

ISAS Working Paper

No. 7 – Date: 25 January 2006 (All rights reserved)

Institute of South Asian Studies
Hon Sui Sen Memorial Library Building
1 Hon Sui Sen Drive (117588)
Tel: 68746179 Fax: 67767505
Email: isaspt@nus.edu.sg
Website: www.isas.nus.edu.sg



Regulatory Evolution in Indian Telecommunications

By

Rahul Mukherji

*Visiting Research Fellow, Institute of South Asian Studies, NUS, Singapore
Assistant Professor, Centre for Political Studies, JNU, New Delhi*

25 January 2005

1. Introduction: The Problem of Institutional Change in India's Telecom Sector

The transformation of a business environment from a government monopoly dominated by the Department of Telecommunications (DOT) to one with private players and corporatized government owned entities like the Bharat Sanchar Nigam Limited (BSNL) in India is an interesting research puzzle. History has the tendency to perpetuate certain trajectories. The *puzzle* in the Indian telecom story is, how was competition in telecom service provision instituted despite historical advantages for the government's monopoly since colonial times?

There were political and legal bottlenecks, and network economies favoring the status quo. First, the political bottleneck was the possibility of rent seeking in a sector owned by the government. *Economic rent* is a payment to a factor of production exceeding the minimum amount needed to bring forth the quantity of services supplied by that factor. It was possible to extract rent from the consumer in the telecom sector because the consumer had neither exit options nor voice, in the context of the DOT's monopoly.

The Indian customer subsidized an over manned telecom department with greater than 400,000 workers, which was a source of political patronage. In the 1990s, India's productivity index was 14 telephones per employee when the same figure was 40 and 80 for Sri Lanka and Malaysia respectively. On the eve of the 8th Five Year Plan the Communications Minister wanted to generate Rupees 150 billion of the capital needs of the sector by charging it to customers. More than 75% of the assets of the telecom sector had been raised through telephone bills rather than through equity capital. These are just two examples that highlight the excess over opportunity cost that the Indian customer was paying because of the DOT's monopoly. The luxury of economic rents resulting from monopoly over a sector due to political control would not be easy to give up.

Second, there were *legal biases* opposing the birth of competition. There was no provision for an independent regulator who could check the excesses of the telecom department (DOT) at the time when competition was introduced. The Indian Telegraph Act (1885) ensured that the telecom department was policy-maker, service provider and licensor in one. It could bend licensing norms to favor itself. The telecom department used this Act to oppose the birth of a regulator and fought to keep the regulatory powers with itself.

Third, *network externalities* favored the status quo. The telecom department (DOT) was the owner of the entire telecommunications network of the country at the time of liberalization. Smaller operators had no option but to connect with the DOT's network. The DOT often tried to negotiate predatory interconnection agreements, which would raise the calling rates of cell phone operators to unsustainable levels. Second, the DOT held the long distance monopoly for a long time after competition was introduced. This long distance monopoly was used to subsidize local calls. Tariff rebalancing, or reducing the subsidy for a local call was never fully achieved, despite the Telecom Regulatory Authority of India's (TRAI's) best efforts.

Reforming the Telecom Sector

Institutions are formal rules and informal constraints based on principled ideas, which produce a certain kind of behavior. For example, formal rules, informal conventions, or a combination of formal and informal conventions, could secure property rights for private individuals. Institutions in the telecom sector were transformed from ones that were based on the idea that government monopoly was the best way to provide services to one based on the principle that competition would enhance efficiency within the sector. Private investment was considered desirable considering the capital requirements of the sector.

The *regulator* would play referee between private and state capital. It was to generate an even playing field for private capital. Private capital would need regulatory independence to check the excesses of the incumbent arising from its monopoly position. Second, the synergy between the government's dual role, that of policy-maker cum service provider, reinforced the monopoly position of the incumbent, which was invariably the state-owned telecom company in most countries. The three daunting tasks for the regulator would be to secure independence from the telecom department; to ensure that government as policy-maker was not unduly favorable towards its own service providers; and, to push the government as policy-maker to establish itself as a separate entity from its service provision functions. The regulator as an institution would need to strive in the direction of fulfilling the above three functions for creating an even playing field for private capital.

The entry of private capital reflected a political will in favor of private sector participation in India's telecom sector. This occurred despite the telecom department's (DOT's) displeasure. The process was evolutionary and punctuated by crises. Uncertainty and transactions costs characterized the business environment, largely owing to the DOT's unwillingness to part with its politically mandated privileges. This uncertainty discouraged foreign investment to a greater extent than domestic investment. The birth and consolidation of the regulator for reducing transaction costs for private investors needed both policy and legal changes.

The following institutional successes need to be noted. The regulator consolidated its position and facilitated private investment. Private operators served 21% of the direct exchange lines in March 2003 and 39% in March 2004 (Appendix: Figures 1 & 2). Over time, predation by the telecom department (DOT) was replaced by private sector predation, which was equally dangerous for competition. Second, the DOT felt the pinch from competition as the private sector consolidated itself. The Department of Telecom Services was corporatized into the Bharat Sanchar Nigam Limited (BSNL) in 2001. The corporatization of the Department of Telecom Services was a movement in the direction of separating the service provider within the government from the policy-maker. That the DOT took a long time to restructure itself into a corporate entity highlighted the difficulty of overcoming political and bureaucratic interests. Subsequently, the DOT considered the merger of the government owned corporate entity Mahanagar Telephone Nigam Limited (MTNL) serving the metro areas of Delhi and Mumbai with the BSNL. This could allow the larger corporation to compete more effectively with private players.

The period between March 2003 and March 2004 witnessed the cellular revolution in India. Cell phone connections shot from 13 million to 35 million subscriptions. India's teledensity (combining cell and fixed line connections), or the number of telephone lines per hundred people, increased rather sharply from 5.11 in 2002/03 to 7.02 in 2003/04 (Appendix: Figure 6). The New Telecom Policy (NTP) – 1999 had a teledensity target of 7 by 2005. The regulator claimed that India would have a teledensity of 15% by 2006.¹ The ratio of China's mobile subscribers to India's, which was 10 in 2002, was 8 in 2003. India's international calling rates dropped dramatically following the disinvestment of the Videsh Sanchar Nigam Limited (VSNL), and, the ability of private players like Reliance and Bharti to carry long the distance traffic. The TRAI was awarded the Frost Sullivan Asia Pacific Technology Award for 2004 for the Asia Pacific Regulator of the Year.

The majority of India's population living in rural areas, people who were not within the purview of the market, did not benefit substantially from India's telecom revolution. India's rural teledensity was 1.55 in 2003/04, up from 0.93 in 2000/01 (Appendix: Figure 6). This was surprising because many telecom initiatives such as the wireless – in – local – loop (WLL) technology were introduced in the name of serving the rural poor. While geographical areas serving the rich, the middle class, and, the export oriented service sector, benefited from competition and consequent consumer choice, those regions where markets were not able to serve profitably, suffered.

There was one silver lining in this saga of depressed rural teledensity. There were reports of the government owned Bharat Sanchar's (BSNL) success in securing scores of pre-paid cell phone customers in rural areas using their gigantic network. The plans of the Universal Service Obligation (USO) Fund, situated within the telecom department were yet to materialize. The telecom department awarded tenders to BSNL and to Reliance for serving rural areas using a subsidy from the universal service fund. This fund was collected as a 5% tax on revenue from operators serving commercially viable areas. If the urban centric telecom revolution failed to get to rural India, the information divide would have deleterious consequences for India's development. The regulator needed to pay greater attention towards the non-fulfillment of rural obligations.

2. The Preconditions for Private Investment

This section argues that digital technology and the interests of the service sector in advanced industrialized countries produced international principles favoring telecom demonopolization. India was aware of both the power of digital technology and telecommunications. The power of new technology to usher competition in telecom services, was appreciated and pushed by the Prime Minister's Office (PMO), and often with the help of the Department of Electronics (DOE), which functioned directly under the PMO. Policies such as the corporatization of the telecom department (DOT), encouraging the private manufacture of telecom equipment, and, enhancing the competitiveness of the information technology (IT) industry, were due

¹ India's regulatory institution is called the Telecom Regulatory Authority of India or simply TRAI. According to newspaper reports India's teledensity was on a growth path and the same figure was approximately 8.80 in February 2005.

to the resolve of the Prime Minister's Office (PMO), often in opposition to the interests of the telecom department (DOT).

Technology, Interests and Policy Ideas favoring Competition

Digital *technology* drove ideas favoring competition both at the global level and in India. Advances in electronics produced a new breed of telecom equipment manufacturers producing digital switches and handsets. They would stand to lose from government monopolies, which had a high tolerance for the inefficient equipment manufacturers. Producers of telecom equipment in the US and Japan lobbied for promoting competition in the telecom equipment market. Demonopolization of telecom service delivery was one way of ensuring that monopolies could no longer depend on inefficient telecom equipment. For example, Bryan Carsberg, the Director General of the British regulatory agency Oftel once remarked that a corporatized British Telecom could not afford to buy only British equipment when other service providers could enhance their efficiency through imported ones.

As information technology became cost-effective, service companies in the US and UK became significant consumers of telecommunications services. Governments, especially those in the US and UK were pushed by service companies. Aided by telecommunications and information technology, outsourcing, customization, customer relationship management and coordination of a company's multinational activities using information technology were transforming the way business was conducted. These companies were using telecommunications far in excess of households and were a small and well-organized group of consumers. They argued that telecom demonopolization was a dire necessity for efficiency, as telecom services formed a substantial proportion of the costs of a company's operations. These corporations formed a powerful lobby favoring telecom service liberalization. The interest of the service companies in promoting telecom demonopolization was reflected in the GATT negotiations leading to the birth World Trade Organization (WTO). The Annex on Telecommunications within the WTO suggested that telecommunications was the most successful area of service trade liberalization.

Political will in the PM's Office (PMO)

India was following these technology driven changes, which made private provision of telecom services economic. The Prime Minister's Office (PMO) got involved with getting India along the electronics revolution route. The electronics revolution led to the setting up of the Department of Electronics (DOE) in India in 1973, directly under the Prime Minister's Office (PMO). The electronics department under the Prime Minister Indira Gandhi confronted the Ministry of Posts and Telegraphs in the early 1980's, urging it to pay greater attention to telecommunications modernization. The telecom bureaucracy resisted these moves and preferred the status quo. The electronics department (DOE), on the other hand, had expressed views about the need for modernizing the Ministry of Posts and Telegraphs (MPT) in the early 1980s. It favored advanced switch technology and user equipment. The posts and telegraphs department, on the other hand, viewed electronics as elitist. Jairam Ramesh had argued in favor of the electronics department's view, and suggested the setting up of a Telecom Board, which would draw lessons from both sides of the dispute.

