Sustainable Evolution of Telecom Sector in India

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Abstract- Telecom sector affects the life of every citizen living in India and plays a very vital role in the rapid growth of our economy. It is a very important tool for substantial socio-economic environment of the country. The Indian telecommunication sector has received a radical change in the last two decades to become the world's second largest telecommunication market with more than 1 billion subscribers. Indian government boosts the telecom sector to enter in the new potential market in our country by taking suitable policies. The services provide by Indian telecom sectors are easily approachable at low cost to the customers of urban as well as rural areas of the country. The present study analyzes the history and evolution of Indian telecom sector and implementation of policies followed for its effective functioning to telecom sector.

Keywords-*Indian Telecom Industry, Growth, Government policies, service providers.*

1. Introduction

Telecom is an important tool for development of economy as well as advancement of standard of human life. Telecommunication services provides us platform to gather information and knowledge and perform different social and economic activities. It helps us to save time and money. The Indian telecom sector has come us as one of the leading potential markets in the global perspective. The telecom sector of India has come to an interesting phase of its evolution. All telecom operators are currently in the process of consolidation after JIO's launch in the market and looking at each cost expenditure for its optimization. The telecom industry of India has experienced dramatic changes over year. Technological innovation and regulatory changes have been the two major factors responsible for setting the stage right for the evolution in this space.

2. Objective of the study-

1. To study the origin and evolution of telecom sector in India.
2. To study the recent trends in Indian Telecom sector and its growth.
3. To study the Government Telecom Policy.

3. Methodology

It is based on secondary data. Data has been collected from internet, articles, Annual reports of Department of Telecommunication, Annual reports from Telecom Regulatory Authority of India. Graph and percentile method have been used to analyze the data.

4. Evolution of Telecommunication in India

Telecommunication was introduced in India by telegraph. The Indian postal telecom sectors are the oldest in the world. In order to ensure telegraph network's exclusivity and establish government control over all electronic communication, government of India has come up with various telegraph statutes, which laid the foundation of the present regulatory framework governing telecommunication (wired and wireless) First experimental electric telegraph service started in 1850 between Kolkata and Diamond Harbor and opened for the use of British East India Company in 1851. The construction of the 6400 km. telegraph line was started in Nov. 1853. It attached Kolkata and Peshawar in north, Agra, and Mumbai through with Sindwa Ghats and

