

Kathuria, Rajat

**Working Paper**

## Trade in telecommunication services: Opportunities and constraints

Working Paper, No. 149

**Provided in Cooperation with:**

Indian Council for Research on International Economic Relations (ICRIER)

*Suggested Citation:* Kathuria, Rajat (2004) : Trade in telecommunication services: Opportunities and constraints, Working Paper, No. 149, Indian Council for Research on International Economic Relations (ICRIER), New Delhi

This Version is available at:

<https://hdl.handle.net/10419/176171>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*

WORKING PAPER NO. 149

**TRADE IN TELECOMMUNICATION SERVICES:  
OPPORTUNITIES AND CONSTRAINTS**

*Rajat Kathuria*

NOVEMBER 2004



**INDIAN COUNCIL FOR RESEARCH ON INTERNATIONAL ECONOMIC RELATIONS**

Core-6A, 4th Floor, India Habitat Centre, Lodi Road, New Delhi-110 003

Website 1: [www.icrier.org](http://www.icrier.org), website 2: [www.icrier.res.in](http://www.icrier.res.in)

## TRADE IN TELECOMMUNICATION SERVICES: OPPORTUNITIES AND CONSTRAINTS

*Rajat Kathuria\**

NOVEMBER 2004

The views expressed in the ICRIER Working Paper Series are those of the author(s) and do not necessarily reflect those of the Indian Council for Research on International Economic Relations (ICRIER).

---

\* I would like to thank Arvind Virmani for giving me the initial opportunity to be involved in this project. This paper would not have assumed its current shape without the immense contribution of B. K. Zutshi, my mentor. I am deeply indebted to him for providing insights from his experience as a negotiator in GATS and also as the first vice chairman of the Telecom Regulatory Authority of India. My gratitude to Nitisha Patel of ICRIER for excellent and prompt research assistance, to Sonia Madan for untiring help with data and information, to DK Gupta for sharing office space when necessary and to many experts from Industry, Government and Academia who provided views, comments and shared ideas. Finally, I would like to thank Harsha Vardhana Singh, Arpita Mukherjee and many others who contributed to this project. The usual disclaimer applies.

## Contents

<b>FOREWORD</b> .....	<b>I</b>
<b>INTRODUCTION</b> .....	<b>1</b>
<b>SECTION I: OVERVIEW OF TELECOMMUNICATION SERVICES IN THE WORLD ECONOMY</b> .....	<b>5</b>
<b>SECTION 2: TELECOMMUNICATION SECTOR IN INDIA</b> .....	<b>16</b>
<b>SECTION 3: RELEVANT PROVISIONS OF GATS AND OTHER RULES AND DISCIPLINES FOR TELECOMMUNICATIONS</b> .....	<b>49</b>
<b>SECTION 5: COMPARISON OF WTO COMMITMENTS MADE BY INDIA WITH THE ACTUAL POLICY IMPLEMENTED/UNDER CONSIDERATION</b> .....	<b>65</b>
<b>SECTION 6: TELECOM POLICIES OF OTHER WTO MEMBERS THAT INDIA SHOULD CONSIDER DURING GATS NEGOTIATIONS</b> .....	<b>69</b>
<b>SECTION 7: IMPORTANT AREAS FOR DOMESTIC POLICY AND WTO NEGOTIATIONS BASED ON REQUESTS MADE TO INDIA</b> .....	<b>71</b>
<b>SECTION 8: STRATEGY FOR THE FORTHCOMING NEGOTIATIONS</b> .....	<b>77</b>
<b>SECTION 9: LEGAL PROVISIONS THAT WILL NEED COMMITMENTS IN THE FORTHCOMING NEGOTIATIONS</b> .....	<b>79</b>
<b>ANNEX - I</b> .....	<b>81</b>
<b>ANNEX - II</b> .....	<b>83</b>
<b>ANNEX - III</b> .....	<b>84</b>
<b>ANNEX - IV</b> .....	<b>85</b>
<b>ANNEX-V</b> .....	<b>87</b>
<b>ANNEX-VI</b> .....	<b>89</b>
<b>ANNEX VII</b> .....	<b>92</b>
<b>ANNEX - VIII</b> .....	<b>95</b>
<b>ANNEX -IX</b> .....	<b>96</b>
<b>ANNEX TABLE 1 . MARKET ACCESS COMMITMENTS IN THE SCHEDULES OF COMMITMENT</b> .....	<b>101</b>
<b>REFERENCES</b> .....	<b>102</b>

## Foreword

The paper reviews Indian Telecom in the context of the telecom business worldwide with special focus on Asia Pacific. There has been a rapid increase in markets, revenues, investments, in part, due to the increasing use of telecommunications as inputs in new businesses and new ways of doing business, such as internet, e-commerce, call centres and software. The Indian telecom sector has also witnessed phenomenally rapid growth in the last ten years, but still lags behind China and ASEAN countries, in investment and telecom penetration rates.

The paper reviews the present market structure and its evolution over the last decade, detailing the reform milestones from 1991 onwards up to the most recent changes in the licensing policy. It also brings out the need and scope for further reforms.

The paper then turns to multilateral liberalisation of this sector, bringing out the nature and extent of such liberalisation so far by India and other WTO members. It gives the present position of the market access negotiation in the ongoing round, detailing requests on India for further liberalisation, offers on the table, including that of India. On the basis of the analyses of the wedge between the present regime and India's present commitments, requests on India and offers on the table, the paper shows that there is considerable scope to make further commitments in this sector in the ongoing negotiations without changing the existing regime. As the regime is already liberal in the developed countries a quid pro quo will have to be sought in other sectors.

We are very grateful to the Sir Ratan Tata Trust for supporting our research on WTO issues.

**Arvind Virmani**  
Director & CE  
New Delhi

November 2004

## **INTRODUCTION**

Over the past two decades, the services sector has expanded rapidly and has come to play an increasingly important role in national economies and in the international economy. In 2000, service sector output constituted over 66 % of global output in goods and services. The developed countries have dominated this expansion accounting for three quarters of world services output. Services have also grown rapidly in developing countries over the past two decades with increasing contribution to output and employment. In India services constitute over 50 % of economic activity, considerably more than traditional sectors such as Agriculture.

The expansion of services is of great significance due to the inter-linkages of services with other sectors of the economy. Services are an important driving force in economic development, competitiveness and productivity. Producer services such as transport, finance and communication play a vital role in the economy with major spillover effects on other downstream sectors. The traditional definition of services as ‘non-tradable’ is no longer valid in a world where rapid technological progress in information and communication technologies has transformed and globalised the services sector. International trade in services has grown rapidly in the last two decades and in 2000 global exports of commercial services were estimated at US\$ 1.4 trillion<sup>1</sup>.

The growth of the service sector in national and in the international economy has been spurred by a variety of factors. The fast paced evolution of information and telecommunications technology has arguably been one of the key drivers of services growth. The importance of telecommunications as a service industry in itself as well as a critical support element for other service industries has become the focus of high-level policy formulation in practically every country in the world. This has led to separation of telecommunications operations and regulations and also privatization of telecommunications operators in varying degrees and the introduction of competition in the sector.

The dynamism of global telecommunications markets is widely attributed to rapid technological progress in the sector as well as an increasingly liberal policy environment.

---

<sup>1</sup> World Development Indicators, The World Bank, 2003

Until the middle nineties, telecom services in India were provided by an incumbent monopoly, DoT, which was seen as the best method of overcoming the market failure resulting from the characteristics of telecommunications. The same 'monopoly' service provision model existed in a number of countries and was by no means unique to India. Technological progress however has ensured that the telecommunications sector can no longer be regarded as a natural monopoly. This notion has gained widespread acceptance and during the last decade or so, a large number of developed and developing countries, including India have embraced market friendly reforms. The resultant introduction of competition along with the new forms of institutional and regulatory policy design that have evolved across the world has brought significant improvement in the overall package of telecommunication services available to consumers.

Introduction of competition, especially in the presence of a large incumbent public sector monopoly requires setting of an independent regulator and a set of regulatory rules to address the market failure and public service aspects of universal access. The commonly accepted function of regulation in telecommunications refers to an independent agency, which governs the operations and pricing of telecommunications companies, that is, "regulates" them. The regulatory mandate varies, but most regulators are charged to approve tariffs, regulate interconnection between operators, ensure consumer protection and quality of service, and to ensure universal access and often, to ensure competition which is neither predatory nor cartelised.

The growing importance of services such as telecommunications in various countries naturally resulted in a demand to bring services trade under a framework of multilateral trade rules. Trade in services, was first brought under the scope of multilateral rules following the Uruguay Round with the aim of promoting orderly trade and investment liberalization in services. The General Agreement on Trade in Services (GATS) came into force on 1 January 1995 with a set of binding rules and disciplines and an initial set of market access commitments. The outcome of the basic telecom negotiations which concluded in 1999 was among the more significant developments in the immediate post Uruguay Round period.

This paper brings together the issues that are relevant to the WTO negotiations specific to telecommunication services from an Indian perspective. The objective is to focus

on the opportunities and challenges in the multilateral trade of telecom services against the backdrop of the rapidly changing domestic and international telecom environment.

The last decade has witnessed a sea change in the telecommunication scenario in India. During this period there has been a very rapid growth of Direct Exchange Line (DELs) resulting in an increase in teledensity, although it still remains low compared to world levels. Two policy initiatives have been released and much of the policy has been implemented. Telecommunications is no longer viewed as a luxury service, but recognized as an important infrastructure service that should be generally available, with world class quality at reasonable and affordable prices. Private investment is now seen as an important contributor to achievement of national objectives in this sector. A further re-orientation of policies has taken place recently to provide greater flexibility of operation, including implementation of unified licensing for access services that will soon be expanded to cover a larger range of telecommunication services. The latest policy framework also recognizes convergence of technologies and services that has thrown up opportunities for growth in several sectors and takes note of the regulatory and other social challenges.

The present paper is organised as follows. **Section 1** gives a brief overview of the telecom business worldwide, with a focus on Asia Pacific. It shows that telecom revenues, investment and markets are increasing rapidly, and that a number of activities that use telecom as a major input (e.g., e-commerce, call centres, and software exports) are increasing even faster. The lists of the large service providers of telecom indicate the countries including India that are likely to have an interest in seeking telecom markets in other countries. **Section 2** summarizes the telecom market situation in India, tracing the various developments that have taken place in the past few years. It shows that while Indian telecom has experienced high growth and that the provision of new telecom services is increasing rapidly, the public sector remains the main provider of fixed telecom service and it will continue to play an important role for a number of years including for meeting the Universal Service Obligation.

**Section 3** summarizes the main WTO rules and disciplines in the area of telecom services, separately addressing the main disciplines of the GATS, the Annex on Telecommunications, and the Reference Paper which contains disciplines to promote a pro-competitive framework for operation of telecom services. **Section 4** provides a sub-



classification of the various telecom sectors which were accepted for negotiations and an overview of the commitments made by WTO Members. The Section also provides a list of most-favoured-nation treatment exemptions that have been specified by certain countries with respect to this sector.

**Section 5** examines the existing policy framework and its evolution in India and compares this with the WTO commitments made in this area. The comparison indicates a wedge between existing policy and commitments and shows that India has considerable scope to make further commitments in this sector under WTO without changing any of its existing policies. **Section 6** takes a look at the demands that India may make under the GATS for seeking greater access to the markets of other countries. The Section shows that India is unlikely to make significant demands on other countries in this sector and, therefore, if any commitments are to be made by India regarding telecom, the quid pro quo has to be sought in other service sectors. Policy reform is further considered in **Section 7**, which covers "Important Policy Areas for Domestic Policy Reform and WTO Negotiations based on Requests made of India". Based on the discussion in Section 7, a strategy for the ongoing negotiations is provided in **Section 8**. **Section 9** concludes.

## **SECTION I: OVERVIEW OF TELECOMMUNICATION SERVICES IN THE WORLD ECONOMY**

Telecommunications are a key infrastructure for overall economic development. The importance of telecom arises both in terms of direct economic activity in the sector itself, as well as the service being a major means of facilitating and enhancing economic activity in several other sectors. A competitive telecoms market reduces communications costs for industry and individual users and new investments in this area stimulate the development of electronic commerce, which spurs growth in almost all sectors. Examples of this synergy are the telecommunications and information technology stimulated activity and innovations in foreign exchange and stock markets, insurance, banking, credit cards, payment systems, software exports, call-centres, tele-banking, tele-transfers, and e-commerce in general. Both the volume and speed of transfers have increased tremendously in recent years.

This Section focuses mainly on world-wide telecom services. To get a proper picture regarding the contribution of telecom to economic activity and export markets, we need to consider a variety of telecom services (including fixed and mobile telephony, paging, and other value added services), as well as a number of the above-mentioned services that are based on (and use) the telecom network. This Section provides an indication of revenues in the telecom market, which do not include revenues from other, above-mentioned telecom related activities. Some other activities that use telecom as an input (e.g., E-Commerce, IT Enabled Services, Call Centres, Other Remote Services), are likely to provide a major impetus to economic activity in the coming years. A number of these services already provide major revenue opportunities, while some others have a large revenue potential due to their rapidly increasing market base.

### **a) Telecommunications Revenue in the World Economy**

Up-to-date information on overall telecom revenue is not available. Estimates of International Telecommunications Union (ITU) show that global telecom revenue in 1998 stood at US\$ 722.5 billion, a figure which represented 2.4% of global GDP (The revenue estimate does not include revenues from cellular mobile, radio paging, or data services if these services are not provided by the main fixed line operator). The corresponding figure for 2002 is US\$ 997.6 billion representing 3.1 % of global GDP. According to ITU estimates for 2003 overall telecom revenue including mobile services will exceed US\$ 1

trillion (Table 2).

**Table 1: Telecommunication Revenue in India and Other Selected Areas**

Region	Telecommunication Revenue, 2002 (million US\$)	Proportion of GDP
India	7,644.8	1.6
World	997,582.6	3.1
Africa	14,478.0	3.0
America	376,792.0	2.9
Asia	254,403.1	3.0
Europe	336,113.2	3.4
Oceania	15,796.2	3.7

*Source: World Telecommunication Development Report: 2003, ITU*

Table 1 shows that as a proportion of GDP, telecom revenues in India at 1.6 % are below the world average of 3.1 per cent. Further India's telecom revenues are less than 1 % of world telecom revenue, presenting substantial opportunity for growth. Dynamic opportunities in telecom arise to a large extent on account of the rapid growth of the newer services. For example, the average growth of the number of cellular mobile subscribers has been about 40 % since 1997. Analysts predict that mobile phones will bypass fixed phones worldwide in the future and estimates shown in Table 2 support that forecast. Likewise, due to increasing importance of data traffic in total traffic, the proportion of voice in total traffic will become less than 5 percent within the first decade of this century. The rapid growth in telecom service is also likely to stimulate growth in the telecom equipment sector.

**Table 2: Key Global Telecom Indicators for the World Telecommunication Service Sector**

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002 <sup>a</sup>	2003 <sup>b</sup>
Telecom market revenue (current prices and exchange rates), US\$ Billions													
Services	403	448	470	517	596	672	712	767	854	920	968	1'020	1'070
Equipment	120	132	135	158	183	213	234	248	269	290	264	275	300
Total	523	580	605	675	779	885	946	1'015	1'123	1'210	1'232	1'295	1'370
Telecom services revenue breakdown (current prices and exchange rates), US\$ Billions													
Telephone <sup>1</sup>	331	350	359	386	428	444	437	456	476	477	472	465	455
International <sup>2</sup>	37	43	46	47	53	53	54	56	58	60	63	65	68
Mobile	19	26	35	50	78	114	142	172	223	278	317	364	414
Other <sup>3</sup>	53	72	77	81	89	114	133	139	155	165	180	190	200
Telecom services capital expenditure (current prices and exchange rates), US\$ Billions													
Total <sup>4</sup>	124	130	135	138	161	174	177	177	186	198	201	205	215
Other statistics													
Main telephone lines (millions)	546	572	604	643	689	738	792	846	905	983	1'053	1'129	1'210
Mobile cellular subscribers (millions)	16	23	34	56	91	145	215	318	490	740	955	1'155	1'329
International telephone traffic minutes (billions) <sup>5</sup>	38	43	49	57	63	71	79	89	100	118	127	135	140
Personal computers (millions)	130	155	175	200	235	275	325	375	435	500	555	615	650
Internet users (millions)	4.4	7.0	10	21	40	74	117	183	277	399	502	580	665

*Notes:* All data in millions of current US\$ converted by annual average exchange rates. Country fiscal year data aggregated to obtain calendar year estimates

a. Estimation

b. Forecast

1. Revenue from installation, subscription and local, trunk and international call charges for fixed telephone service.
2. Retail revenue.
3. Including leased circuits, data communications, telex, telegraph and other telecom-related revenue.
4. Note that the data of the growing number of new market entrants are not always reflected in national statistics.
5. From 1994 including traffic between countries of former Soviet Union.

*Source:* ITU 2001.

**b) Small number of Public Telecommunication Operators (PTOs) account for a large share of revenues**

A notable feature of the telecom service industry is that a **large portion (i.e. about three fourths) of the telecom revenue is accounted for by only the top twenty PTOs** (see below). Of these, particularly high rates of revenue growth have been achieved by the PTOs in China and Mexico.

**Table 3: Telecommunications Revenue Earned By The Top 20 PTOs  
In The World, 1999**

	Operator (Country)	Total (US\$ million)
1	NTT (Japan) a	97'953
2	AT&T (United States)	62'391
3	SBC (United States)	49'489
4	MCI Worldcom (United States)	37'120
5	Deutsche Telekom (Germany)	35'750
6	BT (United Kingdom) a	34'955
7	Bell Atlantic (United States)	33'174
8	China Telecom (China)	27'539
9	France Télécom (France)	27'344
10	Telecom Italia (Italy)	27'229
11	GTE (United States)	25'336
12	BellSouth (United States)	25'224
13	Telefónica (Spain)	23'051
14	Sprint (United States)	19'928
15	DDI (Japan) a	14'396
16	Vodafone AirTouch (UK)	14'183
17	US West (United States)	13'182
18	Telstra (Australia) b	12'046
19	Telmex (Mexico)	10'132
20	KPN (Netherlands)	9'169
	Top 20	599'591

a. Estimation  
b. Forecast

*Source:* ITU, 2001

Table 3 above shows that eight of the top twenty PTOs are from the United States, reflecting the basis for United States' major interest in seeking market access opportunities abroad. Similarly, we get an indication of the countries with important interest in telecom from the list of the top twenty cellular operators in the world, given that the cellular mobile services are growing much more rapidly than basic telecom service. In this regard too, the list of countries with major presence is similar to that for basic telecom (see Table 4 below). A somewhat wider list of countries emerges when we consider the list of top international carriers (see Table 5 below). With this coverage, the countries with a major interest in access to the telecom market would include not only the major players in OECD, China, Brazil, and Republic of Korea, but also Singapore and Taiwan.

**Table 4: Top 20 Mobile Cellular Operators, Ranked by 1999 Subscribers**

Rank		Operator (Country)	Mobile Subscribers <sup>1</sup>	Mobile Revenue <sup>2</sup>
99	98		1999 (000s)	1999 (US\$ m)
1	2	China Telecom (China)	39'096	7'956
2	1	NTT DoCoMo <sup>3,9</sup>	30'800	35'081
3	3	TIM (Italy)	18'527	7'484
4	5	SBC (USA) <sup>4</sup>	11'151	5'851
5	9	Omnitel (Italy)	10'418	3'733
6	6	AirTouch (USA) <sup>3,5,6</sup>	10'082	4'028
7	10	SK Telecom (Korea (Rep.))	10'077	3'741
8	14	France Télécom (France)	10'051	3'989
9	7	AT&T (USA)	9'600	7'627
10	4	DDI Group (Japan) <sup>3,8,9</sup>	9'523	8'574
11	11	Mannesmann (Germany) <sup>7</sup>	9'500	5'147
12	12	Deutsche Telekom (Germany)	9'200	3'947
13	15	Telefónica (Spain)	9'052	3'754
14	13	Vodafone (UK) <sup>3</sup>	8'791	4'630
15	8	Bell Atlantic Mobile (USA) <sup>6</sup>	7'700	4'564
16	18	BT Cellnet (UK) <sup>3</sup>	7'404	3'463
17	20	SFR (France)	7'224	3'113
18	16	GTE (USA) <sup>6</sup>	7'146	3'745
19	23	Sprint PCS (USA)	5'723	3'180
20	25	Turkcell (Turkey)	5'466	1'581
		Top 20	236'531	125'187

*Note:* Figures in italics are estimates or refer to previous year. Financial data converted by end of period exchange rates.

1. Equity-based domestic subscribers.
2. Domestic wireless revenue.
3. Financial year beginning 1 April.
4. Merged with Ameritech in 1999.
5. Part of Vodafone AirTouch Group.
6. To be spun-off into Verizon in 2000.
7. Purchased by Vodafone AirTouch in 2000.
8. Total subscribers of holdings in 17 companies.
9. Including Personal Handyphone System (PHS).

*Source:* International Telecommunication Union, PTO database.

For the top twenty PTOs for cellular mobile, revenues from cellular mobile are about one fifth in comparison to the revenues of the top twenty PTOs mentioned in Table 2 above. This share is likely to keep increasing in the next few years. Likewise, decrease in tariffs and growth in data traffic and e-commerce is likely to increase the share of international traffic and revenue in total traffic/revenue.

**Table 5: Top 20 International Carriers ranked by International Telecommunication Revenue, 1999**

Rank	Operator (Country)	(M US\$)	As % of total telecom revenue
1	AT&T (United States)	4'921.0	7.9%
2	MCI WorldCom (United States)	3'489.0	8.6%
3	Deutsche Telekom (Germany)	1'493.5	8.0%
4	Sprint (United States)	825.0	4.1%
5	France Télécom (France)	1'333.5	4.6%
6	BT (United Kingdom)	1'143.5	4.6%
7	Telecom Italia (Italy)	1'359.2	4.7%
8	Telefónica (Spain)	836.4	3.4%
9	China Telecom (China)	1'703.5	6.2%
10	Hongkong Telecom (Hongkong Sar)	2'005.7	55.0%
11	KPN (Netherlands)	756.5	7.8%
12	Swisscom (Switzerland)	875.3	11.8%
13	Belgacom (Belgium)	601.9	14.6%
14	PTA (Austria)	386.7	9.8%
15	Teleglobe (Canada)	423.3	-
16	KDD (Japan)	1'458.8	27.8%
17	Telmex (Mexico)	1'206.9	12.0%
18	Etisalat (United Arab Emirates)	583.4	34.6%
19	STC (Saudi Arabia)	-	-
20	Chungwa Telecom (Taiwan-China)	1'303.1	21.2%
	Top 20	26'706.2	8.1%

*Source:* International Telecommunication Union: PTO database; TeleGeography (<http://www.telegeography.com/>). ITU, 2001.