Telecoms were given priority over posts during the early 1980s. In the past, postal services were considered necessary but telecommunications was viewed as being elitist. This began to change in the 1980s. First, the Sarin Committee (1981) had noted the undue emphasis on Posts within the Ministry of Posts and Telegraphs. It recommended the separation of posts from telegraphs as separate departments within the Ministry of Communications. It had expressed the need for shifting the Indian Telephone Industries from the Ministry of Industry to the Ministry of Posts and Telegraphs, and, urged the importation of 100,000 instruments. Second, the Plan outlay for telecommunications rose from 2.48% in the 6th Plan (1980-1985) to 5% in the 7th plan (1985-1990). Planners began viewing telecommunications as an important part of India's growth strategy.

The office of the Prime Minister under Rajiv Gandhi was the force behind New Electronics Policy of 1984, and, the setting up of the Centre for the Development of Telematics (C-DOT). The C-DOT was given funds and autonomy from the telecom department (DOT), and, was able to attract the best talent from the Indian Institute's of Technology. Private production of C-DOT switches and other end-use equipment were allowed. The C-DOT's Rural Automatic Exchange Switches (RAX) served over 60% of rural India at the time of writing this paper. By 1989, the Private Automatic Branch Exchange (EPABX) was so successful that 70% of the local manufacturers had licensing arrangements with the C-DOT instead of foreign technology sources. The successful manufacture of the RAX switch by private players earned C-DOT the ill will of telecom department (DOT). The public sector entity, the Telecommunications Research Centre, which was administered directly by the telecom department, could not match the C-DOT's excellence in innovations.

Second, the Department of Telecommunications (DOT) was separated from the Department of Posts within the Ministry of Communications (MOC) in 1985. Third, the government created a corporatized Mahanagar Telephone Nigam Limited (MTNL) to serve the metropolitan areas of Delhi and Mumbai (Bombay) on April 1, 1986. Before the creation of the MTNL, the DOT within the Ministry of Communications was both service provider and policy-maker. No attempt had earlier been made within the telecom department to create public sector units, which would enjoy a degree of autonomy from the department. *This was India's first attempt at separating the telecommunications service provider from the policy-maker.*

Turning parts of a government department into publicly owned corporations posed severe political challenges. Rajiv Gandhi's office wanted more corporations like the MTNL to serve metropolitan areas other than Delhi and Mumbai (Bombay). The opposition to MTNL within the telecom department ensured that the idea of creating six other corporatized entities serving metropolitan areas other than Delhi and Mumbai had to be given up.

Third, the Videsh Sanchar Nigam Limited (VSNL) was formed out of a government department (Overseas Communications Service) on April 1 1986 and given autonomy to run like a corporation. It was owned entirely by the government (till February 2002). VSNL was India's international long distance carrier. Fourth, Rajiv Gandhi set up a Telecom Commission with extraordinary powers akin to the Atomic Energy Commission. It could take quick decisions without Ministerial

interference, was not subject to the ordinary policy of government transfers, and, was set up to be an independent policy arm of the telecom department.

Corporatization, MTNL style, would be politically tough to endure. That the corporatized MTNL serving the metropolitan areas of Delhi and Mumbai (Bombay) would become financially more viable than the non-corporatized parts of the telecom department serving the rest of India, was fiercely resisted by the workers of the telecom department. The 380,000 workers of the telecom department opposed the MTNL's decision to give a performance bonus of Rupees 100/- to its 70,000 employees in 1990. The telecom department recommended to the Communications Minister that the MTNL be merged with the DOT so that such discrimination regarding productivity, performance and rewards would not have to be confronted in the future.

Prime Minister Chandrashekar set up the Telecom Restructuring Committee better known as the Athreya Committee in 1990, to get an independent view on restructuring the telecom department (DOT). The PM's office (PMO) had first approached Citibank for advice. Citibank had suggested that the PMO turn to M B Athreya, a scholar with a PhD from Harvard Business School, with teaching and consulting experience as a Professor at the Indian Institute of Management in Kolkata (Calcutta).

The Telecom Restructuring Committee report was available in March 1991, a couple of months before India went for conditional lending to the IMF in June 1991. It reflected India's accumulated wisdom on telecom restructuring rather than subservience to donor advice. The Athreya Committee (TRC) opined that telecommunications in India needed three kinds of institutions. It needed policy-making, regulatory and field oriented institutions. The Telecom Commission could perform the policy role, an independent regulator was needed to promote competition, and, the field role within the government could be played by the DOT. The field role was the service-provider's role. It suggested corporatization of the telecom department's service arm and sequenced liberalization of cellular and value-added services, followed by the liberalization of basic services, which were the local, long distance and international operations of the telecom department.

The Athreya Report made three significant contributions to thinking about demonopolization in the telecom sector. It was a product of the Prime Minister's Office's (PMO) urge to move away from the telecom department's view on telecom demonopolization. First, it noted that the sector needed private capital, which could be allowed first in areas where the opposition of the DOT was likely to be the least. Second, it pointed out that the service provider and the policy-maker roles needed to be separated. Third, it argued the case for a regulator, which would function as a referee to even the operational circumstances in favor of private capital, in a sector where the regulatory and network advantages were overwhelmingly with state capital. It was opposed by the three members of the telecom department but had the support of the Planning Commission, the Finance Ministry, the Department of Electronics, and the Ministry of Industry.

N Vittal as Secretary to the Department of Electronics (DOE), which was directly under the Prime Minister's Office (PMO), played an important role in creating

high-speed connectivity for the software sector, outside the purview of the telecom department. At that time, Texas Instruments was paying Rupees 4 million per year for using its own satellite based earth station. Such regulation was inimical for the growth of India's software and services sector. Vittal arranged for Rupees 120 million to be diverted from the semiconductor project to create earth stations in Mohali, Bangalore, Noida, Hyderabad, Trivandrum, Bhuvaneshwar and Gandhinagar, providing connectivity at 64 kb / second. He negotiated with public sector corporations such as the Oil and Natural Gas Commission, the Steel Authority of India Limited, and, the Railways, for the use of their telecom facilities and fiber optic network. The user charges of the Software Technology Parks made them financially self-sustaining. The software technology parks competed favorably with India's long distance carrier, the VSNL. The increased speed and bandwidth at lower cost provided by the technology parks was one reason for the growth of India's software and services exports in the 1990s.

The political will favoring prioritization of telecommunications modernization, and, for separating the policy-making functions from the service-provision functions within the telecom department (DOT), had arrived before the balance of payments crisis of 1991. This policy orientation was based on a view of technological development in electronics, and, the possibilities that telecommunications provided for India's development. The political will radiating from the Prime Minister's Office (PMO), would play an important role in pushing telecom demonopolization, despite DOT's resistance. The important tasks that lay ahead were the creation of regulatory institutions, and, the further separation of the policy-making and service-provision roles of the DOT, which would inhibit the initiation of private sector operations.

3. Political Will, Crises and Private Participation

This section will describe the critical role played by the PM's office (PMO) during Narasimha Rao and Atal B Vajpayee's tenure as Prime Ministers. It highlights the need for political will favoring competition at the level of the PMO, for sorting out problems, which obstructed the birth of efficient telecom service provision in India. India had embraced global economic integration as a route to development, and, telecommunications had to play an important role in giving India the much-needed edge in global competition. The previous section has argued that the need for efficient telecom infrastructure was pushed by the PM's office before the balance of payments crisis. It preceded the birth of a robust information technology sector in India. Both may have facilitated the reforms but technocratic ideas were driven by first and foremost by an understanding within the PMO about the importance electronics and telecommunications, and, its role in India's development.

The conflicts between the Department of Electronics (DOE) and the Department of Telecommunications (DOT) persisted beyond the balance of payments crisis of 1991. It took three years for Narasimha Rao's PMO to get the secretary of the electronics department, N Vittal, to be appointed as the telecom secretary in 1993. Vittal designed the National Telecom Policy (NTP) of 1994, which was a harbinger for telecom reforms. The policy was announced despite very explicit opposition from the telecom department.

The DOE was given ministerial status and renamed the Ministry of Information Technology in 1998. The Ministry of Information Technology was subsequently brought under the Ministry of Communications and Information Technology in 2001. The Department of Electronics component of Ministry of Communications was re-christened as the Department of Information Technology, which came under the Ministry of Communications and Information Technology.² This was acknowledgment at the policy level of the relationship between telecommunications and electronics. Electronics had been considered important for telecommunications within the Prime Minister's Office but it had taken much inter-bureaucratic wrangling before it could get formally associated with communications. Even though turf battles between the departments of information technology and telecommunications remain, the coordination at the Ministerial level has improved. One minister looks after posts, telecommunications and information technology.

1991 – 1994: The National Telecom Policy

The DOT gave up rents due to its monopoly position only after giving a good fight to the Prime Minister's Office (PMO). It successfully resisted pro-reform initiatives between 1991 and 1993. This was the period when reforms in trade, finance and industry were carried out with great urgency, aided by the balance of payments crisis. The need for private investment in infrastructure areas like power and telecommunications were being expressed openly. The DOT made a signal contribution by thwarting telecom reforms between 1991 and 1993.

DOT had argued that privatization of government assets would be expensive for the exchequer, despite the innovative financing options suggested by Athreya. India could have permitted private investment into the sector after strengthening the telecom department's operations along the lines of the British Telecom experience. British Telecom was first made fit for competition before private investment was invited into Britain's telecom sector.

The only concession made to private investment by the DOT was the invitation of bids in 1992 for cellular mobile licenses using GSM technology in the metropolitan areas of Mumbai (Bombay), Delhi, Kolkata (Calcutta) and Chennai (Madras). This business was considered both elitist and unprofitable, and, worth making a concession on. The Telecom Restructuring Committee had predicted in 1990 that the DOT would first let go these value added services, which it considered both elitist and unprofitable.

N Vittal, the pro-reform secretary of the electronics department and the father of the software technology parks, was appointed telecom secretary in 1993. The PM's office is reported to have played an important role in overcoming the resistance to this appointment from the telecom department. Despite the short tenure, Vittal was able to provide a blueprint for reforms in the National Telecom Policy (NTP) of 1994.

The political economy of the NTP of 1994 is revealing. The telecom commission had four meetings in December 1993 after a department wide

² The Ministry of Communications and Information Technology has three departments. These are the Department of Telecommunications, the Department of Information Technology and the Department of Posts.

consultation. Corporatization was not accepted and the foreign direct investment limit was kept at 49% rather than the suggested 51%. The single most important achievement of the NTP of 1994 was the opening up of basic services to private operators.

The concessions made by DOT of allowing the NTP of 1994 were more symbolic than real. First, allowing private operators fixed basic services but keeping the long distance monopoly with the DOT would kill private initiative in this sector. It was well known that long distance services were used by the DOT to subsidize its local services, which were below cost. This option was not available to private operators. Second, the NTP of 1994 failed to suggest the need for a regulator. Absence of an impartial regulator would aid the predatory activities of the telecom department. The DOT would be in the enviable position of being policy-maker, adjudicator and service provider in the area of its operations. The NTP of 1994 made thus provided for an uncertain and litigious business environment. Third, the recommendation to corporatize the DOT could have toughened it for competition from the private sector. This opportunity too was missed. A policy statement with little substance reflected in part the political opposition to change from within the DOT.

