Report of
The Steering Committee on

Communication and Information

for
The Tenth Five Year Plan
(2002-2007)

Government of India
Planning Commission
May, 2002

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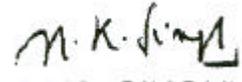I nL;

MEMBER

FOREWORD

I have great pleasure in submitting the Report of the Steering Committee on Communications & Information for the Tenth Five Year Plan (2002-07).

Knowledge based industries are fast emerging as a major source of generation of wealth and employment in the modern economies. The rapid development of information and communication technology (ICT) has changed the basis of comparative and competitive advantage of countries and businesses. India is perceived to have a special comparative advantage in Information Technology and IT enabled services. It is an area where the country has the potential to be fully competitive and establish global dominance. ICT is equally important for realizing India's potential in generating wealth in the other knowledge areas like bio-technology, pharmaceutical, bio- informatics, medicine etc. Our policies in the Tenth Plan have to be guided by the goal of realizing India's full potential in these areas. Providing world-class telecommunication services at the most competitive rates has to be an integral part of the entire strategy.

Convergence of computer, communications and content has opened new avenues of communication and the way people and organizations share, process and exchange information. E-governance could be a major tool of ensuring good governance and it holds great promise for revolutionizing governance in India. Adoption of integrated approach based on convergence for finding solutions to the various issues facing the Telecom, Posts, IT and I&B sectors has been one of the guiding principles for the Steering Committee for making its recommendations. Development of world-class and efficient

communications and information network in line with our national and international goals has been the basic theme guiding the Report of and various policy recommendations made by the Steering Committee. I hope that the Report of the Steering Committee may provide useful inputs for determining our policies for development of a world-class and efficient communications and information network which is central for the optimum and balanced growth of all sectors of the economy.

I would like to thank all members of the Steering Committee for excellent cooperation, purposeful deliberations and providing valuable inputs for the Report. I would also like to thank Shri Mantreshwar Jha, Principal Adviser (C&I), Shri S.S. Batra, Adviser (C&I), Shri Nirmal Singh, Member-Secretary, Shri S.S. Das, SRO and other officials of the Division for assisting me in the work relating to the Steering Committee and preparation of the Report.

(N.K. SINGH)

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INTRODUCTION

Towards formulation of Tenth Five Year Plan (2002-2007), Planning Commission constituted a Steering Committee on Communications & Information under the chairmanship of Member (Infrastructure) vide Planning Commission O.M.No.No.4(4)/35/2000-C&I, dated 21st December, 2000. The notification detailing composition, terms of reference, etc. is given at Annexure-I. The basic objective of the Committee was to make recommendations on the various policy matters relevant to the formulation of Tenth Five Year Plan of Telecommunications, Information Technology (IT), Information and Broadcasting (I&B) and Postal sectors. Besides representatives from various Government Departments, it also included members from financial institutions, public sector units, industry associations, private corporate sector, media and academics.

2.   The first meeting of the Steering Committee was held on 20.2.2001 under the chairmanship of Shri M.S. Ahluwalia, then Member, Planning Commission. Based on the discussions held in the meeting, it was decided to constitute five Working Groups on Telecom, Posts, Information Technology, Information & Broadcasting and Convergence & E-governance.

3.   As decided in the Steering Committee, the terms of reference and composition of the five Working Groups were finalized by the Commission in consultation with the concerned administrative Ministries/Departments and these were constituted on 23rd April, 2001. The Working Group on Convergence & E-governance was headed by Pr. Adviser (C&I), Planning Commission. The other Working Groups were headed by the Secretaries of the respective Ministries / Departments.

4.   Consequent upon his appointment as Member of the Planning Commission, Shri N.K.Singh took over as the Chairperson of the Committee w.e.f 11th July, 2001. The Committee decided to co-opt Shri Mantreshwar Jha, who took over as Principal Adviser in the Commission w.e.f 9th November, 2001 and Shri J. Bhagawati, Jt. Secy., Ministry of Finance. In due course, a representative each from FICCI, MAIT and IDFC was also co-opted on the Committee to ensure due representation to these organizations and make the Committee more broad-based. Final list of Members of the Committee is given in Annexure-II.

5.   Besides numerous presentations and discussions with experts, individual Members and organizations/bodies associated with the Information, Communication and Entertainment (ICE) Sector, the Committee held other three full fledged meetings on 20th December, 2001, 24th January, 2002 and 6th March, 2002. The reports submitted by the five Working Groups constituted by the Committee were considered. The major issues and recommendations were discussed and deliberated upon in great detail.

6.   The discussions held in the meetings of the Committee, the reports of the Working Groups, presentations made before the Committee, papers and comments received from various sources, the reports of the National Task Force on Information Technology and the New Telecom Policy, 1999 were the key inputs for finalizing the report of the Steering Committee on Communications and Information for the Tenth Five Year Plan.

TELECOMMUNICATIONS

Telecommunications is one of the prime support services needed for rapid growth and modernization 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 potential for the impact on the rest of the economy. India is perceived to have a special comparative advantage in information technology and in IT enabled services. However, the extent of 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 has also to be a thrust area to aid and attain the goal of accelerated economic development and social change in the rural sector. 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 accelerate structural changes in this sector in line with the trends in other countries.

Present Status of Telecom Network

2.   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 31.03.2002. Basic services network constitutes the bulk of the phones accounting for about 86% of the total telecom network. The main features of the present telecom network are given in the Box below:

Status of Telephone Network – As on 31.03.2002	
Total number of exchanges	35023
Number of rural exchanges	26953
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 –as on January 31, 2002	38 lakh

Review of Ninth Plan (1997-2002)

3.   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 9th 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 below:

Network Expansion – Ninth Plan

(Lines in lakh)

Item	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

4.   The performance of the Government sector 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 & MTNL and 237 lakh for the whole sector including private sector, the achievement   during   the   Ninth Plan is 240.55 lakh connections in all including contribution of private sector i.e. more than the target envisaged in the 9th Plan Document.

5.   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 14.3 lakh (revised). Constraints like licensing agreements, unrealistically higher licence fee, revenue share, right of way etc. have been basically responsible for the slow progress for the private sector.

6.   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 1st April, 2002, the process of liberalization and opening up the sector for competition would be complete. The major reforms carried out in the telecom sector so far are given below:

Reforms in the Telecom Sector in the Ninth Plan

- 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
- 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 DOT 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 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 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 27.3. 2002

Factors and Trends Relevant for Future Policy Initiatives

7.   With the introduction of competition in the market, the focus of planning need 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 below:

(i)   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.

(ii)   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, etc. and huge capacity addition by other players.

(iii)   A small portion of the subscriber base provides 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.

(iv)   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 cost.

(v)   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.

(vi)   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.

(vii) Trend towards convergence of services may lead to major changes in the structure of industry and markets.

Tenth Five Year Plan

Objectives and Targets

8.   The Tenth plan policies and programmes need to be guided by the basic goal of creating a world-class telecom infrastructure in order to meet the requirements of information technology based sector and needs of a modernizing 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 10th 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 research and development 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.

9.   The basic thrust of the Tenth Plan should 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 specific targets that need to be achieved by the telecom sector during the Plan include :

i)   Make available telephone on demand by the year 2002 and sustain it thereafter.
ii)   Achieve an overall tele density of 11.5 and tele density of 3 in the rural areas by 31st March 2007.
iii)   Achieve telecom coverage of all villages in the country by the year 2002 and providing reliable transmission media in all rural areas.
iv)   Provide reliable media to all exchanges by the year 2002.
v)   Provide internet access to all district headquarters with reliable media.
vi)   Provide high-speed data and multimedia capability using technologies including ISDN to all towns with a population greater than two lakhs by the year 2002.

Projections – Network Expansion and Financial Requirements

10.   The Working Group on Telecom Sector for the Tenth Five Year Plan had projected that 817 lakh additional connections needed to be provided to achieve the required target of tele density of 11.5 by March, 2007.   Taking into account the above projection, broad distribution between public and private sectors, the trend of growth of cellular services in the recent past and discussions held with the Deptt. of Telecom, the target needs to be marginally increased and may be fixed at 828 lakh additional connections. The details of composition of network expansion and distribution between public and private sector and between cellular and fixed line segments are given in the table below.   Considering the current trend, the composition of cellular and fixed phones is likely to alter during the course of plan period in favour of cellular.

Network Expansion during the Tenth Plan

(*in lakh lines*)

Services	As on 31.3.2002	Tenth Plan Targets				As on 31.3.2007	CAGR (Target)
		Public*	Public**	Private	Total		
Fixed	385.95	159.82	390.72	130.23	520.95	906.9	18.6
Cellular	64.31	235.41	126.99	180.00	306.99	371.3	42.0
Total	450.26	395.23	517.71	310.23	827.94	1278.2	23.2
Tele-density	4.4	-	-	-	-	11.5	-

* *Without any budget support by the Govt to BSNL and MTNL*

** As per the projections made by the Deptt. of Telecom based on the recommendations of the Working Group on Telecom for the Tenth Plan assuming support from USO fund. Accordingly the annual targets of the BSNL are envisaged to be revised based on the annual review of their performance as well as likely progressive reduction of costs.

11.   Based on the projections made by the Working Group on Telecom for the Tenth Plan, the role anticipated for public and private sectors and the per line cost suggested by the Working Group, an investment of Rs. 165216 crore may be required to achieve the above targets. The projections assume a per line cost of Rs.27,000 for fixed line connections, Rs.8000 for cellular mobile services and Rs.30,000 for connections in the rural areas. The details in this regard are given in table below:

Tenth Five Year Plan – Funds Requirement (Estimated)

(*Rs. in crore*)

Year (2002-2007)	Total	Public* Sector	Private Sector	Rural Network
Total	165216	115654	49562	44160

*Assuming that the operational Plan of BSNL would undergo a considerable change after the USO support mechanism is put in place.

Challenges, Issues and Policy Initiatives Required

Telecom as Infrastructure Sector

12.   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 is only 4.4 as compared to the global average of 15 and very impressive figures of 9 achieved in countries like China who started along with India. The sector also needs, especially broad-band segment, 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 a service sector.

<u>Policy of Taxation</u>

13.   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 fee in the form of 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, there is need for the TRAI to work out afresh the revenue share and USO regime.

<u>Interconnection Issues</u>

14.   Fair and timely interconnection is a pre-requisite for ensuring smooth functioning of the multi-operator system. 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 may 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.

