Chapter I
CHAPTER I
INTRODUCTION AND DESIGN OF THE STUDY

1.1 Introduction

Communication is an inevitable requirement for the progress of mankind. Of all the means of communication, telecommunication is the most commonly used one. In fact, it is an important infrastructure input device for the development of any country which boosts up all the trading activities. To be successfully integrated into the global economy, a country needs an efficient and effective telecommunication system. The growth of Information Technology (IT) and IT enabled services bring in more foreign exchange earnings depend on the telecom network for their basic operations. Thus, any country, especially developing countries like India, must have an efficient telecommunication system primarily for the growth of the economy.

India operates one of the largest telecom network in Asia and the 12th largest network in the world. At the time of independence, India had 321 exchanges with the working connections of 86,000. As on March 30, 2001, it has 40,286 exchanges with the working connections of 3,63,790. To achieve its mission of “Telecommunication for all and within the reach of all”, it provides Public Call Offices (PCOs) and Village Panchayat Telephones (VPTs) in all villages. As on March 31, 2001, it has 4,08,922 VPTs covering 4.5 lakh villages out of 6.07 lakh villages in the country. It is estimated that every percentage
increase in telecom density led to a three per cent growth in gross domestic product of the country. Such a revenue-generating public sector was declared as the least developed network in Asia and was corporatised from October 1, 2000. It became the first corporatised service sector in India. This necessitated the studying of the factors that led to the birth of this new corporate sector. So, the researcher carried out a managerial and benefit analysis on telecommunication sector.

Managerial and benefit analysis evaluates the managerial pattern of the Department of Telecommunication (DoT) and its net effect on the beneficiaries of the sector in enjoying the benefits that can be derived from the sector. The beneficiaries of the sector can be categorized into three – individual, society and nation. For the individuals, the sector fulfils the communication needs and develops their standard of living. For the society, it brings social transformation and cultural growth. For the nation, it develops the economy of the country and makes all the industries to depend on the telecommunication as a basic communication system. Growth of Information Technology, e-commerce, tele-conferencing, tele-merchanting and overseas recruitments are in the hands of the telecom sector whose benefits are multi-dimensional.

The managerial and benefit analysis on the sector is an exhaustive study on the managerial style of the telecom sector, which would reveal the factors that are limiting and supporting the DoT in providing services. Even though DoT enjoyed monopoly in the field of telecom, it is accountable to three parties, namely, Central Government for the finance, the employees who are the action force and the society by being a service sector. Failure in coordinating any one
of them would hamper the growth of the sector. Hence, the study analyzes to what extent DoT coordinates them for achieving its organizational goal.

1.2 Telecom Sector in India

Telecommunication services were introduced in India soon after the invention of telegraphy and telephone. First telegraph line between Calcutta and Diamond Harbour was opened for traffic in 1851. By March 1884, telegraph messages could be sent from Agra to Calcutta. By 1900, telegraph and telephone had started serving Indian Railways. As in the case of telegraph, telephone service was also introduced in Calcutta in 1881-82, barely six years after the invention of telephone. First automatic exchange was commissioned at Shimla in 1913-14 with a capacity of 700 lines.6

Before corporatisation, Indian telecom sector was on the Union List legislated by the Central Government. Telecom activities were controlled by the Ministry of Communication through DoT. The specific legislations of the sector were Indian Telegraph Act 1885 and Indian Wireless Telegraph Act 1933. Till the formation of DoT, the telecom needs were met by the Department of Postal and Telecommunication. In 1985, the Department of Postal and Telecommunication was separated into Department of Posts and Department of Telecommunication and DoT was formed. DoT had been the sole telecom service provider of the nation other than for Delhi and Bombay. Mahanagar Telephone Nigam (MTNL) was responsible for the telecom networks in Delhi and Bombay. DoT played a role beyond a service-provider by acting as a policy maker, planner, developer as well as an implementation body. DoT depended on
Government of India for its expansion plans and funding. Its pivotal role in the Indian telecom sector has got diluted after the formation of Telecom Regulatory Authority of India (TRAI). In 1999, the DoT was split into two departments - Department of Telecom Services (DTS) and Department of Telecom Operations (DTO). While DoT was to look after the implementation of treaties and policy matters, DTS was to look after the execution of work. But the non-corporate entity of DoT came to an end by corporatising the DTS and DTO, and thereafter called as Bharat Sanchar Nigam Limited (BSNL) from October 1, 2000.

The telecom sector has been improved significantly since independence. The number of exchanges that was 321 at the time of independence has gone to 40,286 by March 2001. Initially, most of the exchanges were either magneto type or manual type, which were subsequently upgraded into automatic electromechanical type. In the last one and a half decades, a significant qualitative improvement has been brought about by inducting Digital Electronic Exchanges in the network on a large scale.

As on March 31, 2001, India has one of the largest telecom networks in Asia comprising 40,286 telephone exchanges, with a total equipped capacity of 39.92 million lines and 36.28 million working telephones. Fully automatic International Subscriber Dialing (ISD) service is available to almost all the countries. The total number of stations connected to National Subscriber Dialing is 18,000. In the field of international communications, tremendous progress was made by the use of satellite communication and submarine links. The voice and non-voice telecom services, which include data transmission, facsimile, mobile radio, radio paging and leased line services, cater the varied needs of
both residential and business customers. Integrated Service Digital Network (ISDN) facility and a dedicated Packet Switched Public Data Network with international access for computer communication services are also made available.

1.2.1 Policy Reforms in Telecom Sector

The Indian telecommunication sector underwent a paradigm change with the announcement of National Telecom Policy (NTP) 1994. Historically, the process of expansion of the network was slow; being owned and managed by the Government under the assumption that telecommunication was a natural monopoly best run as a state-owned monopoly. By the early 1990s, this concept of natural monopoly was increasingly challenged in many countries by the technological changes. The policy makers began the process of reforms in 1990s that led to a gradual increase in competition for greater consumer welfare, particularly in terms of lowering of tariffs and improvement in quality of service. The Indian telecom reforms can be studied in three phases — in the eighties, in the early nineties and in the late nineties.