1994 - 1997: Licensing Conflicts and Investment Pessimism

The NTP of 1994 allowed private investment in basic telephone services for the first time in India. The absence of a powerful regulator, and, the policy-maker – service-provider syndrome of the DOT made it tough for private investors compete with the DOT. The DOT tried to keep all the privileges for itself and created a business environment characterized by rent seeking and uncertainty, which discouraged investment. The crisis of investment owing to the lack of regulation gave birth to a regulator in 1997. The Telecom Regulatory Authority of India (TRAI) was finally established in 1997.

The licensing process was renewed soon after the NTP of 1994. The first round of the bidding process took place without the articulation of transparent bidding rules. Metro licenses had been awarded in 1992. At this time, the main criteria were operational experience, financial viability, and, the availability of an experienced foreign partner. There was a fixed and reasonable license-fee for the private operators. The list of successful bidders, however, was different from the list of the top two bidders in each of the metros. This controversial announcement led to litigation in the High Court and the Supreme Court. The controversy was resolved in October 1994 and cellular services were launched in the metros in the last quarter of 1995.

The second round of the bidding process ensued in early 1995 and was completed by the end of the year. In the second round, the weights given to the different parameters were clarified by the DOT after much persistence and efforts by private players. The DOT defined the rules in a way that would lead to a commitment for very high license fees. 72% of the weight in the licensing procedure was given to the size of the bid. The size of the bid and the payment schedule played an inordinately important role in the deciding who would get a license. In this system of auctioning licenses, offers were made to the second highest bidder to match the levy and the payment schedule of the highest bidder. Foreign equity participation was

limited to 49%. The license fee had to be paid within a 10-year schedule. In the new set up, the country was divided into A (example: Maharashtra & Gujrat), B (example: Uttar Pradesh & West Bengal), and C (example: Bihar & Orissa) circles, depending on the level of business in each circle.

The system of auctioning licenses was beneficial for the DOT because a high license fee commitment was like a tax on private operators that the DOT did not have to pay. Moreover, it was a heavy tax because the private operators had the incentive to outbid each other if they wanted to get licenses. Two operators were allowed in each circle. The second highest bidder had to match the highest bidder in order to obtain the second license in the circle concerned. Second, the licensing period at 10 years was a very short duration by international standards. The sum total of the license fee offered by the highest bidders in basic services was Rupees 1.15 trillion when the DOT's total assets were worth Rupees 400 billion.

Second, allowing private entry into local services for private cellular and fixed operators before long distance services, discouraged investment in the telecom sector. It was well known to investors that long distance calls were used by the DOT to subsidize their local calls and rentals. While this opportunity would not be available to private operators, they would still have to operate in the low profit section namely the basic fixed domestic services. This was not the regular practice in other countries.

The DOT did not award a license to the highest bidder in 9 circles because it was not considered a reasonable levy. The criterion of a reasonable levy, which was subsequently called the minimum reserve price, was not mentioned before the bidding process was initiated. Under these conditions, eight of the 9 circles failed to receive any bids and there was a clear case of lack of investor enthusiasm. At the end of the bidding process, only six companies offered to take licenses in a few states. International and domestic investors, who had shown interest, were discouraged by the lack of rules and transparency in the system.

The Struggle for Regulatory Powers - I

The need for a regulator had become clear by 1996. Without a regulator to care for the interests of investors, DOT as policy-maker cum service provider would have the incentive to thwart every chance of profitability of the private investor. It was politically very difficult to produce a legal document supporting the creation of a regulator in the telecom sector.

The Cabinet had taken a decision in May 1995 to set up a regulator. The Congress Party had delayed the implementation of this Cabinet decision. Two public interest suits filed in the Supreme Court challenging privatization without regulation were dismissed in 1996 after assurances from the government that such an authority would be formed through a Presidential ordinance. After much debate, Parliament finally passed the Telecom Regulatory Authority of India (TRAI) Bill in February 1997.

The regulator (TRAI) was born with reform-minded members but an infirm constitutional mandate. The telecom department as policy-maker cum service-provider would systematically try to work policy to the advantage of its own service

arm, to the detriment of private capital. The weak regulatory mandate given to the TRAI would make it impossible for the regulator to check the excesses of the telecom department.

Four salient factors prevented the regulator (TRAI) from curbing the DOT's predatory behavior. *First*, the TRAI did not have jurisdiction over the Monopolies and Restrictive Trade Practices Act (1969), which governed DOT's anti-competitive behavior. *Second*, while the TRAI could resolve disputes between service-providers, it could not intervene in licensor – service provider disputes. Disputes between the DOT as a policy-maker with licensing powers, and service providers, were beyond the scope of the TRAI. *Third*, the Indian Telegraph Act (ITA) of 1885 gave exclusive powers to the DOT for issuing and canceling licenses and for allocating the radio spectrum. The ITA of 1885 was appropriate for an era of national monopolies but it was inappropriate at a time when the government was only one of the service-providers. USA and UK had given licensing responsibilities to the regulator, realizing the conflict of interest that arose when licensor was also service provider. *Fourth*, the TRAI could clarify technical aspects of a bid. But this was a power without much consequence after the bidding process had been concluded. This power would have helped if the TRAI had been born in 1992 when the first bidding was initiated.

The regulator (TRAI) could settle disputes related to interconnection agreements among service providers. However, the TRAI could not be consulted at the time when the agreement would be negotiated. The market power of the telecom department (DOT) gave it much power to settle agreements in its favor. The DOT owned most of India's telecom network. Therefore, private operators would need the DOT's network to a much greater extent than the DOT's need to connect to any one private operator's network. Private operators agreed to asymmetrical interconnection agreements only after it was clarified that such agreements would be subject to the TRAI's adjudication retroactively. The TRAI recorded its first success when it was able to reverse a DOT decision to increase the fixed to cellular phone calls in non-metro areas from Rupees 0.46 to Rupees 10. The consequent rise in cellular tariffs had resulted in a drastic fall in subscribers.

TRAI's constitutional infirmity became evident by 1998. Unlike the British and American regulators, TRAI did not have licensing powers. It had merely recommendatory powers to advise the DOT on licensing matters. Neither could it settle licensee-licensor disputes. The DOT deployed its licensing powers to help its service arm, the MTNL, serving the metropolitan areas of Delhi and Mumbai (Bombay), to get into the cellular services market.

The licensing regime had provided for two private cell phone operators in every service area. The DOT was not to compete in the cellular business. The entry of MTNL into the fray without consulting the TRAI affected the revenue expectations of the licensed service providers in a manner that they had not expected. *Such unilateralism of the DOT was possible because it was policy-maker and service provider at the same time.* It increased the uncertainty and transactions costs of the private operators in the cellular business. Had the regulator been empowered with licensing powers, it could have determined the conditions of MTNL's entry into the cellular area without jeopardizing the interest of the cellular companies.

Cellular operators urged that the service provider function of the MTNL should require its treatment at par with other private service providers. MTNL should therefore have paid a license fee to even the conditions for private operators. Bharti Cellular and Sterling Cellular challenged the DOT's decision to enter the cell phone market without seeking the recommendation of the TRAI. The two-member TRAI bench upheld the contention that it was necessary for the telecom department to seek TRAI's recommendation. The TRAI was concerned that the auction-based bidding process had made demands on cell phone companies that were making them financially unsustainable. The MTNL's entry under such conditions would kill the private sector.

The Prime Minister's Office (PMO) waited at this stage. At this point the PMO had two choices. Either it could support the regulator and cut the DOT down to size by suggesting that the DOT needed to consult the TRAI. Or, it could keep tolerating DOT predation, which was inimical for private investment. When the PMO could not take decisive action, the Delhi High Court finally resolved the matter in 1998. The decision confirmed the regulator's infirm mandate.

Following the letter of the law, the Usha Mehra judgment upheld the claim that there was no need for the DOT to seek the advice of TRAI, if one were to interpret the Indian Telegraph Act (ITA) of 1885 alongside the TRAI Act of 1997. The Indian Telegraph Amendment Bill (1995), which was introduced in 1995 with the possibility of reducing DOT's licensing powers, could not be legislated into law. Therefore the ITA of 1885 had rested the licensing powers with the government rather than the regulator. The following salient points in the judgment showed that DOT as policy-maker had the constitutional right to favor its service-provider arm, the MTNL. There was a legal bias in favor of the status quo, which the 1997 TRAI legislation had not been able to correct.

In the Union of India versus TRAI, the TRAI counsel had made the following arguments. It had stressed the fact that government needed to take the recommendation of the TRAI before coming to any conclusion. Second, it had argued that the TRAI Act of 1997 should have been read in consonance with the ITA of 1885. Taken together they should mean to imply that the TRAI had recommending powers, which it was not allowed to exercise. Last but not least, India's commitments within the WTO necessitated such an interpretation.

Justice Usha Mehra refuted all these claims and went with the Union of India's position. She spent considerable effort in comprehending the recommendatory role of the regulator (TRAI). First, it was opined that the TRAI could advise but not dictate. It could neither grant nor revoke a license. Studying section 11 (1), clauses (a), (b), (c) and (f), she opined that there were no procedural pre-requisites for the exercise of licensing power by the DOT. Like in the case of the Union Public Service Commission, the TRAI's advice was not binding on the government. Second, the WTO consideration was irrelevant as this was not a WTO Dispute Settlement Panel. The government's compliance with WTO discipline did not imply its surrender of licensing power. Last but not the least, it was opined that the authority could adjudicate between service-providers and customers, or, between service providers. It could also set tariffs. But the authority did not have the power to intervene in

licensing decisions. Such a power the Justice thought would directly conflict sections 4 and 8 of the Information Technology Act (ITA, 1885).

This was a major regulatory crisis due to the ambivalent legal nature of the TRAI Act of 1997. The regulator was supposed to even the playing field for service providers. One of the ways that the regulator could achieve this was by overseeing that the licensing powers of the DOT were not used to kill competition by favoring the government's service provision arm. This was precisely the kind of anti-competitive behavior that had marred the licensing process before the birth of the TRAI. The TRAI, even after its inception, and despite its best efforts, was powerless to intervene in the DOT's anti-competitive behavior.

The Struggle for Regulatory Powers II - The New Telecom Policy (NTP) of 1999 and The TRAI Act (2000)

Telecom policy reform favoring private investors beyond 1998 had three salient sources. The New Telecom Policy (NTP) of 1999 and the TRAI Act (2000) are considered to be momentous policy and legal changes favoring competition, where the PMO's initiative was critical. *First*, DOT predation had made private investment uneconomic and a *crisis of private investment* had matured. This crisis had been cooking since the early days of the licensing process, when the auction method had generated bids that were not economic in relation to the Indian market. The PMO decided that it had to intervene to save private investment in the sector. It also responded to a rare unity displayed by the telecom industry.

The *second important reason* for the PMO's involvement was that efficient service provision was the key to promoting *India's information technology (IT) exports*. The IT sector had grown to become an important export opportunity and the NASSCOM had articulated its interests well.

