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1&2

INDIA POST : FROM TRADITION TO TRANSITION - A POST-LIBERALISATION SCENARIO

K. Trivikram & R.K. Mishra

REGULATION OF POWER SECTOR BY INDEPENDENT REGULATOR: HARYANA EXPERIENCE

Rajesh Kumar, Kulwant Singh & Surinder Kumar

ORGANIZATIONAL CONSTRAINTS ON PUBLIC RELATIONS IN THE PUBLIC SECTOR - A STUDY

Rohit Raj Mathur

EMERGING SCENARIO AND FUTURE CONVERGENCE OF TELECOMMUNICATION SECTOR IN INDIA : SOME REFLECTIONS

D.Chennappa

PASSENGER RESERVATION SYSTEM IN THE INDIAN RAILWAYS - A STUDY

S. John Gabriel & M. Suresh Babu

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1&2

Content

Page No

Research Paper

- ▶ India Post : From Tradition to Transition
- A Post-Liberalisation Scenario.....01
K. Trivikram & R.K. Mishra
 - ▶ Regulation of Power Sector by Independent
Regulator: Haryana Experience.....30
Rajesh Kumar, Kulwant Singh & Surlinder Kumar
 - ▶ Organizational Constraints on Public
Relations in the Public Sector - A Study.....46
Rohit Raj Mathur
 - ▶ Emerging Scenario and Future Convergence
of Telecommunication Sector in India
: Some Reflections.....60
D.Chennappa
- Research Paper**
- ▶ Passenger Reservation System
in the Indian Railways - A Study.....77
S. John Gabriel & M. Suresh Babu

Emerging Scenario and Future Convergence of Telecommunication Sector in India : Some Reflections

*D.Chennappa**

The Indian telecommunications sector has undergone a major process of transformation through significant policy reforms particularly beginning in the year 1980. Private manufacturing of customer premise equipment was allowed in 1984 and the reform process commenced in telecom sector soon after the announcement of New Economic Policy - 1991. Telecom equipment manufacturing was de-licensed in 1991 and value-added services were opened in 1992. Radio paging, cellular mobile and basic telephony sectors were opened gradually, and thereafter, National Telecom Policy was announced in 1994, with a major thrust on universal service and qualitative improvement in telecom services. An independent statutory regulator, Telecommunication Regulatory Authority of India (TRAI) was established in January 1997. Internet services were opened in 1998 and progressively there was a major involvement of private sector in the growth of telecom services in the country. Hence, the most important landmark in telecom reforms, however, came with the New Telecom policy 1999 (NTP'99). However, the relevant literature is as follow.

Cronin (1993)¹ investigated the relationship at the state and sub-state levels, and confirmed at both the state and county levels, using data from the state of Pennsylvania, U.S., that telecommunication investment affects economic activity and that economic activity can affect telecommunication investment.

Alleman(2002)² observes that most infrastructure investments can positively affect the economy in three ways. First, it can

reduce the cost of production. Second, it can increase revenues. Third, it can increase employment through both direct and indirect effects. Eggleston (2002)³ shows how basic telecommunication infrastructure can create a "digital divide" by making market efficient through information dissemination to isolated and information-deprived locals and improve the living standards of the world's poor, which in turn accelerates growth. Bayes (1999)⁴ also noted that, the average prices of agricultural commodities were higher in villages with phones than in villages without phones. Gupta (2000)⁵ estimates that one per cent growth in telecommunication services generates three percent growth in the economy but he mentions that increases in purchasing power (contributed by increased telecom services) also increase the demand for such services. Chatterjee (1998)⁶ points out that income patterns decide the disposable income levels i.e. purchasing power for telecommunication services, and in turn the growth of services. In developing countries, rural tele-density is very low. Jhunjhunwala (2000)⁷ mentioned that in developed countries, 90 per cent of the households can afford monthly expenditure of US \$ 30 on telecommunication services, while, only 5-6 percent of the households can afford telecommunication services in developing countries such as India. Jain and Sridhar, (2003)⁸ pointed to improve rural tele-density by reducing the cost of access loop for providing telecom services using tech-

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gies such as wireless local loop. It is imperative to improve the economic activity of the rural areas using telecommunication related services so that the population has enough disposable income to purchase telecom services mentioned by Souter (1999)⁹. Kala Seetharam and Varadharajan Sridhar (2000)¹⁰ questioned that how increased telecom penetration can be used to accelerate their economic growth and alleviate poverty. RRN Prasad, Sainam Singh, Bhaskorjeet Borgohain and M P Ram Mohan (2004)¹¹ observed that Village Public Telephones (VPTs) under USF mechanism is slow and not a single PTIC has been set up till November 2004 under USF scheme, whereas the NTP'99 deadline is 2004 for setting up 35,000 PTICs by 2005. Arun Mehta (2002-03)¹² observed that allowing private parties in telecom sector is killing a goose, that if left alone, should soon start to lay golden eggs! Finally, the tele-density in India is 8.37 by the end of November 2004.¹³ Further, government¹⁴ proposed to increase it to 15 per 100 persons (175 million telephone connections) by the end of 2010. Against this backdrop and in anticipation of future challenges, this paper assumes importance.

This paper is based on secondary data, which has been collected from the records of Department of Telecommunication (DoT), Telecom Regulatory Authority of India (TRAI), Annual Reports, Economic Surveys of Government of India, newspapers and research journals etc., The study period covers from January 1999 (after NTP'99) to November 2004. Hence to study the penetration of telecom services annual growth rates are calculated and bar, pie, scattered charts and tables have been used. Nonetheless, this study confines to India's territory only and it does not cover the other countries telecom policies. However, the paper is divided into seven sections. Section one is introductory in its nature, section two covers

Investment in telecom sector, section three on fixed line services, section four-mobile services, section five- internet services and section six-other services and the last section covers summary and conclusions

Section I : Introduction

The process of telecom reforms in India had started in 1980s. Private manufacturing of customer premise equipment was allowed in 1984 and proliferation of individual STD/ISD PCO network undertaken on a large scale across the country through private individual franchisees. Two large corporate entities were carved out from the Department of Telecommunications, the Mahanagar Telephone Nigam Limited (MTNL) and Videsh Sanchar Nigam Limited (VSNL), heralding the era of corporatisation. A high-powered Telecom Commission was set up in 1989 with all the powers of the Government.

The reform process commenced in the Indian telecom sector with the liberalisation of the economy in the early 1990s and announcement of New Economic Policy - 1991. Telecom equipment manufacturing was de-licensed in 1991 and value-added services were opened in 1992. Radio paging, cellular mobile and basic telephony sectors were opened gradually, thereafter, National Telecom Policy was announced in 1994, with a major thrust on Universal Service and qualitative improvement in telecom services. An independent statutory regulator namely Telecommunication Regulatory Authority of India (TRAI), was established in January 1997. Internet services were opened in 1998 and progressively there was a major involvement of private sector in the growth of telecom services in the country.

Hence, the most important landmark in telecom reforms, however, came with the New Telecom policy 1999 (NTP'99). It allowed the existing operators to migrate from fixed licence fee regime to revenue sharing while the duopoly rights were

discontinued to herald the era of unlimited competition. NTP'99 outlined further strengthening of the Regulator, opening up of the National Long Distance (NLD) to private sector, opening up of International Long Distance telephony, corporatisation of telecom services, etc. However, specific targets of NTP-1999 are as follows:

- Make available telephone on demand by the year 2002 and sustain it thereafter so as to achieve a tele-density 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 tele-density 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.

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.

