80.0	1.0	130.0	1.6	140.0	1.7	140.0	1.7
Jamaica	500.0	19.2	444.4	16.9	444.4*	16.9*	500.0	18.7
St. Kitts Nevis	22.5	48.8	23.5	50.0	23.5*	50.0*	25.0	50.0
St. Lucia	50.0	31.7	51.1	32.0	51.1*	32.0*	51.1	32.0
St. Vincent	26.1	22.7	27.3	23.4	32.4	27.3	19.0	15.7
Suriname	77.4	17.6	78.7	16.4	79.8	15.2	81.3	18.5
Trinidad	311.8	24.0	325.1	25.0	325.1*	25.0*	321.3	24.6

Source: International Telecommunication Union.

* Data for 2002.

Table 4. Cellular Mobile Subscribers for Selected Caribbean Countries (2001-2004)

	2001		2002		2003		2004	
	Cellular subscribers ('000)	Cellular subscribers per 100 persons	As % of telephone subscribers	Cellular subscribers ('000)	Cellular subscribers per 100 persons	As % of telephone subscribers	Cellular subscribers ('000)	Cellular subscribers per 100 persons
Antigua	25.0	32.3	40.2	38.2	49.0	50.1	38.2*	49.0*
Bahamas	60.6	19.7	32.9	121.8	39.0	49.0	116.3	36.7
Barbados	53.1	19.8	29.2	97.2	36.1	42.2	140.0	51.9
Belize	39.2	15.2	52.6	51.7	18.7	62.3	60.4	20.5
Dominica	7.7	9.9	24.9	9.4	12.0	28.3	9.4*	12.0*
Grenada	6.4	6.4	16.4	7.6	7.1	18.4	42.3	37.6
Guyana	75.3	8.7	48.5	87.3	9.9	52.0	87.3*	9.9*
Haiti	91.5	1.1	53.4	140.0	1.7	51.9	320.0	3.8
Jamaica	635.0	24.4	55.9	1400.0	53.3	75.9	1800.0	68.1
St. Kitts Nevis	2.1	4.6	8.5	5.0	10.6	17.5	5.0*	10.6*
St. Lucia	2.7	1.7	5.1	14.3	9.0	21.9	14.3*	9.0*
St. Vincent	7.5	6.5	22.3	10.0	8.5	26.8	62.9	52.9
Suriname	87.0	19.8	52.9	108.4	22.5	57.9	168.5	32.0
Trinidad	256.1	19.7	45.1	361.9	27.8	52.7	520.0	39.9

Source: International Telecommunication Union.

* Data for 2002.

have gone towards the improvement of the mobile cellular service. While Guyana has also joined the bandwagon most of its Caribbean counterparts have had more rapid growth in their mobile cellular markets. Guyana's total mobile cellular subscribers comprise about 50% of the total number of subscribers, while its regional counterparts have higher percentages. Jamaica, for example, increased from 55% to 81.5% (see Table 4).

2.4 Telecom reform

In August 2000, the Inter-American Development Bank (IDB) committed USD 1.5 million in technical assistance for the reform of Guyana's telecom and information sector.⁴ The expectations of the project included:

1. GoG commitment to the WTO Basic Telecommunications Agreement and introduction of a legislative framework within which competition would flourish;
2. Development and implementation of a transparent and non-discriminatory interconnection policy;
3. Competition in all telecommunication services; and
4. Increased number of mobile cellular providers.

To this end the project comprised five components:

1. Modernisation and liberalisation, ending GT&T's 40-year monopoly;
2. Formulation of a policy and strategy for reform of the telecom sector;
3. Establishment of a network cost model and execution of an audit of GT&T;
4. Training and research activities; and
5. Provision of technical assistance for the Public Utilities Commission (PUC).

The GoG had also planned to execute an ICT project to the tune of USD 22.5 million, of which USD 18 million would have been loaned to the government by IDB. However, GT&T blocked the proposed loan in the US courts claiming that the project was in breach of its monopoly licence; GT&T lost the case. The ICT project was designed to improve governance, accountability and transparency in addition to generating employment and providing opportunities for business. Government expenditure on telecom related initiatives, such as this ICT project, are not uncommon in the Caribbean. Regrettably, this project was shelved because GT&T and the government were unable to arrive at a feasible solution for the sector's reform and the termination of GT&T's monopoly.

With regard to WTO agreements, Guyana has made telecom commitments under the Uruguay Round relating to value-added services; however, to-date no commitments have been made under the Fourth Protocol of the General Agreement on Trade in Services (GATS), although it was envisaged that commitments would have been made in tandem with reform of the telecom sector.

Box 2. Reform of the telecom sector in Guyana

In August 2001, Canadian lawyer, Hank Intven, prepared a paper on Guyana's telecom sector. The intent of the paper was not to immediately inform policy decisions, but rather to serve as a catalyst for discussion and debate on issues pertinent to the development of the telecom sector. Intven comprehensively dealt with the issues of the local telecom sector and suggested several options for reform. In particular:

1. The government should establish one regulatory agency for the telecom sector as opposed to multi-agency approach which now exists. Alternatively, Guyana could become a member of a regional regulatory body, with the establishment of the Caribbean single market (CSM), this option should not be ruled out.
2. The current rate of return regime should be replaced with incentive regulation, in keeping with international best practice.

Source: Intven (2001).

3. Guyana's telecom regulatory environment

3.1 Introduction

The period from 1990-1991 marked a watershed in Guyana's TRE with the passing of the Telecommunications Act and the Public Utilities Commission Act. The PUC Act enabled the establishment of the PUC, while the Telecommunications Act provided for the appointment of a Director of Telecommunications whose mandate would include the granting of licences. To-date, this post has not been filled, and the minister responsible for telecom executes the anticipated functions of the Director of Telecommunications.

While the government at the time found it prudent to enact legislation for the regulation of the privatised telecom utility (and other public utilities) it is important to note that there is a fundamental difference between the Telecommunications and PUC Acts, the GT&T licence and the Purchase Agreement. Intven highlighted this fact in his consultancy paper on Guyana's telecom reform: "A number of the concepts of the British-based Telecommunications Act and GT&T license are inconsistent⁵ with those of the Purchase Agreement and PUC Act, with their US-based concepts and terminology" (Intven 2001: 29). Inconsistencies between these important documents naturally would have negatively affected Guyana's TRE.

In addition to the PUC and the Director of Telecommunications, the National Frequency Management Unit (NFMU) is the third agency in Guyana's telecom regulatory triad. It is worth emphasising that given the resource base of the country it would be more prudent for the functions of these three agencies to be integrated into one.

3.2 Methodology of TRE survey

This study follows the methodology developed by Rohan Samarajiva as detailed in the 2005 Sri Lanka case study (see Samarajiva and Dokeniya 2005). Some minor adjustments have been made for this application of the methodology. For example, the refining of the core elements or dimensions of the Basic Telecommunications Reference Paper of GATS Fourth Protocol was retained; however, the dimensions were not always used in the same strict fashion given the dynamics of Guyana's telecom sector. This study seeks to assess the relative state of Guyana's TRE based on the dimensions identified for each segment of the wider telecom sector.