The *resolve of the PMO* galvanized in a manner that exemplified how the Indian state, if it was willing, could initiate policy and legal changes that encouraged private investment by initiating structural changes within the DOT. The payment regime for private investors was made less severe. The TRAI's powers were enhanced. And, pro-competition elements in the policy led to the disinvestment and corporatization of government assets. These measures helped to reduce tariffs for the consumer.

Had corporatization of government assets and a level playing field discouraging rent-seeking and promoting efficiency within government utilities come earlier, the barriers to private competition may have been less. *In the case of India's plural polity, where gradualism is key to the success of reforms, the sector needed political will, a powerful industrial sector consuming the services, and a crisis of investment, for promoting an investment friendly regulatory framework.*

The telecom department (DOT) was aware of the mess that inappropriately regulated privatization had created. It commissioned two studies, one to the Bureau of Industrial Costs and Prices (BICP, November 1998) and another to the Industrial Credit and Investment Corporation of India Limited (ICICI, April 1998) to assess the viability of cellular projects in India.

The ICICI found that the metros of Delhi and Mumbai were doing better business than expected (52% of the country's business), and, all the eight projects in the metros had achieved financial closure. The majority of the projects in the states, however, which were divided into A, B and C circles, could not achieve financial closure. The average usage per subscriber, on the other hand, was going down. Subscriber revenues were less than projected even in the most business friendly metros like Mumbai where the subscriber base was going up but the per capita usage was coming down. About 54% of the subscribers in the metros generated revenues inadequate to cover the license fees per month per subscriber.

The following financial picture was inferred from the state of business mentioned above. If one subtracted from the earnings,³ the license fees and the interest payments, one got a picture of the cash losses of the firms. The ICICI report concluded that the earnings were inadequate because of the onerous these license fees commitment. The debt service coverage ratio, which was the ratio of funds available for servicing debts to the total debt-servicing requirement, was found to be less than 1. The ICICI report opined that given the fact the operators were not performing below international standards and most of the world's telecom players had betted on India, industrial sickness in the telecom sector owing to the present license-fee regime, would lead investors to conclude that India's telecom privatization initiative had failed. This would render the NTP of 1994 redundant.

The study by the Bureau of Industrial Costs and Prices (BICP) noted that while subscribers in Delhi and Mumbai had surged beyond expectations, 15% - 32% of the subscribers used the network sparingly, contributing to very little revenue. Second, it mentioned that project implementation problems in the circles, that is the time taken to get clearances, slowed down the process of generating revenues. Metro licensees could get their business started within a year but the circle licensees took anywhere between 452 and 740 days. Project delays increased the losses of the sector. By March 31, 1998 the losses of the metros ranged from Rupees 660 million to Rupees 1.17 billion. The service circle designated as "A" lost anywhere between Rupees 1.16 billion and Rupees 5.28 billion. The same figures for circle "B" was Rupees 380 million – Rupees 3.52 billion, and, figures for circle "C" were not available. Third, the total license fee paid up to March 31, 1998 was Rupees 34.34 billion and the amount outstanding was Rupees 8.81 billion. The companies were unable to fulfill the license fee commitment despite running losses.

The BICP report concurred with the ICICI report suggesting that the major reason for the cumulative losses of private investors was the license fee commitment. The internal rates of return on investment were disastrously very low for this reason.

The financial crisis of the telecom sector coincided with a period when the PM's office (PMO) became proactively involved with making India a major information technology (IT) and service exporter. The Bharatiya Janata Party's (BJP) manifesto had a chapter on the need for stressing the development of information technology. This was a unique policy statement issued by a political party. The PMO did not waste time to set up the National Task Force on IT (NTFIT) and Software Development, which was to give voice to the sector's export driven commercial

³ These were earnings before interest, depreciation and amortization (EBIDA).

interests in May 1998. The PM's IT Task Force was designed to hear the IT industry's export oriented needs, and realize them through inter-ministerial coordination. Such strategic maneuvers by the Indian state seemed possible when the PMO got involved directly and saw to it that the interests on any one particular bureaucracy did not capture policy.

The Basic Background Report of the Prime Minister's IT Task Force was prepared in June 1998. This suggested that the synergy between the IT industry interests and the political will emanating from the PM's office (PMO) pushed the telecom demonopolization process. It argued that India's commitment to the WTO necessitated that the domestic long distance service be liberalized by 1999 and the international long distance service by 2004. The report had suggested that private Internet service providers (ISPs) should be free to choose between the VSNL's international gateway and any other gateway.

Policy was responsive to the needs of India's IT sector. The domestic long distance service was liberalized in 2000 and the international long distance carrier (VSNL) was sold to the Tata's two years ahead of schedule in February 2002. The Task Force had argued for ending the DOT's monopoly over Internet service provision. In sharp contrast to the licensing policy guided by the telecom department governing basic and cellular licenses, the Internet Service Provider (ISP) policy of 1998 had a one Rupee license fee commitment and allowed for an unlimited number of licenses. The licenses could be valid for a city, state, a number of states, or the entire country.

Three factors moving the reform process had emerged by 1998. The crisis for private investors in the telecom sector described above had become real. Second, the PMO was resolved to see that private initiative and efficiency would drive the development of this sector despite the telecom department's historic opposition. This resolve was evident from the speed with which the PMO had responded to the recommendations National Task Force on Information Technology and Software Development described above.

Third, all the telecom services operators were resolved to face this crisis as one. The Confederation of Indian Industry's (CII) National Committee on Communications in consultations with the Association of Basic Operators (ABTO), the Cellular Operators Association of India (COAI), the Indian Paging Service Operators Association (IPSA), the Association of V-sat Service Providers, and the E-mail and Internet Service Providers Association suggested amendments to the TRAI Act of 1997. Working with the Federation of Indian Chambers of Commerce and Industry (FICCI) and the COAI, the Central Vigilance Commissioner N Vittal wrote a document concerning what ailed the sector. This was a rare situation when the sector's interests were united in moving the policy in the direction of greater responsiveness towards private investment.

Vittal, as Central Vigilance Commissioner in November 1998 wrote a memo to the Director General of the cellular operators association (COAI) to guide a partnership between the Federation of Indian Chambers of Commerce and Industry (FICCI) and the COAI for pushing towards a new telecom policy. He pointed out that the PMO and finance ministry were the force behind the liberalization process. The

DOT would not support a loss of its privileges. The uneven playing field was due to the VSNL's long distance monopoly, no corporate tax or license fee for the DOT, and, a tariff fixation policy where the tariff for the private operators had to be less than the DOT's tariff. He raised the issue of low rates of return on private investment due to the above disadvantages, the need for telecom infrastructure for the IT sector, and, the need for private investment to promote these objectives. Policy change would need political will, appropriate regulation, and market orientation favoring investment. He stressed the need for a universal service fund, which needed to cater to India's obligations in the rural sector. Consultation with financial organizations would be essential for evolving a new policy.

The CII National Committee on Communications in consultation with the smaller telecom related organizations suggested amendments to the TRAI Act (1997) in 1998. It recommended that the loophole that led to the Usha Mehra judgment be fixed. It urged that the licensor needed to take into account the recommendations of the regulator (TRAI) before issuing a license. The power to recommend was of little use if it was not mandatory. Second, the TRAI should be allowed to pass interim orders to provide relief that may be absolutely essential for financial reasons. Third, the TRAI needed to be vested with powers to deal with licensor-licensee disputes. Such disputes could be settled by a bench, which could include the TRAI chair and one other member.

The PMO used the National Task Force on Information Technology and Software Development model to set up a twelve-member group on telecommunications (GOT). The New Telecom Policy (March 1999), which soon emerged from the GOT, was a landmark event favoring investment in the telecom sector. Foreign investment in the sector rose from Rupees 45 billion in 2000 to nearly Rupees 85 billion in 2001, when the same figure for 1999 was approximately Rupees 42 billion (Appendix: figure 7). There were a number of benefits for private investors. Cell phone operators were bailed out through a migration to a one-time license fee plus revenue share regime. The license fee was now to be based on the amount of revenues rather than an abstract figure quoted in the bidding process without adequate knowledge of the business potential. The national long distance service was to be liberalized by January 1, 2000. The international long distance carrier (VSNL) was to attract a private buyer by 2004.⁴

Second, the policy-maker-licenser-service-provider syndrome was to be treated by separating the policy role of the DOT from its service-provision role. The Department of Telecom Services was to be corporatized and made autonomous off the DOT. This was a step in the direction of separating the policy-maker from the service provider. The policy-maker and service provider differentiation would reduce the rent-seeking ability of the department and would make it more efficient. In the UK, British Telecom's corporatization had come at an early stage of the deregulation process. The Expert Group on Infrastructure headed by Rakesh Mohan had made a recommendation to this effect in 1994. It had taken five years for a policy formulation to the same effect.

⁴ About 45% of the VSNL equity was subsequently sold to the Tata group of industries in 2002, two years ahead of time.

Third, the DOT as policy-maker cum service-provider problem was to be sorted out by strengthening the TRAI. The TRAI's recommendatory role in the licensing process was to be strengthened. The TRAI was to be given the adjudication function in disputes between the government (DOT) and the licensee. While the NTP (1999) kept the licensing role with the DOT, it mentioned the need to amend the ITA of 1885. Last, but not least, the NTP – 1999 advised the formation of a universal service obligation (USO) fund, which would be used to promote rural telephony. It would be used to bridge the rural-urban divide.

The NTP – 1999 is one of the better public policy documents in the country, which took the interests of all the stakeholders into account. It received widespread acceptance as a document, which attempted to even the playing field for investors while keeping the telecom department's (DOT's) essential role intact. It made a serious attempt to resolve the problems arising from the lack of a distinction between the policy-maker and service provider, especially in relation to licensing issues.

Policy implementation required executive coordination. The PM's office set up the Group of Ministers on Telecom in November – December 1999. The group steered important policy goals such as opening up of the domestic long distance service (2000), privatization of the international long distance carrier - VSNL (2002), and, the corporatization of the Department of Telecom Services (DOTS) into the Bharat Sanchar Nigam Limited (2000).

Corporatizing the Department of Telecom Services⁵ required the support of the telecom unions. This support became possible because retrenchment was not considered and emoluments of the telecom workers were protected. The majority of the workers understood that job security with worker retraining was the best deal they would get in an era when the old skill sets were fast becoming obsolete. In return, the unions accepted a moratorium on further recruitment.⁶

Consistent with the recommendations, the TRAI Act of 2000 strengthened the hands of the regulator while keeping the licensing powers with the DOT. The TRAI's recommendation was now required before the DOT could grant a license. The Telecom Dispute Settlement Appellate Tribunal (TDSAT) was set up in January 2000 with a retired Supreme Court judge at the helm. This gave greater sanctity to the arbitrating powers of a special court dedicated to the special task of arbitrating telecom related disputes. Earlier DOT – TRAI conflicts often went up to the High Court where the DOT had received a favorable hearing. The telecom department was not convinced of the adjudicatory powers of the TRAI.

Much work related to strengthening the institutions governing the telecom sector had been achieved between 1998 and 2000. This was the result of political will combined with the financial crisis facing private investment in the sector. The regulator was strengthened, the DOT's service operations were to be corporatized, and, the telecom department's role was to be restricted to policy-making and

⁵ The Department of Telecom Services (DOTS) within the DOT was the service arm of the telecom department. The National Federation of Telecom Employees (NFTE) was the most important union at this time.