It is noteworthy that despite possessing one of the largest physical telecom infrastructure in the world, no single Indian operator or carrier figures in the top 20 in revenue terms. This is another indicator of the vast potential of the Indian market.

**c) Pattern of telecom investment in various regions**

The importance of external markets becomes apparent if we look at the picture on investment in telecom in various parts of the world. One of the remarkable developments in the last few years has been the shift in weight of Asia in telecom sector growth. For example, together with Table 1 above, Table 6 (below) shows that while the major portion of telecom revenues are earned in the Americas and Europe, a large portion of the investment in telecom is taking place in Asia.

**Table 6: Telecommunication Investment in India and Other Selected Areas**

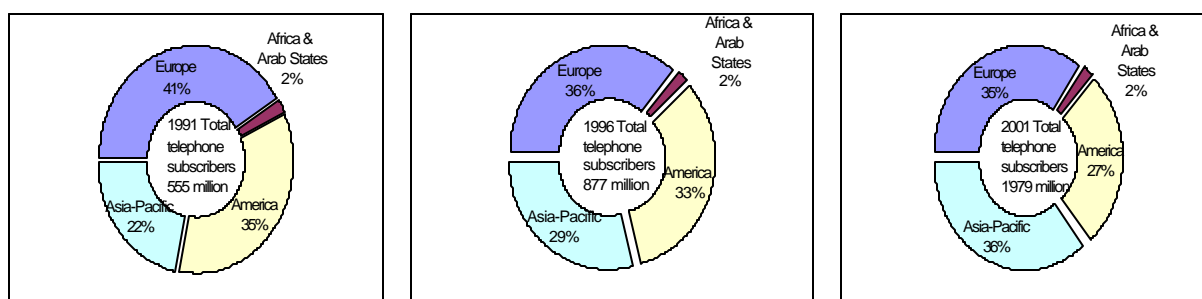
	Telecommunications Investment, 2002 (M US\$)	Proportion of Gross Fixed Capital Formation (%)	Teledensity, 2002 (Main Telephone Lines per 100 inhabitants) %
India	3511.5	3.3	3.98
World	182763.5	3.4	21.63
Africa	3555.3	4.7	5.40
Americas	47156.1	3.7	37.45
Asia	65972.5	7.4	14.01
Europe	61011.8	3.0	54.79
Oceania	5067.9	5.5	49.14

*Source:* World Telecommunication Development Report: 2003, ITU

*Note:* The ITU statistics for teledensity include payphones for most countries, and the estimates for population are for mid-year. Therefore, the ITU's teledensity estimate may vary slightly from the teledensity estimates calculated with year-end population and telephone lines excluding payphones.

During the year 2001, the Asia Pacific region emerged as the largest telecommunications market in the world. As indicated in chart I, the number of telephone subscribers in the region both fixed and mobile accounted for 36 % of the world total up from 22 % ten years earlier. It is the only region to have increased its market share significantly. Along with this, the region is also moving ahead in the area of new technology deployment. The Republic of Korea and Hong Kong China are the top two economies in terms of Broadband Internet penetration. In mobile Internet, Japan and the Republic of Korea were the first two nations to launch commercially available third generation cellular networks. The facts confirm the view that the global telecommunications epicenter is shifting from North America and Western Europe to Asia Pacific.

**Chart 1<sup>2</sup>**



<sup>2</sup> International Telecommunications Union (ITU), Asia Pacific Telecom Indicators, 2002



That the Asia Pacific region should grow at such rapid pace is not a surprise. Developing Asia Pacific accounts for over half of the world's population and thus it may be regarded as inevitable that over time the regions telecommunications sector should catch up with its population share. But the pace at which this development has taken place is remarkable. The overall regions teledensity was only four compared to 27 in the Americas and 29 in Europe. Only the regions developed nations, Japan, Australia and New Zealand, had a high teledensity in 1991. Not only have Korea, China, Singapore and Taiwan caught up but are also dictating the pace of telecommunications technology development. The emergence of China as a major telecommunications superpower is the other remarkable feature of this period. From 1991-2001, China added over 300 million subscribers or half the regions total. This is a compound annual growth rate of 44 per cent. China's overall teledensity (fixed and mobile combined) rose from less than one to 30 by mid June 2002. Over 40 % of Chinas urban families have a telephone, as do 85 % of its villages. China is now the largest telecommunications market overall. It ranks first in the size of its mobile market and second in fixed line, after United States.

In addition there are other highly populous countries in Asia Pacific such as Indonesia, Philippines, Thailand and Vietnam that have experienced annual growth rates in their telephone networks of over 20 per cent. These nations are closely being followed by South Asian nations, primarily India, which could provide the next spurt of growth for the region. South Asia is Asia Pacific's least developed telecommunications region with a teledensity of four in 2001. Therefore, while Asia is already attracting substantial investment in telecom, there will continue to be focus on telecom investment in the region, particularly South Asia. Another noteworthy feature is that a number of countries where substantial investment in telecom is taking place, are either NICs or developing countries (see Table 7 below).

**Table 7: NICs, Emerging Market Economies and Developing Countries with Telecommunication Investment of above US\$ 1 Billion in 2002**

	Telecommunications Investment, 2002 (M US\$)	Proportion of Gross Fixed Capital Formation (%)	Teledensity, 2002 (Main telephone lines per 100 inhabitants)
India	3511.5	3.3	3.98
Indonesia	1703.3	5.6	5.52
Brazil	5205.5	6.1	22.32
Columbia	1530.2	13.2	17.94
Iran	1825.1	NA	18.66
Russia	1014.9	1.6	24.22
Thailand	1513.0	5.2	26.04
China	25040.0	NA	16.69
Malaysia	1180.3	5.4	37.68
Mexico	3178.9	2.6	25.45
Poland	1368.5	3.5	36.26
Saudi Arabia	1541.3	4.4	21.72

*Source:* World Telecommunication Development Report: 2003, ITU

**d) Regional leadership in mobile**

The dynamism in the growth of the telecom sector in developing countries has been fuelled by the rapid growth of cellular services. While the rate of growth for Africa and Asia in cellular has come down from the high rates witnessed during the 1990s, it still remains above the world average (see Table 8). The rapid rise of cellular can be attributed to technological progress leading to declining costs and ease of deployment compared to fixed line.

**Table 8: World Telecommunication Network Development: Fixed and Cellular Mobile, 1997-2002**

	Compound Annual Rate of Growth for Fixed Line, 1997-2002 (%)	Compound Annual Rate of Growth for Cellular, 1997-2002 (%)
Africa	6.0	74.9
America	2.3	28.7
Asia	11.8	43.3
Europe	2.6	46.3
Oceania	0.4	24.3
World	5.3	40.2

*Source:* World Telecommunication Development Report: 2003, ITU

In the last ten years, the telecommunications environment in the Asia-Pacific region has changed beyond recognition. The rate of change has been the most dramatic in the mobile communications sector. The region now leads the world in several important market categories. Two of the top three mobile economies worldwide, measured by mobile phones per capita (end – 2001) are from the region (Taiwan, China and Hong Kong, China). Furthermore, the world’s biggest mobile economy, measured by total number of subscribers, is from the region (China). The mobile economy with the biggest potential for growth (India), in terms of the number of people currently without mobile phones, is also from the region. The region is also home to the economy with the largest number of mobile Internet users (Japan) and high-speed (3G) mobile Internet users (Republic of Korea).

**Table 9: Making the mobile transition - Economies where there are more mobile than fixed-line telephone subscribers, Asia-Pacific, and the date the transition took place**

<b>1993-1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>
Cambodia	Hong Kong, China Korea (Rep.)	Brunei	Australia	Bangladesh
		Malaysia	French Polynesia	China
		Mongolia	Macao, China	Fiji
		Philippines	New Caledonia	Indonesia
		Singapore	New Zealand	Japan
		Taiwan, China	Thailand	Lao PDR
				Maldives
				Sri Lanka

Overall, there were some 339 million mobile subscribers in the region in 2001 compared with just 25 million in 1995. The compound annual growth rate over this period was 55 per cent, with average growth exceeding 80 percent per year in over half a dozen of the region’s developing nations. To take one country alone, China added more than 100 million mobile subscribers between 1999 and 2001. Within the region, seven advanced economies have achieved cellular penetration rates of over 50 per cent. Among the developing countries of the region, the levels of penetration may not yet have reached the same heights but the rates of growth are more impressive. Whereas several of the developed economies of the region are showing a slowdown in growth, due to saturation,

rates of growth in the developing countries of the region do not yet seem to have been affected.

- In the Philippines, 1999 was the turning point with the level of penetration increasing from 3.8 to 15 mobile phones per 100 inhabitants three years later. A combination of market competition plus the explosive popularity of short message service (SMS) seems to have been responsible.
- In China too, the number of subscribers continues to grow, with some 60 million new subscribers added in 2001.
- In Thailand, the turning point occurred as recently as 2001. The entry of two new operators has prompted the existing operators to improve their offerings. Growth in the first part of 2002 has been astounding with as many new mobiles added in the first nine months of the year as existed at the end of 2001.
- Even India, which remains one of the laggards in the region, has accelerated its rate of growth since 1999 with almost three million new subscribers added in 2001.

Although Asia-Pacific now has more than a third of the world's mobile phone users, the average rate of penetration in Asia, at the end of 2001, was still below ten per cent, or one mobile phone for every ten people. To reach the average penetration rate of Europe will require another 1.4 billion new mobile phones and to reach the penetration of the regional leaders, such as Taiwan (China) or Hong Kong (China) will require an additional 2.8 billion mobile phones.

Comparison of the development and growth of the telecommunications sector across various countries shows that India embarked on the reform process later than most countries. This implies that investment in the sector and sectoral contribution to GDP remains significantly below world levels, and therefore also represents an opportunity for the future. Although growth has picked up since setting up of the regulator and permitting private investment in the sector, the existing gap between India and the other fast growing regions of Asia remains sizeable.

## SECTION 2: TELECOMMUNICATION SECTOR IN INDIA

### a) India: A Country with Large Network and rising Teledensity

India operates one of the largest telecom networks in the world, with about 41 million telephone lines in 2002. Table 10 below provides a comparative picture for the year 2002. It shows that despite a relatively large network size, India's teledensity is low and that a substantial effort will be required for, say, a double-digit teledensity.

**Table 10. Ranking of Countries With 20 Million Or More Telephone Lines in 2002**

Country	Number of Main Telephone Lines, 2002 (Million Lines)	Teledensity (No. of Main Telephone Lines Per 100 Inhabitants), 2002
China	214.42	16.69
United States	186.23	64.58
Japan	71.15	55.83
Germany	53.72	65.09
India	41.42	3.98
Russia	35.50	24.22
United Kingdom	34.90	59.06
France	33.93	56.90
Italy	27.14	48.07
Korea (Rep. Of)	23.57	48.86

*Note:* In general, the ITU statistics for teledensity include payphones, and populations estimate is for mid-year. Therefore, the ITU's teledensity estimate may vary slightly from the teledensity estimates calculated with year-end population and telephone lines excluding payphones.

*Source:* ITU

During the 1990s, India registered very rapid growth in telephone lines (also referred to as DELs or "Direct Exchange Lines"). At about 20 % per annum, this growth rate was much faster than in most countries of the world. However in the early part of this century, this growth has declined considerably and DELs are growing at less than 4 % per annum (Table 11). Table 12 shows that this feature i.e. the decline in the rate of growth of main telephone lines has been observed in most countries.

**Table 11: Direct Exchange Lines and Teledensity for India**

Years (April - March)	Direct Exchange Lines (DELs) ('000)	YoY Rate of Growth	Teledensity
1987 -88	3,800.80	-	0.48
1988-89	4,166.50	9.62%	0.51
1989-90	4,589.50	10.15%	0.55
1990-91	5,074.70	10.57%	0.60
1991-92	5,809.90	14.49%	0.67
1992-93	6,796.70	16.98%	0.77
1993-94	8,025.60	18.08%	0.89
1994-95	9,795.30	22.05%	1.07
1995-96	11,978.40	22.29%	1.28
1996-97	14,542.60	21.41%	1.53
1997-98	17,801.70	22.41%	1.85
1998-99	21,601.50	21.35%	2.20
1999-00	26,652.50	23.38%	2.67
2000-01	32,695.69	22.67%	3.18
2001-02	38,432.50	17.55%	3.67
2002-03	41,492.30	7.96%	3.88
2003-04	42,820.20	3.20%	3.93

Source: [www.dotindia.com](http://www.dotindia.com)

Note: Subscriber base does not include WLL(M) which is now a mobile service after Unified Access Licensing. The series has been purged.

**Table 12: Main Telephone Lines in Asia Pacific**

Country	Main Telephone Lines			
	Total (Million) 2002	CARG <sup>3</sup> (%) 1997- 02	Per 100 inhabitants	
			2002	CARG <sup>3</sup> (%) 1997- 02
Japan	71.15	1.6	55.83	1.4
China	214.42	25.0	16.69	24.3
Australia	10.59	2.2	53.86	1.1
Korea (Rep)	23.57	2.6	48.86	1.5
Taiwan-China	13.1	3.8	58.17	3.1
India	41.42	18.4	3.98	16.4
Hong Kong	3.83	1.0	56.47	0.1
Singapore	1.93	2.7	46.29	0.8
Malaysia	4.67	2.0	19.04	-0.5
New Zealand	1.77	-0.1	44.81	-1.3
Iran	12.2	13.4	18.66	11.8
Thailand	6.5	6.1	10.55	5.0

Source: World Telecommunication Development Report: 2003, ITU

<sup>3</sup> Compound Annual Rate of Growth

## b) Growing Importance of Mobile Services

The decline in the rate of growth of fixed services has to an extent been a consequence of the remarkable growth in mobile services. Table 13 shows that the rate of growth of mobile has been phenomenal since this service was introduced in India in 1996. From March 2003 the rate has been a whopping 160 per cent, although subscriber uptake has shown signs of slowing down in the last quarter of fiscal 2004. India added more than 20 million subscribers between 2003-04.

**Table 13: Mobile Teledensity**

Category	All India	Mobile Teledensity	YOY Growth
1996-97	339.03	0.04	-
1997-98	882.32	0.09	160.25%
1998-99	1,195.45	0.12	35.49%
1999-00	1,884.31	0.19	57.62%
2000-01	3,583.70	0.35	90.19%
2001-02	6,517.36	0.62	81.86%
2002-03	12,981.88	1.21	99.19%
2003-04	33,700.60	3.09	159.60%
2004-05 (until Sep 2004)	42,970.00	3.94	-

Source: Author calculations and [www.dotindia.com](http://www.dotindia.com)

The high rate of mobile growth combined with the slowdown in fixed service has meant an increase in the proportion of fixed to mobile subscribers. From a low of 2.33 in March 1997, this has increased to little more than 98 % in September 2004. If this trend continues it is envisaged that by early 2005 mobile phones will surpass fixed phones.

**Table 14: Mobile Subscribers as Percentage of Basic Subscribers in India:1996-2004**

1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05 (until Sept 04)
2.33	4.96	5.53	7.07	10.94	16.73	30.58	78.70	98.06

Source: Author calculations and [www.dotindia.com](http://www.dotindia.com)

The current number of cellular phone subscribers is about 43 million with a corresponding cellular mobile density of 3.94. It is worth noting that even for cellular mobile, as shown in Table 15 the teledensity for India is below the world average (about 4

%) and the teledensity in a number of Asia Pacific Countries. For the sake of comparison India's data also correspond to the year 2002 in Table 15.

**Table 15: Mobile Cellular Subscribers (Asia Pacific Countries)**

	<b>Total (000s) 2002</b>	<b>Per 100 inhabitants 2002</b>
India	12688	1.22
Iran	2187	3.35
China	206620	16.09
Thailand	16117	26.04
Malaysia	9241	37.68
Japan	81118	63.65
Australia	12579	63.98
Korea (Rep)	32342	67.95
Taiwan-China	23905	106.15
Hong Kong	6396	94.25
Singapore	3313	79.56
New Zealand	2449	62.17

*Source:* World Telecommunication Development Report: 2003, ITU

However, the number of cellular subscribers as a proportion of basic service subscribers, though increasing, is likely to have a small impact on teledensity for some years to come (see Table 15 above). Further, the situation regarding teledensity cannot be ascertained by simply adding the number of basic and cellular mobile subscribers, bearing in mind that for most subscribers, cellular mobile is an addition to their basic telephone. This would be particularly so in the case of metros and more lucrative circles (e.g., "A" circle). Table 16 shows that these account for about 70 % of the total subscriber base for cellular mobile in India.

**Table 16: Subscriber Base for Cellular Mobile Service (as on 31.03.04)**

<b>City/Circle</b>	<b>Total</b>
Total subs.	33,700,599
Market share	100.00%
<b>Metros</b>	
Delhi	4,236,138
Mumbai	3,637,687
Chennai	1,440,513
Calcutta	1,235,074
<b>A' Circle</b>	



Maharashtra	2,896,007
Gujarat	2,584,966
A.P.	2,719,624
Karnataka	2,308,123
T.N.	2,044,819

<b>B' Circle</b>	
Kerala	1,595,985
Punjab	2,433,335
Haryana	675,061
U.P.(W)	1,218,547
U.P.(E)	1,109,981
Rajasthan	864,895
M.P.	1,053,848
W.B. & AN	333,834
<b>C' Circle</b>	
H.P.	170,626
Bihar	631,809
Orissa	347,577
Assam	89,234
N.E.	30,631
J&K	42,285

Source: [www.dotindia.com](http://www.dotindia.com)

Therefore, only a small proportion of the cellular mobile subscribers may be considered as being those who are not already covered by the teledensity estimate given for basic service. There is, hence, little basis to consider the aggregate of basic and cellular mobile subscribers to ascertain teledensity. This situation may change when a further fall in cellular mobile tariffs and the coverage of the service will result in the two services being seen more as substitutes than they are at present. At present therefore it is reasonable to adopt the measure of 'effective teledensity' defined by ITU to measure penetration of phones for India. This is the higher value of either main telephone lines per 100 inhabitants or cellular subscribers per 100 inhabitants. In India's case this corresponds to the teledensity measured by fixed line subscribers on an all India basis. On the other hand, effective teledensity may also be estimated by 'service area' and then aggregated to arrive at an all India estimate. This implies using the higher of mobile and fixed subscribers as the effective subscriber base for each service area and aggregating for the effective subscriber base for the country. This gives an effective teledensity of 4.24, slightly higher than the effective teledensity estimate for fixed line subscribers (see Table 17). Even if the teledensity is estimated as the aggregate of all subscribers, it is still less than double digit and significantly lower than that achieved by countries in the region (Table 18). This

presents a tremendous business opportunity and one that many players both domestic and foreign are keen to exploit given the right conditions.

**Table 17: Effective Teledensity Estimated by Service Area  
(as on 31.03.04)**

Circle	A	B	C
	Fixed Subscriber Base	Mobile Subscriber Base	Higher of A & B
A.P.	3469245	2719624	3469245
Gujarat	2916817	2584966	2916817
Karnataka	2930334	2308123	2930334
Maharashtra	4034884	2896007	4034884
T.N.	2943776	2044819	2943776
Haryana	1230890	675061	1230890
Kerala	3279843	1595985	3279843
M.P.	1880746	1053848	1880746
Punjab	2186487	2433335	2433335
Rajasthan	1877724	864895	1877724
U.P.(E)	2589905	1109981	2589905
U.P.(W)	1283097	1218547	1283097
W.B.	1218793	333122	1218793
A&N	37494	712	37494
Assam	510257	89234	510257
Bihar	959969	631809	959969
H.P.	476755	170626	476755
J&K	286465	42285	286465
N.E.	361547	30631	361547
Orissa	785918	347577	785918
Calcutta	1407790	1235074	1407790
Chennai	1185662	1440513	1440513
Delhi	2226865	4236138	4236138
Mumbai	2738907	3637687	3637687
<b>All India</b>	<b>42820170</b>	<b>33700599</b>	<b>46229922</b>
<b>Teledensity</b>	<b>3.93</b>	<b>3.09</b>	<b>4.24</b>

**Table 18: Teledensity**

	Mar-04	Teledensity
<b>Fixed</b>	428.20	3.93%
<b>Mobile</b>	337.01	3.09%
- Cellular	261.54	2.40%
- WLL(M)	75.46	0.69%
Total	765.21	7.02%

### c) **Changing Market Structure**

In the early years after liberalization, India restricted the number of licenses awarded for basic services. The market was divided into separate circles and the policy admitted one private operator in each to compete with the incumbent DoT (now BSNL) and MTNL. New entrants were allowed to offer intra-circle long distance services, but DoT maintained its monopoly on inter-circle national long distance (NLD) telephony. Initially, the bidding process led to six new entrants in basic services owing to various reasons such as very high bid amount in some cases and certain legal issues. The six licenses granted were for Andhra Pradesh, Gujarat, Madhya Pradesh, Punjab, Rajasthan and Maharashtra.

In Cellular Mobile Services, duopoly was introduced through a bidding process and forty-two licenses were awarded to private operators for operating Cellular Mobile Services. In some service areas like, Bihar, West-Bengal and Orissa only single CMSP license could be awarded. In case of CMSPs, four metros (Chennai, Delhi, Kolkata and Mumbai) were designated as separate service areas and were excluded from the Circles. The policy stipulated that the technology used for Cellular Mobile must be digital GSM standard. The market structure that obtained at this stage is shown in the Table 19.

**Table 19: Market Structure For Selected Telecommunication Sectors in India 1999**

<b>Segment</b>	<b>Market Structure</b>	<b>No. Of Operators</b>	<b>Coverage</b>	<b>Period of License (years)</b>
Fixed Telephony	Duopoly	2	<b>Circles</b>	15
Domestic Long Distance	Monopoly (DoT/MTNL)	1	All India	No Limit
International	Monopoly (VSNL)	1	All India	No Limit
Cellular	Limited Competition	2	Metros and Circles	10 years
Radio Paging	Limited Competition	4	Cities and Circles	10 years
GMPCS*	Full Competition	1	All India	Provisional - One Year

*(GMPCS\* - Global Mobile Personal Communication System by Satellite)*

**Source:** TRAI Consultation Paper on Domestic Long Distance -July 1999 (Page 3)

Major and rapid changes in market structure have occurred since 2001. These changes have been induced by a more liberal policy environment and by technological progress.

These policy and technology induced changes and the conduct of certain licensees made it difficult to maintain the regulatory distinction between fixed and mobile services (one that allowed limited mobility and one that allowed full mobility). Thus a new license category, Unified Access Service License (UASL) was notified in November 2003. The implications of this are explored in the section on milestones. For the purpose of understanding the existing market structure for telecom services in India, however, fixed and mobile are appropriately treated as separate services in the rest of this section.

