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The Impact of Policy and Regulatory Decisions on Telecom Growth in India

By

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Abstract

This paper analyzes the transition of the Indian telecom sector from a monopolistic to a competitive environment. Though similar transitions have occurred in other countries, India’s shift is particularly striking due to the short period within which changes occurred. The National Telecom Policy of 1994 and the New Telecom Policy of 1999 established a strong and independent regulatory mechanism with well-defined powers and responsibilities. This regulatory mechanism sustains a competitive environment in the services sector by establishing guidelines for service providers, monitoring compliance, and providing a framework for dispute settlement. Additional reforms clearly separated regulatory and adjudicatory functions and created a specialized tribunal, which operates independently of the regulator, to settle disputes.

Reforms have allowed the telecom sector to address a wide range of issues, including quality of service, protection of consumer interest, and the growth of telecom services in rural areas. In addition, both the regulatory mechanism and the tribunal are key factors in attracting investments and their success has sparked phenomenal growth in wireline and wireless telephones and value-added services. India must ensure it remains on the current path of reform so that the telecom sector and its customers can continue to benefit from new technologies.

Keywords: Telecom sector reform; Indian economic policy

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The Impact of Policy and Regulatory Decisions on Telecom Growth in India

1. The paradigm shift in the telecommunications (telecom) sector in India from a monopoly regime to one of open competition and the subsequent establishment of an independent regulatory mechanism for the telecom sector has followed the pattern observed elsewhere in the context of deregulation of this sector. The Government of India (GOI) took policy initiatives keeping in view the ground realities and implemented them in stages. Historically, the reform process began in the 1980s with the entry in 1984 of private players in the manufacturing of customer premise equipment and corporatization of domestic telecom operations in two metros: Delhi and Mumbai; and the establishment of a corporation for international services in 1986 and of the Telecom Commission with full government powers in 1989. The piecemeal reforms executed in the 1980s were indeed steps towards loosening bureaucratic control but continued to retain a monopolistic flavor. The policy initiatives taken during the 1990s constituted the second, but the most important, stage of the reform process as the transition from monopoly to competition was accomplished during this period. This was done through three major policy initiatives beginning with the deregulation of the sub-sector of value-added services in July, 1992, followed by the issuance of two major policy instruments: the National Telecom Policy, 1994 (NTP94) and the New Telecom Policy 1999 (NTP99).

2. The GOI’s enunciation of a policy of economic liberalization in 1991 provided the real impetus for reform. This policy reflected a change in the mindset of policy makers, which led to a structural shift in the Indian economy. The policy makers were acutely conscious of the need to strengthen the infrastructure sector as it formed the backbone of the economy. The choice of the telecom sector for “show-casing” the policy shift reflected the importance the government attached to telecommunications as a common man’s tool for capacity building, as an important driver of economic and social change, and as a factor in building the international competitiveness of the country. The policy initiatives and the decisions of regulatory institutions, which were set up in the wake of earlier reforms, had a wholesome impact on a telecom sector that subsequently witnessed exponential growth.
3. The rest of the paper is organized in four sections followed by the conclusion, as indicated below:
   a) Section I – Prevailing telecom scenario and constraints;
   b) Section II – Important policy initiatives and their implementation;
   c) Section III – Regulatory initiatives and their impact;
   d) Section IV – Future challenges; and
   e) Conclusion.

Section I

Prevailing Telecom Scenario and Constraints

4. Prior to liberalization, the telecom scene in India was far from enticing. Abysmally low tele-density, poor state of tele-infrastructure, restrictive portfolio of services and a highly bureaucratized structure characterized the government monopoly. The NTP94 put the tele-density at about 0.8 per hundred persons as against the world average of 10 per hundred persons and lamented that it was even below a number of developing countries. Highlighting further the poor state of tele-infrastructure, the policy document candidly admitted about eight million lines in the network with a waiting list of about 2.5 million and tele-coverage of nearly 140,000 villages, out of 576,490 villages. Table I below gives a comparative picture of the availability of main telephone lines per 100 inhabitants in India in 1990 and the marginal improvement recorded by 1996. As is evident, the position compares unfavorably with several developing countries, some of which are also classified as low-income countries. Moreover, the tariff in respect of fixed line service continued to be high. In 1997, per minute call charges (in INR) for local, STD and ISD calls were 16.80, 30.00 and 75.00 respectively, which had declined to 1.0, 2.4 and 6.40 respectively by 2007.

5. Although the telecom scene in India presented a depressing picture, there was a stark contrast with the emerging situation in this respect in developed countries and some developing countries. In India, limited resources and the strident stance of service unions and other vocal opposition to a policy of liberalization in this sector were the other constraining factors. Introducing any major change in the telecom sector was a daunting task that required a totally new approach. The government was conscious of the
imperatives of improving and upgrading telecommunication infrastructure in volume, accessibility and affordability, having recognized the difference telecommunications makes in the lives of the people and for the country as a whole. There GOI also recognized the catalytic role of telecoms in the development process in other countries, along with worldwide changes in the telecom landscape due to increasing globalization, advancements in technology, rapidly growing consumer needs and the new demands emerging from an unleashing of market forces.

Table I (Source ITU)

<table>
<thead>
<tr>
<th>Country</th>
<th>Main telephone lines per 100 inhabitants</th>
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<tbody>
<tr>
<td></td>
<td>1990</td>
</tr>
<tr>
<td>India</td>
<td>0.60</td>
</tr>
<tr>
<td>China</td>
<td>0.60</td>
</tr>
<tr>
<td>Pakistan</td>
<td>0.75</td>
</tr>
<tr>
<td>Brazil</td>
<td>6.50</td>
</tr>
<tr>
<td>Malaysia</td>
<td>8.97</td>
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<tr>
<td>Mexico</td>
<td>6.59</td>
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</tbody>
</table>

Section II – Important Policy initiatives and their implementation

National Telecom Policy 1994 and its implementation

6. Giving effect to this realization and liberalizing successfully required heavy doses of investment and structural changes in the telecom monolith. This was perhaps the genesis of a new policy initiative resulting in the enunciation of the National Telecom Policy 1994. This policy document represented the first attempt to codify policy objectives and provide a roadmap for telecom development in India. The policy document laid down specific targets, such as making telephone service available on demand by 1997, coverage of all villages by 1997, provision of PCOs in urban areas for every 500 persons by 1997 and introducing all value added services available internationally, preferably by 1996. The resource gap estimated for realization of these targets was well over Rs. 230 billion and therefore the policy emphasized the involvement of the private sector and the need for private investment to bridge the resource gap. Hence, the policy for the first time allowed private companies registered in India to participate in the provision of basic telephone services subject to stipulated conditions. It established a duopoly regime
providing for two operators each in the four metros and eighteen telecom circles. Another important dimension of this policy document was its emphasis on protecting and promoting consumer interests and ensuring fair competition. The policy reflected an ambitious approach in setting the targets, but adopted a cautious approach in dealing with the issues of liberalization in the telecom sector. The duopoly regime that it established implied continued dominance of the market by the incumbent government operator, which inhibited growth of a competitive environment.

7. Even though the NTP94 did not go far enough on the liberalization route, it did cut the umbilical cord tying the Indian telecom sector to its monopoly supplier, nursed by the more-than-a-century old Indian Telegraph Act. The new paradigm in the telecom sector created interest worldwide and investors, both Indian and foreign, evinced keen interest in being partners in telecom development. However, the implementation of the policy did not match the euphoria it created and delivered mixed results. Physical targets were unrealized, particularly for rural telephony. Only about half of over 600,000 villages stood covered by March 1999. And many of these telephones in rural areas failed to work properly for technology reasons.

8. However, with regard to provision of PCOs, the progress was comparatively better and the number rose from 80,000 in March 1994 to 277,000 in March 1999. There was significant growth in the number of STD/ISD PCOs, which went up from 57,119 in March 1994 to 272,989 in March 1999. The STD/ISD PCOs were franchised, and provided opportunity for self-employment to unemployed youth, ex-servicemen and economically disadvantaged segments of the society. In the introduction of private players in the mobile and the basic segments of the service, the main criterion was the bid price for a 10-year license, with the proposed annual payments converted to a net present value using a discount rate of 16 percent. In both service segments, the rollout of private operators suffered considerable delay, particularly so in the case of basic service, largely due to controversies surrounding the bidding and selection processes for award of a license. As a result, by 1999 the private operators could introduce service in only two of the six circles for which basic service licenses were awarded. The picture was somewhat better for mobile services, as private mobile operators started operations in 1997. From a policy perspective, the noticeable delays and hiccups pointed to the need for greater transparency and clarity in the licensing process and the terms of licenses, as well as for an independent regulator.
**Telecom Regulator**

9. The NTP94 placed considerable emphasis on protecting consumer interests and ensuring fair competition. The obvious implication of this emphasis was to establish the institution of regulator for the telecom sector at the earliest. But, action on this account also encountered delays. Only in 1997 did the GOI enact a law -- the Telecom Regulatory Authority of India Act 1997 (TRAI Act 1997) -- leading to the establishment of an independent statutory Regulatory Authority for the telecom sector, with clearly defined functions, powers and responsibilities to encourage competition, ensure a level playing field, and promote and protect consumer interests. The Telecom Regulatory Authority of India (TRAI) enjoyed wide-ranging functions and powers in the areas of its responsibility. These relate to and include ensuring technical compatibility and effective interconnection between operators and service providers; regulating revenue-sharing agreements among service providers; monitoring quality-of-service standards; ensuring compliance with license conditions; approving tariffs for telecom services; and protecting consumer interests. The TRAI is not entrusted with functions relating to licensing, standard setting and allocating spectrum, which are in the domain of the GOI. This Act initially had vested dispute settlement functions with the TRAI, but an amendment to the TRAI Act in 2000 divested TRAI of these functions.

