

CHAPTER 8.5

COMMUNICATIONS

POSTS

8.5.1 An efficient postal system is crucial for growth and modernisation and it is fast emerging as an important component of the modern communication and information technology sector. The Indian postal system is the largest in the world, with a network of about 1.55 lakh post offices. Besides providing a variety of postal services, the Indian postal system also plays a crucial role in resource mobilisation, especially in the rural areas, which is illustrated by fact that deposits to the tune of Rs. 2,18,695 crore had been mobilised as on 31 March 2001.

Review of Ninth Plan

8.5.2 The two major thrust areas of the Ninth Plan were expansion of postal services in the uncovered areas especially remote and rural areas and modernisation of the postal operations. Technology upgradation was accorded the highest priority for the first time under the Five-Year Plans, 58 per cent of the total approved outlay of the Ninth Plan being allocated for this purpose. The major areas covered during the Ninth Plan were:

- Expansion of the scope and coverage of the programmes of modernisation initiated

Box 8.5.1

Basic Profile of the Sector

- The Indian postal system is the largest in the world, with the number of post offices/outlets numbering 1,54,919 as on 31 March 2001. The permanent post offices, called Departmental Offices, number 26,037.
- Of these, 1,28,882 (83 per cent) are in the rural areas and are called Extra Departmental Branch Offices (EDBOs).
- The total manpower under the Department of Posts is about 6,00,000 almost equally divided between permanent employees (who number 2,94,301) and extra-departmental employees (who number 3,09,649).
- The total revenue expenditure of the Department in 2001-02 was Rs. 5,210.83 crore, with a revenue deficit of Rs.1,458.37 crore.
- The Plan outlay constitutes a very small fraction of the total expenditure and was Rs. 135 crore for 2001-02 or 2.59 per cent of the revenue expenditure.
- The entire Plan outlay is funded through budgetary support. There are no externally-aided projects.
- The total expenditure as percentage of receipts for the Department of Posts was 160 per cent in India as compared to 101 per cent in the United Kingdom, 102 per cent in the United States, 99 per cent in Brazil and 138 per cent in Sri Lanka in 1998.
- Except courier services, postal operations are still a State monopoly.

during the Eighth Plan period through the induction of new technology.

- Development and marketing of new services, especially those for the business/professional sectors and modernisation of identified agency functions.
- Human resource development through appropriate training for upgrading skills.
- Streamlining of management functions.
- Development and maintenance of appropriate buildings for the modernised systems and staff quarters for the employees.
- Extending basic counter facilities in new areas in a cost-effective manner.

8.5.3 The physical targets are likely to be achieved, since performance on this front has been satisfactory. Against the target of setting up 250 permanent post offices, 253 are likely to be set up. Nearly 90 per cent of the target of 2,500 offices in rural areas is likely to be achieved. In addition, 4,691 Panchayat Sanchar Sewa Kendras (PSSKs) are likely to be opened during the Ninth Plan. The performance on the modernisation front has also been very encouraging, as 5,701 Multi-Purpose Counter Machines (MPCMs) are projected to be installed against the target of 5,000 and 150 V-SATs (very small aperture terminals) are projected to be installed against the target of 170. The details of the targets and achievements of the various schemes are in Annexure-8.5.2.

8.5.4 An outlay of Rs. 507.25 crore was approved for the postal sector in the Ninth Plan for implementing various programmes. On the basis of allocations approved for the Annual Plans (BE), the operational approved outlay for the Ninth Plan works out to Rs. 545 crore. On the basis of actual allocation of funds, the operational outlay works out to Rs. 483.16 crore. As against this, the utilisation during the Plan is projected to be Rs. 408.91 crore. This works out to a utilisation ratio of 75 per cent of the approved operational outlay, 84 per cent of actual allocation and 80 per cent of the Ninth Plan approved outlay. The low utilisation is basically the result of reduced allocations at the RE stage from

year to year. The details regarding the approved outlay and its utilisation during the Ninth Plan may be seen in Annexure-8.5.3

8.5.5 The Ninth Plan also marked the beginning of diversification efforts by the Department keeping in tune with the times and with a view to generating more revenues. The diversification efforts are mainly in the form of introduction of premium products like express parcels, financial services like international money transfer and providing agency functions for mutual funds and other financial institutions and information technology (IT) products like e-post.

Challenges and Policy Reforms

8.5.6 Postal finances have deteriorated sharply over the last decade. Postal deficit is an open-ended subsidy and forms part of the general budget. The deficit has shot up almost 16 times, from Rs. 91.81 crore in 1992-93 to Rs.1,576.35 crore in 2000-01 (Table 8.5.1). This has serious implications for resource availability for other needy sectors like infrastructure and social development.

Table 8.5.1
Trend of Postal Deficit

(Rs. crore)

Year	Deficit
1992-93	91.81
1997-98	993.43
1998-99	1,590.97
1999-2000(RE)	1,740.53
2000-01 (RE)	1,576.35
2001-02 (BE)	1,458.37

This situation cannot be sustained for long without serious implications. The Department should endeavour to achieve self-sufficiency over the next five years. This should be done through a two-pronged strategy of increasing revenue and reducing costs. The first can be achieved through diversification and aligning postal tariffs to costs.

Cost reduction can be effected through upgradation and modernisation of technology and redeployment/reduction of manpower.

8.5.7 Postal services in India have been highly subsidised, as part of Government policy. While subsidy on a few items covered under the Universal Postal Service Obligation (UPSO) may be justified, the pricing of other services needs to be done on cost basis, taking into account what the market can bear. The details of per unit subsidy and the total amount paid on various services is in Table 8.5.2.

8.5.9 As a member of the Universal Postal Union, India is committed to ensure the provision of quality postal services on a regular basis to all the users at all points in the country at affordable prices. However, as per the Beijing Congress of Universal Postal Union (UPU) 1999, each country is to define the scope of its Universal Postal Service in line with the technical, economical and social environment as well as the needs of the customers. Keeping in mind our specific needs and in line with international conventions, the UPSO for India needs to be clearly defined and adopted. Taking into account the

Table 8.5.2
Subsidy on Postal Services
(Projections - 2001-02)

Service	Subsidy per unit (paise)	Traffic (in lakh)	Total deficit (Rs. crore)
Post Card	555.39	3,185.50	176.92
Printed post cards	381.33	1,214.50	46.31
Letter Cards	378.44	4,599.50	174.06
Registration	1,809.43	2,679.50	484.84
Money Order	2,894.35	1,105.00	319.83
Reg. Newspaper (S)	786.86	1,045.50	82.27
Reg. Newspaper (B)	1,283.25	174.50	22.39
Printed Books	1,110.73	322.00	35.77
Parcel	722.90	684.90	49.95
Others	-	13,159.50	33.09
Total	-	28,169.50	1,424.93

S = Single B = Bundle

8.5.8 There does not seem to be any justification for subsidising services like registration, newspapers, postal orders, money orders, etc. Of the 23 services being provided by the Department, only Insurance, Speed Post and Foreign Mail are yielding a surplus. This policy of blanket subsidy needs to be reviewed and replaced by a policy of pricing the services appropriately, keeping the UPSO in mind. The tariff of non-UPSO services should be fixed on commercial principles and revised from time to time.

importance of the money order economy in the country, the UPSO needs to include money orders besides post cards, inland letters and envelopes. These services should continue to be delivered at affordable prices. The prices of other services should be determined on a commercial basis with a view to achieving self-sufficiency.

8.5.10 Under the Indian Postal Act, 1898, the Central Government fixes the tariffs for various postal articles and these are approved by

Parliament. Due to various reasons, including political considerations, tariffs have not been revised at reasonable intervals. Revision of postal tariffs has not been keeping pace with the increase in operational costs. The present system of tariff fixation needs to be replaced by a more dynamic, objective and transparent mechanism. An independent regulatory mechanism needs to be created which, besides other things, would look after tariff fixation.

8.5.11 The Indian Post Office Act, 1898 is totally archaic and obsolete and does not meet the requirements of changed circumstances. It needs to be replaced with a forward-looking legislation to take care of new developments, including the emerging scenario of convergence, the new technological and other developments and competition.

8.5.12 The present scheme of opening rural post offices, i.e. EDBOs, has a large element of in-built subsidy of 67 per cent in normal areas and 85 per cent in hilly and tribal areas. This is not sustainable in the long run. Besides, the agents under the scheme tend to demand being given the status of permanent Government employees. If this is agreed to, it will put a tremendous strain on the financial system. The scheme needs to be replaced by an innovative programme of providing services in the rural areas. Two feasible options that must be explored are converting extra departmental employees into franchisees of the Department for providing postal services in rural areas and reactivating the scheme of licensed postal agents. The first option may also help in reducing the financial burden and future liabilities of the Department in a major way, besides providing it with a decentralised system of privately-run and owned convergence centres at the village level.

8.5.13 Reach and trust are the two very strong and unique advantages of the postal network in India. With the help of innovative strategies, this can be converted into a major advantage for the delivery of a variety of services, apart from postal services, in order to achieve self-sufficiency. To take advantage of the emerging scenario of conver-

gence, post offices need to be developed as multi-product and multi-service delivery centres in which delivery of postal services would only be a part of the job. It would involve the introduction of new value-added services, financial IT-based products, e-commerce and new postal products. These convergence centres, as privately owned and operated outlets of franchisees of the Department, will have the potential of ushering in a new communications and financial services revolution in the rural and semi-urban areas.

8.5.14 Generation of substantial additional revenue through non-tariff methods like commercial exploitation of land and introduction of IT based financial services are the two other important components of the strategy for making the Government run postal services self-financing.