<u>Spectrum Policy</u>

15.   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 the need for greater focus on the policy for allocating frequency spectrum. In addition to cellular mobile, which may have a large number of lines by the end of the Tenth Plan, frequency spectrum will be required also for the Wireless in Local Loop (WLL) used for providing basic services. The advent of new technology may 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. The important guiding principles of an efficient and growth promoting spectrum policy should include the following :

Guiding Principles - Spectrum Policy

- Spectrum policy need to be promotional in nature; revenue considerations playing a secondary role.
- Pricing and allocation should ensure that available spectrum is utilized optimally.
- With a view to ensure optimal utilization of allocated spectrum to an operator at a given point of time, the surplus capacity available with the licencee may be permitted to be leased out for a limited period.
- Spectrum pricing need to be based on relative demand and supply over space and time in a dynamic manner. Opportunity cost should reflect the relative scarcity of the resource in a given situation.
- To ensure efficient and optimal utilization, all users including defence, police, para military forces, etc. should be required to pay for the allocated spectrum.
- Spectrum pricing also need to ensure the introduction and promotion of spectrum efficient technology.

Regulation

16. 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 guiding regulation need to include the following:

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 bench-marks for self-regulation by the industry.
- Developing a frame-work for interaction between regulator and consumer bodies so as to ensure continuous flow of information and feed-back from the consumers to achieve desired standards of service quality and regulation.

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17. 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. Planning Commission itself could be a part of such a network.

Convergence of Services

18. Convergence of services is leading to a paradigm shift in the service composition, the structure of the industry and the way markets are organized. This is expected to lead to optimum utilization 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 introduced in Parliament 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 category, 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.

Technology and Licencing Issues

19.   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 channelized 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.

Rural Telecom Services

20.   As per the New Telecom Policy, 1999, the Government is committed to provide voice and low speed data services to all the remaining villages by 2002. About one-third of the total villages in the country are yet to be connected by basic telecom facility. The tele density in rural areas is only 1.14 against 10.16 in the urban areas. The development of telecom facilities in the rural areas is far from satisfactory though rural areas account for about 30% of GDP and provide livelihood to about 70% of the population. Service provision in these areas is perceived to be unviable as compared to a self-sustaining expansion of network in the urban areas. 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 either utilizing commercial activity of a given area (such as areas cultivating cash crops, areas having extensive fisheries or aqua culture, agro-industries etc.) or maximizing benefits of convergence, particularly utilizing the entertainment segment or e-Government as a killer application, need for subsidy could be eliminated or substantially reduced.   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. The provision of telecom services in the rural areas has to be on least-cost basis irrespective of the method of financing these services with a view to ensuring efficiency. The major policy initiatives required to be taken to promote rural telecom services include :

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 telecom services through private entrepreneurship utilizing the related schemes of the Government including Prime Minister's Rojgar Yojana.
- USO funds, if inadequate, needs to be supplemented through other means including budget support by the Government.
- 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.
- Keeping in view 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 needs to be worked out to enable the franchisee to provide the telecom facility on revenue sharing basis.
- Taking into account the issue of affordability, the internet telephony may be included as part of the business model.
- Evolving appropriate mechanism for regular monitoring of progress of rural telecommunications both at circle and national levels.

Universal Service Obligations (USO)

21.   The resources mobilized 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 finalized 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 the financial year 2002-03 onwards. 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 Universal Service Fund shall be provided to meet net cost (i.e. cost – revenue) of providing the universal service.
- 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 net 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. Lowest bid offering the least subsidy shall be accepted subject to the ceiling of bench-mark 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.

22. For the present, the rate of USL has been fixed at 5% of the Adjusted Gross Revenue of operators. The detailed terms and conditions applicable to the bidding process are yet to be issued.

23. 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. Keeping this in view, it is proposed that a Universal Services Obligation Board may be created as an autonomous unit. For administrative purposes, it would be an allied organization of the DOT. Major initiatives required with regard to mobilization of resources and the administration of USO fund are:

Issues concerning USO Fund

- With a view to meet the large funding requirements, all telecom operators including ISPs need to contribute as they form an integral part of the communications network and the boundaries between service segments are bound to disappear in the emerging scenario of convergence.
- The USO levy need to be determined and collected as a separate levy to maintain complete transparency and accountability.
- In view of large amount of funding required, Government may consider providing one-time or time-bound support to supplement the resources raised through USO levy.
- Any specific conditions that are imposed on the incumbent for the extension of the network or the composition of the subscriber 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 an allied organization of DOT.
- To make the Board truly autonomous, it needs to be financed through USO levy. Besides administration, the Board may have advisory as well as monitoring role.
- To make it a broad-based organization, it should have representatives from Govt. Departments like Ministry of Finance, Planning Commission & DOT and industry organizations, consumer bodies and outside experts.

Boosting Private Sector Investment

24. The role of private sector investment in the telecom sector is very crucial for achieving the targets envisaged for network expansion during the Tenth Plan. 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 to boost private sector investment including FDI are:

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 needs to be provided to encourage and enable the operators expand their network in rural areas in accordance with the Government policy.

Telecom Equipment Manufacturing

25. 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 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, rationalization 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 alliances with leading international companies would have to be an integral part of the overall exercise of technology transfer.

Service PSUs – BSNL and MTNL

26. 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. But as promoting tele-density 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.

27.   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 thus playing a major role in network expansion during Tenth Plan. To ensure level playing field to the PSUs, 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.

Research & Development

28.   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 actions required are :

   (i)   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 wherein 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.

   (ii)   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 organization. The industry should be fully associated with financing and management of the organization. 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.

   (iii)   Earmarking a percentage of the turn-over of the companies in the organized sector for financing the R&D corpus with a view to ensuring sufficient and regular flow of funds to the research activities.

   (iv)   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 organizations is very high.

POSTS

An efficient postal system is crucial for growth and modernization. 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, having a network of 1.55 lakh post offices. Besides providing a variety of postal services, the Indian postal system is playing a vital role in the resource mobilization efforts, especially in the rural areas. The importance of these functions is illustrated by the deposits to the tune of Rs. 218695 crore as on March 31,2001.

Basic Profile of the Sector

- Indian Postal system is the largest in the world in terms of number of post offices/outlets numbering 154919 (as on 31.3.2001). The permanent post offices called Departmental Offices are 26037.
- 128882 of these i.e. about 83% are in the rural areas. These are called Extra Departmental Branch Offices (EDBOs).
- The total manpower engaged in running postal services under the Department is about 6 lakh equally divided between permanent employees (294301) and extra departmental (309649).
- Total revenue expenditure of the Department is Rs. 5210.83 crore (2001-02) with a revenue deficit of Rs.1458.37 crore.
- Plan outlay constitutes a very small fraction of the total expenditure and was Rs.135 crore for 2001-02 i.e. 2.59 % 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 Posts was 160% in India as compared to 101% in U.K., 102% in US, 99% in Brazil and 138% in Sri Lanka (1998).
- Except courier services, postal operations are still a State monopoly.

Review of Ninth Plan (1997-2002)

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

- Expansion of the scope and coverage of the programmes of modernization initiated during the 8th Plan period through induction of new technology.
- Development and marketing of new services specially for the business/professional sectors and modernization of identified agency functions.
- Human resource development through appropriate training for skill upgradation.
- Streamlining of management functions.
- Development and maintenance of appropriate buildings for the modernized systems and staff quarters for the employees.
- Extending basic counter facilities in new areas in cost effective manner.

3.   The performance in respect of achieving the physical targets has generally been satisfactory and the major targets are likely to be achieved. Against the target of setting up 250 permanent post offices, the achievement is likely to be 253. Nearly 90% of the target of opening 2500 offices in rural areas is likely to be achieved. In addition to this, 4691 Panchayat Sanchar Sewa Kendras (PSSKs) are expected to be opened during Ninth Plan. In the area of modernization, the performance has been very encouraging as 5701 Multi-Purpose Counter Machines (MPCMs) are projected to be installed against the target of 5000 and 150 V-SATs are expected to be installed against the target of 170.

4.   For implementing the various programmes, an outlay of Rs.507.25 crore was approved for the Postal sector for the Ninth Plan. As indicated above, 58% of the total outlay was provided for technology upgradation and modernization. On the basis of allocations approved for the Annual Plans(BE), the operational approved outlay for the Ninth Plan works out to Rs.545.00 crore. On the basis of actual allocation of funds, the operational outlay works out to Rs.483.16 crore. As against this, the utilization during the Plan is projected to be Rs.408.91 crore. This gives a utilization ratio of 75% of the approved operational outlay, 84% of actual allocation and 80% of the Ninth Plan approved outlay. In this regard it may be mentioned that the low utilization is basically the result of reduced allocations at the RE stage from year to year.

5.   Ninth Plan has also marked the beginning of diversification efforts by the Department keeping in line with the times and with a view to generate 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 IT products like E-post.

Challenges, Issues and Policy Initiatives Required

Postal Deficit

6.   The position of postal finance in India has 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 6 times – increasing from Rs 91.81 crore in 1992-93 to Rs 1576.35 crore in 2000-01. It has serious implications for resource availability for other needy sectors like infrastructure and social development. The following table gives the details in this regard.

Trend of Postal Deficit
(Rs. in crore)

Year	Deficit
1992-93	91.81
1997-98	993.43
1998-99	1590.97
1999-00(RE)	1740.53
2000-01 (RE)	1576.35
2001-02 (BE)	1458.37

7.   This is quite an explosive situation and cannot be sustained for long without serious implications. The Department should endeavour to achieve the goal of self-sufficiency over the next five years. To achieve this, a two pronged strategy needs to be adopted:

(i)   increasing the revenue through diversification and aligning the postal tariffs to costs;

(ii)   reducing the cost through upgradation and modernization of technology and redeployment/reduction of manpower.

Subsidy on Postal Services

8.   As a part of the Government policy, the postal services in India have been highly subsidized. While subsidy on few of the items covered under Universal Postal Service Obligation (UPSO) may be justified, the pricing of other services needs to be done on cost basis and what the market can bear. The details of per unit subsidy and the total amount paid on various services may be seen in the following table.

Subsidy on Postal Services
PROJECTIONS - 2001-02

Name of Service	Subsidy Per Unit (Paise)	Total Traffic (in lakh)	Total Deficit (Rs. in crore)
Post Card	555.39	3185.50	176.92
Printed post cards	381.33	1214.50	46.31
Letter Cards	378.44	4599.50	174.06
Registration	1809.43	2679.50	484.84
Money Order	2894.35	1105.00	319.83
Reg. Newspaper (S)	786.86	1045.50	82.27
Reg. Newspaper (B)	1283.25	174.50	22.39
Printed Books	1110.73	322.00	35.77
Parcel	722.90	684.90	49.95
Others	-	13159.50	33.09
Total	**-**	**28169.50**	**1424.93**

9.   There does not seem to be any justification for subsidizing services like registration, newspapers, postal orders, money orders, etc. Of the 23 services being provided by the Department, only 3 are yielding surplus. The Steering Committee is of the firm view that:

(i) The policy of blanket subsidy needs to be reviewed and replaced by a policy of pricing the services appropriately keeping the Universal Postal Service Obligations (UPSO) in view.