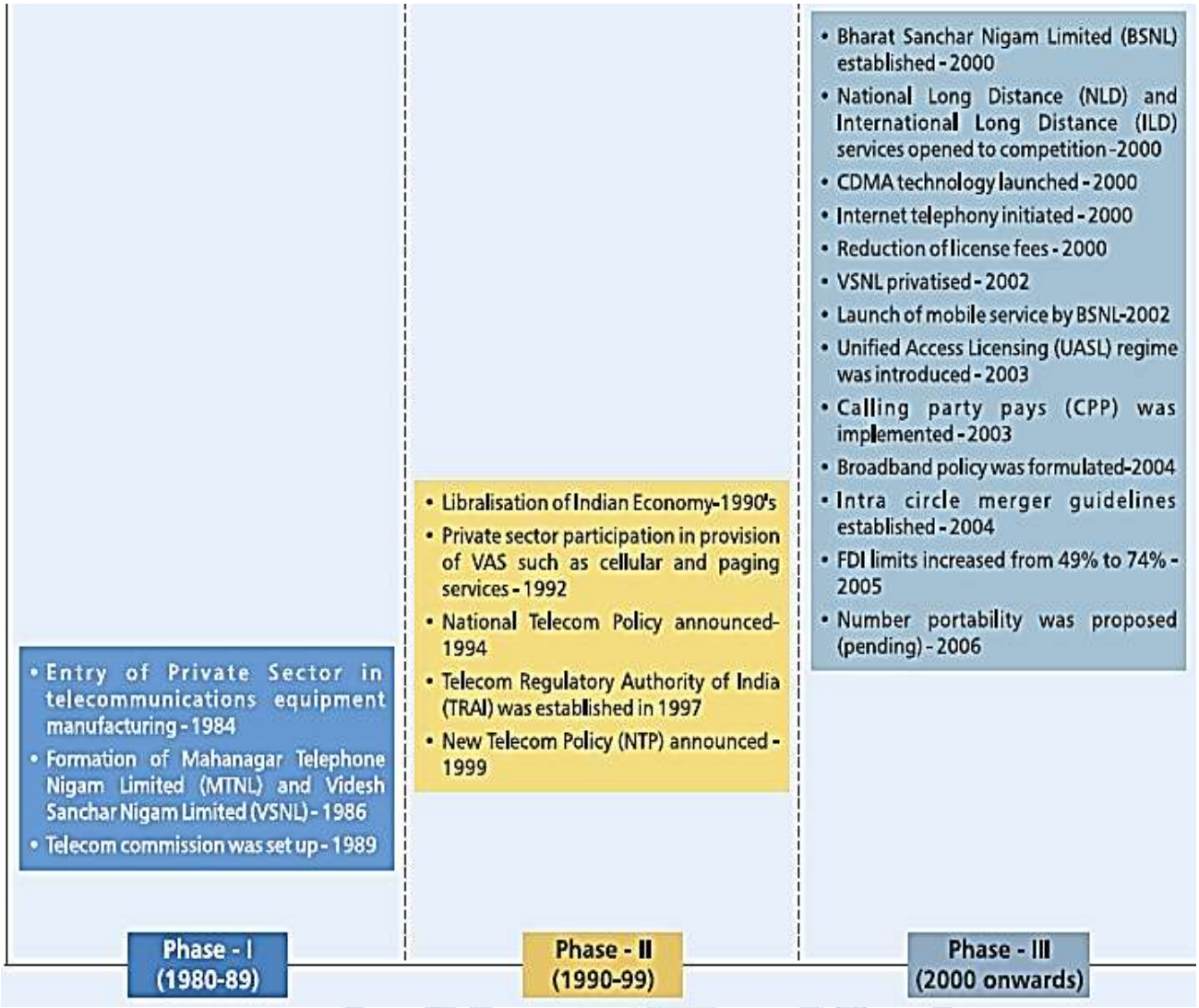
Chennai in the south. William O'Shaughnessy, who open up the telegraph and telephone in India, work towards the development of telecom throughout this period. In 1854 a separate department was opened, when telegraph facilities were opened to the public.

In 1880 two telecom companies namely Oriental Telephone Company limited and Anglo-Indian Telephone Company limited went to the government of India to get permission to set up telephone exchange in India but they could not get permission from government. On the ground that the establishment of telephones was a government monopoly and that the govt. itself would undertake the work. Government was granted license in 1881 to oriental telephone company limited of England for opening telephone exchange in Kolkata, Mumbai, Madras and Ahmadabad. In the beginning capital of East India Company was Kolkata, but in the year 1911 the capital was shifted to Delhi and continued to be capital of India.

Telecom sector in India started as a state of monopoly. In the 1980's telephone services and postal services was controlled by the dept. of post and Telegraph but in 1985 govt. of India established the separate dept. to control, dept. of telecommunication (DoT) and also set up two public-sector undertaking like Mahanagar Telephone Nigam Limited (MTNL) and Videsh Sanchar Nigam Limited (VSNL). MTNL was set up to control the operations of Mumbai and Delhi and VSNL was set up for providing international telecom services in India.

In 1990, Indian govt. was increasing pressure to open up the telecom sector for private investment as part of Libereralisation-Privatisation and Globalization policies that the govt. has to accept to overcome the severe fiscal crisis and resultant balance of payment issue in 1991. Value-added services were allowed by private investment sector and cellular telecom sector were pioneered for competition from private investment. During this period govt. introduced National telecom policy (NTP) 1994 which brought changes in ownership, service and regulation of telecom infrastructure and focused on telecom for all and providing facilities to all the villages in India.

In 1997 Telecom Regulatory Authority of India introduced to reduce the intervention of govt. in deciding tariffs and policy making. In 1999 govt. revised TRAI act 1997 for better liberalization policies and introduced (TDSAT) Telecom Disputes Settlement and Appellate Tribunal for strengthen the regulatory framework. Moreover, any direction order or decision of TRAI can be challenged by appealing in TDSAT on Oct. 1, 2000 govt. set up a dept. named Department of Telecommunication services which was later named as BSNL. Telecommunication services can be divided into following categories which are as under; Unified Access Services ("UAS") and Cellular-Mobile Telephone Services ("CMTS") The country is divided into 23 service areas consisting of 19 telecom circle service areas and four metro service areas for providing CMTS and UAS.