3.2.1 Choosing dimensions and time periods

- Unlike Sri Lanka, Guyana's telecom sector is in a relatively nascent stage of liberalisation and development. Because 1990 marked a watershed in the history of the country's telecom sector, this year was the ideal starting point for assessing the TRE under the fixed line sector. Determining an end point for the first period was not as clear-cut as determining the starting point, especially given the stage of the sector's development. Since the latter part of the 1990s saw changes in the sector, such as the growth in mobile services, amendment of the PUC Act and radical changes in phone rates, the first period was chosen to cover 1990-1998, and the second period 1999-present.
- Given the monopolistic nature of the fixed sector, the dimensions relating to market entry, access to scarce resources, interconnection and regulation of anti-competitive practices were not dealt with here. Rather, only the dimensions of tariff regulation and universal service were considered. Samarajiva and Dokeniya (2005) suggested that universal service is not necessarily a core regulatory function and given the mature status of Sri Lanka's telecom sector this position is understandable. In the case of Guyana, however, universal service is definitely a core regulatory function. Due to the monopolistic nature of fixed line services, GT&T's commitments under the Purchase Agreement and the mandate of the PUC, it would have been remiss not to include this in the assessment of Guyana's TRE.
- During the early years of GT&T's operations, the provision of mobile cellular services was overshadowed by landline service provision. This is understandable given Guyana's level of development and technological advancement at that time. GT&T remained the only licensed mobile cellular provider until 1996. However GT&T was only afforded effective competition with the advent of Cel*Star. Due to the small number of mobile subscribers and the fact that most of the dimensions are more suited for the competitive sector, it was decided that the TRE of the mobile sector would be assessed for the period during which the sector had become competitive. The first period spanned 1996-2000 and the second period 2001-present. The starting point of

2001 was chosen for the second period because it was during this period that Cel*Star was given the right to operate, thus making the sector effectively competitive. Admittedly, it was the opinion of one respondent that the mobile sector is not truly competitive as Cel*Star presents no immediate threat to GT&T's dominance at this time. This view is supported by the fact that apart from increasing its coverage and network efficiency, GT&T has not needed to offer attractive deals to lure and keep subscribers.

- Given that the mobile sector was being assessed during the epoch of competition in that sector, the five dimensions of tariff regulation, interconnection, market access, resource allocation, and anti-competitive behaviour were used. Unlike the fixed sector, universal service was not viewed as a core function or issue, given the costs associated with providing this service relative to the provision of landlines and the rapid growth in subscribers.
- In conclusion, it is apt to note that while the author did not assemble or consult a group of national experts to decide on the dimensions and periods for consideration, comments were sought from knowledgeable persons and colleagues.

3.2.2 Identification of respondents

- Given the author's knowledge of the local environment, a list of possible knowledgeable respondents was drafted and passed on to colleagues for comment and suggestions. In the end, 15 questionnaires were distributed and seven were completed and returned, resulting in a 46% response rate.
- Respondents were drawn from telecom service providers, civil society, the legal profession, academia and government.

3.2.3 Administering of questionnaires

- Questionnaires were given to potential respondents either by hand or via e-mail, naturally the latter medium proved quite useful. In an effort to reduce the length of time that respondents would take to answer and return the questionnaire, the author was advised to conduct interviews. This was not always possible. In cases where interviews were possible, questionnaires were left in advance and a time set for an interview. This arrangement worked out quite well and afforded the respondent time to peruse the questions before the actual interview.
- Although the survey instruments contained sufficient information to enable the respondent to answer, the researcher in some cases expounded on the information provided for respondents.
- When interviews were conducted, although they did not necessarily serve as a major contributor to the assessment

of the TRE, they certainly provided value-added information and would be useful for future studies of this nature.

3.2.4 Calculation of assessments

- In order to determine the average perception of respondents, for each dimension of the TRE, a simple arithmetic average was calculated using the five point Likert scale and the corresponding assessments.

3.3 Assessing Guyana's TRE

3.3.1 Fixed Sector – 1990-1998

3.3.1.1 UNIVERSAL SERVICE

As the sole provider of landline services in Guyana, GT&T is responsible for ensuring universal service. The PUC mandate is to ensure that GT&T does not renege on this important responsibility. Although many would argue that GT&T has significantly transformed the telecom landscape in Guyana, it would be remiss to conclude that universal service during this period was satisfactory.

The average score allocated by the respondents for this dimension of the TRE, for the period under review, was 1.7 or unsatisfactory. In 1996, the then PUC chairman, Mr. P.J. Menon, took GT&T to task by issuing a press release on 19 August.⁶ The chairman asserted that GT&T had “never fulfilled its contractual obligations, as are explicitly stated in the Government of Guyana-Atlantic Tele-Network (ATN) agreement of June 1990 and in the license issued to the new GT&T.” He added, “the company did not complete the programme of work outlined in its own original development plan within the stipulated period despite two extensions granted for this purpose.”

In reply, GT&T cited the devaluation of the Guyana dollar,⁷ coupled with low telephone rates, as the key reasons for its inability to execute its expansion program.⁸ Naturally, the PUC disagreed, and Menon further recalled that in the purchase agreement GT&T had stated that it had “the requisite human resources and capital and ability to raise financing to perform all of its obligations and undertakings.”⁹ However, it is relevant to note that GT&T had also agreed to keep phone rates constant, unless there was devaluation in the Guyana dollar, *inter alia*. Therefore, while the PUC is correct in alluding to GT&T's early confidence in raising funds it is possible that such confidence was expressed *ceteris paribus*.

3.3.1.2 TARIFF REGULATION

The perception of the dimension of tariff regulation was assessed as unsatisfactory (2). Given the state of the regulatory environment during the period 1990-1998, and relative to the period 1999-present, this dimension is better described as poor. From the inception of GT&T's operation in the year 1991, the ugly problem of tariff battles emerged. In 1991, GT&T management unilaterally decided to increase telephone rates by 200%. The company's position was that in light of the devaluation

of the Guyana dollar,¹⁰ increased rates were a necessary response, in particular to ensure a 15% rate of return.

Then Deputy Prime Minister Mr. Robert Corbin stated in response to GT&T's decision, “I am a little concerned that the company, at such an early stage, has not seen fit to stick to the agreement.”¹¹ Interestingly, the PUC commissioners had only been appointed a week earlier and had yet to be sworn in. It is rather surprising that the PUC – whose mandate it is to regulate public utilities such as GT&T – was not yet fully functional, while GT&T had already commenced operations. These events could be viewed as starting on the wrong foot, or as an ominous sign of things to come. After this initial presumptuous move by GT&T, there were other battles over tariffs. Over time the PUC was recognised by GT&T and as such applications were made for rate increases. This recognition did not translate into smooth and timely resolutions of tariff issues.