⁶ The National Federation of Telecom Employees (NFTE) was the most important union at this time.

licensing. The negative consequences of telecom department's predatory fixed license fee regime were to be addressed through the revenue share regime.

The major conflicts of interest that remained related to the telecom department's licensing powers at a time when corporatized entities like the BSNL and MTNL were still largely owned by the government. The Indian Telegraph Act of 1885 could not be amended to secure licensing powers for the TRAI. The other problem that plagued the TRAI was the independence of its members with respect to the telecom department. The independence of the TRAI members was a significant facilitator of regulatory capture, despite a revision of the TRAI's constitution. Enhanced constitutional powers would be of little use if appointments to the TRAI reflected the interests of the telecom department.

4. Regulating Conflicts of Interest: The WLL Controversy

The possibility of introducing wireless services within the local loop (WLL) for fixed service operators using the CDMA technology was fraught with possibilities that could harm the cellular industry. This facility allowed the fixed service operators to provide cell phone type services within a defined short distance charging area (SDCA). The GSM operators felt the pain because the fixed operators paid a lower license fee, enjoyed a favorable interconnection regime, and, did not pay for utilizing the spectrum. These benefits were accorded to the fixed operators in return for fulfilling costly rural commitments. The manner in which the DOT and TRAI dealt with the issue of allowing QUALCOMM's CDMA technology provides insights about the strengths and weaknesses of the regulatory process in India.

The DOT's opinions till January 2001 suggested that WLL facility would not be allowed with mobility. The wireless facility could be used to reduce the costs of laying and maintaining telephone lines but it could be used only for fixed handsets. This is clear from the DOT's opinion on offers made by Bharati Telenet (1998) and Shyam Telelink (2000), and, correspondences between the DOT and the TRAI between June and August 1999.

The DOT's view changed between September 2000 and January 2001 aided by the representations made by the Association of Basic Telecom Operators, The Associated Chambers of Commerce and Industry, and, the Confederation of Indian Industry. The DOT prepared a detailed note in October 2000, which favored WLL on the ground that faster rollouts of wireless connection would help to bridge the rural-urban divide. The regulator hesitatingly agreed to this after pointing out that it may be difficult to maintain the distinction between fixed and cellular operations, if fixed operators were allowed the WLL facility. The consultations were carried out fairly quickly between November 2000 and January 2001 and the GSM operators were not consulted during this period.

The cellular operators using the GSM technology were negatively affected by this regulatory development. They approached the TDSAT in January 2001. When the TDSAT gave an unfavorable opinion, they approached the Supreme Court. The Supreme Court sent the case back to the TDSAT requesting a fresh opinion. The TDSAT gave two opinions. The majority opinion favored the fixed operators the grounds the grounds of faster roll-out of fixed wireless lines, which would help boost

teledensity in India. It was opined that the distinction between WLL and long distance services could be maintained. Since, the GSM operators had already benefited from migration to the revenue-sharing regime they should bear some extra competition in the local area.

The Chairman of TDSAT gave a dissenting opinion favoring the GSM operators. He argued that the New Telecom Policy (NTP, 1999) did not allow free mobility. He disagreed with the majority opinion that it would be possible to maintain the distinction between fixed and cellular operators. Last but not least, he took the fixed operators to task for not fulfilling their rural obligations, which was the major justification for their easier entry conditions.

The adverse TDSAT opinion forced the cellular operators to take the case to Supreme Court in October 2003. The case was withdrawn in January 2004, when the regulator announced a *quid pro quo*. This *quid pro quo* got a litigious industry out of the courts and aided the expansion of teledensity. Since, it was understood that maintaining the distinction between the fixed and cellular operations would no longer be easy, it recommended that WLL operators be allowed to migrate to a unified license on payment of an additional charge and any penalties for executing calls beyond the SDCA. The entry of WLL operators in the cellular industry through migration to a unified licensing regime, introduced enormous competition in the industry. Falling prices saw the subscriber base doubling between March and September 2003. Critics, on the other hand, argued that Reliance obtained the unified license for cheap, and, the issue of non-fulfillment of rural obligations was not addressed adequately in the migration package.

The WLL case demonstrated how the regulator was able to recalibrate earlier decisions. The regulator would need both autonomy with accountability to solve the pressing problems ahead, which involved issues such as a more comprehensive universal licensing regime and spectrum allocation.

5. The Universal Service Problem

The explosion of teledensity in urban areas was not accompanied by a similar transformation in rural areas, which needed to catch up with urban areas. The rural teledensity in India was 1.5% in 2003/04, up from 0.68 in 1999/2000 (i.e. a growth of 56%). The same figures for urban teledensity were 8.23 and 20.79 respectively (i.e. a growth of 60%).⁷ Between March 31 2003 and March 31 2004, the percentage of villages not covered by India's telecommunications network came down by just 1% from 15% to 14%. This increase in the rural telephone network was entirely due to the public telephone system operated by the BSNL. The contribution of private telephones operators to rural telephony stagnated at 2% during this period.⁸

These figures suggest that India's rural – urban digital divide was growing. Rural areas did not have demand concentrations like urban areas, owing largely to the lack of purchasing power, and were not profitable. Laying a telephone line in a rural area could cost Rupees 120,000 and yield revenue of Rupees 3000 per year. The same

⁷ See Appendix: Figure 6.

⁸ See Appendix: Figures 3 and 4.

figures for urban areas were about Rupees 40,000 and Rupees 9000 respectively. Recovering costs from rural areas could take a much longer time than in urban metropolitan areas. Such investments were not likely to be profitable.

To address these problems the government charged 5% of the revenue of telcos for the Universal Service Obligation (USO) fund. This fund would be used for providing rural telephony in the villages. Reliance and BSNL were awarded licenses after competitive bidding for providing rural telephony, which was to be subsidized by the USO fund. Second, an access deficit charge (ADC) was levied on international and domestic long distance calls to subsidize the below cost operations of BSNL in rural areas. For example, Rupees 4.25 / minute was to be paid for every long distance call landing in India as ADC.⁹ Third, while the exact figures were not available, BSNL found good business for its prepaid cell phone service in rural areas. BSNL was leveraging its network for providing such services. Non-governmental initiatives, like the Grameen Sanchar Seva Organization, were taking WLL to the villages. The roaming WLL phone worked like a roaming PCO with billing software that ensured the recovery of bills.

Telecom service provision in rural areas did not succeed as in urban areas, which had a large concentration of the rich and the middle class population of India. The fixed service providers were allowed entry into basic services in 2000 with a low license fee regime for furthering rural telephony. The wireless technology with limited mobility was supposed make it easier to implement network rollout in rural areas. Up to March 1999, fixed service providers had provided only 12 off the 42,856 village public telephones they had committed. On 31.10.02, Tata Teleservices had provided 1314 of the 9635 VPTs it had committed. The same figures for Reliance Infocom were 502 and 8635 respectively. Considering the dismal performance of the operators, the regulator could have extracted some village public telephone commitments when the migration to the unified access license was proposed. No significant concessions were extracted from any operator.

The rural – urban divide could be addressed if 50% of the revenue was shared with the party where the traffic was terminated. For example, the international regime governing telecom accounting rates allowed the sharing of 50% of the revenue between the calling and the receiving the companies. VSNL made a lot of money from the traffic that it was receiving from the US. Resources were transferred from rich countries from where the calls were originating to poorer countries, which were largely receiving the calls. Similarly, if the urban telcos shared 50% of their revenues with telcos serving rural areas where the calls were being received, this could transfer resources for developing rural telephony. It was odd that while India had upheld this regime of accounting rates at the international level, it could not be enforced within the country to bridge the rural-urban divide.

The political economy of service delivery in India's telecom sector had an elite bias. It served the middle and upper classes and the IT sector reasonably well. If the BSNL succeeded in delivering a rural cellular network via its commercial operations, this would be a welcome development. If the universal service fund were

⁹ From February 1, 2005 the access deficit charge on all incoming international calls would be Rupees 3.25 and that on all outgoing international calls would be Rupees 2.50. See, <http://www.trai.gov.in/pr6jan.htm> .

able to expand rural services by subsidizing the business of the efficient service providers in unprofitable areas, this could prove to be a good example of public-private partnership. On the other hand, writing off the rural commitments of private operators, and, reducing the access deficit charge to reduce the penalty of defaulters, would constitute steps in the direction of disregarding the rural-urban telecommunications divide.

6. Conclusion

The structural bias in favor of the Indian government's monopoly was tough to reform. The monopoly was reinforced by the telecom department's (DOT) combined functions as policy maker, regulator, and service provider. In addition, ownership of the telecom network and political support made it difficult to institutionalize competition. This paper has suggested the mechanism by which the service provision role of the DOT was diluted over time, and, the regulator made more independent. These structural changes increased productivity¹⁰ and teledensity in the sector, which was a great boon for Indian industry and the middle and upper income groups in India. The paper also pointed to the challenges ahead for independent regulation, increased domestic and foreign investment, and, the universal service commitment in India.

First, ideational changes, which were embedded within the Prime Minister's Office (PMO) since the early 1980s were critical for transforming the business environment. The PMO had to take on the telecom department for promoting competition. The microchip revolution in electronics had convinced Indira Gandhi and Rajiv Gandhi that electronics, telecommunications and productivity needed to be harnessed for India's development. The corporatization of the MTNL and the VSNL, and, technological innovations within the Centre for the Development of Telematics (C-DOT), which were licensed for private telecom equipment manufacture, all occurred despite the telecom department's resistance. The conviction in favor of private investment expressed in the report of the Telecom Restructuring Committee (March 1991) was due to an initiative of the PM's office under Chandra Shekhar's premiership. The report was opposed by the telecom department.

The vital role of the PM's office for fostering private investment continued during the tenure of Narasimha Rao and Atal Bihari Vajpayee. Telecom secretary Vittal needed Rao's support to push the National Telecom Policy (NTP) of 1994. Vajpayee's PMO played a critical role in shaping the IT policy and the New Telecom Policy (NTP) of 1999, and, for pushing the government in the direction of the TRAI Act (2000).

Second, the efforts of the PMO were often aided by systematic interest articulation by the private sector. The licensing process after 1995 in the absence of a regulator was both opaque and predatory with respect to private investors. The legislation that gave birth to the regulatory institution (TRAI) in 1997 became essential to deal with a telecom department, which deployed its regulatory powers to the detriment of the private sector. Second, the insubstantial regulatory powers of the

¹⁰ For the rise in productivity in the telecom sector a good index is the declining staff needed for serving 1000 direct exchange lines in the government owned corporations MTNL and the BSNL. See Appendix: Figure 5.

TRAI in 1997, which produced a comprehensive crisis of investment by 1999, united the industry against the telecom department. A favorably inclined PM's office responded positively towards investor concerns. This effort produced a new policy document (NTP 1999), a new legislation (TRAI Act 2000), and, a new institution (Telecom Dispute Settlement Appellate Tribunal).