Evolution of Telecom Sector

UAS (Unified Access Services) - For offering unified access services to the customers, India is segmented into twenty three service areas, nineteen telecom circle service areas and four metro service areas. Operators of UAS are free to offers services which continue collection, transmission, and delivery of voice and non voice messages over the networks of licensees by deploying packet switched equipment. Further, the Licensee of unified access services can also offer various value added services like video conferencing, e-mail, voice mail, audio, video etc. Licensee of UAS (Unified Access Services) can offer wire line and wireless services to their customers. Wireless services include mobile phone, cellular phone, use of Wi-Fi at fixed location, commercial mobile data. Value Added Services are also provided by the licensees. There is a limitation for certification of subscriber pole has been placed in case of limited mobility facility. By adopting numbering plan for cellular mobile services and home zone tariff schemes, same facility can be availed

CMTS (Cellular-Mobile Telephone Services)- .In first phase of liberalization, National Telecom Policy 1994 issued eight licenses for mobile telephone services in Mumbai, Delhi, Chennai, Kolkata in Nov.1994. During 1995 to 1998, 34 licenses were also issued to fourteen private companies. Only two licenses were granted in

each service area and these licensees were to pay annual fees according to agreed amount during the bidding process. Afterward, they were permitted to transmigrate to New Telecom Policy 1999 in Aug, 1999.

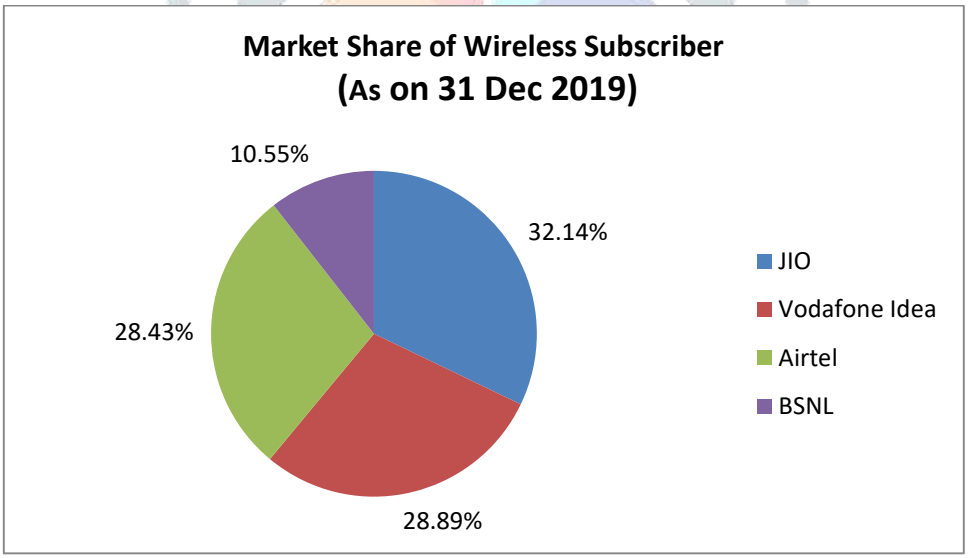
5. Telecom Service Providers in India

Indian telecom industry encompasses both private and public sector. The share of public sector telecom in wire line section is greater than wireless section. The private telecom operators command the wireless market but their share is very less in wire line section. BSNL and MTNL are the two major public sector service providers and Bharti Airtel, Vodafone idea, Reliance communications, Tata are the private sectors service providers in India.