1.2.1.1 First Phase — in the Eighties

Telecom reforms in India began in the 1980s with the launch of a “Mission Better Communication” program. Private manufacturing of telecom equipments was allowed in 1984. Center for Development of Telematics (C-DoT) was established for the development of indigenous technologies. Private franchises were freely given for PCOs that offered local, domestic and international calling
services. The setting up of MTNL and Videsh Sanchar Nigam Limited (VSNL) began the process of corporatisation of services. A high-powered Telecom Commission to look after telecom policies was set up in 1989.

1.2.1.2 Second Phase - in the Early Nineties

The second phase of reforms commenced with the general liberalization of the economy in the early 1990s and the announcement of the New Economic Policy 1991. Telecom equipment manufacturing was delicensed in 1991. Value-added services were declared open to the private sector in 1992. NTP was announced in 1994 with the objective of providing world class universal service by encouraging the pilot projects for inducing new technologies and systems in basic and value added services. TRAI, an independent statutory regulator was established in 1997.

1.2.1.3 Third Phase - in the late Nineties

The most important landmark in telecom reforms, however, came with the NTP 1999 which can be termed as a new and third generation of reforms. It attempted to remove the impractical provisions of the previous policy. The private sector had earlier been asked to bid for licenses to provide telecom services through a sealed bid auction in which the bidder paid a fixed fee. This proved unaffordable to the private sector owing to unrealistic calculations of the revenue potential of a license. Thus, NTP 1999 allowed private providers to "migrate" from fixed license fee regime to a revenue sharing regime. By the NTP 1999, the regulator was strengthened, domestic long distance services were
opened to the private sector and the state-owned basic service provider under DoT was corporatised.

The chronological highlight of important events in the Indian telecom sector is summarized in Appendix A.¹¹

1.2.2 Key Players in Telecom Sector

Besides DoT, there are several regulatory bodies and public sector undertakings playing a vital role in the development of the sector. A brief note on these key players is given below.

- **Telecom Commission** - set up in 1989 with administrative and financial powers of the Government of India to deal with policy formulation, licensing, spectrum management, and research and development activities. It consists of a Chairman, four full time members who are ex-officio Secretaries to the Government of India in DoT and four part time members who are Secretaries to the Government of India of the concerned departments.

- **Telecom Regulatory Authority of India (TRAI)** - an independent regulatory body established in 1997 to provide an effective regulatory framework and protect consumer interests. It is given powers to notify the tariff structure, to regulate revenue sharing agreement, to recommend and ensure the compliance with the terms and conditions of license to service-providers and to settle disputes between service-providers. It is reconstituted through the TRAI (Amendment) Act 2000 to bring about a functional clarity by making a clear distinction between the regulatory and recommendatory functions. A separate dispute settlement mechanism called “Telecom Dispute Settlement
and Appellate Tribunal" is set up to adjudicate any dispute between and among the licensee, licensor, consumers and service-providers and to hear and dispose the appeals against the order and decisions of the TRAI.

- **Mahanagar Telephone Nigam Limited (MTNL)** - a company wholly owned by the Government of India, established in 1986 with the paid up capital of Rs. 630 Crores. It is entrusted with the management and control of telecom services except telegraph services in metropolitan cities of Mumbai and Delhi. 56.25% of equity shares are held by the Government of India and remaining shares are held by Foreign Institutional Investors, Financial Institutions, Banks, Mutual Funds and others including individual investors.

- **Videsh Sanchar Nigam Limited (VSNL)** – a sole operator for providing international telecommunication services. All incoming and outgoing calls to the country are routed through VSNL's gateways. The disinvestments of VSNL have been completed by bringing down the Government equity to 26% and transferring the management to Tata Group, a strategic partner.

- **Center for Development of Telematics (C-DoT)** - established in 1984 as an autonomous body for developing a new generation of digital switching systems, which supports features like ISDN and Intelligent Network. It extends pro-active support for the operation and maintenance of its products in the telecom network.

- **Telecommunication Engineering Centre (TEC)** - established as a part of DoT to standardize and draw up specifications for telecom products, equipment, systems, and networks. It supports the Telecom Commission for national network planning. It has also been designed as a nodal agency for
the testing of various value-added licensed private networks set up by the private operators.

1.2.3. Corporatisation

Corporatisation of Indian telecom sector put an end to the monopoly position enjoyed by the government and gave birth of the largest public sector undertaking in the country, named Bharat Sanchar Nigam Limited (BSNL). BSNL was formed on October 1, 2000 by corporatisation of the erstwhile DTS and DTO. BSNL is a wholly Government of India owned public sector undertaking with an authorized capital of Rs.10,000 crores, a paid up capital of Rs.5,000 crores, a net worth of Rs.63,000 crores, a staff strength of largest base of skilled work force of 3.63 lakh and an annual revenue of Rs. 20,354 crores.\textsuperscript{12} It is the second largest employer in the public sector after the Indian railways. It is headquartered at New Delhi. The company has taken over the functions of DTS and DTO in respect of provision of telecom services across the length and breadth of the country. It is to operate basic, cellular and domestic and international long distance telephony.

BSNL is working towards the following objectives.

- To provide the state-of-art technology for all types of telecom services in the country
- To face the competition and excel in its operations in the Indian and overseas markets by developing proper marketing strategies and entering into joint ventures
- To emphasize customer orientation in all its operations
• To provide all types of telecom services at affordable rates
• To fulfill the telecommunication requirements for the growth and development of business enterprise in the country

At the time of corporatisation, India had 23.8 million telephone lines and 3 million rural telephones spreading over 3.78 lakh villages. BSNL runs the telecom services in 24 Telecom Circles and 2 metro districts having 32,428 exchanges and 304.52 lakh direct exchange lines as on December 31, 2001.

After corporatisation, DoT is assigned with the following functions.