**New Telecom Policy 1999**

10. While the implementation of NTP94 did make material differences, as earlier noted, it was found wanting in addressing all issues of competition and in realizing the targets set forth in the policy. A number of projects faced problems for two principal reasons: first, the actual revenues realized fell far short of projections; and secondly, the operators were unable to arrange funding for their projects. The enunciation of a New Telecom Policy 1999 responded to the far-reaching changes taking place in the telecom sector worldwide as well as to the inadequacies of NTP94. The NTP99 further liberalized the scope of cellular mobile service, fixed service, and cable service, including the terms and conditions of licenses and operational aspects. Interconnection had been a key concern among service providers and had given rise to many disputes.
Recognizing the importance of the issue, in NTP99 the GOI brought it within the ambit of policy. The NTP99 policy unequivocally asserts that interconnection shall be permitted between service providers in the mobile and basic service segments. This policy also covered issues in such other areas as the resolution of problems facing the existing operators, the restructuring of the Department of Telecommunications, spectrum management, universal service obligations and the role of the regulator. Free entry into basic telecommunications replaced duopoly.

**Setting up of Telecom Disputes Settlement and Appellate Tribunal**

11. A refinement in the regulatory framework occurred in 2000 when an amendment of the TRAI Act split the regulatory and adjudicatory functions by establishing a specialized statutory dispute settlement mechanism, namely, the Telecom Disputes Settlement and Appellate Tribunal (TDSAT) with a Chairperson and two members. The Chairperson of this Tribunal has to be a person who is, or has been, a judge of the Supreme Court of India or the Chief Justice of a High Court. To qualify as a member, a person should have held the post of Secretary to the Government of India or an equivalent post for not less than two years, or be well versed in the fields of technology, telecommunications, industry, commerce and/or administration. This body’s responsibilities, subject to certain exceptions, include adjudication of any dispute between a licensor and a licensee, between two or more service providers, and between a service provider and a group of consumers. It is competent to regulate its own procedures and enjoys both original and appellate jurisdiction. The civil court cedes jurisdiction to TDSAT in matters falling within the latter’s competence, the orders of which are executable as a decree of civil court. Appeal against TDSAT’s orders lies to the Supreme Court of India on points of law. The Chairperson and members have secure tenure; removal is possible only under certain tightly defined circumstances. Side by side with the setting up of a dispute settlement mechanism, the government also distanced itself from providing telecom services by corporatizing its service arm in the year 2000 as a result of which a new corporation Bharat Sanchar Nigam Limited (BSNL) came into being.

12. Thus, an initially public monopoly first permitted limited private access, followed by limited entry, and now free entry into basic telecommunications. The government also divested itself of its regulatory role by creating an independent regulatory body, followed by divestiture of a direct operational role through a Government owned Corporation.
Nevertheless, the government retains policy-making and licensing functions and its standard-setting role, and determines the allocation of spectrum.

**Convergence**

13. The NTP99 also referred to convergence of markets and technologies. The Communication Convergence Bill, 2001 made some progress towards giving shape to this development. Although introduced in Parliament, this Bill made little headway and lapsed before it could be enacted into law. Much later, vide a government notification dated January 9, 2004, broadcasting and cable services have been brought within the definition of “telecommunication service” as defined in TRAI Act, 1997, as amended in 2000. This has placed the regulation of broadcasting and cable services under the jurisdiction of the telecom regulator, and disputes arising in respect of these services under the purview of the appellate body in the telecom sector.

**Implementation hiccups**

14. However, notwithstanding the ushering in of competition through these policy instruments, the sector has encountered many vexatious disputes, some minor and some major in nature, which have impeded the growth of the telecom sector from time to time. Aspects of dispute settlement will be dealt with in some detail when the impact of regulatory decisions are discussed below, however, one of the major policy issues related to the resolution of problems faced by the existing operators in discharging their contractual obligations concerning the payment of license fees. The government’s decision to give an option to the existing operators to migrate from a regime of license fee payment to one of revenue sharing was highly controversial. In some quarters, people viewed the initiative as an attempt to bail out defaulters at the cost of the public exchequer. In retrospect, this decision improved the financial viability of telecom players as well as correcting the aberrations that resulted from the unrealistic bidding witnessed in earlier phases of the award of licenses in basic service.

**Other Policy Initiatives:**

a) **Foreign Direct Investment (FDI):**

15. Another important policy initiative endeavored to promote FDI in the telecom sector, a measure considered necessary to augment the resources available to the sector. The new Policy permitted foreign ownership of up to 49% of a telecom venture,
automatically, and up to 74% subject to certain conditionalities. In the manufacture of
telecom equipment, however, sole foreign ownership has been permitted, subject to
sectoral requirements. The new FDI policy has yielded good results as is evident from an
increase in FDI inflow from Rs. 3.43 billion during 2000 to Rs. 45.97 billion during 2007
through October.

b) Infrastructure Sharing:

16. A recent development has witnessed active infrastructure sharing. Earlier only
passive infrastructure sharing was allowed, permitting a new telecom operator to rent
space on the tower belonging to another for deployment of its own equipment to support
its rollout. With the new ruling on active infrastructure sharing, a new entrant can now
rent all active electronics, switching, and circuits from another telecom operator that
owns the passive and active infrastructure. The active sharing of infrastructure, however,
excludes the sharing of spectrum. This ruling will help new operators to launch their
services with lower upfront capital investment, resulting in improved viability and lower
tariffs. The lower cost of providing service will encourage service providers to expand
telecom services in rural areas without encountering the high costs that usually
accompany the provision of telecom coverage in such areas.

Section III – Regulatory initiatives and their impact

The Telecom Regulator and Telecom Dispute Settlement entity as catalysts for
telecom development:

17. The independent regulator has become a fixture in the telecom sector and the
strength of its commitment to play the role of an umpire for the sector is evident in the
various initiatives taken to date that have inspired confidence amongst consumers and
service providers alike. Both, the regulator and the dispute settlement entity have
evolved as credible institutions, which augurs well for the telecom sector. The impact of
the telecom regulator’s initiatives covering different aspects of telecom services has been
salutary on the growth of the telecom sector. Similarly, the dispute settlement
mechanism, TDSAT, provides an effective platform for focused dispute settlement and
the consistency of its approach has boosted investor confidence considerably.
18. Although it may be premature to assess the full impact of these two bodies on telecom growth as they have existed for less than ten years, there is, nevertheless, already wide recognition that their contributions are having a wholesome impact. The telecom scene prior to liberalization exhibited low tele-density, poor quality of service, high tariffs, and a low level of customer satisfaction, all typical of a monopoly regime. However, in the post liberalization era, the telecom sector finds itself better equipped to cope with the newly emerging challenges due to a more appropriate policy regime and the presence of a strong, independent regulatory mechanism. The challenges before the telecom regulator following liberalization were daunting, as it was required to address comprehensively a host of issues in such areas as tariff setting, quality of service, protection of consumers’ interests, licensing, expansion of telecom services in rural areas, and spectrum management. Coping with these issues successfully through regulations and by involving stakeholders in the process was an essential component in creating a level playing field and fostering competition, as well as in raising the level of customer satisfaction. The regulator addressed these issues in full measure, which spurred the transformation of the telecom sector in India.

**Tariff**

19. The TRAI recognized early the importance of an affordable tariff for the common man, as a catalyst for the much-needed expansion of the telecom network and as an instrument for promoting competition in the sector. Heightened competition in the telecom sector has allowed flexibility to the service providers to offer any tariff, subject to certain regulatory principles including Interconnect Usage Charges (IUC) compliance. This flexibility does not extend to rural telephony, roaming and leased circuits. The first major policy step was the Telecommunication Tariff Order (TTO) 1999 which provided transparency in the tariff structure for various telecom services. This TTO also sent signals to potential investors in the sector about the direction of telecom pricing reform, the main elements of which were:

- Rebalancing tariffs further to align with costs, while at the same time focusing on the social objective: encouraging non-users of telecom to connect to the system then use it more intensively; and
- Providing enhanced flexibility to service providers for price setting, and more choice to customers.
20. The 39\textsuperscript{th} amendment dated September 8, 2005 of TTO 1999 competitively determined the price for cable-based international private leased circuits (IPLC) services, which were made available to user industries at the same price. The IPCL services offer global connectivity through submarine cable and serve as a crucial input for provision of broadband and internet services, international long distance voice telephony and for a number of key industries, such as information technology and information-technology-enabled services. The 36\textsuperscript{th} amendment to TTO 1999 specified a cost-based tariff for domestic leased circuits (DLC), inter-alia providing for price caps and giving freedom to the service providers to offer discounts to their customers. This amendment extended the benefits of competition not only to the telecom sector but also to other sectors of the economy. The 28\textsuperscript{th} amendment dated November 5, 2003 reflected various developments in the telecom sector, including the decline in the tariff for telecom services since January 2003, the enhanced competition among access providers, and the results of the review of interconnect usage charges (IUC) and the access deficit charges (ADC) regime by the Authority. This amendment also regulates the rural telecom tariff for various categories of rural subscribers.

