



The Indian Telecom Sector

Legal and Regulatory Framework

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I. INTRODUCTION

The word “telecommunication” is a compound of the Greek prefix “*tele*” meaning 'far off', and the Latin “*communicare*”, meaning 'to share'. In its current usage, it refers to transmission of signals over a distance for the purpose of communication. In early days, communication between persons took place by means of drums, smoke signals, flags, etc. Emerging from such humble beginnings, the means now involve sophisticated high-speed, submarine optical cables laid on ocean floors and artificial satellites circling the Earth in space. As the demand for signal transmission has increased, the speed of transmission has also increased. Recently, scientists at Karlsruhe Institute of Technology in Germany have succeeded in transmitting 26 terabits (equal to about 700 DVDs or about 4 million average paperback books) of data per second at the distance of 50 kilometers.¹

The telecommunications industry has impact on every aspect of our lives, from the simple reality of enabling telephonic communication between people in different locations to enabling supply-chains to work seamlessly across continents to create products and fulfill demands. Telecommunication services are now recognized as a key to the rapid growth and modernization of the economy and an important tool for socio-economic development for a nation.

Telecommunications in India can be traced back to the 19th century when the British East India Company introduced telegraph services in India. The past two decades have been considered as the golden period for the telecommunications industry in India with exponential growth and development in terms of technology, penetration, as well as policy. All this has paralleled with the liberalization in this sector and huge investment by both domestic and foreign investors.

¹ World Record in Ultra-Rapid Data Transmission. *Science Daily*,
<http://www.sciencedaily.com/releases/2011/05/110523101741.htm>. Last Accessed: 28 June 2011.

II. AN OVERVIEW

The modern system of communications in India started with the establishment of telegraph network. In order to ensure telegraph network's exclusivity and establish government control over electronic communications, various telegraph statutes were enacted by the Government of India which laid the foundation of the present regulatory framework governing telecommunications (both wired and wireless). In early days, India witnessed increasing number of wired telephone connections. Even when wireless communication was introduced in the form of cellular phones, it was not immediately accepted by the Indian masses, mainly on account of high price of cellular phones as well as high tariff structure prevalent at that point in time. Gradually, with the price of cellular handset as well as mobile (wireless) tariff reducing there was increasing adoption of wireless communications. Today the Indian telecom industry is already witnessing the lowest telecom tariff globally.

Like elsewhere, telecommunications in India started as a state monopoly. In the 1980s, telephone services and postal services came under the Department of Posts and Telegraphs. In 1985, the government separated the Department of Post and created the Department of Telecommunications ("**DoT**"). As part of early reforms, the government set up two new public sector undertakings: Mahanagar Telephone Nigam Limited ("**MTNL**") and Videsh Sanchar Nigam Limited ("**VSNL**"). MTNL looked after telecommunications operations in two megacities, Delhi and Mumbai. VSNL provided international telecom services in India. DoT continued to provide telecommunications operations in all regions other than Delhi and Mumbai. It is important to note that under this regime, telecommunication services were not treated to be a necessity that should be made available to all people but rather a luxury possible for select few.

In the early 1990s the Indian telecom sector, which was owned and controlled by the Indian government, was liberalized and private sector participation was permitted through a gradual process². First, telecom equipment manufacturing sector was completely deregulated. The government then allowed private players to provide value added services ("**VAS**") such as paging services. In 1994, the government unveiled the National Telecom Policy 1994 ("**NTP 1994**"). NTP 1994 recognized that existing government resources would not be sufficient to achieve telecom growth and hence private investment should be allowed to bridge the resource gap especially in areas such as basic services. As markets and telecom technologies started converging and the differences between voice (both fixed and wireless) and data networks started blurring, the need for developing the modern telecom network became an immediate necessity. Accordingly, private sector participation was allowed in basic services.

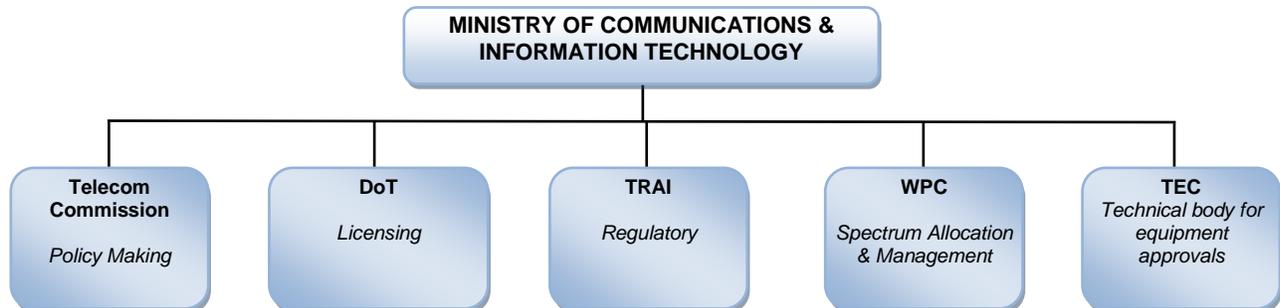
The government anticipated that a major part of the growth of the country's GDP would be reliant on direct and indirect contributions of the telecom sector and accordingly the need for a comprehensive and forward looking telecommunications policy was felt. This then paved way for New telecom Policy 1999 ("**NTP 1999**") which largely focused on creating an environment for attracting continuous investment in the telecom sector and allowed creation of communication infrastructure by leveraging on technological development. The main objectives and targets of NTP 1999 were as follows:

² In fact the law as it currently stands still bestows an exclusive privilege on the Government to provide telecommunications services. We have discussed in Chapter IV how the Central Government derives the power to grant licenses to private companies in India to enable them to provide telecommunication services.

- Availability of affordable and effective communications for citizens;
- 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;
- Create a modern and efficient telecommunications infrastructure taking into account the convergence of IT, media, telecom and consumer;
- Protect the defense and security interests of the country.

NTP 1999 allowed private operators providing cellular and basic services to migrate from a fixed license fee regime to a revenue sharing regime which made it financially viable for such operators to function in the market. Most importantly, the government recognized the necessity to separate the government's policy wing from its operations wing so as to create a level playing field for private operators. Accordingly the NTP 1999 directed the separation of the policy and licensing functions of DoT from the service provision functions. The Government corporatized the operations wing of DoT in October 2000 and named it as Bharat Sanchar Nigam Limited ("**BSNL**") which operates as a public sector undertaking. Thereafter in 2002, the monopoly of VSNL also came to an end.

III. INDIAN TELECOM AUTHORITIES



We have discussed below some important aspects of various Indian telecom authorities.

Telecom Commission: The Telecom Commission is an inter-ministerial high level government body. The Commission consists of a Chairman, four full time members, who are ex-officio, Secretary to the Government of India in the Department of Telecommunications and four part time members who are the Secretaries to the Government of India of the concerned Departments. The essential functions of the Telecom Commission are as under:

- policy formulation, licensing and coordination matters relating to telegraphs, telephones, wireless, data, facsimile services and other similar forms of communications;
- international cooperation in matters connected with telecommunications;
- promotion of standardization, research and development in telecommunications;
- promotion of private investment in telecommunications;
- preparing the DoT budget and supervising its operations

Department of Telecommunications (“DoT”): As per the Indian Telegraph Act, 1885 and the Indian Wireless Telegraphy Act, 1933 the Central Government has the exclusive privilege of establishing, maintaining and working telegraph and wireless telegraphy equipment and is the authority to grant licenses for such activities. The Central Government acts through the DoT. Some of the important functions of the DoT are as follows:

- licensing and regulation
- international cooperation in matters connected with telecommunications (such as International Telecommunication Union (ITU), International Telecommunication Satellite Organization (INTELSAT), etc);
- promotion of private investment in the Indian telecommunications sector;
- promotion of standardization, research and development in telecommunications.

Telecom Regulatory Authority of India (“TRAI”): TRAI is an autonomous statutory body established under Telecom Regulatory Authority of India Act, 1997 (“**TRAI Act**”) (discussed In Chapter 0 of this

paper). Liberalization made it necessary for the Government to ensure that there is an independent communications regulator. TRAI acts as an independent regulator of the telecommunications industry in the country. One of the main objectives of TRAI is to provide a fair and transparent policy environment which promotes a level playing field and facilitates fair competition amongst various telecom players. TRAI's powers are recommendatory, mandatory, regulatory and judicial.

The important recommendatory powers of TRAI are as follows³:

- recommendations regarding the need and timing for introduction of new service providers
- recommendations pertaining to the grant of telecom licenses including their terms and conditions
- recommend revocation of license for non-compliance of terms and conditions of license.

TRAI is the sole authority empowered to take binding decisions on fixation of tariffs for provision of telecommunication services.

Emphasis needs to be placed on the interplay between the recommendatory powers of TRAI and the policy making powers of DoT. While the DoT is the sole authority for licensing of all telecommunications services in India, it is mandatory for the DoT to have before it TRAI's recommendations with regard to matters over which TRAI has recommendatory powers (mentioned above). Having done so, the DoT has the discretion to either accept or reject the recommendations of TRAI.⁴ TRAI has over the years come out with a number of recommendations; DoT has accepted some such recommendations either wholly or partially or has rejected such recommendations. Below is the status of some of the recommendations made by TRAI to the DoT:

TRAI Recommendation/s	Status
Recommendations on Next Generation Networks (2006)	Not accepted by the DoT
Recommendations on Allocation and Pricing of Spectrum for 3G and Broadband Wireless Access Services (2006)	Some of the recommendations were accepted by the DoT
Recommendations on issues related to Internet Telephony	Not accepted by the DoT
Recommendations on Infrastructure Sharing	Most of the recommendations were accepted by the DoT
Recommendation on Growth of Value Added Services and Regulatory Issues (2009)	Decision of DoT is awaited
Recommendations on amendment to Unified Access Service Licensees regarding Lock-in period for promoter's equity for (2009)	Currently under consideration by the DoT

In this respect, there have been concerns that the very reason for the establishment of TRAI has been nullified in that a regulatory body whose specialist recommendations are not bound to be followed may be considered to be a paper tiger after all especially when comparisons are drawn with the more advanced regulatory agencies of the world such as the Federal Communications Commission (FCC) of the US which has been entrusted with very wide powers in telecom regulation including the granting of licenses.

³ Section 11(1) of the Telecom Regulatory Authority of India Act, 1997

⁴ This stipulation was brought about by an amendment to the TRAI Act in 2000

There have been some recent reports wherein the government is considering giving wider powers to TRAI⁵, however there has been no formal policy change as yet.