(ii) The tariff of non-UPSO services should be fixed on commercial principles and revision carried out from time to time.

Universal Postal Service Obligation (UPSO)

10.   India, as member of the Universal Postal Union, is committed to ensure provision of quality based postal services on regular basis to all the users at all points in the country at affordable prices. But as per the guidelines of the Beijing Congress, 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 needs of the customers in individual country. Keeping in line with the international conventions and our specific needs, UPSO for our country needs to be clearly defined and adopted. Keeping in view the recommendations made by the Working Group on Posts and objectives envisaged for the Tenth Plan, the following policy initiatives need to be taken in this regard:

Guiding Principles for UPSO

- Taking into account the importance of money order economy, UPSO needs to include post card, inland letter, envelope and money orders up to a certain limit.

- These services should continue to be delivered at affordable prices.

- Prices of other services should be determined on commercial basis   with a view to achieve the objective of self-sufficiency.

Tariff Fixation and Regulation

11.   Under the Indian Postal Act, 1898, the Central Government fixes the tariffs for various postal articles and these are approved by the Parliament. Due to various reasons including political considerations, the tariffs have not been revised at reasonable intervals. Revision of postal tariffs has not been keeping pace with the increase in operational costs. The corrective policy initiatives required in this regard are :

 (i)   The process of tariff fixation needs to be depoliticised.

 (ii)   An independent regulatory mechanism needs to be created which besides other things would look after the function of tariff fixation.

Indian Post Office Act, 1898

12.   The Indian Post Office Act, 1898 is totally archaic and obsolete; not meeting the requirements of changed conditions. It needs to be replaced with a forward looking Act to take care of new development including the emerging scenario of convergence, the new technological and other developments and competition.

Review of Policy of Opening of Post Offices

13.   Keeping in view the overall goal of making the Department self-financing, no more post offices should be permitted to be opened in the rural areas under the present scheme. In fact, the entire policy of opening up of post offices needs a comprehensive review in the light of policy objectives and changing scenario on the following lines.

Opening of Post Offices – Review of Policy

- No more Post Offices to be opened up by creating more posts or through additional manpower.
- Any fresh offices in new locations justified on the basis of norms should be set up only through redeployment of staff.
- A comprehensive review of all existing post offices to be carried out in a time-bound manner and all such units which do not fulfill the norms and where resources are underutilized need to be closed down.
- The function relating to 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 optimum size of network.

Alternative Strategy for Rural Services

14.   The present scheme of opening of rural post offices i.e. EDBOs has a large element of inbuilt subsidy – 67% in normal areas and 85% in hilly and tribal areas. It is not sustainable over a long period. The total annual subsidy out-go on this account is estimated to be Rs.560 crore. The new scheme of opening rural post offices with the help of panchayats called Panchayat Sanchar Sewa Yojana(PSSY) also involves lot of subsidy.   Besides, the agents under the EDBO scheme tend to stake their claim for becoming permanent Government employees. If this is acceded to, it may pose a major threat to the financial system. The present system of opening rural post offices cannot be sustained over a long period. The scheme needs to be replaced by innovative programme of providing services in the rural areas which may include:

(i)   The extra-departmental employees may be converted into franchisees of the Department for providing these services in rural areas.

 (ii)   The scheme of licensed postal agents may be reactivated.

The franchisees option may also help in a big way in reducing the financial burden and future liabilities of the Department besides providing it with a decentralized system of privately run and owned convergence centers at the village level

New-look Post Offices : Multi-product/ Service Delivery Centres

15.   Reach and trust are the two very strong and unique advantages of the postal network in India. With innovative strategies, this can be converted into major strength for delivery of variety of services besides postal services to achieve the target of achieving self-sufficiency. To take advantage of the emerging scenario of convergence, the post offices need to be developed as multi-product and multi-service delivery centers wherein delivery of postal services would only be a part of the job. It would involve introduction of new value-added services, financial IT based products including e-Commerce and new postal products. These convergence centers, as privately owned and operated outlets as 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.

Revenue Generation through Non-tariff Means

16.   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. Corporate set-up provides two intrinsic advantages of quick decision-making and raising resources from the market vis-a-vis Departmental set-up. Keeping the above in view, 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 should be converted into a corporation during the Tenth Plan as a step towards corporatisation of the Department's network.

Agenda for Reforms

17.   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 run by the Department 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 level playing field, setting up of an independent regulatory authority may be considered for the sector. With a view to ensure optimum growth of the sector, self sufficiency and world class services at affordable prices, the following reforms need to be carried out in a time-bound manner:

Agenda for Reforms
- To develop and evolve a creditable road map of corporatisation for postal sector as India Post within the Tenth Plan.
- Progressive induction of private sector in the provision of selected postal services.
- Depoliticization of the process of tariff fixation by creating an independent regulatory mechanism.
- Tariff of non-UPSO services should be fixed on commercial principles and revision carried out from time to time.

Tenth Plan – Objectives and Targets

18.   The Department of Posts shall aim to achieve financial self-sufficiency within the Tenth Plan period. Following this policy, a road map of specific measures needs to be drawn and implemented during the Tenth Plan. The major objectives envisaged for Tenth Five Year Plan are given below :

(i)   Provision of universal postal services at affordable prices.
(ii)   Ensuring quality of services at international standards.
(iii)   Modernisation and process re-engineering with a view to achieve better administrative efficiency and financial management.
(iv)   Upgradation of existing infrastructure with a view to ensuring minimization of cost of operation and enhancing customer satisfaction.
(v)   Making the postal operations of the Department self-financing by the end of Tenth Plan.

19.   Some of the major targets envisaged for the Postal sector for the Tenth Five Year Plan are:

- Opening of 100 Departmental post offices
- Computerisation of all major post offices in the country.
- Computerisation of 136 CRCs, 506 Divisional Offices and 611 Costumer Care Centres
- Setting up of National Data Centre
- Improving ergonomics of 10,000 post offices
- Provision of Infrastructure Equipment to 45448 rural post offices
- Installation of additional Automatic Mail Processing Systems

Major Initiatives envisaged for the Tenth Plan

20.   Computerisation and connectivity has been identified as the core activity for the Tenth Plan. Coupled with modernization and mechanization 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 of the major initiatives proposed for the Tenth Plan are given below.

Expansion of the Postal Network

21.   For the Tenth Plan, it is envisaged to open 100 permanent departmental offices. For providing services in the rural areas, it is envisaged to open another 6000 offices/outlets through the existing schemes of Panchayat Sanchar Sewa Kendras (PSSKs - 5000) and Extra Departmental Post Offices (EDBOs - 1000).

Computerisation and Connectivity

22.   The various schemes proposed under this programme are for creating the basic infrastructure for improving the quality of existing services and providing the technological base for launch of new value added and financial services. Networking of various post offices, record offices, back offices, customer care centers, 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. It may be pointed out that without creating this technological back-up, the introduction of new services proposed may not be feasible. Under this programme, the single most important activity proposed is complete computerization and networking of 13361 post offices.

23.   A beginning in computerization and modernization was made in the Ninth Plan in a small way based on the limited resources available. As a result of this, the Department could introduce new value added services like express parcels, e-post and satellite money orders etc. The programme is envisaged for the Tenth Plan on a much larger scale in order to enable the Department to launch new services and improve quality and efficiency of existing services. This would help in achieving the goal of financial self-sufficiency for the Department through substantial addition in resource generation.

Business Development

24.   The programme aims at giving 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. Separate Business Development Directorate with due delegated authority and powers set up in the Department during Ninth Plan for 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 manifolds in the Tenth Plan. The revenue projections for the Tenth Plan are given below.

Revenue Projections – Premium Products	
	(Rs. in crore)
Year	Revenue)
2002-03	553
2003-04	774
2004-05	1083
2005-06	1517
2006-07	2124

25.   Countrywide reach of the Department extending to the remotest of the rural areas is a rare asset available which needs to be exploited fully for delivery of various services. Revenue generation from these services would contribute in a big way in reducing the revenue deficit of the Department.   Keeping in view the target of making the Department self-financing, the programme needs to be strengthened.

Financial Services

26.   Introduction of smart cards and installation   of   ATMs in collabo-ration with 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 strengthened further during the Plan period. The programme needs to be emphasized keeping in view the existing infrastructure and reach of the Department and the potential of generating substantial revenue.

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INFORMATION TECHNOLOGY

India has matured, during the last one decade, into a credible IT outsourcing capital of the world. The sector has created tremendous pay-offs in terms of wealth creation and generation of high quality employment. It is an area where the country can be fully competitive and establish global dominance. Advancements in Information Technology have profound impact on the economy and on the quality of human life. The convergence of computer, communications and content creates tremendous opportunities as well as challenges from which both developed and developing countries can potentially benefit. The Government of India, while recognizing IT as a thrust area for growth took a number of initiatives. The major among these are given the Box below.

Major initiatives taken by the Govt.

- Setting up of a new Ministry of Information Technology which in the emerging convergence scenario was rechristened as Ministry of Communication and Information Technology.
- Setting up of National Task Force on Human Resource Development in IT.
- Creation of IT Venture Capital Fund of Rs 100 crore.
- Upgradation of Education and Research Network(ERNET) connecting all Universities and RECs through high speed network.
- All RECs to be upgraded to the level of Indian Institute of Technology(IITs).
- Enactment of a comprehensive law called IT Act 2000, which inter alia provides legal recognition for transactions through electronic data interchange .
- Lowering custom duties on IT products, allowing 100 per cent Foreign Direct Investment (FDI) and setting up of Venture Capital Funds. Limit on issue of ADR/GDR by stock swap raised from US$ 50 Mn to US$ 100 Mn or up to 10 times the export earnings by the company in the previous year.
- Computerization of government departments by spending up to 3 per cent of the budget on IT. Many e-Governance applications were initiated. A number of government portals were hosted. Technology development and content creation in Indian languages was promoted.
- Government initiated setting up of 487 Community Information Centres at block headquarters in North-Eastern states & Sikkim for bridging digital divide.
- Media Lab Asia project was initiated for taking IT to masses.
- Networking of various educational institutions and universities.
- Human Resource Development was promoted through multi pronged approach for increasing availability and improving quality in IT education. Many states set up Indian Institutes of Information Technology as Centres of Excellence.