8.5.15 A corporate set-up provides two intrinsic advantages – faster decision-making and raising resources from the market. In view of this, corporatisation of the postal network of the Department of Posts in a time-bound manner becomes imperative. The Financial Directorate envisaged to be set up on the pattern of Business Development Directorate of the Department of Posts should be converted into a corporation during the Tenth Plan as a step in this direction.

8.5.16 Except courier services, the postal services are still a State monopoly. To ensure efficiency and improve quality of service, it may be desirable to open up selected postal services to private entrepreneurs. This will ensure flow of required funds into the sector, bring in new technology and also enable the Department to pay greater attention to its main activity i.e. carrying of mail. To ensure competition and a level playing field, the establishment of an independent regulatory authority may be considered.

8.5.17 Postal systems the world over are increasingly becoming self-financing. They are run on commercial basis, taking due care of the UPSO, by independent corporate entities. The models in different countries is given in Annexure-8.5.1. The Indian postal system also needs to be reformed and

made self-financing in line with global trends and in keeping with the country's needs. The major reforms that need to be carried out during the Tenth Plan are given in Box 8.5.2.

Box 8.5.2

Agenda for Reforms

- To develop and evolve a credible road map of the corporatisation of the operational network of Department of Posts as India Post within the Tenth Plan.
- Progressive induction of the private sector in the provision of selected postal services.
- Tariff fixation needs to be separated from policy making function by setting up an independent regulatory authority.
- Tariff of non-UPSO services should be fixed on commercial principles and revision carried out from time to time.

Objectives and Targets of the Tenth Plan

8.5.18 In order to achieve the aim of financial self-sufficiency within the Tenth Plan period, a road map of specific measures needs to be drawn up and implemented. The major objectives envisaged for Tenth Plan are:

- Provision of universal postal services at affordable prices.
- Ensuring quality of services at par with international standards.
- Modernisation and process re-engineering with a view to achieving better administrative efficiency and financial management.
- Upgrading existing infrastructure to reduce cost of operation and enhance customer satisfaction.
- Making the postal operations of the Department self-financing by the end of the Plan period.

8.5.19 The details of targets envisaged for the Tenth Plan may be seen in Annexure-8.5.4. Some of the major targets envisaged are:

- Opening of 100 departmental post offices.
- Computerisation of all major post offices.
- Computerisation of 136 Computerised Registration Centres (CRCs) 506 Divisional Offices and 611 Customer Care Centres.
- Setting up of a National Data Centre.
- Improving ergonomics in 10,000 post offices.
- Provision of infrastructure equipment to 45,448 rural post offices.
- Installation of additional Automatic Mail Processing Systems

Major Initiatives Envisaged for the Tenth Plan

8.5.20 Computerisation and connectivity has been identified as the core activity for the Tenth Plan. Coupled with the modernisation and mechanisation programme, the technology upgradation component constitutes the bulk of the outlay proposed for the Tenth Plan. The other major initiatives include expansion of the postal network, business development and financial services. The salient features and major issues concerning the major initiatives proposed for the Tenth Plan are:

Expansion of the Postal Network

8.5.21 It is proposed to open 100 permanent departmental offices and another 6,000 offices/outlets through the existing schemes PSSKs and EDPOs. The EDPO and PSSK schemes involve a large amount of subsidy. The present policy of opening post offices in the rural areas needs to be replaced with innovative methods of providing these services like franchising arrangements. Keeping the overall goal of making the Department self-financing in mind, no more post offices should be permitted to be opened in the rural areas under the present scheme.

Box 8.5.3**Review of the Policy of Opening of Post Offices**

- Any new offices in new locations justified on the basis of norms should be set up only through the redeployment of staff.
- A comprehensive review of all existing post offices should be carried out in a time-bound manner and all units which do not fulfill the norms and where resources are underutilised need to be closed down.
- The sale of stamps and stationery could be out-sourced through the system of licensed postal agents and other viable alternatives with a view to consolidating the outlets and achieving an optimum size of network.
- A contributory pension scheme needs to be worked out to encourage extra departmental employees to become franchisees of the Department.

Computerisation and Connectivity

8.5.22 The various schemes proposed for computerisation and connectivity relate to creating the basic infrastructure for improving the quality of existing services and providing the technological base for the launch of new value-added and financial services. Networking of various post offices, record offices, back offices, customer care centres, etc. forms an integral part of the entire programme. IT-based services are an important part of the product-mix envisaged to be delivered by the post offices in the Tenth Plan. The introduction of new services proposed may not be feasible without the required technological back up. Under this programme, the single most important activity proposed is complete computerisation and networking of 13,361 post offices.

8.5.23 A beginning in computerisation and modernisation was made in a small way in the Ninth Plan, based on the limited resources available. As a result, the Department could introduce new

value-added services like express parcels, e-post and satellite money orders etc. The programme is envisaged on a much larger scale in the Tenth Plan, for which a substantial increase in the outlay for the Department has been provided. This would enable the Department to launch new services and improve the quality and efficiency of existing services and would go a long way in helping the Department become self-sufficient through substantial addition in resource generation.

Business Development

8.5.24 The programme aims at giving a new thrust to and expansion of the existing postal services like speed post, express parcels, e-post and introduction of new products like E-billing Payment and Presentment (EBPP), e-commerce etc. The separate Business Development Directorate with due delegated authority and powers, set up in the Department during the Ninth Plan for the promotion of these products, needs to be strengthened. The Directorate has shown very encouraging results in promoting premium services. The revenue generated by the Directorate increased from Rs. 40 crore in 1994-95 to Rs. 281 crore in 2000-01. With the introduction of new products backed by required technological support, the revenue is expected to increase manifold in the Tenth Plan. The revenue projections for the Tenth Plan are given in Table 8.5.3.

Table 8.5.3
Revenue Projections – Premium Products

(Rs. crore)

Year	Revenue
2002-03	553
2003-04	774
2004-05	1,083
2005-06	1,517
2006-07	2,124

8.5.25 The country-wide reach of the Department extending to the remotest corners of the rural areas, is a rare asset which needs to be exploited fully for

the delivery of various services. Revenue generation from these services would contribute in a big way to reducing the revenue deficit of the Department. The programme needs to be strengthened keeping in view the target of making the Department self-financing.

Financial Services

8.5.26 Introduction of smart cards and installation of ATMs (automated teller machines) in collaboration with the corporate sector are the other major new initiatives envisaged for the Tenth Plan. The quality of service of the existing products and their reach is envisaged to be further strengthened during the Plan period. The programme needs to be emphasised keeping in view the existing infrastructure and reach of the Department and the potential of generating substantial revenue.

THE PATH AHEAD

8.5.27 The Tenth Plan would endeavour to transform the postal system into a modern, efficient and self-financing set-up. To achieve this, the major initiatives/action points envisaged for the Tenth Plan are :

- (i) Identification and adoption of UPSO and delivering the the items thereof at affordable prices.
- (ii) Pricing of non-UPSO items to be determined on commercial basis.
- (iii) Setting up of an independent regulatory body, which besides other things, would take care of tariff fixation.
- (iv) Fresh post offices in locations are to be opened only through redeployment of staff. No additional posts are to be created for this purpose.
- (v) A comprehensive review of all existing post offices is to be carried out in a time-bound manner and all units which do not fulfill the norms and where resources are underutilised need to be relocated.
- (vi) A contributory pension scheme needs to be worked out to encourage extra

departmental employees to become franchisees of the Department.

- (vii) Post offices will have to act as multi-product/multi-service centres and convergence of services is to be the governing criterion.
- (viii) Computerisation, connectivity and networking of the postal network are to be the cornerstones of Plan activity during the Tenth Plan.
- (ix) The Indian Post Office Act, 1898, is to be replaced by a forward-looking legislation to take care of the needs of competition, convergence and other new developments.
- (x) Develop and evolve a credible road map of corporatisation for the postal sector as India Post within the Tenth Plan.
- (xi) An outlay of Rs. 1,100 crore was initially approved for implementing the various programmes/projects during the Tenth Plan. The outlay has been increased to Rs. 1,350 crore to adequately meet the requirement of funds for the core activity of computerisation and connectivity. The Schemewise breakup of this Tenth Plan outlay is given in the Appendix.

TELECOMMUNICATIONS

8.5.28 Telecommunications is one of the prime support services needed for rapid growth and modernisation of various sectors of the economy. It has become especially important in recent years because of enormous growth of Information Technology (IT) and its significant impact on the rest of the economy. India is perceived to have a special comparative advantage in IT and in IT-enabled services. However, sustaining this advantage depends critically on high quality telecommunication infrastructure. Keeping this in view, the focus of Tenth Plan has to be on the provision of world class telecommunication facilities at reasonable rates. Provision of telecom services in rural areas would be another thrust area to attain the goal of accelerated economic development and social change. Although the telecom network has grown rapidly in recent years, its growth needs to be

accelerated further in the Tenth Plan. It is equally important to speed up structural changes in this sector in line with trends in other countries to ensure that telecommunication services are not only made available on the scale needed to sustain rapid growth in the economy as a whole but also that their cost are in tune with the expectations of a modernising economy.