The government's licensing plan divided the nation into four very large metropolitan areas (Chennai, Delhi, Kolkata, and Mumbai) and originally 21 (eventually 23) circles, with the latter separated into three groups (A, B, C) according to the expected value of licenses. The government later decreed that no single entity could control more than three basic services. Most of the circles correspond to States, although States play no role in telecommunications policy. The five A circles are: Andhra Pradesh, Gujarat, Karnataka, Maharashtra and Tamil Nadu, the ten B circles: Chhattisgarh, Haryana, Kerala, Madhya Pradesh, Punjab, Rajasthan, Uttaranchal, Uttar Pradesh East, Uttar Pradesh West and West Bengal and the eight C circles: Andaman and Nicobar Islands, Assam, Bihar, Himachal Pradesh, Jammu and Kashmir, Jharkand, North East (several small states) and Orissa. As of 2004, cellular service is available in all circles except Chhattisgarh, Jharkand and Uttaranchal. The service for Andaman and Nicobar Islands, which have no fixed line service, has been integrated into the West Bengal service for two carriers.

Section II: Investment in Telecom Sector

Allocating a certain proportion of the national investment under the Five Year Plans (FYPs), to mandating targets through national telecom policies, policy impetus for the rural telephony has evolved over a period of time. National investment in telecom in the first six FYPs since 1951 varied between 1.4 per cent and 2.7 per cent of the Gross Domestic Product (GDP). Thereafter, investments went up to 3.6 per cent of the GDP in the Seventh

FYP (1985-90), 11.9 per cent in the Eighth FYP (1992-97), and 13 per cent in the Ninth FYP (1997-2002). The Tenth FYP (2002-07) is 11.5 per cent,¹⁴ envisages a total investment of Rs.1,606.7 billion, including an investment of Rs.441.6 billion in the rural areas.

Section III : Fixed Line Service Providers

During the year 2003-04, the basic service sector had 5 licensed private operators providing services in their respective licensed areas in addition to incumbents MTNL and BSNL. List of Fixed Service Providers along with their areas of operation is presented in Table-1.

Subscriber Base

As on 30th November 2004, the total fixed and Wireless in Local Loop (WLL) fixed subscribers are 44.31 million. The actual number of Direct Exchange Lines (DELs) has increased from 41.48 million as on 31st March 2003 to 42.84 million as on 31st March 2004. The overall percentage of growth in subscriber base during the year is 3.28 per cent. The subscriber base of Fixed lines including WLL (F) for last five years for the analysis of its growth, is depicted in bar chart-1.

The average percentage growth rate of the subscriber (including Fixed & WLL (F) for last four years is shown in chart-2

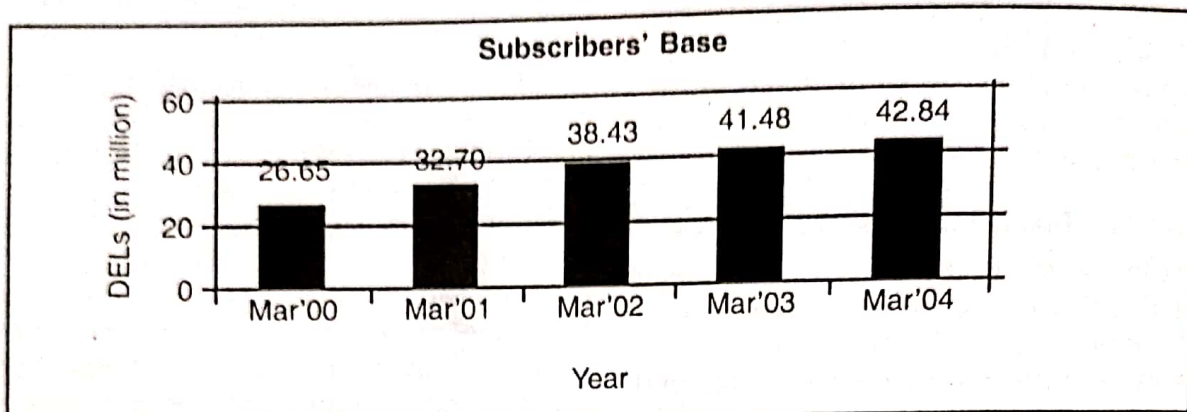
Chart-2 shows that the annual growth rate has declined from 22.70 per cent in 2000-2001 to 3.28 per cent in 2003-2004 in spite of basic subscriber's base had been increased. As of December 2003, 3,70,000 subscribers surrendered BSNL fixed line phones, whereas private fixed line players have attracted one million new customers. However, Das and Srinivasan (1999)¹⁵ noted that only 2.6 per cent of rural households had telephone services and as the survey revealed that more than 60 per cent of VTPs were faulty, of the remaining, a high percentage were disconnected due to non-payment of dues, so that in effect very few are in actual use. Rural areas are generally characterized by low per capita income, low literacy rate and poor infrastructure and agriculture is the mainstay occupation. It implies that the subscribers are shifting from landline phones to mobile phones and providers also shifting the focus from rural to urban areas only. While observing the actual total equipped switching capacity of all the basic service operators (includ-

Table - 1 Area-wise Fixed Line Service Providers

Service Provider	Area of Operation	No. of Circles
Bharti	Delhi, Karnataka, Madhya Pradesh, Haryana and Tamil Nadu	5
Tata Teleservice Ltd	Andhra Pradesh, Maharashtra, Delhi, Gujarat, Karnataka and Tamilnadu	6
HFCL	Punjab	1
Shyam Telelink Ltd.	Rajasthan	1
BSNL	All India (except Delhi & Mumbai)	26
Reliance	Delhi, Gujarat, Karnataka, Tamilnadu, Haryana, Kerala, UP(W), UP(E), West Bengal, Andaman & Nicobar, Bihar, Himachal Pradesh, Orissa, Andhra Pradesh, Madhya Pradesh, Maharashtra, Punjab and Rajasthan	18
MTNL	Delhi, Mumbai	2

Source : TRAI

Chart - 1



Source : TRAI

ing basic service operators who migrated to unified access service regime) in the country has registered a growth of 10.5 million switch capacity during April, 2004. The total equipped switching capacity increased from 52.8 million as on 31st March 2003 to 63.4 million as on 31st March 2004. The equipped capacity (including Fixed, WLL(F) & WLL(M)) of the basic service providers for last five years is depicted in bar chart-3.

By observing chart-3, it shows that switching capacity has been increasing since 1999-2000, whereas customers subscribed up to 42.84 million only. Out of the available switching board capacity 63.4 millions, 67 per cent has been used and remaining 20.56 million (33 per cent) capacity has not been properly utilised,

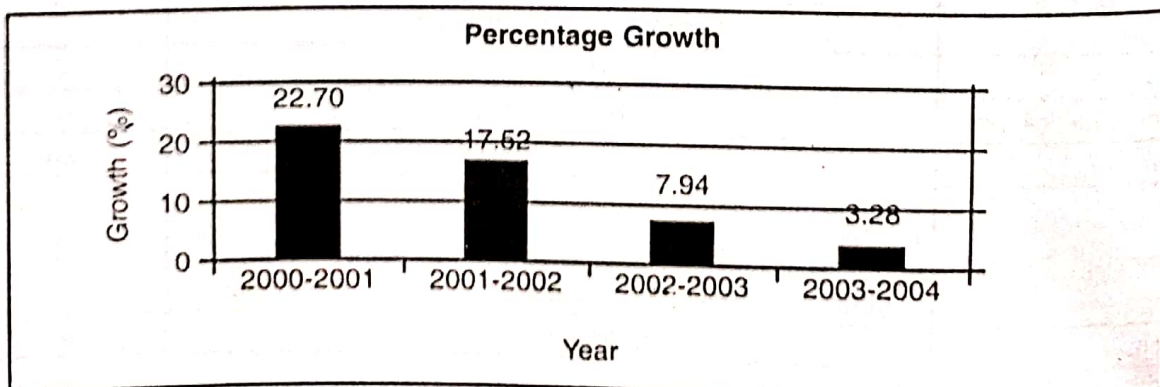
despite more than 1.75 lakh people being in the wait-list for new connections.