It is striking that even after the entry of the private sector in fixed services the role of BSNL and MTNL remains dominant. Table 20 shows fixed service providers and their areas of operation. Table 21 shows that the subscriber base for the private sector needs to increase by a very large amount for it to account for even 10 % share of total fixed lines.

**Table 20. List of Fixed Service Providers In India and Their Areas Of Operation**

Service Area	Name of Service Provider
All over India except Delhi & Mumbai	BSNL
Delhi & Mumbai	MTNL
MP, Delhi, TN (incl Chennai), Haryana, Karnataka	Bharti Telenet Ltd.
AP, Maharashtra (incl Mumbai), Delhi, TN (incl Chennai), Karnataka, Gujarat	Tata Teleservices Pvt. Ltd.
All over India except J&K & NE	Reliance Telecom Pvt. Ltd.
Rajasthan	Shyam Telelink Ltd.

Source: [www.dotindia.com](http://www.dotindia.com)

**Table 21: Subscriber Base for Fixed & Mobile Service (millions)**

As On	Fixed				Mobile			
	Govt. Operators	Pvt. Operators	Total	Share of Pvt. Operators	Govt. Operators	Pvt. Operators	Total	Share of Pvt. Operators
31st March 00	26.51	0.14	<b>26.65</b>	0.53%	0.00	1.88	<b>1.88</b>	100.00%
31st March 01	32.43	0.27	<b>32.70</b>	0.81%	0.02	3.56	<b>3.58</b>	99.35%
31st March 02	37.85	0.58	<b>38.43</b>	1.52%	0.25	6.27	<b>6.52</b>	96.21%
31st March 03	40.54	0.95	<b>41.49</b>	2.29%	2.63	10.35	<b>12.98</b>	79.74%
31st March 04	40.46	2.36	<b>42.82</b>	5.51%	6.01	27.70	<b>33.71</b>	82.19%
30th June 2004	40.31	2.94	<b>43.25</b>	6.80%	6.71	31.06	<b>37.77</b>	82.23%

Source: [www.dotindia.com](http://www.dotindia.com) and author calculations

On the other hand, the rapid growth of wireless technology and the more successful private entry in these services (see Table 21 above) has ensured that the role of the private sector in mobile is considerable. Table 22 lists Cellular Service Providers and their areas of operation.

**Table 22: List of Cellular Service Providers In India and Their Areas Of Operation**  
(as on 31.06.04)

Service Area	Name of Service Provider
Calcutta, Chennai, MH, TN, Gujarat, AP, Karnakata, Kerala, Punjab, Haryana, UP(E), UP(W), Rajasthan, MP, HP, WB, Assam, Orissa, NE, Bihar, J&K	BSNL
Delhi & Mumbai	MTNL
Delhi, Mumbai, Calcutta, Chennai, MH, TN, Gujarat, AP, Karnakata, Kerala, Punjab, Haryana, UP(W), Rajasthan, MP, HP	Bharti
Delhi, Mumbai, Calcutta, Chennai, TN, Gujarat, AP, Karnakata, Punjab, Haryana, UP(E), Rajasthan	Hutch
MP, WB, Assam, Orissa, NE, Bihar	Reliance
Delhi, MP, MH, Gujarat, AP, Kerala, Haryana & UP(W)	IDEA
Karnataka, Punjab	Spice

Source: [www.dotinida.com](http://www.dotinida.com)

In addition to permitting private entry in fixed and mobile services, the government also liberalized National Long Distance (NLD) and International Long Distance (ILD) markets in 2001 and 2002 respectively. In conjunction with a liberal policy regime for Internet and other services indicated in Table 23, the market structure that obtains now presents a very different picture of the sector compared to that in 1999 (see Table 19 above). For instance there is no longer any licensing restriction on the number of players in fixed, mobile, NLD or ILD segments. In certain lucrative service areas, such as Delhi, Chennai, Karnataka, there are 8 different (fixed and mobile) operators. To an extent, the 4 NLD and 5 ILD operators that offer these services in India also compete with ISPs for long distance traffic.

Another important feature of the changing market structure is the emergence of three integrated private players with significant presence across the value chain (i.e. access, NLD, ILD, and Internet) who are likely to provide competition to the incumbents, BSNL and MTNL. The Tata Group, Reliance Infocom and Bharti Televentures have emerged as integrated telecom companies offering end-to-end services to customers. Hutchison, on the other hand, appears to be focused on cellular services, with no stated intention of entering other businesses (see Table 24).

**Table 23: Prevailing Market Structure For Selected Telecommunication Sectors in India**

Type of Service	Service Area	Entry Fee	Annual License Fee (% revenue share)	Competition	Period of License	FDI Limit**
<b>ILD</b>	International	Rs. 0.25 Billion	15%	Unlimited	20 years	49%
<b>NLD</b>	National	Rs. 1 Billion	15%	Unlimited	20 years	49%
<b>Cellular</b>	Circle	Different for each Circle (Based on Bidding)	Type A - 12%	Unlimited <sup>♦</sup>	20 Years	49%
<b>Fixed incl. WLL(F) &amp; WLL(M)</b>	Circle	Different for each Circle	Type B - 10%			
<b>Unified</b>	Circle	Different for each Circle (Based Entry fee paid by 4th Cellular operator)	Type C - 8%			
<b>Global Mobile Communication by Satellite</b>	International	Rs. 10 Million	10%		20 Years	49%
<b>VSAT</b>	National	Rs. 3 Million	10%	Unlimited	20 Years	49%
<b>Radio Paging Service Providers</b>	City wise and Circle wise	Please see the note below*	5%	4	10 Years	74%
<b>Internet Service Providers</b>	National, Circle wise, SSA wise	Rs. 1	Nil	Unlimited	15 Years	With gateways- 74% Without gateways - 100%
<b>Public Mobile Radio Trunked Service</b>	City wise and Circle wise	Nil	5%	Unlimited	20 Years	49%
<b>Infrastructure Providers Cat I</b>		Nil	Nil	Unlimited	20 Years	100%
<b>Infrastructure Providers Cat II</b>	National	Nil	15%	Unlimited	20 Years	74%

\*\* conditions apply

Source: TRAI, Consultation Paper on Unified Licensing, November 2003

<sup>♦</sup> In practice, will be limited due to spectrum availability

**Table 24: Range of Services offered by certain operators**

	Access	NLD	ILD	Internet
Reliance	Y	Y	Y	Y
Bharti	Y	Y	Y	Y
Tata	Y	Y	Y	Y
BSNL	Y	Y	Y	Y
MTNL	Y	N	N	Y
HFCL	Y	N	N	Y
Hutch	Y	N	N	N
Spice	Y	N	N	N
Satyam	Y	N	N	Y
Data Access	N	N	Y	Y
VSNL	N	N	Y	Y

*Source: Author Compilations*

**d) Rapid Growth Likely in the Market For Telecom and Related Services in the Medium Term**

The high growth of the telecom sector activity, especially for the new and value-added segments of the market, suggests that at current rates the size of the domestic telecom market of about US\$ 8 billion a year could increase to US\$ 100 billion in about ten years. Some indicators of the potential for high growth in telecom (or telecom-related activities) include high growth in FDI inflows to telecom and software exports (see Table 25 below) as well as the high rate of growth of mobile services.

**Table 25: Some Important Financial Data on Post-Reforms Role of the Indian Telecom Sector (Rs in Millions)**

YEAR	FDI INFLOW	Software Export
1993	20.6	
1994	140.2	
1995	2067.4	15,350
1996	7648.3	25,200
1997	12451.9	37000
1998	17756.4	65000
1999	2126.7	109400
2000	2885.8	171500
2001	39709	283500
2002	10815	365000
2003	3014	461000
2004	874	549000
<b>Total</b>	<b>99,509.4</b>	

*Source: www.dotindia.com, www.nasscom.org*



The possibility of a rapid growth of telecom and its contribution to the growth of ITES and BPO is illustrated by the following:

*Over the last few years, the worldwide business process outsourcing (ITES-BPO) industry has undergone rapid transformation. Continuing pressure on cost bases at a time of growing competitiveness is driving companies to look at offshore outsourcing as a strategic alternative. Maturity of the marketplace, rapid developments in telecommunications and infrastructure, new off shoring destinations etc. have catalyzed the growth of the ITES-BPO industry. According to NASSCOM, the Indian software and services exports industry has recorded growth of 30.5% clocking revenues of USD 12.5 billion in FY 2002-2003 over export revenues of US\$ 9.6 billion in 2002-2003. In FY 2003-04, the ITES-BPO segment clocked revenues of US\$ 3.6 billion recording a growth of 46% as compared to 59.1 % in FY 2002-03<sup>4</sup>.*

Software exporters, BPO industries, banks and other financial services companies are key users of telecom infrastructure. India's importance in global networks business has also been pushed up by the increasing number of foreign companies setting up offices here as well as the emergence of ITES as a robust export sector. It is noteworthy that software exports account for 20 % of India total exports of over 50 billion dollars. Further one of the objectives of NTP 1999 is to raise the standard of telecom infrastructure in India to world-class levels. The improved quality of telecom input would serve to enhance the competitiveness of those industries using telecom services as input.

The fastest growing segment in the telecom sector has been mobile and at current growth rates, subscriber base is estimated to explode to 100 million in December 2005. TRAI has estimated that the investment requirement for meeting the demand of 100 million wireless subscribers is about Rs. 50,000.00 crores or over US\$ 110.00 billion at current exchange rates.<sup>5</sup> Not only does this signal the attractiveness of the Indian market in the near to medium term, but also underlines the need and potential for expanding the scale as well as scope of FDI in the sector.

---

<sup>4</sup> NASSCOM, Indian ITES-BPO Industry, Background and Reference Resource-2004

<sup>5</sup> TRAI, Recommendations on Unified Licensing Regime, October 2003

e) **Policy Reform and Liberalisation in the Sector: Milestones**

Telecommunications was not perceived as one of the key infrastructure sectors for rapid economic development during the formative years of the Indian economy. The relatively low levels of investment in this sector affected the quality, quantity and range of services provided. In 1998, Indian Telephone density was 2.2 while the world average was 14.26.<sup>6</sup> The situation today is vastly different. Telecom infrastructure is considered to be one of the crucial requirements for Information Technology enabled services (ITES) like Business Process Outsourcing (BPO). The change in attitude toward telecommunications as well as significant structural changes that accompanied it have had a far-reaching impact on the sector. This section highlights the catalytic role of policy reform and liberalisation in the development of the sector.

i) **National Telecom Policy (NTP) 1994**

NTP 1994 stated that in order to realize the goals of India's new economic policy (1991), it was necessary to have a world class telecommunications infrastructure. 'It is [therefore] necessary to give the highest priority to the development of telecommunications service in the country.'<sup>7</sup> NTP 1994 thus focused on telecommunications for all and telecommunications within reach of all; universal service covering all villages as early as possible at affordable and reasonable prices; quality of telecom services to be of world standard; India to emerge as a major manufacturing base and major exporter of telecom equipment defense and security interests to be protected. NTP 94 also envisaged setting up of an autonomous regulator. The Regulatory Authority, TRAI, was however set up only in March 1997 and was immediately plunged into the challenging task of regulating a sector that had been opened to private competition in the face of an unreformed government run incumbent, DoT, which was also responsible for policy making and implementation.

There were serious gaps in the policy document as regards provision of a suitable environment for entry of private-service providers and the issue of regulation. Under the 1994 policy a need for private sector contribution to the effort was clearly recognized, but it did not have a sequencing and implementation plan. Moreover, and crucially a poorly

---

<sup>6</sup> World Telecommunication Development Report, ITU, 1999

<sup>7</sup> NTP 1994, Ministry of Communication's, Government of India, New Delhi.

conceived policy framework was entrusted to the incumbent monopoly for implementation, which had no interest or stakes in the success of the new policy. In fact, the incumbent saw a threat to its own long term interest in the opening up of the sector.

In a dispute regarding private sector entry in the Indian market before setting up of the regulator, the Supreme Court held that:

“The existence of the Telecom Regulatory Authority with the appropriate powers is essential for the introduction of plurality in the telecom sector. The National Telecom Policy is a historic departure from the practice followed in the past century. Since the private sector will have to contribute more to the development of the telecom network than DoT / MTNL in the next few years, the role of an independent telecom regulatory authority with appropriate powers need not be impressed.”<sup>8</sup>

**ii) TRAI and Regulatory Reform (1997)**

The creation of the new regulatory agency was a significant event in establishing an institutional framework capable of achieving the objectives of NTP 94. With the creation of TRAI, DoT surrendered its regulatory role, although it retained its policy making and licensing roles.

One characteristic of India's telecom reforms - and cause of much of the problems attending it - is that major reform measures like private entry into services were attempted in haste, without the policy having been thought through. The Telecom Regulatory Authority of India Act 1997 which established the Telecom Regulatory Authority of India (TRAI) in January 1997, came three years after the announcement of NTP 94. The mandate given to TRAI included creation of an effective regulatory framework and safeguards to ensure fair and effective competition and protection of consumer interests. To achieve the objectives of the TRAI Act, TRAI was given power to issue directions to service providers, make regulations, notify tariffs by Order, and adjudicate disputes arising between Government (in its role as service provider) and any other service provider. More details on the powers and functions of TRAI are provided in *Annex I*.

In the early phase of reform, most disputes were between TRAI itself and the Central Government in regard to the scope of TRAI's powers on making recommendations to the Government on licensing, introduction of new service providers and enforcement of license conditions. While TRAI was of the view that it was mandatory for the Government to seek the recommendations of TRAI on all these issues, the DoT believed that the recommendatory jurisdiction of TRAI was discretionary and not mandatory.

In a case regarding issue of a cellular license to MTNL in September 1997, without any recommendation from it, TRAI remarked:

“In a multi operator environment, an independent evaluation of the economic needs for a new service provider is a condition precedent for on the one hand maintaining investors confidence, and, on the other, achieving public policy objectives. This is particularly so at this point in India when the Government in the DoT combines in itself the roles of a licensor policy maker and service provider”<sup>9</sup>

The case was the Union of India v Telecom Regulatory Authority of India in the High Court of Delhi and was decided in July 1998. In this case, it was clearly held that the question of grant or amendment of a license by the Central Government acting in its capacity as the licensor falls outside the jurisdiction of the powers of the TRAI. The flaw of this judgement lay in the fact that issues which were subject to frequent change and review, for example tariffs and interconnection issues, were also a part of the license conditions and by implication beyond the jurisdiction of the newly established regulator. That the terms and conditions of the license were inviolate and not subject to 'review' by TRAI could not have been the legislative intent as it would result in practically no role for the regulator.

### iii) NTP 1999

Meanwhile, the opening up of the Internet sector set the background to NTP 99, which was a major attempt to plug the loopholes in the 1994 policy. Its enunciation of policy objectives was itself a marked improvement. Provision of 'Universal Service'

---

<sup>8</sup> Delhi Science Forum and others vs. Union of India and another, National Federation of Telecom Employees vs. Union of India and others, Company Law Journal 47:2 (April-June 1996)

(including unconnected and rural areas, re-targeted for year 2002) was sought to be balanced by provision of sophisticated telecom services capable of meeting the needs of the country's economy. The latter objective was further amplified to include 'Internet' access to all district headquarters (DHQs) by 2000 and providing high-speed data and multimedia capabilities to all towns of population of 200,000 and above by 2002. Apart from a target-average penetration of 7 per hundred by year 2005 (and 15 per cent by 2010), targets for rural 'tele-density' have been set to increase from the current level of 0.4 per cent to 4 per cent during the same period.

Recognizing the role of private investment, NTP 99 envisaged multiple operators in the market for various services. Another major change was the shift from the existing license fee bid system to one based on a one-time entry fee combined with revenue-share payments. To meet the teledensity targets of NTP 99, an estimated capital expenditure of Rs. 4,000 billion for installing about 130 million was computed. With a decline in equipment price and technological change, this estimate is expected to further decline.

Whereas NTP 94 only acknowledged the need to induce private participation in a big way into value added as well as basic services and to “ensure fair competition,” NTP 99 went further in targeting a greater competitive environment and level playing field.

According to the new policy, the number of players in each circle for Basic Services and their mode of selection were to be decided on the basis of recommendations from TRAI. As opposed to the bidding based license-fee regime in place earlier, licenses were to be issued on the basis of a one-time-entry fee and a percentage of revenue share to be determined by DoT on the basis of recommendations made by TRAI. Under NTP 1999 fresh licenses were issued on the basis of one time entry fee and a percentage of revenue share that is linked to the area of operation<sup>10</sup>. Annex II lists the major objectives of NTP 1999.

---

<sup>9</sup> Bharti Cellular and others vs. Union of India and another, Petition 3 of 98, TRAI ORDERS, 1997-98

#### iv) **The Telecommunications Tariff Order (TTO) 1999 and Tariff Reform**

Although the High Court judgment held that TRAI had no jurisdiction over licensor-licensee disputes and that it did not possess the power to alter terms and conditions of the license, TRAI embarked on the process of introducing a pro-competitive tariff regime for the first time in India. After going through a comprehensive consultation process covering service providers, consumers, policy makers and parliamentarians, TRAI issued its Telecommunication Tariff Order (TTO) on March 9, 1999. The Order was a landmark for infrastructure regulatory agencies in India in terms of attempting to rebalance tariffs to reflect costs more closely and to usher in an era of competitive service provision. The chief features of the tariff order were substantial reductions in long distance and international call charges, increase in rentals and local charges and steep reductions (an average of about 70 per cent) in the charge for leased circuits.

For basic services, TRAI demonstrated that tariff re-balancing was necessary to prepare the market for competition. A small proportion of the subscribers accounted for a major share of call revenue, and these subscribers would be the subject of competitive churn when private sector operators entered the market. Loss of such customers would have a significant effect on the revenue situation of the incumbent, making it difficult to meet the objectives of USO and network expansion. Thus, TRAI argued that while tariffs would have to be reduced for the services that were priced much above cost (e.g., long distance and international calls), tariffs for below-cost items needed to be increased. Such a re-balancing exercise was common when preparing the situation for competition. Otherwise, competition would result in a decline in above cost prices without any compensating charge in the below cost prices.

The methodology of specifying tariffs included the following feature to impart flexibility. For certain services, TRAI specified particular tariff levels while for several others it allowed forbearance. Even for those services for which tariff levels were specified, the framework included the possibility of providing alternative tariffs. The tariffs specified by TRAI were termed the “standard tariff package.” This package was to always be available to the subscriber. In addition, the service provider was free to provide

---

<sup>10</sup> License fees is fixed as 12, 10 and 8 per cent of adjusted gross revenues for Circles A, B and C respectively.

any “alternative tariff package.” Since the standard tariff package was always available to the customer, any alternative tariff package had to be better in order to attract any customer. Therefore, the standard tariff package provided a minimum guarantee to the customer. In one sense, it specified the peak expenditure level for the customer, with the alternative tariff packages being attractive only if the expenditure involved in them was lower than that for the standard tariff package. This method of flexibility was adopted because of the growing tendency in telecom markets to provide different tariff combinations for various baskets of services.

Standard monthly rental for mobile cellular was increased from Rs 156 to Rs. 600, but the maximum call charge was reduced from a peak of Rs. 16.80 per minute to Rs. 6 per minute. The service providers were allowed to give alternative tariff packages which resulted in lower tariffs. Leased circuit tariffs were decreased in order to encourage the use of telecom by business and bulk users, and to provide a competitive stimulus to such users through the use of leased circuits. Since there was a major systemic change encompassed in the tariff changes, it was not possible to be definite about any eventuality. Thus, the framework included an annual review of the Order. TTO 1999 evoked considerable protest from a number of quarters, including DoT. It was however implemented in toto by May 1999.

In the Explanatory Memorandum to TTO 1999, TRAI had stated implementation of Calling Party Pays (CPP) would follow later due to technical considerations involved in upgrading the incumbent’s network to allow for new billing systems. After consultation, TRAI announced its final decision on CPP including the crucial aspect of the regime that raised the price of PSTN to Mobile calls and specified a revenue share of about 2:1 for mobile : PSTN. The target date for implementation of this regime was November 1, 1999. DoT and MTNL had both made submissions to TRAI that the regime would result in revenue losses and sought change in the ratio that according to them favoured mobile subscribers at the expense of PSTN subscribers.

A consumer organization Telecom Watchdog filed a public interest litigation against CPP in the High Court of Delhi claiming ‘regulatory capture’ of TRAI by private cellular operators. MTNL argued that the license agreement made no mention of any termination charges payable by PSTN operators to mobile operators and in the light of the

earlier High Court judgment of 1998 maintained that TRAI had no power to modify the license agreement even under the garb of tariff fixation. In January 2000, the High Court struck down the introduction of the CPP regime as specified by TRAI on the grounds that TRAI did not have the power to revise license conditions nor to set revenue sharing terms.

**v) TRAI (Amendment) Act 2000**

On 24th January 2000, an Ordinance amended the TRAI Act 1997 and altered it in a number of aspects. For example, the adjudicatory role of the TRAI has been separated and has been provided to a Telecom Dispute Settlement and Appellate Tribunal (TDSAT)<sup>11</sup>. This Tribunal has been provided the powers to adjudicate any dispute

- (i) between a licensor and a licensee;
- (ii) between two or more service providers; and
- (iii) between a service provider and a group of consumers

In respect of dispute settlement, TDSAT has been given additional powers compared to the powers that had been given to the erstwhile TRAI. For example, it can settle disputes between licensor and licensee. Further, the decisions of the Tribunal may be challenged only in the Supreme Court.

The remaining functions of TRAI have been better defined and increased, for instance with respect to powers relating specifically to interconnection conditions. TRAI now has the power to ‘fix the terms and conditions of inter-connectivity between the service providers’ (TRAI (Amendment) Act 2000), instead of ‘regulating arrangements between service providers of sharing revenue from interconnection’ (TRAI Act 1997). After having fought the 1<sup>st</sup> TRAI in the courts, the Government through new legislation accepted the recommendatory role of the TRAI in the matter of licensing etc. The new legislation signalled an attempt to re-establish the credibility of the regulator. The government is now obliged to seek a recommendation from TRAI when issuing new licenses. The adjudication of licensor-licensee disputes is undertaken by an independent tribunal specialised in telecom. In terms of interconnection arrangements, TRAI has been

---

<sup>11</sup> In its present form, the CCI Bill also envisages the dispute settlement function to be performed by the Communications Dispute Settlement Appellate Tribunal (CAT)



given powers to override the provisions of license agreements signed with DoT. However, while there has been an increase in the powers of the Authority (other than dispute settlement), the Act has led to a weakening of the guarantee that was provided in the previous Act with respect to the five year working period for the TRAI Chairman and Members. This statutory guarantee has been done away with, and the revised Act provides for less stringent conditions for removal of any Authority Member or Chairman.