Wireless Operators (As of 31 Dec.2019)

Rank	Operators	Subscribers(millions)	Market share
1	JIO	370.07	32.14%
2	Vodafone Idea	332.65	28.89%
3	Airtel	327.35	28.43%
4	BSNL	121.47	10.55%

Source -TRAI Annual Reports 2018-2019

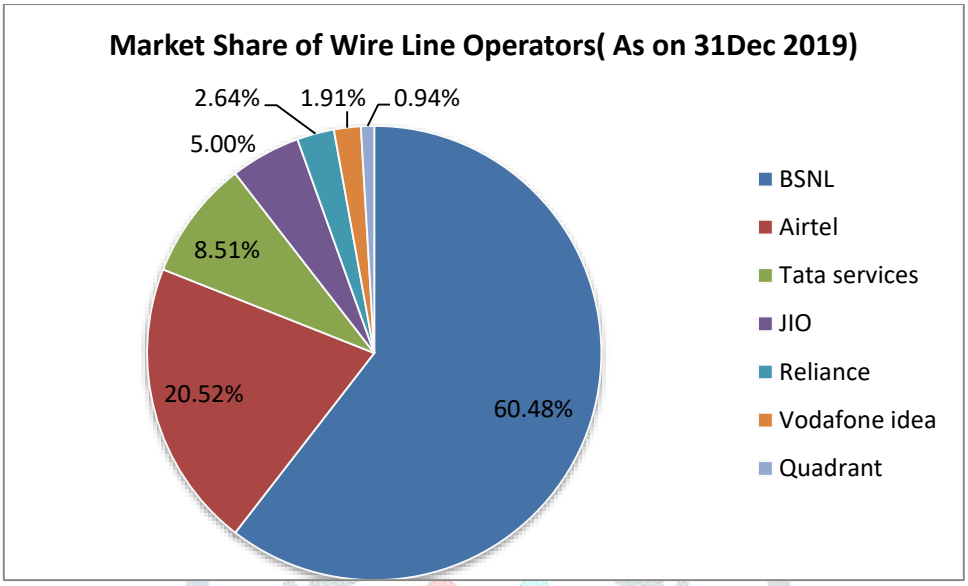


Wire line Operators (As of 31 Dec.2019)

Rank	Operators	Subscribers(millions)	Market Share
1	BSNL	12.70	60.48%
2	Airtel	4.30	20.52%
3	Tata Services	1.78	8.51%
4	JIO	1.05	5.00%

5	Reliance Communication	0.55	2.64%
6	Vodafone Idea	0.40	1.91%
7	Quadrant	0.19	0.94%

Source -TRAI Annual Reports 2018-2019



6. Present Trends in Indian Telecom Industry

Indian Telecommunication industry can be divided in to two sectors like fixed service providers and cellular service providers. Telecom sector in India comprise some basic telecommunication services i.e. telephone, radio, television, internet etc. Indian telecom industry is currently focused on latest technologies in wireless segment like CDMA (Code Division Multiple Access) and GSM (Global System for Mobile Communication) along with fixed line.

Growth of Telephones over the Year (in millions)

SR No.	YEAR	WIRELINE SUBSCRIBER	WIRELESS SUBSCRIBER	TOTAL SUBSCRIBER	ANNUAL GROWTH %
1	March 10	36.96	584.32	621.28	45
2	March 11	34.73	811.60	846.33	36
3	March 12	32.17	919.17	951.35	12
4	March 13	30.21	867.81	898.02	-6
5	March 14	28.50	904.52	933.02	4
6	March 15	26.59	969.90	996.49	7
7	March 16	25.22	1033.63	1058.85	6
8	March 17	24.40	1170.18	1194.58	13
9	March 18	22.81	1183.41	1206.22	1