• Implementation of treaties and agreements with other countries
• Policy, licensing and co-ordination matters relating to telegraphs, telephones, wireless, data, facsimile and telematic services
• Looking into the matters relating with International relations connected with telecommunication
• Promotion of standardization, research and development and private investment in telecommunication
• All matters relating to personnel under the control of the DoT
• Procurement of stores and equipments required by DoT
• Administration of The Indian Telegraph Act 1885 (13 of 1885), The Indian Wireless Telegraphy Act, 1933 (17 of 1933) and The Telecom Regulatory Authority of India Act, 1997 (24 of 1997)
• All matters relating to TRAI, Telecom Commission, Indian Telephone Industries Ltd, Hindustan Teleprinters Ltd, BSNL, MTNL, VSNL and Telecommunications Consultants (India) Ltd and C-DoT
1.2.4 Performance Indicator of Indian Telecom Sector

To study the growth and performance of Indian telecom sector within its legal purview, the infrastructure development, financial growth and operating performance during the period of the study are given below.

1.2.4.1 Growth of Network in Indian telecom sector

The infrastructure growth of telecom depends on the multiplicity of telephone exchanges and the increased equipped capacity to meet the growing demand. Table 1.1 shows the number of departmental exchanges, the equipped capacity, the direct exchange lines (DELs) and waiting list over the period of study.

**TABLE 1.1**

GROWTH OF NETWORK IN INDIAN TELECOM SECTOR

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Exchanges</th>
<th>Equipped Capacity (in '000)</th>
<th>DELs (in '000)</th>
<th>Waiting List (in '000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>16,091</td>
<td>6,783.94</td>
<td>5,809.90</td>
<td>2,289.80</td>
</tr>
<tr>
<td>1993</td>
<td>17,455</td>
<td>7,968.31</td>
<td>6,796.70</td>
<td>2,845.90</td>
</tr>
<tr>
<td>1994</td>
<td>18,956</td>
<td>9,795.17</td>
<td>8,025.90</td>
<td>2,496.80</td>
</tr>
<tr>
<td>1995</td>
<td>20,169</td>
<td>12,025.24</td>
<td>9,795.30</td>
<td>2,152.90</td>
</tr>
<tr>
<td>1996</td>
<td>21,160</td>
<td>14,627.14</td>
<td>11,978.40</td>
<td>2,277.00</td>
</tr>
<tr>
<td>1997</td>
<td>22,199</td>
<td>17,741.77</td>
<td>14,881.63</td>
<td>2,894.20</td>
</tr>
<tr>
<td>1998</td>
<td>23,392</td>
<td>21,260.50</td>
<td>18,684.02</td>
<td>2,705.70</td>
</tr>
<tr>
<td>1999</td>
<td>23,978</td>
<td>26,050.41</td>
<td>22,812.98</td>
<td>1,983.00</td>
</tr>
<tr>
<td>2000</td>
<td>27,753</td>
<td>32,767.72</td>
<td>28,537.20</td>
<td>3,680.60</td>
</tr>
<tr>
<td>2001</td>
<td>40,286</td>
<td>39,913.79</td>
<td>36,279.21</td>
<td>2,916.72</td>
</tr>
</tbody>
</table>

1.2.4.2. Operational Performance of Indian telecom sector

Table 1.2 shows the number of calls made, number of effective trunk calls made and telegrams booked during the period of study.

**TABLE 1.2**

**OPERATIONAL PERFORMANCE OF INDIAN TELECOM SECTOR**

<table>
<thead>
<tr>
<th>Year</th>
<th>Metered calls Units (in Crores)</th>
<th>Calls per DEL (Nos.)</th>
<th>Number of Effective Trunk call (in crores)</th>
<th>Trunk calls per DEL (Nos.)</th>
<th>Number of Telegrams Booked (in lakhs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>3,060.3</td>
<td>5,267</td>
<td>20.6</td>
<td>36</td>
<td>651.3</td>
</tr>
<tr>
<td>1993</td>
<td>4,013.0</td>
<td>5,904</td>
<td>20.6</td>
<td>30</td>
<td>645.8</td>
</tr>
<tr>
<td>1994</td>
<td>4,671.8</td>
<td>5,822</td>
<td>16.2</td>
<td>20</td>
<td>605.5</td>
</tr>
<tr>
<td>1995</td>
<td>5,860.2</td>
<td>5,983</td>
<td>12.2</td>
<td>12</td>
<td>575.9</td>
</tr>
<tr>
<td>1996</td>
<td>7,845.2</td>
<td>6,546</td>
<td>7.6</td>
<td>6</td>
<td>565.7</td>
</tr>
<tr>
<td>1997</td>
<td>9,675.5</td>
<td>6,416</td>
<td>6.8</td>
<td>5</td>
<td>538.8</td>
</tr>
<tr>
<td>1998</td>
<td>11,511.9</td>
<td>6,612</td>
<td>5.6</td>
<td>3</td>
<td>512.1</td>
</tr>
<tr>
<td>1999</td>
<td>14,764.5</td>
<td>6,787</td>
<td>4.9</td>
<td>2</td>
<td>442.3</td>
</tr>
<tr>
<td>2000</td>
<td>16,276.0</td>
<td>5,703</td>
<td>3.9</td>
<td>2</td>
<td>403.7</td>
</tr>
<tr>
<td>2001</td>
<td>18,501.9</td>
<td>5,100</td>
<td>3.3</td>
<td>1</td>
<td>344.2</td>
</tr>
</tbody>
</table>


1.2.4.3 Personnel in Indian telecom sector

The number of employees working in the Indian telecom sector during the period of the study is listed in Table 1.3.
### TABLE 1.3
PERSONNEL IN INDIAN TELECOM SECTOR

<table>
<thead>
<tr>
<th>Year</th>
<th>Personnel (in '000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>372.82</td>
</tr>
<tr>
<td>1993</td>
<td>385</td>
</tr>
<tr>
<td>1994</td>
<td>395.06</td>
</tr>
<tr>
<td>1995</td>
<td>418.7</td>
</tr>
<tr>
<td>1996</td>
<td>421.7</td>
</tr>
<tr>
<td>1997</td>
<td>421.06</td>
</tr>
<tr>
<td>1998</td>
<td>428.84</td>
</tr>
<tr>
<td>1999</td>
<td>425.3</td>
</tr>
<tr>
<td>2000</td>
<td>424.01</td>
</tr>
<tr>
<td>2001</td>
<td>421.03</td>
</tr>
</tbody>
</table>