8.5.29 For a dynamic sector, reforms is a continuous process necessitated by dynamics of

change including technological innovations. The telecom sector in India has been witnessing a continuous process of reforms since 1991. With the opening of international long distance services and internet telephony from April, 2002, the process of liberalisation and opening up the sector for competition is complete. Convergence of services is a major new emerging area and the telecom sector will have to address this in the Tenth Plan. The major reforms carried out in the telecom sector so far are given in Box 8.5.4

Box 8.5.4

Reforms in the Telecom Sector

- Telecom equipment manufacturing was completely deregulated in 1991.
- Value added services, including cellular phone services, were thrown open to private sector in 1992.
- The National Telecom Policy (NTP) allowing private sector participation in basic services was announced in 1994.
- An independent regulatory authority called, Telecom Regulatory Authority of India (TRAI), was set up in 1997.
- A new policy for Internet Service Providers (ISPs) was announced in 1998, opening the area to private sector providers. The policy was promotional in nature. ISPs have been allowed to set up International Internet Gateways both satellite and landing stations for Submarine Cable systems
- A new policy called New Telecom Policy (NTP), 1999 was announced replacing the 1994 policy.
- Migration from the regime of fixed licence fee to a new regime of revenue share was permitted in August, 1999.
- The regulatory mechanism has been further strengthened through the TRAI (Amendment) Act, 2000. The Act provides for establishment of a separate dispute settlement mechanism called Telecom Dispute Settlement and Appellate Tribunal.
- National Long Distance Service was opened for competition in August, 2000.
- Corporatisation of Department of telecommunication's operational network in to a public company called Bharat Sanchar Nigam Ltd. from 1st October, 2000.
- Videsh Sanchar Nigam Ltd.(VSNL) and HTL limited have been disinvested.
- The Communication Convergence Bill 2001 was introduced in Lok Sabha and has been referred to the Standing Committee of Parliament
- Fourth Cellular Operator, one each in 4 metros and thirteen circles have been permitted
- Unrestricted entry in basic services allowed alongwith use of wireless in local loop (WLL) access technology.
- Two categories of infrastructure Providers have been allowed to provide end to end bandwidth and dark fibre, right of way, towers, duct space etc.
- International Long Distance (ILD) Services have been opened for competition since 1st April, 2002.
- Internet Telephony has also been opened up since 1st April, 2002.
- Guidelines for universal service obligation announced on March 27, 2002.

8.5.30. The New Telecom Policy (NTP) announced in 1999 modified the NTP, 1994 to take into account the far-reaching technological developments taking place in the telecom sector globally and to implement the Government's resolve to make India a global IT superpower. NTP, 1999 also seeks to solve problems arising out of the implementation of NTP, 1994. The objectives of the NTP 1999 are to:

- Make available affordable and effective communications for the citizens.
- Strive to provide a balance between the provision of universal service to all uncovered areas, including the rural areas and the provision of high-level services capable of meeting the needs of the country's economy.
- Encourage the development of telecommunication facilities in remote, hilly and tribal areas of the country.
- Create a modern and efficient telecommunication infrastructure taking into account the convergence of IT, media, telecom and consumer electronics and thereby propel India into becoming an IT superpower.
- Convert Public Call Offices (PCOs), wherever justified, into Public Teleinfo centres offering multimedia services like Intergrated Service Digital Network (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 (R&D) efforts in the country and provide an impetus to build world-class manufacturing capabilities.
- Achieve efficiency and transparency in spectrum management.
- Protect the defence and security interests of the country.
- Enable Indian telecom companies to become truly global players.

Ninth Plan Review

8.5.31 During the Ninth Plan period, a record growth rate of telecom services was achieved in the country. The network (equipped capacity) grew at an average rate of about 22 per cent. Growth of both cellular mobile phones and fixed line phones has been equally impressive. While private sector concentrated in cellular mobile phones segment, the growth in the Government sector was primarily due to fixed line connections. Against the target of providing 237 lakh Direct Exchange Lines (DELs), about 240.55 lakh additional DELs have been provided during the Ninth Plan. The cellular network has grown from a small base of 3.40 lakh connections to 64.31 lakh connections by the Plan end. As a result of this growth, the tele-density has nearly tripled from 1.57 at the beginning of the Ninth Plan to 4.4 as on March 31, 2002. Details in this regard are given in the Table 8.5.4:

Table 8.5.4
Network Expansion – Ninth Plan

(Lines in lakh)

	As on 31.3.1997	Net Addition – Ninth Plan			As on 31.3.2002	CAGR %
		Public	Private	Total		
Fixed	145.40	234.68	5.87	240.55	385.95	21.56
Cellular	3.40	2.14	58.77	60.91	64.31	80.00
Total	148.80	236.82	64.64	301.46	450.26	24.79
Tele-density	1.57	-	-	-	4.4	-
VPTs	2.61	2.061	0.00846	2.07	4.68	12.39

8.5.32 The performance of the Public sector units, i.e. Bharat Sanchar Nigam Ltd. (BSNL) and Mahanagar Telephone Nigam Ltd. (MTNL), has been impressive. Against the target of installing 185 lakh new connections in the original Plan (which was revised to 222.7 lakh in Mid-Term appraisal for BSNL and MTNL) and 237 lakh for the whole sector including private sector the achievement during the Ninth Plan is 240.55 lakh connections including contribution of private sector i.e. more than the target envisaged in the Ninth Plan Document. Ninth Plan also witnessed the beginning of cellular services by the public sector. MTNL launched its mobile services in Delhi and Mumbai as the third operator. Details of targets and achievements of the public sector during the Ninth Plan are given in Annexure-8.5.5.

8.5.33 The performance of the private sector during the Ninth Plan has been a mixed one. While it did very well in the expansion of cellular network, the performance was not encouraging in the fixed line segment. Only about 5.9 lakh DELs have been installed against the target of 52 lakhs(original) and the revised target of 14.3 lakh. Constraints like licensing agreements, unrealistically higher licence fees, revenue share, right of way etc. have been basically responsible for the slow progress for the private sector.

8.5.34 For the Government sector, an outlay of Rs.46,442.04 crore was approved for the Ninth Plan to be financed basically from internal and extra budgetary resources (IEBR). This included a small budget support component of Rs.44.04 crore meant for financing the Plan outlay of regulatory bodies like TRAI and Wireless Monitoring Organisation (WMO) etc. The approved outlay for the Ninth Plan was only indicative in nature and the Annual Plan outlays were to be fixed on the basis of resources that might become available during the year. The operational outlay for the Ninth Plan on the basis of the Annual Plan outlays approved on a year to year basis works out to Rs.84,783.90 crore including a budget support of Rs.208.20 crore. As against this, plan expenditure is expected to be Rs.69,407.62 crore. This gives a utilisation of 163 per cent of the originally approved outlay and 89 per cent of the approved

operational outlay. The shortfall in expenditure in comparison to the operational outlay was basically on account of lower expenditure by MTNL and BSNL due to delays in taking up some new projects and reduction in cost of equipment. On the financing side, the IEBR generation was lower than targeted (compared to operational outlay) basically on account of reduced requirement for market borrowings. The shortfall in internal resources generation by BSNL and MTNL could partly be attributed to tariff re-balancing. Details of Ninth Plan outlay and expenditure may be seen in Annexure-8.5.6.

Present Status of Telecom Network

8.5.35 The basic telecom services network has expanded from about 84 thousand connections at the time of independence to about 385.95 lakh working connections as on March 31 2002. Basic services network constitutes the bulk of the phones accounting for about 86 per cent of the total telecom network. The main features of the present telecom network are given in the Box 8.5.5:

Box 8.5.5	
Status of Telephone Network – As on 31.03.2002	
•	Total number of exchanges - 35,023
•	Number of rural exchanges – 26,953
•	Total Fixed Telephone connections – 385.95 lakh
•	Number of Cellular mobile phones – 64.31 lakh
•	Trunk Auto Exchange Lines (TAX) – 34.27 lakh
•	Tele Density - All India - 4.4
•	Number of Village Public Telephones – 4.68 lakh
•	Internet Connections – 38 lakh (as on January 31, 2002)

Challenges for The Tenth Plan

8.5.36 With the introduction of competition in the market, the focus of planning needs to shift from

the overall expansion of DELs and network to providing requisite policy framework for the sector/ market to grow as required and consistent with the overall policy objectives. In determining the appropriate policy initiatives and the relevant regulatory framework for this purpose, we need to bear certain factors in mind. The major factors/trends that merit consideration in this regard are given in the Box 8.5.6:

8.5.37 Telecommunications is one of the fastest growing sectors in India. However, viewed in the context of global growth patterns and indicators, the sector is still in the early stages of development. Our tele-density was only 4.01 as compared to the global average of 32.78 (December, 2001) and 24.98 achieved by China. The comparative position of teledensity in a cross section of countries – both developed and developing – is given in the Table No. 8.5.5 below. The status of teledensity along with other indicators like per capita income, number of PCs, Internet users etc. for these countries may be seen in Annexure-8.5.7 & 8.5.8. The sector also

needs, especially in terms of broad-band, to expand at substantially higher rates to meet the needs of related sectors like IT, I & B and other sectors of the economy. Keeping this perspective in view, the sector needs to be treated essentially as an infrastructure sector for the next decade or so. Once the required tele-density is achieved and the necessary support network has been created, the sector could be treated as service sector.

8.5.38 With a view to ensuring optimum growth in the coming years, Government's broad policy of taxes and regulation for the telecom sector has to be a promotional one. Mopping up of resources or revenue generation by the Government should not be a determinant of the policy governing the sector. The incidence of licence fees in the form revenue share and spectrum charges has to be guided by this principle. Keeping in line with the policy adopted by most of the progressive administrations in the world, the licence fee need to be aligned to the cost of regulation and administration of Universal Service Obligations (USO). As part of the promotional policy,

Box 8.5.6

Factors and Trends Relevant for Future Policy Initiatives

- Based on global trends and Indian experience, the rate of growth of cellular mobile services would continue to be higher for a number of years. Its two important implications are further lowering of average cost per line and cellular mobile/WLL-M becoming a major tool of expansion in rural areas.
- The capital requirement for investments in the next five years are expected to be lower than the present cost due to continuing decline in equipment cost as well as lower network costs due to competition resulting from entry of infrastructure providers Railways, Power Grid Corporation, etc. and huge capacity addition by other players.
- A small portion of the subscriber base provides a large share of call revenue. High revenue subscriber category would form the core of competition among operators which may lead to a fall in the tariffs applicable to this type i.e. long distance calls. As a result, long distance tariffs may be even lower than those specified by the regulator.
- Margin of surplus will decline over time due to competition. However, the break-even revenue per subscriber will also be lower due to decline in costs.
- Data services are expected to grow much faster than voice telephony. This underlines the need in due course to focus on broad-band linkages to enable the provision of these services at the required rate.
- Due to large uncovered areas in rural and remote regions of the country which are also expected to be low paying as well, the commitments on account of USO are likely to be large.
- The trend towards convergence of services may lead to major changes in the structure of industry and markets.