10	March 19	21.70	1161.81	1183.51	-2
11	March 20	19.13	1157.67	1176.80	-.57

Source -TRAI Annual Reports

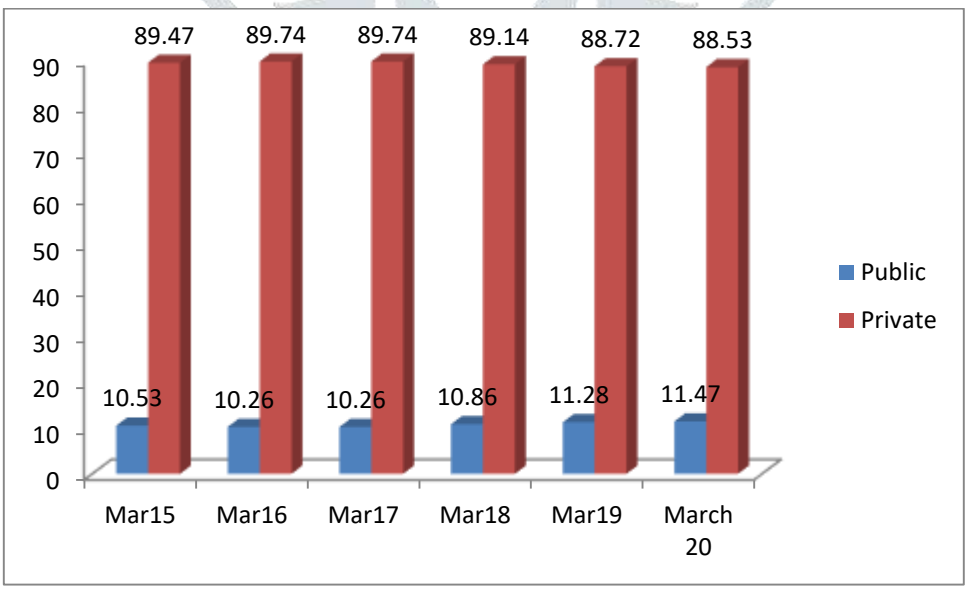
Tele Density-Tele density refers to telephone connection per hundred people residing in a certain area. It diverges widely across the nations and also between urban and rural areas within a country. It has significant correlation with the per capita GDP of the area. It can also be used for knowing the purchasing power of the middle class of the country or specific region. At the end of Nov. 19 Overall tele-density in India was 88.81%. The urban tele-density was 156.82% and in rural areas it was 56.71%. In Service Areas, Himachal Pradesh (148.81%) at the top in tele-density succeeds by Kerala (124.65%), Punjab (124.24%), Tamil Nadu (115.93%) and Karnataka (108.52%). On the other hand, tele-density is comparatively low in service areas such as Bihar (59.27%), Uttar Pradesh (66.10%), West Bengal (68.53%), Madhya Pradesh (69.29%), Assam (70.35%) and Odisha (76.53%). Amongst the metros, Delhi tops in tele-density with 237.72%, followed by Mumbai (164.10%) and Kolkata (161.33%).

Public Vs Private-Private sector plays a very significant role in telecom industry with a continuous growth in the number of subscriber and dominates the public sector. At the end of November'19, the total number of telephone connections provided by the private sector stood at 1040.80 million and number of telephone connections provided by the public sector stood at 133.86 million. The share of private sector in the total number of connections was 88.60% at the end of November'19.

Growth of Public and Private Wireless Telephone Percentage Share in Last Six Year (%)

S.N.	Section	March 15	March 16	March 17	March18	March 19	March 20
1.	Public	10.53	10.26	10.26	10.86	11.28	11.47
2.	Private	89.47	89.74	89.74	89.14	88.72	88.53