21. Other initiatives taken by the Regulator in the area of tariff include the introduction of the “calling party pays” (CPP) regime and cost-based IUC. These measures positively affected the competitiveness of the cellular mobile telephone services market in India and resulted in significant reduction in international, and domestic long-distance call charges, the rationalization of roaming charges, and the reduction in tariffs for mobile telephony. The positive impact achieved thereby on the affordability of service for the common person contributed to the rise in overall tele-density. The continuous decline in the tariff for fixed line and mobile services has been accompanied by a significant rise in tele-density as apparent in Tables I and II. The telecom regulator’s decision to phase out the access deficit charge as a percentage of adjusted gross revenue (AGR), which private operators pay to the public sector operator BSNL, with effect from April 1, 2008 will result in a further drop in call charges for the consumer. This initiative of the regulator is perceived as pro-consumer and pro-competition.
Table II (Source TRAI)

Fixed Line Subscribers

Decline in Fixed Line Service Tariffs:
Quality of Service (QOS)

22. In accordance with its mandate to establish parameters for the quality of service provided by various service providers, the regulator issued regulations on QOS for basic
and cellular services in July 2000, with separate parameters provided for wireline and wireless services. The benchmarks provided for wireline services included time taken for provision of telephones after registration, the call completion rate, response time to the customer for assistance, and time taken for refund of deposits after closure. The benchmarks provided for mobile service providers included the call success rate, service access delay, the call drop rate, refunds to customers, and the percentage of calls answered in 20 seconds.

23. The TRAI has been reviewing regularly the status of quality of service provided by operators. These reviews found the over-all performance of wireline services vis-à-vis the benchmarks to be deficient. In the case of mobile service providers, however, they found the overall performance to be considerably better with about 75% of the operators achieving most of their benchmarks. The QOS regulations issued in July 2000 have since been reviewed and a further set of regulations on QOS were issued in July, 2005. Under this regulation, the TRAI divided the basic and cellular QOS parameters into four categories, namely: 1) network performance; 2) customer help lines; 3) billing complaints; and 4) customer perception regarding services. New parameters introduced in the regulation include the call set up success rate, the blocked call rate, service coverage, POI congestion, voice quality, and so forth. A review of the performance of wireline service providers for the quarter ending September 2007 found some improvement in respect of certain parameters, including the provision of telephones, the call completion rate, and the time taken for refund of deposits, but the over-all picture remains far from satisfactory. By contrast, cellular mobile service providers performed much better for the same quarter vis-à-vis their QOS benchmarks. They achieved the prescribed benchmarks for such parameters as the call success set up rate, service access delay, the call drop rate, refunds to customers, and the percentage of calls answered in 20 seconds.

24. To summarize, analysis of performance by service providers vis-à-vis quality of service parameters shows that mobile service operators meet the QOS benchmarks but the same cannot be said for wireline service, where there have been slippages in performance level. Customers’ satisfaction with a particular type of service is an important driver of growth of that service, which explains to some extent why the growth of cellular mobile service has been phenomenal, far surpassing wireline service in new customers.
Protection of consumers’ interests

25. The TRAI has variously addressed consumers’ concerns, including by (i) holding half-yearly meetings with the registered consumer organizations to gain better appreciation of consumers’ problems; (ii) inviting consumer organizations to seminars, workshops and conferences to apprise them of various developments in the telecom sector; and (iii) prescribing a written voluntary declaration by the service providers about the various dimensions of service. In this context, the Quality of Service (Code of Practice for Metering and Billing) Regulation 2006 of March 21, 2006 merits special mention. This regulation mandates that service providers arrange an annual audit of their metering and billing systems, using any one of the auditors approved by the regulator, and to furnish an audit certificate thereof by June 30 each year. The regulation also requires that service providers take corrective actions on identified inadequacies within a specified period.

26. During 2006-07, TRAI took several steps to protect the interests of consumers including:

i) obliging all service providers to furnish full details of the tariff plan they offer to customers at the time of their enrolment.

ii) mandating that service providers regularly reflect credit limits set for a post-paid customer in their monthly bill on a regular basis.

iii) requiring service providers to display details of their tariff plans for the information of consumers. Service providers were also required to display the international private leased-line tariff and domestic leased-line tariff on their websites.

iv) prescribing the issuance of docket numbers for registering complaints made to call centers and also for termination of service.

27. Other measures taken to protect consumers’ interests, include the appointment (in January 2008) of independent agencies to conduct a survey that assessed the implementation and effectiveness of the “Telecom Consumers Protection and Redressal of Grievances Regulation 2007” as well as customers’ perception of service. In addition, an audit assessed the QOS from basic, cellular mobile and broadband service providers. In January 2007, the TRAI established a Telecommunication Consumers Education and Protection Fund. The income realized from the fund will finance programs to educate telecom consumers, along with research studies on matters relating to consumer interests.
During the same month, it introduced another regulation envisaging a mechanism for curbing unwanted telemarketing calls. All these measures have improved consumers’ perceptions of the efficacy of telecom services, and served notice that service providers must adhere to the norms prescribed by the regulator or be prepared for consequences. These pro-consumer measures have had a salutary impact on telecom growth in India as would be evidenced by the welcome increase in tele-density both in urban and rural areas.

**Licensing of Services**

28. One of the important functions that the TRAI Act conferred on the regulator was to recommend, suo motu or at the request of the licensor, the need and timing for introducing a new service provider as well as the terms and conditions of the license. By and large, the regulator’s track record in this area has been pro-competition, which boosted liberalization in the telecom sector. Recommendations have made a positive impact on:

i) public mobile radio trunk service (PMRTS), which contributed to lowering the license fee and creating more choice of technology.

ii) VSAT operations, which allowed higher data speed for VSAT users and lower license fees for captive VSAT networks.

iii) the internet service provider (ISP) licensing regime, which allowed scope for removing restrictive provisions in the existing license conditions.

iv) ‘Infrastructure Sharing.’

v) licensing policy (in August 2007) for access services provisions. This particular recommendation envisaged lifting the cap on the number of access service providers in any service area and allowed service providers to offer services on GSM/CDMA platforms or any other technology under the same license.

vi) accelerating growth of internet and broadband. The TRAI’s recommendations formed the basis of the government’s broadband policy issued in October 2004. On December 31, 2007, there were 3.02 million broadband subscribers, compared with only 0.18 million in March 2005. Similarly, the number of internet subscribers reached 40.57 million in March 2007, whereas in 2000 the number was only 0.95 millions.

**WLL Limited mobility service case- issues raised:**
29. There are also instances where the TRAI’s recommendations have proved controversial. One particular recommendation, which generated considerable controversy and dragged on in quasi-judicial/judicial fora for nearly three years (2001-2003), was a recommendation relating to WLL service. The TRAI proposed to treat WLL limited mobility service as part of the basic service license, subject to the condition that “the WLL mobility is not the same as that of cellular mobile services and provided that the disturbance expected to be created in the level playing field by the BSOs (Basic Service Operators) introducing this service can be evened out by making some necessary policy changes.” In addition, WLL mobility would be limited within the local area, i.e. the short distance charging area (SDCA). The telecom tribunal pronounced the final decision in this case in August 2003. It upheld the legality of WLL limited mobility service subject to certain conditions.

30. This case raised a host of issues, such as, whether:

- WLL service was permissible under the basic service license, and whether it could be treated as value addition to the basic service in the same way that the short messaging service (SMS) adds value to cellular mobile service;
- WLL service warranted the issuance of a separate license, even though the mobility was limited in character;
- permitting limited mobility service amounted to a violation of agreements entered into with mobile service operators, and whether they were entitled to compensation for possible loss of revenue resulting from operation of WLL service;
- the WLL service would be operated on PSTN architecture or a mobile switching center (which can invest in WLL with unhindered mobility); and
- and to what extent the public interest was served, which was a main justification for the licensor to permit this service.

Another important issue was the extent to which the justification of technological neutrality would be warranted if it could lead to an uneven playing field. This particular case brought into focus the lack of clarity at the policy-making, regulatory and implementation levels, and thereby provided an opportunity, albeit not without cost, for taking corrective actions. The authorities seized the opportunity and ushered in an era of transition to the unified service license regime with the aim of seeking
balance between two objectives: promoting service penetration and creating conditions for a level playing field.