Review of Ninth Plan (1997-2002)

2.   The IT industry is one of the fastest growing sectors of the Indian economy. The IT industry achieved a Compound Annual Growth Rate (CAGR) of 27% in production and 50% in exports during the Ninth Plan. While software sector recorded an impressive CAGR of 53%, the growth in hardware sector was much lower - a CAGR of 11 per cent. Yearly production of the IT industry during Ninth Plan period is given below:

Production of the IT industry in the Ninth Plan

(Rs. crore)

Item	1997-98	1998-99	1999-2000	2000-01	2001-02*
Hardware	22,100	25,250	28,100	30,700	32,750
Software Exports	6,500	10,940	17,150	28,350	36,500
Domestic Software	3,470	4,950	7,200	9,400	11,634
Total	**32,070**	**41,140**	**52,450**	**68,450**	**80,884**

* Estimated

3.   Research and Development is the central force driving the growth of IT industry. Out of the total of 1180 R&D units registered at present with Department of Scientific and Industrial Research (DSIR) there are about 300 units in electronics & IT. The present investment in the R&D in the country is not on par with rest of the world. While the PSUs invest about 5% of their turnover in R&D, the private sector investment in R&D.

4.   Besides the public and private industry investment in the R&D, a number of Central/State Government agencies like Department of Information Technology, Department of Atomic Energy, Department of Bio-Technology, Department of Ocean Development, Department of Science & Technology, Council of Scientific and Industrial Research, DRDO, Indian Council of Agricultural Research, Indian Council of Medical Research, ISRO, UGC and others provide financial support to R&D at academic institutions, R&D laboratories and industry. These agencies play a catalytic role in the scientific innovations for accelerating the pace of development and creating infrastructure to enhance production capabilities in the country.

5.   Besides Department of Space, Department of Atomic Energy and DRDO which have their own R&D programmes, other agencies invested about Rs.200 crore annually during Ninth Plan towards R&D programmes in electronics and IT. During the Ninth Plan, over 200 R&D projects were initiated at a number of institutions and significant results were achieved. These programmes have been able to establish a technological base in the country besides generating specific products and have also provided trained professionals to the industry.

Tenth Five Year Plan

Basic Approach, Projections & Thrust Areas

6.   The tremendous growth of IT industry so far has been characterized by a virtual laissez-faire policy followed by the Government towards this sector. The Government would continue to play its role as a facilitator and a catalyst for accelerating growth with the objective of achieving our goal of making India an IT super power. In the area of E-governance, major policy initiatives/ interventions are envisaged to be taken by the Government   with a view to ensuring balanced and orderly growth. Keeping in line with our broad goals, the major objectives envisaged for the IT sector for the Tenth Plan are:

Major Objectives of the Tenth Five Year Plan

- To ensure sustained growth of software and IT enabled services and increase India's share in the global market.

- To put in place the basic policy framework for making India a major force in the hardware manufacturing sector.

- To devise appropriate policy interventions for greater use of IT for promoting more efficient, transparent and responsive governance.

- To promote development and use of software in Indian languages to meet local requirements and expand domestic market.

- To take necessary steps for taking IT to masses by making it affordable, easy to use and productive in day-to-day life.

- To put in place the required policy framework to improve quality of manpower, skills and research & development in IT.

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7.   The Working Group on Information Technology for the Tenth Five Year Plan has made recommendations regarding the growth potential for the various segments of the IT industry. Based on these and information available from other sources/studies, the projections for various parameters of the IT sector are given below:

i)   The IT industry is envisaged to achieve a production target of   Rs.2,82,000 crore by the terminal year of Ninth Plan i.e. by 2006-07, comprising of software sector of Rs.2,13,000 crore and hardware production of Rs.69,000 crore.

ii)   As against the current level of US $ 8 billion, the exports (software and IT services) are expected to grow to US $ 87 billion by the year 2008.   While software export is targeted at US $ 50 billion, target of export of hardware has been kept at US $ 10 billion.

iii)   Keeping the above growth potential in view, the IT exports are likely to constitute 35% of India's total exports in 2008 against the present level of 14%. The software & IT services industry is likely to contribute 7.7% of GDP in 2008 increasing from the present level of 1.7%.

iv)   The present size of the global IT industry is estimated to be 1.2 trillion US dollar. It is growing at a rate of 9% in hardware and 14% in software. India's present share in overall global software market is only 2%. The US and Europe are expected to continue to be the major market of software in future. In the Asian region, China, Philippines, CIS countries and Korea are emerging as new centers of software excellence. Japan has shown keen interest in outsourcing their software requirements in spite of their inherent cultural and language advantage for countries like China, Malaysia and Korea.

v). In terms of domestic IT spending, US and Western Europe are expected to incur US$ 634 billion and US$ 424 billion by 2004. IT spending in Asian region is expected to go up to US$ 200 billion in 2002 from US$ 152 billion in 1999. Asia Pacific region is likely to account for IT spending worth US$ 240 billion by 2004.

vi) India's IT spending is about 0.7% of GDP, as compared to 1.3% in Malaysia and 2.5% in Singapore. By comparative indicators of number of PCs, Internet users, cable TV subscribers, fixed telephones etc., India is almost five years behind China.

vii) Internet subscribers base is expected to be over 35 million by 2007 against the present level of nearly 4 million.

viii) The employment generation in the IT industry is projected to be about 7 million by 2008. Hardware sector is expected to provide employment to 4.8 million persons; software sector contribute the remaining 2.2 million jobs.

ix) PC penetration is expected to become 20 per thousand by the year 2008 against 5.8 at present.

8.   Keeping in view the basic approach, objectives and targets envisaged for the Tenth Plan for the IT sector, the major thrust areas for the Tenth Plan are envisaged to be:

(i)   Software development & exports and IT enabled services are identified as a thrust area for wealth creation and employment generation. New markets for software exports would be developed.
(ii)   Priority should be given to e-Governance, development of Indian languages interface with computers, IT for masses, distance education, E-commerce, cyber security and HRD.
(iii)   Post graduate education and research in IT would be pursued. R&D in emerging areas of blue tooth technology, E-commerce, nano-technology and bio-informatics solutions will be pursued.

(iv)   Foreign investment needs to be attracted through further simplifying policies and by strengthening and upgrading telecommunication and IT infrastructure.

Challenges, Issues and Policy Initiative Required

Hardware Development

9.   The growth in IT hardware production is stagnating at about 11 per cent per annum during the past 5-6 years primarily due to constraints like distorted tariff structure, poor infrastructure, high cost of finance and stiff competition from MNC. This sector is likely to face even harder competition in the zero duty regime after 2005 as per WTO commitment. Although under zero duty regime, import duty on finished products would be made zero, but it is unlikely that duties on various inputs such as chemicals and metals used in hardware production would be made zero. In such a scenario, viability of domestic manufacturing will be adversely affected. A comprehensive package of measures, both short term as well as long term, needs to be put in place to ensure accelerated development of the sector. The most important long term measure is to evolve and put in place a well thought-out hardware policy suited to our requirements. Some of the important initiatives that need to be taken in this regard are:

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<u>Major Initiatives for Hardware Manufacturing Sector</u>

- To evolve and put in place (by December, 2002) a national hardware manufacturing policy with a 20 years perspective to ensure emergence of India as the global leader in hardware. Gaining competitive edge over China, a leading supplier of hardware, by 2010 need to be a major bench-mark of this policy.

- A comprehensive rationalization of tariff structure especially for raw material to take care of zero duty regime on finished products after 2005.

- A single window clearance scheme may be devised to ensure trouble free and time-bound approvals from all concerned agencies to facilitate entry of international players and attract FDI.

- Setting up world-class manufacturing facilities in special economic zones without any export obligations.

- Working out specific action plan including promoting international strategic alliances, dedicated R&D etc to ensure development of world class products at competitive prices.

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Software Development & Marketing

10.   The total global software and IT services market is estimated to be about US $ 1.2 trillion. Our share in the international markets is about 2% and the Indian industry is under threat from emerging competitors like China, Philippines, CIS countries, Korea etc. Though the country has earned recognition in this area, yet for sustained growth strategies would have to be re-oriented. The domestic market also needs to be developed and catered to effectively to ensure its sustained long-term growth and benefits to the masses at large. The experience of countries like China which have very strong and vibrant domestic market need to be studied to develop our long term strategy in this regard. The issues that require immediate attention in this regard are:

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<u>Major Issues / Policy Initiatives for Software Sector</u>

- The industry needs to move up in the value chain by developing high value products through regular R&D. The companies need to tie up with the extensive R&D network that exists in the country.

- To ensure long term sustained growth and exports, the focus of Indian industry need to shift from 'software solutions providers' to manufacturers of 'packaged products'.

- Continuous improvement in productivity will hold the key in maintaining our competitive edge in the global market. For achieving this, the three vital inputs are sustained improvement in quality of products and services, availability of high quality manpower and strong R&D support.

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- The industry has ignored marketing so far. For building brand equity and positioning 'India' brand abroad, large investments in marketing and brand building would be required. Strengthening marketing channels with strategic global links, expanding the focus outside USA to emerging markets in Asia, Pacific, Japan, etc and entering into agreement with end-user countries for executing large projects have to be the major elements of this strategy in this regard.

- Industry associations like NASSCOM, MAIT, ESC etc need to provide the necessary support to the small and medium enterprises (SMEs) in their export efforts through effective networking and face to face meetings between SMEs and potential customers in the developed countries as these enterprises do not have the requisite expertise and resources required for aggressive marketing.

- Priority attention needs to be given to development and promotion of software in Indian languages and meeting local requirements with a view to increasing the domestic market. Marketing has to be an integral part of the strategy.

Human Resource Development

12. One of the key inputs in achieving sustained growth and exports in the IT sector is the availability of high quality professionals and in adequate numbers. As per a well researched study, India would require 22 lakh IT professionals by 2008 – 11 lakh in hardcore IT sector and an equal number for IT enabled services. For continuous growth in the sector, India needs to maintain and enhance its competitive advantage of abundant, high quality and cost effective human resources. The country needs to ensure the right mix of technical, business and functional skills of the workforce to meet the needs of individual business segments and customer markets. Perfect match and harmony has to be ensured between the demand of the industry and the supply of trained manpower by the educational and training institutions. The major initiatives required in this regard are:

Policy Initiatives for Human Resource Development

- Continuous upgradation of basic standards at school levels with emphasis on Physics, Mathematics and English.
- Micro electronics and biology need to be the new focus area in tertiary education.
- Updating the syllabus of Computer Engineering, Electronics and IT in various technical institutions as per demands of the industry. Curriculum in other branches of engineering should also be reoriented and broad-based to include IT subjects.
- Post graduate education and innovative research in IT are imperatives for maintaining quality standards and facing new challenges in this dynamic sector.
- Ensuring a continuous upgradation of teaching faculties and introduction of use of teaching aids like computers, access to internet, videos etc.
- Augmenting and upgrading facilities in existing Regional Engineering Colleges (RECs) and Engineering Colleges under Deemed Universities to IIT level so that the country has at least 100 such institutions by the Tenth Plan end to meet our requirements of quality manpower.