Public Call Offices (PCOs)

Total number of PCOs in the country was 19.24 lakhs as on 31 March, 2004 as compared to 14.93 lakhs on 31 March, 2003. 4.31 lakhs new PCOs have been added during the year 2003-04. The total number of PCOs for last five years has been depicted in bar chart-4.

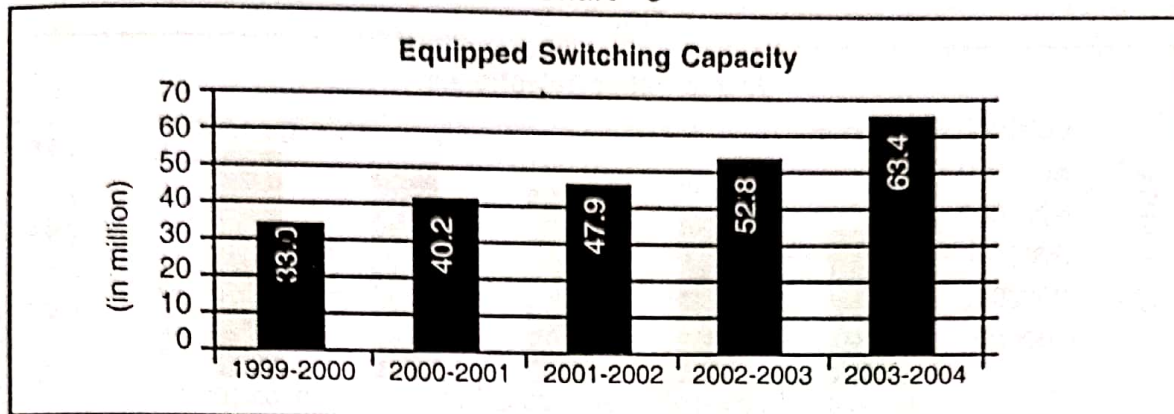
Chart-4 shows that the PCOs have been increased by about 20 per cent per annum. It can also be seen that the number of PCOs had increased from 6,58,353 in March 2000 to 19,24,178 in April 2004 in urban areas. Whereas same proportion of PCOs have not been increasing correspondingly in rural areas despite around 72 per cent resides in rural areas.

Chart - 2



Source : TRAI

Chart - 3



Source : TRAI

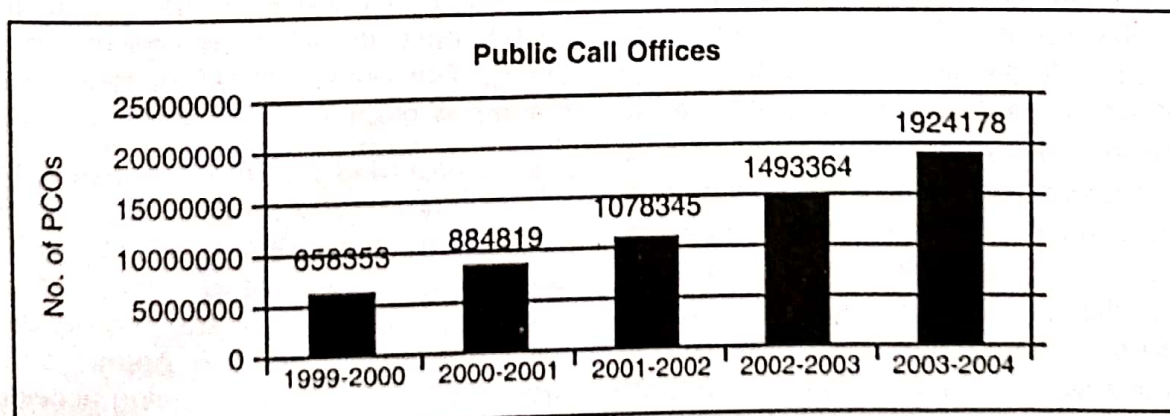
Village Public Telephones (VPTs)

There are around 6.07 lakhs villages in India. During the year ending 31 March, 2003 there were 5.13 lakhs VPTs in the country whereas by the end of this financial year, the total number of VPTs has increased to 5.23 lakhs. Thus around 0.09 lakhs VPTs have been added during the 2003-04 year. The total number of village public telephones of the Basic Service Operators/UASPs for last five years is depicted in bar chart-5.

Chart-5 shows that about 28 per cent of the annual growth rate is registered from 1999-2000 to 2003-2004 in installing phones at villages. However, about 0.85 lakh villages are left uncovered. It represents that more than 14 per cent of the villages have not been covered so far. A study of Jain & Sastry (1997)¹⁶ had

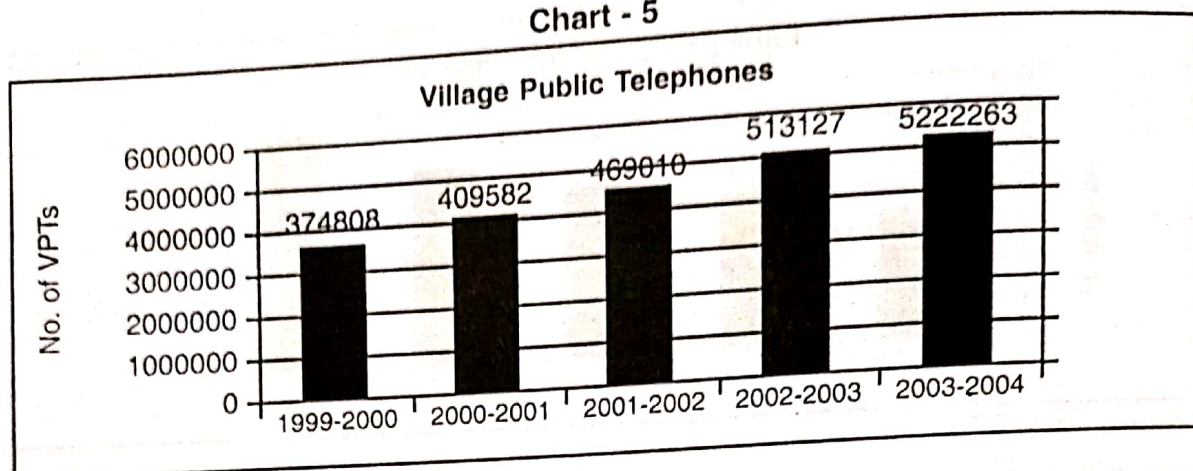
assessed the socio-economic benefits of rural telecom showed that 50 per cent of the respondent were dissatisfied with the availability of lines, 76 per cent were stated that lines remained dead for long times, especially during monsoon. The fault repairing system was such that his complaints were not attended to for a long duration and service personnel often could not rectify faults. Clarity of voice, billing system, attitude of services staff were other concern cited by the respondents. Another problem surfaced was that the number of PCOs available in the villages is very small, even PCOs located in their villages did not have STD facility. However, the survey shows that people are willing to pay reasonable charges for various services, including long distance calls, provided the service is more reliable.

Chart - 4



Source : TRAI

Chart - 5



Source : TRAI

Besides BSNL, six private telecom operators were issued licenses in 1997-98. Till March 2004, they had covered only 12,655 villages which is less than 13 per cent of what had been committed while taking licenses. Even in the post-reform period, access to telephones in most of the rural areas is not available.