3.3.2 Fixed Sector – 1999-present

3.3.2.1 UNIVERSAL SERVICE

Universal service for the period 1999-present received an average score of 2.7 and is therefore assessed as neutral, which is a clear improvement from the poor assessment of the previous period. The improvement in the TRE as it relates to universal service is attributable in part to the pressure placed on GT&T during the latter part of the period 1990-1998.

On 31 October 1997, the PUC issued an order for GT&T to increase its provision of telephone lines and to implement new services.¹² The order specified that the incumbent must increase the number of lines to approximately 102,000 by 2000, with increases of 69,278 and 89,054 lines during 1998 and 1999 respectively. These increases exceeded GT&T's proposal in its 1996 three-year Expansion and Service Improvement Plan (ESIP). Unsurprisingly, these projections were not met; in fact the company only achieved 102,000 lines in 2004. Despite the foregoing, however, the TRE as it relates to universal service was certainly better than during the previous period, and the PUC's actions likely were a strong factor. It should be noted that the rapid growth in the mobile cellular sector during this period would have relieved GT&T from some degree of public pressure. It was not uncommon for entire communities to protest outside GT&T's offices about the insufficient provision (or complete lack in some cases) of landlines.

3.3.2.2 TARIFF REGULATION

The regulation of tariffs for this period was assessed as unsatisfactory (2.3), indicating an improvement over the previous period. However, this period was also characterised by disputes between the PUC and GT&T for protracted periods.

The central issue of concern regarding tariff regulation for this period was the reduction in settlement rates by the Federal Communications Commission (FCC) of the United States. The FCC had indicated from as early as 1998 the intention to reduce the settlement rate for calls to Guyana originating in the US, from USD 0.85 to USD 0.23. The FCC lived up to its intentions by introducing the benchmark 23 cents settlement

rate in January 2001. Further, the growth of Internet cafes providing VoIP services also contributed to decreased overseas revenues.¹³ Naturally, GT&T proposed increases in telephone rates to offset this reduction.

On 21 December 2001, the PUC rejected GT&T’s application for an increase in telephone rates. In December of the previous year, GT&T had requested increases for intra-exchange rates by approximately 1900% and inter-exchange calls by 75%.

3.3.3 General comments

During the two periods under review, *unsatisfactory* best describes Guyana’s TRE in the fixed sector. This perception is supported by assessments of the universal service and tariff regulation dimensions of the sector. The survey yielded overall scores of 1.9 and 2.5 for the two periods, thus resulting in an average score of 2.2 for the fixed line sector (see Table 5).

It is interesting to note that the two dimensions considered for the fixed line sector are interdependent. This is highlighted by the fact that GT&T was promised a minimum 15% return on its investment and consequently agreed to a plan for increasing the number of functional lines. Given the numerous battles between the PUC and GT&T on the issue of phone rates it is no surprise that the PUC also had a hard time getting GT&T to live up to its obligations relating to universal service.

These battles over telephone rates having been fought primarily in court does not reflect well on the ability of the PUC to effectively execute its mandate. Further, when these matters between the PUC and GT&T are taken to court, the time needed to resolve the issue(s) can be very lengthy, ultimately affecting all stakeholders.¹⁴

Change to the original PUC Act of 1990 was initiated primarily with the intention of adjusting the PUC Act to bring it in line with the GT&T licence. However, this amendment did not significantly change the TRE. This first amendment resulted in the PUC Act of 1997 (this Act was itself amended in 1999). Some respondents felt that the amendment weakened the power of the PUC to regulate GT&T. A member of parliament commented that the amendment resulted in “making the agency [PUC] a toothless poodle” and accused the government of going to bed with GT&T when it forced this amendment through the house.¹⁵

Finally, the apparent lack of good corporate behaviour by GT&T as relates to the provision of audiotext services (see Box 3) further contributed to the unsatisfactory performance of the sector for the period under review.

3.3.4 Fixed sector TRE & investment

Investment decisions within the fixed sector mainly concern expansion of GT&T’s services, and by extension its equipment, since the purchase agreement prohibits the entrance of new firms wishing to provide landline services.

The poor state of the fixed sector TRE for 1990-1998, relative to 1999-present, would have impacted negatively on GT&T’s investment decisions. As evidenced by the choice of dimensions for the fixed sector, the primary concerns of the fixed sec-

tor, then and now, are universal service and tariff regulation. GT&T has often accused the PUC of not allowing it to charge feasible rates, while the PUC has often lamented GT&T’s failure to live up to its obligations regarding universal service. GT&T has contended that it cannot do so given the PUC’s reluctance to allow feasible rate increases. An excerpt from the GT&T *Blue Book* (2004) highlights this point:

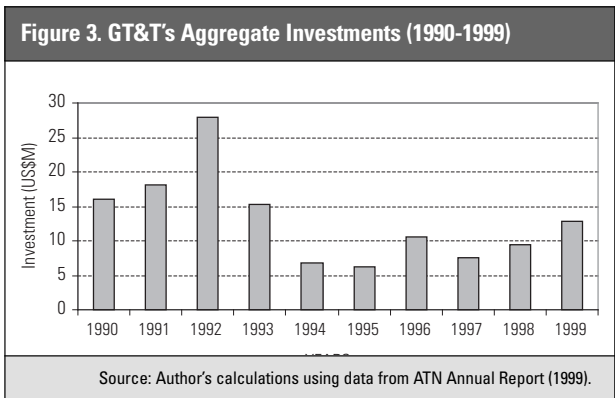
Contrary to what certain regulatory and Government officials would have the public believe, GT&T did fulfil its commitment to install 20,000 new lines during the first three years of operation. If that momentum was not maintained, it was because of punitive and prejudicial regulatory actions at that time. The actions make investors less inclined to commit resources because of the risks they perceive.

Figure 3 shows GT&T’s annual investments for 1990-1999. Of particular importance are the relatively sizable investments for the early years.

GT&T’s contention is supported by Samarajiva and Dokeniya (2005), who note that, “once a firm is in a market, deterioration in the TRE might depress the level of investment, but will not necessarily lead to no investment or to withdrawal.” Further, “investment decisions after entry are driven to a great extent by the desire to protect and enhance the initial investment.” However, due to GT&T’s monopoly position in the local market there was little urgency to “protect and enhance their investment.” Pressure from the PUC led to the company increasing the number of phone lines, but many areas still remain underserved, and the company’s focus has

Table 5. Assessment of the Fixed Sector’s TRE

Dimensions	1990-1998	1999-Present
Universal Service	Unsatisfactory (1.7)	Neutral (2.7)
Tariff regulations	Unsatisfactory (2)	Unsatisfactory (2.3)
Overall Assessment	Unsatisfactory (1.9)	Unsatisfactory (2.5)



Box 3 – The audio-text bombshell

During the mid-1990s, the Guyanese public learned that GT&T was operating an audio-text service (phone sex service), without the knowledge of the PUC, the government or the wider Guyanese society. The company was making millions of dollars from this service. Foreign persons wishing to engage in such activities would call a sex hotline number with the Guyana code +592, and since these calls terminated in Guyana, GT&T received a settlement rate.