Unified Access Service License (UASL)

31. The TRAI prepared a plan for a regime based on a unified access service license (UASL), which the Government accepted in November 2003. The UASL regime balanced the needs of service penetration with those of fair competition among the service providers. Under unified access licensing both basic service operators and cellular mobile service providers could offer basic and/or cellular mobile services using any technology. They also obtained the option to operate under the old licensing regime or migrate to the new regime. Upon migration to the new regime, operators had to provide wireless services over the existing allocated spectrum; they acquired no additional spectrum pursuant to migration. The basic service operators paid an entry fee for migration, which would be the difference between the entry fee paid by the fourth cellular mobile service provider and the entry fee already paid by the basic service provider for providing services in that same area. The UASL regime has contributed to a healthy competitive environment. The number of licenses has risen significantly with 97 UAS, two basic service and 60 cellular mobile service licenses as of December 2007. The UASL regime, however, is unique in one particular respect; it imposes no specific obligation on the licensees to provide telephone connectivity in rural areas. The licensee is obligated, however, to ensure coverage of at least 10% of the district headquarters in the first year and 50% of the district headquarters within three years of the effective date of the license.

Provision of tele-connectivity in rural areas

32. The wide gap between rural tele-density and urban tele-density has long needed urgent attention. The rural wireline subscriber base stood at 11.99 million in the quarter ending September 2007. Both the NTP94 and the NTP99 emphasized the expansion of rural tele-coverage. As early as October 2001, the telecom regulator had recommended raising resources to discharge the universal service obligation through a universal service levy fixed at 5% of the adjusted gross revenue of all telecom service providers. Because of the regulator’s universal service support policy, the Universal Service Obligation Fund (USOF) was established to meet the universal service obligations. The number of
village public telephones (VPT) increased steadily over the years from 0.68 per 100 during 1999-2000 to 8.35 in December 2007. The Department of Telecommunications Annual Report 2007-08 indicated that about 527,000 VPTs in the country are currently eligible for financial support for operation and maintenance under the USO Fund.

33. Nevertheless, telecom reach in rural areas remains far from satisfactory both in access to facilities and in broadband/ internet penetration. The new UASL regime also places no specific obligation on the UAS licensees to provide telecom coverage in the rural areas. The government-owned operator, Bharat Sanchar Nigam Ltd. (BSNL), retains the major responsibility to serve rural areas.

**Spectrum management**

34. The NTP99 recognized that increasing proliferation of new technologies and growing demand for telecom services have led to manifold demands on the spectrum. Hence, that policy underscored the need for efficient, rational utilization of this scarce resource and stressed that the process for allocation of frequency spectrum should be transparent. The availability and efficient use of spectrum are crucial components in improving the quality of service, expanding the network, and transitioning successfully to an era of convergence of services and technologies. Due to technological developments, there is a trend towards unification of networks and services leading to a next generation network (NGN) that would be predominantly IP based. NGN would enable service providers to offer a wide range of services (voice, data and video) on the same platform. The exponential growth registered by wireless service together with the focus on “next generation” networks and greater broadband and internet penetration throughout the country have significantly increased the demand for spectrum from existing and new service providers. The competing claims on this scarce resource, which has been complicated by the alleged lack of a transparent, consistent policy, have made the process of allocating and pricing spectrum a contentious issue.

35. Some of the important issues that are relevant in this context are:
  - should the number of access providers be capped;
• should the allocation of spectrum come with conditions for its utilization, such as adherence to a time line and/or compliance with rollout obligations associated with spectrum allocated earlier;
• how should priority among different categories of service providers, including new service providers, be determined in allocating spectrum: should the major factor be subscriber base, revenue or both, or some other factor;
• what parameters should determine the pricing of spectrum; and
• should the policy for allocating spectrum be flexible and independent of any specific technology, thus allowing the service providers to determine the manner of its use?

Another important issue that interested parties have discussed actively is the desirability of allocating spectrum by auction. The debate concerns whether this is the right course only in situations where full competition prevails, as well as how one prevents the monopolization of spectrum. Big players have the financial muscle to corner a big chunk of the available spectrum; how does one safeguard the interests of (potential) new entrants who may have little market power but who nevertheless wish to compete?

36. The TRAI’s recommendations focus on ensuring a level playing field, establishing technological neutrality and affordability, and making spectrum available to telecom operators who wish to provide 3G and broadband wireless access (BWA). It has also recommended the allocation of spectrum by auctions in future, after reserving the spectrum in certain bands. Since there is insufficient spectrum to meet the requirements of the existing operators, let alone new applicants, an efficient, fair approach is manifestly in the interests of the telecom industry. The current, heated debate about the issue has yet to yield a clear-cut final decision. Successful resolution of spectrum related issues is an important prerequisite for continuing growth of the telecom sector.

37. To promote greater competition, the TRAI has made a number of recommendations covering such areas as mobile number portability, competition in the international private leased circuits (IPLC) segment, the unified licensing regime, infrastructure sharing, competition in national long-distance communication and opening access to the international long-distance circuits. Other measures taken by the TRAI that have already
been discussed above have had a beneficial cumulative impact in creating a competitive environment in the telecom sector.

38. The impact of recommendations of the TRAI, together with the policy initiatives taken by the government from time to time, is clearly discernible in the growth of the telecom sector, as witnessed by the increasing number of operators -- both in basic and mobile service segments, a significant lowering of tariffs, a higher quality of service, a quantum increase in FDI inflow, an increase in consumer awareness, and a considerable expansion of tele-density, both in urban and rural areas. For example, the tele-density in the country, which was 0.8 per 100 persons in 1994 rose to 23.9 in December 2007 and has reached a level of 25.3 per 100 persons in February 2008. The total number of telephone connections, which reached 272.9 million in December 2007 has touched 290.1 million in February 2008 with a total wireless subscribers (GSM, CDMA and WLL (fixed) base of 250.9 million at the end of February 2008.

39. The structure and composition of telecom growth has also undergone a qualitative change with the share of wireless phones going up to 85.6% in December 2007 as compared to its share of 14.9% in March 2002. The share of private operators in total telephone connections has increased to 72.4% in December 2007 from 20.9% in 2003. The private sector in telephony has grown very fast as is underlined by growth at 66% in 2007 as against public sector growth of 17%. This development illustrates the success of liberalization policies, which have put the telecom sector on a higher growth path with the number of telephones growing since 2004 at an annual rate above 40% except for 2005. The target of 250 million phones by the end of 2007 was achieved in October 2007. The table below summarizes the progress made over a ten-year period (1997-2007) on some key metrics.

<table>
<thead>
<tr>
<th></th>
<th>1997</th>
<th>2002</th>
<th>2007</th>
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</thead>
<tbody>
<tr>
<td>(As on 31st March)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wireline Subscribers (in millions)</td>
<td>14.5</td>
<td>38.3</td>
<td>40.8</td>
</tr>
<tr>
<td>Wireless Subscribers (in millions)</td>
<td>0.3</td>
<td>6.7</td>
<td>165.1</td>
</tr>
<tr>
<td>Total Telephone Subscribers (in millions)</td>
<td>14.8</td>
<td>45.0</td>
<td>205.9</td>
</tr>
<tr>
<td>Tele-density (%age)</td>
<td>1.6</td>
<td>4.3</td>
<td>18.2</td>
</tr>
</tbody>
</table>
Internet Subscribers (Wireline + wireless) (in millions)  
<table>
<thead>
<tr>
<th></th>
<th>0.1</th>
<th>3.4</th>
<th>40.6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broadband Subscribers (in millions)</td>
<td>-</td>
<td>-</td>
<td>2.3</td>
</tr>
</tbody>
</table>

Per Minute Call Charges (in INR)

<table>
<thead>
<tr>
<th></th>
<th>Local</th>
<th>STD</th>
<th>ISD</th>
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<tbody>
<tr>
<td></td>
<td>$16.8</td>
<td>$30.0</td>
<td>$75.0</td>
</tr>
<tr>
<td></td>
<td>$0.40</td>
<td>$0.71</td>
<td>$1.79</td>
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<tr>
<td></td>
<td>$3.1</td>
<td>$9.8</td>
<td>$40.8</td>
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<tr>
<td></td>
<td>($0.07)</td>
<td>($0.23)</td>
<td>($0.97)</td>
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<tr>
<td></td>
<td>$1.0</td>
<td>$2.4</td>
<td>$6.4</td>
</tr>
<tr>
<td></td>
<td>($0.02)</td>
<td>($0.06)</td>
<td>($0.15)</td>
</tr>
</tbody>
</table>

Minutes of wireless use (per subscriber per month)  
|          | -     | 215  | 471  |

Average Revenue per User (in INR per subscriber per month)  
|          | -     | 811   | 298  |

Foreign Direct Investment in Telecom (in billion INR)  
|          | 223.3 | 956.2 | 1181.1 |

**Impact of TDSAT**

40. Another important development to highlight here is the role played by TDSAT in introducing stability in the market place by resolving sector conflicts/issues in a focused, judicious manner. There is now more consistency in dealing with telecom issues. This forum, TDSAT, provides service providers an opportunity finally to resolve disagreements, enables consumers as a class to get a fair deal, and also verifies various decisions of the regulator that establish the character of corporate governance in the telecom sector. The TDSAT gains credibility from the fact that its chair is a retired judge of the Supreme Court of India, and this has inspired a great deal of confidence among all stakeholders.