Last year, the DoT had sought a legal opinion from the law ministry which stated that the DoT can change the terms and conditions of existing licences and that TRAI's recommendations were not binding on the government. Subsequently, TRAI also obtained an independent legal opinion on the same subject from a former Supreme Court judge, who was also the former chairman of law commission, as well as from a noted Supreme Court lawyer, stating that the DoT cannot make any modifications to telecom licences without consulting TRAI. The DoT has now referred both sets of opinions back to the law ministry to take a final call on this issue. The final outcome will define the scope of regulators in the country⁶.

Telecom Disputes Settlement and Appellate Tribunal (“TDSAT”): The TDSAT was established in 2000 under an amendment to the Telecom Regulatory Authority of India Act, 1997 (*discussed* In Chapter 0 of this *paper*). The TDSAT has been vested with exclusive powers to adjudicate any dispute between:

- the licensor (DoT) and a licensee;
- service providers; and
- service providers and groups of customers.

Any appeal from the decision of the TDSAT can be filed only with the Supreme Court of India which is the apex court of the country.

Wireless Planning and Co-ordination Wing (“WPC”): The WPC was created in 1952 and is a wing of the DoT which is responsible for Frequency Spectrum Management, including licensing of wireless stations and caters to the needs of all wireless users (Government and Private) in India. It exercises the statutory functions of the Central Government and issues licenses to establish, maintain and operate wireless stations. WPC is divided into (i) Licensing and Regulation (LR), (ii) New Technology Group (NTG) and (iii) Standing Advisory Committee on Radio Frequency Allocation (SACFA). The WPC is also the central agency for the purpose of representing India and to adhere to India's commitments at the International Telecommunication Union (“ITU”)⁷, Asia-Pacific Telecommunity (“APT”)⁸ and other organizations that India is a member or signatory of. The WPC is headed by the Wireless Advisor to the Government of India.

Note on National Frequency Allocation Plan (“NFAP”):

The NFAP is the basis on which spectrum frequencies are allocated in India. The ITU issues the international frequency table for the purpose of giving the member countries a basis on which they can formulate their own frequency allocation plan. The NFAP is the frequency allocation plan of India. This

⁵ <http://lite.epaper.timesofindia.com/getpage.aspx?pageid=5&edlabel=ETD&mydateHid=17-5-2011&pubname=Economic Times - Delhi - Front Page&edname=&articleid=&publabel=E>

⁶ <http://economictimes.indiatimes.com/news/news-by-industry/telecom/turf-war-between-dot-trai-intensifies/articleshow/8544519.cms>

⁷ ITU is the leading UN agency for information and communication technology issues, and the global focal point for governments and the private sector in developing networks and services.

⁸ APT is an Intergovernmental Organization operating in conjunction with telecom service providers, manufacturers of communications equipment, and research and development organizations active in the field of ICT in the Asia-Pacific region.

plan clearly allocates different frequency bands for different radio-communication services. Although it allocates frequency bands for certain services, it does not give ownership rights to those services. NFAP-81 was in force till December 31, 1999 for commercial and other uses. NFAP-81 was formulated for a time, when usage of frequency bands was primarily done by the government agencies with some exploitation by private parties for their dedicated networks. However with the proliferation of new technologies in the country and the entry of the private sector in the telecommunication field the government decided it was prudent to revise NFAP-81. Accordingly, from January 1, 2000 the NFAP-2000 replaced NFAP-81 in order to better manage the increased use of spectrum. Later NFAP 2008 which was made effective from April 1, 2009 replaced NFAP 2000. NFAP 2011 has been developed with special emphasis to encourage / promote indigenous manufacturing / technologies by provisioning of small chunk of spectrum in certain frequency band /⁹sub-bands in limited geographical area.

The WPC Wing of the DoT is now amidst formulating NFAP 2011. The WPC Wing issued the draft NFAP 2011 in March 2011 upon which various inputs have been provided. Various government departments and telecom operators have written to the DoT and expressed disagreement with the draft plan. The DoT will be sending all these views to the Empowered Group of Ministers (EGoM), which will come up with the final version of the NFAP 2011. It is expected that the issues pertaining to encryption, VOIP, new and emerging technologies, satellite phones, spectrum allocation, etc will be properly addressed in NFAP 2011.

Standing Advisory Committee on Frequency Application ('SACFA'): SACFA is a wing of the DoT which gives approval for radio frequency (spectrum) used by telecom service providers. Obtaining a telecom license is not enough for the operator to begin rolling out the services; a no objection from SACFA is required. This involves a detailed technical evaluation including field studies in order to determine *inter alia* possible aviation hazards and interference (Electro Magnetic Interference (EMI)/Electro Magnetic Compatibility (EMC)) to existing and proposed networks.

Functions of SACFA:

- (i) To recommend on major frequency allocation, issues requiring co-ordination amongst the various wireless users in the country.
- (ii) To formulate/review the National Frequency Allocation Plans.
- (iii) To formulate national proposals for international conferences/ meetings and to co-ordinate nationally all activities pertaining to the ITU, etc.
- (iv) To deal with frequency co-ordination problems referred to the committee by the administrative Ministries/Departments.
- (v) To clear sites of all wireless installations in the country.

IV. TELECOMMUNICATIONS LAWS AND REGULATIONS

1. The Indian Telegraph Act, 1885

This Act is one of the oldest legislations still in effect in India and is an Act to amend the law relating to telegraphs¹⁰ in India. Some of the salient features of this Act are:

- it empowers the Government of India to take control of the existing telegraph lines and lay down the necessary infrastructure for further expansion of telecommunications in India.
- it authorizes the Government of India to grant telecom licenses on such conditions and in consideration of such payments as it thinks fit, to any person to establish, maintain, work a telegraph within any part of India.
- it authorizes the Government of India to take possession of licensed telegraphs and to order interception of messages on the occurrence of any public emergency or in the interest of public safety.
- any dispute concerning a telegraphic appliance/ apparatus/ line between the telegraph authority and a licensee (for whose benefit the line, appliance or apparatus is, or has been provided) shall be determined by arbitration by an arbitrator appointed by the Central Government.

We would like to place emphasis on the power bestowed on the Government to grant licenses to private bodies to provide telecommunication services in India on conditions it deems fit. This power is in fact a proviso of the exclusive privilege granted by the Indian Telegraph Act, 1885 to provide telecommunications services in India. In this respect it is interesting to note the observations made by the Supreme Court in *Delhi Science Forum v Union of India*: “Central Government is expected to put such conditions while granting licences, which shall safeguard the public interest and the interest of the nation. Such conditions should be commensurate with the obligations that flow while parting with the privilege which has been exclusively vested in the Central Government by the Act”

It is also relevant to note that though the provision pertaining to dispute resolution through arbitration is well settled in law, there have been instances where the courts/ other judicial bodies have assumed jurisdiction over matters which should be settled by arbitration under the provisions of the Indian Telegraph Act, 1885. In a recent case of *General Manager, Telecom v M. Krishna and Anr (AIR 2010 SC 90)*, a dispute arose regarding the non-payment of bills by the respondent due to which the telephone connection of the respondent was disconnected. The respondent filed a complaint before the District Consumer Disputes Redressal Forum, Kohzikode, which allowed the complaint and directed the appellant to reconnect the telephone and pay compensation. A writ filed by the appellant in the High Court of Kerala challenging the jurisdiction of the consumer forum was dismissed. The appellant then came before the Supreme Court by way of special leave. The Supreme Court held that as there is a special remedy by way of arbitration provided in the Indian Telegraph Act, and the remedy under the Consumer Protection Act, is by implication barred. It is well settled that a special law overrides a general law. Accordingly, the

¹⁰ "telegraph" means any appliance, instrument, material or apparatus used or capable of use for transmission or reception of signs, signals, writing, images and sounds or intelligence of any nature by wire, visual or other electro-magnetic emissions, Radio waves or Hertzian waves, galvanic, electric or magnetic means. - Preamble to the Act

Supreme Court set aside the order of the Kerala High Court as well as the order of the District Consumer Forum.

2. The Indian Wireless Telegraphy Act, 1933

This Act was enacted to regulate the possession of wireless telegraphy apparatus¹¹. According to this Act, the possession of wireless telegraphy apparatus by any person can only be allowed in accordance with a license issued by the telecom authority. Further, the Act also levies penalties if any wireless telegraphy apparatus is held without a valid license.

3. The Telecom Regulatory Authority of India Act, 1997

The Telecom Regulatory Authority of India Act, 1997 enabled the establishment of the TRAI. The role and functions of the TRAI have already been discussed in Chapter III above. Interestingly, the 1997 Act empowered the TRAI with quasi-judicial authority to adjudicate upon and settle telecom disputes. Later this Act was amended by the Telecom Regulatory Authority of India (Amendment) Act, 2000 to bring in better clarity and distinction between the regulatory and recommendatory functions of TRAI.

Further, the 2000 amendment served a very important purpose in completely differentiating the judicial functions of TRAI by setting up of the TDSAT. The jurisdiction of civil courts has been expressly barred in cases where the TDSAT has jurisdiction. The role and functions of the TDSAT has already been discussed in Chapter III above.

4. The Information Technology Act, 2000

In 2000, the Indian Parliament passed the Information Technology Act, 2000 (“**ITA**”) mainly to promote e-commerce and give legal recognition to electronic documents and digital signatures as means to authenticate electronic documents. Later, the Information Technology (Amendment) Act, 2008 (“**ITAA 2008**”) was passed which provided additional focus on information security as well as added several new sections on offences including cyber terrorism and data protection. It is to be noted that the ITAA 2008 was passed without any discussion or debate in both Houses of Parliament. The ITAA 2008 provides for penalties for various offences such as cyber crimes, various e-commerce frauds like cheating by impersonation and pornography. Though the ITAA 2008 was not enacted to directly apply to the telecom industry, it is a fact that the information technology sector and the telecom sector are closely linked and the 2008 amendments have in fact explicitly made the ITA and ITAA 2008 applicable to the telecom industry¹². Further, through the 2008 amendments a new section has been inserted which defines “*communication device*” as cell phones, personal digital assistance or combination of both or any other

¹¹ ‘wireless telegraphy apparatus’ means any apparatus, appliance, instrument or material used or capable of use in wireless communication, and includes any article determined by rule made under Sec. 10 to be wireless telegraphy apparatus, but does not include any such apparatus, appliance, instrument or material commonly used for other electrical purposes, unless it has been specially designed or adapted for wireless communication or forms part of some apparatus, appliance, instrument or material specially so designed or adapted, nor any article determined by rule made under Section 10 not to be wireless telegraphy apparatus;

¹² Section 2(W) of the ITAA 2008 defines “Intermediaries” as follows: “Intermediary with respect to any particular electronic records means any person who on behalf of another person received, stores or transmits that record or provides any service with respect to that record and includes telecom service provider, internet service providers, web hosting service providers, search engines, online payment sites, online auction sites, online market places and cyber cafes”.

device used to communicate, send or transmit any text video, audio or image. This revised definition clearly brings the telecom sector within the ambit of the ITA.