Third, efficient telecommunications was an essential component for India's IT exports. India's IT sector was a small and well-organized group of bulk consumers of telecom services, whose contribution towards India's growth was widely recognized. The PM's office understood this and pushed India's competitiveness in this area. This was reflected in the Department of Electronics¹¹ successful experiment with software technology parks and the PM's initiative to set up the National Task Force on IT (1998). The task force speeded the privatization of India's long distance carrier (VSNL) and produced a remarkably liberal Internet Service Provider policy.

Foreign direct investment received a raw deal from India's uncertain regulatory climate. They fared much worse than domestic investors. There was no big player in fixed services and there was just one in the cellular area. Foreign investors found it more difficult to cope with predation and uncertainty than the domestic investor. The domestic investor would make unreasonable bids and invest despite the irregular behavior of the DOT. It would then expect the PM's office to bail them out. This strategy worked reasonably well for Indian capital.

Foreign investors were not keen on such risks. Investor confidence was more directly related to the perceived regulatory certainty. Figure 7 in the Appendix section tells the story. Investor confidence was high in 1995 when the licensing process began. It dipped between 1998 and 2000 when it became clear that the regulator had few powers to revive the sector from the financial gloom caused by the telecom department's predatory policies. The New Telecom Policy of 1999 and the TRAI Act of 1999 once again boosted investor sentiment but the WLL saga sapped it. Foreign investment was urgently needed to generate a substantial portion of the Rupees 1.6 trillion that was required for reaching the target 250 million telephones in India.

The vast majority of telephone users in rural areas, which was an unorganized group, did not benefit to the same extent as did the rich, middle classes and the IT sector. Initiatives to promote rural telephony using the universal service obligation (USO) would be critical for bridging the rural-urban divide. The past practice of the government's overlooking the rural commitments of private operators needed to be reversed. This was surprising because the entry of basic operators in the fixed wireless services area was allowed because of the contribution this could make to rural telephony. The utilization of the access deficit charge (ADC) and the USO fund needed to be monitored closely. Practices such as non-payment of the ADC by devious means needed to be adequately reprimanded. The regulators role in this area needed to become more proactive.

The answer to the problem of rent-seeking by DOT *and* private players lay in increasing the independence of regulator, while at the same time making it

¹¹ The Department of Electronics was directly under the PM's office at that time and held a view that was diametrically opposite to that of the DOT.

accountable to the government's policy. The regulator needed financial independence; a technocratic hiring policy; and, checks on regulatory integrity. With adequate checks on regulatory integrity, regulatory autonomy could reduce rent-seeking propensities associated with politics in plural polities. The Indian Telegraph Act 1885, which was designed for an era of government owned monopolies, was the singular obstacle to regulatory independence from the telecom department. It needed to be amended in order to reduce the telecom department's interference with the regulator's financial needs and its technocratic role. Regulatory independence with accountability would help in the realization of the three pressing issues ahead, namely, spectrum allocation, universal service and universal licensing.

The telecom sector achieved greater success than the power sector in promoting competition in the business environment. I have argued elsewhere that two major reasons explain this outcome.¹² First, consumers were habituated to paying telephone bills but majority of the farmers, the middle class and small industrialists were accustomed to treating free electricity as a right. It was more difficult to realize power tariffs than telecom tariffs. Realizing power tariffs needed a sophisticated understanding of the political economy agricultural and industrial theft. Second, central level regulation of the telecom sector made the battle for regulatory control a transparent contest between the public utility bureaucracy and private investors mediated by the regulator. The private sector was much better organized to take on the telecom department at the central level. The power sector, on the other hand, was faced with contests between many entrenched state-level bureaucracies versus new state level regulators. In most conflicts the state-level power sector regulators had a tough time disciplining the state-level electricity boards. It is to be seen whether the Electricity Act 2003 will change this dynamic in favor of regulators through greater central direction.

In the story of change in the Indian telecom sector, neither the bureaucracy, which governed the state-owned telecom sector nor organized labor in the sector, could easily be disciplined. The process of initiating competition began by allowing private entry in cellular and value added services, where the telecom department saw little business potential in the early 1990s. The regulatory framework was firmly under the control of the telecom department. The logic of change towards empowering the private sector was driven by several crises faced by private investors, with a sympathetic PM's Office calling the shots every time it became clear that the persistence of a crisis would engender the exit of private investment. These actions of the PMO strengthened the hands of the regulator over a period of time. Subsequently, the private sector learned to win its regulatory wars against the government's incumbents, despite the government's regulatory and network advantages. It was this challenge from private investment that led to the corporatization of government assets like the Bharat Sanchar Nigam Limited (BSNL) and Videsh Sanchar Nigam Limited (VSNL). It was understood within the government that direct political control over telecom assets was rendering it inefficient with respect to the private sector. When India could not make its government's service provider bend to the discipline of productivity, it pushed restructuring by gradually encouraging private investors to compete with the government.

¹² See Mukherji (October 2004).

Appendix Figures 1 – 7

Abbreviations

DEL = Direct Exchange Line

WLL = Wireless in local loop service using the CDMA technology

CMPs = Cellular Mobile Providers

PSU = Public Sector Unit

Pvt. = Private

VPT = Village Public Telephone

BSNL = Bharat Sanchar Nigam Limited is Government owned and serves most of India, except the metropolitan cities of Delhi and Mumbai.

MTNL = Mahanagar Telephone Nigam Limited is government owned and serves the metropolitan cities of Delhi and Mumbai.

Acknowledgements

The author gratefully acknowledges the support and comments of Jack Snyder (Columbia University, New York) and Vikram Chand (The World Bank, New Delhi). Discussions with Sourav Adhikari (HCLTech, NOIDA), M B Athreya (consultant, New Delhi), Pradeep Baijal (TRAI, New Delhi), Virat Bhatia (AT&T, New Delhi), T H Chowdary (Centre for Telecom Management & Studies, Hyderabad), Ajai Chowdhry (HCL Infosystems Limited, NOIDA), Ashim Ghosh (Hutch, Mumbai), Shyamal Ghosh (Universal Service Obligation Fund, New Delhi), S Gopalakrishnan (Infosys, Bangalore), O P Gupta (National Federation of Telecom Employees, New Delhi), Pradeep Gupta (Cybermedia, New Delhi), Anjali Hans (COAI, New Delhi), Rajat Kathuria (International Management Institute and TRAI, New Delhi), Amit Khanna (Reliance Entertainment, Mumbai), S C Khanna (Association of Unified Telecom Service Operators, New Delhi), Sudheendra Kulkarni (Bharatiya Janata Party, New Delhi), Anil Kumar (Vice-President's Office, New Delhi), Meet Malhotra (TRAI Counsel, New Delhi), Nripendra Misra (Department of Telecommunications, New Delhi), Nandan Nilekani (Infosys, Bangalore), S S Sodhi (Justice and ex-chairman TRAI, Chandigarh), T V Ramachandran (COAI, New Delhi), S Ramakrishnan (Tata Teleservices, Mumbai), S D Saxena (BSNL, New Delhi), Arun Seth (British Telecom, New Delhi), Narinder Sharma (Reliance, Mumbai), Brijendra K Syngal (BPL Communications, Bangalore), Vinod Vaish (Telecom Disputes Settlement & Appellate Tribunal, New Delhi), N Vittal (IAS retired, Chennai), and, B K Zutshi (IAS and ex-vice chairman TRAI, Jaipur), were a valuable learning experience. Anjali Mukherji chipped in with valuable editorial recommendations and Ajoy Lywait and Indu Rayadurgam provided excellent research assistance. The World Bank, the Centre for Political Studies - Jawaharlal Nehru University, the Saltzman Institute of War and Peace – Columbia University, and, the Institute of South Asian Studies - National University of Singapore, provided resources and facilitating environs that aided this paper. The errors that remain, rest with the author.

REFERENCES

- Acemoglu, Daron, Simon Johnson and James A Robinson (November 2002), "Reversal of Fortune: Geography and Institutions in the Making of the Modern World Income Distribution," *The Quarterly Journal of Economics* vol. 117, no. 4 (November 2002), pp. 1231-1294.
- Amsden, Alice (1989), *Asia's Next Giant: South Korea and Late Industrialization*, New York: Oxford University Press.
- Athreya, M B (1996) "India's telecommunications policy", *Telecommunications Policy*, vol. 20, no. 1, pp.11-17.
- Bureau of Industrial Costs and Prices (1998), *BICP Study on the Cellular Phone Services*, New Delhi.
- Bronkers, Marco C E J and Pierre Larouche (1997), "Telecommunications Service and the World Trade Organization", *Journal of World Trade*, vol. 31, no. 3, pp.5-45.
- Center for Telecom Management and Studies (May 2004) "Sri N. Vittal on NTP-94", *Journal of the CTMS* (Hyderabad), 149, vol. XIII, no. 5, pp5-15.
- Chibber, Vivek (2003) *Locked in Place: State-Building and Late Industrialization in India*, Princeton and Oxford: Princeton University Press, 2003.
- Chowdary, T. H. (2000) *P-Telecos in India, Why did India get them so Wrong*, Hyderabad, Centre for Telecom Management and Studies.
- Chowdary, T H (2000) "Telecom Demonopolisation: Policy or Farce?" *Economic and Political Weekly*, vol. 35, no. 6, pp.438-439.
- Chowdary, T H (2003) "Telecom: Migration to Unified Multiple-Service Licenses", *Economic and Political Weekly*, vol. 38, no. 8, pp.3965-3968.
- Chowdary, T H (2001) "Limited Mobility Service Controversy", *Economic and Political Weekly*, vol. 36, no. 18, pp.1506-1507.
- Chowdary, T H (2003) "Telecommunications Tariff Revision", *Economic and Political Weekly*, vol. 38, no. 6, p.503.
- Cowhey, Peter F. (1990) "The International Telecommunications Regime: The Political Roots of Regimes in High Technology", *International Organization*, vol. 44, pp.169-199.
- David, Paul A (1990) "Clio and the Economics of QWERTY", *American Economic Review*, vol. 75, no. 2, pp.332-337.
- Delhi High Court (July 23, 1998), *Union of India Versus TRAI*, Usha Mehra Judgment, New Delhi.

Department of Telecommunications (1994), *The National Telecom Policy 1994*, New Delhi, Ministry of Communications. <http://www.trai.gov.in/ntp1994.htm>

Department of Telecommunications (March 1999), *New Telecom Policy 1999*, New Delhi, Ministry of Communications. <http://www.trai.gov.in/npt1999.htm> .

Department of Telecommunications (2005), *Annual Report 2003-2004*, New Delhi, Ministry of Communications. <http://www.dotindia.com/annualreport/annualreport.htm>

Dokeniya, Anupama (1999) “Reforming the state: telecom liberalization in India”, *Telecommunications Policy*, vol. 23, no. 2, pp.111-122.

Dossani, Rafiq (2002) “Telecommunications Reform in India”, *India Review*, vol. 1, no. 2, p. 74.

Evans, Peter (1995), *Embedded Autonomy: States and Industrial Transformation*, Princeton, New Jersey, Princeton University Press.