Joseph Tyndall, the first Chairman of the PUC, and the Consumer Advisory Bureau (CAB) made a submission to the FCC, accusing Atlantic Tele-Network Inc. (ATN – the parent company of GT&T) of secretly facilitating audio-text services.* The submission asserted that ATN’s staff was fully responsible for the operations in Georgetown, and as such local Guyanese staff might not have been fully aware of the service.

The moral rectitude of such a service was not the primary point of contention; rather, it was the manner in which the service was conducted that is relevant to the TRE. Without a doubt, GT&T made substantial amounts of money from the audio-text business. However, the manner in which GT&T treated this revenue in its financial reports is cause for concern.

In the submission prepared by Tyndall and the CAB, it was stated that, “the great paradox is that GT&T does not earn any revenues from the provision of audio-text services. What GT&T does is to attribute a share of the settlement

revenues from certain sources, mainly the US to its audio-text business.” The submission also noted that, “information provided in ATN’s documents shows quite clearly that GT&T has not entered into any agreement with US and other carriers for the collection of audio-text services or for the transfer of revenues from this source.”

In other words, Tyndall and the CAB contended that GT&T did not have a contract covering audio-text revenues from US carriers, and as such, any revenue earned from such activity should have been regarded as part of all settlement revenues for calls terminating in Guyana. After all, the infrastructure used for the audio-text business was not purchased separately from that needed for the provision of international service to Guyana.

The initial secrecy surrounding the audio-text business certainly added to the tenuous state of the TRE, and would have tainted GT&T’s reputation in the eyes of the PUC and the people of Guyana.

Audio-text contributions to GT&T

	1993	1994	1995	1996	1997	1998
Contribution to Revenue	23.56%	49.61%	70.82%	73.37	53%	45%
Contribution to Profit	2.9 M	14.8 M	37.1 M	40.3 M	11.8 M	—

* See Tyndall and Consumer Advisory Bureau (1996).

shifted somewhat to the mobile sector, where the number of subscribers has overtaken that of the fixed sector.

3.3.5 Mobile Sector – 1996-2000

This period marked the end of GT&T’s monopoly in Guyana’s telecom sector. During this period two companies were granted licences to operate. However, this development did not drastically revolutionise the local wireless telecom sector.

3.3.5.1 REGULATION OF ANTI-COMPETITIVE PRACTICES

Assessment by the respondents for this dimension was unsatisfactory (a score of 2), which is the same as for interconnection, for the period 1996-2000. The primary example of anti-competitive behaviour would have to be GT&T’s interconnection dispute with Caribbean Telecommunications Ltd. (CTL) as explained in the section on interconnection below.

3.3.5.2 INTERCONNECTION

Interconnection for the period under review was assessed as unsatisfactory (2). The incumbent, GT&T, was embroiled in a dispute with the newly licensed company, CTL, over interconnection. CTL received its licence in 1996 and in the following year, the PUC ordered GT&T to interconnect with the company.

CTL accused GT&T of refusing interconnection and manoeuvring for control of the local mobile market in addition to charging higher mobile rates relative to those charged by CTL. CTL offered rates between GYD 40.00 and GYD 25.00 per minute, while GT&T’s lowest rate was GYD 40.00.¹⁶ In response to the allegations levelled by CTL, GT&T contended that it was indeed willing to interconnect with CTL, but claimed that CTL was not willing to pay the interconnection fees.

The case with CTL was only the first instance in which GT&T was accused of acting unfairly. Caribbean Wireless Telecommunications LLC (CWT) also accused the incumbent of unfair treatment.

It should be noted that while GT&T is obligated to interconnect with licensed companies, the basis for interconnection and the rights of start-up firms are only stated in GT&T’s licence.¹⁷ Additionally, the company uses its interconnection template as a guide to instituting interconnection with other companies. Clearly, this tenuous arrangement does not bode well for proper regulation, and as such contributes to the unsatisfactory assessment of the sector under this dimension.

3.3.5.3 MARKET ENTRY

While the score given by respondents indicates that market entry for this period was unsatisfactory (2.3), it might be more

prudent to describe this dimension as neutral. The reason for this lies in the fact that there were no major issues relating to the licensing of telecom service providers. In fact, the willingness of the government to open the mobile sector to competition resulted in the licensing of two companies, CTL and CWT.

In his consultation paper, Intven (2001: 44) noted inconsistencies between the Purchase Agreement and the GT&T licence. These documents are based on two different legal foundations, American legal concepts on the one hand and British legal concepts on the other. According to Intven this has resulted in “considerable discussion and dispute” concerning constraints on the power of the minister responsible for communications to grant licences.

Intven further contended “the current licensing regime is also unclear” and cited the example of distinctions between licensing of services and facilities. The Telecommunications Act (British in nature) regards licensing as “the running of telecommunication systems” while the Purchase Agreement and the PUC Act (both American in nature) are concerned with “licensing or regulating services.” While the foregoing anomalies are concerned generally with the telecommunications sector, it is apposite to use them in assessing market entry in the mobile sector. Additionally, according to one respondent, there is a degree of unpredictability and lack of transparency in the licensing regime. Therefore, while there have been positives in the licensing of new entrants, the overarching inconsistencies, coupled with the poor licensing regime, result in a neutral assessment of this dimension.

3.3.5.4 TARIFF REGULATION

The perception of the respondents for this dimension is unsatisfactory (2.3). While the issue of tariff regulation was not relatively contentious for the period under review, the perception of the respondents might have been influenced by the overall unsatisfactory state of the TRE. Moreover, one respondent felt that the TRE under this dimension was poor – when his score is excluded, the average perception moves up to neutral.

In November 1997, the PUC approved temporary rates for the start-up cellular company CTL, at the same time GT&T was ordered to interconnect with the company. The approval of these rates were not met with hostility from GT&T; rather, there was discontent between the two firms on the issue of interconnection.

3.3.5.5 ACCESS TO SCARCE RESOURCES

The assessment of the mobile sector's TRE as it relates to this dimension is neutral (3). Scarce resources for the sector within Guyana primarily concern spectrum allocation and to some extent the rights of way and use of land for housing telecom infrastructure. Guyana is actually well endowed in these areas, and when coupled with the fact that the market for telecom services is relatively small and comprises only three mobile service providers, it is easy to understand why there has not been much competition for these resources.

3.3.6 Mobile sector – 2001-present

While 1996-2000 saw the introduction of competition, it was during this second period that the mobile sector truly became competitive with the licensing of Cel*Star Inc. – GT&T's main rival.