Rural-Urban Tele-density

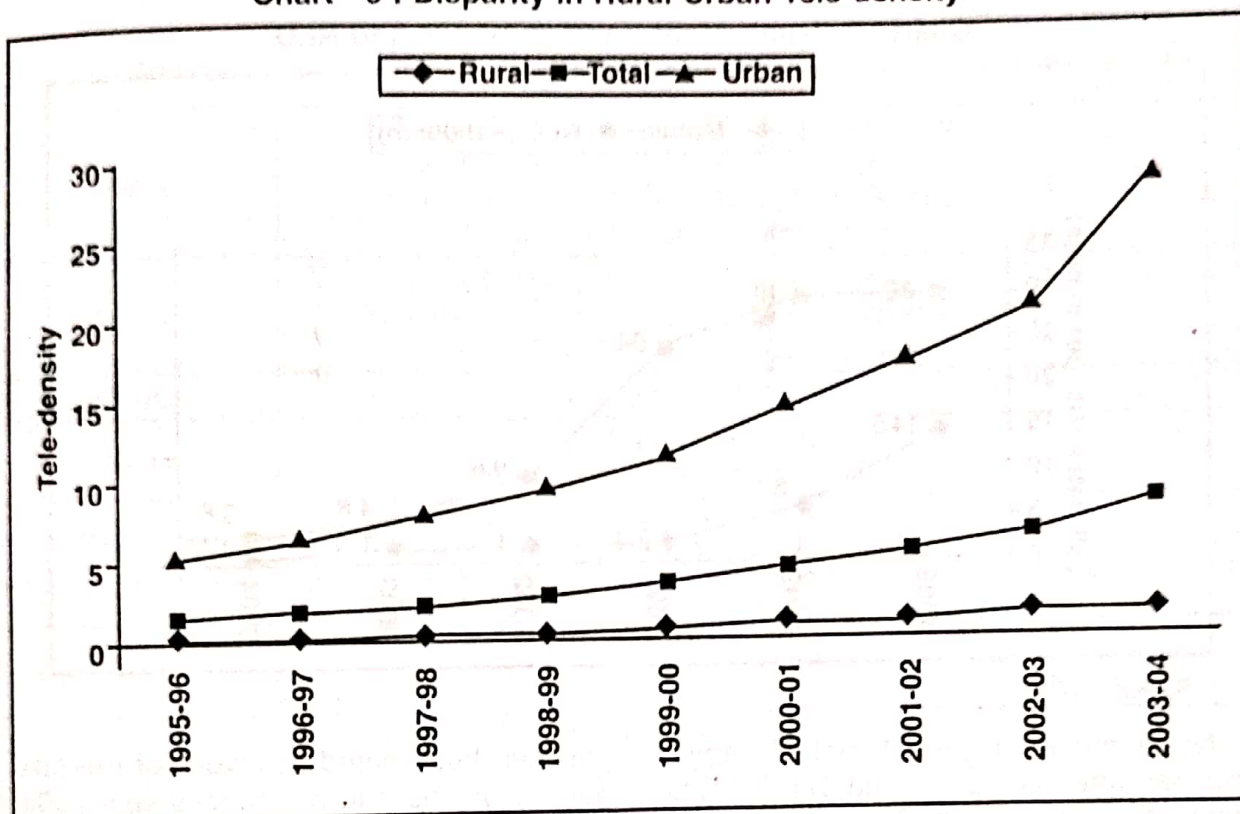
While it is perceived that there is sufficient competition in the urban areas, particularly for mobile telephony, telecom networks are yet to penetrate into the rural areas where around 72 per cent of Indians resides. Despite various policy stipulations, rural tele-density in India has increased by a negligible 4 per cent in the last financial year- from 1.49 phones per 100 persons in 2002-03 to 1.55 phones per 100 persons in 2003-04, as compared to urban tele-density of 20.79 per cent in 2003-04. As of July 2004, and 85,228 villages are yet to be connected even by a basic telephone. As greater reliance is being placed on market-based policies, there is a natural concern that these may not address the basic issue of universal access to telephones and may further marginalize the rural areas and remote areas. The rural-urban tele-density is presented in chart-6.

Fall in Tariffs

Market reforms undertaken in the past decade have certainly enhanced affordability of the telecom services, as is being reflected in the growing subscriber base. In particular, competition in the mobile segment has resulted in phenomenal growth, taking the overall tele-density to 8.24 per cent as of October 2004¹⁶ and reducing the waiting lists. An increase in the number of service providers has led to a remarkable fall in tariffs (see chart-7) even in the face of inflation. In particular, tariffs for mobile services have dropped from Rs.14.5 per minute in March 1998 to Rs.0.77 per minute in March 2004. The NLD and ILD rates have also dropped in the wake of the private operators entry and increased competition. The fall in tariffs and equipment costs have led to a substantial increase in the overall subscriber base (88.47 million as of October 2004). The details of fall of tariff is presented in chart-7.

It is to be noted that the increase in tele-density (refer to chart-6) is a misleading estimate for extension of access as it includes both the mobile and fixed line connections, and most of the mobile users have a fixed line in their premises. The proportion of household having access to a telephone will give a clearer indication of the performance of telecom liberalisation.

Chart - 6 : Disparity in Rural-Urban Tele-density



Source : Department of Telecommunications

Similarly, the drastic fall in long distance tariff has no implication for those without access to a telephone. In fact, the reduction in Access Deficit Charges (ADC) announced recently is yet another move towards dropping call charges and encouraging telephone subscribers to use their services more than before. The collections from ADC go to the fixed line operators who provide ordinary connectivity to areas deficient on access. However, the same objective—that of providing subsidy for rural connectivity - is also served by the Universal Service Obligation (USO) fund. It is, therefore, imperative that eventually ADC and USO charges are combined. This will substantially reduce the cost of long distance and international calls, the services which bear the brunt of ADC. The critical point here is that with the rapid development of technology, it is becoming increasingly difficult to segregate local, long distance and international calls.¹⁷

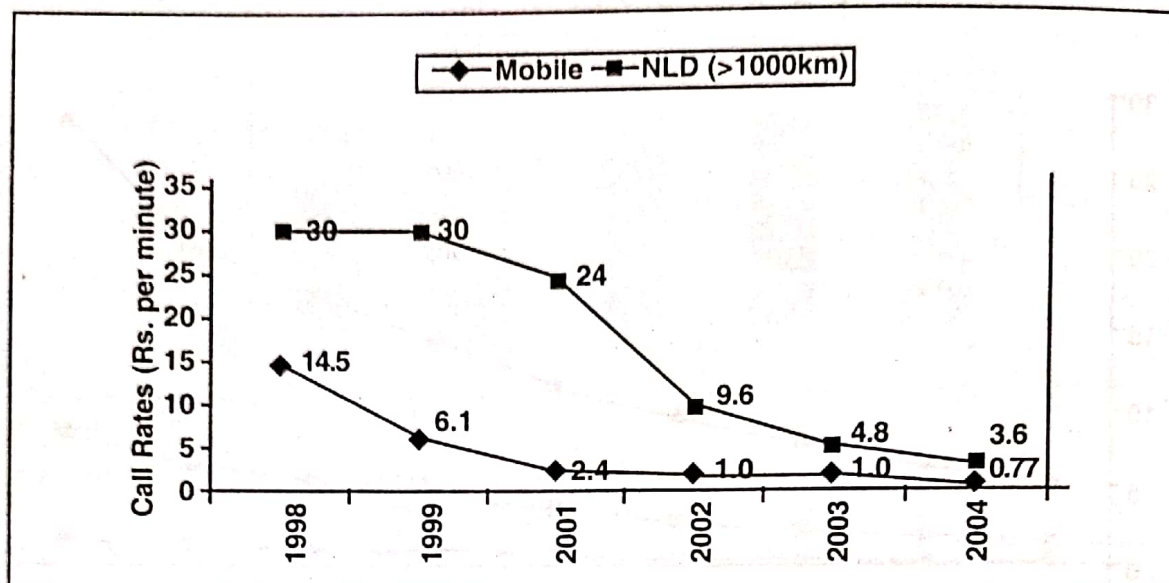
Section IV : Mobile Services

Following are the operators providing Global System of Mobile (GSM) service in the respective service areas are presented in Table-2.