**vi) Wireless in Local Loop and Limited Mobility**

The TRAI had protested the government's intentions in February 1999 to permit MTNL and DoT enter the mobile market without a TRAI recommendation. In June 1999, MTNL announced a "limited mobility" service in Delhi based on Wireless in Local Loop (WLL) technology, with tariffs identical to basic services rates, a flat Rs.1.2 for the first three minutes of calling time. TRAI intervened asking MTNL for the basis for a 'limited mobility' service. MTNL claimed that they already had a licence for the WLL service, and that the limited mobility offering was merely an attempt to put the technology at the disposal of those who might want "a poor man's phone offering value for money mobility" targeted at the "very low end of the cellular subscribers".

In the run up to January 2001 when TRAI made recommendations to the government on Wireless in Local Loop with Limited Mobility (WLL(M)) as part of the Basic Service license, extensive consultations were held with all stakeholders, including with the Parliamentary Standing Committee on Communications. In October 2000, DoT advised TRAI of the cost advantages of hand held instruments over fixed wireless instruments (Rs. 6,000 against Rs. 15,000) and sought TRAI's recommendation with respect to:

*"scope of Area of hand held subscriber terminals under Wireless Access System operations, the basis for assigning WLL frequency and the amount of entry fee and spectrum charges as a percentage of revenue to be charged from the Basic Service Operator for extending the above facility in respect of existing as well as future Basic Service Licensees, so as to ensure a level playing field with the Cellular Operators."*

Cellular operators were opposed to WLL(M) mainly on two grounds. Firstly they argued that WLL(M) was a ‘backdoor entry’ for basic service in the mobile market and secondly, permission to offer mobility under the basic service license would violate the terms of the mobile license. Amidst the widespread controversy that this episode generated, TRAI provided its recommendations to DoT that mobility be permitted for basic service, but it be restricted to the Short Distance Charging Area (SDCA). The rationale was to allow operators to use new technology to increase penetration in a cost effective manner. Mobility was viewed as an add-on or value addition to the Basic Service in order to increase the attractiveness of the service to customers. While allowing limited mobility under the Basic Service license the government granted concessions to CMSPs in order to provide for a level playing field between the licenses (*See Annex III for concessions*).

Implementation of the restriction on mobility however, became awkward and difficult as operators used ingenious ways of offering full mobility to customers while seemingly remaining within the letter of the new license conditions. It would be relevant to state here that the muddle was created by allowing limited mobility in the first place. Once this hybrid service was permitted, policing it became challenging and before long, a way had to be found to address the ‘converging’ nature of the services offered under the basic and cellular mobile licenses.

**vii) Unified Licensing for Access**

In a scenario which was threatening to undermine the framework of regulation, TRAI recognized the need to settle the mobility issue across different license types by proposing a unified license regime for Basic and cellular operators. This regime covers both the access services and it is proposed that the scope of the license be enlarged to include all services at a later stage. As stated above, maintaining a distinction between two licenses and therefore services (one that allowed limited mobility and one that allowed full mobility) proved to be challenging for regulation and policy especially in the face of rapid technological progress. Thus, based on recommendations of TRAI, DoT notified guidelines for the unification of access licenses in November. The detailed guidelines are in *Annex IV*. As a result of unified licensing basic service operators would also be permitted to offer cellular mobile services while, CMSPs would also be permitted to offer basic service without any technological restriction. However, it does not mean that a

company holding license is permitted to directly interconnect across the service areas. This shall remain the exclusive right of the NLDO license in line with the prevailing licensing regime. Table 26 gives the details of the number of fixed, mobile and unified service providers in each service area as of May 2004.

**Table 26: Number of CMSPs and BSOs in India**

I. No.	Circle	No. of CMSPs	No. of BSOs	No. of UASLs
1.	Delhi	4	4	3
2.	MH	4	4	3
	Mumbai	4		3
3.	TN	4	4	3
	Chennai	4		3
4.	WB	2	2	5 (one operator yet to start their service)
	A&N	1	2	5
	Kolkata	4 (one operator yet to start their service)		3
5.	Gujarat	4	3	3
6.	AP	4	3	3
7.	Karnataka	4	4	3
8.	Kerala	4	2	3
9.	Punjab	4 (one operator yet to start their service)	3	5
10.	Haryana	4	3	3
11.	UP (W)	3	2	4
12.	UP (E)	3 (one operator yet to start their service)	2	3
13.	Rajasthan	4 (one operator yet to start their service)	3	3
14.	MP	4	3	4
15.	HP	4 (one operator yet to start their service)	2	4 (one operator yet to start their service)
16.	Bihar	2	2	4 (one operator yet to start their service)
17.	Orissa	2	2	4 (one operator yet to start their service)
18.	Assam	2 (one operator yet to start their service)	1	1 (one operator yet to start their service)
19.	NE	2 (one operator yet to start their service)	1	1 (one operator yet to start their service)
20.	J&K	1 (one operator yet to start their service)	1	2 (one operator yet to start their service)

Source: [www.dotindia.com](http://www.dotindia.com)

### **viii) Cost and Tariff Trends**

The policy induced liberalisation along with technological progress has altered the telecom landscape in India beyond recognition. Unlimited entry of new players has been allowed in basic, NLD, ILD, ISP and infrastructure businesses. Cellular mobile has upto 4 operators in each service area. The emergence of competition prompted TRAI to deregulate the tariff regime. All tariffs except those applicable in rural areas are now subject to forbearance. Forbearance implies services providers are free to decide retail tariff subject to regulatory intervention in the event of anti competitive or predatory conduct. This is a significant transformation from 1999 when tariffs were tightly regulated and had to be reported to TRAI before implementation. Only after the regulator was satisfied that reported tariffs met regulatory principles such as non-discrimination, non-predation and did not breach the price ceilings were these approved for implementation. Today providers do not have to report tariffs prior to implementation, and non-discrimination in the matter of retail tariffs has been dispensed with. The onus is on the operator to comply with the interconnection usage charges (IUC) regime and other regulatory guidelines, such as quality of service etc. An implication of these changes is that services and tariff packages on offer cannot be fitted so easily into neat compartments such as basic services, mobile services or local calls, STD calls and so on. Bundling, segmentation across subscriber types, customisation etc have emerged as popular pricing strategies to compete in the market. At one point there were more than 500 distinct tariff plans that had been reported to TRAI for approval, suggesting intense competition among operators.

It is worth exploring the impact of technological progress on the sector, especially the mobile segment. The rapid technological advancement in mobile networks has resulted in decline in the average cost of providing mobile services. The advantage of mobile rests squarely on the fact that the local loop which is the dominant cost driver for telecom networks is cheaper under mobile technology. Mobile technology obviates the need for laying cables and connecting the subscriber premises with copper wires or cables. As technology has advanced and subscriber numbers have grown, the benefits of scale economies have been apparent in the cost of providing the service. The following table presents the average cost of connecting a subscriber across the three technologies that are

prevalent in India. The evidence shows that the cost of mobile technology is less than for fixed. It therefore comes as no surprise that the fastest growth has been seen in the technology which is also the least expensive.

**Table 27: Cost per line of different technologies in Rs.**

	1998	2002	2003
Fixed	25,000	NA	14,348
Cellular (GSM)	24,869	15,873	13,821
WLL(M) (CDMA)	N.A.	7,119	5,111

*Source: Author compilation*

The trend of average tariffs has also been consistently downward. Estimates of tariff changes could vary depending on the nature of usage and package of services such as local, NLD, ILD, Value added services etc. chosen by the subscriber. Another complexity in telecom is the widespread use of multi part pricing i.e. a fixed monthly rental for access and a variable charge depending upon usage. Moreover service providers have attempted to segment the market according to subscriber types crafting customized tariff offerings to best meet the needs of varied subscribers. Thus, a number of tariff plans are available which subscribers choose according to their requirements. Notwithstanding this caveat, for three services, the point- to- point decline since 1999 is shown in Table 28

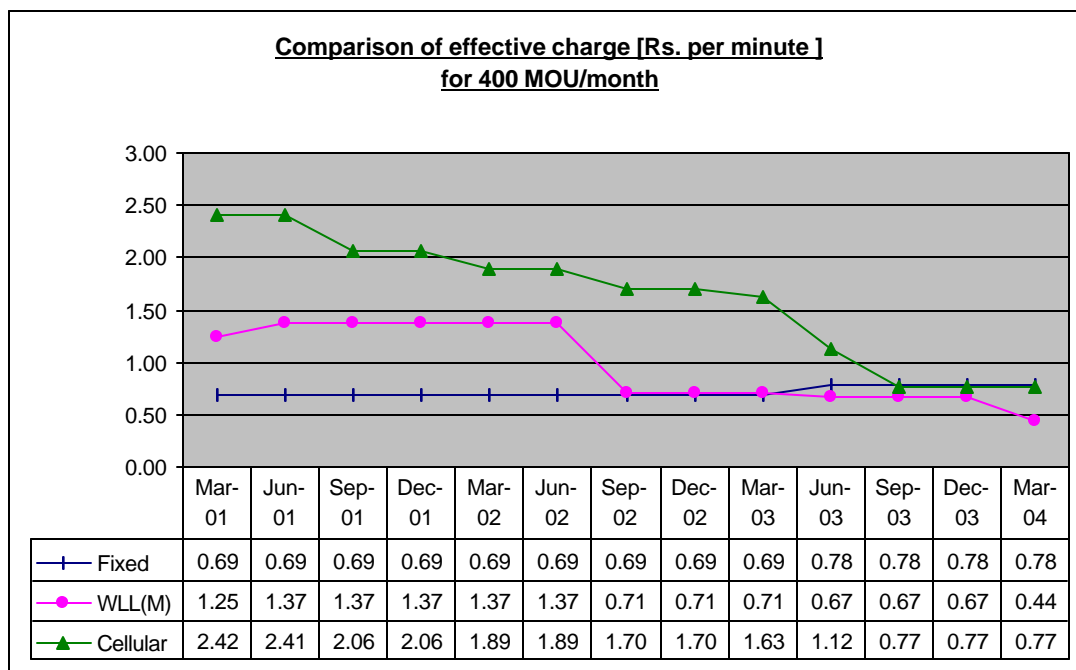
**Table 28: Decline in Tariffs (1999-2003)**

Service	% decline in Tariffs
Cellular	52%
NLD	70%
ILD	57%

*Source: Author estimates*

Recently, TRAI examined trends in tariffs for Fixed, Mobile & WLL(M) services. Chart 2 shows the results of that study.

**Chart 2**

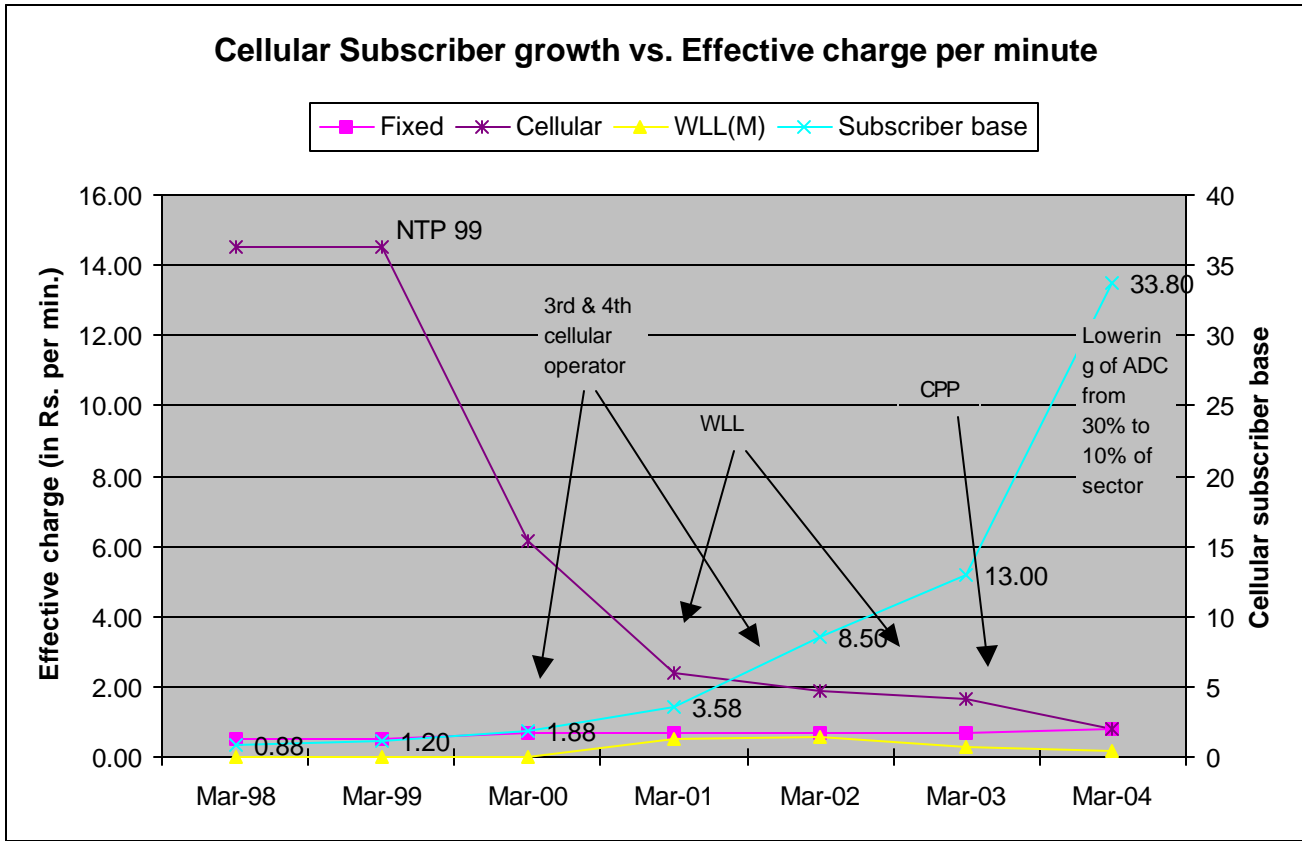


MOU: Minutes of Use

Source: [www.traai.gov.in](http://www.traai.gov.in)

The above chart is based on the calculations performed on the minimum tariffs prevailing in the market at various points of time for average local usage of 400 minutes (outgoing + incoming). Just a few years ago, mobile tariffs used to be Rs.16.80 a minute at both ends. Today’s regime of “Calling Party Pays”, convergence, and the falling trends of tariffs have lowered the effective charge to users, to below Re 1.00 per minute; (the effective charge takes into account outgoing as well as incoming minutes). This declining trend, and the sector’s consequential growth, is reflected by the accompanying graph (chart 3). Key changes in the sector like entry of 3<sup>rd</sup> and 4<sup>th</sup> cellular operator, permission to allow WLL(M) and introduction of CPP have all contributed to enhancing subscriber numbers and lowering the effective charge per minute. The growth in mobile from 1995, i.e., when the first mobile was launched, was 13 million, until the end of 2002-03. The last one-year alone (2003-04) has seen the addition of more than 20 million mobile phones—a growth of 1.6 times over the total achieved in eight years.

**Chart 3**



Source: [www.trai.gov.in](http://www.trai.gov.in)

**ix) Addendum to NTP 1999**

Rapid developments in the sector, including in technology and market structure necessitated a re look at the service specific licensing policy in place. Thus based on these developments, and following recommendations made by TRAI, DoT recently added the following text to NTP 1999, as an addendum.

*Given the central aim of NTP-99 to ensure rapid expansion of teledensity; given the unprecedented expansion of telecom services that competition has brought about; given the steep reductions in tariffs that competition has ensured; given the fact that advances in technologies erase distinctions imposed by earlier licensing systems; given the fact that even more rapid advances in technologies are imminent; given the steep reduction in costs of providing telecom services; given the rapid convergence of tariffs for wireless services; given the fact that the provision of such services at the cheapest possible rates and by the most reliable mode is the sine qua non for India to*



*consolidate its position as a leading hub of Communications systems, Information Technology, IT enabled services, and of establishing itself as a leader in new disciplines such as bioinformatics and biotechnology; given the recommendations of TRAI in this regard; Government, in the public interest in general and consumer interest in particular and for the proper conduct of telegraphs and telecommunications services, has decided that there shall also be the following categories of licences for telecommunication services:*

- (i) Unified Licence for Telecommunication Services permitting Licensee to provide all telecommunication/ telegraph services covering various geographical areas using any technology;*
- (ii) Licence for Unified Access (Basic and Cellular) Services permitting Licensee to provide Basic and /or Cellular Services using any technology in a defined service area.*

In its scope, this is a sweeping change and would result in fundamental changes in the ingress provided to others in the Indian telecom market. Unified licensing for access services has already been notified and the process of widening the scope of the unified licenses to include all services is in progress. This marks a fundamental change in the policy and regulation for the sector, recognizing the fact that governance systems must evolve to keep pace with developments in the sector to ensure efficient delivery of the services. *Annex V* shows the steady deregulation of the telecommunications sector at home. Policy has become more liberal now compared to 1994, when private participation and investment was first invited to relieve the constraints imposed by an incumbent monopoly. The next section considers some of the important policy areas which require special consideration for further reform, including those which are likely to be the subject of attention by other countries during the ongoing GATS services negotiations.

**f) Further Reform: Need and Scope**

**i) Mergers and Acquisitions and Competition Policy Issues**

The increase in competition and the concomitant decline in tariffs has been documented above. This has put pressure on certain operators to remain viable. Increased competition and migration to the unified access licensing regime presented the impetus for

the regulator to recommend a policy on *intra-circle merger and acquisitions*. International regulatory experience suggests that during the early stages of telecom sector growth, the primary objective should be to facilitate entry and exit and drive sustained investment. Entry in the Indian market has already been liberalized, while that for exit has been recently reflected in the merger and acquisition guidelines for operators within the same service area. Mergers have been permitted in the following category of licenses:

- (i) Cellular License with Cellular License;
- (ii) Basic Service License with Basic Service License;
- (iii) Unified Access Services License (UASL) with Unified Access Services License;
- (iv) Basic Service License with Unified Access Services License;
- (v) Cellular Service License with Unified Access Services License.

The restriction to merger of licenses is that at least three operators should exist in the service area for that service, consequent upon such merger. Table 29 shows merger and acquisition activity in the period before and after notification of the guidelines. The table reveals that most merger activity has taken place in the cellular mobile sector. For the acquiring companies this reflects the intention to establish an all-India footprint. To an extent it also underscores the inefficient entry that had occurred when the mobile market was first opened for private sector participation in India.

**Table 29: Mergers & Acquisitions in Indian Telecom Industry**

Before issue of Merger & Acquisition guidelines by DoT (21<sup>st</sup> February 2004)

	Acquired/Merged identity
Skycell, Chennai Modi Telstra, Calcutta JTM, AP & Karnataka Evergrowth, Punjab	Bharti
UMTL, Calcutta Fascel, Gujarat ADL-Haryana, Rajasthan & UP(E)	Hutch
Birla AT&T, MH & Gujarat Tata, AP RPG, MP	IDEA
Hughes, MH	Tata

After issue of Merger & Acquisition guidelines by DoT (21<sup>st</sup> February 2004)

	Acquired/Merged identity
Hexacom, Rajasthan	Bharti
Aircel – TN & Chennai	Hutch
Escotel – Kerala, Haryana & UP(W)	IDEA

*Source: Author compilation*

After the market matures, the primary objectives should be to ensure high quality of service, while encouraging innovation and fair play conduct and preventing anti competitive mergers and acquisitions. In this respect, further reform is necessary. A unified licensing regime for all services is in the offing. Thus rules for screening and regulating merger and acquisition activity, including horizontal and vertical mergers and policies that restrict abuse of market power by dominant players will be needed in the next phase of telecom reform.

A liberalised, fully or partially privatised and converged communications sector will be subject to a number of different types of anti-competitive conduct, including abuse of dominant position in respect of interconnection charges, or anti-competitive technical arrangements with another service provider. Likewise, anti-competitive pricing policies may be combined with certain other initiatives in a joint-product situation where it may not be easy to untangle the effects of one action (e.g. Anti-competitive price) from another action (e.g. Revenues earned through bundled services). New entrants will regard effective controls on anti-competitive conduct as essential and will often be deterred from entering the market unless such controls are in place. Even if a law on general application exists,

the telecommunications law should address certain key technical matters such as interconnection, frequency allocation and numbering plan, as well as cross subsidy among different licensed services provided by the same operator.

In view of the above, it would be appropriate if the sector specific regulator is given adequate power to resolve all issues in the telecom sector, including issues relating to competition and observance of level playing field. This, in fact, should be applicable to all industry specific regulators, for in practice it would be extremely difficult to segregate competition issues from issues specific to the given industry. In case there is overlapping jurisdiction on competition policy related issues between the Competition Commission of India (CCI) and the industry-specific regulatory body, the time required to resolve issues would increase, thereby decreasing the effectiveness of the process. Further, a hybrid structure will allow the possibility of ‘forum shopping’, which could lead to increasing the resources and time expended towards resolving issues. To achieve consistent and clear handling of sector specific problems including those relating to anti-competitive action, it would be desirable that such problems be handled by the sector-specific regulator.

**ii) FDI Liberalisation**

The following Table displays the service wise limits for FDI currently in place.

49 per cent	Basic, cellular mobile, paging, V -SAT, mobile radio trunking Investment companies set up for investments in telecom services companies (investments by these companies in a telecom services company is treated as part of domestic equity and is not set off against the foreign equity cap)
74 per cent	Internet Service with gateways, Infrastructure Providers (category II), Radio Paging Service
100 per cent	Internet Service Providers not providing gateways (for both satellite and submarine cables), E-mail, voice mail, Infrastructure Providers (category I)

These are subject to the following conditions:

- i) FDI up to 100 % is allowed subject to the condition that companies would divest 26 % of their equity in favour of the Indian public in 5 years, if these companies are listed in other parts of the world;
- ii) The above services are subject to licensing and security requirements, wherever necessary; and

iii) Proposals beyond 49 % shall be considered by the Foreign Investment Promotion Board (FIPB) on a case to case basis.

A long standing demand of the telecom industry has been further relaxation of FDI caps to allow greater amount of investment in the sector. In his budget speech 2004-05, the Finance Minister had stated that FDI will continue to be encouraged and actively sought, particularly in the areas of infrastructure. He cited telecom as one of the sectors that 'fully meets this description'. Similarly, the NK Singh Committee report on measures to enhance effectiveness of inward FDI had also recommended, *inter-alia* liberalisation of the FDI caps for telecom to 74 % for basic and cellular and to 100% for other services, subject to security clearances.

Section 2 documented the enormous potential of the Indian telecom market, in terms of subscriber growth and investment requirements. The growth achieved last year was exceptional and of a qualitatively and quantitatively different genre compared to previous years. Most of the subscriber growth has come from private sector investments and this trend is likely to be maintained. The sustainability of such growth to achieve 200 million subscribers by 2007 and a much larger base beyond 2007 is desirable and will require huge resources. FDI becomes a key resource in this context. Slowing the growth momentum at this stage would lead to losing several direct and indirect benefits of telecom growth. According to the Working Group on the telecom sector, an investment of Rs 1,60,000 crore is required to be made in this sector during the Tenth Plan period. Even if domestic capital of this magnitude were to become available, it would certainly be at the expense of investment in other sectors where foreign investment may not enter as readily. Clearly, then, foreign investment should be welcomed as a means of adding to the overall capital formation in the country.