3.3.6.1 REGULATION AND ANTI-COMPETITIVE PRACTICES

Again, unsatisfactory is the assessment for this dimension (with a score of 2). The GT&T/Cel*Star issue can be viewed as the primary contributor to this assessment. One respondent assessed this dimension of the TRE as poor for the period under review.

3.3.6.2 INTERCONNECTION

The central issue regarding interconnection for this period has to do with the dispute between Cel*Star and GT&T. The trend has been that every start-up mobile cellular company has had an issue with the incumbent over interconnection. In the case of Cel*Star, GT&T signed an agreement with the operator in April 2003, and subsequently failed to come through on its obligations, alleging that it was unable to interconnect because of an ongoing dispute regarding Cel*Star ownership.

The PUC subsequently sought recourse in the Court of Appeal (the highest court in Guyana at that time). The issue for the court was whether the PUC's mandate allowed it to order GT&T to interconnect with Cel*Star on a temporary basis pending the result of the ownership dispute.¹⁸ The Court of Appeal later ruled that the PUC had both the jurisdiction and power to order GT&T to temporarily interconnect with Cel*Star.

The protracted period of time before interconnection materialised between the two parties coupled with the fact that the matter had to engage the highest court of the land certainly warrants an assessment of unsatisfactory for this dimension. The respondents' average assessment score of 2.3 for interconnection is not significantly different from that of the previous period.

3.3.6.3 MARKET ENTRY

While the assessment by the respondents on this dimension was 2.7 as compared to 2.3 for the first period, there was no significant change for this dimension of the TRE. During the period under review, Cel*Star Inc. was granted a licence to operate. However, the concerns raised in the previous period under this dimension still hold true. Therefore, the TRE as it relates to market entry does not differ significantly from the previous period.

3.3.6.4 TARIFF REGULATION

For the most part, tariff regulation was good. However, as the study was being conducted there was some controversy around the reduction of rates by Cel*Star for the purpose of a Christmas promotion. GT&T felt that such a reduction is nothing short of predatory pricing and took its claim to the PUC. A local newspaper column entitled *Consumer Concerns* reprint-

ed a statement made by former PUC head, Joseph Tyndall. He asserted that, “there was no good reason for the commission to control the rates charged by a start-up company entering into competition with a dominant incumbent, since the new provider would not be able to charge rates that are higher than the incumbent’s. If the new incumbent has the ability to offer lower rates this should force the incumbent to take steps to match the competitor in price and quality.” About one week before Christmas (December 2005), the PUC granted Cel*Star approval to launch its Christmas promotion.

The average perception of tariff regulation for 1999-present was again distorted by an outlier, thus resulting in an average score of 2.5 (unsatisfactory). Removal of the one very negative assessment increases the score to neutral (2.8).

3.3.6.5 ACCESS TO SCARCE RESOURCES

The assessment of this dimension for the period under consideration is the same as for the previous period and in large part for the same reasons. In 2001, there was a case in which a company called i-net was accused of operating illegally. The NFMU, in its capacity as the responsible agency, monitored the situation and could have shut down and seized the company’s equipment if ordered to do so by the minister responsible for telecoms. This incident aside, spectrum allocation might become a major issue as the sector develops. In response to the government’s intention to eventually give Digicel (a large telecom service provider operating in many Caribbean countries) a licence, GT&T contended that the government’s proposed frequency division plan could lead to significant congestion during the upcoming elections and the Cricket World Cup in 2007.¹⁹ Previously, GT&T had made investments based on a 50% spectrum allocation in the 900 MHz band. However, according to the company the new plan, which proposes four blocks of 25% each, will result in the company incurring more costs. GT&T suggested to the NFMU that 33% could be allocated to each provider – Cel*Star, GT&T and Digicel when it comes on board – thus ensuring the sector is competitive while simultaneously reducing GT&T’s increased cost. Where this issue will end up is not clear at this time.

During an interview for this study one respondent described spectrum allocation as a give away, since in his opinion too little was charged. However, another respondent posited that because of the number of mobile service providers and the size of the Guyanese market, it would have been counter-productive to engage in activities such as spectrum auctions. In other words, the demand for spectrum was low as compared to supply, so much so that mobile phone companies would not pay anything significantly more than what they are currently paying for spectrum use if the resource were auctioned off. Additionally, given the stage of Guyana’s development, charging higher prices for spectrum would certainly hinder the growth and development of the sector, and by extension the country as a whole.

3.3.7 General comments

While the average score for the mobile segment of the telecom sector is 2.4 it would be prudent to assess the TRE for the mobile sector as generally unsatisfactory. However, relative to the fixed line sector the mobile sector can be considered to have a slightly better TRE. The fact that both sectors make up the local telecoms sector naturally suggests that their performances are interdependent. In other words, the unsatisfactory state of the fixed line sector would have certainly affected the *status quo* of the mobile sector. Further, the growth of competition in the mobile sector would eventually lead to positive externalities in the fixed line sector.

3.3.8 Mobile sector TRE and investment

While the overall condition of the TRE would have affected the level of investment in the mobile sector over the years, the issue of interconnection seems to be the Achilles heel. Intven (2001) contended that, “As in most countries, the establishment of clear interconnection arrangements is a pre-requisite for the development of effective cellular competition in Guyana.” In relative terms the TRE as it concerns interconnection saw a small improvement from the period 1996-2000 to the period 2001-present. The average scores obtained for this dimension (see Table 6) support this view. This relative improvement is further supported by the fact that prior to the establishment of Cel*Star the mobile sector was in its early stages of competition and development, and the lone operating competitor to GT&T at that time, CTL, was not a serious competitor given its location and size. With the licensing and eventual interconnection of Cel*Star with GT&T, effective competition in the mobile sector was becoming a reality. Admittedly, GT&T still plays a largely dominant role in this part of the sector and consumers have not yet been able to benefit from lower rates and increased quality of service. In fact, the service from both providers is sometimes poor, and it is not surprising for consumers to be greeted with the message “Sorry, no circuits are available at this time.”