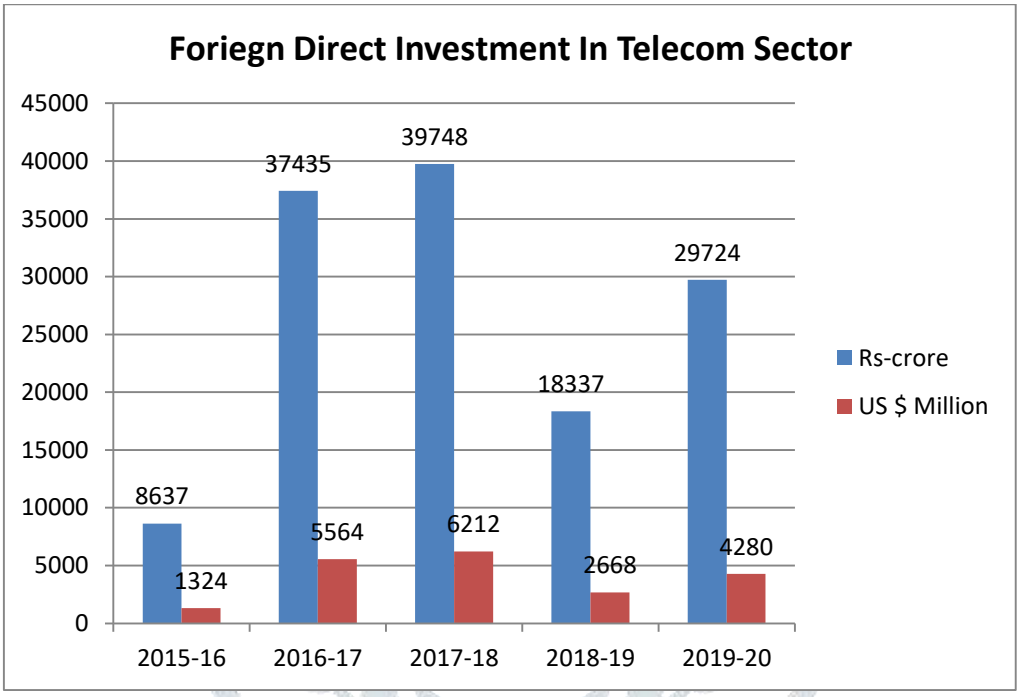
Source -TRAI Annual Reports



Foreign Direct Investment in Telecom Sector- Foreign Direct Investment in Indian Telecom sector has played a very vital role in development and progress of telecom infrastructure in the country. Foreign direct investment flowing in telecom sector in the last few years have been as follows:

Year	Rs. crore	US $ Million
2015-16	8637	1324
2016-17	37435	5564
2017-18	39748	6212
2018-19	18337	2668
2019-20	29724	4280

Source- Dot Annual Report 2019-20



Mobile Number Portability-During the year 2018-19, 57.57 Million subscribers have submitted their porting requests to different service providers for availing MNP facility. With this the cumulative Mobile Number Portability requests increased from 370.83 Million at the end of March 2018 to 428.40 Million at the end of March 2019.

Wireless Subscribers- The wireless communication base is the fastest growing section of Indian telecom industry. Wireless communication is very easier to transfer their information from one person to another person without any electrical component. Mobile phone, television, Radio, satellite, Bluetooth, GPS, Cordless telephones are the example of wireless communication. In this segment of communication, private sector plays a very significant role.

In 31 March 2017, wireless subscriber base was 1170.18 million in comparison to the subscriber base of 1170.18 million as on 31 March 2016 with increase of 1.13% during the financial year 2017-18. In March 2019 base was 1161.81 million comparisons to base of 1183.41 million as on 31 March 2018 with decline of 1.82%.

Wire Line Subscribers-Wire line communication is basically focused on landlines network. Which is declining day by day due to wireless communication network? BSNL and MTNL are the main operators in wire

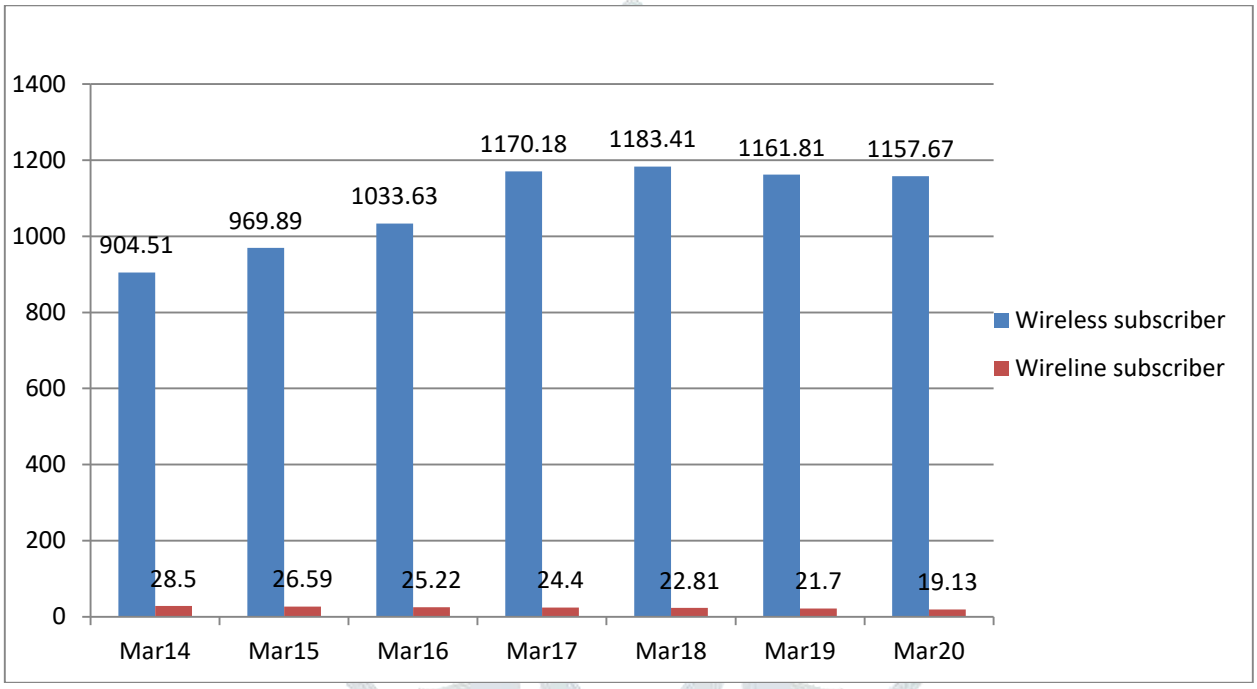
line communication in India. They have improved their network quality and now available in high density urban areas on demand.