Subscribers Base

The mobile service subscribers consisting of Cellular & WLL (M) reached 33.69 million at the end of March 2004 as against 13.00 millions at the end of March 2003, thus registering a growth of 159.15 per cent during the year. During the year 2003-2004, 20.69 million mobile subscribers were added as compared to 6.56 million during the preceding financial year. All India growth rate in 2004 was 159.15 per cent as compared to 98.7 per cent for the previous year, i.e., 2002-03. Entry of BSNL has commenced its services during March 2002 and has been providing its cellular services in 21 circles by the end of March 2004.

Chart - 7 Trend of the Tariff of Mobile and NLD



Source : TRAI

BSNL is the third largest mobile service provider after Reliance and Bharti. Reliance Infocomm started its commercial operations in May 2003 and achieved a subscriber base of 7.26 million at the end of March 2004. Four operators (Reliance, Bharti, BSNL & Hutch) have already achieved a subscriber base exceeding 5 million each. The market share of different Mobile operators as on March 2004 is presented in Table-3.

Table-3 shows that Reliance has captured the market share of 21.55 per cent in March 2004 from 4.15 per cent in March 2003, in the process emerging as a single largest private player within a span of one year for providing mobile services followed by Bharti with a market share of 19.29 per cent. and BSNL satisfied with 16.41 per cent market share only, whereas this percentage is lesser than the previous year (i.e., 17.62 per cent in 2003). It is observed that the significant gainer is Reliance and major losers are BSNL, Bharti, Hutchison, and Idea.

Pre-paid and Post-paid Services

In the last five years, distribution of market share between post-paid and pre-paid

services has shifted in favour of pre-paid service. At the end of financial year 2004, 75 per cent of the cellular subscribers were on pre-paid service. As far as rate of growth of subscriber base is concerned, both post-paid and pre-paid segments have grown, but growth of pre-paid segment has been tremendous. Pre-paid segment has grown by 26.7 times whereas growth in post-paid has been just 5.6 times over the last five years. Unprecedented growth achieved by pre-paid service in the years 2002 and 2004 were driven by TRAI's order of May 2001 making it mandatory for the Cellular Mobile Service Providers (CMSPs) to offer a pre-paid card with a denomination value of Rs.300 with a validity period of at least one month and introduction of CPP in May 2003. With the introduction of low rental plans by the CMSPs, the post-paid segment has also started recording impressive growth rates in the recent times. Plans with Rs.150 monthly rental are available in almost all the areas enabling the consumer to remain connected to the network at a cost which is lower than the minimum outgo of Rs.300 per month in pre-paid.

Table - 2 Area Mobile Fixed-line Service Providers

Service Provider	Area of Operation	No. of Circles
Bharti	Andhra Pradesh, Karnataka, Punjab, Delhi, UP(W), Madhya Pradesh, Maharashtra, Gujarat, Himachal Pradesh, Mumbai, Tamil Nadu, Kerala, Haryana, Chennai and Kolkata	15
Hutch	Delhi, Kolkata, Mumbai, Andhra Pradesh, Karnataka, Chennai, Gujarat, Punjab, Haryana, Rajasthan and UP(E)	11
MTNL	Delhi and Mumbai	2
Idea	Gujarat, Madhya Pradesh, Andhra Pradesh, Maharashtra and Delhi	5
Reliance	Madhya Pradesh, West Bengal, Himachal Pradesh, Assam, Bihar, Orissa, North-East	7
BPL	Mumbai, Maharashtra, Kerala, Tamil Nadu	4
Aircel	Tamil Nadu, Chennai	2
Spice	Punjab, Karnataka	2
BSNL	Andhra Pradesh, Karnataka, Punjab, UP(W), Madhya Pradesh, Maharashtra, Gujarat, Himachal Pradesh, Tamil Nadu, Kerala, Haryana, Chennai, Kolkata, UP(E), Rajasthan, West Bengal, Bihar, Orissa, North-East, Assam, J&K	21
Escotel	Kerala, Haryana, UP(W)	3
Hexacom	Rajasthan	1

Average Revenue Per Unit (ARPU) – Cellular (GSM) Service

A glance at Table-4 shows, the last five years ARPU for GSM Cellular services has declined from Rs.1,319 per month that prevailed at the earlier stages of competition to Rs.469 per month. It is almost one third of what prevailed in the year

2000 signifying the fact that competition in mobile telephony is intense. ARPU for post-paid service alone has declined from Rs.1,560 per month to Rs.1,056 per month in last five years, thereby showing a decline of 32 per cent. For pre-paid service, there has been a sharp decline of 65 per

**Table - 3
Market Share of Different Mobile Operators**

Service Provider	Subscriber Base (In million)		%age share on March' 03	%age share on March' 04
	on March' 03	on March' 04		
Reliance	0.54	7.26	4.15	21.55
Bharti	3.07	6.50	23.62	19.29
BSNL	2.29	5.53	17.62	16.41
Hutchison	2.16	5.15	16.62	15.29
Idea	1.28	2.73	9.85	8.10

Source : TRAI

cent in ARPU over the last five years from Rs.822 per month to Rs.288 per month, the relevant data has been presented in Table-4a & 4b.

Usage pattern in cellular service in the last five years, MoU per subscriber per month for GSM Cellular services has been increased from 197 to 302 i.e. by 53 per cent. The increase has been 148 per cent (from 238 to 590) for post-paid and 85 per cent (from 112 to 208) for pre-paid. Substantial increase in the usage is witnessed in the financial year 2003-04 coinciding with the introduction of Cellular Party Pays regime (CPP) with effect from 1.5.2003. However, the increase in the usage is mainly because of increased incoming traffic. Major effect of incoming calls made free has been seen in pre-paid service. Incoming MoU per subscriber

for pre-paid service increased from 60 per cent to 72 per cent, presented in Table-4b.

Revenue per Minute (RPM) [incoming + outgoing] – Cellular Service

Table-5 shows that the RPM or GSM cellular services has declined from Rs.6.70 to Rs.1.55 in the 5 year period. RPM for post-paid service alone has declined from Rs.6.55 to Rs.1.79 thereby showing a decline of 73 per cent. For pre-paid service, the decline has been 81 per cent (from Rs.7.32 to Rs.1.39). The consecutive RPM fall in the post-paid and pre-paid is possible because of private participation, technological changes and competition only. It is proved that the telecom sector has got maximum benefit of liberalisation of economy in India.

Table - 4
a) ARPU (per month during the year) - Cellular Service (Rs.)