The argument in favour of increasing the FDI cap for the sector is based on the growing investment needs. These kind of funds do not exist in the domestic markets. The current debate over FDI limits is however focused on security concerns. The Left parties in the coalition government are of the view that the sector has grave security implications and many East and Southeast Asian countries, including China, which have experienced rapid growth in the telecom sector in the recent past, continue to have 49% or lower FDI limits.

Keeping in view the growing dynamism and consolidation that is taking place in the sector, foreign companies are keen to invest in India. Therefore, instead of looking only at the history of controls in this sector, it may be better to look at the emerging trends. Hence, FDI regime has to be chosen by the country concerned taking into account all the relevant considerations, which in the Indian context relate to security concerns and the need to finance rapid growth. This is particularly important as India still has a lot of catching up to do and needs policies that will permit the necessary leap-frogging. It is unlikely that the requisite growth in the telecom infrastructure can take place through domestic savings alone. There appears to be no basis for restricting FDI limits; if there are any concerns such as security and abuse of dominance by large multinational companies, these can be addressed more effectively by other means rather than by restricting FDI. Further it is well established that FDI leads to better incentives for technology transfer, improved management, and thus results in lower prices and better services.

As the market in India expands and attracts more investment, both domestic and foreign, the long term interest of the sector will be served by a credible and non discriminatory regulatory regime. Any ambiguity in the discharge of functions between TDSAT and TRAI will encourage players to use the system to their advantage, thus delaying the process of transformation of the sector to the next level. In addition, therefore apart from reform in FDI and competition policies, clarifying the jurisdiction between TDSAT/TRAI and a future competition commission is necessary to promote sectoral progress.

### **SECTION 3: RELEVANT PROVISIONS OF GATS AND OTHER RULES AND DISCIPLINES FOR TELECOMMUNICATIONS**

The WTO rules and disciplines for telecom comprise the General Agreement on Trade in Services (GATS), the Annex on Telecommunications (hereinafter "Annex on Telecom") and the Schedules of commitments made under the GATS. To get an indication of the basic thrust of major regulatory disciplines that are relevant in the context of the telecom services, we need to consider the Reference Paper also.

While the result of the WTO negotiations on market access for basic

telecommunications services formally entered into force on 5 February 1998, the WTO rules relevant to telecom are also contained in the GATS and the Annex on Telecom, which entered into force in January 1995. To begin with, this section will highlight the main disciplines in the GATS and then discuss the main features of the relevant disciplines embodied in the other parts of the WTO legal obligations pertaining to telecom.

It may be mentioned here that the Information Technology Agreement concluded in 1997 has a bearing on trade in telecom services, as does the standstill on not imposing any trade taxes on e-commerce.

**(a) Rules and disciplines under the GATS**

The GATS consists of 29 Articles, 8 Annexes, and 130 schedule of commitments on specific services or service sectors (each WTO Member submitted a schedule of commitment, whose scope and coverage varies considerably - please see below). GATS provides a framework which defines the types of international trade in service that are subject to the agreed set of rules, the nature of these rules, and the basis for making specific commitments in the schedules of commitments. In addition, the GATS Articles contain provisions for dispute settlement among the WTO Members.

A major feature of the GATS is that it extends the definition of international trade in services. This envisages **four different modes of trade**. They are:

- **Cross-border supply** (same as for trade in goods; e.g. international call);
- **Consumption abroad** (such as tourism, or cellular roaming);
- **Commercial presence** of a supplier of one WTO Member in the jurisdiction of another WTO Member (Includes Investment in Services);
- **Presence of natural persons** (as individual service suppliers or through commercial presence).

The negotiations on basic telecom services under the GATS did not focus on a precise definition of "basic telecom services". It was decided that the negotiations will cover all telecommunications services (both public and private) that involve end-to-end transmission of customer supplied information (voice or data), telecom services provided over network infrastructure as well as those provided through resale over private circuits,

and supply of telecom services through cross-border provision as well as through the establishment of foreign firms (or commercial presence).

Two important disciplines on international trade under GATT, and now GATS, relate to **most favoured nation treatment** (or "MFN treatment") and **"national treatment"**. MFN treatment requires that the same treatment be given to all Members as may be extended to any country with which a WTO Member country has a trade relation. National treatment requires that the treatment of services and service providers from any country be at least as good as the treatment provided to domestic services and service providers.

Since trade in services was a new area being brought under the general framework of multilateral disciplines, countries sought comfort through a phased liberalization of the sector. Thus, the possibility of limitations on market access and national treatment were provided within GATS, unlike under the GATT. The extent to which market access and national treatment are provided by Members are inscribed in the corresponding Schedules of their Commitments. In addition, to a limited extent, some countries specified exceptions to the MFN discipline in another Schedule.

Therefore, unlike for goods under GATT, there is a possibility under GATS of giving qualified national treatment for services, and to take exception to MFN (see next Section for details). MFN is a general obligation covered for all service sectors, whether or not commitments have been made in the sector, unlike the situation for national treatment and market access. When an MFN exemption is filed, a WTO Member has to apply it to only those services which are not in the Schedule of its commitments. Additionally, the exemption may be used to provide special and preferential treatment to certain WTO Members over and above (i.e. in excess of) those market access provisions which are indicated in the schedule of its commitments. The list of MFN exemptions taken by the WTO Members for telecom is mentioned in Section 4 below.

Other important disciplines under the GATS relate to, inter alia:

- **domestic standards and regulations** (these ensure that domestic



regulations are not used unfairly to benefit any particular market participant, and that they do not constitute unnecessary barriers to trade in services and are not more burdensome than necessary to ensure the quality of the service. The GATS also addresses recognition of foreign standards and certification of service suppliers);

- **monopolies and exclusive service providers;**
- **restrictive business practices;**
- **transparency;**
- **free trade areas and customs unions;**
- **emergency measures for balance of payments purposes;**

**General/security exceptions; and**

- **provision for further negotiations.**

#### **b) The Schedules of Commitment**

Article XX of the GATS provides that WTO Members should inscribe their specific commitments in their Schedules of commitment. Not all the WTO Members have undertaken disciplines in the area of telecom through their Schedules of commitment. 93 WTO members have made commitments in telecom through 82 schedules; there being only one schedule for EU member countries<sup>12</sup>. The markets of these participants account for more than 90 % of global telecommunications revenues.

The Schedules of commitments specify both the telecommunication service sector in which commitments have been undertaken by a WTO member, and the nature of these commitments with respect to market access and national treatment. These commitments are made separately for each mode of service supply. In certain cases, Members have undertaken additional commitments (on licensing and regulatory principles) in their Schedules of commitments. While one Schedule specifies the conditions and qualifications attached to Market Access and National Treatment by Members, another Schedule contains the MFN exemptions specified by countries.

**With respect to market access commitments inscribed in the Schedule, certain types of limitations (separately for each mode of supply) may be maintained only if,**

**and to the extent, it is specifically mentioned in the Schedule.** The types of limitations that may be specified for market access are:

- limitation on the number of suppliers;
- limitations on the total value of service transactions or assets;
- limitations on the total number of services operations or on the total quantity of service output;
- limitation on the total number of natural persons that may be employed;
- measures which restrict or require specific types of legal entity or joint venture; and, limitations on the participation of foreign capital.

**With respect to national treatment for any specified service,** Members can specify conditions and qualifications so as not to give full national treatment. The exceptions to national treatment can take the form of different treatment with respect to tax measures, nationality or residency requirements, licensing standards, criteria relating to qualifications, and requirements for obtaining authorization for providing the service.

Based on an **interpretative note** issued by the Chairman of the Negotiating Group (on Basic Telecom), an understanding was developed that unless specified, the scheduled commitments would cover all the relevant dimensions of basic telecom services in terms of:

- local, long distance and international services;
- public and non-public services;
- supply on a facilities basis or through resale;
  - technology-neutrality with respect to supply by cable, radio, satellites, stationary and non-stationary means.

**c) The Annex on Telecommunications**

The GATS contains certain Annexes relating to specific service sectors, including an Annex on Telecommunications. The Annex on Telecommunications recognizes "the specificities of the telecommunications service sector and, in particular, its dual role as a

---

<sup>12</sup> World Trade Organisation, Telecommunication (WTO) Services, Background note by the Secretariat, December 1998

distinct sector of economic activity and as the underlying transport means for other economic activities", i.e. the Annex recognizes the importance of telecommunications as an input for other sectors.

This Annex comprises seven sections, with the core obligations contained in section 5 access to and use of "public telecommunications transport network and services" (or PTTNS). These require WTO members to ensure that access to and use of the PTTNS are allowed on reasonable and non-discriminatory terms for the supply of services included in its schedules. This would be true even when no basic telecom service commitments have been made by the government in its schedule, and whether or not such PTTNS is supplied by a monopoly or through competition. Inasmuch as a Commitment in a Member's schedule on basic telecom services is for the supply of these services, access to and use of PTTNS on reasonable and non discriminatory terms is a mandatory requirement under the provisions of this Annex.

In addition, there is a recognition of the need for maintaining security and confidentiality of messages, safeguarding universal service and other public obligations, and protection of the technical integrity of the networks.

**d) The Reference Paper**

A number of Governments felt that explicit regulatory principles should be drawn up for basic telecom services, particularly in order to guard against anti-competitive behaviour by incumbents. This was based on the view that the telecom sector normally has a dominant supplier who could alter the market situation to the disadvantage of a newcomer. Further, an efficiently functioning telecom market requires appropriate linking up of the established and new suppliers, while guarding against anti-competitive behaviour. A Reference Paper was, therefore, prepared which laid down regulatory disciplines that were considered necessary for promoting competition in this sector (*see Annex VI*). Adherence to these principles, however, was voluntary and subject to whether or not WTO Members inscribed them into their schedules as additional commitments.

The regulatory principles contained in the Reference Paper address situations where major suppliers exercise control over essential facilities or where these suppliers are

capable of abusing their dominant market position. Essential facilities were identified as those which are exclusively or dominantly provided by a single or limited number of suppliers, and which cannot be economically or technically substituted in a feasible manner to provide a service. The Reference Paper includes commitments to:

- adopt safeguards to protect against anti-competitive behaviour including use of cross-subsidy, or misuse of information;
- establish terms and conditions for non-discriminatory interconnection to be provided by major suppliers, under conditions, rates, and quality no less favourable than that provided to all other suppliers of like services;
- provide interconnection in a timely manner, on transparent and reasonable terms and conditions, and at cost-oriented rates
- recognize the legitimacy of universal service obligation, provided that these do not act as a surrogate form of protection;
- utilize transparent (i.e. publicly available) criteria in licensing;
- establish an impartial regulator, independent of any service supplier;
- utilize objective, timely, transparent and non-discriminatory procedures for allocation of scarce resources such as radio frequencies, numbers and rights of way.

#### **SECTION 4: LIBERALIZATION IN TELECOMMUNICATION SERVICES UNDER THE URUGUAY ROUND**

This Section is based on a combination of recent information and the WTO Document of December, 1998. The overall picture is the same with each of these two information sources.

##### **a) Classification of Telecommunications Service Sectors And The Commitments Made By Various WTO Members**

The Services Sectoral Classification List provides a classification of the telecom sector into seventeen categories. These are mentioned in the first column of Annex Table 1 below, fourteen categories from "a" to "n", and three "other" categories under "0". Though these services are classified separately in the List, the ongoing convergence arising due to technological and market developments is blurring the distinctions among some of these categories. Packaging and provision of various services by the same operator will

increasingly become a norm in the future. Nonetheless, given the type of information available, this Section will provide the relevant information for these sectoral classifications.

In the list of sectors, the term "**basic telecommunications**" is used to cover the services in categories "a" to "g" in Annex Table 1, and certain other services such as mobile communication that provide real-time transmission of customer supplied information. Other service categories are considered as "**value added telecommunications** services".

As of January 2000, 93 WTO Members had included telecommunications services in their Schedules of Commitments. Basic telecommunications is included in the schedule of commitments of 83 WTO Members and value added services have been committed on by 72 Member governments. In addition, 72 Members have committed on some or all aspects of the Reference Paper. Of these, 66 have accepted the Reference Paper in its entirety or with minor modifications. All industrialized countries have taken commitments on basic telecommunications, most value-added sectors, and the Reference Paper.

**b) The Nature of Commitments Made in The Schedules Including the Types of Limitations On National Treatment and Market Access**

Most WTO Members have made partial commitments. Further, such partial commitments were made much more for the mode of supply "**commercial presence**", than for other modes of supply. Another noteworthy feature is that the mode of supply "commercial presence" is also subject to the highest number of limitations. For "national treatment", most limitations relate to "nationality requirement", followed by limitations relating to residency requirement, authorizations requirements, and ownership of property land. The number of limitations for "market access" are much more than those for national treatment. These relate mainly to limitations on number of suppliers, types of legal entities, and participation of foreign capital.

Although there was general appreciation among Members that the accounting rate regimes in place would not be able to withstand the pressures brought about by competitive markets, it was decided to secure a shared understanding that Members would

not challenge each other's accounting rates under the WTO's dispute settlement regime. Further, it was agreed that the understanding would be reviewed no later than the commencement of the new services negotiations, from 1<sup>st</sup> January 2000. However, certain countries (as mentioned above) included exemptions to the most favoured nation (MFN) rules with respect to their accounting rate systems.

### **Exemptions to MFN Treatment**

**Exemptions to MFN treatment** for telecommunications were taken by: **Antigua and Barbuda** (relating to Government extending to nationals of other Caricom-member countries treatment equal to its own nationals); **Argentina** (supply of fixed satellite services by geostationary satellites); **Brazil** (relating to distribution of radio or television programming directly to consumers).

**Bangladesh, India, Pakistan, Sri Lanka** (the possibility of permitting Government or Government-run operator to apply differential measures, such as accounting rates, in bilateral agreements with other operators or countries); Turkey (relates to two neighboring countries regarding fees for transit land connections and usage of satellite ground stations, and to the possibility of permitting Government or Government-run operator to apply differential measures, such as accounting rates, in bilateral agreements with other operators or countries); **United States** (for one-way satellite transmission of DTH and DBS television programming directly to consumers).

We compare below commitments made by India with commitments made by certain WTO members whose commitments cover a relatively large number of service sectors (namely, Australia, Canada EC, United States and some of the countries in the Asian region (e.g., China and Sri Lanka). A consideration of the commitments made by these WTO Members would also provide an indication of the types of commitments that would be expected from India.

**Australia** has:

- offered unrestricted competition in virtually all basic telecom services as of July 1997;

- committed on existing free markets for voice telephony on a resale basis and many other basic services;
- In case of basic telecom services, restrictions in Mode 3 such as primary supply of satellite services shall be limited to 2 service providers till June 1997, primary supply of public mobile cellular telecom services will be limited to three service provider has been removed.
- offered no limits on foreign equity for new carriers;
- Foreign equity limit has been specified in Telstra (licensed general carrier) as:

Legislation permitting the sale of one third of the government's equity in Telstra comes into effect on 1 May 1997. Foreign equity will be limited to 35%; of this one third (about 11.7% of total equity) with a limit of 5% of the one third (about 1.7% of total equity) available to individual or associated group foreign investors.

- The restriction in NT that the chairman of Optus (holder of general carrier and mobile license) must be Australian citizen has been removed.
- Committed to the Reference Paper on regulatory principles.
- The value added services sector remains fully liberalised as before.

**Argentina has:**

- agreed to phased-in commitment liberalizing voice telephony (local, long distance, and international) and provision of other basic telecom services supplied on an international basis by November 2000;
- agreed to offer full competition in basic services other than voice, such as data transmission, etc. supplied in the national market and leased circuit services (international and national) without phase-in;
- agreed to open competition in mobile telecom services such as data, paging, and trunking.
- committed on duopoly in mobile cellular services and undertaken to allow new entrants subject to an economic needs test for the provision of mobile Personal Communication Services;
- committed to the Reference Paper on regulatory principles;
- submitted an MFN exemption list on telecommunications services involving the supply

of fixed satellite services by geostationary satellites.

### **Hong Kong:**

- In case of local basic telecommunication services, restriction on the issue of license for local fixed network services has been removed in Mode 3 and hence they have opened up this mode fully.
- In case of value added services, the list of services has been expanded and now includes all those services in the WTO 120 list. This sector was unbound in Mode 1 (MA & NT) and Mode 2 (NT). These modes have no restrictions now.
- In Mode 3 restriction that the commercial presence must take form of a company has been removed and this mode is open fully.

### **The United States has:**

- committed to open markets for essentially all basic telecom services (facilities- , based and resale) for all market segments (local, long distance, and international), including unrestricted access to a common carrier radio licenses for operators that are indirectly foreign owned;
- made the offer to also cover, for example, satellite-based services, cellular telephony and other mobile services;
- limitations on market access include no insurance of radio licenses to operators with more than 20% direct foreign ownership
- Restriction that Comsat retains exclusive rights to links with Intelsat and Inmarsat satellite capacity has been removed;
- committed to the Reference Paper on regulatory principles;
- The list of value added service has been changed to the WTO 120 list. This sub sector is completely liberalized.



## **European Community:**

- In case of value added services, the list has been expanded to include all the services.
- For domestic and International Services provided using any network technology on a facilities based or resale basis for public and non public use there are no limitations on market access and national treatment i.e. modes 1, 2 and 3 are fully liberalised.

## **Canada:**

- For Basic telecom services-in case of Mode 1, regulations on routing of Basic telecom services between points within Canada and points outside Canada has been removed.
- In Mode 3, foreign investment restriction is as follows:
  - -in facilities based telecom services: 46.7% of voting shares, based on 20% direct and 33.33% indirect investment
  - -100% for operations conducted under an international submarine cable license
  - -mobile satellite systems owned and controlled up to a level of 100% by a foreign service provider may be used by a Canadian service provider to provide services in Canada;
  - -100 % foreign equity in service providers of basic telecom services supplied on a resale basis.
- Removed the restrictions such as right to obtain a license to land a submarine cable and limited license to operate earth stations for the provision of Canada-U fixed satellite service

## **Singapore:**

- In case of basic telecom services (facilities-based), restriction in Mode 3 that upto two additional operators will be licensed in 1998 for provision of services commencing April 2000 has been removed.
- Foreign investment restriction is as follows:
  - -cumulative total of 73.99% foreign shareholding, based on 49% direct investment and 24.99% indirect investment is allowed.

- In case of mobile services foreign investment restriction is same as above
- Value added network are now subject to license from Infocomm Development Authority of Singapore while earlier it was subject to Telecom Authority of Singapore.
- The restriction that foreign companies are required to set up a local branch office of their company duly registered with Registry of Companies and Business has been removed.

**Sri Lanka has committed to:**

- Do away with the restriction of duopoly in international basic voice services
- Restriction of foreign equity participation of up to 35 %for a strategic partner in the government owned SLT has been removed;
- four operators licensed for local and domestic long distance mobile cellular services;
- two licenses (in addition to SLT) for supply by wireless and local loop of basic voice telephony, data transmission, payphones, voice mail and fascimile (the two licensees are guaranteed exclusivity for five years);
- five licenses for public payphones services and for paging services licenses with possible additional suppliers of each to be permitted subject to economic needs tests;
- six operators in data communication services;
- foreign equity up to 40 %for all suppliers other than SL T , with investments over 40 %subject to case-by-case approval;
- For NT modes 1 2 and 3 have been fully liberalized
- For MA modes 2 and 3 have been fully liberalized

Further, Sri Lanka indicated that issuance of licenses was under consideration for GMPCS services supplied through own gateways. It submitted an MFN exemption to permit the Government, or the Government-run operator to apply differential measures, such as accounting rates, in bilateral agreements with other operators or countries.

**China:**

- For Basic and value added telecommunication services geographical restriction has been removed and foreign equity limit has been enhanced from 30 % to 50 per cent.
- For Mobile Voice and Data Services, permitted foreign equity upto 49 % and committed to remove geographical restrictions in 5 years.
- Modes 1 2 and 3 are fully liberalized for NT
- Committed fully to the Reference Paper
- Further liberalization including level of foreign equity participation to be discussed during negotiations

**Switzerland:**

- No limitations have been listed for modes 1, 2 and 3 for both market access and national treatment.

A comparison of commitments made by the above countries with that made by India could indicate the limited nature of India's commitments. These are as follows:

(a) For voice telephony

- there will be of one operator other than DOT/MTNL in each service area for a period of 10 years after which the position will be reviewed;
- The private operator should be a company registered in India in which total foreign equity must not exceed 25%;
- The service operator will be permitted to provide long distance service within the licensed service area only;
- Resale of voice telephony will not be permitted, but licensees can grant franchises for providing public call offices service.
- In the case of foreign investors having prior collaboration in that specific service sector in India, FIPB approval would be required.

(b) For circuit switched data transmission services:

(c) For facsimile services:

(d) For private leased circuit services:

- The private operator should be a company registered in India in which total foreign equity must not exceed 25%;
- The service operator will be permitted to provide long distance service within the licensed service area only;
- In the case of foreign investors having prior collaboration in that specific service sector in India, FIPB approval would be required.

(e) cellular mobile telephony:

- There will be two cellular operators in each service area, including one public sector operator;
- The private operator should be a company registered in India in which total foreign equity must not exceed 25%.
- The service operator will be permitted to provide long distance service within the licensed service area only;

(f) has MFN exemptions with regard to accounting rates.

(g) Additional commitments taken are as follows:

- commitment to a revised text (i.e. revised by India for its purpose) of the Reference Paper for regulatory framework. This revised text either deletes some provisions from the Reference Paper or alters it to clarify India's commitment. *Annex VII* compares the relevant text of the Reference Paper and the commitment made with respect to those provisions by India.

**Thus, India's commitments relating to the Reference Paper do not include the following disciplines that are contained in the text of the Reference Paper:**

- should not engage in anti-competitive cross-subsidization;
- provision of interconnection in a timely fashion on terms and conditions and cost-oriented rates that are transparent, reasonable, and sufficiently unbundled; provide interconnection at any technically feasible point in the network;
- make publicly available the period of time normally required to reach a decision concerning an application for a license;
- make known to the applicant for a license, upon request, the reasons for the denial of a license;
- Detailed identification of frequencies allocated for specific government uses.

Compared to the commitments made by India in the last round, the current offer covers new areas. The restriction that only licensed voice telephony service providers can provide data, facsimile and private leased circuits has been dropped from India's list of offer, as has been the constraint to deploy only GSM technology for cellular mobile service provision. India has thus offered to maintain technology neutrality in the grant of cellular mobile licenses<sup>13</sup>. Additional commitments to review the opening of the national and international service have been deleted in India's latest offer. As stated later these had become redundant given domestic developments. Further there is now no restriction on the number of players in Basic, national and international service. India has committed to unlimited competition in these service segments. However the commitment to allow foreign equity participation upto 25 % only has not been relaxed. In the case of foreign investors having prior collaboration in that specific service sector in India, FIPB approval would be required. Perhaps, this provides the window for enhanced foreign equity participation subject to FIPB approval which is normally done on a case to case basis.