1.2.4.5 Miscellaneous Statistics (as on March 31, 2001)

The miscellaneous statistics on Indian telecom sector as on March 31, 2001 is given in the Table 1.4.
TABLE 1.4
MISCELLANEOUS STATISTICS ON INDIAN TELECOM SECTOR

<table>
<thead>
<tr>
<th>Rural DELs (in million)</th>
<th>6.69</th>
</tr>
</thead>
<tbody>
<tr>
<td>VPTs (in lakhs)</td>
<td>4.09</td>
</tr>
<tr>
<td>PCOs (in lakhs)</td>
<td>8.38</td>
</tr>
<tr>
<td>Customer service Center</td>
<td>3072</td>
</tr>
<tr>
<td>Employees per 1000 DELs</td>
<td>13.04</td>
</tr>
</tbody>
</table>

**Teledensity (per 100 DELs):**

<table>
<thead>
<tr>
<th>Rural</th>
<th>0.93</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban</td>
<td>10.16</td>
</tr>
<tr>
<td>Overall</td>
<td>3.58</td>
</tr>
</tbody>
</table>


1.3 **Review of the Literature**

Reviewing existing literatures on the relevant areas of study is a very essential task for any researcher. The researcher reviewed the literature available on the telecom sector. It helped the researcher to know the present environment in which the telecom sector survives. It helped to locate the factors that account for the behavioral pattern of the sector. The researcher reviewed a lot of literature before framing the objectives of the study. A summary of the literature reviewed by the researcher is given below.
- **Weaknesses and Limitations of DoT:**

  Mohan Kumaramangalam states that the financial results that are put before the Parliament are extremely unsatisfactory. There is no method of accounting that gives at a glance the invested capital, the profit or loss of the venture, reserves available for development and the like. There is no scientifically determined amount set aside for the depreciation. Hence, this vast organization, which stretches throughout the country, cannot be effectively run unless it is separated from the rest of the government departments. The average waiting period for a telephone connection is five years. This is due to the inability of the department to procure funds for necessary equipment. Another worst feature of the department is the centralized purchasing system, which brings red-tapism in meeting the demands of the society. Time lost in putting a new connection would bring loss of money from the subscribers. There are no modern methods of managing the personnel involved. The promotion is based on seniority. There are many technical defects in the communication system. All the above defects and limitations should be rectified; otherwise it would endanger not only the organization, but also the economic development of the country.\(^\text{14}\)

- **Ambiguous Telecom Policies:**

  The telecom policy falls short of the substantive liberalization of the sector. In the absence of definite guidelines, the policy as announced is unlikely to enthuse the foreign companies which want to operate in India. They would expect the Government to make clear the extent of the equity participation they can pay, freedom of operation and profit remittance before making a beeline to
India. Whether permission for foreign participation in the sector having a bearing on the defence related information is advisable will be a subject of debate. The policy is silent on the maximum permissible foreign exchange equity. Though DoT will have to find its own way for financing the projects, it will continue to play a pivotal role in fixing the tariff. It is not clear whether the private sector would like to work under such a system. The telecom revolution will remain a pipedream as long as DoT is allowed to get away with its archaic management. It has promised moon-telephones on demand by 1997 to the much-harried consumer waiting for the working telephone at home. It would be easy only when the arrogant, power hungry, unresponsive, monolithic DoT is demolished.  

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- **A strong need for a practical and clear-headed policy on telecom:**

Former Chairman of Telecom Commission, N. Vittal said that there is a strong need for a practical and clear-headed policy on telecom. Any financing of telecom services in the country is bound to be unattractive unless the monopoly of DoT and VSNL are removed. Returns in the telecom sector are a mere 2.48%. The restriction in the number of Circles, in which private parties can operate and the restriction on tariff to that of DoT has further made the sector an unattractive investment. Every percentage increase in telecom density led to a three per cent growth in gross domestic product. India has a telephone density of 1.7 as against the world average of 10 per 100 persons. The telecom license fee has a direct link to the process of profit earning and therefore should be considered as tax deductible. He also felt that the debt-equity ratio for telecom
projects should be raised from the current 1:1 to 3:1 as prevalent in certain South-East Asian economies.  

- **Strength and weakness of DoT:**

  DoT, by the sole virtue of its monopoly has large connectivity and penetration of India. DoT has access even to the smallest and remotest area. It is the monopoly carrier for all local calls except in Delhi and Mumbai and all national long distance calls. Further cellular networks can connect with each other only through DoT. This makes DoT network indispensable for most of the communication in India. The changeover to better technology improves connectivity. Further the new technology could reduce the cost per subscriber with higher density of connections possible. DoT still maintains old technology network because it reduces the costs of setting up and maintenance. The aging staff is not able to understand the technology and cannot get update or replace a government employee. DoT could offer new and value added services like intelligent networks, virtual networks and toll free phones, thus improving the profit margins registered by the department. It could offer complimentary services like mobile phones. The threats for DoT are mostly internal like mindset of the employees which hinders the adoption of new technologies and development of the department.

- **Need for a stable and long term telecom policy:**

  Telecom sector is an indirect input for the development of the nation. In India, the telecommunication sector is characterized by a failure on account of the following: i) unable to meet the demand, ii) the number of per capita
telephone connections in India is one-sixth of that found in countries with a comparable per capita gross domestic product and (iii) unreliable, noisy and costlier telecom facilities. Telecom sector in India lacks a clear Government policy directive. Hence, there is a need to have a proper stable and long-term telecom policy for the benefit of the economy.18

- **Need for a change in the funding and management models:**

  It is stated that the management of telecommunication in all the countries of the South Asia began as organs of the State due to the immense need for heavy investment support and the rapid changes and innovation in the technology. The growth of telecommunication infrastructure in South Asia is not demand driven, but is entirely investment driven depending on the priority level possible for the allocation of funds from limited public resources. The Internet usage per capita is extremely low which may be due to the high cost of ownership and usage. The telecommunication companies tend to protect their monopolies by avoiding relationship with other agencies possessing access right-of-way. It is evidenced in India for the uneven distribution of telecommunication access though it is the only country in the region with a clearly distinct government owned agency for the provision of international connectivity. There is an insufficient comprehension of the potential of voice and data communications to be a key enabler in the societal transformation, both economic and social. Hence, the whole purpose of telecommunication needs to be reexamined which will need a paradigm shift in traditional funding and management models.19
Indian telecom sector is characterized:

Indian telecom sector is one of the least developed in Asia. Although the characteristics of lack of funds, absence of competition and a general lack of commitment have been diluted over the last couple of years, the sector still continues to suffer from uncertainty on the policy front. There is a high demand for the basic and Internet services. The private operators in basic telephony services are not able to roll out their services as planned. Only a few like Hughes in Mumbai have successfully launched their services. The barriers to the entry of the private operators are license fee, capital intensiveness, well-established players, and constant changes in technology. Customers have little bargaining power which will however increase as the competition steps up.