41. The number of cases heard by the Tribunal has increased steadily, partly due to a recent expansion of its responsibility to deal with disputes pertaining to cable and broadcasting services besides telecom services. Through February 2003, 217 cases came up before the tribunal; the number rose further to 522 in 2006 and 473 until October 2007. The Tribunal has adjudicated its cases largely in a timely manner, but scope exists for further improvement in the disposal rate. The Tribunal already has decided some very important issues, pertaining to jurisdiction, interpretation of licensing terms, competition, inter-carrier compensation, spectrum allocation and consumer interests, all of which contributed importantly to sustaining growth of the telecom sector. It has also organized seminars/panel discussions around the country to raise awareness among the various stakeholders of the importance of speedy settlement of disputes in the sector and to educate them about the activities and role of TDSAT in developing the telecom sector.
Without doubt, this body plays a unique role in settling telecom disputes, but its efficacy depends greatly upon the speed with which it resolves a dispute. Certainly, following a court-like procedure would detract to an extent from speedy disposal of cases, which is one of the basic requisites for orderly growth of the telecom sector.

**Future Challenges**

42. The basic challenge that confronts the telecom sector in India is the importance that policy attaches to what Prof Eli. M. Noam calls “the centrality of telecommunication infrastructure in a country’s economic and social life.” How the telecom sector meets that challenge depends on two main factors: first, how it addresses the concerns and needs of all segments of Indian society, and, second, how it uses current technologies (and assimilates new technologies) to reduce barriers to Indian development internally and to enhance India’s ability to compete internationally. India’s telecommunication industry has travelled far but it still has far to go. To complete the journey efficiently, the industry must evaluate critically the extent to which policy objectives have been achieved, identify those areas in which current policies are deficient and correct them, and anticipate what new policies will be needed to respond to emerging situations.

43. As is well known, vast tracts of rural India are yet to be penetrated by basic telecom services, let alone broadband/internet services. Better serving rural India will be an ongoing priority for telecom development, which can thereby serve as an agent to promote social cohesion and inclusive economic growth. A complex issue for all stakeholders in the sector is how to reconcile the promotion of effective, fair market competition with the widespread provision of universal service. How should the GOI and the service providers share the responsibility to provide access to advanced services at affordable prices to rural areas; and how should any subsidies required in so doing be directed?

44. Another important challenge would be to revisit the roles of the regulator and the dispute resolution entity as the telecom sector evolves. The sector is characterized by growing complexity in the network, by the segmentation of markets into fringe areas and niches that cater to different groups of customers, and by a heightened role of technological innovations in driving change. Increasingly, the regulatory institutions will have to tackle issues that arise from cross-platform competition. Multiple and emergent platforms now allow abundant choices to customers, ranging from the traditional PSTN based services to new services based on wireless and VOIP technologies. Authorities
need to determine what degree of oversight -- if any -- the regulators should have over services that currently remain unregulated. The regulatory decision should aim for balance between the protection of consumer interests and the promotion of universal service, on the one hand, and the encouragement of competition and technological innovation, on the other.

45. Clearly, the demands of a rapidly growing and changing industry will raise questions about the appropriate structure of its regulatory body. With what powers, functions and responsibilities should the regulator be entrusted, and how should it be staffed to discharge its responsibilities? As well, how should its independence be guaranteed, and its protection from external interference be ensured? Similar questions arise with respect to the dispute-settlement entity, which will also have to equip itself to address new types of disputes in a speedy manner. What changes in its working procedures will be required; whether and to what extent would judicial mediation in dispute resolution help? The specialized nature of the dispute-settlement entity and the crucial nature of its role in promoting the orderly growth of the sector both emphasize the importance of ensuring that it has an adequate complement of well-trained people with considerable expertise in technology and law.

46. Finally, challenges also stem from the need to expand tele-density, and to prepare the ground for introducing new technology and services. Authorities also must devise protocols for third- and fourth-generation networks. As well, establishing and implementing a sound, transparent spectrum policy will remain a vital priority.

Conclusion

47. Fostering a competitive environment in services industries, such as telecommunications, depends largely on an independent, strong regulatory mechanism that derives its legitimacy from statutes that convey well-defined powers, functions and responsibilities. Such a framework empowers the regulator to function transparently, and to establish ground rules then oversee compliance with them by service providers. An efficacious dispute-settlement mechanism, which settles disputes objectively and rapidly, is also a pre-requisite for a competitive environment. The quality and transparency of regulation and the efficacy of the dispute settlement mechanism remain key factors in attracting investments, which are needed to implement the sweeping changes that stem from convergence, changes in business practices and evolving consumer needs in the
telecom sector. The policy-making entity contributes with equal importance in providing clarity and transparency of the policy regime, and in supporting constructively the regulatory institutions. If any of the key agencies fail to discharge their respective functions effectively, the reform process will be impaired.

48. The telecom sector in India has travelled far, emerging from its early struggles to expand basic service to reach the current phase of phenomenal growth of wireline and wireless telephony, as well as value-added services. The sector has surmounted many obstacles in reaching its current stage of development, but has to continue to reform if it is to realize fully the potential of new technologies and truly become an engine of inclusive economic growth.
References


6. “Regulatory Reform as a Tool for Bridging the Digital Divide”. OECD. 2004. (http://www.oecd.org/document/7/0,3343,en_21571361_34590630_34644551_1_1_1_1,00.html)


National Telecom Policy, 1994

Introduction

The new economic policy adopted by the Government aims at improving India's competitiveness in the global market and rapid growth of exports. Another element of the new economic policy is attracting foreign direct investment and stimulating domestic investment. Telecommunication services of world class quality are necessary for the success of this policy. It is, therefore, necessary to give the highest priority to the development of telecom services in the country.

Objectives

The objectives of the New Telecom Policy will be as follows:

a) The focus of the Telecom Policy shall be telecommunication for all and telecommunication within the reach of all. This means ensuring the availability of telephone on demand as early as possible.

b) Another objective will be to achieve universal service, covering all villages, as early as possible. What is meant by the expression universal service is the provision of access to all people for certain basic telecom services at affordable and reasonable prices.

c) The quality of telecom services should be of world standard. Removal of consumer complaints, dispute resolution and public interface will receive special attention. The objective will also be to provide the widest permissible range of services to meet the customer's demand at reasonable prices.

d) Taking into account India's size and development, it is necessary

e) The defence and security interests of the country will be protected.

Present Status

The present telephone density in India is about 0.8 per hundred persons as against the world average of 10 per hundred persons. It is also lower than that of many developing countries of Asia like China (1.7), Pakistan (2), Malaysia (13) etc. There are about 8 million lines with a waiting list of about 2.5 million. Nearly 140,000 villages, out of a total of 5,76,490 villages in the country, are covered by telephone services. There are more than 100,000 public call offices in the urban areas.

Revised Targets

http://www.indianembassy.org/special/ntp.htm
In view of the recent growth of the economy and the reassessed demand, it is necessary to revise the VIII Plan targets as follows:

a) Telephone should be available on demand by 1997

b) All villages should be covered by 1997

c) In the urban areas a PCO should be provided for every 500 persons by 1997

d) All value-added services available internationally should be introduced in India to raise the telecom services in India to international standards well within the VIII Plan period, preferably by 1996.

Resources for the revised targets

The rapid acceleration of telecom services visualized above would require supplementing the resources allocated to this sector in the VIII Plan. The total demand (working connections + waiting list) showed a rise of nearly 50% from 7.03 million on 1.4.1992 to 10.5 million on 1.4.1994 over a three year period. If the demand grows at the same rate for the next three years, it would touch about 15.8 million by 1.4.1997. The actual rate of growth is likely to be higher as the economy is expected to grow at a faster pace. Achieving the target of giving telephone on demand by 1997 would thus imply releasing about 10 million connections during the VIII Plan as against the existing target of 7.5 million. Release of 2.5 million additional lines alone would require extra resources to the tune of Rs. 117.50 billion at a unit cost of Rs. 43,000 per line at 1993-94 prices. To this must be added the requirement on account of additional rural connections of Rs. 40 billion.

Even with the comparatively modest targets of the VIII Plan, as originally fixed, there is a resource gap of Rs. 75 billion. The additional resources required to achieve the revised targets would be well over Rs. 230 billion. Private investment and association of the private sector would be needed in a big way to bridge the resource gap. Private initiative would be used to complement the Departmental efforts to raise additional resources, both through, increased internal generation and adopting innovative means like leasing, deferred payments, BOT, BLT, BTO etc.

Hardware

With the objective of meeting the telecom needs of the country, the sector manufacturing telecom equipment has been progressively delicensed. Substantial capacity has already been created for the manufacture of the necessary hardware within the country. The capacity for manufacture of switching equipment, for example, exceeded 1.7 million lines/year in 1993 and is projected to exceed 3 million lines/year by 1997. The capacity for manufacture of telephone instruments at 8.4 million units per year is far in excess of the existing or the projected demand. Manufacturing capacities for wireless terminal equipment, Multi Access Radio Relay (MARR) for rural communication, optical fibre cables, underground cables etc. have also been

http://www.indianembassy.org/special/ntp.htm
established to take care of the requirements of the VIII Plan.