In 31 March 2019, wire line subscriber was 21.70 million as compared to 22.81 million on 31 March 2018with decline of 4.89%.

Wireless and Wire line Subscriber in Last 7 years (in millions)

Subscriber	March14	March15	March16	March17	March18	March19	March 20
Wireless Subscriber	904.51	969.89	1033.63	1170.18	1183.41	1161.81	1157.67
Wire Line Subscriber	28.50	26.59	25.22	24.40	22.81	21.70	19.13

Source-TRAI annual Report



Broadband and Internet Subscribers-Broadband services were started in India in 2004. Broadband services are a tool for improvement of socioeconomic performance of the country. It enables us to gain awareness of accessing new career and educational opportunities as well as knowing the world. Government wants to fulfill the gap between the development of rural and urban areas with its Digital India campaign. The number of internet subscriber which was 636.73 million at the end of March 2019 increased to 687.63 million by the end of September 2019. At the end of sep.2019 subscribers accessing internet via wireless phones etc. was 665.37 million and wire line subscriber was 22.26 millions. At the end of March, 2019 broadband subscribers were 563.31 million and 661.27 million at the end of November'19. During the period from March, 2019 to September' 2019, there was a increase of internet subscribers is 50.90 million.

7-National Digital Communications Policy 2018

Department of telecommunication requested TRAI on 21 Aug, 2017 to advise its policy inputs for formulation of NTP 2018. TRAI carefully examining various issues and finalized its inputs for NTP2018 and send it to the government on 2nd Feb 2018.On 22nd Oct 2018 union Cabinet approved the National Digital Communication Policy 2018. Policy vision was to furnish safe, authentic, affordable digital communication infrastructure and

high-quality converged telecommunication services, supporting India's transition to a digitally empowered economy and society for socio economic development. The key element of policy are-

1. Broadband services for all rural and urban areas of the country.
2. Producing 4 million additional jobs in the digital communication sector by2022.
3. Increasing the share of digital communication sector 8% of India's GDP by 2022, which was 6 % in 2017.
4. Including India to the Top 50 nation in the ICT development index.
5. Enhancing India's share in the global Value Chain.
6. Ascertaining Digital jurisdiction.
7. Ensuring individual autonomy and choice, data ownership, privacy and security.
8. Enabling Next Generation Technology and services like 5G, AI, IoT cloud and big data.
9. Promote Universal Broadband connectivity at 50 Mbps to every citizen and 1Gbps connectivity to all Gram Panchayat by 2020 and 10 Gbps by 2022.
10. Enable fixed line broadband access to 50% of households and 100 Mbps to all key development institutions including all educational institution.

8-Conclusion

It can be concluded that telecom sector in India plays a very significant role to boost up the socio-economic development of the country. It is an imperative key factor for the development and growth of our country. It helps the businessman and service providers to perform their functioning for contribution in socio-economic development. Telecom service providers provide various services to their customers like voice and data services to the rural and urban areas of the country. They focus on rural areas because of 70% population live there. The telecom industry in India as expected to create total economic value of 14 trillion by the year 2025. Indian telecom market will grow by 10.3% per year to reach US $ 103.9 billion by 2025.

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