---

<sup>13</sup> The issue whether different spectrum bands should also be technology specific or technology neutral has not been settled yet.

## **SECTION 5: COMPARISON OF WTO COMMITMENTS MADE BY INDIA WITH THE ACTUAL POLICY IMPLEMENTED/UNDER CONSIDERATION**

India has made commitments only under mode 3 (i.e. commercial presence) except for voice and electronic mail where mode 1 is fully open. Mode 4 for this sector is covered by its horizontal commitments which are limited to the entry of and temporary stay of business visitors, intra-corporate transferees like managers, executives and specialists and professionals.

Comparison of the WTO commitments of India with the applicable regime as it has evolved over the last ten years reflects the fact that the applicable regime is far more liberal than the commitments made by India. As detailed in Section 2 above, some of India's recent policy initiatives render India one of the more liberalized telecommunication economies in the region. Given liberalisation of the sector at home and the limited nature of India's commitments, the gap between the commitments and applicable regime has widened. This picture can be seen, for example, from Table 30 below.

India is already operating a more liberal regime in relation to its commitments under the WTO. For instance, in Basic Services, it has committed to a foreign equity participation of 25% in the joint-venture projects, while actually it is already permitting 49% foreign equity participation. This cap may be further relaxed to 74 % in the near future. For market access, India's commitment is to allow duopoly in both basic and cellular services, while the applicable regime does not place any restrictions on the number of service providers. Similarly, for NLD and ILD services, the applicable regime provides for unlimited competition, while India's commitment is to allow one service providers for each service.

**Table 30: Comparison of India's WTO Commitments and Applicable Regime 1997 and 2004**

Type of Service	Service Area	Commitment in 1997			Applicable Regime in 1997			Applicable Regime 2004			Conditional offer		
		No. of Providers	Period of License	FDI Limit	No. of Providers	Period of License	FDI Limit	No. of Providers	Period of License	FDI Limit	No. of Providers	Period of License	FDI Limit
<b>ILD</b>	International	1	10	25%	1	No limit	49%	Unlimited	20 years	49%	2	20	25%
<b>NLD</b>	National	1	10	25%	1	No limit	49%	Unlimited	20 years	49%	2	20	25%
<b>Cellular Mobile</b>	Circle	2	10	25%	2	10 years	49%	Unlimited	20 Years	49%	2	20	25%
<b>Fixed</b>	Circle	2	10	25%	2	10 years	49%	Unlimited		49%	2	20	25%
<b>VSAT</b>	National							Unlimited	20 Years	49%	2	10 years	25%
<b>Internet Service Providers</b>	National, Circle wise, SSA wise	2	Unbound	51%	Unlimited	10 years	49%	Unlimited	15 Years	With gateways - 74% Without gateways - 100%	2	10 years	25%
<b>Reference Paper principles</b>		Largely non-compliant in respect of core disciplines			Somewhat compliant			Fully compliant			Largely non-compliant in respect of core disciplines		

*Source: Author compilation*

In respect of the principles in the RP, although India has not fully committed to these principles, the existing regulations are fully compliant. The RP provides safeguards for competitors by preventing dominant or incumbent carriers from engaging in anti competitive practices. India has not committed itself to not engaging in anti-competitive cross-subsidization, non-discriminatory terms and conditions and rates for interconnection, nor to interconnection in a 'timely fashions on terms and conditions and cost-oriented rates that are transparent, reasonable and sufficiently unbundled'. India has also not agreed to provide interconnection at "any technically feasible point in the network" but "at any specified feasible point in the network as indicated in the license".

However, it is noteworthy that the conditions relating to interconnection specified in the RP are enforced by TRAI in its Regulations pertaining to interconnection. This includes provision of interconnection in a timely fashion on terms and conditions and cost-

oriented rates that are transparent, reasonable, non-discriminatory and sufficiently unbundled. Likewise, a judgement of TRAI has decreed that interconnection should be provided at any technically feasible point in the network. Moreover, an operator with Significant Market Power (SMP) must make a Reference Interconnect Offer (RIO) publicly available. *Annex VIII* provides details of RIO. This is in keeping with international best practices for timely and efficient provision of interconnection to new entrants. SMP has been defined to mean a service provider holding 30 % of total telecommunication activity in a licensed service area.

Further, the intense competition that has materialized in the sector together with a cost based IUC regime makes it unlikely for any operator to engage in anti competitive behaviour. In any case TRAI retains the right to intervene in any tariff that can materially affect competition.

Thus, certain regulatory disciplines committed by India (in terms of the Reference Paper), are less onerous than the disciplines actually applied in practice. In fact the Authority has emphasised a number of pro-competitive measures that go beyond the confines of the Reference paper, such as to achieve a full shift to forward looking long run incremental costs (FLLRIC) in a gradual manner over time.

Not only therefore is the applicable regime more liberal than India's commitments, the recent offers made by India in the sector do little to change this picture. For example, the extent of foreign investment in Indian companies providing telecom services is much more than the maximum of 25 % that has been offered in the WTO. Interestingly, India's offer is identical to the commitment made in 1997 in this respect.

Likewise for the internet sector, which is likely to provide a basis for much of the dynamic telecom-based activity in the future, India has a very liberal regime. The main feature of the policy, announced in 1998, and modified from time to time include, for example:

- No restriction on the number of service Providers;
- Operation could be on national, regional or on district basis;



- Service provider has option of building or leasing capacity from infrastructure owners (Railways, energy utilities);
- Foreign equity participation capped at 74 percent (100 % is also allowed but in that case the ISP cannot set up International Gateway)
- No prior experience in IT and telecom required;
- Licenses to be issued for a period of 15 years, extendable by 5 years;
- No license fee for the first 5 years. Token fee of Re 1 per annum thereafter;
- Service Providers allowed to set up International gateways after obtaining security clearance;
- Telephony on Internet permitted with effect from 1 April 2002 (except NLD);
- Access to internet through authorized Cable Operator shall be permitted without additional licensing subject to applicable Cable Laws (The Cable Television Networks (Regulation) Act, 1995) as modified from time to time.
- ‘Last mile’ linkages permitted from April 2004 within local area for ISPs for establishing their own last mile to their customers.
- Freedom to fix tariffs. However, the TRAI may review and fix tariff at any time during the validity of the license.

Permission to establish own last mile link is a significant and important change and underlines the liberal regime adopted in regard to internet service. Another change that is likely in the near future is permission to allow internet telephony within India. At present internet telephony is allowed for international calls only.

India has also implemented a non-distortionary Universal Service regime which is funded by a share of revenue from all service providers and is therefore administered in a ‘competitively neutral manner’. In its most recent offer, India has offered to have a Regulatory Body, which is separate from and not accountable to any supplier of basic telecommunication services. In any case, the TRAI Act, guarantees this separation.

An earlier concern about the allocation and use of scarce resources wherein India has not committed to doing so in a transparent and non-discriminatory manner has been addressed in India’s recent offer. The text of India’s offer is exactly the same as in the RP.

*“Any procedures for the allocation and use of scarce resources, including frequencies, numbers and rights of way, will be carried out in an objective, timely, transparent and non-discriminatory manner. The current state of allocated frequency bands will be made publicly available, but detailed identification of frequencies allocated for specific government uses is not required”.*

In sum, the applicable regime is more liberal than India’s commitments under WTO. The recent offer made by India does not bridge this gap. The application of regulatory principles in India is much stricter than the commitments by India under the GATS and we now have a world class regulatory regime. Further, India is embarking on liberalization in a number of telecom sectors, and the actual extent of liberalization is likely to be increased even more in the future, bearing in mind that the negotiations at WTO will take a few years to be concluded.

**Therefore, two important questions for India during the negotiations will be:**

- 1. To what extent to bind the existing regime (and further liberalisation in the near future under ongoing negotiations);**
- 2. What are the likely demands of India’s trading partners beyond the existing regime and to what extent should such demands be considered.**

#### **SECTION 6: TELECOM POLICIES OF OTHER WTO MEMBERS THAT INDIA SHOULD CONSIDER DURING GATS NEGOTIATIONS**

India's main objectives in the area of telecom include provision of world class telecom services at affordable prices, and achieving the Universal Access objectives.

Access to world class technologies is possible through procurement of such technologies by the existing service providers and through investment by other service providers. Both these depend not on policies of other countries but on our own policies, including policies related to provision of band-width to service providers. This is

particularly because in the telecom market, a number of investors and technology suppliers are seeking markets for their operations, and from India's perspective, these attempts are not restricted by policies of other countries.

Likewise, provision of world class services require enhanced interaction among various networks, and the regulatory principles required for this purpose depend on our own policies and not on those of other countries. The same is valid also for meeting India's Universal Service Obligations.

**a) External constraints on India's exports of telecom services under supply "Commercial Presence"**

Discussions with representatives of some major telecom service providers in India (Reliance , BSNL, MTNL, VSNL, Bharti Telecom) suggest that at present there does not seem to be any major constraint on India's telecom operations abroad, including with respect to any planned investments abroad. In general, Indian telecom companies are not planning investment in telecom ventures in industrialized countries. In any event these markets are relatively open, in case Indian firms contemplate operations there.

In certain cases where investment abroad may be considered by the major Indian companies, request for such investment comes from the Governments of the countries concerned. This implies that, in effect, investments abroad contemplated by Indian telecom companies are unlikely to face much constraint. Nevertheless, for long term interests, these countries must be asked to make multilateral commitments, including to the RP.

**b) External constraints on India's exports of telecom services under "cross border" and "consumption abroad" modes of supply**

Cross border supply of Indian telecom services relates to provision of telecom services to those outside India seeking to get in touch with persons in India, for example, through international calls/internet. For these services too, there does not seem to be any significant demand from India regarding liberalized policies of other countries. Rather, India has to make efforts to improve its capacity and environment for increasing the supply of such exports.

Exports of telecom services through the mode of supply "consumption abroad"

involves sales of telecom services in India to foreign consumers. For this mode too, there is unlikely to be any negotiating demand from India on other countries.

Since telecom is used as a means of supplying other services, an important feature regarding these two modes of supply for telecom is that the trade regime for other products (for which telecom is used as an input) would have a bearing on exports of telecom itself. It is difficult to identify these other services *a priori*, because they would also include services linked to e-commerce and call centres. However, to the extent that these involve some of the existing important services, such as financial services, the policies relating to them are covered in the studies prepared on those services.

**c) External constraints on India's exports of telecom services under the mode of supply "movement of natural persons"**

Movement of natural persons is not a common mode for supply of telecom services. Therefore, there is unlikely to be any specific negotiating demand from India with respect to, this mode of supply for telecom. To the extent that there is the general issue of greater access to foreign markets through "movement of natural persons", this would be covered by the study prepared on this topic. Likewise, any such demand for certain sectors that use telecom, facilities, such as software, is covered by the studies on those sectors.

**Thus, it seems that in the area of telecom, India is likely to make little, if any, demand with respect to policies of other countries. There is, however, a likelihood that other countries will demand commitments from India regarding its telecom policies. In this situation, Indian negotiators will have to consider whether, and to what extent, they would like to exchange concessions made by India in telecom with concessions obtained by India in other sectors.**

## **SECTION 7: IMPORTANT AREAS FOR DOMESTIC POLICY AND WTO NEGOTIATIONS BASED ON REQUESTS MADE TO INDIA**

The telecom policy regime in India is evolving, as it should, for domestic policy reasons. However, some of these policies will become the subject matter for negotiations in the ongoing WTO services negotiations, which have technically started from January 2000. *Annex IX* shows the detailed country wise requests made to India for the ongoing negotiations.

The requests are for further liberalisation beyond India's commitments made in GATS. These can be summarized as follows:

- **Eliminate restrictions on the number of operators and on the geographical coverage.**
- **Remove restrictions on foreign equity**
- **Commit fully to the reference paper of the Basic Telecommunications negotiations.**
- **Removal of all remaining MA and NT limitations for telecommunications services**
- **Restriction on resale should be removed**
- **Removal of present exemptions on International service regarding accounting rates**

The analysis in Section 2 above shows that the applicable regime is considerably more liberal than the one committed by India. Many of the requests made to India are consistent with the operating regime in India today. For example, foreign equity participation varies from a minimum of 49 % and can go upto 100 % in certain services, subject to FIPB clearance. A debate is currently ongoing on further raising the limit for foreign equity participation in access services to 74 per cent. Besides, there are no restrictions on number of operators in a given service area. The principles inscribed in the Reference Paper are the very principles based on which sectoral reform has progressed, thus making India one of the more liberal telecom environments in the region. The principles of interconnection in the Reference Paper are the same as those emphasized by TRAI in the regime in place at present.

When the requests are juxtaposed with the present policy regime it becomes apparent that no major changes are needed in order to meet the demands made of India. However, the issue is whether India should bind its regime to the extent of the regime that exists at present and if so at what pace. To the extent that further liberalization is necessary, India can commit to phase in such reform, since this is anyway imminent due to domestic policy considerations. An example of this is the removal of geographical

restriction in service provision. The rest of this section analyses each of the requests and the implications for domestic policy and sectoral reform.

**a) Licensing Regime- Restrictions on the Number of Operators and on Geographical Coverage**

In its Consultation Paper on Unified Licensing, TRAI states,

*“Licensing Regime should enhance the scope of applications and services, thereby removing the artificial barriers imposed on the application of technology and thus avoiding innumerable disputes and time consuming litigation. It is pertinent to migrate to a licensing regime with service and technology neutrality. Thus it is envisaged that a new licensing regime –the Unified Licensing/Authorisation Regime-be implemented in which service providers may be able to offer any or all services using technology of his/her choice with area of operation so defined so as to promote greater participation of all types of big and small entrepreneurs. As a first step Unified Access Licensing has already been implemented.”*

Guidelines for the Unified Access Regime have been notified by DoT based on TRAI’s recommendations (*Refer Annex III for details*). In its recommendations TRAI had stated,

*“It is recommended that within six months Unified Licensing regime should be initiated for all services covering all geographical areas using any technology. This Unified Licensing regime would be implemented through Automatic licensing /Authorisation subject to notification to Regulatory Authority and compliance with published guidelines, thereby removing barriers to facilitate growth in the sector. ”*

Implementation of Unified Access and other policy initiatives has ensured that there are no restrictions in the number of suppliers in a particular service area. Although it is often claimed that competitive entry could lead to inefficient network duplication, technological developments and the concomitant fall in network costs, mean that the benefits of ‘unrestricted’ entry are presumed to outweigh the costs. Merger guidelines are also in place to ensure orderly exit from the market. In regard to the technical limitation

imposed by the scarcity of radio spectrum needed for the provision of mobile services, TRAI has stated that it shall be regulated separately and will be “distributed in a manner that it is allocated optimally to the most efficient user.”

In addition, when Unified Licensing is implemented, geographical restrictions of service provision may also disappear. Of relevance in this context is the restriction that inter-circle long distance traffic can be carried by only the licensed NLD operator, although intra-circle long distance can also be carried by the access provider. Thus it is possible under unified licensing that operators in contiguous ‘circles’ or ‘areas’ combine together to become national long distance service providers, thus having access to both intra- and inter-circle traffic.

**At present India’s commitment is constrained to duopoly in fixed and mobile, including BSNL/MTNL, with technology for mobile restricted to GSM.**

- **India could consider whether to convert the actual policy into a WTO commitment. Since free entry has been provided, there should not be a major problem in giving the policy as a commitment.**
- **With regard to geographical coverage a commitment to phase in unrestricted coverage could be considered.**

**b) Restriction on Foreign Equity**

We saw above that in several areas of major interest, up to 49 % ownership is provided for foreign investors in telecom. In certain areas it can go up to 100 per cent. This exceeds India’s commitment of a ceiling of 25 per cent. While one view may be that this is a reasonably flexible policy regarding foreign ownership, demand has been made for entirely doing away with this limit ( e.g., from the United States).

India’s commitment in this area will have to be seen in the context of the overall policy on foreign direct investment.

- **India could consider to bind the applicable policy i.e. at 49 % in basic telecommunication services and at 50 % for value added services as demanded by China. However this will have to be considered in light of the fact that the reality in the market is beyond the commitment and therefore should not convey the impression of a possibility of backsliding.**

**c) Competition in Domestic Long Distance, including Internet Telephony**

The National Long Distance market has been liberalized with no restriction on the number of operators. In addition to the five service providers at present there are a number of long distance telecommunications infrastructure providers (IP-II) in the country, such as the Railways, Power Grid Corporation of India Ltd. (PGCIL) and Gas Authority of India Ltd. (GAIL) that lease facilities to long distance operators.

As stated above, opening up of the telecom sector has witnessed intense competition in every segment making it difficult for operators to advantage from the traditional 'cross-subsidy' through long distance traffic. Thus, concerns such as by-pass of DLD traffic due to cheaper leased circuits and use of voice over internet protocol are no longer relevant in the current scenario.

An important demand during the previous negotiations was to include internet telephony in the list of commitments. Although internet telephony is not allowed within India, this situation is unlikely to continue for long, This is indicated, for example, by the fact that the cost advantage of internet telephony is substantially reduced, and it would be possible to consider its authorization in due time.

- **India can consider binding its commitments in tune with current policy, with a commitment to phase in Internet telephony within India.**

**d) Type of competition (Facilities-based or other)**

A number of countries have requested that commitment be made on resale of leased circuits and that resale of voice telephone services be allowed without restriction.



Although, the basic thrust of NTP 1999 is towards a facilities-based competition, it does consider the possibility of resale.

Empirical evidence suggests that in the initial period, countries generally have facilities based competition. The rapid strides that telecom has made in the recent times suggests that India has crossed this initial phase and may well be poised for the second or take off phase. In this situation the possibility of resale could be considered as a WTO commitment. There are a number of leased circuit providers namely Bharti Telenet, Reliance, Tata, HFCL, and VSNL along with traditional provider BSNL. Leasing of facilities by non-telecom companies has also been implemented. Thus, IP II service providers such as GAIL, Railtel, Power Grid Corporation actively provide capacity to other telecom service providers. IP-II providers are however, not allowed to sell to customers directly.

In addition, tariffs for leased circuits are regulated by TRAI through price caps, and chances are that the caps will be revised downward by about 60 % shortly.

- **Given the market situation India can perhaps consider committing to resale of private leased circuits. This policy is unlikely to impose any additional costs.**
- **On resale of voice telephony, it must be borne in mind that evidence on resale of voice telephony is mixed and there appears at present to be no extra benefit that India could derive from allowing resale. However if a commitment is to be made, it should be phased in to follow the implementation of the Unified Licensing Regime.**

e) **International Long Distance and Accounting Rates**

In accordance with the commitment to WTO, the question of opening up International Long Distance to competition was to be reviewed by year 2004. This position is re-stated in NTP 1999. As is now well known, technological and policy developments led to VSNL's monopoly being terminated two years ahead of schedule in April 2002 and simultaneously ISPs were allowed to offer voice over internet for international calls. There has been a sharp decline in international call tariffs. The accounting rate regime does not

serve the purpose it did earlier. Privatisation of VSNL through strategic sale of 26 % equity to TATA means that the revenue source from settlement for calls 'exported' from India is no longer available to fund rural telecom investment. BSNL is also likely to enter the ILD market very soon and along with competition from ISPs this will exert pressure on tariffs and therefore margins. In any case, India has implemented a non-distortionary USO regime which is funded by a share of revenue from all service providers.

- **In such a scenario, India may consider phasing in withdrawal of its MFN exemptions in regard to settlement rates.**

**f) Regulatory principles**

In general those investing in telecom lay particular emphasis on regulatory principles, because these principles provide the basis for successfully operating in a market which is normally dominated by a large service provider who has links with the policy maker. In such a situation, it becomes difficult to function smoothly in a multi-operator environment without certain well defined and accepted regulatory principles. In these negotiations, countries will focus much more on the disciplines contained in the Reference Paper than they did previously.

As stated in Section 4 above, India has not fully committed to the RP. **Many countries have requested India to commit fully to the principles in the RP. The disciplines actually applied in practice and in some cases are even better than those standards. In that light India should consider subscribing to the RP in full.**

**g) Other policies which are important in the domestic context but are unlikely to be emphasized by other countries during negotiations**

These policies are important to bear in mind so that any commitments made during negotiations should not be such that the objectives of these policies get compromised. These policies include, for example, rural connectivity, and research and development.

## **SECTION 8: STRATEGY FOR THE FORTHCOMING NEGOTIATIONS**

The negotiations on telecom services will involve India not as a demandeur, but one on whom demands will be made regarding a number of telecom services. Thus, the

first issue to consider is that if India has to make any commitments in telecom, for which other services could it obtain concessions from those whom it provides concessions in the area of telecom.

India has embarked on a reform process in telecom, and would have implemented a number of policies that are likely to be of interest to other countries. Given that once a policy has been implemented, it will be difficult to roll back, some countries may not emphasise these policies in their list of demands. Nonetheless, India may like to look at these issues in the following order

- (a) *policies for which a commitment may be made as they exist at present or will evolve during the early phase of negotiations ( e.g., foreign equity participation, increase in the number of operators for basic services and cellular mobile services, increase in the number of operators providing domestic long distance and for existing service area, and various regulatory principles that are not yet included by India in its commitments)*
- (b) *policies for which commitments may be introduced in terms of a commitment to review ( e.g., non-facilities-based competition, MFN exemption for accounting rates);*
- (c) *policies which should be considered in the interim phase of the negotiations, based on domestic developments ( e.g., liberalization of international call segment, geographical coverage of services)*
- (d) *policies for which a commitment could be considered in terms of a phase-in time period (e.g., internet telephony, foreign equity participation)*

*One feature of the above list is that some policies are mentioned under more than one category. This is to provide an example of how more than one type of strategy for commitments may be considered for certain policies (e.g., foreign equity participation, geographical coverage of services) While the negotiations are on, there should also be an attempt to develop a policy framework for certain issues, such as allocation and use of*

*frequency, or number policy. This would help to bring clarity about the nature of commitment that could be considered for these issues.*

## **SECTION 9: LEGAL PROVISIONS THAT WILL NEED COMMITMENTS IN THE FORTHCOMING NEGOTIATIONS**

NTP 1999 points out that the Indian telecommunications system continues to be governed by the provisions of the Indian Telegraph Act, 1885 (ITA 1885) and the Indian Wireless Act, 1933. Since substantial changes have taken place in the telecommunications sector, these laws need to be replaced by a more forward looking legislation. A special Group that recently examined this issue has already given its views, emphasising that a permissive new Telecom Act should be made, with specific legislation suitable to specific services or situations being derived on the basis of the general framework specified by the new Act. Examples of specific legislation or sub-legislative document would include cyber laws and new license conditions.