Legal and Regulatory Issues

13.   The Information Technology Act, 2000 provides the basic regulatory framework for IT industry in the country.   The Communication Convergence Bill (CCB), which has been introduced in Parliament, needs to be enacted and operationalised at the earliest to provide required institutional framework for ensuring convergence of services i.e. Telecom, IT and Media. However, there are many related issues which need to be sorted out effectively to ensure optimum growth of IT sector. Some of the major issues in this regard are:

   (i)   The issue of software piracy needs to be tackled through suitable legal and other provisions of IT Act 2000.

   (ii)   Growth of E-commerce would also depend to a great extent on the effective IT security system which should be addressed from technological and legal angle.

   (iii)   The Indian Contract Law is not covered under the Act which needs to be suitably attended to.

   (iv)   IT Act does not clarify all the issues regarding taxation of electronic transactions. Indirect taxation for goods/services delivered electronically is not clear.

   (v)   The Act is silent on the issue of protection of Intellectual Property Rights (IPR) in the internet space.

   (vi)   The issue of cyber crime control is not completely addressed by the IT Act since the offences defined in the Act are not exhaustive.

   (vii)   Law enforcing agencies are not fully equipped and trained to deal with cyber crime.

   (viii) Safeguards to protect privacy of personal and business data collected over the internet are not in place.

   (ix)   Regulatory framework for payment gateways is not fully evolved.

Issues Concerning Finance

14.   The domestic hardware industry in general and electronic components manufacturing units in particular are facing high interest rates for borrowing money for carrying out their operations. Other critical factors like fast obsolescence, weak R&D base, poor infrastructure etc., have resulted in the absence of any fresh investments in hardware sector during the Ninth Plan. Rather it has resulted in the closure of some existing units. The Tenth Plan Working Group has recommended creation of an "Electronic Component Development Fund" with a corpus of about Rs.100 crore. An appropriate quantum of capital, depending on the criticality of the components, could be made available out of this Fund at the subsidized rate of interest to credible entrepreneurs.

15.   The advanced IT skills in Indian software industry is limited to a few leading companies which contribute about 65% in the total software export. The small & medium enterprises (SMEs) which are more in number contribute about 35% in software export. The IT expertise is highly skewed in favour of few organizations and unless SMEs are promoted by adopting suitable policies including fiscal incentives, it may be difficult to achieve the Tenth Plan targets

of US $50 billion software export. The constraints being faced by the SMEs in financing their software development projects can be addressed to some extent by creating more Venture Capital Funds (VCF). Other measures that need to be taken to address financial needs of the IT industry include the following:

Major Policy Initiatives for Financing IT Projects

- Involvement of the apex Financial Institutions (FIs) in the planning process of the IT sector.

- Developing confidence among the FIs about the potential for growth and success of the IT sector.

- Evolving special norms to finance bandwidth by considering it a tangible asset for collateral security purpose.

- Evolve norms to finance working capital needs of the IT software sector by considering the intellectual brain-ware also a tangible asset for collateral security purpose.

Convergence and e-Governance

16.   Convergence in simple terms can be defined as convergence of carriage and content. It involves convergence of terminals and integration of industries. Keeping in view the development of technology, institutional and legal framework and user requirements, the three differ product lines namely, broadcasting, telephony and internet are in a position to achieve converge in a fast manner through wired and wireless media. This process involves major changes in the structures of computer industry, information and content industry and the communication industry.

17.   The success of the convergence would lie in ensuring a seamless transition to the new services and information delivery systems. Both in government funded projects and the private sector, returns in terms of better and cheaper deliveries, scalability and coverage would determine as to which medium would lead the convergence process. The single biggest area of "convergence" could be the integration of the Internet with the broadcast market. The main issues facing the convergence of technologies in the Indian context are:

- Availability of a wideband multimedia network with a high bandwidth to support multimedia traffic.

- Seamless interconnection of Internet, cable, radio and other fixed and mobile networks.

- Availability of the digitalised information, appropriately encoded and formatted for transportation over a wideband multimedia network.

18.   From the perspective of individual welfare, development can be seen as an outcome of efficient institutions rather than the other way round. Too much discretion at every level, lack of transparency and cumbersome record management have made the Government service

delivery systems quite inefficient and user-unfriendly. Electronic governance or e-Governance denotes the application of IT to the processes of Government functioning in order to bring about Simple, Moral, Accountable, Responsive and Transparent (SMART) governance. Some of the important pre-requisites for successful e-Governance are:

- Large-scale computerization
- Capability of use of local languages in the IT systems
- Changing the mindset of government functionaries
- Creation of adequate and appropriate Infrastructure
- Standardisation in data encoding, application logic, user interfaces, etc
- Knowledge networking for better governance
- Creation of public key infrastructure and certification authorities
- Making e-Governance fully relevant to the needs of the people

19.   Though some initiatives have been taken both by the Central and some State Governments during the Ninth Plan, the process of e-Governance has not taken the shape of a systematic national programme.   Actions and programmes in the field have been driven primarily by individual initiatives rather than institutional thrusts. Different levels of development, computerization and political will necessitate the adoption of some standardized and uniform pattern and pace of computerization and introduction of e-Governance in order to avoid the ill effects of digital divide.

20.   The programme of e-Governance so far has been basically restricted to the efforts of National Informatics Centre (NIC). The emphasis has been on providing connectivity, networking, technology upgradation, selective delivery systems for information and services and a package of software solutions. A serious look is now necessary at the 're-engineering of procedures and rules' which form the core of any effective programme of e-Governance. This, perhaps, is the most difficult part of the entire exercise and requires priority attention at all levels of planning and implementation. Keeping the above in view, the master plan of e-Governance for the country in the Tenth Plan has to be guided by the following principles:

Guiding Principles of E-Governance

- A clearly focused vision of what is the objective of introducing e-Governance.
- The range and standards of delivery of information and services to the people must be defined with time-frames within which they are to be attained.
- Any plan or scheme for e-Governance should have sustainability; it should not be a mere novelty at Government expense only for the sake of doing something that is in fashion.
- Standardization should be started without any delay otherwise confusion will ensue which would negate the advantages of use of IT.
- Areas of public funding should be clearly spelt out.
- The situation in various States should be gone into in details and appropriate plans and schemes suggested suited to different States.
- Interactivity must be built into all schemes of e-Governance otherwise it will only remain as a labour saving device for the Government functionaries.

- In the matter of e-Governance, G2G, G2C, G2B functionalities have necessarily to be developed. E-Governance is to be understood in the sense also of governance even of public and private corporate bodies, Municipal Corporations and even local bodies. If e-Governance is to be ushered in an effective manner, it is necessary to create set of 'flash picture' of the state of e-Governance in the country.

Computer Penetration, Affordability and Digital Divide

21.   Reach of the basic IT infrastructure is still limited and the cost of accessibility to IT is still not that affordable for the common man. High cost of PC is one of the major constraints resulting in low PC penetration. Development and production of mass friendly and affordable devices would need to be given high priority in the Tenth Plan to achieve the objective of large scale penetration and affordability. Development of low cost PC to suit domestic needs is central to any strategy in this regard. Development of inter-lingua with visual feature applications would have to be the other important element of the strategy of substantially raising penetration.

22.   Innovative and cost effective solutions have to be found to make available the required band-width in remote and rural areas. Innovations like small electronic device fitted in a PC having the capacity to disseminate the band-width of about 11 mbps around radius of 4 – 10 Kms. would require due encouragement to make available broad-band connectivity all around in the country. In case of postal sector, this innovative technology has tremendous significance. The existing about 1.28 lakh post offices can become radial points for dissemination of band-width.   Since Internet telephony has now been allowed, the existing STD/PCOs need to be upgraded with Internet to expand Internet connectivity throughout the country. The rural post-offices should also be modernized this way.

23.   Digital divide is one of the major issues facing IT sector. The disadvantages between different sections of the society have also to be addressed along with regional disparities including rural divide. Special programmes may have to be researched for IT employment of masses in rural areas. Panchayati Raj Institutions and NGOs have to be effectively involved in this programme.

Research and Development Programme

24.   As per WTO commitment the IT sector would be brought to a zero duty regime by 2005. Therefore, it has become imperative to develop technologies, products and services of international cost and quality and become global leader at least in some selected fields. Pursuing purposeful R&D is the only way to meet this challenge. However, we have to be careful not to fritter away our scarce financial and human resources by trying to tackle all the areas. Keeping the recommendations of the Working Group in view, our strategy for R&D need to focus on:

(i)   In the long term R&D, the focus should be on key emerging subjects of basic research like nano-technologies, genetic engineering, bio-informatics etc., which are expected to be all pervasive and would impact everything. Research in such technologies should be taken up in universities and reputed R&D laboratories.

(ii)   In the medium term R&D, the focus should be on current technologies like high-end computing, wireless technologies, microelectronics, photonics, Microelectro Mechanical System (MEMs), next generation internet, blue tooth technology, high-end computing cyber security, robotics etc., which have mass deployment potential and would create necessary infrastructure for achieving accelerated growth. This would also enable us to apply these technologies for development of new applications and upgrade existing products and services at a lower cost as compared to imported technologies. Medium term R&D can be pursued at technical institutions / R&D centers and industries.

(iii)   In the short term R&D, the focus should be on improving products and reducing costs. Thrust areas identified for R&D in this category may be concerning technologies related to low cost PC, capital goods, GIS, e-commerce, e-Governance, e-learning, transport and safety, large database, multimedia, smart card etc.

25.   Apart from the above areas, a few other areas/programmes like Media Lab Asia, telemedicine, e-commerce & cyber security, IT application for visually handicapped, Internet based distance education, IT for watershed Development, IT for Masses etc. need to be given priority attention. A few Centres of Excellence need to be set up at the existing reputed institutions in the areas of Nanoscale technologies, Communications System & Networking, Multimedia, Signal & Image Processing, Speech recognition and Synthesis for Indian languages.

26.   IT industry is highly knowledge & skill intensive and require R&D on a regular basis. Most of the leading international players, especially in Very Large Scale Integrated (VLSI) chip design, have set up their design and R&D centers in India. Some Indian companies have also made successful entry into global R&D services for developing world class products. Even though the software sector has done so well, following concerns need attention for planning the policy framework for R&D in IT in the Tenth Plan:

(i)   The overall productivity of services sector, which so far has been the main source of software exports, is quite low compared to the levels achieved in developed countries. Priority attention would need to be paid to this area.