Financial Year	Post-paid		Pre-paid		Blended*	
	ARPU	% Change	ARPU	% Change	ARPU	% Change
FY 2000	1560	NA	822	NA	1319	NA
FY 2001	1501	-4%	597	-27%	1113	-16%
FY 2002	1335	-11%	484	-19%	884	-21%
FY 2003	1176	-12%	346	-28%	634	-28%
FY 2004	1056	10%	288	-17%	469	-26%

Note : Data for FY 2000 covers period from May '99 to March '00

* Weighted average of post-paid and pre-paid

b) MoU (per subscriber per month) in Cellular Service Incoming + Outgoing

Financial Year	Post-paid		Pre-paid		Blended*	
	MoU per Sub.	% Change	MoU per Sub.	% Change	MoU per Sub.	% Change
FY 2000	238	NA	112	NA	197	NA
FY 2001	312	31%	106	-6%	223	13%
FY 2002	363	17%	89	-16%	218	-2%
FY 2003	460	27%	99	11%	225	3%
FY 2004	590	28%	208	110%	302	34%

Note : Data for FY 2000 covers period from May '99 to March '00

* Weighted average of post-paid and pre-paid

Table - 5 Trends in Revenue Earned per minute (Incoming + out going)

Financial Year	Post-paid		Pre-paid		Blended*	
	RPM (Rs.)	% Change	RPM (Rs.)	% Change	RPM (Rs.)	% Change
FY 2000	6.55	NA	7.32	NA	6.70	NA
FY 2001	4.82	-27%	5.65	-23%	4.98	-26%
FY 2002	3.67	-24%	5.43	-4%	4.05	-19%
FY 2003	2.55	-30%	3.49	-36%	2.82	-30%
FY 2004	1.79	-30%	1.39	60%	1.55	-15%

Note : Data for FY 2000 covers period from May '99 to March '00

Section-V : Internet Services

Service Providers and Subscribers Base

Around 189 Internet Service Providers were operating during the year 2004. Out of them, Bharat Sanchar Nigam Limited and Mahanagar Telephone Nigam Limited emerged at top position. The reported subscriber base has touched 45.49 lakhs as on 31 March, 2004 as compared to 36.36 lakhs during the preceding year registering an increase of 25.11 per cent during the year.

Internet Telephony

The Internet telephony was thrown open for Internet service providers from 1 April, 02. DoT has given permission to 121 ISPs to offer Internet telephony services as on 31 March, 2004 and as per the report submitted to TRAI, 43 ISPs have started Internet Telephony services. Total Minutes of Use (MoU) for Internet telephony during year 2003-2004 were estimated to be of the order of around 70 million.

Market Share

Top five internet service providers in March 2003 and March 2004 is presented in Table-6.

Table-6 shows, at the end of March 2004, Bharat Sanchar Nigam Ltd is at top position and reported a subscriber base of 11.28 lakhs. Mahanagar Telephone Nigam Limited follows it with a subscriber's base of 7.66 lakhs. M/s Sify Ltd. has reported a subscriber base of 6.58 lakhs. Videsh Sanchar Nigam Limited was having a subscriber base of 6.01 lakhs. Dishnet DSL has reported a subscriber base of 3.65 lakhs. Share of PSU ISPs has shown an increase of 91.62 per cent over the last year, increasing the number of subscribers from 9.91 lakhs as on March, 2003 to 18.98 lakhs as on March 2004. The market share of top ISPs is presented in chart-8

Table-6 Top Five Internet Service Providers

Service Provider	March 2003	March 2004
BSNL	4,45,992	11,28,172
MTNL	5,44,659	7,66,585
Sify Ltd.	6,17,321	5,58,192
VSNL	7,00,558	8,00,509
Dishnet DSL	1,78,434	3,65,126

Source : TRAI

It can be seen through chart-8, out of 189 providers, that BSNL has occupied 25 per cent of the market share, followed by MTNL and Sify with 17 per cent share each, VSNL 15 per cent, Tata Internet services Ltd, Dishnet DSL and Data, Infosys 4 per cent each and remaining others up to 20 per cent only.

256 kbps @ Rs.500 per month

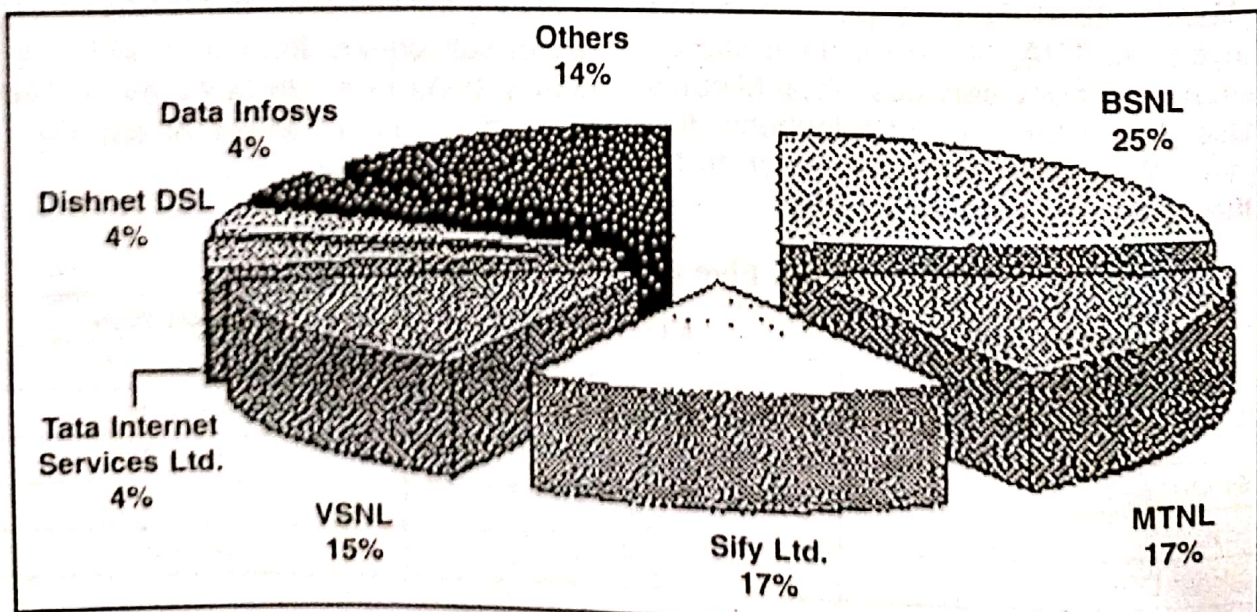
The State-owned BSNL, MTNL have launched 'broadband' services in January 14, 2005. BSNL is providing services as 'DataOne,' MTNL as 'TriBand.' BSNL and MTNL are providing the internet services at the rate of Rs.500 per month with a minimum speed of 256 kbps or twice that of the earlier schemes with ADSL technology. Now, this ADSL technology enables high-speed internet access through telephone line, but keeps the telephone line free, it allows consumers in metros and large cities to access Video and TV channels on their computer screens. In addition, they can soon gear up for video conferencing, e-medicine and e-education. BSNL has set a target of 198 cities in the current year itself and will extend the services to all the district headquarters by 2006 and to all taluka headquarters by

the end of 2007. The telecom minister feels the PSUs can gravitate 10 million broadband users by 2007¹⁹. This service is really affordable and efficient. Obviously, the private players will come with an alternative and an attractive packages in near future. Indian customers are going to get high speed internet services at cheaper rate. Hence, India's personal computer (PC) penetration is low; of the 44 million telephone subscribers of BSNL and MTNL less than 25 per cent own a PC. The bulk of BSNL's subscribers is in rural areas and does not need high speed of internet. However, their need for water, food, work, shelter and electricity is greater. It is hereby suggested that some policy issues need to be sorted out to provide a level playing field for private players. And private players are expecting that the local loop to be thrown open which could have given some level playing field.

Growth Trend

Growth trend in Internet subscriber base during the last 4 years are shown in chart-9. Growth between 2001 and 2004 had flattened but gained momentum during year 2004 is presented in chart-9.

Chart - 8 Market Share of Top ISPs



Source : TRAI

It can be seen through chart-8, out of 189 providers, that BSNL has occupied 25 per cent of the market share, followed by MTNL and Sify with 17 per cent share each, VSNL 15 per cent, Tata Internet services Ltd, Dishnet DSL and Data, Infosys 4 per cent each and remaining others up to 20 per cent only.