As per the ITAA 2008, an intermediary (which by definition now includes a telecom service provider) is liable for any offence under the ITAA 2008. Under Section 79 of the ITAA 2008, an intermediary is exempt from liability in relation to any third party information or communication link, provided:

- (i) The role of the intermediary is limited to providing access to a communication system over which third party information is transmitted or temporarily stored; or
- (ii) The intermediary does not initiate, select the recipient of or select / modify the information in the transmission; *and*
- (iii) The intermediary observes due diligence while discharging his duties.

Notwithstanding the above qualifications, the amended Section 79 further goes on to provide that irrespective of the exemptions provided above and irrespective of the exercise of due diligence, an intermediary would still be liable where:

- (ii) The intermediary has conspired, aided, induced or abetted in any unlawful activity; or
- (iii) The intermediary upon obtaining knowledge or upon being notified fails to expeditiously remove or disable access to any information, data or communication link controlled by the Intermediary which is being used to commit an unlawful act.

The essential element which needs to be proved in order to pin liability on an intermediary is control. The basic premise is that an intermediary, in the ordinary course of business, is merely acting as a conduit and is not in a position to exercise control over any material or information which is transmitted through its platform unless required to do so under the provisions of the IT Act. However it should be noted that the standards of due diligence have not been defined; as such it could be assumed that reasonable industry standards would need to be followed.

The Department of Information Technology under the Ministry of Communications and Information Technology, Government of India, introduced certain rules in exercise of powers conferred under the ITA. These rules will act as enablers to particular sections of the ITA. One such rule is the Information Technology (Intermediaries guidelines) Rules, 2011¹³.

As per the rules, the intermediary has to observe the necessary due diligence while discharging his duties which includes publishing rules and regulations, privacy policy and user agreement. Such rules and regulations, etc shall inform the users of computer resource not to host, display, upload, modify, publish, transmit, update or share any information, *inter alia*, that:

- belongs to another person and to which the user does not have any right to.
- is grossly harmful, harassing, blasphemous, defamatory, obscene, pornographic, libelous, invasive of another's privacy, disparaging, relating or encouraging money laundering or gambling, etc or otherwise unlawful in any manner whatever.
- harm minors in any way.

¹³ [http://www.mit.gov.in/sites/upload_files/dit/files/GSR314E_10511\(1\).pdf](http://www.mit.gov.in/sites/upload_files/dit/files/GSR314E_10511(1).pdf)

- infringes any intellectual property right or other proprietary rights.
- violates any law for the time being in force, etc.

The following actions by an intermediary shall not amount to hosting, publishing, editing or storing of any such information:

- temporary storage of information automatically within the computer resource as an intrinsic feature of such computer resource, involving no exercise of any human editorial control, for onward transmission or communication to another computer resource.
- removal of access to any information, data or communication link by an intermediary after such information, data or communication link comes to the actual knowledge of a person authorized by the intermediary pursuant to any order or direction as per the provisions of the ITA.
- The intermediary upon obtaining knowledge by itself or been brought to actual knowledge by an affected person in writing or through email signed with electronic signature about any such information as mentioned in aforesaid point under this Rule, shall act within thirty six hours and where applicable, work with user or owner of such information to disable such information that is in contravention of the said aforesaid point. Further the intermediary shall preserve such information and associated records for at least ninety days for investigation purposes.
- The intermediary shall inform its users that in case of non-compliance with rules and regulations, etc, the intermediary has the right to terminate access or usage rights of the users to the computer resource of Intermediary and remove non-compliant information.
- The intermediary shall provide information / assistance to Government agencies who are lawfully authorized for investigative, protective, cyber security activity. The intermediary shall report cyber security incidents and also share cyber security incidents related information with the Government agency.
- The intermediary shall take all reasonable measures to secure its computer resource and information contained therein following the reasonable security practices and procedures as prescribed in the Information Technology (Reasonable security practices and procedures and sensitive personal information) Rules, 2011.
- The intermediary shall publish on its website the name and details of the grievance officer as well as mechanism by which users or any victim who suffers as a result of access or usage of computer resource by any person can notify their complaints against such access or usage. Such grievance officer shall redress the complaints within one month from the date of receipt of complaint.

We believe that the introduction of this rule seems to have been introduced due to the increased litigation against intermediaries who were accused as parties / co-accused in cases of unlawful or illegal conduct by end users.

V. TELECOM SERVICES / LICENSES AND INFRASTRUCTURE IN INDIA

There have been some important regulatory changes which were introduced post liberalization which have provided an immense boost to development of this sector. These regulatory changes by and large trace their roots to the objectives and vision set out by the Government in NTP 99.

Universal Service Obligations. It is an accepted fact that improved rural penetration is a key priority area for most developing countries. The concept of Universal Service Obligation (“**USO**”) has been mooted by many developing countries and is grounded on the principle that effective means of communication is a must for economic and social development. NTP 99 envisaged the provision of basic telecommunications services to all at affordable rates. Keeping in line with NTP 99 and the recommendations of the Telecom Regulatory Authority of India on the issues relating to the Universal Service Obligation the Universal Service Support Policy was framed and came into effect from April 2002. The Indian Telegraph (Amendment) Act, 2003 gave statutory status to the Universal Service Obligation Fund (“**USOF**”). USOF is used to subsidise developments in the telecom sector in the rural areas such as:

- increasing wireless network;
- providing public access through public or community phones;
- providing individual household telephones.

The resources for meeting the USOF are to be generated through a Universal Service Levy (“**USL**”), which would be a percentage of the revenue earned by the operators under various licenses. The USL presently is 5% of the Adjusted Gross Revenue earned by all operators except pure value added services providers like voice mail and e-mail¹⁴.

Unified Access Regime. Prior to the introduction of Unified Access Regime, basic and cellular operators were issued separate licenses to operate and provide basic and cellular services in different telecom circles in the country. The terms of the license agreement for a basic and cellular provider were distinct from one another with respect to entry fee, spectrum allocation and interconnection charges. Given the central aim of NTP 99 to ensure rapid expansion of tele-density, which coupled with various other factors such as the advances made in technologies and the reduction in the costs of providing telecommunications services made it imperative for the Government to introduce a regime wherein the provision of telecom services are made technology neutral. The Government issued Guidelines for Unified Access License in November 2003¹⁵. Under unified licensing, a service provider can offer both fixed and mobile services under one license. Thus, while cellular operators can offer basic services, basic operators can offer cellular services all under the same license. Further, under unified licensing, the Government has no control over technology which is left to market forces. Unified licensing has greatly benefitted the consumers in terms of lower prices due to the economies of scale and affordable telecommunication services. Further unified licensing also simplifies the procedure of licensing in the telecom sector and ensures flexibility and efficient utilization of resources keeping in mind technological developments.

¹⁴ <http://www.dot.gov.in/uso/usoidex.htm>

¹⁵ Guidelines For Unified Access(Basic & Cellular) Services Licence (No.808-26/2003-VAS) dated November 11, 2003

It should be noted that TRAI in its January 2005 Recommendations on Unified Licensing has rooted for a new licensing regime where there shall be no restrictions on usage of Internet Telephony or other IP enabled services provided that they are offered by operators with Unified License who have duly paid the prescribed registration charges and who will be subjected to license fees. India currently allows limited internet telephony which has been discussed later under this Chapter.

Interconnection. India today has a plurality of service providers and service networks. In such a situation, efficient interconnection between a variety of access networks (such as fixed, mobile, national long distance and international long distance) has to interconnect to make national and international connectivity possible. In 2003 TRAI implemented the Telecommunications Interconnection Usage Charges Regulation to fix terms and conditions of interconnectivity between service providers and to regulate arrangements among service providers for sharing their revenue derived from provision of telecommunication services.

We have discussed in Chapter IV how the Government of India has the exclusive right to own and operate telecommunication devices and services and the manner in which the government can grant license to third parties to carry out these functions. In this respect, a license is the pivot on which this industry operates. A telecom license is an agreement between the Government of India i.e. the Department of Telecommunications (licensor) and the operator/service provider (licensee) and is only entered into upon the fulfillment of various conditions by the service provider. The provision of any telecommunication service in India without a valid license/registration is not permitted.

It should be noted that the government is bound to ensure that its licensing decisions are rational, transparent and free from arbitrariness. The courts have time and again upheld this principle of transparency¹⁶. In the case of *Delhi Science Forum v Union of India*, the decision of the government to invite tenders from non-governmental and private entities for license to provide telecommunications services was challenged in a writ petition wherein it was contended that the sensitive nature of telecommunications mandated that it should not be placed in the hands of the private sector and any step in this direction would not only endanger the national security of the country but would not serve the economic interest of the country. The Supreme Court dismissed the writ and categorically held that the privatization policy adopted by the government is a necessary consequence of liberalization and the grant of telecommunications licenses to non-governmental organizations would greatly improve telecom services. However the Supreme Court also emphasized the procedures adopted for such grant should be “*reasonable, rational and in conformity with the conditions which have been announced.*”

The telecommunication services can be categorized into following main categories which are as under:

1. Unified Access Services (“UAS”) and Cellular-Mobile Telephone Services (“CMTS”)

The country is divided into 23 service areas consisting of 19 telecom circle service areas and 4 metro service areas for providing UAS and CMTS.

¹⁶ AIR 1996 SC 1356

- **UAS:** UAS operators can provide, within their area of operation, wireline (basic) as well as wireless (cellular) services in a service area. Wireless services include Full Mobile, Limited Mobile and Fixed Wireless services. Further, UAS operators can also provide voice mail, audiotex services, video conferencing, videotex, e-mail, Closed User Group (CUG) as Value Added Services over its network to the subscribers falling within its service area on non-discriminatory basis. No service can be provided by the UAS operator for which a separate license is required. However, intimation before providing any other VAS has to be sent to the DoT and TRAI¹⁷.