(ii)   Recognition of India in software sector is mainly due to the high quality of the institutions of higher learning and research. Unfortunately, the number of research scholars in our premier institutions has started declining to alarmingly low levels.

(iii)   Though the Indian professionals and the Indian software industry have contributed to the development of intellectual property, a very few IPRs are owned by the Indian Industry.

(iv)   The performance of the hardware industry has been much below expectations.

27.   Various studies indicate that the IT industry need to spend a minimum of 5% of its turnover in order to remain competitive. The Tenth Plan Working Group has estimated an R&D requirement of Rs.3400 crore per year to be shared by industry a and government in the ratio of 80:20. It should be possible to design viable R&D models based on the strategic value, gestation period, technology risk and commercial potential of the technologies. Some of the possible options for financing R&D projects are:

(i)   The benefits of long term R&D are uncertain and the gestation period could be more than 10 years. Such technologies may be unattractive for private sector funding and therefore, long term R&D will have to be funded by the government.

(ii)   The gestation period of the medium term R&D could be 3-6 years. Development of such technologies should be funded by private sector enterprises in their field of business with partial funds from the government, if need be.

(iii)   The gestation period of short term R&D projects is normally 1-3 years. Since these technologies have immediate commercial potential and, therefore, should be funded to a large extent by industry with minimum support of funds from the government.

(iv)   For innovations and R&D in software & IT services, technology business incubation needs to be supported and Venture Capital Funds (VCFs) need to be created.

(v)   The SMEs are neither able to set up their own R&D infrastructure nor can retain high quality research professionals. Creation of R&D cooperative could make it affordable for these SMEs to carry out their R&D. The industry associations like MAIT, CII, NASSCOM etc., should come forward for creation of R&D cooperative.

(vi)   International R&D cooperation needs to be utilized more effectively, especially in the areas of long-term and medium-terms research programmes. India should seek international cooperation in these areas, based on the strength of cooperating countries, institutions, research labs or industries.

IT ENABLED SERVICES

The Internet and other advancements in information technology have ushered the society in an era where various services can now be delivered remotely. Time and geographic boundaries have been dissolved as software companies provide customer interaction services, help desks, medical transcription, translation localization services, data digitization, legal databases, data processing, back office operations services, digital content development, remote network management and specialized knowledge services to customers in the local and foreign markets alike.

2. IT Enabled Services or Remote Processing services are today being considered a hot growth market for the Indian software and services industry. This is an area which is expected to generate significant employment opportunities in the future. According to an estimate, activities accounting for over half a trillion US dollars could be performed by global IT enabled services by 2008. The two most promising segments in IT Enabled Services are Customer Interaction Services including Call Centres and Content Development & Animation.

3. Tenth Plan Working Group on IT has projected that the IT Enabled Services would generate revenues of Rs. 81,000 crore and provide employment for 11 lakh people in India in the next eight years. The current status and growth potential for Remote Processing Services in Indian context are:

(i) IT Enabled Services revenue jumped from Rs.2,400 crore in 1999-2000 to Rs.4,100 crore in 2000-01.

(ii) This segment of the software industry in the year 2000-01 employed 70,000 people and accounted for 10.6 per cent of the total IT software revenues.

(iii) In the year 2001-02, the sector is expected to show a high growth of 54 per cent, well above the industry average. Revenues during the year for IT enabled Services are expected to touch Rs. 6,300 crore.

(iv) Already a large number of players are operating in this market including key MNCs that have set up their Call Centers to cater to the requirements of both the overseas and domestic markets.

(v) Some of the other IT enabled Services activities that have witnessed a rise over the last two years include medical transcription, and back-end processing operations.

(vi) The offshore economics of IT Enabled Services is as good as those of IT services. Revenue per employee for many areas of IT Enabled Services are comparable to those of other IT services.

Opportunities in Major Segments of IT Enabled Services:

4. The spectrum of IT Enabled Services is wide. Some of the well known services having substantial potential to generate wealth and create employment opportunities are given below:

Call Centres / Customer Interaction Services

5.   These services, including call centres, with a service framework that relies heavily on state of the art communications and information technologies. The Centre is used for a number of functions like marketing, selling, information dispensing, advice, technical support and E-commerce activities etc. As per estimates, there are more than 100,000 call centres worldwide which are expected to grow to 300,000 by the end of 2002 employing approximately 18 million people. By the year 2003, a sum of US$ 60 billion is expected to be spent on call centre services.

Business Process Outsourcing / Back Office Operations

6.   Industries such as Banks and Airlines require large-scale data processing for their management and decision-making. Such organizations send raw data over high speed communication links to remote locations for data entry, processing and necessary reconciliation etc., as per their requirements. These organizations with extensive data turnover and customer interface, are able to save costs and valuable resources. Such centres are basically the offshore extensions of existing information and back office operations promising constant availability. There has been a steadily growing trend to outsource these services to major IT enabled service providers. India stands to gain from such a trend, as Indian IT industry has been able to make a mark and also has access to a huge pool of skilled as well as semi-skilled professionals with relative cost advantage.

Insurance Claims Processing

6.   Large insurance companies can get processed claims of their clients anywhere, as long as there is availability of a large number of graduates having proficiency in English, a few doctors and a few accountants. Apart from processing, a large amount of logistics is also involved in this activity. But the guidelines to the process are well established and hence can be easily performed remotely. To save costs, large insurance companies in the US are now outsourcing a lot of such work which can prove to be another good opportunity area for India.

Medical Transcription

7.   Medical Transcription is time and cost saving process through which one accurately and swiftly transcribes medical records dictated by doctors and other healthcare professionals. In countries like the USA, doctors' time is at high premium. The current practice is for doctors to simply record their findings through a Dictaphone which are then sent through datacom lines to overseas companies. The Medical Transcripts transcribe these recordings into reports and send them back electronically. Turnaround time is often as low as two hours and, therefore, is often better than what the hospital may have achieved if it had done all of it in-house.

Legal Databases

8**.**   Many legal firms in US and other developed countries have started to outsource their database work to organizations having a large English speaking, lower-priced workforce of trained lawyers. The job comprises of working closely with the firms to create a database of their existing records, indexing on the basis of various useful and common understood criterion, keeping track of new documents being created and incorporating them into database as per well established parameters. Lawyers can then simply use their computers to draw up a history of like cases and draw a clear plan of action.

Digital Content Development

9.   Digital Content development is emerging fastest growing service segments in the global IT enabled services industry. It caters to needs of web site management, production of content for new media such as Compact Disk, Digital Versatile Disk and products of convergent technologies such as Internet-enabled TV. It offers a large emerging potential; as more and more offices, homes, institutions, students and professionals realize an ever-growing need to have easy access to information that can also be suitably fused with other media.

Online Education

10.   The online education market is booming all over the world. According to an estimate online education and e-learning market across the globe is projected at US$ 11.4 billion in 2003. More than 1,600 companies including nearly half the *Fortune 500* have built corporate universities. Nearly all of them offer some classes online primarily through the Web, via video-conferencing, CD-ROM and other technologies. On online education market in India is showing marked potential and is expected to be a significant revenue earner for the industry.

Data Digitization / GIS

11.   Digitization is a labour intensive process by which physical or manual records such as text, images, video and audio are converted into digital forms. Data Digitization services offers a very good opportunity for the India, due to relatively lower costs and the technical skills available. Geographic Information System (GIS) is a compendium of tools and methods that are used in a digital environment for the study of spatial information. IT enabled services in GIS offer business opportunities from the Europe and the US. Many MNCs have set up their centres in India.

Payroll / HR Services

12.   HR services is another area that has immense potential in the field of IT enabled Services. HR service components include recruitment screening, administration and relocation services, payroll processing, compensation administration, benefit planning, administration and regulating compliance.

Web Services

13.   Internet and the wide use of the Web has accelerated the growth of remote services and created opportunities of its own. Some of the Web services include e-mail management, Internet security, web page designing and updating, managing of Internet commerce, acting as an exchange of data, payment and clearance, Electronic Data Interchange supply chain management and Internet data centres etc.

Action Plan / Issues for promotion of IT Enabled Services

14.   Since Indian IT industry has matured enough, the IT Enabled Services in the Tenth Five Year Plan are expected to grow through private initiatives. The Government of India has already provided Income Tax exemption to most of the IT enabled services. Further initiatives that need to be taken for making India a sustainable hub for these services include:

(i)   Institution of a single window clearance for IT Enabled Services Industry such as call centers, Tele-education, Tele-medicines, Tele-marketing etc.
(ii)   Support from local authorities and state governments to ensure ease of operations and start-up assistance for IT enabled services units.
(iii)   Setting up of IT Enabled services training infrastructure and involvement of Industrial Training Institutes (ITIs) and Polytechnics for Call Centre management and degree level courses for IT Enabled Services industry.
(iv)   Flexibility to call centres to merge Domestic and International business in the same facility.
(v)   Creation of an 'India Brand' Marketing fund for promoting India as a preferred destination for the IT Enabled Services Sector.
(vi)   Establishment of a suitable Venture Capital fund for the IT Enabled Services sector.
(vii)   Special incentives to promote entrepreneurship and tele-working for women in the IT enabled service sector.

INFORMATION & BROADCASTING

Major advances in the fields of Broadcasting, Communication and Information Technology during the last decade have had a great impact on the Information and Broadcasting sector. Besides unprecedented reach, competition and convergence of technologies, the sector is faced with a scenario where innovative application of technologies make it possible to deliver a big basket of services to the consumer empowering him to choose, use and control voice, data and images delivered through a common device. Many means of communication deployed in the past to reach the large segment of the population either became outdated or underwent radical technological changes, and yet goals like providing the people with developmental information and wholesome entertainment at a minimal cost, facilitating healthy growth and competition within the sector remained as valid as ever. This has necessitated a review of the challenges facing the sector and reworking of priorities for the Tenth Five Year Plan.

Review of the Ninth Plan (1997-2002)

2.   The Ninth Plan laid special emphasis on consolidation of existing facilities and infrastructure through modernization and replacement of hardware as well as improving the software content. The thrust areas for AIR were augmentation of the programme content, enhancement of technical features and quality of broadcast, wider choice of programme channels and renewal of old and obsolete equipments and addition of new facilities at radio stations. Similarly, for Doordarshan the stress was on upgradation and modernization in the fields of news gathering, uplinking and improvement of signal quality, expansion of network to areas like North-east, J&K and tribal/hill/border areas where private broadcasters are unlikely to venture. During the Plan both DD and AIR made substantial progress in terms of geographical and population coverage. In case of Doordarshan, signals emanating from over 1200 terrestrial transmitters reach about 89% of the population. It has emerged as one of the largest terrestrial network in the world with nearly 400 million viewers and a 3-tier primary programme service – National, Regional and Local. AIR has emerged as one of the largest Radio organizations with 208 broadcasting centres covering nearly 99% of the population spread around 90% of the geographical area.