Table 8.5.5
Telecom Development - International Comparison
(As on December, 2001)

Country	Population (In crore)	GDP per capita (US\$)*	DELs (Fixed) (In lakh lines)	Cellphones (In lakh lines)	Total Phones (In lakh lines)	Tele-density
USA	28.59	36211	1900.00	1270	3170.00	110.88
UK	6.01	23694	353.26	470.26	823.52	137.02
Australia	1.93	19897	100.60	111.69	212.29	109.99
Brazil	17.18	3500	374.31	287.46	661.77	38.52
Mexico	10.04	5807	137.73	217.57	355.30	35.39
S. Africa	4.38	2882	49.69	91.97	141.66	32.36
Egypt	6.46	1424	66.50	27.94	94.44	14.63
Japan	12.73	34337	760.00	748.19	1508.19	118.45
Malaysia	2.38	3838	47.38	71.28	118.66	49.86
China	129.61	834	1790.34	1448.12	3238.46	24.98
Pakistan	14.50	425	34.00	8.00	42.00	2.90
India	102.70	455	347.32	64.31	411.63	4.01
Asia	360.67	2354	3911.79	3366.14	7277.93	20.17
World	607.91	5274	10460.88	9462.97	19923.85	32.78

Source : World Telecom Development Report, 2002

* Figures of per capita income relate to the year 2000

there is need for the TRAI to work out afresh the revenue share and USO regime.

8.5.39 The presence of multiple operators in various sectors implies a need to focus on the conditions that will enable these operators to function smoothly. Specific planning would be required to prepare the grounds for a multi-operator system to develop and the subscriber base to expand without impediments. Ensuring fair and timely interconnection is a major part of such an endeavour. At present, a major obstacle to interconnection arises if the incumbent has to increase capacity to give interconnection and the demand for interconnection takes up only a small portion of the installed capacity. In such a situation, the incumbent finds it difficult to provide adequate funds to install the required capacity since it would not generate adequate payment to cover costs. Such a situation would merit Government intervention and

it would be appropriate to establish a Fund that will help meet the cost of installing the capacity in such situations of inadequate demand. The Government may recover the amount funded over a period of time.

8.5.40 The Radio Frequency (RF) spectrum is a scarce natural resource. In accordance with international treaties, it has to be shared among a very large number of radio communication services and users – defence, civil, Government and private – based on the principles of co-existence and most efficient use. The increasing share of cellular mobile in total number of telephones points to a need for greater focus on the policy for allocating frequency spectrum. In addition to cellular mobile phones, which will have a large number of lines by the end of the Tenth Plan, frequency spectrum will be required also for the WLL used for providing basic services. The advent of new technology will also

pose a significant challenge for the planners of radio spectrum. The increasing adoption of wireless technologies and the need to align with international standards would mean that there will be a need to address the shortage of wireless spectrum and to reconcile competing demands in certain frequency bands. The policy governing spectrum allocation and licencing has to be so designed that this scarce resource is used optimally and does not become a constraint for growth.

Box 8.5.7

Guiding Principles - Spectrum Policy

- Spectrum policy needs to be promotional in nature; revenue considerations playing a secondary role.
- Pricing and allocation should ensure that available spectrum is utilised optimally.
- With a view to ensure optimal utilisation of allocated spectrum to an operator at a given point of time, the surplus capacity available with the licensee may be permitted to be leased out/assigned to other users for a limited period without putting undue strain on the systems for which band has been earmarked.
- Spectrum pricing need to be based on relative demand and supply over space and time in a dynamic manner. Opportunity cost to reflect the relative scarcity of the resource in a given situation.
- A significant chunk of available spectrum is being used by defence, police and para military forces. A concrete action plan needs to be put in place to upgrade and modernise the technology being used by these forces so as to ensure efficient and optimal utilisation of spectrum and release the surplus resource available for use by civilian purposes. Necessary funds would have to made available for this purpose.
- Spectrum pricing also needs to ensure the introduction and promotion of spectrum efficient technology.

8.5.41 The existence of an independent and effective regulatory body is crucial for ensuring optimum growth and free and fair competition. The independence of the regulator depends, to a large extent, on the funding mechanism, the constitution of the regulatory body and the principles guiding its functioning. Against the present system of funding from the budget support, a mechanism for making the regulatory body self-financing needs to be put in place. One such option could be provision of necessary funds out of levies/fees collected from telecom operators. Ensuring stability and clarity of regulatory principles are equally important for making the regulatory mechanism effective. The basic principles that need attention in this regard are given in the Box 8.5.8:

Box 8.5.8

Basic Principles for Regulation

- Specify time limits for various regulatory procedures, including dispute resolution, such as interconnection, quality of service, USO funding, etc.
- Establish a clearly specified schedule of penalties for not meeting the licence conditions and the conditions under which they apply.
- Developing benchmarks for self-regulation by the industry.
- Developing a framework for interaction between regulator and consumer bodies so as to ensure continuous flow of information and feedback from the consumers to achieve desired standards of service quality and regulation.

8.5.42 To ensure efficient functioning of the regulatory body, two crucial inputs are continuous upgradation of the skills of its staff and regular flow of all relevant information, including the one relating to latest technological developments. A structured approach needs to be developed to achieve these objectives. Besides ensuring that the competent personnel are attracted by the regulator, adequate training facilities and a framework of research and

information service need to be developed. A team of research institutes could be identified for specific tasks in this regard. The Planning Commission itself could be a part of such a network.

8.5.43 Convergence of services is leading to a paradigm shift in the service composition, the structure of the industry and the way markets are organised. This is expected to lead to optimum utilisation of resources and provision of services on least cost basis. Service segmentation and separate license for each category/service becomes redundant and work only as artificial barrier. These need to be removed by issuing a common or single licence for all telecom services and evolving common revenue share formula. Hence, the system of multiple licenses will have to give way to a single licence regime. This would mean having perfect competition across the country in services and among operators. The Communications Convergence Bill is expected to provide the basic framework for convergence of services. The Bill provides for different categories of licences viz. infrastructure facilities, networking services, network application services, content application services and value-added network application services. Under the Bill, the designated authority will be able to decide as to how licensing is to be done when a particular operator wants to cover more than one category of licences. The envisaged Authority may, while granting a license for any other categories confine or limit the scope of the facilities or services to be provided by the licensee in each category of licence and also specify the conditions for providing that facility or service. Basic objective of this approach is to tackle the communications scenario appropriately in a layered manner. The Bill is expected to ensure seamless migration to the convergence regime and the operators shall not be asked to start all over again to revalidate the licences issued by DoT.

8.5.44 Technology restrictions are not the best way to ensure compliance to the terms and conditions of any licence. Compliance needs to be ensured through more efficient and effective means which may include imposition of well defined penalties and cancellation of licences in critical

cases. With a view to ensuring optimum growth and service provision on least cost basis, the licence must be technology neutral. The existing policy should not be allowed to hold back the benefits accruing from technological innovations if it is not against the interest of the nation and the consumer. Viewed in this context, the restrictive policy of internet telephony and WLL mobile services need to be reviewed. The benefits of internet telephony may be allowed to flow freely to anyone having the resources to establish access and may not be restricted to be channeled through ISPs. Similarly, the immense potential of WLL technology in the fast roll-out of services and its cost effectiveness need to be fully exploited in taking the services to rural areas in a time-bound and affordable manner. Various restrictions on its use especially for rural networks need to be removed immediately. As WLL based services are basically in the nature of basic services, the concept of floor pricing (rentals) seems unwarranted and is against the basic spirit of competition, efficiency, affordability and consumer welfare.

8.5.45 Though about 70 per cent of India lives in the villages and rural areas account for about 30 per cent of the GDP, the development of telecom facilities in these areas is far from satisfactory. The tele-density in rural areas is only 1.14 against 10.16 in the urban areas. Viewed from the general accessibility point of view also, about one-third of the total villages in the country are yet to be connected by basic telecom facility. As per the NTP-1999, the Government is committed to provide voice and low speed data services to all the remaining villages by 2002. With the corporatisation of DoT's network by creating BSNL, rural telephony is no more primary responsibility of the public sector. As compared to a self-sustaining expansion of network in the urban areas, service provision in the rural areas is perceived to be unviable. Keeping this in view, policy makers need to focus much more on increasing tele-density in rural areas. The basic draw back in our approach to rural communications so far has been the lack of adequate attempt to built it as a self-sustaining business proposition wherever it is feasible. There are large sections of the country where the need for subsidy can be

eliminated or atleast reduced. This can be done by either utilising commercial activity of a given area (such as areas cultivating cash crops, areas having extensive fisheries or aqua culture, agro-industries etc.) or maximising benefits of convergence, particularly utilising the entertainment segment or E-Government as a killer application. A new policy framework for ensuring the expansion of network at the desired pace and financing it appropriately needs to be put in place at the earliest. USO fund could be one of the major sources of financing this programme. With a view to ensuring efficiency, the provision of telecom services in the rural areas has to be on least-cost basis irrespective of the method of financing these services.