Basic and Cellular Services Licensees are permitted to migrate to UAS License regime. The service providers migrating to UAS License will continue to provide wireless services in already allocated/contracted spectrum and no additional spectrum will be allotted under the migration process.

- **CMTS:** CMTS operators are free to provide, within their area of operation, all types of mobile services including voice and non-voice messages, data services and Public Call Offices (PCOs) utilizing any type of network equipment, including circuit and/or package switches that meet the relevant International Telecommunication Union (ITU) /Telecom Engineering Centre (TEC) standards¹⁸.

The UAS and CMTS operators are required to pay a certain percentage of Adjusted Gross Revenue (“AGR”)¹⁹ as license fee apart from paying spectrum charges. Frequencies are assigned by the WPC wing of the DoT from the frequency bands earmarked in the applicable National Frequency Allocation Plan and in coordination with various users.

Consequent upon announcement of guidelines for Unified Access (Basic& Cellular) Services licenses in November 2003, some of the CMTS operators have been permitted to migrate from CMTS license to UAS License.

2. National Long Distance (“NLD”) and International Long Distance (“ILD”)

- **NLD:** NLD service refers to the carriage of switched bearer telecommunications service over a long distance and NLD service licensee have the right to carry inter-circle traffic excluding intra-circle traffic except where such carriage is with mutual agreement with originating service provider. NLD service licensees can make mutually agreed arrangement with the Basic Service Providers for picking up the traffic for the leg

¹⁷ <http://www.dot.gov.in/uas/uasindex.htm>

¹⁸ <http://www.dot.gov.in/cmts/cmtsindex.htm>

¹⁹ Gross Revenue shall include installation charges, late fees, sale proceeds of handsets (or any other terminal equipment etc.), interest revenue, dividend, VAS, supplementary services, access or interconnection charges, roaming charges, revenue from permissible sharing of infrastructure and any other miscellaneous revenue, without any set-off for related item of expense. For arriving at the AGR, following shall be excluded from the Gross Revenue: PSTN related call charges (Access Charges) actually paid to other eligible/entitled telecommunication service providers within India; Roaming revenues actually passed on to other eligible/entitled telecommunication service providers; Service Tax on provision of service and Sales Tax actually paid to the Government if gross revenue included Sales Tax and Service Tax.

between Long Distance Charging Centre (LDCC) and Short Distance Charging Centres (SDCCs).

- **ILD:** ILD Service is defined as a network carriage (also called Bearer) service, providing the NLD operators in the country International connectivity to network facilities operated by foreign carriers in other countries. ILD service providers can provide bearer services so that end-to-end tele-services such as voice, data, fax, video and multi-media can be provided by Access Providers to the customers.

3. Internet Service Licenses (ISP)

ISP licensees are primarily allowed to provide services such as internet access (through any method including IPTV) and internet telephony (which is a service to process and carry voice signals offered through the internet by the use of personal computers (“PC”) or internet protocol based equipment). Currently the ISP license allows limited internet telephony by permitting connections between the following:

- PC to PC (within or outside India).
- PC / a device / Adapter conforming to standard of any international agencies like ITU or IETF etc in India to PSTN/PLMN abroad.
- Any device / Adapter conforming to standards of International agencies like ITU, IETF etc. connected to ISP node with static IP address to similar device / Adapter within or outside India.

4. MOBILE NUMBER PORTABILITY (“MNP”)

MNP allows mobile subscribers to retain their existing telephone numbers when they switch from one telecom operator to another irrespective of mobile technology. India has long felt the need for MNP. In September 2009 TRAI introduced the Telecommunications Mobile Number Portability Regulations, 2009 . As per the regulations, the subscribers would be allowed to retain their mobile number while moving from (within the same service circle):

- one access provider to another irrespective of the mobile technology / platform; or
- one cellular mobile technology to another of the same access provider.

Thus effectively a subscriber can move from a CDMA service provider to a GSM service provider in a seamless manner.

For the purpose of implementing MNP, the country has been divided into two geographical zones and MNP license has been issued to one operator in each zone provide centralized database, query response and clearing house to enable correct routing and termination of calls by access-service providers and International Long Distance operators post MNP implementation. The DoT has issued license to two players for implementation of MNP services in the country in Zone 1 and Zone 2 respectively .

These developments have been implemented by the government in order to further the objective of creating and maintaining a level playing field in the industry and increasing completion.

The implementation of MNP which was stated to have taken place by December 31, 2009 had been postponed to March 31, 2010 for all circles in order to enable the MNP operators and the service providers to be better prepared to implement MNP in an effective manner.

India is one of the world's fastest growing telecom markets and it continues to be amongst the world's lowest telecom tariff destinations. As such the implementation of MNP will ensure that every telecom mobile service provider offers mobile number portability to all its subscribers both post paid and pre-paid on a non-discriminatory basis. The telecom operators on their part, would have to incur huge expenses by way of capital expenditure and operational expenses in order to effectuate and operationalise MNP. With the Indian tariff structure already at the lowest in the world, the revenues of the telecom operators are likely to be affected with the implementation of MNP with subscribers having the freedom to migrate to better service providers. This in turn is likely to compel the telecom service providers to improve the quality of their service to avoid losing subscribers. This can be seen as maturing element of the Indian telecom industry and a natural step for the industry to go forward.

5. Other Services:

There are certain telecommunication services where no specific license is required; however a registration is required subject to fulfilling certain criteria. These include:

- **Infrastructure Provider Category-I ("IP-I"):** Under IP-I registration, a company can provide assets such as Dark Fibre, Right of way, duct space, tower, etc to licensed telecom service providers. This category was opened to private sector only from August 13, 2000. There is no restriction on foreign equity, number of entrants, no entry fee and no bank guarantee requirement for providing such registration.

Earlier, apart from IP-I, there was another category of infrastructure provider, Infrastructure Provider Category-II ("IP-II"). A license was issued to provide infrastructure services by way of IP-II. Under the IP-II license the service provider could lease/rent out/sell end to end bandwidth i.e. digital transmission capacity capable to carry a message. This was opened to private sector with effect from August 13, 2000. Although there was no entry fee and number of players for IP-II there were certain restrictions on foreign investment front. However, issuance of IP-II licences have been discontinued since December 14, 2005.

- **Other Service Provider (OSP):** Call centres (international and domestic), BPOs, Network Operation Centres, Vehicle Tracking Systems, services with respect to tele-banking, tele-medicine, tele-education are allowed to operate (with 100% FDI) upon registration as "Other Service Provider" or "OSP" with the DoT. These OSP's operate the service using the telecom infrastructure provided by licensed telecom service providers. There are various security related obligations imposed on various telecom licensees (as

discussed later in this paper). As security related conditions are applicable to all licensed telecom service providers, the security conditions shall not be separately enforced on OSPs. An interesting development in the OSP registration policy is the amendment that was announced in August 5, 2008 which officially recognized the “*work from home*” provided certain financial guarantees are provided²⁰.

6. TELECOM INFRASTRUCTURE

The telecom sector is a very capital intensive sector and involves high value investments. The telecom licenses permit the telecom operators to share passive infrastructure such as building, tower, dark fibre, etc. However the procurement and maintenance of active infrastructure proves to be a very expensive affair for operators. With the robust growth in the telecom sector, the government recognized that infrastructure sharing would greatly reduce costs for the operators. The DoT accepted TRAI's recommendations and issued Guidelines on Active Infrastructure Sharing on April 2008²¹. Active Infrastructure consists of antennas, cables, radio access networks, transmission systems and other technical equipments which are required to transmit mobile calls. We discuss some of the salient features of the guidelines:

- (i) Service Providers can share active infrastructure based on mutual contractual arrangements.
- (ii) Sharing of allocated spectrum is not permitted.
- (iii) Infrastructure Providers Category-I (IP-I) are allowed to seek clearance for erecting towers with or without agreement with licensed service providers.
- (iv) No subsidy shall be paid if newly erected tower is not shared with existing service providers.
- (v) Reduction in the timeframe for the SACFA to clear applications for setting up of towers and other related infrastructure from 90 days to 45 days.
- (vi) Infrastructure Providers will have to set up the infrastructure site(s) within one year from the date of signing of the agreement with Universal Services Obligation Fund (“**USOF**”) if the subsidies under USOP need to be availed. Further, Infrastructure Providers and telecom service providers can jointly bid for projects undertaken by USOF²².

As a result of this policy, new entrants who are allotted spectrum by the WPC can easily launch their telecom services within a short period by taking the assistance of the existing active infrastructure of other telecom service providers will not have to incur huge infrastructural costs.

Over the years, Bharti Airtel has made huge investments to create the cellular infrastructure across the country. Soon it hived off its mobile tower business into a separate subsidiary to become a major player in the tower sharing business. Another major player, Reliance Communication (RCom), has already hived off its tower business into a separate subsidiary. With increasing operational and infrastructure costs, many telcos are now joining hands to share their existing infrastructure. Some of the deals include the following:

²⁰DoT Office Memorandum (Ref: No.18-2/2008-CS-I) dated August 05, 2008.

<http://www.dot.gov.in/osp/Review%20of%20%20terms%20and%20conditions%20of%20osp.pdf>, visited on April 24, 2010

²¹ <http://www.dot.gov.in/2008/Guidelines%20on%20Infra%20structure%20Sharing.pdf>

²² USOF – A scheme introduced by the government of India to provide access to basic telecommunication services to people in the rural and remote areas at affordable prices along with grant of incentives to telecom operators

- In December 2007, Quippo Telecom acquired 1000 towers from Spice Telecom.
- In January 2009, Quippo Telecom and Tata Teleservices Limited merged its passive infrastructure businesses to create one of India's largest Independent Telecom Infrastructure Company.
- In February 2009, Quippo Telecom and Tata Teleservices Limited's Wireless TT Info Services Limited (WTTIL) signed up a tower sharing agreement with Unitech Wireless. Under this agreement, Unitech Wireless will lease tower infrastructure from WTTIL and Quippo Telecom across India.
- Etisalat DB, which has acquired a 45% stake in Swan Telecom has signed a 10-year tower sharing deal with the hived off infrastructure arm of RCom.

VI. SPECTRUM MANAGEMENT

Spectrum refers to the use of radio waves or frequencies in telecommunications. Since spectrum is the cornerstone of telecom services worldwide and is by its very nature a scarce resource, spectrum management has become very important in recent times. In this chapter we discuss some of the important aspects of spectrum management in India as well as internationally.