3.   For implementing the various programmes, an outlay of Rs.2843.05 crore, with a budgetary support of Rs. 680.05 crore was approved for Information and Broadcasting Sector for the Ninth Plan. The sector was expected to generate Internal and Extra Budgetary Resources (IEBR) of Rs. 2163.00 crore. Subsequently, in 1999-2000, an additional budgetary support of Rs. 430 crore was approved as a special package for improving the AIR and Doordarshan services in Jammu and Kashmir and marginal increase in the budgetary support and IEBR during Annual Plans. Taking into account the outlay approved for the Annual Plans, the operational outlay approved for the Ninth Plan for I & B sector works out to Rs. 3371.86 crore with a budget support of Rs.1010.20 crore. Against this, the actual utilization of outlay works out to Rs.2782.85 crore i.e. 82.50%. Prasar Bharati accounted for more than 90% share of the total outlay.

4.   Besides, a special package of Rs. 710 crore for North-Eastern States and Island territories for improving AIR and Doordarshan services was also approved by the Government in October, 2001. The project is likely to be completed by 2004-05.

5.   Keeping in line with the policy of liberalization and reforms, the Government initiated several measures during the 9ᵗʰ Plan having long-term impact on the Information and Broadcasting Sector. Some of the important measure initiated in this regard are given below:

- Allowing all TV Channels and Indian News agencies to uplink from India, and allowing Indian Companies to set up uplinking hubs (teleports).

- Allowing fully owned Indian companies to set up private FM Radio stations on license fee basis.

- According Industry status to the Film media

- Amendment of the Cable Act of 1995 making it mandatory for cable operators to carry Doordarshan channels.

- Unfreezing of the newspaper titles registered under the Publication and Registration of the Books Act.

- Allowing DTH TV services in India.

Tenth Five Year Plan

Critical Issues facing the sector

6.   The thrust of the programmes in the broadcasting sector during the earlier plans has been on creation of carriage infrastructure with little or no provision of funds to promote quality in the content of telecasts by the public service broadcaster i.e. Prasar Bharati. By their very nature, the programmes of public service broadcasting aim largely at informing and educating even while being entertaining and interesting enough to hold viewers' attention and cannot necessarily be revenue generating.. To ensure that Prasar Bharati is able to fulfill its mandated and statutory role, efforts should be made to lay greater stress on creating quality content. Stress should also be laid on use of cheaper alternative technologies that enable increased and improved access to various public and private TV channels.

7.   As a Public Service Broadcaster, it is also necessary for Prasar Bharati to keep pace with advances in technology. It is therefore felt that Prasar Bharati should initiate steps to digitalise programming, in tune with the rest of the world. It should also initiate steps to gradually introduce digitalization of transmission, with due regard to the developments in the rest of the world and viability of operations. Further, to reduce the operational & maintenance cost and to make the programme transmission more reliable and seamless, Prasar Bharati should also initiate steps to introduce automation in Studio and Transmission facilities.

8.   Besides, the expansion of coverage through expansion of terrestrial network for Doordarshan would be quite expensive particularly in sparsely populated areas. Prasar Bharati, therefore, needs to consider alternative cost-effective technologies, like coverage through digital satellite distribution in Ku-band. In case of radio, due to inherent advantages of FM radio, future expansion should be considered in FM mode while consolidating MW services. The expansion of MW services may be considered only for strategic border areas and difficult hilly terrains.

9.   The entertainment sector, including films, is expected to grow manifold during the next plan period. It is necessary that modern institutional arrangements for funding content creation, including films, are developed and infrastructure expanded to facilitate exhibition so that the industry is less dependent on informal and sometimes illegal sources of funding.

10.   The human resource requirement for meeting the burgeoning entertainment sector including films, television and radio, especially FM Radio has to be developed through the existing institutions and by enabling new institutions to come up.   Industry is expected to play a major role in these areas.

11.   The traditional media units have been carrying out their programmes in isolation of each other and are spread too thinly on the ground to be effective. It is necessary to bring about synergy in their efforts. These units need to concentrate in areas where broadcast coverage is poor on account of lack of quality signals, inability, on account of poverty, to own or access TV and radio sets and lack of electric power. They should conduct joint campaigns in target areas.

Policy Initiatives by Government and Prasar Bharati

12.   The major policy initiatives that need to be taken by the Government and Prasar Bharati Corporation during the Tenth Plan include:

(i)   Encourage adoption of alternative technologies that enable increased and improved access to public and private broadcasters affordable for the common man.

(ii)   Allow setting up of Low Power Community radio Stations in FM mode by local communities and non-profit organizations such as Universities. NGOs etc., for educational, cultural and economic development of the respective communities.

(iii)   Review the Direct to Home (DTH) policy at an appropriate time and as per the requirements of the emerging scenario in the Broadcasting sector. With a view to attract sizeable Foreign Direct Investment (FDI), the present csap of 20% needs to be reviewed and relaxed.

(iv)   With a view to encouraging private sector participation in the broadcasting sector (radio), the existing system of bidding for licences needs to be replaced by a system of revenue sharing.

(v)   Putting in place policy for encouraging private sector operators to provide FM radio services in metros and small cities.

(vi)   Keeping in view the technological and cost considerations, no further expansion of medium wave transmission should be permitted except in case of sparsely populated hilly, terrain and strategic border areas where medium wave would still be cost effective.

(vii)   To achieve 100% Doordarshan coverage through Ku-band technology in rural and remote areas at affordable prices, suitable incentives including subsidies need to be devised to make available Set-Top-Boxes in such areas.

(viii) Efforts should be made to bring down the revenue deficit of Prasar Bharati.   The Corporation while fulfilling its role as a Public Service Broadcaster (PSB) needs to make serious efforts and devise means to increase its revenue generation and reduce dependence on budgetary support.

(ix)   Efforts need to be made to gradually reduce the dependence of various media units in the Information Sector on the budgetary support for financing their expenditure by enhancing revenue generation.

(x)   The Ministry of I&B also needs to carry out thorough review of the activities of various media units with a view to ensure avoidance of   duplication of efforts.

(xi)   The media units in the film sector which are heavily dependent on budgetary support need to be financially independent through sponsorship by the film industry and private sector.

All India Radio - Major Goals, Thrust Areas and Targets

13.   Medium wave transmission has   reached about 99% of the population in the country. However¸ due to its high quality stereophonic sound, FM broadcasting is the preferred mode of radio transmission all over the world. The emphasis in the 10th Plan, therefore, needs to be to enhance substantially the FM coverage, which presently covers about 30% of population while consolidating the network of Medium Wave transmission.   The goals/targets envisaged for the AIR for the Tenth Plan are given in the box below:

Major Goals/Targets for AIR

- FM radio to be expanded to cover 60% of the population by the end of 10th Plan. Private operators to be encouraged for providing FM radio services in Metros and small cities. In addition to bringing all FM transmitters and all MW transmitters of 20 KW and below capacity to be bought under automation.
- Digitalization of 50% production facilities by the end of 10th Plan to ensure good quality convergence ready content which will also support interactive Radio.
- Digital Radio broadcasting projects – both in satellite and terrestrial mode (DAB & DRM) – to be taken up on pilot/experimental basis and could be considered for replication as and when they become commercially viable.
- To put all AIR services on the Internet during the 10th Plan.
- Creation of high quality content with long shelf life to enable AIR to fulfill its role of Public Service Broadcaster.
- Strengthening and expanding the reach of radio in North-east states (including Sikkim) and Island territories.

Doordarshan - Major Goals, Thrust Areas and Targets

14.   The role of Doordarshan as a public service broadcaster has become much more important in a scenario where a large number of private broadcasters are currently competing for audience share by providing programmes   which are primarily driven by commercial considerations.   Doordarshan would need to give greater stress on content quality. The major goals/targets envisaged for the Tenth Plan for Doordarshan are given in the box below:

Major Goals/Targets for Doordarshan

- Coverage of 100% potential TV population preferably with multi-channel television services by the end of 10th Plan including Ku-Band mode.
- Production facilities be converted to 100% digital for major Kendras and 50% for other Kendras by the Plan end to ensure good quality convergent ready content.
- Digital Terrestrial Transmission (DTT) should be taken up only after its commercial viability is established which will also then attract private sector participation.
- To launch a pilot project for testing IT enabled multimedia services like interactive TV, web casting, data casting etc..
- Achieving 100% automated operation of studios at major Kendras and 50% at other Kendras.
- Achieving 100% automation transmission facilities   for VLPTs/LPTs and 50% in respect of HPTS.

Information and Films sectors - Policy Initiatives/Issues

15.   In the light of the lessons learnt during the earlier plans and the broad policy objectives envisaged for the Tenth Plan, the thrust of the projects/programmes of the various Media Units during the Tenth Plan need to be on the following:

- The thrust for Press Information Bureau (PIB) needs to be on activities such as technological upgradation of communication equipment at headquarters and branches; opening of a branch office each at state capital of the newly created states of Uttaranchal, Jharkhand and Chattisgarh, and to integrate the news gathering streams of the Ministry in terms of technology and manpower.
- The Song and Drama Division (SDD) needs to concentrate on   extensive use of traditional modes of communication,   modernization of programme designing facilities/ and utilizing less popular folk art forms in the North-East and other areas which are still not in the fold of Doordarshan & other electronic media.
- The Directorate of Field Publicity (DFP) should focus on increasing its coverage, computerization of regional offices and purchase of films and creation of local software for effective communication and streamlining the feedback mechanism.
- Indian Institute of Mass communication (IIMC) needs to be strengthened to meet the specialized training needs of the media units. Facilities for Radio and TV journalism and video projection be suitably strengthened. Feasibility of enhancing students intake in various courses needs to be explored to make fullest use of available infrastructure.