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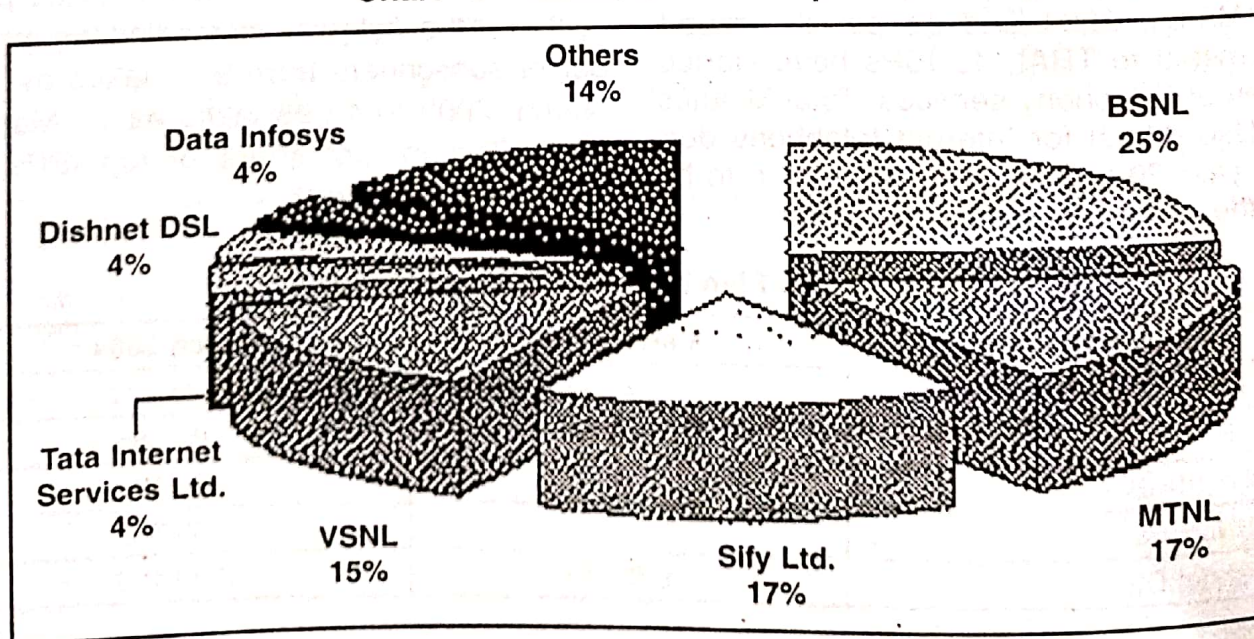
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Growth Trend

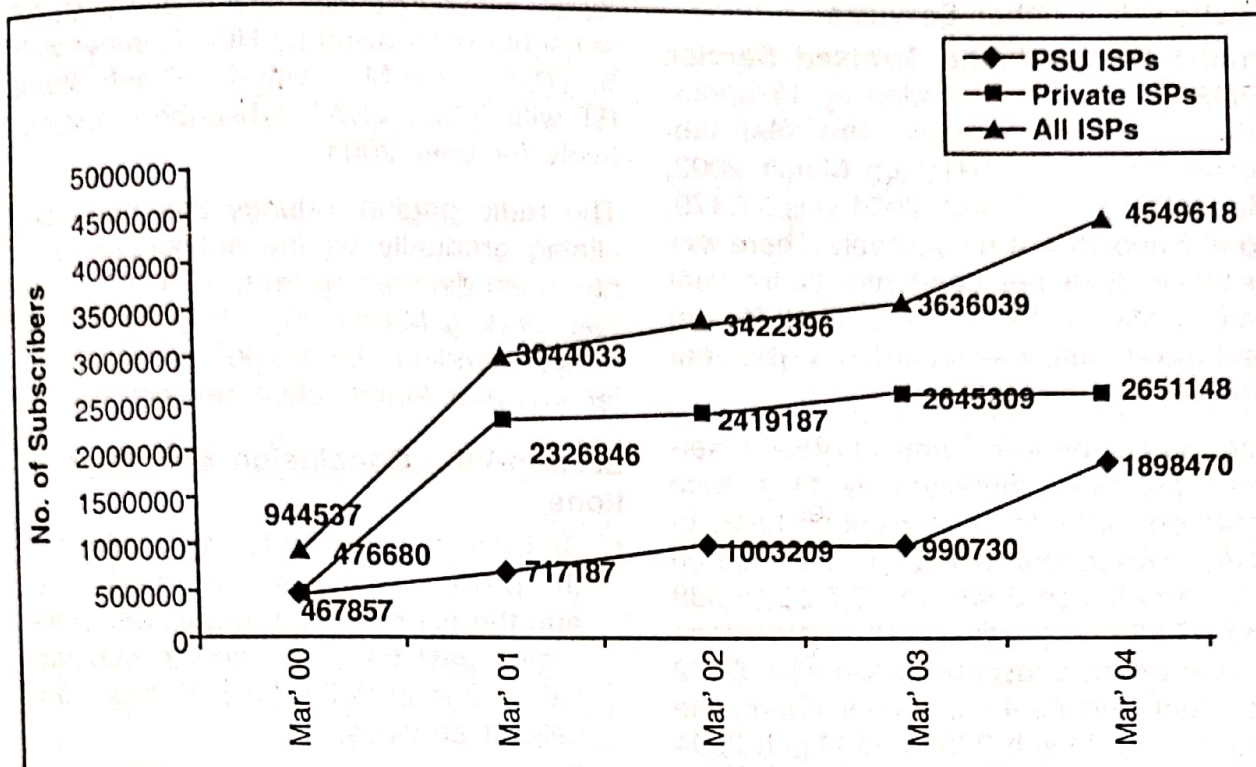
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Chart - 8 Market Share of Top ISPs



Source : TRAI

Chart - 9 Growth Trends



Source : TRAI, July 2004.

Chart-9 shows that private ISPs have been providing internet services to 26 lakh subscribers, whereas SoE, are providing services to 18 lakh subscribers only. Private players gained more than 19 lakh subscriber during 2001. The rates of internet services are presented in chart-10.

It can be seen in chart-10 that the internet charges per hour is Rs.14 in PSUs in 2003, in the middle of the year had increased up to Rs.30.63 per hour and in March 2004 slashed the rate and fixed at Rs.11.00 per hour. Private sector internet providers charged Rs.8.54 per hour in March 2004, ever since the establishment. It can also be observed that the PSUs have reduced the prices whereas private players had increased the prices. As of now, private ISP providers are providing the internet services at cheaper rates than that of SoE.

According to the Annual Report 2003-04 of DoT, the leased line customer base has increased to 12,782 in March 2004 as

compared to 8,077, during the preceding year, showing a growth of 59 per cent over previous year. There are reported to be 10,237 cyber cafes/ CICs during March 2004 as compared to 8,388 in March 2003, thereby showing a growth of 22 per cent during the year. On the broadband front, there were 97,525 DSL customers, 5308 DIAS and 2948 radio-based customers, in addition to 82805 subscribers, who access the Internet through Cable TV network. The "Always-On" Internet connections have shown a growth of 150 per cent over the previous year, totaling about 1.90 lakhs as compared to 0.75 lakhs connections during the last year. A total of Rs.1,520 crores revenue has been estimated during the year. The Average Revenue Per User (ARPU) for Internet usage during the year was of the order of Rs 310 per month. The bandwidth owned by various Internet Gateway Service Providers for their ISP operations and leasing to other ISPs was 3.4 GB for down-linking and 3.0 GB for up-linking.

Section-VII : Other Services

Public Mobile Radio Trunked Service (PMRTS) is being provided by 15 operators in 19 service areas. The total subscriber base of PMRTS on March 2002, March 2003 and March 2004 was 27,479, 26,027 and 25,474 respectively. There was negative (5.28 per cent) growth for year ending March 2003. However, 3.35 per cent growth rate was recorded for the year 2004.