Ownership of Spectrum

It was once believed that spectrum is the property of the government, and hence the government could use it in a manner that suited it and that the government had exclusive rights to regulate and allocate spectrum. But post 1995 this belief has changed. This has been possible due to a historic judgment given by the Hon'ble Supreme Court of India in 1995 in the case of *Secretary, Ministry of Information and Broadcasting, Govt. of India v. Cricket Association of Bengal* which decided that spectrum is actually public property. This judgment has changed the perception of ownership of spectrum in India and the way the government handles & manages spectrum in today's scenario.

We highlight the important aspects of the said judgment.²³

- Airwaves or frequencies are public property. Their use has to be controlled and regulated by a public authority in the interests of the public and to prevent the invasion of their rights. Since the electronic media involves the use of the airwaves, this factor creates an inbuilt restriction on its use as in the case of any other public property.
- The right to impart and receive information is a species of the right to freedom of speech and expression guaranteed by Article 19(1)(a) of the Constitution of India. Every citizen has the fundamental right to use the best of means of imparting and receiving information and as such to have an access to telecasting. However, this right to have an access to telecasting has limitations on account of the use of the public property, viz., airwaves, involved in the exercise of the right and can be controlled and regulated by the public authority. This limitation imposed upon the nature of the public property involved in the use of the electronic media is in addition to the restrictions imposed on the right to freedom of speech and expression under Article 19(2) of the Constitution.

India is not the only country to hold the view that the spectrum is public property. Most of the developed countries like USA, Canada, UK, etc, hold the same view that spectrum is public property and the government is only the caretaker of this public property.

²³ Please also refer to the decision of the Supreme Court in the case of *Delhi Science Forum v Union of India* discussed in Chapter V of this paper.

Management of Spectrum in India

Spectrum management is the combination of administrative and technical procedures with legal connotations necessary to ensure efficient operation of radio communication services without causing harmful interference. There are two levels at which spectrum is managed:

1. National
2. International

International Management of Spectrum

Humans have divided territory into countries & continents, but spectrum knows no such bounds. Thus there has to be international co-operation in the management of spectrum. There are various international organizations for the purpose of harmonizing the use of spectrum between countries. The organizations that are addressed are ITU and APT. The role played by these organizations have already been discusses earlier.

National Management of Spectrum

Every country has different agencies managing the spectrum of that particular country. It is also a very important task as in involves an issue that affects almost the entire population of that country, the business of that country and indeed the social structure, harmony and the unity of that country.

In the Indian context, the Indian Telegraph Act, 1885 and the Indian Wireless Telegraphy Act, 1933 and Rules and Procedures made under these Acts provide the legal basis for spectrum management. NFAP 2000, derived from the Table of Frequency Allocations of the Radio Regulations in consultation with the national users through the forum of SACFA provides the basis for assignment of frequencies.

At present, spectrum is managed through WPC Wing, SACFA and NFAP, all of which have already been discusses earlier.

Allocation of Spectrum in India

The National Frequency Allocation Plan (“**NFAP**”) 2000 is the basis on which the spectrum frequencies are allocated in India. The ITU issues the international TFA for the purpose of giving the member country a basis on which it can formulate its own frequency allocation plan. The NFAP is the allocation plan of India. This plan clearly allocates different frequency bands for different radio communication services. Although it allocates frequency bands for certain services, it doesn't give ownership rights to those services. The allocation is done so that the overall management of the spectrum is done prudently and efficiently.

Till December 31, 1999 NFAP-81 and the regulations and amendments to it were in force, but from January 1, 2000 the NFAP-2000 replaced NFAP-81. The reason for this was that NFAP-81 was not up to the task of managing an increased use of the spectrum for commercial and other uses. NFAP-81 was formulated for a time, when usage of frequency bands was primarily done by the government agencies with some exploitation by private parties for their dedicated networks. Now with the proliferation of new

technologies inducted in the country and the entry of private sector in the telecommunication field in the present and futuristic scenario, revision of NFAP-81 in its entirety had become essential.

This was so because the change of the NFAP could form the basis for developmental, manufacturing and spectrum utilization activities in the country in the government as well as private sector. Now the times have changed, although still the government is still the largest single user of the Spectrum, the participation of the private parties has increased manifold.

The NFAP-2000 is a much better allocation plan compared to NFAP-81. It has in it, many improvements that will lead to the eventual proliferation of communications in the country. It has allotted various frequencies to various different services and has also made adequate provisions for the assimilation of future technologies that use the Spectrum.

As per the recommendations of NTP, a new NFAP is supposed to be drafted every 2 years.

VII. FOREIGN INVESTMENT IN TELECOM SECTOR IN INDIA

1. Foreign Investment Regime in India

India's foreign investment regime is governed by the Foreign Direct Investment ("FDI") policy. As per the FDI policy, there are certain sectors wherein 100% FDI is allowed (such as software development), whereas there are certain sectors wherein no FDI is allowed at all (such as gambling). Further, there are certain sectors where FDI is allowed with certain sectoral caps (such as telecom). Furthermore some investments can be made under the automatic route (i.e. without any government approval) whilst others require prior approval of the government. The Department of Industrial Policy & Promotion ("DIPP") is responsible for formulation and implementation of promotional and developmental measures for growth of the industrial sector, keeping in view the national priorities and socio-economic objectives.

The telecom sector in India has always been a sensitive and regulated sector and the government has been wary of allowing foreign participation. However the outlook of the government and the industry is fast changing. For the longest time, the intention of the government was that the majority of the shares of a telecom licensee company should be held by Indian shareholders; as a result foreign companies and investors were only allowed to hold up to 49% of the equity of a telecom licensee. Since liberalization, every successive government has encouraged FDI. In 2005, in pursuance of the government's commitment to further liberalize the FDI regime, the government revised the percentage sectoral cap to allow total foreign equity in telecom licensee companies to as much as 74%²⁴. The current regime in respect of permissible FDI in the telecom sector is as follows:

SECTOR	FDI PERMITTED	METHOD
Basic, Cellular, Unified Access Services, National/International Long Distance, V-Sat, Public Mobile Radio Trunked Services (PMRTS), Global Mobile Personal Communications Services (GMPCS) and other value added services	up to 74%	Automatic up to 49% and FIPB approval required beyond 49%
ISP with & without gateways, radio paging, end-to-end bandwidth	up to 74%	Automatic up to 49% and FIPB approval required beyond 49%
Infrastructure Provider providing dark fibre, right of way, duct space, tower (Category I); electronic mail and voice mail NOTE: Investment in all the aforesaid activities is subject to the conditions that such companies will divest 26% of their equity in favor of Indian public in 5 years, if these companies are listed in other parts of the world.	100%	Automatic up to 49% and FIPB approval required beyond 49%
Manufacture of telecom equipments	100%	Automatic

²⁴ Press Note No. 5 (2005 Series): Enhancement of the Foreign Direct Investment Ceiling from 49% to 74% in the Telecom Sector. Refer http://siadipp.nic.in/policy/changes/pn5_2005.pdf, visited on May 26, 2009

The total FDI equity inflows in telecom sector have been US\$ 2223 million during April-November 2009-10²⁵.

2. Growth Of Foreign Investment In The Indian Telecom Sector

We provide below some statistics published by the DoT on the inflow of FDI into the telecom sector:

Actual Inflow (Year wise) of FDI in Telecom Sector from April 2000 to July 2009

Year (April-March)	FDI in INR (in Crore)	FDI in US\$ (in Millions)
2000-01	784	178
2001-02	3,937	873
2002-03	908	192
2003-04	514	112
2004-05	570	125
2005-06	2,776	624
2006-07	2,155	478
2007-08	5,103	1,261
2008-09	11,727	2,558
2009-10 (till July 2009)	4,897	993
TOTAL	33,264	7,369

NOTE:

- Amount includes the Inflows received through SIA/FIPB route, acquisition of existing shares and RBI's automatic route only.
- Source: Department of Telecommunications²⁶

Sector-wise FDI Inflows from APRIL 2000 to JUNE 2009

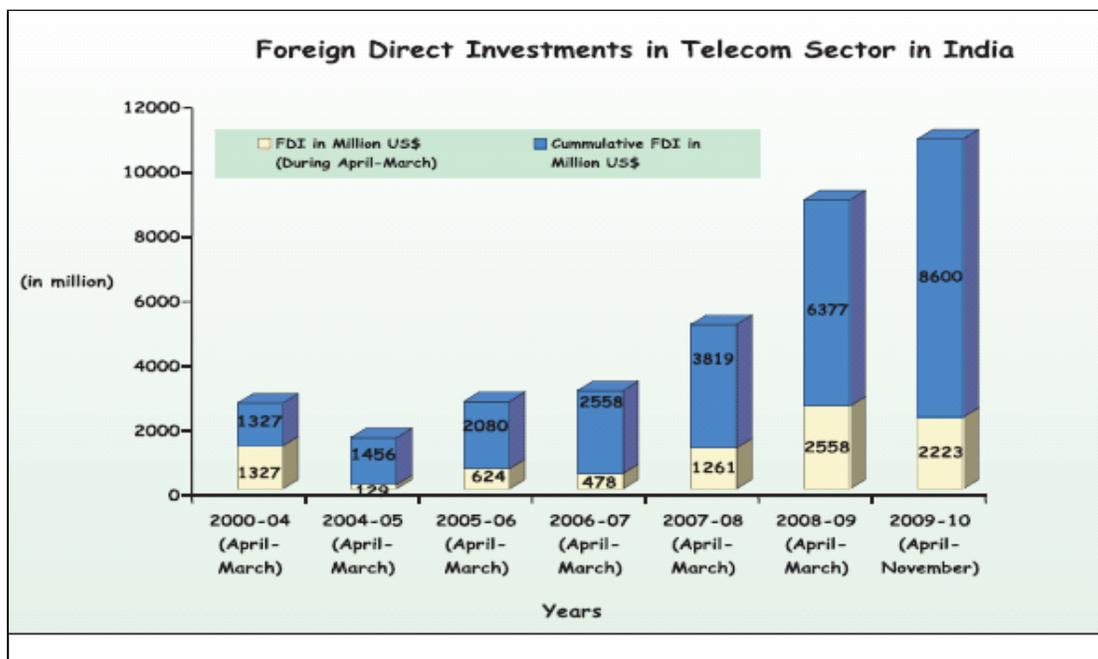
Sl. No.	Sector	Amount of FDI Inflows		% of Total Inflows
		In INR	In USD	
1	Telecommunications	133,064.91	3,000.35	41.95

²⁵ Department of Telecommunications- Annual Report 2009 – 2010; <http://www.dot.gov.in/annualreport/2010/final.pdf> last accessed on April 20, 2010

²⁶ <http://www.dot.gov.in/osp/Investment%20Policy/FDI%20inflow-year-wise.htm>, last visited on Jan 18, 2010

2	Radio Paging	113.92	2.53	0.04
3	Cellular Mobile/ Basic Telephone Service	175,590.11	3,873.12	55.36
4	Other (Telecom)	8,430.03	174.87	2.66
Sector Total		317,198.97	7,050.88	100.00

Source: Department of Telecommunications²⁷



Source: Department of Telecommunications; Annual Report 2009 - 10

3. Calculation of FDI

Foreign Investment can be direct or indirect.