The Convergence Bill was tabled in Parliament and was envisaged to lead to the establishment of the Communications Commission of India (CCI). It sought to repeal a number of existing legislation relating to the telecommunications industry, including the Indian Telegraph Act of 1885, the Telegraph Wire Unlawful Possession Act, 1850, the Cable Television Networks (Regulation) Act, 1995 and the TRAI Act. The Convergence Bill proposed significant changes in the organization, functions and structure of the regulatory bodies functioning in the telecommunications industry in India. The proposal empowered CCI to facilitate and regulate all matters relating to carriage and content of communications. In effect the Communications Commission sought to take over the functions of the TRAI and also issue licenses and allocate spectrum, two important functions not under the purview of the current TRAI, and also regulate content, an activity so far dealt with by the normal legal processes. The Bill has however been sent to the Standing Committee on Communications and indications are that it is likely to be modified. Carriage and content therefore will continue to be regulated separately through specific regulators. Significantly, one of the proposals in the Convergence Bill relating to unified as opposed to service specific licensing is already at an advanced stage and the Unified Licensing Regime is likely to be implemented soon.

Another important legislation, the Competition Bill, 2001, established the Competition Commission of India (CCI), and repealed the Monopolies and Restrictive Trade Practices Act, 1969, which became obsolete in view of developments in the Indian and global markets. Functioning of the CCI has been delayed because of certain legal issues relating to the appointment of the Chairman of CCI. In the interim, MRTP is functioning and all cases will eventually be transferred to the CCI once the current legal proceedings in the Supreme Court challenging some provisions of the Act are concluded.

Growing convergence of IT, telecom and broadcasting is throwing up new regulatory issues, which may even lead to a recasting of the established principles in certain cases. There is now a tendency for service providers to bundle different services, thus creating difficulties in regulating them as separate entities. In a number of instances, convergence of services and technologies is also resulting in a convergence of regulatory authorities, or greater co-operation among the separate regulatory authorities handling the policy issues.

While there will be a need for greater co-ordination and exchange of information among regulatory bodies, it is unlikely that any new regulatory principles will be multilaterally determined to take into account the new situation. In case there is overlapping jurisdiction on competition policy related issues between the CCI and the industry-specific regulatory body, the time required to resolve issues would increase, thereby decreasing the effectiveness of the process. Further, a hybrid structure will allow the possibility of 'forum shopping', which could lead to increasing the resources and time expended towards resolving issues. To achieve consistent and clear handling of sector specific problems including those relating to anti-competitive action, it is better that such problems be handled by the sector-specific regulator.

### **Functions of Authority**

Notwithstanding anything contained in the Indian Telegraph Act, 1885, the functions of the Authority shall be to-

(a) make recommendations, either suo motu or on a request from the licensor, on the following matters, namely:-

- (i) need and timing for introduction of new service provider;
- (ii) terms and conditions of license to a service provider;
- (iii) revocation of license for non-compliance of terms and conditions of license;
- (iv) measures to facilitate competition and promote efficiency in the operation of telecommunication services so as to facilitate growth in such services.
- (v) technological improvements in the services provided by the service providers.
- (vi) type of equipment to be used by the service providers after inspection of equipment used in the network.
- (vii) measures for the development of telecommunication technology and any other matter relating to telecommunication industry in general;
- (viii) efficient management of available spectrum;

(b) discharge the following functions, namely:-

- (i) ensure compliance of terms and conditions of license;
- (ii) notwithstanding anything contained in the terms and conditions of the license granted before the commencement of the Telecom Regulatory Authority (Amendment) Ordinance, 2000, fix the terms and conditions of inter-connectivity between the service providers;
- (iii) ensure technical compatibility and effective inter-connection between different service providers.
- (iv) regulate arrangement amongst service providers of sharing their revenue derived from providing telecommunication services;
- (v) lay down the standards of quality of service to be provided by the service providers and ensure the quality of service and conduct the periodical survey of such service provided by the service providers so as to protect interest of the consumers of telecommunication services;
- (vi) lay down and ensure the time period for providing local and long distance circuits of telecommunication between different service providers;

- (vii) maintain register of interconnect agreements and of all such other matters as may be provided in the regulations;
- (viii) keep register maintained under clause (viii) open for inspection to any member of public on payment of such fee and compliance of such other requirement as may be provided in the regulations;
- (ix) ensure effective compliance of universal service obligations:

(c) levy fees and other charges at such rates and in respect of such services as may be determined by regulations.

d) perform such other functions including such administrative and financial functions as may be entrusted to it by the Central Government or as may be necessary to carry out the provisions of this Act:

Provided that the recommendations of the Authority specified in the clause (a) of this sub-section shall not be binding upon the Central Government:

Provided further that the Central Government shall seek the recommendations of the Authority in respect of matters specified in sub-clauses (i) and (ii) of clause (a) of this sub-section in respect of new licence to be issued to a service provider and the Authority shall forward its recommendations within a period of sixty days from the date on which that Government sought the recommendations:

Provided also that the Authority may request the Central Government to furnish such information or documents as may be necessary for the purpose of making recommendations under sub-clauses (i) and (ii) of clause (a) of this sub-section and that Government shall supply such information within a period of seven days from receipt of such request:

Provided also that the Central Government may issue a licence to a service provider if no recommendations are received from the Authority within the period of specified in the second provision or within such period as may be mutually agreed upon between the Central Government and the Authority.

***For additional information visit [www.trai.gov.i](http://www.trai.gov.i)***

### **Objectives and targets of the New Telecom Policy 1999**

The objectives of the NTP 1999 are as under:

- Access to telecommunications is of utmost importance for achievement of the country's social and economic goals. Availability of affordable and effective communications for the citizens is at the core of the vision and goal of the telecom policy.
- Strive to provide a balance between the provision of universal service to all uncovered areas, including the rural areas, and the provision of high-level services capable of meeting the needs of the country's economy;
- Encourage development of telecommunication facilities in remote, hilly and tribal areas of the country;
- Create a modern and efficient telecommunications infrastructure taking into account the convergence of IT, media, telecom and consumer electronics and thereby propel India into becoming an IT superpower;
- Convert PCO's, wherever justified, into Public Teleinfo centres having multimedia capability like ISDN services, remote database access, government and community information systems etc.
- Transform in a time bound manner, the telecommunications sector to a greater competitive environment in both urban and rural areas providing equal opportunities and level playing field for all players;
- Strengthen research and development efforts in the country and provide an impetus to build world-class manufacturing capabilities.
- Achieve efficiency and transparency in spectrum management.
- Protect defence and security interests of the country.
- Enable Indian Telecom Companies to become truly global players.

In line with the above objectives, the specific targets that the NTP 1999 seeks to achieve would be :

- Make available telephone on demand by the year 2002 and sustain it thereafter so as to achieve a teledensity of 7 by the year 2005 and 15 by the year 2010
- Encourage development of telecom in rural areas making it more affordable by suitable tariff structure and making rural communication mandatory for all fixed service providers.
- Increase rural teledensity from the current level of 0.4 to 4 by the year 2010 and provide reliable transmission media in all rural areas.
- Achieve telecom coverage of all villages in the country and provide reliable media to all exchanges by the year 2002.
- Provide Internet access to all district head quarters by the year 2000
- Provide high speed data and multimedia capability using technologies including ISDN to all towns with a population greater than 2 lakh by the year 2002.



**Concessions to CMSPs when limited mobility was permitted [WLL(M)]**

- The amendment dated 25th September, 2001 to the old CMTS license agreement, permitted the CMSPs to provide "Fixed Phones" based on existing GSM cellular network infrastructure in their Licensed Service area.
- Under the unified licensing regime, the above mentioned CMTS license conditions need to be modified to the extent that the choice of the technology is left to the service provider.
- The Cellular Mobile Service Providers were also permitted to use mobile PCOs.
- The annual revenue share license fee, which was higher for mobile services, was brought down to level of Basic Services i.e., at 8%, 10% and 12% for Category C, Category B and Category A Circles respectively.
- The CMSPs were allowed to retain 5% of the long distance call charge.

**Concessions to CMSPs when Full mobility was permitted [WLL(M)]**

- 2% concession in revenue share for 1<sup>st</sup> & 2<sup>nd</sup> CMSP in each service area for 4 years starting from financial year 2003-04

**GUIDELINES FOR UNIFIED ACCESS (BASIC & CELLULAR) SERVICES LICENCE**

Given the central aim of NTP-99 to ensure rapid expansion of teledensity; given the unprecedented expansion of telecom services that competition has brought about; given the steep reductions in tariffs that competition has ensured; given the fact that advances in technologies erase distinctions imposed by earlier licensing systems; given the fact that even more rapid advances in technologies are imminent; given the steep reduction in costs of providing telecom services; given the rapid convergence of tariffs for wireless services; given the fact that the provision of such services at the cheapest possible rates and by the most reliable mode is the sine qua non for India to consolidate its position as a leading hub of Communications systems, Information Technology, IT enabled services, and of establishing itself as a leader in new disciplines such as bioinformatics and biotechnology; given the recommendations of TRAI in this regard; Government, in the public interest in general and consumer interest in particular and for the proper conduct of telegraphs and telecommunications services, has decided to move towards a Unified Access Services Licensing regime. As a first step, as recommended by TRAI, Basic and Cellular services shall be unified within the service area. In pursuance of this decision, the following shall be the broad Guidelines for the Unified Access Services License.

- (i) The existing operators shall have an option to continue under the present licensing regime (with present terms & conditions) or migrate to new Unified Access Services Licence (UASL) in the existing service areas, with the existing allocated/ contracted spectrum.
- (ii) The license fee, service area, rollout obligations and performance bank guarantee under the Unified Access Services Licence will be the same as for Fourth Cellular Mobile Service Providers (CMSPs).
- (iii) The service providers migrating to Unified Access Services Licence will continue to provide wireless services in already allocated/contracted spectrum and no additional spectrum will be allotted under the migration process for Unified Access Services Licence.
- (iv) In addition to services permissible under current licences, Cellular Mobile Service Providers (CMSPs) may also offer limited mobility facility existing within Short Distance Charging Area (SDCA) as permitted to Basic Service Providers at appropriate tariffs through concepts such as home-zone operations, etc.
- (v) The Unified Access service providers are free to use any technology without any restriction.
- (vi) No additional entry fee shall be charged from CMSPs for migration to UASL. For Basic Service Operators (BSOs), the entry fee for migration to the Unified Access Services Licence for a Service Area shall be equal to the entry fee paid by the Fourth Cellular Operator for that Service Area, or the entry fee paid by the BSO itself, whichever is higher. While applying for migration to UASL, the BSO will pay the difference between the said entry fee for UASL and the entry fee already paid by it.
- (vii) Notwithstanding anything stated in para (vi) above, no additional entry fee will be paid by the existing Basic Service Providers where no Fourth CMSP had bid despite repeated attempts.

- (viii) Those Basic Service Operators who do not wish to migrate to the full mobility regime, would only be required to pay the additional fee for Wireless in Local Loop (M), with mobility confined strictly within Short Distance Charging Area, as prescribed separately.
- (ix) Some of the Basic Service Licensees have provided following features/facilities to their subscribers:
  - (a) Over the air activation/authentication of the subscriber wireless access terminal outside one SDCA by pressing/punching certain keys/numbers such as \*444N;
  - (b) Use of the same subscriber wireless access terminal in more than one SDCA;
  - (c) Multiple registration or temporary subscription facilities in more than one SDCA using the same subscriber terminal in wireless access systems.

In such cases of migration to Unified Access Services Licence, the Basic Service Licensees shall in addition to the Entry Fee based on the principles stated in para (vi) and (vii) above, pay till the date of payment from the date of their having signed the Basic Service Licence agreement, a penal interest @ 5% above Prime Lending Rate (PLR) of State Bank of India prevalent on the day the payment became due, i.e. the date they signed the Licence Agreement. The interest shall be compounded monthly and a part of the month shall be reckoned as a full month for the purposes of calculation of interest.

- (x) The Service Areas for Unified Access Services Licence will be as per the existing Cellular Mobile Telephone Service Licences. BSO wishing to migrate to UASL will be permitted to operate in the service area in which it is already operating. It is, however, clarified that BSOs in Delhi, Haryana and UP(West) service areas, on migration to UASL, will have service area as that of CMSP in Delhi, Haryana and UP(West) service areas respectively. Since the service area for the Unified Access Service Licensees will be as per existing CMSPs, existing BSOs in Maharashtra, Tamil Nadu and West Bengal service areas will be required to hold two unified licenses (one for Mumbai Metro city and the other for the rest of Maharashtra and so on).
- (xi) The existing BSOs after migration to Unified Access Licensing Regime may offer full mobility; however, they will be required to offer limited mobility service also for such customers who so desire.
- (xii) A total of additional Entry Fee to be paid by existing Basic Service Operators in respect of each of its service area for migration to USAL is given at Annexure-I. .
- (xiii) Request for migration to UASL shall be made in writing by the concerned service provider. The payment of additional Entry Fee and penal interest, if any, is to be made along with and not later than the date of such request in writing for migration to Unified Access Services Licence.

**Chronology of Significant Events In the Process of India's Telecom Deregulation**

YEAR	EVENT
1992	Bids invited for radio paging services in 27 cities
	Bids invited for cellular mobile services in four metro cities
1994	National Telecom Policy announced
	Radio paging, V-SAT data services, electronic mail services, voice – mail and video – text services opened to private providers
	DoT guidelines for private sector entry into basic telecom services in the country
1995	Eight cellular licensees for four metros finalized after over two years of litigation
	DoT calls for proposal to operate basic, cellular telecom services and public mobile radio trunked (PMRT) services
	DoT receives bids for basic, cellular and PMRT services
	Most cellular operators in circles sign license agreements
1996	DoT announces cap on the number of circles basic operators can roll out services in. Licensees selected for five circles.
	After setting reserve prices for circles, DoT invites fresh bids for basic services in 13 circles
	Five successful bidders short-listed for providing basic services
	Poor response to third round of basic telecom bidding. Only on company bids - for Madhya Pradesh.
	Selected bidder of first round refuses to extend bank guarantees for its four circles. Challenges in court DoT move to encash guarantees.
1997	Three more companies move court against DoT move to encash guarantees.
	Telecom Regulatory Authority of India (TRAI) formed.
	First basic telecom service company signs license and interconnect agreements with DoT for Madhya Pradesh
	Second basic service provider signs basic telecom license pact for Gujarat
	TRAI quashes DoT move to increase tariffs for calls from fixed-line telephone to cellular phones
	VSNL calls for global tenders to find a partner for its South Asian regional hub project
	Internet Policy cleared; license agreement for basic services in Maharashtra also becomes operational
Basic service licensees for Andhra Pradesh and Punjab sign basic telecom agreements with DoT.	
1999	TRAI Issued First Tariff Order.
	New Telecom Policy announced.
	<i>TRAI Issues First Regulation on Interconnection and Usage Charge</i>
	Conditions for migration to revenue sharing from fixed license fee regime issued
	<i>Cellular operators allowed the use of any digital technology; MTNL given a license to provide cellular mobile service under these flexible technology conditions.</i>
2000	Ordinance promulgated divesting TRAI of adjudicatory role. TDSAT created to settle disputes between licensor and licensee. Appeals against TRAI decisions to be heard by TDSAT.
	TRAI implements second phase of tariff re-balancing
	Policies announced for easier entry/operation of new service providers in the various sectors, e.g., VSAT, PMRTS, Radio Paging, Unified Messaging, Voice Mail
	Government has allowed the setting up of international gateways to private internet operators
	Guidelines for Issue of Licence for National Long Distance Service
2001	Guidelines for Issue of Licence for Cellular Mobile Telephone Service
	Guidelines for Issue of Licence for Basic Telephone
	Convergence Commission of India Bill laid in Parliament.
	Open competition policy announced for International Telephony Service

	Usage of Voice Over Internet Protocol permitted for international telephony service
	First License for National Long Distance service signed
	Launch of WLL(M) services by Basic service provider in the market
2002	Guidelines for Issue of International Long Distance Licence
	First License for International Long Distance service signed
	First private operator begins ILD service
	TRAI revises tariffs for WLL(M)
	TRAI leaves Cellular tariffs to market forces, service providers to notify their Reference Tariff plans
	TRAI introduces the Reference Interconnect Offer (RIO) regulation
	TRAI introduces Regulation on Quality of Service For VOIP Based International Long Distance Service
2003	TRAI introduces the Telecommunication INTERCONNECTION USAGE CHARGES (IUC) Regulation
	TRAI leaves NLD sector left under forbearance subject to a ceiling tariff
	TRAI leaves ILD sector left under forbearance
	TRAI mandates Basic Service Operators (BSO) to be non-discriminatory in provision of Infrastructure facilities to ISPs
	TRAI gives its recommendations on unified licensing for basic and cellular mobile services
	TRAI gives its recommendations on "WLL(M) Issues Pertaining To TRAI Based On HON'BLE TDSAT'S Order
	TRAI Forbears Basic Service Tariffs Except Rural Fixed-line Tariffs
	NTP 99 amended permitting Unified Licence for Telecommunication Services permitting Licensee to provide all telecommunication/ telegraph services covering various geographical areas using any technology and Licence for Unified Access (Basic & Cellular)
2004	Broadcasting notified as Telecommunication service under Section 2(i)(k) of TRAI Act.
	TRAI gives its recommendations on Intra-circle Merger & Acquisitions guidelines.
	TRAI gives its interim recommendations on Conditional Access System(CAS)
	TRAI gives its recommendation for allowing ISPs to lay Copper Cable in Last Mile
	TRAI gives its interim recommendation on Private FM Radio Broadcasting
	TRAI gives its recommendations on Accelerating Growth of Internet and Broadband Penetration
	TRAI issues a regulation on Reporting System on Accounting Separation making it mandatory
	TRAI Receives Asia Pacific Regulator of the Year Award 2004 at the Frost & Sullivan Technology Awards Night in Singapore
	TRAI issues a directive on carry forward of unused balance during grace period applicable at the time of recharge for cellular prepaid subscribers.
	TRAI decided to forbear in the matter of non-discrimination with respect to tariffs
	TRAI releases consultation Paper on revision of Tariff of Domestic Leased Circuits
	TRAI Consultation Paper On Spectrum Related Issues: Efficient Utilisation, Spectrum Allocation And Spectrum Pricing.
	TRAI releases consultation Paper on Review of Access Deficit Charges

## **Reference paper**

### **Scope**

The following are definitions and principles on the regulatory framework for the basic telecommunications services.

### **Definitions**

**Users** mean service consumers and service suppliers.

**Essential facilities** mean facilities of a public telecommunications transport network or service that

- (a) are exclusively or predominantly provided by a single or limited number of suppliers; and
- (b) cannot feasibly be economically or technically substituted in order to provide a service.

A **major** supplier is a supplier which has the ability to materially affect the terms of participation (having regard to price and supply) in the relevant market for basic telecommunications services as a result of:

- (a) control over essential facilities; or
- (b) use of its position in the market.

## **1. Competitive safeguards**

### **1.1 Prevention of anti-competitive practices in telecommunications**

Appropriate measures shall be maintained for the purpose of preventing suppliers who, alone or together, are a major supplier from engaging in or continuing anti-competitive practices.

### **1.2 Safeguards**

The anti-competitive practices referred to above shall include in particular:

- (a) engaging in anti-competitive cross-subsidization;
- (b) using information obtained from competitors with anti-competitive results; and
- (c) not making available to other services suppliers on a timely basis technical information about essential facilities and commercially relevant information which are necessary for them to provide services.

## **2. Interconnection**

2.1 This section applies to linking with suppliers providing public telecommunications transport networks or services in order to allow the users of one supplier to communicate with users of another supplier and to access services provided by another supplier, where specific commitments are undertaken.

### **2.2 Interconnection to be ensured**

Interconnection with a major supplier will be ensured at any technically feasible point in the network. Such interconnection is provided.

- (a) under non-discriminatory terms, conditions (including technical standards and specifications) and rates and of a quality no less favourable than that provided for its own like services or for like services of non-affiliated service suppliers or for its subsidiaries or other affiliates;
- (b) in a timely fashion, on terms, conditions (including technical standards and specifications) and cost-oriented rates that are transparent, reasonable, having regard to economic feasibility, and sufficiently unbundled so that the supplier need not pay for network components or facilities that it does not require for the service to be provided; and
- (c) upon request, at points in addition to the network termination points offered to the majority of users, subject to charges that reflect the cost of construction of necessary additional facilities.

### **2.3 Public availability of the procedures for interconnection negotiations**

The procedures applicable for interconnection to a major supplier will be made publicly available.

### **2.4 Transparency of interconnection arrangements**

It is ensured that a major supplier will make publicly available either its interconnection agreements or a reference interconnection offer.

### **2.5 Interconnection: dispute settlement**

A service supplier requesting interconnection with a major supplier will have recourse, either:

- (a) at any time or
- (b) after a reasonable period of time which has been made publicly known

to an independent domestic body, which may be a regulatory body as referred to in paragraph 5 below, to resolve disputes regarding appropriate terms, conditions and rates for interconnection within a reasonable period of time, to the extent that these have not been established previously.

## **3. Universal service**

Any Member has the right to define the kind of universal service obligation it wishes to maintain. Such obligations will not be regarded as anti-competitive *per se*, provided they are administered in a transparent, non-discriminatory and competitively neutral manner and are not more burdensome than necessary for the kind of universal service defined by the Member.

## **4. Public availability of licensing criteria**

Where a licence is required, the following will be made publicly available:

- (a) all the licensing criteria and the period of time normally required to reach a decision concerning an application for a licence and
- (b) the terms and conditions of individual licences.

The reasons for the denial of a licence will be made known to the applicant upon request.

## **5. Independent regulators**

The regulatory body is separate from, and not accountable to, any supplier of basic telecommunications services. The decisions of and the procedures used by regulators shall be impartial with respect to all market participants.

## **6. Allocation and use of scarce resources**

Any procedures for the allocation and use of scarce resources, including frequencies, numbers and rights of way, will be carried out in an objective, timely, transparent and non-discriminatory manner. The current state of allocated frequency bands will be made publicly available, but detailed identification of frequencies allocated for specific government uses is not required.