- The thrust of Films Division needs to be on modernization of the equipment base and creation of infrastructural facilities for undertaking activities efficiently with a gradual shift to the production of films in video format
- The National Film Archives of India (NFAI) should continue with its fundamental objective of conservation, preservation and restoration of films and would act as a repository of the documented history of Indian cinema.
- The priority area for Films and Television Institute of India (FTII), Pune & Satyajit Ray Film & Television Institute (SRFTI), Kolkata need to concentrate on modernization of the training infrastructure and training methods with a view to increasing the output of trained manpower. FTII should devise methods to make fuller use of available infrastructure and facilities including introduction of additional courses/curriculum with a view to generate revenue for the Institute.
- The Childrens' Film Society of India (CFSI) should endeavour to increase production of high quality software and ensure a wider reach of their films to the targetted audience . It would also endeavour to promote animation and script writing workshop and audience research for greater interaction with public and digitalization of films.
- The Central Board of Film Certification (CBFC) should implement schemes with view to augmenting the infrastructural facilities at headquarters and regional offices. CBFC also need to create separate video certification units in the regional offices.

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No. 4(4)/35/2000-C&I
Government of India
Planning Commission
(C&I Division)

Yojana Bhavan, Sansad Marg,
New Delhi – 110001
Dated : 21st Dec.   2000

OFFICE MEMORANDUM

Subject: Steering   Committee on Communications and Information for   the   Tenth Five Year Plan(2002 – 07).

In the context of preparation Tenth Five Year Plan(2002-2007) it has been decided to constitute a Steering Committee on Communication and Information covering Telecom, Information Technology(IT), Information & Broadcasting(I&B) and Postal sectors to make recommendations on the various policy matters relevant to the formulation of the Tenth Five Year Plan .

II.   The **Composition** of the proposed Steering Committee will be as follows:

1.	***Shri Montek Singh Ahluwalia*** Member, Planning Commission	***Chairman***
2.	Shri R.P.Sinha Principal Adviser Planning Commission.	Member
3.	Shri Shyamal Ghosh Secretary, Telecommunications	Member
4.	Shri Vinay Kohli Secretary, Information Technology	Member
5.	Shri B.N. Som Secretary, Posts	Member
6.	Shri Y.N. Chaturvedi Secretary, Information & Broadcasting	Member
7.	Shri R.R. Shah CEO, Prasar Bharti	Member
8.	Member (Technical), Telecom Commission	Member
9.	Member (Finance) Melecom Commission	Member
10.	CMD Bharat Sanchar Nigam Limited (BSNL)	Member

11.	CMD Videsh Sanchar Nigam Limited (VSNL)	Member
12.	CMD Mahanagar Telephone Nigam Limited (MTNL)	Member
13.	Shri Gautam Soni, Adviser, Ministry of Information Technology	Member
14.	Shri Nirmal Singh Director (C&I) Planning Commission	Member -Secretary

Non-officials

15.	Shri Sudheendra Kulkarni Prime Minister's Office (PMO)	Member
16.	Shri K. Harish or any other representative of the Confederation of Indian Industries (CII)	Member
17.	Shri Arun Kumar or any other representative of the Associated Chambers of Commerce & Industries of India	Member
18.	Shri Dewang Mehta President, NASSCOM	Member
19.	Shri Alique Padamsee, Media person	Member
20.	Shri T.N. Ninan, Editor,Business Standard	Member
21.	Shri Nandan Nilkhani, Managing Director Infosys Technologies	Member
22.	Shri Pankaj Jalote Professor & Head Deptt. of Computer Science and Engineering I.I.T. Kanpur.	Member

III.   The **Terms of Reference** of the Committee will be –

Convergence and e-Governance

1.   To take an integrated view   of the development of telecommunications,   IT and I&B sectors including the   state of the industries, services and the technological   developments in these areas; convergence of technology, delivery systems and applications and to determine the needs   of the individual sectors as well as new services emerging out of convergence.

2.   To assess the requirement of bandwidth for proper growth of IT and suggest ways and means for achieving the expansion of Internet in the country.

3.   To suggest measures for promotion of e-governance at various levels in the Government starting from Gram Panchayat level and to suggest strategy to be adopted in this regard.

4.   To suggest measures to address the issue of digital divide and taking the benefits of IT to the masses.

5.   To suggest measures for ensuring seamless transition to convergence of IT, telecommunication and information and broadcasting sectors.

Information Technology Sector

6.   To evolve the Approach for Information Technology sector for the Tenth Plan keeping in view the comparative advantage, strengths and weaknesses of the IT industry, international scenario including WTO regime and the national goal of making India an IT super power.

7.   To assess year-wise capacity and production for the different sub-sectors of the IT industry for the Tenth Five Year Plan period (2002-2007) in line with the perspective up to 2010 AD taking into account domestic requirements and export potential.

8.   To make an assessment of the likely exports and imports taking into account the options available with respect to "make v/s buy" and also to assess year-wise projections for the Tenth Five Year Plan.

9.   To estimate the investments required to be made in the public and private sector to achieve projections for the Tenth Five Year Plan.

10.   To critically review the impact of the various policy measures already initiated, identifying the constraints and to suggest further policy framework to be adopted to achieve the set goals.

11.   To examine the adequacy to the existing infrastructure facilities like Standardisation, Testing and Quality Assurance Centres, National and Regional Computer Centres, Components and Materials Development   Centres, and Manpower Development and   training centres etc. in areas of electronics, computer networks and networking   centres etc. and to recommend steps for optimal utilisation of the existing facilities.

Telecommunications Sector

12.   To evolve Approach on Telecom Sector for the 10th Plan   keeping in view the basic goal of development of world class telecom infrastructure to support accelerated growth of IT and   other sectors of the economy, objectives of New Telecom Policy (1999), convergence of services and markets,   international scenario in the wake of WTO/IPR regimes and other relevant factors.

13.   To make recommendations on development of an appropriate system of telecom network in rural areas which should be affordable but self-financing and capable of supporting a multi-media system of communications.

14.   To make recommendations on the further restructuring/reforms required in the telecom sector in the post - convergence scenario.

15.   To suggest measures to be adopted for promoting private sector investment in the light of the experience gained so far and the requirement of funds for future growth.

16.   To review the performance of telecom equipment manufacturing sector so far, identify the constraints and make recommendations for evolving an appropriate policy to ensure growth on the pattern of software sector.

Postal Sector

17.   To evolve Approach on Postal Sector for the 10th Plan keeping in view the strengths/weaknesses of Postal Sector, socio-economic needs of the country, objectives of providing world class postal services at affordable prices, international commitments of the country at Universal Postal Union, WTO etc.

18.   To make recommendations on the restructuring/reforms required to make the Department of Posts self financing.

19.   To make recommendations on extent of privatisation of services and need and form of regulation required.

20.   Role of post offices in promoting/facilitating e-commerce and the process of certification.

21.   To examine the issue of optimum utilization of land, buildings and other physical infrastructure including commercial exploitation of properties held by Departments in metros and big cities and suggest an appropriate action plan in this regard with a view to generate additional resources for financing plan expenditure.

Information and Broadcasting Sector

22.   To evolve Approach to the Information and Broadcasting sector for the 10th Plan keeping in view the emerging trends in radio, television and IT enabled media applications.

23.   To examine the extent to which expansion of transmission network is needed and the best way to provide the reach of radio and television signals to the uncovered areas.

24.   To assess the total needs of investment in broadcasting infrastructure including that for content creation and to assess the extent of private investment that may come forward in the 10th Plan period and beyond and as to what steps should be taken to stimulate private investment.

25.   To assess the human resources needed for the telecommunications, broadcasting, media, internet and IT and to suggest road map for making the same available.

26.   To assess the status of the Film Industry and to suggest policy measures and other steps necessary to ensure production of good, socially relevant and aesthetically creative films.

27.   To take a look at the needs of government publicity including sectoral publicity programmes and to re-assess institutional arrangements for bringing out Government publications, advertisements and media products.

IV.   Any other item that the Planning Commission or the Steering Group, deems necessary to be included for making the recommendations useful.

V.   The Steering Group may set up Working Groups to go into specific sectors or issues for detailed information gathering and analysis. The Chairman of the Steering Group may coopt any person whose knowledge or expertise is considered to be useful to the Working Groups or the Steering Group and may invite any such person to specific meetings.

VI.   The non-official members of the Committee will be paid TA / DA   by   Planning Commission   as per SR 190 (a)   for attending meetings of the Committee.

VII.   The Steering Committee shall submit its report by 30ᵗʰ April 2001.

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Sd/-
(T.R. MEENA)
Deputy Secretary (Admn.**)**

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To

Chairman and Members of Working Group

FINAL LIST OF MEMBERS OF THE STEERING COMMITTEE

1.	Shri N.K. Singh Member, Planning Commission	Chairman
2.	Shri Shyamal Ghosh Secretary, Department of Telecommunications	
3.	Shri R. R. Shah Secretary, Ministry of Information Technology	
4.	Shri S.C. Dutta Secretary, Department of Posts	
5.	Shri Pawan Chopra Secretary, Ministry of Information & Broadcasting	
6.	Shri Mantreswar Jha Principal Adviser (C & I) Planning Commission	
7.	Shri Sudheendra Kulkarni Prime Minister's Office (PMO)	
8.	Shri R.P. Sinha, Ex-Principal Adviser (C&I)	
9.	Shri Nirmal Singh Director (C&I) Planning Commission	Member- Secretary
10.	Shri N. Parthasarathy Member(Finance)	Telecom Commission
11.	Shri K.N. Singh Member (Technology), Telecom Commission	
12.	Shri Arvind Virmani Adviser (DP), Planning Commission	

13. Shri J.S. Bhagawati,
Jt. Secretary (ECB &CM)
Department of Economic Affairs
Ministry of Finance

14. Shri Anil Baijal
CEO, Prasar Bharti

15. Shri Prithipal Singh
Chairman & Managing Director
Bharat Sanchar Nigam Limited (BSNL)

16. Shri S.K. Gupta
Managing Director
Videsh   Sanchar Nigam Limited (VSNL)

17. Shri Narinder Sharma,
Chairman & Managing Director
Mahanagar Telephone Nigam Limited (MTNL)

18. Shri Gautam Soni,
Ex-Adviser,
Deptt. of IT

19. Dr. Amit Mitra
Secretary General,
FICCI

20. Shri Deepak Parekh
Chairman
IDFC

21. Shri K. Harish
Confederation of Indian Industries (CII)

22. Shri Kiran Karnik
President
NASSCOM

23. Shri Alyque Padamsee
President
AP Associates

24. Shri P.K. Sandel,
Associated Chambers of Commerce
& Indus. Of India (ASSOCHAM)

25. Shri T.N. Ninan,
Editor,
Business Standard

26.   Shri Nandan Nilekani
       Managing Director
       Infosys Technologies Ltd.

27.   Shri Pankaj Jalote
       Professor & Head
       Deptt. of Computer Science and Engineering
       I.I.T. , Kanpur.

28.   Shri Dilip Chenoy,
       Confederation of Indian Industries,

29.   Shri Vinay L Deshpande
       President & Chairman
       MAIT

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