- Direct foreign investment means investing directly into the investee (licensee) company; and
- Indirect foreign investment means foreign investment in the company/companies holding shares of the investee (licensee) company and their holding company/companies or legal entity (such as mutual funds, trusts, etc).

The method of calculation of FDI followed till recently was as per the provisions of Press Note 3 (2007 Series). According to the provisions of the said Press Note, both direct and indirect investment in the

²⁷ <http://www.dot.gov.in/osp/Investment%20Policy/FDI%20Inflow%20-Sector-wise.htm>, visited on Jan 18, 2010

investee company would have to be considered and included for the purpose of calculating total FDI in the investee company²⁸. Accordingly, the UAS License, CMTS License and the ISP License contain terms which made it mandatory to include both direct and indirect foreign investment for the purpose of calculating FDI into the telecom sector²⁹.

Press Note 2 (2009 Series) and Press Note 3 (2009 Series) was thereafter introduced with the purpose of clarifying and setting out guidelines for calculation of total foreign investment in all sectors. These Press Notes have revised the method of calculation of FDI in the telecom sector as well. The salient provisions of these Press Notes are as follows:

- (i) All investments directly by a non-Indian resident entity into the Indian investee company would be counted towards foreign investment.
- (ii) Though indirect investment would continue to be considered and included for the purpose of calculating FDI in the company, for the purpose of calculating indirect foreign investment, foreign investment through the investing Indian company would not be considered in case the investing Indian company is 'owned and controlled' by resident Indian citizens on a look through basis.
- (iii) An investing company is said to be 'owned' by resident Indian citizens when more than 50% of the equity interest of such investing company is beneficially owned by (a) resident Indian citizens and (b) companies which are owned and controlled by resident Indian citizens.
- (iv) An investing company is said to be 'controlled' by (a) resident Indian citizens and (b) Indian companies which are owned and controlled by resident Indian citizens are which if such Indian citizens and Indian companies have the power to appoint the majority of the directors of the investing company³⁰.

It is however important to note that there continues to be a grey area with respect to calculation of FDI in the telecom sector. This is due to the fact that even though Press note 3 of 2007 has been superseded, as described above, the various telecom licenses continue to contain the old provisions dealing with calculation of FDI. Therefore in our view it is important for the DoT to revise the licenses accordingly.

²⁸ Refer para 2A(ii) of Press Note 3 (2007 Series): "Both direct and indirect foreign investment in the licensee company shall be counted for the purpose of FDI ceiling. Foreign Investment shall include investment by Foreign Institutional Investors (FIIs), Non-resident Indians (NRIs), Foreign Currency Convertible Bonds (FCCBs), American Depository Receipts (ADRs), Global Depository Receipts (GDRs) and convertible preference shares held by foreign entity. Indirect foreign investment shall mean foreign investment in the company/ companies holding shares of the licensee company and their holding company/companies or legal entity (such as mutual funds, trusts) on proportionate basis. Shares of the licensee company held by Indian public sector banks and Indian public sector financial institutions will be treated as 'Indian holding'. In any case, the 'Indian' shareholding will not be less than 26 percent"

²⁹ Refer (i) refer Section 1 (1.1)(i) of the UAS License (ii) Amendment to CMTS License dated February 01, 2006, (iii) Section 1 (1.2) of the ISP License

³⁰ This position has also been clarified in Press Note 3 (2009 Series) which provides that FIPB approval would be required in case an Indian entity is established with foreign investment and where a non-resident entity has the power to appoint a majority of the board of its directors.

4. Down Stream Investments

The government has also introduced guidelines for downstream investment by Investing Indian Companies 'owned or controlled by non-resident entities' which states that if FDI is provided to a company ("**Investing Company**") 'owned' or 'controlled' by non-resident entities, any downstream investment made by such Investing Company would require FIPB approval, irrespective of the amount of investment. The intention of the government is very clear that they want to control the activities of foreign owned or controlled investment holding companies in India and their downstream investments. Therefore even though FIPB approval is required only if FDI exceeds 49% in the telecom sector, in the aforesaid example, any amount of FDI would require the prior approval of the government. As an exception the indirect foreign investment in only the 100% owned subsidiaries of operating cum investing/ investing companies will be limited to the foreign investment in the operating cum investing/ investing company. This exception is made since the downstream investment of a 100% subsidiary of the holding company is akin to investment made by holding company and the downstream investment should be a mirror image of the holding company. This exception however is strictly for those cases where the entire capital of the downstream subsidiary is owned by the holding company.

Illustration: Telecom Company A has FDI of 74%. If Company B is 100% held by Telecom Company A, then 74% of Company B would be treated as indirect foreign equity and the balance would be treated as resident held equity.

5. License Provisions

The licenses themselves have a number of provisions which can be seen as quite restrictive. These are mostly security driven restrictions and have not led to any dampening of foreign interest in this sector. Some of these restrictions are discussed as follows:

- (i) Telecom licenses are only granted to companies which are registered in India;
- (ii) The majority of directors of the board of the company have to be Indian citizens;
- (iii) Certain positions which are instrumental to the operations of the company such as Chief Officer in charge of technical network operations, Chief Security Officer and Officials dealing with lawful interception of messages have to be occupied by resident Indian citizens;
- (iv) Certain key positions (such as chairman, managing director, chief executive officer and/or chief financial officer), if held by foreign nationals are required to be security vetted by the Ministry of Home Affairs.

Other security related requirements:

- Details of infrastructure/network diagram could be provided on a need basis only to telecom equipment suppliers/manufacturers and affiliate/parent of licensee company. Clearance of DoT would be required if such information is to be provided to anybody else.
- Licensee company should ensure that the information transacted through their network is secure and protected.

VIII. MERGERS AND ACQUISITIONS IN THE INDIAN TELECOM SECTOR

With the liberalization of the Indian economy, the telecom sector has become very attractive for mergers and acquisitions. Some of the big deals that have taken place in the Indian telecom include the following:

- SingTel increasing its stake in Bharti telecom from 26.96 % to 32.8 % in 2011
- Providence's investment into Aditya Birla Telecom in 2009
- Vodafone taking over Hutchison-Essar in 2007
- Malaysia Telekom's 49% stake in Spice Telecom
- Temasek Holdings' 9.9% stake in Tata Teleservices through its wholly-owned subsidiary Aranda Investments Mauritius

M&A in India is subject to various laws the principle of them being The Companies Act 1956, Income Tax Act 1961 and the Takeover Code (for public listed companies). Regulatory considerations are also equally important to take note of in telecom M&A.

1. DoT Guidelines on M&A

On April 22, 2008 vide circular No.20-100/2007-AS-I the DoT issued revised guidelines for intra-service area merger of Cellular Mobile Telephone Service/Unified Access Services superseding the earlier guideline issued in 2004. We discuss below some of the salient features:

- (i) Any permission for merger shall be accorded only after completion of 3 years from the effective date of the licences.
- (ii) Prior approval of the DoT is necessary for merger of a license.
- (iii) Merger of a license is restricted to the same service area.
- (iv) The combined market share of any merged entity should be less than 40%.
- (v) There should be minimum 4 operators in a service area for that service, consequent upon such merger.
- (vi) The market share of merged entity in the relevant market shall not be greater than 40% either in terms of subscriber base separately for wireless as well as wireline subscriber base or in terms of Adjusted Gross Revenue.
- (vii) The merged entity shall be entitled to the total amount of spectrum held by the merging entities, subject to the condition that after approval of the merger, the merged entity shall within a period of three months fulfill the prevailing spectrum allocation criteria. If the merged entity fails to meet the spectrum allocation criteria within 3 months, then such merged entity shall surrender the excess spectrum, if any, failing which the same shall be treated as a violation and DoT / TRAI shall have the right to initiate the necessary action. In addition to initiating such action, the merged entity shall also be charged double for holding additional spectrum for every 3 months
- (viii) In case consequent to merger of licences in a service area, the licensee becomes a "Significant Market Power" (**SMP**)³¹ post merger, then the extant rules and regulations

³¹ As per the Telecommunication Interconnection Usage Charges Regulation, 2003 (2 of 2003): Significant Market Power (SMP) means "A Service Provider holding a share of at least 30% of total activity in a licensed telecommunication service area."

applicable to SMPs would also apply to the merged entity. Such rules and regulations would include all TRAI regulations regarding pricing and interconnection charges/.

2. Competition Act, 2002

In the context of discussing SMPs it would also be relevant to keep in mind the provisions of the Competition Act 2002 which provides that no company shall abuse its dominant position. It should be noted that dominance per se is not illegal; its abuse is. The aim of the Competition Act is to prevent enterprises taking advantage of their market strength to abuse their dominance by using anti competitive business practices. The Competition Act (Section 4(2)) prescribes a list of practices which are broadly classifiable into exploitative and exclusionary, engaged by a dominant enterprise, alone or in concert, which are prohibited;

- (i) Imposing of unfair or discriminatory price (including predatory price) or condition, directly or indirectly, in purchase or sale of goods or services; or
- (ii) Indulging in practices resulting in denial of market access in any manner; or
- (iii) Making conclusion of contracts of supplementary obligations which, by their nature or according to commercial usage, have no connection with the subject of such contracts; or
- (iv) Using the dominant position in one relevant market to enter into, or protect, another relevant market; or
- (v) Limiting or restricting the production or provision of, or the technical or scientific development relating to, goods or services.

It is pertinent to note that the practices prohibited under Section 4(2) of the Competition Act are only with respect to abuse by enterprises which enjoy a dominant position. The Competition Act defines “dominant position” as a position of strength enjoyed by an enterprise in the relevant market in India, which enables it to:

- (i) Operate independently of competitive forces prevailing in the relevant market; or
- (ii) Affect its competitors or consumers or the relevant market in its favour.