Very Small Aperture Terminal (VSAT), services are being provided by 11 service providers. The total subscriber base of VSAT subscribers in March 2002, March 2003 and March 2004 was 9,762, 16,988 and 27,601 respectively. The percentage growth of the subscriber base was 74.02 per cent and 62.47 per cent during the year ending March 2003 and March 2004 respectively. Hughes Escort Communications Ltd (HECL) remained the market

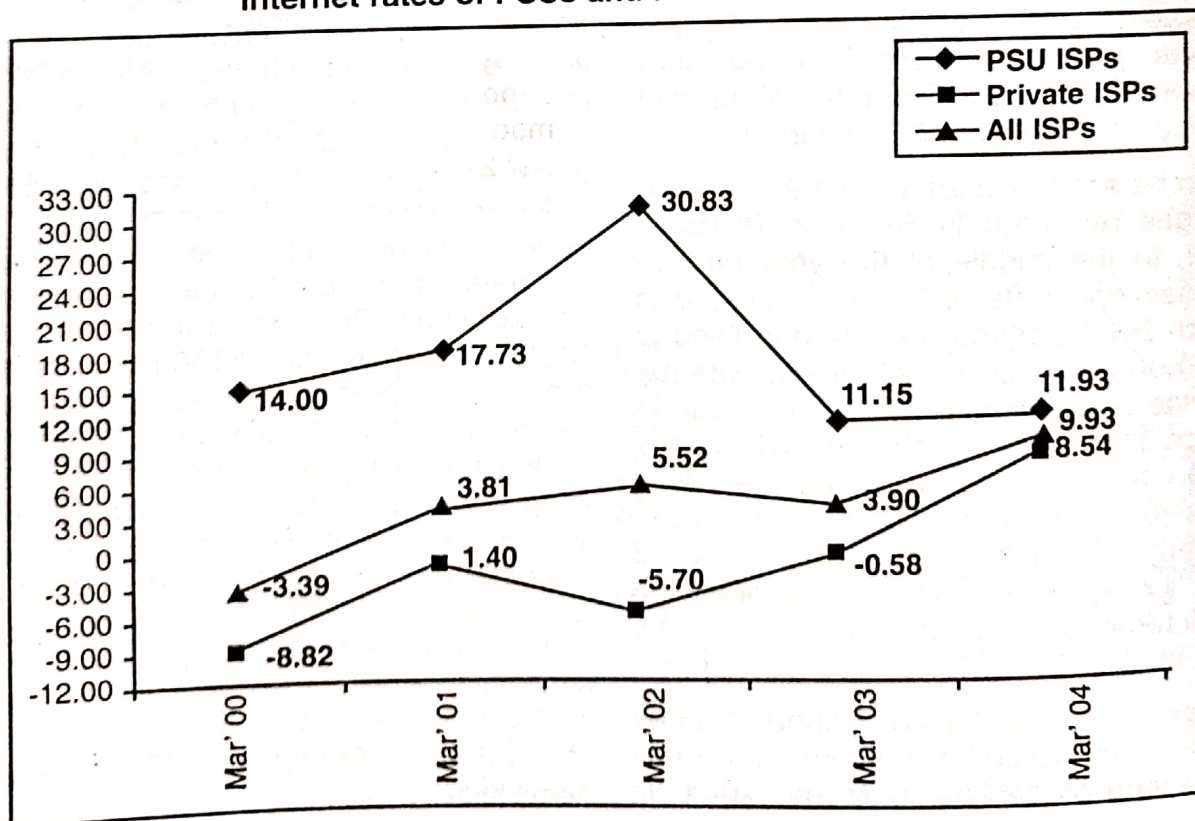
leader with subscriber base of 8,395, VSAT subscribers followed by HCL Comnet with 8,376, Comsat Max with 4,210 and Bharti BT with 3,829 VSAT subscribers respectively for year 2004.

The radio paging industry has been declining gradually as the subscriber base has been decreasing from 5,78,397 in the year ending March 2002 to 2,89,265 for the year ending March 2003 and 1,02,569 for the year March 2004 respectively.

Section-VIII : Conclusion and Suggestions

1. As far as telecom tariffs are concerned, the policy initiative by the government and the efforts by the regulators in the recent past have resulted in substantial decline in tariffs for both basic and cellular services.
2. The National Long Distance (NLD) rates for the distance slab beyond 500 kms

Chart - 10
Internet rates of PSUs and Private ISP Providers



Source : TRAI

- have declined by 50 per cent from a level of Rs.9.0 to Rs.4.80 per minutes.
3. Tariffs for mobile services have dropped from Rs.14.15 per minute in March 1998 to Rs.0.77 per minute in March 2004.
 4. Annual growth rate of fixed line has declined from 22.70 per cent in 2000-2001 to 3.28 per cent in 2003-2004 in spite of basic subscribers base had been increased. Ironically, 3,70,000 fixed line subscribers surrendered BSNL land line and 1 million customers opted private fixed line during the same period.
 5. So far, 14 per cent of the villages have not been covered, besides BSNL, six private telecom operators were issued licenses in 1997-98. Till March 2004, they had covered only 12,655 villages which is less than 13 per cent of what had been committed while taking licenses.
 6. The mobile service subscribers consisting of cellular & WLL (M) reached 33.69 million at the end of March 2004 as against 13.00 millions at the end of March 2003, thus registering a growth of 159 per cent during the year.
 7. RPM or GSM cellular services has declined from Rs 6.70 to Rs 1.55 in the last years period. RPM for post-paid service alone had declined from Rs 6.55 to Rs 1.79, thereby showing a decline of 73 per cent. For pre-paid service, the decline has been 81 per cent (from Rs 7.32 to Rs 1.39).
 8. Internet subscriber base has touched 45.49 lakhs as on March 2004 as compared to 36.36 lakhs during the preceding year registering an increase of 25.11 per cent during the year.
 9. However, the Indian tariffs are among the lowest in the world, but costs are high, because a service provider has to pay the regulatory levies, licenses fees, spectrum charges in ADC are the highest in cost in the world.
 10. Access Deficit Charges (ADC) collections go to the fixed line operators who provide ordinary connectivity to areas deficient on access. This abstains the subscribers to get connections at lower rates.
 11. Finally, the telecom sector is probably one of the sector where the benefits of liberalization can be seen and heard most distinctly.
- ### Suggestions
1. The government needs to have a common policy for telecom department, dropping the artificial distinction between basic and cellular service, letting each operator offer whatever technology best suits its market. It is not the job of the government to ensure the survival of any category of telecom operator.
 2. Preferential treatment does not seem to make BSNL/MTNL any stronger; the government should consider the companies, which are able to compute.
 3. The high registration charges of Rs.107 crore for long distance on strongly out of sync with virtually every principal espoused by the authority when it mooted the unified licensing in October 2003. It would have been for more desirable to have recommended a low entry fee and suitable compensation for NLD players who only paid license fee.
 4. Fixed line annual growth rate has declined from 22.70 per cent in 2000-2001 to 3.28 per cent in 2003-2004 in spite of subscribers base had been increased, ironically, 3,70,000 subscribers surrendered BSNL fixed line, whereas, private fixed line players have attracted 1 million new customers during the same period..
 5. The immediate objective of the SoE is to be universal access to, at least reliable basic telephony at an affordable rate and within walking distance for rural people.

6. USO must be channelised only to provide access to telephony to the target sections of population that are grossly deprived of it.
7. Finally, it is suggested that one sector development cannot lead to overall development economy; therefore, the government should provide basic amenities on priority basis rather than non-essential items.

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