8.5.46. The resources mobilised through the USO Fund mechanism are envisaged to be the prime

source of funding the deficit expenditure of providing services in remote, difficult and rural areas. The guidelines for providing financial support under USO have been finalised by the Department of Telecom for implementation of what it calls Universal Service Support Policy (USSP). The support under this policy would be made available from 2002-03. The major highlights of the guidelines issued are :

- The support under the USO fund shall be available to both public access or community telephones and individual household telephones in net high cost rural/remote areas.
- The support from USO Fund shall be provided to meet net cost (i.e. cost – revenue) of providing the universal service.

Box 8.5.9

Policy Initiatives for Promoting Rural Telecom Services

- Rural telecommunications is much more than providing accessibility through village public telephones. It means provision of all services including multi-media to individuals as per demand. Keeping in view the objectives of NTP 1999, the policy has to be promotional in nature.
- Specific emphasis needs to be given on encouraging business based development of rural telecommunications through private entrepreneurship utilising the related schemes of the Government including Prime Minister's Rojgar Yojana.
- Requirement of funds may have to be met adequately through the USO fund. If need be, the USO levy should be increased suitably.
- Keeping in view the opportunity cost of spectrum in the rural areas, only nominal spectrum charge may be levied for providing services in the rural areas.
- Given the special suitability of WLL technology for rural services, WLL based limited mobility services in the rural areas may be treated on par with basic services, and not as value added services, and priced accordingly. The concept of floor pricing is unwarranted and militates against the concept of competition, consumer protection and promotion of cost effective technology.
- An open and transparent franchise policy for rural areas must be worked out to enable the franchisee to provide the telecom facility on a revenue sharing basis.
- Taking into account the issue of affordability, internet telephony may be included as part of the business model. To encourage usage and consequent revenue generation, priority attention shall have to be given to the development of content and applications of interest to rural masses.
- Evolving appropriate mechanism for regular monitoring of progress of rural telecommunications both at circle and national levels.

- Depending upon requirement, the percentage contribution towards Universal Service Levy (USL) could be increased but would be within the prevalent percentage ceiling of licence fee.
- The implementation of the USO will be divided into two clearly identifiable streams i.e. provision of public telecom and information services (Stream – I) and provision of household telephones in high cost rural/remote areas (Stream – II). Stream-I will be given priority in respect of disbursement of funds.
- Implementation of USO shall be through a multi-layered bidding process on the least quoted subsidy support basis. The lowest bid offering the least subsidy shall be accepted subject to the ceiling of benchmark cost as determined by DOT.
- A separate fund for crediting the receipts towards USO is being set up and will be presently administered by the DoT.

For the present, the rate of USL has been fixed at 5 per cent of the Adjusted Gross Revenue of operators. The detailed terms and conditions applicable to the bidding process are yet to be issued. To ensure complete freedom of functioning, transparency and effectiveness, the administration of the fund need to be entrusted to an autonomous agency under the overall supervision of a Government Department. It is, therefore, proposed that a Universal Services Obligation Board may be created as an autonomous unit under the DoT. Some of the major issues relating to the mobilisation of resources and its administration are in Box 8.5.10:

8.5.47 Telecommunications is potentially a profitable sector and service provision by the Government sector i.e. BSNL and MTNL should continue to be financed solely through IEFR. To ensure efficiency of operations and effective competition, the decision-making including investment policies of BSNL and MTNL, need to be purely guided by the commercial considerations. Budget support should be basically restricted to financing the monitoring and regulatory mechanisms only till they become

Box 8.5.10

Issues concerning USO Fund

- With a view to meet the large funding requirements, all telecom operators including ISPs, who have been permitted to provide internet telephony, need to contribute to the USO Fund as they form an integral part of the communications network. The separate service segments are bound to disappear in the emerging scenario of convergence.
- The USO levy needs to be determined and collected as a separate levy to maintain complete transparency and accountability.
- The USO levy may be increased if need be to adequately fund the USO requirements.
- Any specific conditions that are imposed on the incumbent players for the extension of the network or the composition of the subscribers base should also apply to the new entrants.
- To the extent that additional conditions are imposed on the incumbent, there is a basis to consider providing additional funding for the incumbent.
- Administration of the USO Fund should be entrusted to a new entity called Universal Services Obligation Board. For administrative purpose, it could be a part of DOT.
- To make the Board truly autonomous, it need to be financed through USO levy.
- Besides administration, the Board may have advisory as well as monitoring role. To make it a broad-based organisation, it should have representatives from Govt. Departments like Ministry of Finance, Planning Commission and DOT and industry organisations, consumer bodies and outside experts.

self-financing. But as promoting teledensity in the rural areas is a national objective and if BSNL is asked to shoulder the responsibility of fulfilling Government's commitment in this regard, required budget support may have to be provided for this purpose so as to ensure that it does not go in the red.

8.5.48 The public sector will have to continue to play a significant role in the provision of basic telecom services during the Tenth Plan. Out of about 828 lakh new connections envisaged to be provided during the Tenth Plan, the public sector units i.e. BSNL and MTNL are expected to provide 395.23 lakh additional connections. This assumes no budgetary support from the Government to BSNL for expansion of network in the rural areas. However, depending upon the availability of additional resources through USO support and other sources, public sector may be in a position to achieve much higher targets for major services during the Tenth Plan period. Cellular services are also expected to be the corner-stone of the public sector expansion plans in the Tenth Plan. As per the plans drawn by the company, BSNL is expected to be a major national player in cellular services. To ensure level playing field to the Public Sector Undertakings, the five year tax holiday under the section 80 I A of Income Tax Act available to private operators needs to be extended to MTNL and BSNL. This may be necessary as a major chunk of the fresh investment envisaged during the Tenth Plan is expected to be made by these two enterprises.

8.5.49 Private investment is also expected to play a leading role in the expansion of telecom services during the Tenth Plan. In the area of value added services, the private sector would continue to play the dominant role. The quantum of investment by the private operators would basically get determined by the rate of return on such investments – both basic as well as value added services. Foreign Direct Investment (FDI) has also a major role to play in supplementing the resources of the domestic private sector as the scale of investment envisaged is large. To boost private sector investment, appropriate policy initiatives need to be undertaken. Some of the major initiatives required are given in Box 8.5.11.

8.5.50 The NTP, 1999 has envisaged that India should emerge as a major manufacturing base and major exporter of telecom equipment. The manufacturing capacity of the indigenous industry is small in relation to the other major operators in the world and export constitute a very small proportion of the

Box 8.5.11

Boosting Private Sector Investment

- Setting up an apex body of industry associations as a forum with a view to evolving a unified approach with regard to various issues concerning the telecom service sector.
- A single window clearance scheme may be devised to ensure trouble free and time-bound approvals from all concerned agencies.
- For level playing field all operators of a particular service should have the same licencing terms and conditions including payment of licence fee and quality of service standards.
- On inter-connect issues, the incumbent as well as the new entrant need to change their mind-sets and sort out their differences bilaterally.
- With a view to ensuring speedy implementation of projects, the model guidelines suggested by the Committee on Right of the Way need to be adopted by all State Governments and other agencies.
- A seamless migration to the envisaged convergence regime needs to be ensured to put at rest any uncertainties about future policy options in this regard.
- Telecommunication needs to be treated as a priority sector by banks and other financial institutions at par with other priority sectors.
- Adequate USO support should be provided to encourage the operators to enable them expand their network in rural areas in accordance with the Government policy.

total production of telecom equipment in the country. Promoting exports as a thrust area and development of Indian multi-nationals should be among our major goals in this sector. To achieve this objective, the Tenth Plan should aim at removing the various constraints relating to transfer of the

latest technology, access to cheap international finance, joint ventures with foreign companies, rationalisation of custom and import duties on inputs and development of a strong industry-sponsored R&D base. Due to fast changing technology in this sector and the existing technological gap in relation to the developed countries, India will have to rely on transfer of technology in a big way in the immediate future. To achieve this strategic alliance with leading international companies will have to be an integral part of the overall exercise of technology transfer.

8.5.50 Strong R&D infrastructure is very vital for promoting a vibrant and strong telecom hardware sector in the country. Telecom R&D also needs to be strengthened in order to have indigenous telecom technology and evolve national standards. R&D efforts would have to be diversified besides technology development. It should focus on services, systems, processes and markets. This would ensure a user relevant orientation to R&D activities. Applications research also needs to be encouraged so that the research projects become commercially viable and products appropriate for deployment in local conditions are developed. R&D efforts in telecommunications are envisaged to be more effective if these are multi-disciplinary in character. The telecom sector involves some of the most sophisticated concepts in economics, social sciences and management among other disciplines. To give a focused priority attention to R&D activities, some of the specific policy action points are :

- Setting up a Communications Research Council as the apex body to prioritise, plan and finance the R&D projects. It should basically be a industry financed and governed body where the government provides one-time corpus as a grant. The corpus has to be large enough to finance worthy project for 5-6 years to ensure fruitful results.
- The present infrastructure available with Centre for Development of Telematics (C-Dot), the premier body in the Govt. sector, is of such a high standard that it

can serve better purpose if it is converted into truly national research organisation. The industry should be fully associated with financing and management of the organisation. It should be able to get worthwhile research projects on its own merits from the proposed Communication Research Council or any other source. Necessary budget support for achieving this transformation may have to be provided till such time C-DoT becomes self-financing.

- Earmarking a percentage of the turn over of the companies in the organised sector for financing the R&D corpus with a view to ensuring sufficient and regular fund flow to the research activities.
- Giving flexibility to PSU firms to decide adequate perks and pay for retaining the staff engaged in R&D activities as the rate of attrition of human resources due to flight of scientific talent to more attractive outside organisations is very high.