The TRE for the mobile sector seems to be improving as the sector matures (see overall score in Table 6). An example of this is the PUC ruling in January 2006 that Cel*Star’s application for

Table 6. Assessment of the Mobile Sector’s TRE		
Dimensions	1996-2000	2001-Present
Regulation of anti-competitive practices	Unsatisfactory (2.0)	Unsatisfactory (2.0)
Interconnection	Unsatisfactory (2.0)	Unsatisfactory (2.3)
Market entry	Unsatisfactory (2.3)	Neutral (2.7)
Tariff regulation	Unsatisfactory (2.3)	Unsatisfactory (2.5)
Access to scarce resources	Neutral (3.0)	Neutral (3.2)
Overall Assessment	Unsatisfactory (2.2)	Unsatisfactory (2.4)

a reduction in its rate was not predatory pricing, as claimed by GT&T.²⁰ Additionally, there have been recent new investments by both Cel*Star and GT&T in an effort to improve the quality and range of their services. At the time of writing GT&T is celebrating its 15th anniversary, and is using this milestone to open four new mobile cellular sites, worth approximately USD 1 million, within and outside of the city of Georgetown. Increased investments in the mobile cellular market are expected to continue into the near future. At the end of 2005, Cel*Star had 42 mobile cellular sites and on 20 January 2006 the company's Chief Operations Officer, Pierre Strasser, indicated that the company hoped to increase the number of sites to 95, a more than 100% increase.²¹ Strasser admitted that the company was in conversation with companies such as Cable & Wireless and Digicel regarding the possible takeover of Cel*Star. Both Cable & Wireless and Digicel have a strong regional presence. On 20 February 2006, the President of Guyana indicated the government's intention to grant Digicel a licence to operate in the local mobile cellular market.²²

It is important to note that the dominant provider, GT&T, operated a TDMA service prior to Cel*Star being granted a licence. With Cel*Star waiting in the wings to introduce its GSM service, it would have been remiss of GT&T not to introduce a similar service. In the end, GT&T launched its GSM service a few months before Cel*Star. Samarajiva and Dokeniya (2005) comment "its peaks [investments] and valleys are explained more in terms of changes in standards, than in terms of TRE." This view partly explains GT&T's investment decision with regards to the GSM 900 service. However, further investing to protect and enhance its investment seems to be the better explanation in this instance. The global telecoms sector seems to be moving more and more towards the GSM mobile cellular platform. However, it is apposite to note that GT&T still provides a TDMA service – with a virtual monopoly for this sector – and will continue to do so until around 2008.

Despite recent increases in investment in the mobile sector, the pace at which the TRE improves hinges critically on the comprehensive reform of the telecom sector. Regrettably, the reform train has stopped and there is no certain timeframe for its restart.²³ In his policy paper, Intven (2001) posited "there appears to be a number of reasons for the slow development of competition in the cellular market, including regulatory uncertainty and lack of financing on the part of competitors." While these two hindrances to investment and competition can be considered in isolation of each other, it is important to note that the lack of financing will be further compounded by regulatory uncertainty since the latter makes investment more risky. Intven in support of this view noted, "the cellular competitors have stated that the regulatory uncertainty has affected their ability to finance their service roll-outs."

4. Comments and recommendations for further TRE assessments

Generally, Guyana's TRE assessment, as derived from responses to the questionnaire, closely mirrors the opinion of the author. In fact, only in the case of tariff regulation assessment did the opinion of the author differ from that of the average respondent. For the mobile sector assessment, the perception of one respondent (negatively) affected the average. Certainly a larger sample size would have corrected this.

Collecting data and information can be a very daunting task, and this study was no different. As noted earlier the response rate of contacted knowledgeable persons was approximately 46%. Regrettably, no cooperation was received from some key players. On the other hand, reports and other materials were readily available. While a better response rate was not expected to significantly alter the assessment, the additional comments from other stakeholders would have certainly added some value to the analysis. Additionally, a higher response rate would have increased the reliability of the assessment for the different dimensions.

The following are recommendations that can be considered for future studies of the TRE, especially in developing countries such as Guyana.

1. While it would be worthwhile to assemble a national group of experts in one place so as to decide on possible respondents, it would be easier for the author/researcher to compile a list based on his/her knowledge of the sector. Additionally, this list could then be passed on to knowledgeable persons or experts in the field who could then comment on the selection and add other names as they see fit. Such an approach is not time consuming and the list could be circulated via e-mail.
2. Given the nature of the exercise, it is useful to conduct interviews with respondents and/or provide spaces for general as well as dimension specific comments. Insights and deeper understanding of particular events or phenomena can be garnered from interviews, and this practice certainly adds to the objectivity and soundness of such a study. This in no way suggests that interviews are a must; rather, they can complement the TRE assessment, and prove useful to the researcher in his/her analysis. Interviews, however, are not always feasible, especially in instances where the respondents are not easily accessible. During the execution of this study, the author was fortunate to have two interviews, during which the respondents simultaneously answered the questionnaire. The value of such comments is pretty obvious.
3. While there is some merit to deciding on the weighting given to specific dimensions (interconnection, tariff regulations, etc.) depending on the dynamics of a particular telecom sector, such a move might only be feasible in a situation in which the assessment is not done for comparison with other countries. In other words, since the dynam-

ics of telecom sectors vary between countries, even those with similar levels of development, it would be more prudent to give all dimensions the same weighting if the assessment is to be done for comparison purposes.

4. If countries are to be assessed for international comparison, it might be useful to construct separate indices, or give their dimensions different weights to distinguish between countries that have a monopoly provider and those that do not. For example, Guyana's fixed sector is not a competitive one, therefore for comparative purposes it would be remiss to compare Guyana's fixed sector TRE with that of a country that has a competitive fixed sector. Admittedly, the dynamics vary even between countries at similar levels of development, but at the same time countries can be separated into two or more groups in the same fashion that the UNDP separates countries according to high, medium and low levels of development. The central idea here is not to compare a Toyota with a Rolls Royce.
5. It would be worthwhile if questionnaires are not only designed to determine the perception of respondents on the relative state of the TRE, but also to solicit perceptions on how the TRE affects the level of investment. The Likert scale would be ideal once again.

5. Conclusion

In light of the evidence presented in this study, unsatisfactory is the most fitting general assessment of Guyana's TRE. The survey of knowledgeable persons supports this general description. In fact, the overall score for both sectors is 2.3. This undesirable condition of Guyana's TRE is a result of some fundamental issues.

First, there is the issue of inconsistencies between the relevant Acts, the Purchase Agreement and the GT&T licence. While some effort was made to bring the PUC Act in line with the GT&T licence, much more needs to be done, especially as regards issues such as interconnection. Additionally, the lack of a comprehensive National Telecommunications Policy further compounds the unsatisfactory framework within which firms operate.

Another reason for the poor state of Guyana's TRE is the conduct of GT&T. While the incumbent is entitled to charge rates that reflect its costs and guarantee its rate of return, the company has not always behaved in the manner of a good corporate citizen. The secrecy with which the company conducted its audio-text business and the dubious definition of the revenue derived from this activity merely added salt to the wound of suspicion, thus contributing to the tenuous state of Guyana's TRE (Tyndall and CAB 1996).

A third fundamental issue concerns the lack of technical human resource capacity at the regulatory agencies. This problem is not unique to Guyana; rather, it is an inherent characteristic of developing countries. Naturally, the lack of technical

capacity would have hindered the PUC's execution of its mandate. Further, much needed financial resources were lacking to hire consultants with the requisite technical skills needed to get the job done.

Finally, given the nascent stage of liberalisation in Guyana's telecom sector coupled with the socio-economic realities of the country, it is not surprising that the TRE is in a relatively unsatisfactory state. The protracted time for the resolution of disputes is a good example of one of the deficiencies that is characteristic of a developing country like Guyana.