Need for a practical oriented approach in policy formulation:

The Indian telecom sector is huge and still largely untapped. In the early nineties, there was a tremendous enthusiasm among the telecom majors at the prospect of consumer market opening. But the telecom scenario in India became a victim to a fundamental conflict of interests among the diverse role of the government. It is like a game in which one of the teams not only plays referee but also has the right to change the rules at any time. The role of VSNL, MTNL, and DoT and stepping on each other’s toes in the process often, setting up of TRAI and the role of telecom commission created a confusing scenario. The private operators are not allowed to do as they wish. The implicit tax on the telecom industry severely impeded the growth of the sector. The license fees are too high that one can obtain a return on their investment. The entry of private operators in the information age cheapens the genuine security interest of the country. The guidelines given
for the new entrant in the telecom market seem confusing. Hence, a practical oriented approach in policy formulation and the ability to make the interventions in the right way at the right time is very essential for the present telecom scenario.\textsuperscript{21}

• **Need for demonopolisation and competition under an objective regulator as umpire:**

  NTP 1994 makes a historic departure of Indian telecom from a totalitarian monopoly. It opened production of telecom equipment and telephone cable to the private sector companies. But such demonopolisation and competition could be made only if some structural changes in DoT are carried out. The contribution of telecommunication sector towards the service and commercial sectors and also to the society is countless in numbers. But such telecom sector in India is characterized with unsatisfactory quality of services, exorbitant prices, lack of variety and customer insensitive. DoT is unable to cope up with the growing demand. Due to inadequate financial requirements, DoT has to increase the capital by way of periodic rate-rises. The external rate of return is found to be 5-40 times the internal rate of return. Such higher figures generally prevail in the less developed countries. DoT's technocracy wants capital, but not corporatisation. DoT need not be wound up and restrained from expanding but must be subjected to competition. DoT and non-DoT companies can work either in a complementary or competitive relationships like 'Build, Operate and Transfer' (BOT) in Thailand and Indonesia. It can seek foreign equity investment instead of foreign loans. It is concluded that Indian telecom sector should not be privatized,
instead, demonopolisation and competition under an objective regulator as umpire are very essential.\textsuperscript{22}

- **Need for the deregulation and foreign direct investment:**

  One among the ten areas that requires a legislative and economic reform to make the first decade of 21st century as a true decade of development for India is telecom. India's telephone density is very low. International telephone calls originating in India are among the highest priced in the world, largely due to lack of competition. Physical infrastructure for data transmission within India remains underdeveloped despite some recent progress. Hence, further deregulation of telecom and foreign direct investment, as well as effective law enforcement in a more liberalized and competitive environment are extremely crucial.\textsuperscript{23}

- **Need for competition for the growth of Indian telecom sector:**

  Supporting the government's monopoly on telecommunication services, Indian officials views that a competitive system would result in a wasteful duplication of facilities, inadequate universal services and "cream skimming". But in reality, the competition does not produce any duplication of services. The unmet demand and technological advancement needs competition. Competition should lead to universal service by putting higher consumer choice at affordable rate to all and bring a successful market segment satisfaction. New entrants in the telecomm markets are likely to focus on the most profitable parts of the market – typically international and national long-distance and local business telephone services. A regulatory measure is hence needed to control the cream
skimming in prices. The Indian telecommunication sector needs more competition for its growth.\textsuperscript{24}

- **Need for restructuring the Dot:**

  Prem Viswanathan states that the functions of policymaking, regulating, and operating combined in one hand should be separated to face the challenges of competitive environment and to enhance the efficiency of the organization.\textsuperscript{25} Restructuring into a single corporation would ensure balanced planning and internal cross-subsidization while taking care of opportunities for raising resources from the market. It would achieve better homogeneous growth in the nationwide network.\textsuperscript{26}

- **Lack of Powers to TRAI:**

  Fair competition between new entrants and DoT would help to raise the quality of services and encourage DoT to become more efficient. TRAI is to look after the consumers' advocacy. It is supposed to promote fair competition and efficiency while protecting the interest of the consumer. But it does not see eye to eye with DoT on two major issues – whether its recommendations are mandatory and whether it can adjudicate on disputes between the licensor and licensees. According to Section 11(1) of TRAI Act, the government cannot even pass regulations without the recommendation of TRAI. But it is virtually toothless as it lacks the power to legally enforce its recommendations and existing regulations.\textsuperscript{27}
• **Recommendation for compromising the administrative loopholes of TRAI:**

It is experienced from the other countries having demonopolised their telecommunication sector that two conditions are essential prior to demonopolisation, namely, separation of licensing from all operations and the creation of an independent statutory telecom regulatory authority. In India, after a number of false starts a statutory TRAI was placed in 1997. In TRAI, excepting one former chairman and managing director of the government-owned telephone corporation, MTNL, the rest neither had telecommunication background nor were they businessmen, economists, industrialists or consumer activists or public policy-makers. To compromise its administrative loopholes, Telecom Users Group of India has recommended that the regulatory body must have distinguished persons of different talents in their respective fields. These are law, accountancy, financial analysis and management, telecom service and consumer welfare. There should be a Selection Committee consisting of the Chief Justice of the Supreme Court of India, two presiding officers of the lower and upper houses and the leaders of the opposition in the two houses of parliament. There must be a procedure for removing members of TRAI. There must be assured and independent funding for all expenses of TRAI. TRAI Act should ensure the protection of interest of the consumers by forming consumer councils.²⁸

• **Need for deregulating the sector:**

Indian telecommunication has been suggested the consolidation and corporatisation of government monopoly for reorganization and restructuring of the public telecommunication sector. Such corporatisation would make the sector withstand competition from large multinationals. It would bring administrative and
financial autonomy from Central Government. A fully liberalized telecommunication service sector would give the business users a choice of domestic and international telecom suppliers and cost-based, competitive and non-discriminatory prices. For the telecom operators, a deregulated telecom sector offers no restrictions on the number of network providers except as limited by market demand and scarce resources.