**Value-added services**

In order to achieve standards comparable to the international facilities, the sub-sector of value-added services was opened up to private investment in July 1992 for the following services:

- Electronic Mail
- Voice Mail
- Data Services
- Audio Text Services
- Video Text Services
- Video Conferencing
- Radio Paging
- Cellular Mobile Telephone.

In respect of the first six of these services companies registered in India are permitted to operate under license on non-exclusive basis. This policy would be continued. In view of the constraints on the number of companies that can be allowed to operate in the area of Radio Paging and Cellular Mobile Telephone Services, however, a policy of selection is being followed in grant of licenses through a system of tendering. This policy will also be continued and the following criteria will be applied for selection:

- Track record of the company;
- Compatibility of the technology;
- Usefulness of the technology being offered for future development;
- Protection of national security interests;
- Ability to give the best quality of service to the consumer at the most competitive cost;
- Attractiveness of the commercial terms to the Department of Telecommunications.

**Basic services**

With a view to supplement the effort of the Department of Telecommunications in providing telecommunication services to the people, companies registered in India will be allowed to participate in the expansion of the telecommunication network in the area of basic telephone services also. These companies will be required to maintain a balance in their coverage between urban and rural areas. Their conditions of operation will include agreed tariff and revenue sharing arrangements. Other terms applicable to such companies will be similar to those indicated above for value-added services.

**Pilot Projects**

Pilot projects will be encouraged directly by the Government in order to access new technologies, new systems in both basic as well as value-added services.
Technology and Strategic Aspects

Telecommunication is a vital infrastructure. It is also technology intensive. It is, therefore, necessary that the administration of the policy in the telecom sector is such that the inflow of technology is made easy and India does not lag behind in getting the full advantage of the emerging new technologies. An equally important aspect is the strategic aspect of telecom which affects the national and public interests. It is, therefore, necessary to encourage indigenous technology, set up a suitable funding mechanism for indigenous R and D, so that the Indian technology can meet the national demand and also compete globally.

Implementation: In order to implement the above policy, suitable arrangements will have to be made to

- protect and promote the interests of the consumers;
- ensure fair competition.
1.0 Preamble

1.1 Importance of Telecommunications

The Government of India (Government) recognises that provision of world class telecommunications infrastructure and information is the key to rapid economic and social development of the country. It is critical not only for the development of the Information Technology industry, but also has widespread ramifications on the entire
economy of the country. It is also anticipated that going forward, a major part of the GDP of the country would be contributed by this sector. Accordingly, it is of vital importance to the country that there be a comprehensive and forward looking telecommunications policy which creates an enabling framework for development of this industry.

1.2 NTP 1994 - objectives and achievements

In 1994, the Government announced the National Telecom Policy which defined certain important objectives, including availability of telephone on demand, provision of world class services at reasonable prices, ensuring India's emergence as major manufacturing / export base of telecom equipment and universal availability of basic telecom services to all villages. It also announced a series of specific targets to be achieved by 1997. As against the NTP 1994 target of provision of 1 PCO per 500 urban population and coverage of all 6 lac villages, DoT has achieved an urban PCO penetration of 1 PCO per 522 and has been able to provide telephone coverage to only 3.1 lac villages. As regards provision of total telephone lines in the country, DoT has provided 8.73 million telephone lines against the eighth plan target of 7.5 million lines.

NTP 1994 also recognised that the required resources for achieving these targets would not be available only out of Government sources and concluded that private investment and involvement of the private sector was required to bridge the resource gap. The Government invited private sector participation in a phased manner from the early nineties, initially for value added services such as Paging Services and Cellular Mobile Telephone Services (CMTS) and thereafter for Fixed Telephone Services (FTS). After a competitive bidding process, licenses were awarded to 8 CMTS operators in the four metros, 14 CMTS operators in 18 state circles, 6 BTS operators in 6 state circles and to paging operators in 27 cities and 18 state circles. VSAT services were liberalised for providing data services to closed user groups. Licences were issued to 14 operators in the private sector out of which only nine licencees are operational. The Government has recently announced the policy for Internet Service Provision (ISP) by private operators and has commenced licensing of the same. The Government has also announced opening up of Global Mobile Personal Communications by Satellite (GMPCS) and has issued one provisional license. Issue of licenses to other prospective GMPCS operators is under consideration.

The Government recognises that the result of the privatisation has so far not been entirely satisfactory. While there has been a rapid rollout of cellular mobile networks in the metros and states with currently over 1 million subscribers, most of the projects today are facing problems. The main reason, according to the cellular and basic operators, has been the fact that the actual revenues realised by these projects have been far short of the projections and the operators are unable to arrange financing for their projects. Basic telecom services by private operators have only just commenced in a limited way in two of the six circles where licenses were awarded. As a result, some of the targets as envisaged in the objectives of the NTP 1994 have remained unfulfilled. The private sector entry has been slower than what was envisaged in the NTP 1994.

The government views the above developments with concern as it would adversely affect the further development of the sector and recognises the need to take a fresh look at the policy framework for this sector.
1.3 Need for a new telecom policy

In addition to some of the objectives of NTP 1994 not being fulfilled, there have also been far reaching developments in the recent past in the telecom, IT, consumer electronics and media industries world-wide. Convergence of both markets and technologies is a reality that is forcing realignment of the industry. At one level, telephone and broadcasting industries are entering each other's markets, while at another level, technology is blurring the difference between different conduit systems such as wireline and wireless. As in the case of most countries, separate licences have been issued in our country for basic, cellular, ISP, satellite and cable TV operators each with separate industry structure, terms of entry and varying requirement to create infrastructure. However, this convergence now allows operators to use their facilities to deliver some services reserved for other operators, necessitating a rethink into the existing policy framework. The new telecom policy framework is also required to facilitate India's vision of becoming an IT superpower and develop a world class telecom infrastructure in the country.

2.0 Objectives and targets of the New Telecom Policy 1999

The objectives of the NTP 1999 are as under:

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

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

- Make available telephone on demand by the year 2002 and sustain it thereafter so as to achieve a teledensity of 7 by the year 2005 and 15 by the year 2010
- Encourage development of telecom in rural areas making it more affordable by suitable tariff
structure and making rural communication mandatory for all fixed service providers.

- Increase rural teledensity from the current level of 0.4 to 4 by the year 2010 and provide reliable transmission media in all rural areas.
- Achieve telecom coverage of all villages in the country and provide reliable media to all exchanges by the year 2002.
- Provide Internet access to all district head quarters by the year 2000
- Provide high speed data and multimedia capability using technologies including ISDN to all towns with a population greater than 2 lakh by the year 2002.

3.0 New Policy Framework

The New Policy framework must focus on creating an environment, which enables continued attraction of investment in the sector and allows creation of communication infrastructure by leveraging on technological development. Towards this end, the New Policy Framework would look at the telecom service sector as follows:

- Cellular Mobile Service Providers, Fixed Service Providers and Cable Service Providers, collectively referred to as ‘Access Providers’
- Radio Paging Service Providers
- Public Mobile Radio Trunking Service Providers
- National Long Distance Operators
- International Long Distance Operators
- Other Service Providers
- Global Mobile Personal Communication by Satellite (GMPCS) Service Providers
- V-SAT based Service Providers.

3.1 Access Providers

3.1.1 Cellular Mobile Service Providers

The Cellular Mobile Service Providers (CMSP) shall be permitted to provide mobile telephony services including permission to carry its own long distance traffic within their service area without seeking an additional licence. Direct interconnectivity between licensed CMSP’s and any other type of service provider (including another CMSP) in their area of operation including sharing of infrastructure with any other type of service provider shall be permitted. Interconnectivity between service providers in different service areas shall be reviewed in consultation with TRAI and the same would be announced by August 15, 1999 as a part of the structure for opening up national long distance. The CMSP shall be allowed to directly interconnect with the VSNL after opening of national long distance from January 1, 2000. The CMSP shall be free to provide, in its service area of operation, all types of mobile services including voice and non-voice messages, data services and PCOs utilizing any type of network equipment, including circuit and/or packet switches, that meet the relevant International Telecommunication Union (ITU)/Telecommunication Engineering Center (TEC) standards.

CMSP would be granted separate licence, for each service area. Licences would be awarded for an initial period of twenty years and would be extendible by additional periods of ten years thereafter. For this purpose, service areas would be categorized into the four metro circles and Telecom circles as per the existing policy. CMSP would be eligible to obtain licences for any number of service areas.

Availability of adequate frequency spectrum is essential not only for providing optimal bandwidth to every operator but also for entry of additional operators. Based on the immediately available frequency spectrum band, apart from the two private operators already licenced, DOT / MTNL would be licenced to be the third operator in each service area in case they want to enter, in a time bound manner. In order to ensure level playing field between different service providers in similar situations, licence fee would be payable by DoT also. However, as DoT is the national service provider having immense rural and social obligations, the Government will reimburse full licence fee to the DoT.

It is proposed to review the spectrum utilisation from time to time keeping in view the emerging scenario of spectrum availability, optimal use of spectrum, requirements of market, competition and other interest of public. The entry of more operators in a service area shall be based on the recommendation of the TRAI who will review this as required and no later than every two years.