It goes without saying that the primary movers and/or shapers of Guyana's TRE are GT&T and the government. Therefore, it is only natural that the improvement in Guyana's TRE rests squarely on the shoulders of these two major stakeholders, with the government taking the majority of the responsibility.

As a start, the Telecommunications Act and the PUC Act need to be amended, and the GT&T licence modified. Such changes should not occur in isolation but rather they should be made in tandem with a general national development plan. In other words, the long awaited National Telecommunications Policy should be completed, with the regulatory framework being a key component. Additionally, the forthcoming Competition and Fair Trading Act²⁴ will be a welcome addition to Guyana's TRE. In order to complement the aforementioned, the GT&T licence should be modified to reflect the changing realities of telecoms locally, regionally and internationally – e.g. the early end of the incumbent's monopoly status and rate of return regulation should be replaced by incentive based regulation. Such changes will most certainly rely on ATN's goodwill, given that GT&T happens to be the most profitable of its subsidiaries.

For the effective running of the regulatory agencies, adequate financial and human resources are needed. To this end, the government must ensure that adequate financial resources are made available to the PUC, thus enabling it to carry out such functions as economic research, which would certainly aid in objective decision-making. Access to adequate financial resources, however, is useless unless there is a good cadre of personnel available. It is imperative that the government seeks to improve the quality and quantity of human resources available to the regulatory agencies.

In terms of this study, the big question is whether an improved TRE will result in increased investment. This study has supported the assertion that the state of a country's TRE can affect the level of telecom investment, as a poor or unsatisfactory regulatory environment can add to perceived risk. Bohlin, et al. (2004) conclude that "the relationship between regulatory reform and network investments is still unsatisfactorily understood from the research literature," thus bringing into question the impact of an improved TRE on the level of investment. Samarajiva and Dokeniya (2005) conclude that "the question of the effect of TRE on investment decisions makes sense only in an environment where market forces dominate." For Guyana, market forces do not dominate either

segment of the sector, although the mobile sector is moving towards increased competition where market forces are more likely to exist. Bohlin et al. also posited that “operators will invest in equipment and infrastructure when their financial strengths allow them to, and when the discounted accumulated financial returns can be expected to exceed the level of investment.” It would seem that the licensed firms, CTL and CWT, did not have the financial muscle to make significant investments in Guyana. GT&T’s dominance and the unsatisfactory TRE would have further compounded their situation. On the other hand Digicel certainly has the necessary finances.

In conclusion, the unsatisfactory TRE has and will continue to affect telecom investment in Guyana, unless the sector is reformed. On the other hand, a reformed sector, and by extension the TRE, will not necessarily result in significant increases in telecom investment without wider and deeper reform of public institutions, and improvement in the macroeconomic and business environment. Moreover, the relatively small size of the population will certainly constrain expansion after a certain point. In other words, an improved TRE is a necessary but not a sufficient condition for increased telecommunications investment in Guyana.

Notes

¹ While Internet service providers are a part of the local telecom sector this study focuses on the regulation of landline and mobile cellular services providers.

² Intven (2001) speculated that at that time CTL had approximately 100 subscribers.

³ While it would have been prudent to consider the investments by all firms in the sector, information was not readily available on the level of investment of the other firms, over time.

⁴ Stabroek News (2005). “Telecoms reform a no-go – info tech project shelved, technical co-op pact halted,” Guyana Publications Inc. 26 September, p.10.

⁵ See example in Section 3.3.5.3.

⁶ Guyana Chronicle (1996). “Commission slams GT&T,” Guyana Newspapers Ltd. 20 August, pp.1&10.

⁷ The Guyana dollar was devalued by about 180% between 1990 and 1991.

⁸ Guyana Chronicle (1996). “PUC upbraids GT&T on expansion programme-phone company declines comment,” Guyana National Newspapers Ltd., 24 August.

⁹ Ibid.

¹⁰ The nominal devaluation of the currency was from GYD 49.00 per USD 1.00, to GYD 123.00 per USD 1.00.

¹¹ Stabroek News (1991). “Phone rates row could reach court,” Guyana Publications Inc. 21 March, p.1.

¹² Guyana Chronicle (1997). “PUC orders GT&T to provide additional lines,” Guyana National Newspapers Ltd. 3 November.

¹³ Because of cheap Internet calls, GT&T was forced to reduce its rates to countries such as the US and Canada.

¹⁴ Consumer Advocate Ms. Eileen Cox bemoaned the long delays in the conclusion of cases between GT&T and the PUC in a 1999 Consumer Corner article, “Consumer Concerns, Long delays in conclusion of phone cases worrying.”

¹⁵ Stabroek News (2000). “Mixed political reaction to phone company retaining monopoly,” Guyana Publications Inc. 20 February.

¹⁶ Prices are quoted in Guyana Dollars (USD 1.00 = GYD 200.00)

¹⁷ Information garnered from a respondent.

¹⁸ Stabroek News (2004). “Cel*Star/GT&T impasse- PUC explores authority to order interconnection,” Guyana Publications Inc. 4 July.

¹⁹ Stabroek News (2006). “GT&T says frequency sharing plan could pose elections, world cup problems,” Guyana Publications Inc. 24 February, p.10.

²⁰ Stabroek News (2006). “Cel*Star rate filling not predatory, PUC rules – but reductions still to be considered,” Guyana Publications Inc. 3 February, p.15.

²¹ Stabroek News (2006). “U-Mobile eyes expansion – in discussion with Digicel, others,” Guyana Publications Inc. 21 January, p.10.

²² Stabroek News (2006). “Digicel to be licensed here shortly – Jagdeo vows again to break GT&T monopoly,” Guyana Publication Inc. 22 February, p.13.

²³ Stabroek News (2005). “Telecoms reform a no-go – info tech project shelved, technical co-op pact halted,” Guyana Publications Inc. 26 September, p.10.

²⁴ Eileen Cox (2005). “Consumer Concerns, Fair trading bill should allow for competition in the telecommunications industry,” in Stabroek News. Guyana Publications Inc. 11 December.

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Annex 1. Time line of events in Guyana's telecommunications sector

- 1990 Telecommunications Act 1990 (ACT No. 27 of 1990)
- 1990 Public Utilities Commission Act 1990 (ACT No. 26 of 1990)
- 1990 GT&T authorized to provide telecommunications services on December 19th 1990.
- 1996 Caribbean Telecommunications Limited (CTL) was licensed to provide wireless services on April 23rd 1996.
- 1997 Public Utilities Commission Act 1997 (ACT No. 29 of 1997)
- 1999 Public Utilities Commission Act 1999 (ACT No. 10 of 1999)
- 2000 Caribbean Wireless Telecom, LLC, was licensed to provide cellular services on April 19th 2000.
- 2001 Cel*Star Guyana Inc., was licensed to provide cellular service on February 21st 2001.