Further, the Competition Commission of India (“CCI”) on May 11, 2011 issued the Competition Commission of India (Procedure in regard to the transaction of business relating to combinations) Regulations, 2011 (“Combination Regulations”). These Combination Regulations will now govern the manner in which the CCI will regulate combinations which have caused or are likely to cause appreciable adverse effect on competition in India (“AAEC”). For more details on other requirements, please refer to our analysis at the links

http://www.nishithdesai.com/New_Hotline/Competition/Competition_Law_hotline_May1311.htm and
http://www.nishithdesai.com/New_Hotline/Competition/Competition%20Law%20Hotline_May3111.htm

3. Promoter's Lock-In

The DoT vide Circular No. 20-100/2007-AS-I, imposed a three year lock in restriction for the sale of shares by certain shareholders in telecom companies. The aim of the government in introducing this circular is to prevent non-serious /fly-by-night operators from making profits/ windfall gains. We discuss below some of the salient features of this circular:

- (i) The restriction is imposed on persons whose share capital in the company is 10% or more and whose net worth has been taken into consideration while determining the eligibility of the company for the UAS license
- (ii) Issue of additional equity by the UAS licensee company by way of private placement/ public issue is permitted
- (iii) During the lock-in period, the promoters whose shares are locked in shall not in any manner, (such as sale, assignment) transfer his share capital directly or indirectly to any other person
- (iv) Dividend declaration or special dividend would not be allowed against the issue of fresh equity during the lock-in period

It should be noted that the extremely high net worth requirements for promoters as set out in the UAS license coupled with the merger guidelines by their very nature demand that dedicated and committed players enter this sector. There have been arguments that such restrictions would make investment in the telecom sector unattractive. This Circular however does not impose any restrictions on inbound investments in the UAS licensee companies and would not prove as a deterrent for future investment by committed players. The Circular itself permits issue of additional equity within the lock-in period. Further, in such cases of issue of additional equity, the promoters merely need to ensure that they do not transfer their shares to any third person.

Currently this restriction on the transferability of promoters' shares is only restricted to the UAS licensees. This may be because ISP licensees till now did not hold spectrum. In order to ensure a level playing field and in view of the fact that ISP licensees have been allowed to bid for spectrum in the BWA Auctions (discussed later), it is likely that the government will extend these restrictions to other licenses as well.

IX. SECURITY ISSUES IN THE TELECOM INDUSTRY

Over the past year and a half, the Indian telecom sector has witnessed much tumult over issues of security with the Department of Telecommunications, Government of India (“DoT”) issuing various notifications imposing onerous obligations and restrictions particularly with respect to foreign telecom vendors (collectively referred to “Prior Notifications”).³² These Prior Notifications created a lot of uncertainty in the industry both within the vendor community and among the telecom licensees as to the scope and ambit of the requirements. The industry has been waiting for clarifications from the government.

The DoT has recently announced that all Prior Notifications are to be superseded by Letter No 10-15/2011-AS.III/(21) dated May 31, 2011 which amends the telecom licenses itself³³ (“Amendment”).

Analysis of the Salient features of the Amendment

1. Certification and Internal Security Policy : All telecom licensees are required to ensure that all network elements be tested in Indian laboratories commencing from April 1, 2013; till such date, the telecom licensees are free to use any certifying agency of their choice. The DoT is to provide an illustrative list of certain certified agencies on their website.. Further the telecom licensees also have to conduct a yearly audit on their networks (the first audit to be completed before May 31, 2012). In addition:
 - a. The telecom licensee is obligated to (i) maintain relevant security standards while procuring the telecom equipment, and (ii) a list of features, equipments, software, which list must be open to inspection at the discretion of DoT (iii) create facilities for intrusion detection and monitoring by May 31, 2012.
 - b. Only Indian residents shall be eligible to be employed as key officers³⁴
 - c. Telecom licensee has been obligated to maintain a record of operation and maintenance procedures, not limited to, operation and maintenance command log, user-ids; software updates and changes and supplier chain.

Analysis: This requirement is in line with the intent of certain requirements that were imposed by the Prior Notifications. It is pertinent to note that in the Prior Notification, the DoT had made a distinction between “core” and “passive equipment”, where only core equipment was required to undergo security clearance. However, the current Amendment does not provide such distinction, nor does it clarify which elements of the telecom network need to be audited. As such the scope

³² Please refer to our hotline at

http://www.nishithdesai.com/New_Hotline/Telecom/TELECOM%20HOTLINE_Aug0410.htm and the article published at

http://www.nishithdesai.com/Media_Article/2010/India's%20Telecom%20Security%20Requirements.pdf herein we have analysed in detail the various requirements Imposed by the DoT.

³³ (i) Letter No. 10-15/2011-AS.III/(21) dated May 31, 2011 which amends the UAS License; (ii) Letter No. 10-15/2011-AS.III/(22) dated May 31, 2011 which amends the Basic Service License Agreement; (iii) Letter No. 10-15/2011-as.III/(23) dated May 31, 2011 which amends the CMTS License

³⁴ Chief Technical Officers, Chief Information Security Officer, Nodal Executive and System Administrators.

of the audit is apparently very broad. Further, in light of the fact that the security standards to be followed are international standards, mandating testing to be performed only by Indian laboratories may not be necessary and may pose impediments to the efficiency of the entire process and raises a number of intellectual property and confidentiality concerns.

2. Inspection: The telecom licensees must ensure that their vendor agreements with their vendors contain provisions enabling the , the telecom licensee and/or DoT (or its agencies) to inspect the hardware/software, design, development, manufacturing facility and supply chain and subject all software to a security/threat check at any during the supply of telecom equipment by the vendors. Such inspection shall be limited to two per Purchase Order under the vendor agreements. Where the relevant purchase order value is more than INR 50 crores and the duration of such visits exceeds 40 man days per visits, the costs shall be borne by the telecom licensee or can be passed on to the vendors.

The Amendment also lists out the contours of the provisions which may be incorporated into the agreement to be executed between the telecom licensee and the vendor so that the vendor supplied equipment is “safe to connect” in the network. The DoT has stated that they shall make available a template agreement with suggested clauses which the telecom licensees and vendors may use as a base template.

Analysis: This provision appears to be quite onerous and invasive.

- (i) As emphasized above, the likelihood of manufacturing facilities and supply chain stretching across multiple geographies is very high. While the DoT’s mandate of being allowed to inspect all stages and components of a supply chain (including the actual manufacturing facilities) may be agreed contractually with the telecom licensee and the vendor, in spirit this requirement is akin to the DoT assuming extra-territorial jurisdiction which it and the telecom licensee may not be able to enforce. Further, in any event, the local regulatory environment of such geographies may not permit such interference by a foreign regulator which in turn may defeat the implementation of this provision. The Vendor will generally be bound by strict confidentiality provisions with its suppliers and manufacturers and it will be impossible for them to agree to such provisions without committing a breach of their confidentiality obligations.
- (ii) Since the Amendment does not provide any specific instances which would trigger the DoT’s inspection rights, it could be interpreted that the DoT has an unfettered right of inspection irrespective of any actual cause or reason to believe that a security breach has occurred or is threatened.
- (iii) The Amendment does not specify the manner in which the inspection costs are to be borne for purchase orders whose value is less than INR 50 crores or where the inspection duration is less than 40 man days.
- (iv) While the DoT has said that they will make available a template agreement, it is not clear whether the DoT is actually referring to the infamous Security and Business Continuity Agreement Template which was approved and circulated by the DoT on July 28, 2010 (“**Template Agreement**”). This template agreement contained draconian provisions relating to mandatory transfer of technology, intellectual property and escrow. It should also be noted that while the telecom licensees are free to “add, modify or delete” provisions of this template, it is more likely that the telecom licensees will take a safe stand and ensure that all the stringent provisions are included in their agreements with the vendors.

(v) In our view the certification requirements in the Amendment (which we discussed in point 1 above) should suffice and DoT will be able to proceed against the TSP or the Vendor if there is any breach. There is no need for the DoT to intrude into the supply chain and manufacturing facilities.

3. Penalties:

A. *Monetary:* The Amendment has attempted to differentiate between an intentional breach and an inadvertent breach.

(i) Penalty of up to INR 50 crores has been prescribed for any security breach caused due to inadvertent inadequacy ("**Inadvertent Breach**"). The DOT shall set up a five member panel which will determine whether the breach is due to such inadvertent inadequacy and the amount of penalty.

(ii) Penalty of INR 50 crores has been prescribed for any intentional omissions / deliberate vulnerability or deliberate attempt for security breach ("**Intentional Breach**").

B. *Cancellation and Blacklisting:* In addition to the monetary liabilities on the telecom licensees, the DoT may also cancel the license of the telecom licensee as well as blacklist any vendor/supplier of telecom equipment from doing business in India. The DoT has mandated the insertion of a clause to allow DoT, the discretion to blacklist such vendor/supplier in all equipment procurement agreements entered into by the telecom licensee.

Analysis: Although the DoT has attempted a differentiation between an Intentional Breach and an Inadvertent Breach, they have not defined what would be deemed to be an "inadvertent inadequacy". The telecom licensee or the Vendor have not been provided the right to any due process or appeal from the decision of the DoT committee. This is against the principles of natural justice.

The Amendment does not prescribe any procedure which is to be followed in the determination of an Intentional Breach. It is also unclear whether the DoT committee (*which determines events of Inadvertent Breach*) would determine events of Intentional Breach. Further, since Intentional Breach implies a higher degree of culpability on the telecom licensee and/or the Vendor, it is surprising that the DoT has not prescribed any adequate due process to be followed in determining such liability.

The provisions pertaining to blacklisting are perhaps the most draconian. The DoT has assumed absolute power to discredit the vendors/suppliers without following the principles of natural justice. However, it is unclear what "blacklisting" means. Various interpretations could arise, e.g.: (i) the vendor not being able to carry any further business in India (*this could be time bound or perpetual*); (ii) the vendor not being able to supply only those products which caused the security breach; (iii) the vendor not being able to supply products for a particular territory etc.

In our view, apart from clarifying the various ambiguities in the Amendment with respect to intentional and inadvertent breach, the DoT must ensure a transparent due process in determining whether any breach has been committed.

The aim of the Government in implementing the Amendment is to address the concerns of the industry arising out of the Prior Notifications and address security concerns connected with this industry.