- **Vitated telecom reforms:**

  Indian telecom reforms have taken a direction very different from that of those taking place in the advanced countries and have been vitiated by a lack of transparency and suspicions of capitalism. The reforms may result in a better service for business users but are unlikely to benefit the majority of users and lead to any major expansion of telecom network. The high fees quoted in the tenders for basic services are illusory and are transfers that DoT is making out of its own revenue to private operators. The tariffs for the majority of the consumers are bound to go up sharply as a result of such transfers.

- **NTPs aiming to promote the sector through competition:**

  Prabir states that the telecom mess should be a salutary lesson for those who believe that competition will solve all their problems. Both NTP 94 and NTP 99 rely on 'competition' as the instrument for lowering costs. But, competition itself has a cost, which is imposed on the consumer. Allowing the new entrant a higher price for promoting 'competition' would cause additional burden to the consumer.
Trivikram states that the development of the telecom sector is the key to the growing international competitiveness of India. Indian reforms aim at promoting the sector through the private operators and tapping private source of finance. The liberalization that was allowed in 1994 is a landmark for India and reflects international practices. NTP 94 endorsed the existing policy and made the private sector be the main provider of value added services. The rapid changes in the technological developments make the sector more capital intensive. In India, there are only three lines for every 200 people. It is estimated that by the year 2010, an additional 90 million telephones will be required which will give a tele-density of less than 10 percent. To achieve this, an investment of nearly Rs. 2,70,000 Crores will be required. But the resources are not available with the government for such a massive investment.\(^{32}\)

According to Vittal, implementation of NTP 94 has highlighted the continuous interplay of technology, political will, regulatory activism, and market dynamics, which influence and guide the telecom sector. The manner in which the telecom policy announced is an example for the political compulsion in India. The whole process of liberalization became tender centric and vitiated by limiting the number of circles for which one can bid. The policy ensured the sector unprofitable by not allowing the liberalization to the long distance telephony. There is a need to adopt a new strategy for the rural telephony, which is not a politically sensitive issue.\(^{33}\)
Telecom under the clutches of technological advancements:

Chowdary states that the technological developments and mass consumption of telecommunication have dictated the restructuring of telecommunication regimes across the globe. In monopoly times, the provision of telephones and extension of networks were limited by amount of investments, choice of technology, distributive justice for the limited funds and equipment. Resources were raised by increasing the prices repeatedly to generate investible surpluses. After abolishing government's monopoly over the production of telecommunication equipment and cables, telecom equipment is available in abundance at falling prices, improved quality and shorter delivery periods. The corporatised sector would raise money from the markets just as private companies can and it would also have the freedom and flexibility to deploy its resources and set prices to consumer demands and not be conditioned by constraining circumstances and commands. New technologies can be quickly deployed by emerging enterprises.  

Technological advancement reduces the manpower requirements. India has one employee for every 14 telephones while Japan has one person handling 300 telephone connections. The modern telecom technology does not need most of linemen, cable jointer, technicians, phone inspectors, telephone operators, drivers and daily wage staff who are nearly four lakhs in numbers. The latest electronic exchanges can be run by a dozen junior engineers working in three shifts a day. Linemen are irrelevant as computers at the exchange itself can detect the minutest faults.
• Need for revenue sharing with government:

It is perfectly legitimate for the government to ask for revenue sharing by the domestic and long distance operators. A dedicated share of revenue should go for expenditure on universal service obligations and a tiny share should go to meet administrative and regulatory costs. Efficient, low-cost infrastructure is one of the most vital inputs that the government can supply Indian industry to help it withstand competition and extend its market size.\(^\text{36}\)

• UAF and additional burden to the users:

Private telecom companies providing domestic long distance services has to contribute five per cent of revenue to the Universal Access Fund (UAF) in addition to the ten per cent revenue share with DoT. This ultimately brings additional burden on the telecom user. When UAF is meant for rural telephony, it is not necessary to have revenue share agreement. The question arises, when the private operator in other services sector like energy and postal are not asked for revenue share, why the telecom sector provides such conditions that brings extra-cost on the telecom user. The service tax is not charged in the banking, postal and courier sector while it is applicable in the telecom sector.\(^\text{37}\)

• Regulatory work and settlement of disputes in telecom sector:

With the demonopolisation of DoT, TRAI and Telecom Disputes Settlement and Adjudication Tribunal (TDSAT) were constituted to look after the regulatory work and settlement of disputes between the licensor and licensee respectively. Neither the companies nor the regulator have assisted the participation of consumer bodies in an intelligent and effective manner in TRAI's
consultative processes. For building up of appropriate talents and capacity in the body, large number of deputationists from government departments like income tax, railways and general administration are appointed. This do not inspire consumers’ confidence in TRAI in regard to adequate concern and care for consumers. TRAI has been holding consultative meetings only in three or four cities. Many bodies are not able to participate in these meetings because of the distance and expense involved. Rural consumers have many problems than metropolitan consumers, but have the least access and capacity to represent and participate in TRAI’s consultation meetings. Therefore, the need for TRAI to have regional offices increases. The deficits that BSNL incurs on the rural private subscribers are recommended to be subsidized from the Universal Service Fund, which is to come out of the license fee. Since no private telephone company has got any worthwhile presence in rural areas, it is only BSNL, which will be affected by the low tariffs for rural consumers. BSNL has the practice of holding telephone Adalat (courts), that is, open house ‘judicial proceedings’ to listen and give decisions on the spot on customers’ complaints. A better and truly consumer welfare maximizing measure is, for TRAI itself, to constitute Consultative Councils at the State level and make it obligatory for all the service providers to attend the meetings of the Consultative Councils. These should be convened by TRAI itself for which purpose the convener may be either an official of TRAI or any independent person, not an employee of the telephone companies, nominated by TRAI. 38
• No costing system:

For facing the emerging competition, ascertaining the cost of services is very essential for deciding investment priorities, allocating resources and for deciding viability of the venture. But the government has no costing system for fixing cost for the telecom services. The present tariff structure is not cost based, but to mobilize fund. The cost accounting data is not in place to identify the cost on rural, urban and tribal basis. It should set up costing cell at the Circle level to have data bank with the financial and operating data needed for efficient costing system. 39

• Pricing of telecom services:

The capital cost for the long distance communication is too high per telephone line. The cost per line on the basis of historical cost comes to about Rs. 27,000 and minimum annual rental works out to Rs. 4,000 per line taking into account capital related charges. But the government has to meet its social commitment through the services at reasonable rate. Thus, while pricing, it should take into account the interest of three main stakeholders, namely, investor, government and end users. The tariff structure should be to provide incentive for the service provider in making maximum return on investment, but providing services at affordable rate of the public by adopting cost minimizing techniques. Frequent tariff revision should be avoided. Single slab structure can be introduced. Multi-category of subscribers can be limited to two – trading and non-trading subscribers. 40
Corporatisation as a measure to make up the shortfall resources of telecom sector:

Though the telecom has a major role in the informatics revolution, it has played a passive role in the spread of informatics in the country and has retarded the diffusion of new technologies because of its lack of dynamism and vision. Adequate telecommunication is very essential to improve the capital accumulation, incremental capital-output ratio and the rate of technological change. The past data on demand, which is the sum of connection and waiting list, reflects a supply-constrained scenario that is due to the distribution of limited availability of connection with a complex system of rationing. With the given demand projections, the unit cost per line in the rural area costs Rs. 90,000 each and urban area costs Rs. 45,500 which require the total investment that is very much higher than what is assumed in NTP. The demand for the datacom will increase at a much more rapid rate than voice-telephony which requires more investment. The financial position of DoT will be much worse. The private sector may contribute more to the Indian telecom than DoT, if the shortfall of resources is not looked after properly. Pranab Sen suggests a remedial action by corporatising DoT and allowing foreign equity participation in the new company to make up such shortfall of resources without loosing its majority control.41

Alternate solution for Corporatisation:

The solution to the problems of telecom sector is, instead of corporatisation, to break the department into units and run by selling the units to public in the first stage and privatize them in the second stage and throwing it open by allowing more operators as the last act. Let an independent regulatory
authority be the reference. Give subscribers a choice to decide whose service they want. This would make the telecom revolution truly begin.42

1.4 Importance of the study

Till Corporatisation, telecommunication services were provided by the DoT, being the monopoly in the field. DoT, which operated under the legal framework of the Ministry of Communication, was always characterized by the lack of fund, lack of autonomy, unmet demand and dissatisfied users. Even though it is the largest network in the Asia, it is declared least developed network in the Asia.43 The penetration rate of telecom network is just 3.58 per 100 people (as on March 31, 2001)44 which is much below the global average of 10 per 100 people.45 The rural density is 0.93 per 100 people.46 Thus, it is necessary to study the factors that hamper the development of this vital sector.

The foremost drawback of the telecom sector is its legal framework. Indian telecom sector is under the boundary of the Indian Telegraph Act 1885, which is outdated to meet the global competition. There is no five-year plan for the telecom sector like railways. Even though National Telecom Polices (NTPs) are formulated to provide world-class communication services for meeting the global competition, its provisions are unrealistic. The license fee fixed is not affordable to the private operators. Most of the private operators are not able to do their wish because of their legal boundaries. The competition is limited to the few circles only. Thus, NTPs and the legal framework should be revised by recognizing the limitations of the country.
Another fundamental limitation of DoT is in the financial management. Being a government enterprise, unlike railways, there is no separate budget for the telecom. The fund is allocated every year by the government through the Union Budget within which DoT has to operate. The revenue earned by the telecom sector is shared by the other sectors also since it is pooled in the national income. No premium is given to the highly remunerative and needy sectors while allocating funds. It is not allowed to mobilize funds for their requirement. Ploughing back of revenue by the profitable telecom sector is not permissible. So, Indian telecom sector is always characterized by lack of fund that hinders its growth.

Indian telecom sector is operating with an outdated technology, which should be replaced to provide more cost-effective services to the community. The rapid advancement of technology needs heavy capital investment, which is impossible for any organization having such centralized financial management. Even though the private operators are allowed into the field, they are not able to do as they plan because of legal framework.

The above-mentioned factors affect the growth of the sector. This necessitates studying the managerial practices of DoT with which the present corporate sector has to operate. Thus, the researcher attempted to evaluate the managerial pattern of the Indian telecom sector and carried out a managerial and benefit analysis on telecommunication sector.
1.5 Scope of the study

The study covers financial and human resource management of DoT in Kanyakumari district. Financial management deals with the financial policies providing a framework for procuring and utilizing the funds. Financial analysis is also carried out.

The needs and expectations of employees differ from individual to individual. It is the task of the management to streamline their activities primarily towards the organizational goal without ignoring their personal needs. Hence, the different aspects of human resource management, namely, human resource planning, job analysis, selection, placement of employees, training, performance appraisals, compensation, welfare services, grievance handling procedures, disciplinary action, collective bargaining and the degree of participation of employees in the management are studied. Motivation of employees and the leadership style prevailing in the organization are studied.

Besides the financial and human resource management, DoT is evaluated to know to what extent it fulfills the needs and expectations of the society by providing telecom services. The study covers the subscribers to know the extent to which their expectations are met. It covers the non-subscribers for dual purpose - to know the extent to which public telecom services meet their needs and the factors hindering consumption and subscription of telecom facility.

1.6 Objectives of the Study

The following are the main objectives of the study.

1. To evaluate the financial management practices followed in DoT.
2. To study the human resource managerial practices followed in DoT.
3. To evaluate the services rendered by DoT.
4. To give suggestions to the new corporate sector based on the findings of the study.