CMSP operators would be required to pay a one time entry fee. The basis for determining the entry fee and the basis for selection of additional operators would be recommended by the TRAI. Apart from the one time entry fee, CMSP operators would also be required to pay licence fee based on a revenue share. It is proposed that the appropriate level of entry fee and percentage of revenue share arrangement for different service areas would be recommended by TRAI in a time-bound manner, keeping in view the objectives of the New Telecom Policy.

3.1.2 Fixed Service Providers

The Fixed Service Providers (FSP) shall be freely permitted to establish 'last mile' linkages to provide fixed services and carry long distance traffic within their service area without seeking an additional licence. Direct interconnectivity between FSP's and any other type of service provider (including another FSP) in their area of operation and sharing of infrastructure with any other type of service provider shall be permitted. Interconnectivity between service providers in different service areas shall be reviewed in consultation with TRAI and the same would be announced by August 15, 1999 as a part of the structure for opening up of national long distance. The FSP shall be allowed to directly interconnect with the VSNL after the opening up of national long distance from January 1, 2000. The FSP may also utilize last mile linkages or transmission links within its service area made available by other service providers. The FSP shall be free to provide, in his service area of operation, all types of fixed services including voice and non-voice messages and data services, utilizing any type of network equipment, including circuit and/or packet switches, that meet the relevant International Telecommunication Union (ITU) / Telecommunication Engineering Center (TEC) standards.

The FSP shall be granted separate license, on a non-exclusive basis, for each service area of operation. Licences would be awarded for an initial period of twenty years which shall be extended by additional periods of ten years thereafter. The FSPs shall be eligible to obtain licences for any number of service areas.

While market forces will ultimately determine the number of fixed service providers, during transition, number of entrants have to be carefully decided to eliminate nonserious players and allow new entrants to establish themselves. Therefore, the option of entry of multiple operators for a period of five years for the service areas where no licences have been issued is adopted. The number of players and their mode of selection will be recommended by TRAI in a time-bound manner.


6/13/02
The FSP licencees would be required to pay a one time entry fee. All FSP licencees shall pay licence fee in the form of a revenue share. It is proposed that the appropriate level of entry fee and percentage of revenue share and basis for selection of new operators for different service areas of operation would be recommended by TRAI in a time-bound manner, keeping in view the objectives of the New Telecom Policy.

As in the case for cellular, for WLL also, availability of appropriate frequency spectrum as required is essential not only for providing optimal bandwidth to every operator but also for entry of additional operators. It is proposed to review the spectrum utilisation from time to time keeping in view the emerging scenario of spectrum availability, optimal use of spectrum, requirements of market, competition and other interest of public.

The WLL frequency shall be awarded to the FSPs requiring the same, based on the payment of an additional one time fee over and above the FSP entry fee. The basis for determining the entry fee and the basis for assigning WLL frequency shall be recommended by the TRAI. All FSP operators utilising WLL shall pay a licence fee in the form of a revenue share for spectrum utilization. This percentage of revenue share shall be over and above the percentage payable for the FSP licence. It is proposed that the appropriate level of entry fee and percentage of revenue share for WLL for different service areas of operation will be recommended by TRAI in a time-bound manner, keeping in view the objectives of the New Telecom Policy.

3.1.3 Cable Service Providers

Under the provisions of the Cable Regulation Act, 1995, Cable Service Providers (CSP) shall continue to be freely permitted to provide 'last mile' linkages and switched services within their service areas of operation and operate media services, which are essentially one-way, entertainment related services. Direct interconnectivity between CSP's and any other type of service provider in their area of operation and sharing of infrastructure with any other type of service provider shall be permitted.

Interconnectivity between service providers in different service areas shall be reviewed in consultation with TRAI and the same would be announced by August 15, 1999 as a part of the structure for opening up national long distance. In view of convergence, it is highly likely that two-way communication (including voice, data and information services) through cable network would emerge in a significant way in future. Offering of these services through the cable network would tantamount to providing fixed services. Accordingly, in case the above two-way communication services are to be provided by CSPs utilising their network, they would also be required to obtain FSP licence and be bound by the licence conditions of the FSPs, with a view to ensure level playing field.

3.2 Internet Telephony

Internet telephony shall not be permitted at this stage. However, Government will continue to monitor the technological innovations and their impact on national development and review this issue at an appropriate time.

3.3 Radio Paging Service Providers

The Radio Paging Service Providers (RPSP) shall be permitted to provide paging services
within their service area of operation. Direct interconnectivity between licenced RPSPs and any other type of service provider in their area of operation including sharing of infrastructure shall be permitted. Interconnectivity between service providers in different service areas shall be reviewed in consultation with TRAI and the same would be announced by August 15, 1999 as a part of the structure for opening up of national long distance.

The RPSP shall be granted separate licence, on a non-exclusive basis, for each service area of operation. Licences would be awarded for an initial period of twenty years and will be extended by additional periods of ten years thereafter. For this purpose, the service areas would be categorized as per the existing structure. The RPSP shall be eligible to obtain licences for any number of service areas.

Availability of adequate radio frequency spectrum is essential not only for providing optimal bandwidth to every operator but also for entry of additional operators. It is proposed to review the spectrum utilisation from time to time keeping in view the emerging scenario of spectrum availability, optimal use of spectrum, requirements of market, competition and other interest of public. The entry of more operators in a service area shall be based on the recommendation of the TRAI who would review this as required and no later than every two years.

The radio paging licencees shall pay a one time entry fee. The basis for determining the entry fee and the basis for selection of additional operators will be recommended by the TRAI. All radio paging licencees shall pay licence fee as a revenue share. It is proposed that the appropriate level of entry fee and percentage of revenue share for different service areas of operation will be recommended by TRAI in a time-bound manner, keeping in view the objectives of the New Telecom Policy. Further, TRAI may also examine and recommend the revenue sharing arrangements between RPSP and other access providers, subject to technical feasibility.

3.4 Public Mobile Radio Trunking Service Providers

The Public Mobile Radio Trunking Service Providers (PMRTSP) shall be permitted to provide mobile radio trunking services within their service area of operation. Direct interconnectivity between licenced PMRTSP's and any other type of service provider in their area of operation shall be permitted after examining the legal implications in view of the CMSP licences.

The PMRTSP shall be granted separate licence, on a non-exclusive basis, for each service area of operation. Licences would be awarded for an initial period of twenty years and will be extended by additional periods of ten years thereafter. For this purpose, the service areas would be categorized as per the existing structure. The PMRTSP shall be eligible to obtain licences for any number of service areas.

PMRTSP licencees would be required to pay a one time entry fee. The basis for determining the entry fee and the basis for selection of additional operators will be recommended by the TRAI. Apart from the one time entry fee, PMRTSP licencees would also be required to pay licence fee based on a revenue share. It is proposed that the appropriate level of entry fee and percentage of revenue share arrangement for different service areas would be recommended by TRAI in a time-bound manner keeping in view the objectives of the New Telecom Policy.

3.5 National Long Distance Operator

National long distance service beyond service area to the private operators will be opened for competition with effect from January 1, 2000. To promote setting up long distance bandwidth capacity in the country, provide a choice to consumers and promote competition, all NLDOs should be able to access subscribers. With a view to achieve the above, all access providers shall be mandatorily required to provide interconnection to the NLDOs resulting in choice for subscribers to make long distance calls through any operator. For this purpose, the terms and conditions and other modalities would be worked out in consultation with TRAI and the same will be announced by August 15, 1999. The terms and conditions would also specify the number of operators, licence conditions on revenue sharing basis and other related issues.

Usage of the existing backbone network of public and private power transmission companies/Railways/GAIL, ONGC etc. shall be allowed immediately for national long distance data communication and from January 1, 2000 for national long distance voice communications.

Resale would be permitted for domestic telephony, announcement for the modalities thereof to be announced along with the opening up of national long distance by August 15, 1999. Resale on international long distance will not be permitted till the year 2004.

3.6 International Long Distance Services

The subject of opening up of international telephony service to competition will be reviewed by the year 2004.

3.7 Other Service Providers

For applications like tele-banking, tele-medicine, tele-education, tele-trading, e-commerce, other service providers will be allowed to operate by using infrastructure provided by various access providers. No licence fee will be charged but registration for specific services being offered will be required. These service providers will not infringe on the jurisdiction of other access providers and they will not provide switched telephony.

3.8 Global Mobile Personal Communication Services.

The Government has opened up the GMPCS market in India and has issued a provisional licence. The terms of the final licence would need to be finalised in consultation with TRAI by June 30, 1999. All the calls originating or terminating in India shall pass through VSNL gateway or in case of bypass, it should be possible to monitor these calls in the Indian gateways. VSNL is also to be compensated in case gateway is bypassed.

The GMPCS operators shall be free to provide voice and non-voice messages, data service and information services utilising any type of network equipment, including circuit and/or packet switches that meet the relevant International Telecommunication Union (ITU) / Telecommunication Engineering Center (TEC) standards. However, the licences be awarded after the proposals are scrutinised from the security angle by the Government.

The appropriate entry fee/revenue sharing structure would be recommended by TRAI, keeping in view the objectives of the New Telecom Policy.
3.9 SATCOM Policy

The SATCOM Policy shall provide for users to avail of transponder capacity from both domestic / foreign satellites. However, the same has to be in consultation with the Department of Space.