Under the provisions of the Prior Notification, the telecom vendors and telecom licensees had in some instances executed documentation in which they had incorporated the provisions of the Prior Notification including the Template Agreement. Since this Template Agreement appears to have been superseded, the stakeholders must re-look at their purchase orders and documentation and determine whether the supersession would automatically nullify their obligations or they would need to enter into new agreement to amend their obligations.

In addition, it should be remembered that at the time when the Prior Notifications were in force, some of the vendors had provided self certification documentation which was basically in the form of back to back obligations with respect to the obligations under the Prior Notifications. The fate of these self certifications is not clear in that whether the supersession of the Prior Notification implies that such self certifications are cancelled or if these certifications continue in a parallel dimension. While the Government has certainly attempted to address the concerns of the industry over security issues, there are certain issues where further dialogue and clarification would be required.

Phone Tapping under the Indian laws

The Indian Telegraph Act, 1885 gives the government the right, for reasons to be recorded in writing, to intercept messages on the occurrence of any public emergency, or in the interest of the public safety, if the government is satisfied that it is necessary or expedient so to do in the interests of the sovereignty and integrity of India, the security of the State, friendly relations with foreign States or public order or for preventing incitement to the commission of an offence. The government is also planning to table a Right to Privacy Bill in Parliament shortly. News reports suggest that this bill will stringently deal with unauthorized interception of telephone calls and unauthorized disclosure of content to the public.

Encryption

It is often difficult to physically secure access to networks. Encryption is a method of sending secured messages or data from one network to another or over networks.

Various telecom licenses, especially ISP Agreements, have a standard clause in the license agreement which states

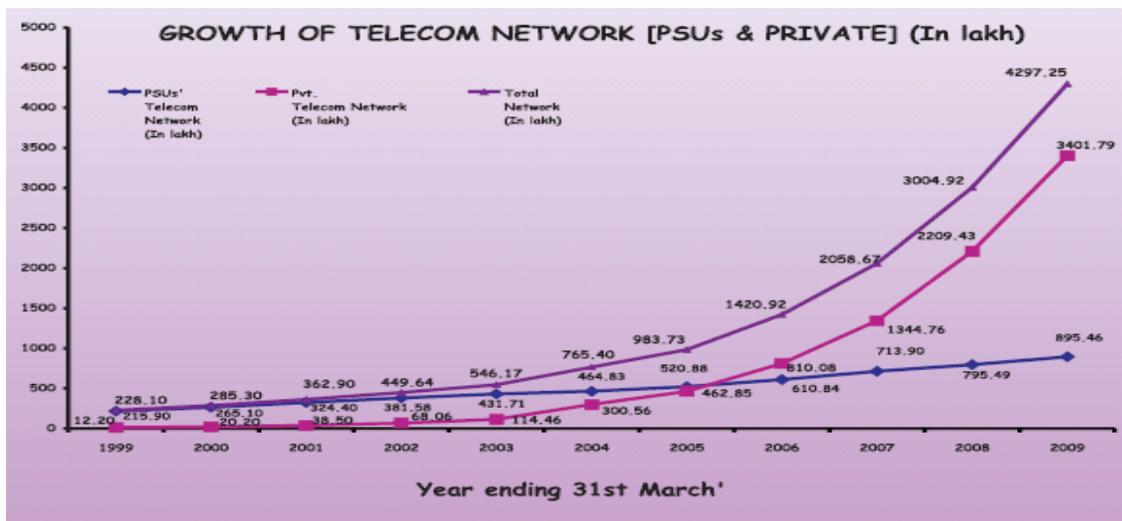
“The Licensee shall ensure that Bulk Encryption is not deployed by ISPs. Further, Individuals/Groups/Organizations are permitted to use encryption up to 40 bit key length in the symmetric key algorithms or its equivalent in other algorithms without obtaining permission from the Licensor. However, if encryption equipments higher than this limit are to be deployed, individuals/groups/organizations shall obtain prior written permission of the Licensor and deposit the decryption key, split into two parts, with the Licensor.”

Though the law permits encryption only up to 40 bits, modern technologies enable much higher encryption. Research in Motion Limited, the makers of BlackBerry services of 256 bits. The Ministry of Home Affairs has been raising concerns over this issue since 2008. The BlackBerry security architecture for enterprise customers is specially designed to exclude the capability for RIM or any third party to read encrypted information under any circumstances

The IT Act also empowers the Government of India to make specific rules relating to the modes or methods of encryption of; however the government has not yet come out with specific guidelines

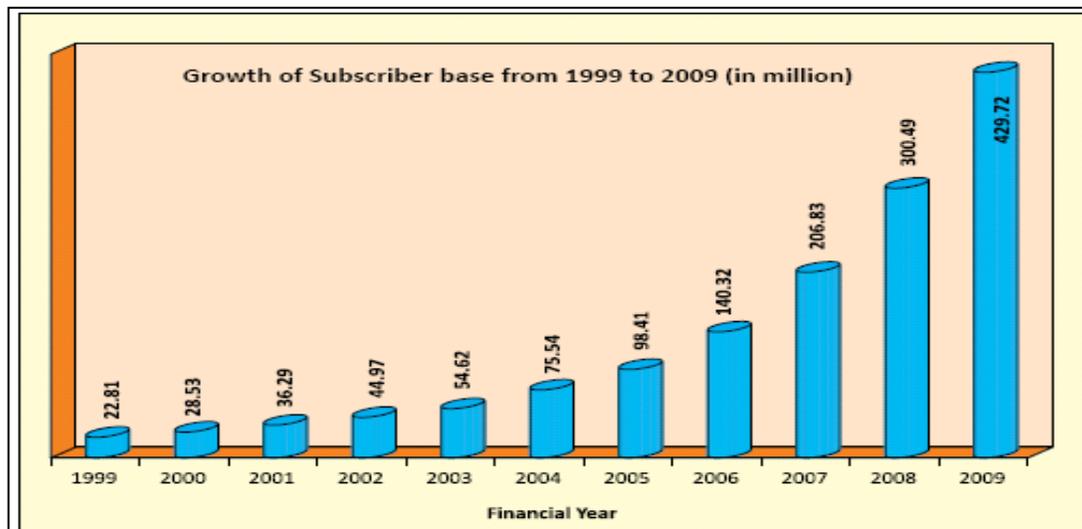
X. OPPORTUNITIES IN THE TELECOMMUNICATIONS INDUSTRY IN INDIA

Today the Indian telecommunications sector with an approximate subscriber base of 562.21 million connections (as of December 2009) is ranked as the second largest network in the world after China³⁵. In a knowledge based economy, it is natural that broadband connectivity directly correlates with the growth of economy, as it helps improve the flow of information across various elements of the economy. As per the Department of Telecommunications Annual Report, 2009-10, the broadband subscribers grew from a meager 0.18 million as on March 2005 to about 7.98 million at the end of December 2009. This report also estimates that that internet and broadband subscribers will increase to 40 million and 20 million, respectively by 2010. The government is now looking forward to the target of 600 million telephone subscribers by the end of the Eleventh Plan.



Source: Department of Telecommunications, Annual Report 2008 – 2009 at page 135.

³⁵Department of Telecommunications- Annual Report 2009 – 2010; <http://www.dot.gov.in/annualreport/2010/final.pdf> last accessed on April 20, 2010



Source: Telecom Regulatory Authority of India: Annual Report 2008 - 2009

Gartner, a global information technology research and advisory firm, has made the following predictions regarding India's telecom Sector³⁶:

- Total mobile services revenue in India is projected to grow at a compound annual growth rate (CAGR) of 12.5 percent from 2009-2013 to exceed US\$30 billion;
- Revenue from data services will significantly contribute to the overall growth of mobile services in India, with a CAGR of 16.8 percent from 2009 to 2013; and
- Growth will be triggered by increased adoption of value-added services, which are relevant to both rural and urban markets.

Various factors are believed to fuel the growth and attractiveness of the Indian telecommunications industry, such as :

- An expanding Indian economy with increased focus on the services sector;
- Favourable demographics with population mix moving favorably towards a younger age profile;
- Rising disposable income of consumers;
- Falling tariffs; and
- Presence of skilled labour pool particularly in the metros and tier 2 cities.

Challenges Faced By The Indian Telecommunications Industry

Even though the Indian telecommunications sector has come a long way since the time of liberalization and promises growth, there are a number of issues which still pose a challenge to its progress. Two critical issues are:

³⁶ Gartner Press Release "Gartner Predicts Indian Mobile Services Market to Reach US\$30 Billion by 2013"; <http://www.gartner.com/it/page.jsp?id=1026812> , last viewed on Jan 22, 2010

- (i) **Declining Average Revenue Per User (“ARPU”)**: The Indian telecommunications sector is a highly competitive sector. A sustained price war in the industry has resulted in declining ARPUs. In the present market conditions, ARPU levels continue to fall at an increasing rate 19.7%. The blended ARPU for Indian industry in March 2009 was Rs 220. As a result, operators are focusing more on data and value added services to meet the revenue deficit caused by fall in revenue by their core business i.e. Voice.³⁷

- (ii) **Lack of Telecom Infrastructure**: Operators have to incur huge capital costs to provide telecommunications services in the rural areas of India. Added to this cost is the logistical challenge posed by the lack of supporting infrastructure such as lack of roads and electricity.

³⁷ <http://voicendata.ciol.com/content/news/109102801.asp>; last accessed on August 24, 2010

XI. CONCLUSION

The growth of India as a knowledge based economy will not be possible without the growth and expansion of the Indian telecommunications and IT sectors. This symbiotic relationship is not lost on the government which has attempted to back the telecommunications sector by fostering an encouraging regulatory scenario. This has not only helped the telecommunications sector to evolve in a dynamic manner but has enabled it to attract foreign investments.

However, it cannot be denied that India still has a lot of ground to cover to achieve a growth rate equal to that of other developed and developing economies. India is among the last countries to access 3G technology at a time many countries have already deployed 4G technologies. As such, the government still has to go a long way to introduce policies, regulations, guidelines, etc in the interest of not only the government or the telecom operators but also in the interest of the end consumers and that too without any delay. However there does not seem to be any reluctance or lethargy on the part of the government to undertake these responsibilities. For instance, while the 3G auctions are still underway, Telecom Regulatory Authority of India floated the pre-consultation paper process for superior 4G technology.

Another area which needs immediate attention is the need for flexibility in the regulatory mechanism. The telecom legislation at present seems to be archaic laws and the need of the industry right now is a mechanism that can continuously adapt itself to the changing needs of the industry.

There is no doubt at all that the coming years are going to be exciting years for the Indian telecom sector.

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