1.7 Hypotheses

As for the present study, the following hypotheses are framed.

- There is no significant relationship between employee motivation and the following factors, namely, pay, job security, economic security, peer relation, firm’s reputation, integrity, appreciation, nature of work, promotion, training, potential appraisal, gender, age, size of family and educational background of the employees.
- There is no significant relationship between level of utilization of services and the following factors, namely, satisfaction, family income, size of the family, period of usage and purpose of usage.
- There is no significant relationship between awareness and the following factors, namely, level of utilization of services, educational background, place of residence and period of usage of the users.

1.8 Period of Study

The study covers a period of 10 financial years starting from 1992 to the year of corporatisation, 2001.
1.9 Methodology

1.9.1 Collection of Data and Data Processing

Based on the objectives of the study, primary data were collected with the help of interview schedules (vide Appendix F), which were prepared in Tamil and English. Interview schedules were prepared for collecting the data and information from the employees, subscribers and non-subscribers of telecom sector and the owner of public telephones. The interview schedules were supplied to the respondents after putting them for a trial-test.

Secondary data were collected from the published reports of Central and State Governmental departments, District Statistical Organization, annual reports and official records of DoT. Periodicals, journals, magazines and dailies were used for collecting the secondary data. Data were collected from different websites also.

Before using the information collected by way of interview schedule for the study, the researcher edited the schedules to make it consistent and complete for drawing reliable conclusion.

1.9.2 Sample Design

Convenience sampling method was applied for selecting the samples of subscribers, non-subscribers and public telephone operators. 400 subscribers, 214 non-subscribers and 80 public telephone operators were selected for the purpose of the study.
To ascertain the views of the employees on the matters relating to the human resource practices, all the employees were approached in person in the office by the researcher. The questionnaires were distributed to employees willing to respond. After several reminders, the researcher was able to collect information only from 178 respondents.

Fieldwork and personal interviews were carried out by the researcher throughout the study. It helped the researcher to analyze the data more pragmatically.

1.9.3 Tools for analysis

The scoring method is used for quantifying the qualitative data. The percentages, mean, correlation and chi-square test are used in the study. Karl Pearson’s coefficient of correlation is used to know the degree of relationship between two variables.

To test the existence of significant relationship between the variables, the Chi-square test of significance is used. Yates correction is applied for continuity when any cell frequency happens to be less than 5 in observations and the formula for this purpose is \[ \sum \frac{[(O - E)(-0.5)]^2}{E} \].

To study the overall level of motivation of the employees and satisfaction/awareness of the users on the telecom services, the highest and the smallest score of the scale are multiplied with the total number of respondents and are then divided into three ranges. If the actual total score lies in the lowest range, it denotes low level of motivation/satisfaction/awareness. If actual total
score lies in the middle range, it denotes the average level and if it lies in the highest range, it denotes the high level.

To find the adequacy of requirements for an effective training programme, the actual mean score is compared with the maximum mean score of 3. The mean score is calculated by dividing the total scores of all the respondents of each factor by the number of respondents.

To study the leadership style, six factors are studied. The highest and the smallest score of the scale are multiplied with the total number of factors and are then divided into four ranges. If the mean score of each grade of the employees lies in the lowest range, it denotes that its leadership is exploitative. If it lies in the second range, it denotes the benevolent leadership. It is consultative if it lies in the third range and participative leadership if the mean score lies in the highest range.

1.10 Limitations of the Study

The following are the limitations of the study:

1. Evaluation of national telecom polices is not under the purview of the study.
2. The accounting system of the telecom sector limits the availability of SSA-wise financial data. It makes the researcher to confine the financial analysis with limited available data.
3. The study is limited to the basic telecom services and excludes the value added services.
1.11 Operational definitions

1. Telecom services:
   Telecom services include basic telephone services of ISD, STD, trunk calls, telex, and phonograms, and special services of alarm/reminder call facility, call waiting facility, call barring facility, call transfer, call forwarding facility, hotline services and leased circuits.

2. Secondary Switching Area (SSA):
   Telecom network in each Circle is divided into small units called SSAs, say, Nagercoil SSA covering telecom network in Kanyakumari District, for administrative compactness.

3. Short Distance Charging Area (SDCA):
   Telecom network in each SSA is divided to small units called SDCA for inter dialing arrangements and administration on Taluks basis.

4. Commercial subscribers:
   Commercial subscribers are those subscribers using the telecom facility mainly for their commercial activities.

5. Noncommercial subscribers:
   Subscribers other than the commercial subscribers are grouped as non-commercial subscribers.

6. Commercial non-subscribers:
   Commercial non-subscribers are those who are carrying on the business without owning the telecom facility.
7. Noncommercial non-subscribers:

Non-subscribers other than commercial non-subscribers are grouped as non-commercial non-subscribers.

1.12 Chapter Scheme

The thesis has been divided into six chapters.

The first chapter is an introductory of the study. It deals with the introduction and design of the study. It covers introduction to the study, review of literature, importance of the study, scope, objectives of the study, hypotheses framed, methodology, period of the study, limitations of the study, operational definitions and the chapter scheme of the thesis.

The second chapter presents the overall profile of Kanyakumari district and the status of telecom network during the period of the study.

The third chapter evaluates the financial management followed in the telecom sector.

The fourth chapter analyses the various areas of human resource management of telecom sector.

The fifth chapter evaluates the services rendered by DoT.

The sixth summarizes the findings of the study, the conclusions drawn and the suggestions to the new corporate sector.
REFERENCES


3. ibid.


8. ibid.


12. www.hindustantime.com/nonfrom/280900/defro01.asp/

13. ibid.


27. K. Trivikram. Op cit., p. 158


32. K. Trivikram. Op cit., p. 152

33. N. Vittal, op cit.


35. E.P.W. Da Costa, op cit., p. 13


42. E.P.W. Da Costa, *op cit*, p.14


44. [http://www.indiainfoline.com/sect/tesp/ch01.html](http://www.indiainfoline.com/sect/tesp/ch01.html)


46. [http://tamilnadu.dotindia.com/services/basictel.html](http://tamilnadu.dotindia.com/services/basictel.html)