Objectives and Targets of the Tenth Plan

8.5.52 The Tenth plan policies and programmes are guided by the basic goal of creating a world-class telecom infrastructure in order to meet the requirements of IT based sector and needs of a modernising economy on the least cost basis. Ensuring value for money to the consumers and easy and affordable access to basic telecom services to everyone and everywhere would be the other goal of policies to be pursued in Tenth Plan. The major objectives envisaged for the Tenth Plan are:

- (i) Affordable and effective communication facilities to all citizens.
- (ii) Provision of universal service to all uncovered areas, including rural areas.
- (iii) Building a modern and efficient telecommunications infrastructure to meet the convergence of telecom, IT and the media.

- (iv) Transformation of the telecommunications sector to a greater competitive environment providing equal opportunities and level playing field for all the players.
- (v) Strengthening R&D efforts in the country.
- (vi) Achieving efficiency and transparency in spectrum management
- (vii) Protecting the defence and security interests of the country.
- (viii) Enabling Indian telecom companies to become truly global players.

8.5.53 The basic thrust of the Tenth Plan would be to provide world level services at affordable prices. With corporatisation of DOT's network, the network expansion/roll-out plans of both Government and private sector would be guided by the demand of various services. In line with the broad objectives of the NTP, 1999 and the objectives envisaged for the Tenth Plan, the following specific targets are envisaged for the telecom sector for the Tenth Plan:

- To endeavour to make available telephones by and large on demand by end of 2002-03 and sustain it thereafter.
- To achieve an overall teledensity of 9.91 by 31st March 2007.
- Achieve telecom coverage of all villages in the country by December 2002 and provide reliable transmission media in all rural areas.
- Provide reliable media to all exchanges by the end of March, 2003.
- Provide high-speed data and multimedia capability using technologies including ISDN to all towns with a population greater than two lakhs by the end of March, 2003.

Expansion of Network During the Tenth Plan

8.5.54 The NTP, 1999 provides the basic framework for the future development and growth of the telecom sector in the country. One of the major

objectives of the Policy is to make telephones 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. Keeping in line with the above goals of teledensity, the country need to achieve an overall teledensity of 9.91 by the Tenth Plan end i.e. March, 2007. To achieve the above target of teledensity, about 650 lakh additional connections may have to be provided during the Tenth Plan. Working on a different assumption of achieving a tele-density target of 11.5 by March, 2007, the Working Group on Telecom Sector for the Tenth Five Year Plan had recommended that 817.10 lakh new connections needed to be provided during the Tenth Plan. Keeping in view the present trend of growth, the Plans drawn up by the public sector and the availability of funds, the projections of the Working Group seem to be on the higher side. Taking the above factors into account, the goal of achieving teledensity target of 9.91 by March, 2007 seems more realistic. The distribution among cellular, fixed and WLL based limited mobility lines out of the net addition during the Plan period would depend upon the emerging behaviour of the market, availability of technological innovations and options and relative prices of equipment. As per the initial Plans drawn by Bharat Sanchar Nigam Ltd. (BSNL) and Mahanagar Telephone Nigam Ltd. (MTNL), the public sector is envisaged to provide about 395 lakh additional connections. This implies that remaining connections i.e. about 255 lakh would have to be provided by the private sector of the performance of the private sector is more encouraging higher target of tele density could be achieved.

Bharat Sanchar Nigam Ltd. (BSNL)

8.5.55 Bharat Sanchar Nigam Ltd. (BSNL) came in to existence on 1.10.2000 as a result of the reorganisation of the erstwhile Department of Telecom. With this, the reforms process of separation of policy formulation from service provision and regulation has been completed. This reorganisation had two important implications for BSNL i.e.

- (i) BSNL has to act henceforth as a commercial entity; its investment policies among other things to be guided by profits/purely by commercial consideration.

- (ii) BSNL would be subjected to additional financial liabilities like corporate tax, licence fees, payment of dividend etc. which were not applicable to erstwhile DOT.

8.5.56 Besides the above, BSNL has been providing telephones in unremunerative areas including Village Public Telephones (VPTs) in pursuance of the directives of National Telecom Policy. This obligation is adversely affecting its financial health.

8.5.57 Based on the resources availability of the company, it plans to provide 367.67 lakh new connections during the Tenth Plan. Keeping in line with the projected demand for mobile services, the main focus of the company is envisaged to be on expansion of cellular mobile services as the third operator in various circles. The following table gives the broad details of expansion programme envisaged by the Company during the Tenth Plan:

Table 8.5.6
Expansion of Network - BSNL
(In lakh lines)

Type of Phones	Urban	Rural	Total
Fixed	80.00	0.90	80.90
WLL	51.00	11.93	62.93
Mobile	222.00	1.84	223.84
Total	353.00	14.67	367.67

Mahanagar Telephone Nigam Ltd (MTNL)

8.5.58 MTNL had enjoyed monopoly till 2000 in the two metro cities of Delhi and Mumbai, where it operates. Since then the private operators have started providing basic services in Mumbai and are expected to do the same soon in Delhi. Increased competition from private operators is expected during the Tenth Plan. To maintain its position as a major player in Mumbai and Delhi, MTNL envisages to expand its cellular network in a big way during the Tenth Plan. Expansion of internet services and introduction of IT related services is another major

element of company's overall strategy of growth and competition. As per the plans drawn up by the company, 27.56 lakh additional telephone connections are expected to be provided during the Tenth Plan including 11.57 lakh cellular phones. The entire plan outlay of the company is envisaged to be financed out of internal and extra budgetary resources.

ITI Ltd.

8.5.59 ITI Ltd. is the single largest company in the telecom equipment manufacturing sector in the country, both in terms of turnover as well as employment. After suffering losses during 1994-99 period as a result of the policy of global competitive bidding resorted to by DOT and MTNL, the company has staged a turnaround during last two years. It earned a net profit of Rs.27 crore during 2000-01.

8.5.60 After disinvestment of HTL Ltd., ITI Ltd. is the only PSU left in the telecom equipment manufacturing sector. The company is also one of the PSUs identified by the Disinvestment Commission for reducing Government's equity to 26 per cent. The company has developed over the years necessary technological capabilities and have sufficient skilled manpower. The existence of at least one healthy, strong and efficient public sector unit is quite essential to provide the necessary cushion / check against the MNCs. This company can also play an important role in realising our goal of making India a major manufacturing base and exporter of telecom equipment and developing Indian Multinationals in this area. The company has to be made efficient and competitive to play its due role in the changed scenario. This would call for its strengthening and restructuring, including providing the necessary funds for capital restructuring and allowing them to go in for strategic tie-ups with leading international players. Excess manpower is a major problem with the company. Necessary financial support needs to be arranged to implement an effective Voluntary Retirement Scheme to attain the optimum level of manpower.

8.5.61 The company has drawn up further plans for modernisation and diversification in the Tenth Plan. The outlay is envisaged to be financed out of IEFR to be mobilised by the company.

Regulatory Bodies

8.5.62 The Wireless Planning and Coordination (WPC) Wing, set up in 1952, is the national radio regulatory authority to ensure orderly utilisation of radio frequency spectrum and Geo Stationary Orbit (GSO). It is supported by the WMO in this activity. With the opening up of the economy the number of players and services in the telecom sector is bound to increase manifold. Therefore, the Organisation would need to be further strengthened and modernised to enable it to perform its regulatory functions effectively.

8.5.63 The TRAI, set up in 1997, is the apex organisation responsible for performing the regulatory functions in the telecom sector. As a result of the TRAI Amendment Act, 2000, Telecom Dispute and Appellate Tribunal (TDSAT) has been set up.

8.5.64 The outlay of these regulatory bodies would continue to be financed out of budget support by the Government till they become self-financing. A World Bank aided project called Telecommunications Sector Reforms Technical Assistance Project is being implemented for modernising and upgrading the facilities in these organisations. The project costing US \$ 72 million is envisaged to be implemented over a 4 year period ending December, 2004.

Centre for Development of Telematics (C-DoT)

8.5.65 C-DoT is the main public sector agency engaged in R&D activity in the Telecom sector. It has been a leader in the development of rural exchanges which have performed exceedingly well under tough conditions. C-DoT technology constitutes more than 40 per cent of the total lines operative in Indian telecommunications network. C-DoT licence manufacturers are exporting the technology switches to other countries having conditions similar to those in Indian rural areas.

8.5.66 During the Tenth Plan, the thrust of C-DoT's research plan would be the development of

cost effective technologies providing services and features at par with those being offered by other global players. Development of products to cater to the needs to broad-band fixed and mobile subscribers access system, as well as high band with backbone systems would be an important part of the strategy for the Tenth Plan. Some of the major areas of thrust are:

- Intelligent Network Services
- GSM Personal Communication Services
- Third Generation Mobile Communication System
- Ka Band Satellite Communications
- Cell and Packet Switching Technologies for Voice and Data Convergence
- Ultra High Bit Rate Network Backbone
- Expansion Planning of Existing Wireline Network

8.5.67 Till September, 2000, the plan outlay of C-DoT was financed out of I R generated by DoT. With the carving out of BSNL as a separate corporate entity, this mode of financing is no more available and the plan outlay is required to be funded through budgetary support.

8.5.68 R&D activity in any sector is very vital for ensuring future growth and hence needs to be supported fully. However it may be mentioned that as one of the major beneficiaries of the R&D of C-DoT, the industry needs to be fully associated in financing its activities. Besides, C-DoT needs to focus more on generating internal resources through royalty, consultancy etc. to reduce its dependence on Government support.