Gandhi, Indira (1985) *Selected Speeches and Writings-Vol.4*, New Delhi: Government of India- Publications Division, Ministry of Information and Broadcasting.

Gupta, Surajeet Das (October – November 2004) “The WLL Letters”, *Ice World Annual*, New Delhi: Business Standard, pp12-15.

Gupta, Rajni (2002) “Telecommunications Liberalization: Critical Role of Legal and Regulatory Regime”, *Economic and Political Weekly*, 37, 17, pp.1679-1690.

Haggard, Stephan *Pathways from the Periphery: The Politics of Growth in Newly Industrializing Countries*, Ithaca, NY: Cornell University Press, 1990.

Knight, Jack (2001) “Explaining the Rise of Neoliberalism: The Mechanisms of Institutional Change”, in John L Campbell and Ove K Pederson, eds, *The Rise of Neoliberalism and Institutional Analysis*”, Princeton: Princeton University Press, pp. 35-37.

The Industrial Credit and Investment Corporation of India Limited (April 1998), *Draft Report to the Department of Telecommunications: State Cellular Projects – Assessment of Viability* (Mumbai).

Kohli, Atul (2004) *State Directed Development, Political Power and Industrialization in the Global Periphery*, Cambridge: Cambridge University Press, 2004.

Kohli, Atul (2002) “State, Society and Development,” in Ira Katznelson and Helen V Milner, eds., *Political Science: State of the Discipline*, Norton, NY and London: 2002.

Krasner, Stephen. D. (1991) “Global Communications and National Power: Life on the Pareto Frontier”, *World Politics*, vol. 43, no. 3, pp.353-357.

North, Douglas. C. and Barry R Weingast (1989) “Constitutions and Commitment: The Evolution of Institutions Governing Public Choice in Seventeenth Century England”, *Journal of Economic History*, vol. 49, no. 4, pp.803-832.

North, Douglas. C. (1990) *Institutions, Institutional Change and Economic Performance*, Cambridge and New York: Cambridge University Press.

North, Douglas. C. (1995) “The New Institutional Economics and Third World Development”, in J. Harriss, J. Hunter and C. Lewis, eds., *New Institutional Economics and the Third World*, London: Routledge, pp.24-26.

North, Douglas. C. (1995) “Five Propositions about Institutional Change”, in Jack Knight and Itai Sened, eds., *Explaining Social Institutions*, Ann Arbor: University of Michigan Press, pp. 15-16.

McDowell, Stephen D (1997) *Globalization, Liberalization and Policy Change*, New York: St. Martin’s Press, pp.127-135.

Mohan, Rakesh, et al (1994), *India Infrastructure Report*, New Delhi: Twenty first Century prints, pp. 34-38.

Mukherji, Rahul (2000) “India’s Aborted Liberalization-1966”, *Pacific Affairs*, vol. 73, no. 3, p.381.

Mukherji, Rahul (October 2004) “Managing Competition: Politics and the Building of Independent Regulatory Institutions”, *India Review* (Frank Cass), vol. 3, no. 4, pp. 278-305.

Murthy, N.R. Narayana (2004) “The Impact of Economic Reforms on Industry in India: A Case Study of the Software Industry”, in Kaushik Basu ed., *India’s Emerging Economy*, New Delhi: Oxford University Press, pp.217-222.

National Taskforce on IT and Software Development (9th June 1998) *IT Taskforce – Basic Background Report, Chapter VII*. <http://it-taskforce.nic.in/bgr7.htm>

Patel, Urjit R (Oct 29, 2004) “Lessons in Telecom Turnaround”, *Business Standard*, New Delhi.

Pierson, Paul (2000) “Increasing Returns, Path Dependence and the Study of Politics”, *American Political Science Review*, vol. 94, no. 2, pp.253-257.

Ramachandran, T V (January 17, 2005), “Off the cuff: Flawed Trai Proposals,” *Financial Express* (New Delhi).

Rodrik, Dani (October 2002), Arvind Subramaniam and Francesco Trebbi (2002) “Institutions Rule: The Primacy of Institutions Over Geography and Integration in Economic Development”, *National Bureau of Economic Research [NBER] Working Paper Number 9305*, Cambridge, MA: NBER.

Rubin, Barnett R (1985) "Economic Liberalization and the Indian State", *Third World Quarterly* vol. 7, no. 4, pp. 942-957.

Saha, Biswatosh (August 28, 2004), "State Support for R and D in Developing Countries: Telecom Equipment Industry in India and China," *Economic and Political Weekly*, pp. 3917-3921.

Sengupta, Arjun K (2001) *Reforms, Equity and the IMF*, New Delhi: Har Anand. pp.44-65.

Singh, J P (1999) *Leapfrogging Development: The Political Economy of Telecommunications Restructuring*, Albany: State University of New York Press., pp.141-143.

Sinha, Nikhil (1996) "The political economy of India's telecommunications reforms", *Telecommunications Policy* vol. 20, no. 1, p.31.

Telecom Disputes Settlement and Appellate Tribunal (8th August 2003) Wadhwa Judgement, New Delhi.

Telecom Disputes Settlement and Appellate Tribunal (8th August 2003) Prasad and Dasgupta – Majority Opinion, New Delhi.

Telecom Regulatory Authority of India (Oct 2003), *Recommendations on Unified Licensing*, New Delhi: See www.trai.gov.in.

Telecom Regulatory Authority of India (January 13, 2005), "TRAI Issues Recommendations on Unified Licensing Regime," New Delhi: Press Release No. 8/2005.

The World Bank (2001), *World Development Report 2002*, Washington DC: The World Bank and Oxford University Press.

The World Bank (2003), *World Development Report 2004: Making Services Work for Poor People*, Washington DC: The World Bank and Oxford University Press.

Vittal, N (2002) *Ideas for Action*, New Delhi: Macmillan India Limited.

Figure 1
Distribution of Direct Exchange Lines(DELs)
[Fixed +WLL+CMPS] [PSU s +Pvt] as on 31st March 2003

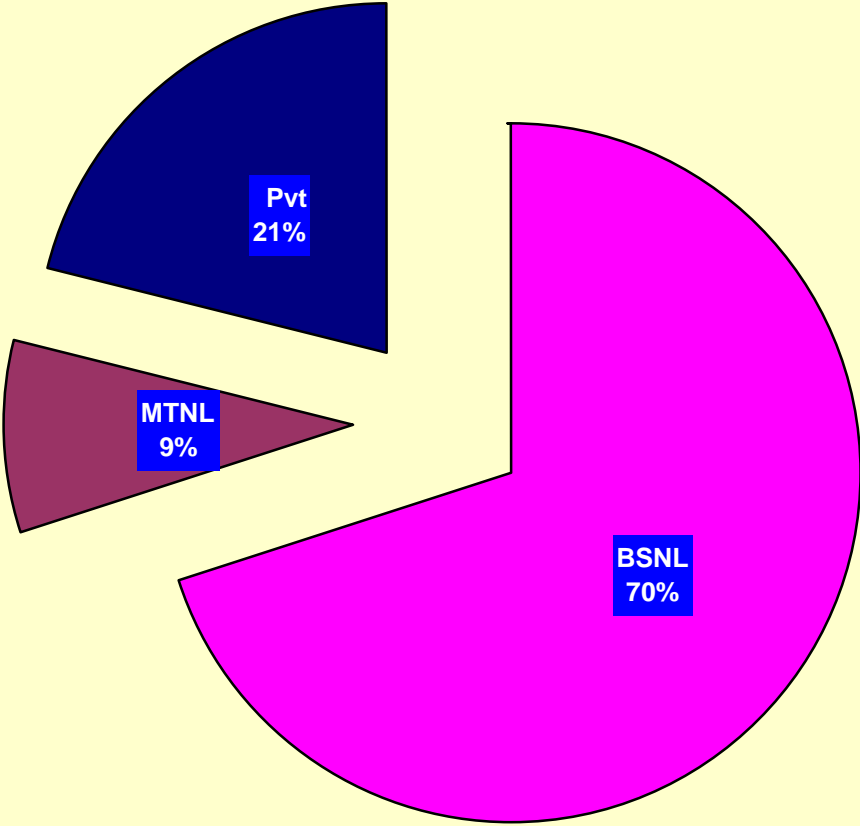
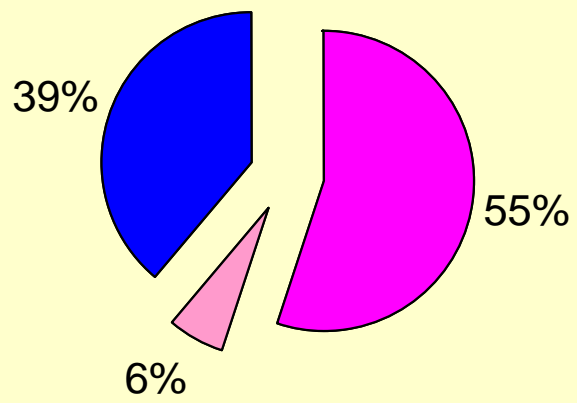


Figure 2
Distribution of Direct Exchange Lines(DELs)
[Fixed +WLL+CMPS] [PSU+Pvt] as on 31st March 2004



s)
n 2004

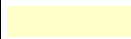
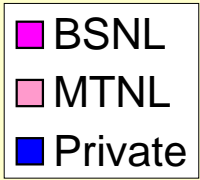


Figure 3
Coverage of Villages VPTs
(as on 31st March 2003)

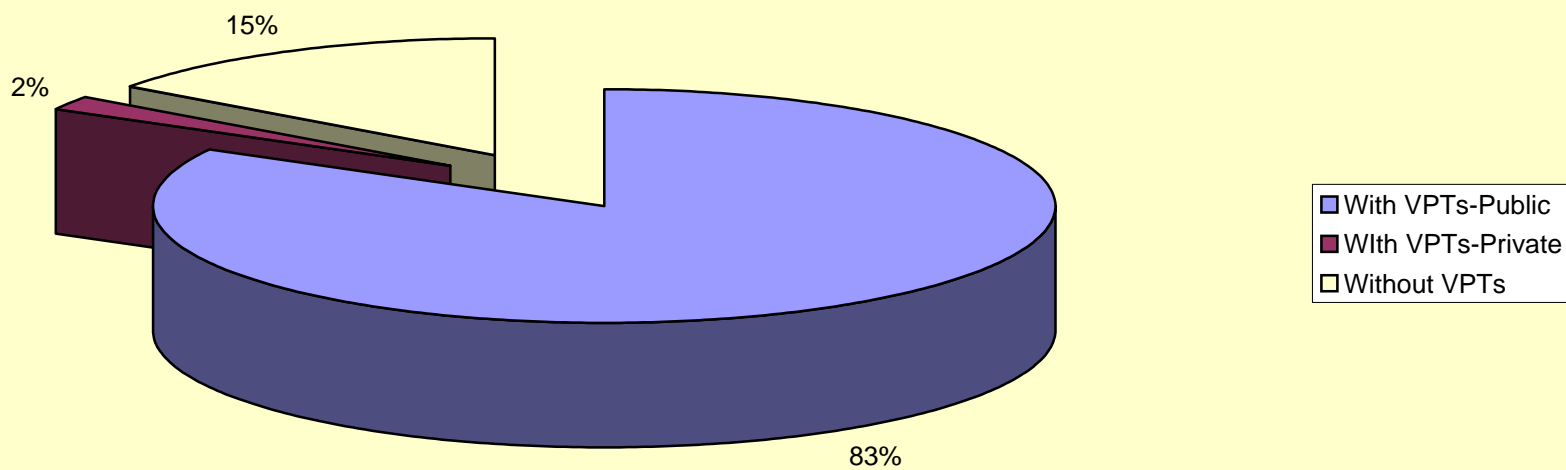


Figure 4
Coverage of Village VPTs (as on 31st March 2004)