Under the existing ISP policy, international long distance communication for data has been opened up. The gateways for this purpose shall be allowed to use SATCOM.

It has also been decided that Ku frequency band shall be allowed to be used for communication purposes.

3.9.1 VSAT Service Providers

The VSAT Service Providers shall be granted separate licence, on a non-exclusive basis for an initial period of twenty years and will be extended by additional periods of ten years thereafter. Interconnectivity between service providers in different service areas shall be reviewed in consultation with TRAI and the same would be announced as a part of the structure for opening up national long distance by August 15, 1999.

The VSAT service providers shall be granted separate licence, on a non-exclusive basis. Licences would be awarded for an initial period of twenty years and will be extended by additional periods of ten years thereafter.

VSAT licencees would be required to pay a one time entry fee. The basis for determining the entry fee and the basis for selection of additional operators will be recommended by the TRAI. Apart from the one time entry fee, VSAT licencees would also be required to pay licence fee based on a revenue share. It is proposed that the appropriate level of entry fee and percentage of revenue share arrangement would be recommended by TRAI in a time-bound manner, keeping in view the objectives of the New Telecom Policy.

3.10 Electronic Commerce

On line Electronic Commerce will be encouraged so that information can be passed seamlessly. The requirement to develop adequate bandwidth of the order of 10 Gb on national routes and even terabytes on certain congested important national routes will be immediately addressed to so that growth of IT as well as electronic commerce will not be hampered.

3. 11. Resolution of problems of existing operators

The New Policy Framework which seeks to significantly redefine the competitive nature of industry, would be applicable to new licencees.

There are, however, multiple licences that have been issued by the Government for cellular mobile services, basic services, radio paging services, internet services etc. It is the Government’s intention to satisfactorily resolve the problems being faced by existing operators in a manner which is consistent with their contractual obligations and is legally tenable,
4.0 Restructuring of DoT

World-wide, the incumbent, usually the Government owned operator plays a major role in the development of the telecom sector. In India, DoT is responsible for the impressive growth in number of lines from 58.1 lakhs on April 1, 1992 to 191 lakhs in December 1998, showing CAGR of 20%. DoT is expected to continue to play inimportnat, and indeed, dominant role in the development of the sector.

Currently, the licensing, policy making and the service provision functions are under a single authority. The Government has decided to separate the policy and licensing functions of DoT from the service provision functions as a precursor to corporatisation. The corporatisation of DoT shall be done keeping in mind the interests of all stakeholders by the year 2001.

All the future relationship (competition, resource raising etc.) of MTNL / VSNL with the corporatised DoT would be based on best commercial principles.

The synergy of MTNL, VSNL and the corporatised DoT would be utilised to open up new vistas for operations in other countries.

5.0 Spectrum Management

With the proliferation of new technologies and the growing demand for telecommunication services, the demand on spectrum has increased manifold. It is therefore, essential that spectrum be utilised efficiently, economically, rationally and optimally. There is a need for a transparent process of allocation of frequency spectrum for use by a service and making it available to various users under specific conditions.

The National Frequency Allocation Plan (NFAP) was last established in 1981, and has been modified from time to time since. With the proliferation of new technologies it is essential to revise the NFAP in its entirety so that it could become the basis for development, manufacturing and spectrum utilization activities in the country amongst all users. The NFAP is presently under review and the revised NFAP-2000 would be made public by the end of 1999, detailing information regarding allocation of frequency bands for various services, without including security information. NFAP shall be reviewed no later than every two years and shall be in line with radio regulations of International Telecommunication Union.

Relocation of existing Spectrum and Compensation:

- Considering the growing need of spectrum for communication services, there is a need to make adequate spectrum available.
- Appropriate frequency bands have historically been assigned to defence & others and efforts would be made towards relocating them so as to have optimal utilisation of spectrum. Compensation for relocation may be provided out of spectrum fee and revenue share levied by Government.
- There is a need to review the spectrum allocations in a planned manner so that required frequency bands available to the service providers.

There is a need to have a transparent process of allocation of frequency spectrum which is effective

and efficient. This would be examined further in the light of ITU guidelines. For the present, the following course of action shall be adopted.

- Spectrum usage fee shall be charged.
- Setting up an empowered Inter-Ministerial Group to be called as Wireless Planning Coordination Committee (WPCC) as part of the Ministry of Communications for periodical review of spectrum availability and broad allocation policy.
- Massive computerisation in the WPC Wing will be started during the next three months time so as to achieve the objective of making all operations completely computerised by the end of year 2000.

6.0 Universal service obligation

The Government is committed to provide access to all people for basic telecom services at affordable and reasonable prices. The Government seeks to achieve the following universal service objectives:

- Provide voice and low speed data service to the balance 2.9 lakh uncovered villages in the country by the year 2002
- Achieve Internet access to all district headquarters by the year 2000
- Achieve telephone on demand in urban and rural areas by 2002

The resources for meeting the USO would be raised through a 'universal access levy' which would be a percentage of the revenue earned by all the operators under various licences. The percentage of revenue share towards universal access levy would be decided by the Government in consultation with TRAI. The implementation of the USO obligation for rural / remote areas would be undertaken by all fixed service providers who shall be reimbursed from the funds from the universal' access levy. Other service providers shall also be encouraged to participate in USO provision subject to technical feasibility and shall be reimbursed from the funds from the universal access levy.

7.0 Role of Regulator

The Telecom Regulatory Authority of India (TRAI) was formed in January 1997 with a view to provide an effective regulatory framework and adequate safeguards to ensure fair competition and protection of consumer interests. The Government is committed to a strong and independent regulator with comprehensive powers and clear authority to effectively perform its functions.

Towards this objective the following approach will be adopted:

- Section 13 of The TRAI Act gives adequate powers to TRAI to issue directions to service providers. Further, under Section 14 of the Act, the TRAI has full adjudicatory powers to resolve disputes between service providers. To ensure a level playing fields, it will be clarified that the TRAI has the powers to issue direction under Section 13 to Government (in its role as service provider) and further to adjudicate under Section 14 of the Act, all disputes arising between Government (in its role as service provider) and any other service provider.
- TRAI will be assigned the arbitration function for resolution of disputes between Government (in its role as licensor) and any licensee.
- The Government will invariably seek TRAI’s recommendations on the number and timing of new licences before taking decision on issue of new licenses in future.
- The functions of licensor and policy maker would continue to be discharged by Government in
its sovereign capacity. In respect of functions where TRAI has been assigned a recommendatory role, it would not be statutorily mandatory for Government to seek TRAI's recommendations.

8.0 Other Issues

8.1 Standardisation

To enable the establishment of an integrated telecommunication network, common standards with regard to equipment and services would be specified by the Telecom Engineering Centre (TEC). TEC would also continue to grant interconnect and interface approvals for various service providers.

8.2 Telecom equipment manufacture

With a view to promoting indigenous telecom equipment manufacture for both domestic use and export, the Government would provide the necessary support and encouragement to the sector, including suitable incentives to the service providers utilising indigenous equipment.

8.3 Human resource development and training

Human resources are considered more vital than physical resources. Emphasis would be placed on the development of human resources for all fields related to telecommunications and the dispersal of this expertise to the related fields. Such expertise shall also be made available to other countries.

8.4 Telecom research and development

Recognising that telecommunications is a prime pre-requisite for the development of other technologies, telecommunications research and development (R&D) activities would be encouraged. Government would take steps to ensure that the industry invests adequately in R&D for service provision as well as manufacturing. Indigenous R&D would be actively encouraged with a view to accelerate local industrial growth and hasten transfer of technology. Premier technical institutions would be encouraged to undertake R&D activities on a contribution basis by the telecom service providers and manufacturers so as to develop multi-dimensional R&D activities in telecommunications and information technology.

8.5 Disaster management

International co-operation in the use of terrestrial and satellite telecommunications technologies in the prediction, monitoring and early warning of disaster, especially in the early dissemination of information would be encouraged. Financial commitment to disaster management telephony and the development of appropriate regulatory framework for unhindered use of trans-boundary telecommunications would be put in place.

8.6 Remote area telephony

Rural Telephony, areas of North East, Jammu & Kashmir and other hilly areas, tribal blocks, etc. may be identified as a special thrust areas for accelerated development of


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telecommunications. The Ministry of Defence shall be assigned a more active role in the development of telecommunications in such remote areas as are identified for accelerated development of telecommunications.

8.7 Export of Telecom equipment and services

Export of telecom equipment and services would be actively incentivised. Synergies among the various telecom players (manufacturers and service providers) would be exploited and used to provide integrated solutions for exports.

8.8 Right of way

Government recognises that expeditious approvals for right-of-way clearances to all service providers are critical for timely implementation of telecom networks. The Central / State Government / Local bodies / Ministry of Surface Transport etc. shall take necessary steps to facilitate the same.

9.0 Changes in legislation

The Indian telecommunications system continues to be governed by the provisions of the Indian Telegraph Act, 1885 (ITA 1885) and the Indian Wireless Act, 1933. Substantial changes have taken place in the telecommunications sector since 1992. ITA 1885 needs to be replaced with a more forward looking Act.

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