THE PATH AHEAD

8.5.69 The Tenth Plan would endeavour to build a modern and efficient telecom infrastructure with a view to provide world class telecommunications facilities at affordable rates, meet the needs of convergence of telecom, IT and media and universal service to all uncovered areas. To achieve the above

goals, the major initiatives/action points envisaged for the Tenth Plan are :

- (i) To achieve a target of tele-density of 9.91 by March, 2007, about 650 lakh new telephone connections need to be provided during the Plan Period.
- (ii) The telecom sector needs to be treated as an infrastructure sector for the next decade or so in order to achieve the targets of teledensity in line with the objectives laid out in the NTP, 1999. This is envisaged also to help achieving substantially higher rate of growth of broadband to meet the requirements of other sectors of the economy especially Information Technology and Entertainment.
- (iii) Government's broad policy of taxes and regulation for the telecom sector has to be promotional in nature with a view to ensuring optimum growth in the coming years. Revenue generation should not be a major determinant of the macro policy governing the sector. Guided by this principle and keeping in line with the policy adopted by most of the progressive administrations in the world, the licence fee needs to be aligned to the cost of regulation and administration of Universal Service Obligation (USO).
- (iv) Ensuring fair and timely interconnection in the multi-operator scenario is one of the major inputs for sustaining high growth. Government's intervention may be required in the form of establishing a fund to finance the requirements of capacity creation especially of incumbent operator to meet increased requirement in this regard.
- (v) The policy governing spectrum allocation and licencing has to be so designed that this scarce resource is used optimally and does not become a constraint for growth. Spectrum pricing need to be based on relative demand and supply over space and time in a dynamic manner and should

promote introduction of spectrum efficient technology. A significant chunk of available spectrum is being used by defence, police and para military forces. A concrete action plan needs to be put in place to upgrade and modernise the technology being used by these forces so as to ensure efficient and optimal utilisation of spectrum allotted and releasing the surplus spectrum for use by civilian purposes. Necessary funds would have to be made available for this purpose.

- (vi) The existence of an independent and effective regulatory body is crucial for ensuring optimum growth and free and fair competition. The basic principles that need attention in this regard are :
 - Specify time limits for various regulatory procedures.
 - Establish a clearly specified schedule of penalties for not meeting the licence conditions and the conditions under which they apply.
 - Developing benchmarks for self-regulation by the industry.
 - Developing a framework for interaction between regulator and consumer bodies so as to ensure continuous flow of information and feed-back from the consumers in order to achieve desired standards of service quality and regulation.
- (vii) Adequacy of funds has to be ensured for effective implementation of the USO. If need arises, the rates of USO levy may have to be increased suitably.
- (viii) The policy governing development of rural telecom services need to be promotional in nature with a view to boost teledensity in these areas in line with the objectives of NTP, 1999.
- (ix) An outlay of Rs. 86984.00 crore including the budgetary support of Rs. 1500 crore has been approved for the Telecommunications sector for the Tenth Plan.

Salient Features of Postal Systems International Scenario

United States of America

- Obligatory to achieve breakeven
- No legal obligation to make profit.
- Loss/profits are carried forward.
- Can borrow funds from general public.
- Concessional mails to be reimbursed.

Canada

- Canada Post operated on a commercial basis.
- Obligatory to make a profit.
- Benefits are used for self-financing.
- Deficits, if any, are covered by banking transactions.

Indonesia

- Obligatory to make a profit.
- It keeps the revenue from terminal dues.
- It is not state-subsidised.

Japan

- Self-supporting.
- No budget support
- Deficits if any are carried to next year.

Malaysia

- A private limited company.
- Expected to make a profit.
- It retains the terminal dues owned to it.
- No subsidiaries from Federal Government.

New Zealand

- Obligatory to make profit.
- Profits are distributed as dividends to share holders.

Thailand

- According to the State Enterprise Accounting and Finance Regulation, the CAT is required to deliver profits earned as state revenue.
- Deficits in postal service are covered by the State and inputs from the telecom sector.

NINTH PLAN 1997-2002
Physical Performance - Postal Sector

Schemes	Ninth Plan	1997-98 Actual	1998-99 Actual	1999-00 Actual	2000-01 Actual	2002 BE	Anticipated Achievnt
Expansion of Postal Network							
a. Opening of POs.							
EDPOs	2500	402	598	386	363	500	2249
Dsos	250	52	50	49	52	50	253
Infrasre. Eq. to EDBOs	2400	7746	3395	798	9555	8000	29494
Panchayat Sanchar Sewa			200	486	2005	2000	4691
Upgradation of Technology							
a) Supply of MPCMs SB lans	5000	918	1429	1250	1104	1000	5701
b) Modernisation of Pos	505	308	98	139	161	125	831
Mechanical Equipment							
Hand Cancellors	10000	0	3285	5705	6211	5000	20201
Stamp Cancel Mach.	100	20	20	20	20	20	100
Eletnic Frankg Mach	500	250	150	111	100	100	711
Tying & bundg Mach	30		30				30
Satellite MO							
Installation of VSATs	170	0	0	62	88		150
Installation of ESMOs	2000	318	318	266	466	400	1768
Upgradation of VSATs	75		21	0			21
Material Management							
Prntg & Papr cutng	1						0
Diesel fork lift trolleys	4						0
Training Sys Opratns	150	30	50			100	180
Human ResourceDevelopment							
In srvce traing Gr "A"	180	30	24	170	156	140	520
Refresher training	16051	4551	4315	2782	2424	2500	16572
Computer training	12000	2775	4062	3200	13959	10000	33996
Training for EDBPMs	51000			18000	15168	21500	54668
Training to Gr. C etc.	15750	7107	6970	7400	6836	6000	34313
Customer care centre	228	67	60	55	22	26	230

Modernisation of Mail Processing							
Setting up of AMPCs	2				0	2	2
Culler Facer Cancellor					2		2
Mail office Modrnisaton	120	20	43	38	27	17	145
RMS Vans Air brake	28			28			28
RMS Vans Modification	30		24		2		26
Purchs of MMS Vehicles	50	8	12	2	4	7	33
Registration Delivery			22+6	22+6			22+6
HRO/DO Comp.	20	1		6	8	7	22
TMO computerisation	25	6	7	6	8	4	31
Mopeds	500		147	147			147
Business Development Marketing							
Computerisation of PPCs	40	8	10	29	17	2	66
Business off. fr SPost	40 Centres	7	20	30			57Centres
Comptrisation of SPCCs	50			20			20
Postal Life Insurance							
RPLI Computerisation	32R			11R+120HO	Transferred to Non-Plan		
Upgradton of Compters	20R			4C+1PLI	Transferred to Non-Plan		
Philately (Computerisation)	52	5	21	16	120	79	241
Postal Buildings	420	54	25	35	45	48	207
Staff Quarters	950	275	196	133	206	190	1000
Streamlining of Adm.& Finl. Management.							
Comp. Of Admn.Br.		4	4	36D	37D		
MIS interlinking						17	17

NINTH PLAN OUTLAY AND EXPENDITURE
Postal Sector

(Rs. in Crore)

Scheme	1997-98		1998-99		1999-00		2000-01		2001-02		Ninth Plan		
	Plan Outlay	BE	Actual	BE	Actual	BE	Actual	BE	Actual	BE	RE	Opratnal Outlay	Anti. Expend
Infrastr. Dev.	42.70	3.55	3.92	5.03	7.79	10.89	8.47	15.00	16.44	39.44	40.58		
Computerisation & Connectivity	133.98	31.12	28.30	21.28	22.76	29.63	26.63	21.01	32.11	131.21	140.02		
HRD	14.08	2.79	2.35	2.94	2.84	2.74	3.26	3.67	3.67	14.87	15.08		
Mail proces	141.30	8.79	3.37	12.72	7.28	38.22	16.57	61.00	14.05	164.67	44.58		
Business dev	17.80	3.85	2.29	4.25	3.66	7.20	4.98	4.00	3.49	23.45	20.45		
Fin. Services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Mat. mangt	1.20	0.00	0.00	0.00	0.12	0.63	0.66	0.77	0.77	1.40	1.55		
PLI	14.42	4.00	2.96	4.35	2.28	1.52	0.00	0.00	0.00	9.87	6.58		
Philately	5.12	0.50	0.50	0.85	0.69	0.57	1.71	1.20	1.20	4.86	4.62		
Esat. Dev	119.62	35.00	24.13	39.80	27.53	10.88	25.78	24.00	23.58	136.33	121.78		
Admn.&fin	9.63	5.40	2.73	3.78	1.69	2.73	0.53	4.00	3.34	16.66	9.50		
Public Grv.	7.40	0.00	1.72	0.00	1.00	1.54	0.29	0.35	0.40	2.24	4.17		
Total	507.25	95.00	72.27	95.00	73.69	100.00	88.28	120.00	99.05	545.00	408.91*		

* : Utilization is low basically on account of reduction in outlay at RE stage by the Ministry of Finance from year to year.