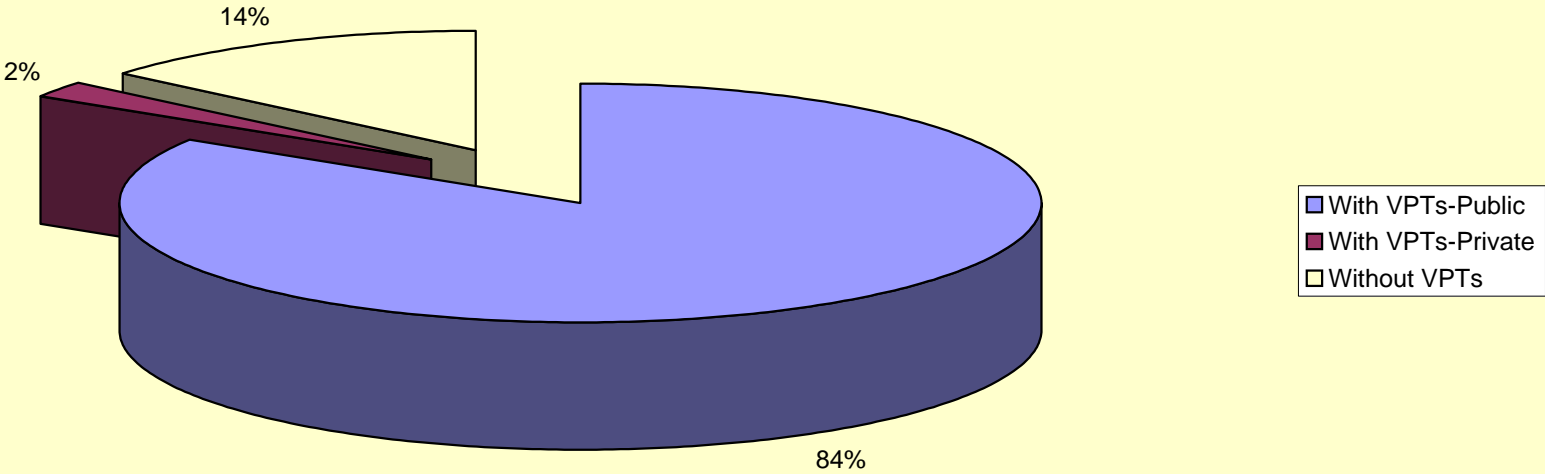


Figure 5
Staff Per 1000 DELs (BSNL and MTNL)

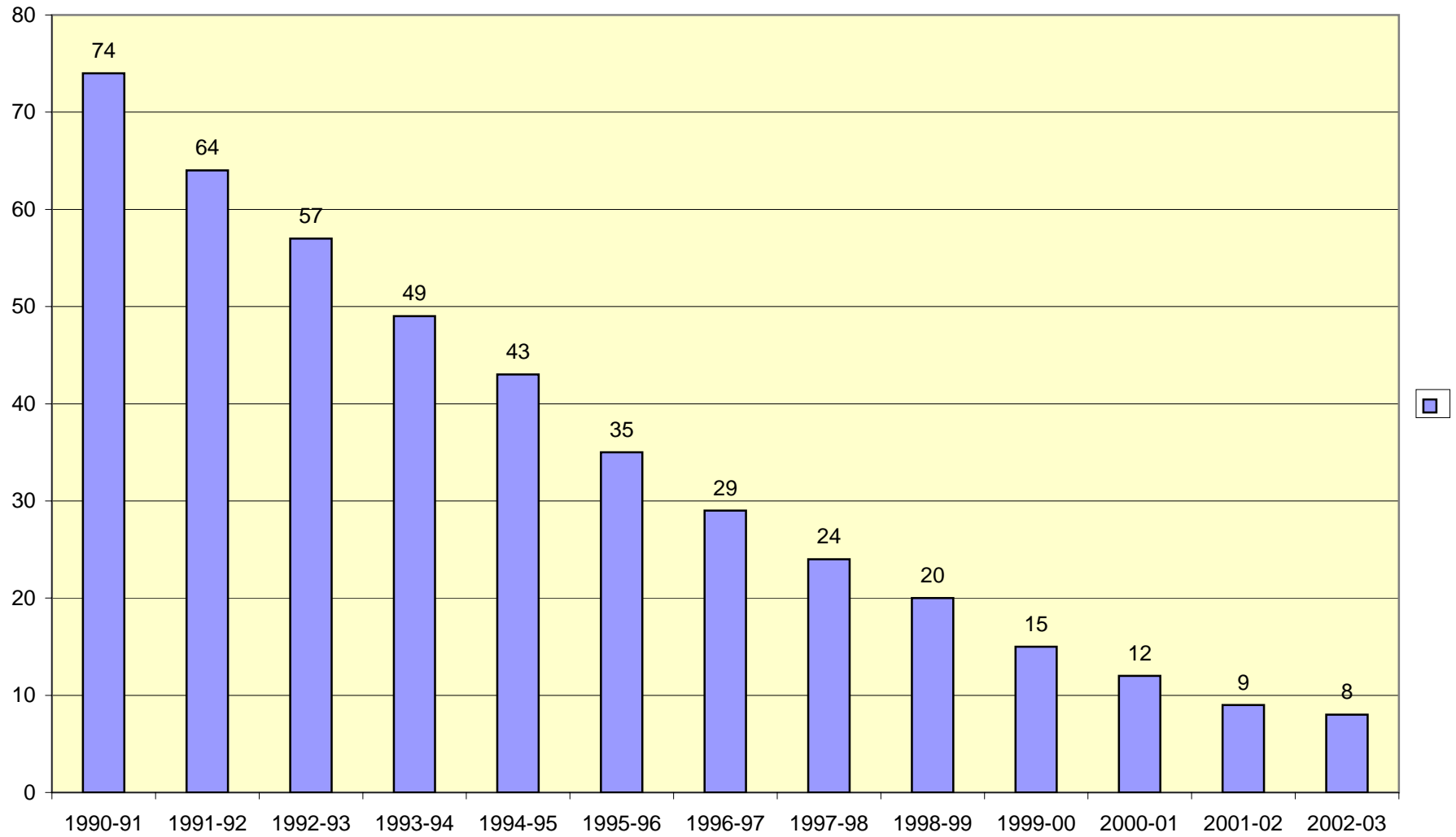


Figure 6
Tele-Density (Number of telephones per 100 population) since 1995-96

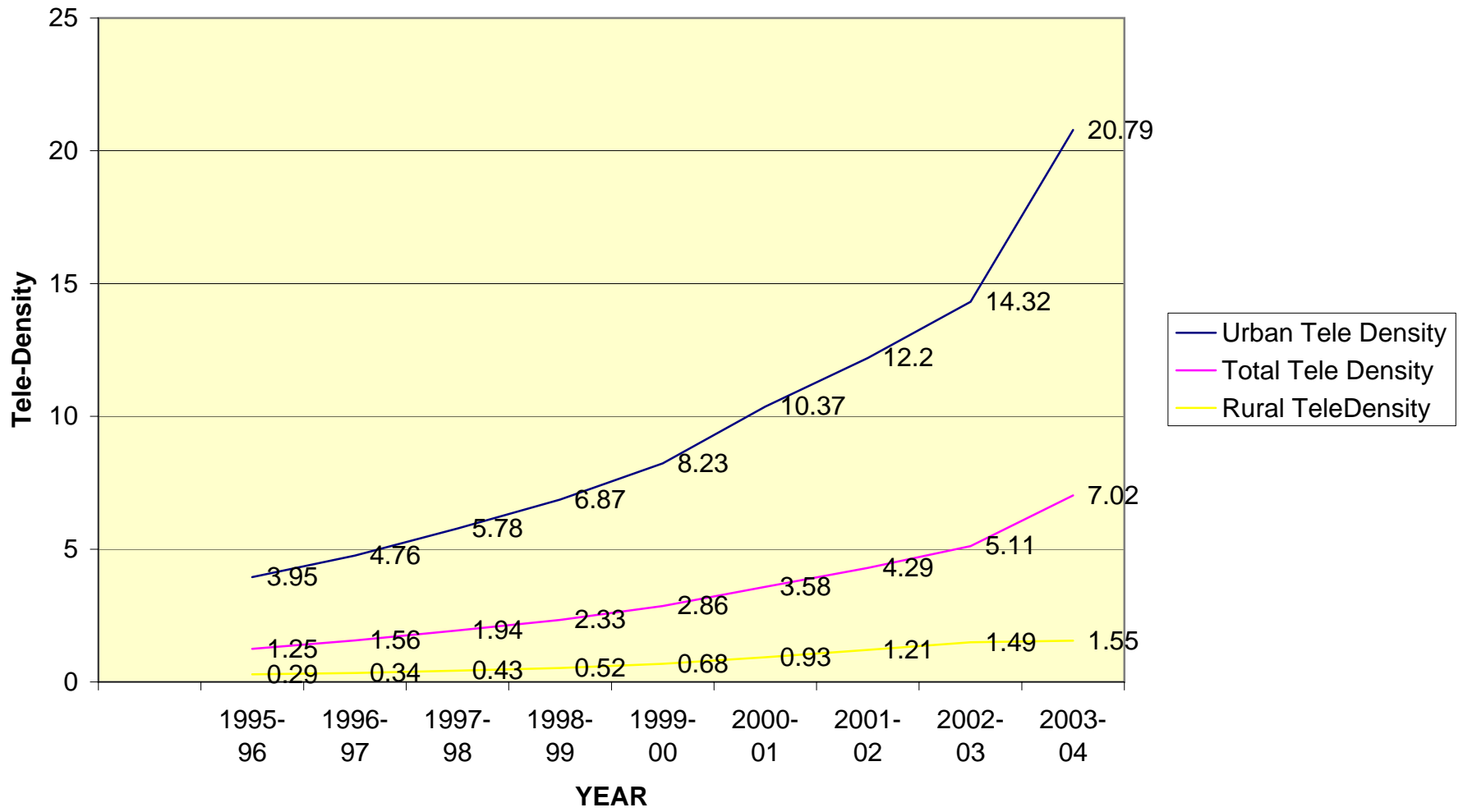


Figure 7
FDI Inflow Year-Wise [August 1991 to January 2004]