Annex 2. The PUC, NFMU and the Office of the Director of Telecommunications

Public Utilities Commission

298 Church Street,
Queenstown, Georgetown,
Guyana
Tel: 227-3293

Mission:

'To ensure that regulated utilities offer efficient service to the consumer at a reasonable cost'

'To protect the rights of all stakeholders'

Vision:

'To create an environment in which there is universal access to service in the public utilities sector, as well as a high quality of service which are cost effective as well as beneficial to all stakeholders'

Objectives:

- To establish and enforce rules and procedures for the regulation of public utilities, commensurate with internationally accepted regulatory standards.
- To promote and regulate the efficient long-term provision of utility services for national development consistent with Government policy.
- To provide a fair environment conducive to business interest and investment in the public utilities sector, and in the interest of consumers.
- To investigate and resolve in a timely manner complaints filed with the commission against any public utility.
- To carry out its functions/mandates in a fair, transparent and independent manner.

The PUC and its Functions:

The PUC was established in the 1990 by an Act of parliament, which was repealed and replaced by an amended Act in 1999. The commission consists of a Chairman who serves on a full time basis, and four Commissioners.

The PUC ACT of 1999 enables the PUC to execute the following, inter alia:

- Act as an advisor to the Minister on matters pertaining to public utilities
- Conduct economic research on issues which would offer necessary assistance to the commission in the execution of its mandate
- Initiate and conduct investigations into the operations of and quality of service provided by any public utility

- Consider and grant approval of proposed increases in utility rates
 - Ensure that utility companies live up to their service provision obligations e.g. expansion and development of utility services as specified in initial agreements
 - Fix hearings for the resolving of matters regarding a utility and complainant or consumer
 - Request the submission of detailed reports on financial statements, property evaluation statements and other statements as may be deemed fit by the PUC.
- 2) Closely monitors national, regional and international developments relating to the telecommunication sector.
 - 3) Disseminates information as he deems fitting to suppliers, consumers and other users of local telecommunication services
 - 4) Can order a firm to submit information on its operations, as long as there is reasonable cause
 - 5) Establishes advisory bodies to assist him in the execution of his mandate
 - 6) Regulates access and interconnection rates

National Frequency Management Unit

68 Hadfield Street
 D'Urban Park, Georgetown
 Guyana
 Tel: 592-226-2233
 E-mail: nfm@sdnp.org.gy

The primary function of the NFMU is to effectively manage Guyana's electromagnetic spectrum. To this end the NFMU allocates, licenses, monitors, and coordinates spectrum use, it also administers the country's number resources.

Director of Telecommunications

As noted earlier, the office of the Director of Telecommunications is still vacant, therefore the minister responsible for communications executes the functions of the office. However, while there has been no substantive Director of Telecommunications, it would be apt to identify some of the functions of this office as outlined in the Telecommunications Act of 1990. Moreover, the act provides for the close cooperation between the Minister responsible for telecommunications and the Director of Telecommunications e.g. as it relates to licensing of a telecommunications system, under Part 2, Section 7 (1) of the Telecommunications Act:

A license may be granted –

- a) by the Minister after consultation with the Director; or
- b) with the consent of, or in accordance with a general authorization given by the Minister, by the Director for the running of any such telecommunications system as is specified in the license or is of a description so specified.

In other words the law provides for the Minister responsible for telecommunications to execute the functions of the Director. Some of the other functions of the office of the Director of Telecommunications, as outlined by the Telecommunications Act are:

- 1) Collects information regarding the activities of local telecommunications service providers

Appendix 3. Survey Instrument

INFORMATION FOR RESPONDENTS

- 1) The following dimensions of the TRE were adopted from the WTO reference paper on basic telecommunications and the “Regulation and Investment: Sri Lanka Case Study”, (Rohan Samarajiva et al.). The respondent can use the following issues to inform his/her response.

Dimension	Issues for consideration
1. Regulation of anti-competitive practices	Anti-competitive cross subsidisation, using information obtained from competitors with anti-competitive results, predatory pricing, cross subsidisation, technical disruption of interconnection, refusal to deal etc.
2. Inter-connection	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 rates unbundled, sharing of incoming and outgoing IDD revenue etc.
3. Universal Service	Maintaining of obligations relating to the universal provision of telecommunication services in keeping with the definitions of such services as initially specified by the provider.
4. 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 etc.
5. Tariff Regulation	Regulation of tariffs charged from consumers.
6. Access to Scarce Resources	Timely transparent and non-discriminatory access to spectrum allocation, numbering and rights of way; frequency allocation, telephone number allocation, site rights etc.

- 2) Brief highlights on the periods under consideration can be found at the bottom of the tables for the fixed and mobile sectors. The highlights are intended to take the respondent back to the period under consideration.

QUESTIONNAIRE

Using the following scale, fill up the following tables by ticking the appropriate box to indicate your perception of the dimensions of Guyana’s TRE.

Scale: (1) – Poor (2) – Unsatisfactory (3) – Neutral (4) – Satisfactory (5) – Excellent

FIXED SECTOR							
Dimensions	Period	1	2	3	4	5	Comments on Dimensions
Universal Service	1990-1998						
	1999- present						
Tariff Regulation	1990-1998						
	1999- present						
General Comments							

Any comments you wish to make can be made in the spaces provided.

Periods under consideration

1990-1998:

1. The Guyana Telephone Corporation (GTC) was privatised thus marking the advent of the Guyana Telephone and Telegraph Company (GT&T).
2. The Public Utilities Commission and Telecommunications Bills passed.

1999-present:

1. The Public Utilities Commission Act amended.
2. Landline rates significantly increased for inter-exchange calls.

MOBILE SECTOR							
Dimensions	Period	1	2	3	4	5	Comments on Dimensions
Market Entry	1996-2000						
	2001- present						
Access to Scarce Resources	1996-2000						
	2001- present						
Inter-connection	1996-2000						
	2001- present						
Tariff Regulation	1996-2000						
	2001- present						
Regulation of anti-competitive Practices	1996-2000						
	2001- present						
General Comments							

Periods under consideration

1996-2000: Mobile sector becomes competitive with the granting of a license to Caribbean Telecommunications Ltd., a mobile operator in Berbice.

2001-present: Cel*Star Inc. was given a license to operate.

Annex 4. List of Respondents

1. Dr. Mark Bynoe
Director, Environmental Studies Unit
University of Guyana
2. Mr. Pat Dial
Chairman Advisory Committee on Broadcasting
& President Guyana Consumers Association
3. Mr. Gene Evelyn
Director, rate making
GT&T
4. Christopher Ram
Chartered Accountant & Business Analyst
Ram & McRae Chartered Accountants
5. Mr. Valmikki Singh
Chief Executive Officer
National Frequency Management Unit
6. Professor Clive Thomas
Director, Institute of Development Studies
University of Guyana
7. Mr. Michael Welch
Former Deputy General Manager GT&T