TENTH PLAN (2002-07)
POSTAL SECTOR - Physical Targets

Schemes	Ninth Plan 1997-2002		Tenth Plan (2002-07)	Annual Plan (2002-03)
	Target	Achvnt	Target	Target
I Infrastructure Development				
PSSKs		4961	5000	1500
EDBOs	2500	2249	1000	250
DPOs	250	253	100	20
II Computerisation & Connectivity				
<i>Networking of Pos</i>			13361	150
-do- HROs	20	22	47+22	10
-do- TMOs	25	31	33+67	15
-do- CRCs			136+50	20
-do- CSDs			9	2
-do- PAOs			20	3
-do- Circle Offices			22	7
-do- ROs			37	8
-do- Dos			506	102
-do- CCCs			611	62
-do- foreign mail centres				4
-do- foreign Pos				4
-do- Speed Post Del. Off.			200	40
-do- Speed Post Book. Off.			500	100
National Data Centre				1
Ttrack and Trace Systems				4
Annual Maintenance R & D				
Softyware Development				
Software Refinement				
Studies/Surveys				
III Mechanisation and Modernisation				
Improving Ergonomics in Pos			10000	100
Improving Ergonomics in MOs			400	100
Infras. Equipnt to Rural Pos	2400	29494	45448	1818
Mechanical Equipmt.				
International MSS				
AMPCs	2			1
Mauil Motor Vehicles				7
Mechanised Delivery				
Air-brake Mail Vans			20	
IV Business Development				
Speed post				
Speed Net				

Mod. Speed Post Centres			100
ISO certification of SPCs			
Express Parcel Post Services			
IPP hub development			5
Premium Products			1
Market Surveys			
E-post			
Ebillpost			
New products and services			
V Financial Services			
Professional Consultation			200000
Smart Cards			
Point of Sale Terminals			400
C. R. Management			
VI Human Resources			
Development			
Inservice			6000
Computer			10000
Training Equipment			
Distance Learning			
- Inservice	360000		35000
-Computer	190000		18000
- Training Equipment			
Training Buildings			
Tr. For Gr. A			100
FS			
BD			
Training Philately			
VII Estates Development			
Construction of Pos/Sos/Mos	50+500		
Admn. Offices		50	
Staff Qtrs		2000	
Purchase of Land			
Maintenance of Buildings			
-do- Heritage Buildings			
Petty Works			
VIII Philately			
DLPE	250	25	
Tools and Equipment		500	40
Market Research & Surveys			

NINTH PLAN (1997-02)
PHYSICAL TARGETS AND ACHIEVEMENTS-Telecommunications

Name of Scheme	Original Target	1997-98		1998-99		1999-2000		2000-01		2001-02		
		Revised Target	Actuals	Target	Actual	Target	Actual	Target	Actual	Target	Actual	
Switching Capacity (lakh lines)	230.00	298.00	36.00	35.18	49.30	47.89	54.70	67.17	72.35	71.30	82.46	75.83
DOT	200.60	273.00	30.80	32.30	44.00	43.75	49.00	63.02	67.00	67.00	77.76	70.33
MTNL	29.40	25.00	5.20	2.88	5.30	4.14	5.70	4.15	5.35	4.30	4.70	5.50
Direct Exchange	185.00	222.70	29.00	32.59	36.00	37.92	45.50	49.18	52.40	59.25	72.30	57.88
Lakh lines												
DOT	160.00	200.70	24.60	28.65	31.50	35.45	40.60	45.40	48.00	56.29	68.30	53.07
MTNL	25.00	22.00	4.40	3.94	4.50	2.47	4.90	3.78	4.40	2.96	4.00	4.81
TAX (Lakh lines)	18.00	23.06	3.25	3.14	4.50	2.06	4.53	4.80	5.15	5.12	10.10	9.97
DOT	15.24	18.87	2.75	2.77	3.87	2.06	4.00	4.03	4.00	5.12	9.00	9.07
MTNL	2.76	4.19	0.50	0.37	0.63	-	0.53	0.77	1.15	-	1.10	0.90
Microwave Systems	90.00	70.00	18.00	17.99	19.50	14.00	15.00	19.88	10.00	21.03	7.50	14.45
('000kms)												
Optical Fibre System	140.00	270.00	22.00	23.82	35.00	31.77	40.00	63.27	100.00	55.35	126.00	99.02
(000 kwh)												
VPT ('000 Nos.)	239.16	278.87	83.00	42.86	80.50	37.06	45.00	33.97	70.00	34.22	144.00	70.75

OUTLAY & EXPENDITURE OF TELECOM SECTOR IN THE NINTH PLAN (1997-2002)

(Rupees in crore)

Organisations	9th Plan Outlay	Mid-term	1997-98 Actual	1998-99 Actual	1999-00 Actual	2000-01 Actual	2001-02 BE	9th Plan Actu.Outlay	Ant. Exp.
BSNL	37995.00	66193.00	8733.58	9556.11	12643.55	12203.96	16574.00	66974.00	59711.20
IR Net	30965.00	51889.00	8733.58	9556.11	10074.55	11643.96	11341.00	53579.37	51349.20
Bonds	7030.00	14304.00	0.00	0.00	2569.00	560.00	5233.00	13394.63	8362.00
DBS								0.00	0.00
MTNL	5446.00	5446.00	912.54	977.44	872.00	967.36	1600.00	10998.00	5329.34
IR	4066.00	5446.00	912.54	977.44	872.00	967.36	1600.00	8640.85	5329.34
Bonds	1380.00	0.00	0.00	0.00	0.00	0.00	0.00	2357.15	0.00
VSNL	2737	7319.03	407.71	761.62	431.41	347.18	1814.66	5907.7	3762.58
IR	2737	7319.03	407.71	761.62	431.41	347.18	1814.66	5907.7	3762.58
WMO	44.04	268.73	4.37	5.75	1.35	5.27	10.00	41.20	19.65
WPC					0.17	0.83	95.00	100.00	28.33
TRAI						2.00	4.00	6.00	6.00
TDSAT								0.00	0.00
TEC					3.11	1.36	4.00	4.00	12.95
IR					3.11	0.00	0.00	0.00	0.00
GBS					0.00	1.36	4.00	4.00	12.95
C-Dot					80.97	110.66	52.00	218.00	429.38
IR					80.97	0.00	0.00	166.00	
GBS					0.00	110.66	52.00	52.00	429.38
ITI	175.00	106.64	15.00	42.00	44.00	24.00	125.00	455.00	250.00
IR	0.00	106.64	-148.00	-52.00	44.00	24.00	125.00	231.00	-7.00
Bonds	150.00	0.00	150.00	94.00	0.00	0.00	0.00	74.00	244.00
Others	25.00	0.00	13.00	0.00	0.00	0.00	0.00	149.00	13.00
DBS								1.00	0.00
HTL	45.00	81.29	5.73	9.42	5.34	16.33	20.18	80.00	57.00
IR	27.00	49.59	5.73	9.42	5.34	14.39	12.92	48.19	47.80
Bonds	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Others	18.00	7.20	0.00	0.00	0.00	1.94	7.26	27.81	9.20
DBS	0.00	24.50	0.00	0.00	0.00	0.00	0.00	4.00	0.00
Total	46442.04	79414.69	10078.93	11352.34	13997.65	13678.95	20298.84	84783.90	69406.71
IR	46398.00	64810.26	9911.56	11252.59	11427.30	12996.89	14893.58	68502.11	60481.92
Bonds		14304.00	150.00	94.00	2569.00	560.00	5233.00	15880.78	8606.00
Others	0.00	7.20	13.00	0.00	0.00	1.94	7.26	192.81	22.20
DBS	44.04	293.23	4.37	5.75	1.35	120.12	165.00	208.20	296.59

N.B. : WPC, TEC and C-DOT was Part of BOT/BSNL's Internal resources till Sept. 2000

*: Refers to the actual expenses anticipated by c-DOT; It includes DOT's IR component and the DBS indicated in previous columns.

TELE-DENSITY – INTERNATIONAL COMPARISON (31.12.2001)

Country	Main Telephone Lines (in lakh)			Tele-density		
	1995	2001	CAGR %	1995	2001	CAGR%
USA	1597.35	1900.00	2.9	60.73	66.45	1.5
UK	294.11	353.26	3.1	50.18	58.8	2.7
Australia	89.00	100.60	2.1	49.25	52.02	0.9
Brazil	132.63	374.30	18.9	8.51	21.78	17.0
Mexico	88.01	137.73	7.7	9.39	13.72	6.5
South. Africa	40.02	49.69	3.7	10.14	11.35	1.9
Egypt	27.16	66.50	16.1	4.67	10.30	14.1
Japan	622.92	760.00	3.4	49.61	59.69	3.1
Malaysia	33.32	47.38	6.0	16.57	19.91	3.1
China	407.05	1790.34	28.0	3.30	13.81	26.9
Pakistan	21.27	34.00	8.1	1.67	2.35	5.8
India#	119.78	347.32	19.4	1.29	3.38	17.4
Asia	1816.88	3911.79	13.6	5.46	10.85	12.1
World	6892.51	10460.9	7.2	12.29	17.21	5.8

Source : World Telecom Development Report 2002.

: Tele-Density works out to 4.4 on the basis of total telephone connections of 450.26 lakh including 64.31 lakh collector connections (31.03.2002)

TELECOM DEVELOPMENT – INTERNATIONAL COMPARISON
(As on Dec. 2001)

Country	Population (In crore)	GDP per capita (US\$)*	DELs (Fixed) (In lakh lines)	Tele-density	No. of PCs per 100 persons	Internet Users per 10,000 persons
USA	28.59	36211	1900.00	66.45	62.25	4995.10
UK	6.01	23694	353.26	58.80	36.62	3995.01
Australia	1.93	19897	100.60	52.02	51.71	3723.05
Brazil	17.18	3500	374.30	21.78	6.29	465.58
Mexico	10.03	5807	137.73	13.72	6.87	362.23
South Africa	4.38	2882	49.69	11.35	6.85	700.58
Egypt	6.45	1424	66.50	10.30	1.55	92.95
Japan	12.73	34337	760.00	59.69	34.87	4547.10
Malaysia	2.38	3838	47.38	19.91	12.61	2394.96
China	129.61	834	1790.34	13.81	1.93	260.00
Pakistan	14.50	425	34.00	2.35	0.41	34.49
India#	102.71	455	347.32	3.38	0.58	68.16
Asia	360.67	2354	3911.79	10.85	3.31	437.49
World	607.91	5274	10460.90	17.21	8.42	823.24

Source : World Telecom Development Report 2002.

: Tele-Density works out to 4.4 on the basis of total telephone connections of 450.26 lakh including 64.31 lakh collector connections (31.03.2002)

* : Figures of population and income (GDP) relate to year 2000.