**Comparison of the Text of the Reference Paper With the Text Included By India In Its Schedule of Commitments**

**(Differences are shown by underlined bold print)**

TEXT OF THE REFERENCE PAPER	TEXT OF INDIAN REFERENCE PAPER
<p><u>Scope</u> The following are definitions and principles on the regulatory framework for the basic telecommunications services.</p>	<p><u>Scope</u> The following are definitions and principles on the regulatory framework for the basic telecommunications services.</p>
<p><u>Definitions</u> <u>Users</u> mean service consumers and service suppliers.</p>	<p><u>Definitions</u> <u>Users</u> mean service consumers and service suppliers.</p>
<p><u>Essential facilities</u> mean facilities of a public telecommunications transport network or service that</p> <p>(a) are exclusively or predominantly provided by a single or limited number of suppliers; and</p> <p>(b) cannot feasibly be economically or technically substituted in order to provide a service.</p>	<p><u>Essential facilities</u> mean facilities of a public telecommunications transport network or service that</p> <p>(a) are exclusively or predominantly provided by a single or limited number of suppliers; and</p> <p>(b) cannot feasibly be economically or technically substituted in order to provide a service.</p>
<p><u>A major supplier</u> is a supplier which has the ability to materially affect the terms of participation (having regard to price and supply) in the relevant market for basic telecommunications services as a result of:</p> <p>(a) control over essential facilities; or</p> <p>(b) use of its position in the market.</p>	<p><u>A major supplier</u> is a supplier which has the ability to materially affect the terms of participation (having regard to price and supply) in the relevant market for basic telecommunications services as a result of:</p> <p>(a) control over essential facilities; or</p> <p>(b) use of its position in the market.</p>
<p>1. <u>Competitive safeguards</u></p> <p>1.1 <u>Prevention of anti-competitive practices in telecommunications</u> Appropriate measures shall be maintained for the purpose of <b><u>preventing suppliers who, alone or together, are a major supplier from engaging</u></b> in or continuing anti-competitive practices.</p> <p>1.2 <u>Safeguards</u> The anti-competitive practices referred to above shall include in particular:</p> <p>(a) <b><u>engaging in anti-competitive cross-subsidization;</u></b></p> <p>(b) using information obtained from competitors with anti-competitive</p>	<p>1. <u>Competitive safeguards</u></p> <p>Appropriate measures shall be maintained for the purpose of <b><u>preventing service suppliers from engaging</u></b> in or continuing in anti-competitive practices of the following type:</p> <p><b><u>[Indian text omits (a) of general text]</u></b></p> <p>(a) using information obtained from</p>

<p>results; and</p> <p>(c) not making available to other services suppliers on a timely basis technical information about essential facilities and commercially relevant information which are necessary for them to provide services.</p>	<p>competitors with anti-competitive results; and</p> <p>(b) not making available to other services suppliers on a timely basis technical information about essential facilities and commercially relevant information which are necessary for them to provide services.</p>
<p>2. <u>Interconnection</u></p> <p>2.1 This section applies to linking with suppliers providing public telecommunications transport networks or services in order to allow the users of one supplier to communicate with users of another supplier and to access services provided by another supplier, where specific commitments are undertaken.</p>	<p>Same as general text</p>
<p>2.2 <u>Interconnection to be ensured</u></p> <p>Interconnection with a major supplier will be ensured at <b><u>any technically feasible point in the network</u></b>. Such interconnection is provided,</p> <p>(a) <b><u>under non-discriminatory terms, conditions (including technical standards and specifications) and rates</u></b> and of a quality no less favourable than that provided for its own like services or for like services of non-affiliated service suppliers for its subsidiaries or other affiliates;</p> <p>(b) in a timely fashion, on terms, conditions (including technical standards and specifications) and cost-oriented rates that are transparent, reasonable, having regard to economic feasibility, and sufficiently unbundled so that the supplier need not pay for network components or facilities that it does not require for the service to be provided; and</p> <p>(c) upon request, at points in addition to the network termination points offered to the majority <b><u>of users, subject to charges that reflect the cost of construction of necessary additional facilities</u></b>.</p>	<p>2.2 <u>Interconnection to be ensured</u></p> <p>Interconnection with a major supplier will be ensured at <b><u>any specified feasible point in the network as indicated in the license</u></b>. Such interconnection is provided:</p> <p>(a) of a quality no less favourable than that provided for its own like services or for like services of non-affiliated service suppliers or for its subsidiaries or other affiliates;</p> <p><b><u>Indian text omits (b) of the general text</u></b></p> <p>(b) upon request, at points in addition to the network termination points offered to the majority <b><u>of users as per license conditions, subject to mutually agreed charges</u></b>.</p>
<p>2.3 <u>Public availability of the procedures for interconnection negotiations</u></p> <p>The procedures applicable to a major supplier will be made publicly available.</p>	<p>2.3 <u>Public availability of the procedures for interconnection negotiations</u></p> <p>The procedures applicable to a major supplier will be made publicly available.</p>
<p>2.4 <u>Transparency of interconnection arrangements</u></p> <p>It is ensured that a major supplier will make publicly available either its interconnection agreements or a reference interconnection offer.</p>	<p>2.4 <u>Transparency of interconnection arrangements</u></p> <p>It is ensured that a major supplier will make publicly available either its interconnection agreements or a reference interconnection offer.</p>
<p>2.5 <u>Interconnection:dispute settlement</u></p> <p>A service supplier requesting interconnection with a major supplier will have recourse, either:</p> <p>(a) at any time or</p> <p>(b) after a reasonable period of time which has</p>	<p>2.5 <u>Interconnection:dispute settlement</u></p> <p>A service supplier requesting interconnection with a major supplier will have recourse, either:</p> <p>(a) at any time or</p> <p>(b) after a reasonable period of time which has</p>

<p>been made publicly known <b><u>to an independent domestic body, which may be a regulatory body as referred to in paragraph 5 below</u></b>, to resolve disputes regarding appropriate terms, conditions and rates for interconnection within a reasonable period of time, to the extent that these have not been established previously.</p>	<p>been made publicly known <b><u>to a domestic regulatory authority</u></b> to resolve disputes regarding appropriate terms, conditions and rates for interconnection within reasonable period of time, to the extent that these have not been established previously.</p>
<p>3. <b><u>Universal service</u></b> Any Member has the right to define the kind of universe service obligation it wishes to maintain. <b><u>Such obligations will not be regarded as anti-competitive per se, provided they are administered in a transparent, non-discriminatory and competitively neutral manner and are not more burdensome than necessary for the kind of universal service defined by the Member.</u></b></p>	<p>3. <b><u>Universal service</u></b> India retains the right to define the kind of universal service obligation it wishes to maintain. <b><u>Such obligations are not regarded as anti-competitive per se, since they would be administered in a transparent and non-discriminatory manner.</u></b></p>
<p>4. <b><u>Public availability of licensing criteria</u></b> Where a license is required, the following will be made publicly available: (a) all the licensing criteria and <b><u>the period of time normally required to reach a decision concerning an application for a license</u></b> and (b) the terms and conditions of individual licenses. <b><u>The reasons for the denial of a license will be made known to the applicant upon request.</u></b></p>	<p>4. <b><u>Public availability of licensing criteria</u></b> Where a license is required, the following will be made publicly available: (a) all the licensing criteria and <b>[omitted]</b>  (b) the terms and conditions of individual licences <b>[omitted].</b></p>
<p>5. <b><u>Independent regulators</u></b> The regulatory body is separate from, and not accountable to, any supplier of basic telecommunications services. The decisions of and the procedures used by regulators shall be impartial with respect to all market participants.</p>	<p>5. <b><u>Regulatory Authority</u></b> The regulatory body is separate from, and not accountable to, any supplier of basic telecommunications services. The decisions of and the procedures used by regulators shall be impartial with respect to all market participants.</p>
<p>6. <b><u>Allocation and use of scarce resources</u></b> Any procedures for the allocation and use of scarce resources, including frequencies, numbers and rights of way, will be carried out in an objective, timely, <b><u>transparent and non-discriminatory manner.</u></b> The current state of allocated frequency bands will be made publicly available, but detailed identification of frequencies allocated for specific government uses is not required.</p>	<p>6. <b><u>Allocation and use of scarce resources</u></b> Any procedures for the allocation and use of scarce resources, including frequencies, numbers and rights of way, will be carried out in an objective and timely manner. The current state of allocated frequency bands will be made publicly available, but detailed identification of frequencies allocated for specific government uses is not required.</p>

## **REFERENCE INTERCONNECT OFFER – GUIDELINES**

Interconnection agreements are required to be established between operators for interconnection of their networks. These would enable smooth operation of telecommunication services in India. Such agreements need to be entered into between all types of operators such as basic, cellular mobile, national and international long-distance operators and also the incumbent who provides a combination of these services.

To assist operators in arriving at fair agreements, it is customary for the players with significant market power to publish a Reference Interconnection Offer. After the RIO has been accepted by the Interconnection Seeker, a mutually agreed Agreement shall be entered into, within the framework of the RIO.

Operators are not required to obtain prior permission for entering into Interconnect Agreements, but these have to be registered with the Authority in accordance with the Regulations. The RIOs, however, require the prior approval of the Authority before they are published. Operators who do not have published RIOs may use the clauses of the Model RIO for their Interconnect Agreements, after appropriate legal and commercial scrutiny.

The RIO attached to these guidelines is of a universal type that could be established between any two service providers, for the interconnection of their networks. The types of networks would be defined in the Interconnect Agreement. The agreement may be modified, to suit the specific type of network and the special requirement of the two parties.

The RIO is divided into two parts, the main clauses and the Schedules and Annexes. The main clauses represent the generally stable part of the agreement. The parameters that may vary with time or type of network are placed in the schedules and Annexes. This means that the main agreement need not be changed every time a variable parameter is changed. The corresponding schedule or annexure may be changed as required. This makes the agreements more compact.

*For additional information visit [www.dotindia.com](http://www.dotindia.com)*

**Requests to India in telecommunication services**

Country	Sector	Request
China	Telecom services	For all basic telecom services, foreign ownership no less than 49% shall be permitted. For all value added services, foreign ownership;10 less than 50% shall be permitted
Peru		Mode 2: None under both MA & NT Mode 3: None under MA Mode 4: None under both MA& NT
Sri Lanka	Voice telephone services	Modes 1 &2: None under MA & NT Mode 3: Clarify scope of reservation on license operators for wire base public voice phones and remove all the limitations on foreign equity and QR on no. of operators -i.e. None in MA & NT Mode 4: as HC
	Circuit-switched data transmission services	Modes 1&2: None under NT Mode 3: none under MA & NT Mode 4: as in HC .
	Private leased circuit services	Model: None under NT Mode 3: none under MA & NT Mode 4: as in HC
	-Electronic mail -Voice mail -Online information and data base retrieval -Enhanced value added facsimile services	Mode 2: None under MA & NT Mode 3: clarify terms and conditions for grant of digital (GSM) technology licenses and remove all other limitations on foreign equity participation & QR on no. of operators. i.e. None under MA & NT Mode 4 : as under HC
		Others -Any existing restrictions on the resale of telecom Services be eliminated and bound without restrictions. -Limitations on foreign ownership and control of, facilities and resale-based suppliers of telecom services be eliminated and bound without restriction Basic Telecom Reference Paper on pro-competitive regulatory principles be adopted and implemented
Japan	All telecom services	-Restrictions on type of commercial presence be abolished (Mode 3, MA) -Restrictions on participation of foreign capital, which are impose across the board on all telecom suppliers be abolished ( Mode 3, MA) -Commitments be made in packet-switched data services, telex services, electronic data interchange and code and protocol conversion. MFN-exemption measures be abolished
	Basic telecom services	-Commitment be made in Modes 1 &2 under MA -Commitment be made in Modes 1, 2 & 3 under NT . -There are restrictions that limit the no. of licenses on fixed telephone services and cellular mobile telephone services concerning ENT, and only one operator other. than DOT/MTNL is permitted in each service area for a

		<p>period of 10 yrs. Such restrictions be abolished .</p> <p>-Commitments be made on resale of leased circuits. (Mode 3, MA)</p> <p>-there are restrictions that service operator is permitted . to provide services only within the licensed are. Such restrictions be abolished.</p> <p>Commitments be fully made on Reference paper</p>
	Value-added services	Commitments be made in Mode 2 in MA & NT I
Korea	Basic telecom services	<p><b>Limitations on MA</b></p> <p>-clarify whether or not ENT exists in these segments, if so, then remove. If not, then clarify the meaning of, 'need' that the designated authority determines for issuing new License</p> <p>-remove restrictions on the no. of service providers</p> <p>-remove 25% foreign ownership restriction ,</p> <p>-provide reasons for listing as a MA limitation the description that 'the detailed terms and conditions for providing the services will be as per license conditions</p> <p>-remove the geographical restriction on provision of long distance voice telephone services</p> <p>-allow without restriction the resale of voice telephone services. Make it clear whether or not resale based on services are permitted in general for basic telephone services other than voice telephone, and what type of regulations</p> <p>-make it clear whether or not it is possible for service providers other than voice telephone service providers 4 to get new entries into circuit-switched data transmission, facsimile and private leased circuit service market.</p> <p>-delete the restrictions on types of technologies employed for provision of cellular mobile telephone service.</p> <p><b>Limitations on NT I</b></p> <p>-remove the restrictions of prohibiting cross border, consumption abroad and commercial presence</p>
	Value added services	<p><b>Limitations on MA</b></p> <p>-remove the restriction on prohibiting consumption abroad</p> <p>-remove 51% foreign ownership restriction</p> <p><b>Limitations on NT</b></p> <p>Remove restrictions of prohibiting consumption abroad</p>
		<p><b>Additional commitments</b></p> <p>-make full commitments of Reference Paper</p> <p>-Clarify-</p> <p>Whether or not packet-switched data transmission services listed as an element of basic telecom</p> <p>Data and message transmission services listed as value added telecom services</p> <p>-provide the original details regarding terms and conditions of the license which are laid down by the designated authority</p>
Norway	2, 3, 6, 11	Mode 1 is unbound for these. Make full commitments for all these sub sectors in Mode 1
	1,3,6,7, 8,9, 10, 11, value	Mode 2 is unbound for these. Make full commitment in this

	added facsimile services	mode for these services
		Remove limitations and restrictions in Mode 3
		Additional: Commit fully to the Reference paper on regulatory principles of the Basic telecom negotiations
Australia	All sub sectors	-Amend schedule to read 'none' under MA & NT for Modes 1, 2, 3 -commit to measures to ensure that the market entry by competitors of the major carrier is not prohibited. Should include commitments to removal of prohibitions on resale of services and limitations on the no. of operators in each sub sector. -commit to Reference paper on regulatory principles commit to measures that commit to clarify reference paper paragraph 2.2(b ) -commit to measures that ensure: *independence of the regulator *benchmarks for timeless dispute resolution are reasonable and readily understood
Singapore	For all sub sectors	-Full commitments in Modes 1,2,3 and 'unbound' except as indicated in HC for MA & NT in Mode 4 -full adoption of Reference Paper on Basic Telecom services
Malaysia	All sub sectors	Modes 3 & 4: make full commitments i.e. 'none' under MA & NT for all modes
EC	2,4,5,12, 14	Modes 1,2,3: full commitments under MA & NT
	3, 6, 7, 11	Take full commitments in Mode 1 under MA & NT
	1,3,6,7, 8,9, 10, 11, 13	Mode 2 is unbound for these services. Take full commitment in this mode under MA & NT
	Public voice services, 3, 6, 8, 11	In Mode 3: Under NT: full commitments
		Additional: -Eliminate restrictions on the no. of operators and geographical coverage . -eliminate restrictions on resale of wire-based public voice service and private leased circuit service -for wire-based public voice and cellular mobile. telephone services, restriction of 25% of total foreign equity should be eliminated -eliminate 51% foreign equity ceiling on 8, 9, 10 13 -clarify 'the detailed terms and conditions for providing the service will be as per license conditions'. .. -operators have to pay high license fees and meet other financial obligations. Explain the rationale and how these financial conditions are determined for different kinds of licenses -commit fully to the Reference Paper on the Basic Telecommunications negotiations
US		-eliminate existing MA & NT limitations and make full commitments in the basic telecom sector, and commit fully

		to Basic Telecommunications reference paper -remove MFN exemption -make full commitments in value added services -full adherence to the Basic Telecommunications Reference paper -
Switzerland		Remove the two present exemptions on International service regarding accounting rates .
Brazil	2,4,5, 12, 14	No commitments have been made in these sub sectors. Take full commitments in these sectors under MA & NT .
	3, 6, 7, 11	Mode 1: full commitments
	1,3,6,7, 8,9, 10, 11, 13	Mode 2: full commitments under MA & NT
	Wire-based public voice services, 3, 6, 7, 11	Mode 3: full commitments under MA & NT
		Additional: -Eliminate restrictions on the no. of operators and geographical coverage -eliminate restrictions on resale of wire-based public voice service and private leased circuit service for wire-based public voice and cellular mobile telephone services, restriction of 25% of total foreign equity should be eliminated, -eliminate 51% foreign equity ceiling on 8, 9, 10 13 -clarify 'the detailed terms and conditions for providing the service will be as per license conditions'. In any case these conditions are discriminatory and should be eliminated -commit fully to the Reference Paper on the Basic Telecommunications

Telecommunication services



1. *Voice telephone services*
2. *Packet-switched data transmission services*
3. *Circuit-switched data transmission services*
4. *Telex services*
5. *Telegraph services*
6. *Facsimile services*
7. *Private leased circuit services*
8. *Electronic mail*
9. *Voice mail*
10. *On-line information and data base retrieval*
11. *Cellular mobile service*
12. *electronic data interchange (EDI)*
13. *enhanced/value-added facsimile services, incl.  
store and forward, store and retrieve*
14. *code and protocol conversion*
15. *on-line information and/or data processing*
16. *other*

**ANNEX TABLE 1 . MARKET ACCESS COMMITMENTS IN THE SCHEDULES OF COMMITMENT**

	Number Listed	Cross Border Supply			Consumption Abroad			Commercial Presence		
		Full	Partial	None	Full	Partial	None	Full	Partial	None
		In percent of listed subsectors								
a. Voice Telephone Services	65	12	78	9	31	58	11	11	88	2
b. Packet-Switched Data Transmission Services	59	19	75	7	42	51	7	10	90	0
c. Circuit-Switched Data Transmission Services	60	18	73	8	42	50	8	10	88	2
d. Telex Services	59	20	75	5	47	45	7	11	89	0
e. Telegraph Services	43	19	72	9	49	42	9	9	91	0
f. Facsimile Services	55	18	75	7	44	49	7	11	87	2
g. Private Leased Circuit Services	55	16	80	4	42	55	4	11	89	0
h. Electronic Mail	52	35	60	6	46	42	12	17	79	4
i. Voice Mail	48	35	58	6	44	48	8	17	81	2
j. On-line Information and Data Base Retrieval	54	31	61	7	44	43	13	17	78	6
k. Electronic Data Interchange (EDI)	45	36	58	7	51	42	7	20	76	4
l. Enhanced/Value-Added Facsimile Services	43	37	56	7	49	40	12	21	74	5
m. Code and Protocol Conversion	42	31	60	10	48	48	5	19	79	2
n. On-line Information and/or data processing	40	33	55	13	50	35	15	18	80	3
o. Other, Terrestrial-based Mobile	61	8	79	13	30	61	10	13	87	0
o. Other, Satellite-based Mobile	23	9	87	4	28	68	4	8	92	0
o. Other, other	42	5	86	10	10	81	10	2	93	5

Source: WTO

Legend: FULL = No limitations listed, Partial = Limitations listed None = No commitments taken on this mode

Note: The numbers in this table are merely for illustrative purposes

## REFERENCES

1. *Communication Convergence Bill (2001)*, <http://communicationbill.dot.nic.in>
2. *Company Law Journal* 47:2 April-June 1996
3. Department of Telecommunications (DoT) : *Guidelines for Issue of Licence for National Long Distance Service* (2000)
4. Department of Telecommunications (DoT). 1994. *National Telecom Policy*.
5. Department of Telecommunications (DoT). *Annual Report, (various years)*
6. Department of Telecommunications (DoT). *Annual Telecom Statistics* (various years)
7. Department of Telecommunications (DoT): *Guidelines for Issue of Licence for Basic Telephone Service* (January, 2001)
8. Department of Telecommunications(DoT): *Guidelines for Issue of Licence for Cellular Mobile Telephone Service* (2000)
9. Department of Telecommunications.(DoT) 1999. *New Telecom Policy*.
10. India Infrastructure Report - Expert Group. 1996. *Policy Imperatives for Growth and Welfare*. New Delhi: NCAER.
11. International Telecommunication Union (ITU) Asia Pacific Telecommunication Indicators, Geneva 2002
12. International Telecommunications Union (ITU), World Telecommunication Development Report, various years
13. NASSCOM, Indian ITES-BPO Industry, Background and Reference Resource-2004
14. Planning Commission, India, Report of the Steering Group on Foreign Direct Investment”, August 2002.
15. Planning Commission, India. 1999. *Ninth Five Year Plan*.
16. Telecom Regulatory Authority of India (TRAI) ‘*The Indian Telecom Services Performance Indicators Jan-March 04*’ June 2004
17. Telecom Regulatory Authority of India (TRAI), “*Consultation Paper on Revision of Ceiling Tariff for Domestic Leased Circuits*” June, 2004

18. Telecom Regulatory Authority of India (TRAI), ‘*Consultation Paper on IUC issues*’ May 2003
19. Telecom Regulatory Authority of India (TRAI), ‘*Consultation Paper on Unified Licensing Regime*’ March 2004
20. Telecom Regulatory Authority of India (TRAI), ‘*Consultation Paper on Fixation of Ceiling Tariff for International Private Leased Circuit (half circuit)*’ April, 2004
21. Telecom Regulatory Authority of India (TRAI), ‘*Consultation Paper on Spectrum related issues*’ May, 2004
22. Telecom Regulatory Authority of India (TRAI), ‘*Consultation Paper on Framework and Proposals for Telecom Pricing.*’ Sep 1998
23. Telecom Regulatory Authority of India (TRAI), ‘*Consultation Paper on Introduction of Competition in Domestic Long Distance Communications.*’ 1999
24. Telecom Regulatory Authority of India (TRAI), ‘*Recommendations on Intra-Circle Mergers & Acquisition Guidelines*’ January 2004
25. Telecom Regulatory Authority of India (TRAI), ‘*Recommendations on Unified Licensing Regime*’ October 2003
26. Telecom Regulatory Authority of India (TRAI), ‘*Telecommunication Tariff Order*’ March 1999
27. Telecom Regulatory Authority of India (TRAI), ‘*The Telecommunication Interconnection Usage Charges Regulation, 2003 (4 of 2003)*’ October, 2003
28. Telecom Regulatory Authority of India (TRAI), ORDERS 1997-1998
29. Telecom Regulatory Authority of India Act. 1997.
30. Willam H. Melody (ed. 2001): *Telecom Reform - Principles, Policies and Regulatory Practices*, Technical University of Denmark, Lyngby
31. World Bank, World Development Indicators, 2002
32. World Trade Organisation (WTO) Reference Paper [www.wto.org](http://www.wto.org)
33. World Trade Organisation (WTO), Annex on Telecommunication, [www.wto.org](http://www.wto.org)
34. World Trade Organisation, Telecommunication (WTO) Services, Background note by the Secretariat, December 1998