Connectivity of Telecommunication in Rural India. A Study

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Abstract **- Telecommunication services is a basic requirement in our life. Without communication services our live activities are stopped within seconds. Communication with telephone is a part and parcel in our business schedules. Largest network of wireless communication and broadband occupies very crucial place in India.**

The pandemic situation tells us both a lesson and opportunity to strengthen rural connectivity in India. The ongoing fourth wave is more severe than the first, necessitating less lockdowns and curfews. Digital payments and transactions will become necessary if mobility is restricted.

An effective rural broadband policy framework must be comprehensive, gender-inclusive, as well as tractable. The Alliance for Affordable Internet recommends a framework that enhances digital and financial literacy, develops content in regional and local languages, and allows stakeholders to participate in these processes. The challenge is to make it both cost-effective as well as affordable. A renewed focus on rural internet connectivity is essential for achieving the goals of Digital India. This study highlights the development of telecommunications in rural India. It includes the subscribers interest market demand brand wise subscriptions

Rural area network facility indicates the low density and connectivity. It indicates the telecom sector gave secondary priority to rural areas high priority gave urban area. Now it needs to study the actual situation in rural area.

Index Terms **- Brand, Rural, Sector, Wireless, Wireline.**

1.INTRODUCTION

Telecommunication network is the second largest in the world based on the total number of telephone users in India. It has one of the lowest call tariffs in the world enabled by the mega telephone networks and hyper-competition among them. It has the world's third-largest Internet user-base. According to the Internet and Mobile Association of India Major sectors of the Indian telecommunication industry are telephony, internet and television broadcasting.

Telecommunication includes Phones TV Dish TV and messages. It includes narrow brands and broad broads. Broadband technology allows high-speed transmission of voice, video and data over networks and ICT applications. Community antennae, optical fibres, satellites and fixed mobile wireless technologies also be used in rural areas effectively. The ability to access the Internet can bring a positive impact on the rural society. However, there is a wide digital divide between urban and rural areas in India, because of uneven distribution of basic telecom infrastructure.

Further, poverty and lack of education are also factors responsible for the lack of advancements in wireless technology in rural areas. Social interaction can be obtained between urban and rural masses through social media channels such as Facebook, Twitter, WhatsApp and the like. Wireless connectivity in rural areas can also reduce poverty, create jobs, and increase skills and income of the population.

2.GENERATION OF NETWORKS

Network generations are

1 .2nd Generation: 2G introduced in 1992, is the second-generation of cellular telephone technology and the first to use digital encryption of conversations. 2G networks were the first to offer data services and SMS text messaging, but their data transfer rates are lower than those of their successors.

2. 3rd Generation: 3G offering faster data transfer rates and are the first to enable video calls. This makes them especially suitable for use in modern smartphones, which require constant high-speed internet connection for many of their applications.

3. 4th Generation: 4G is the fourth generation of mobile phone communications standards. The Wave of 4G: 2016 is going to be a very significant year for the mobile industry as India is rapidly rolling out high speed 4 G networks on a much larger scale for the first time. It is expected that the number of 4G subscribers will reach 30 mn by the end of 2016 the strong competition among mobile service providers will help people to get quality data networks at the least possible price.

4. 5th Generation is the fifth generation of mobile phone communications standards. It is a successor to 4G and promises to be faster than previous generations while opening up new uses cases for mobile data. The 5G benefits range from faster speeds (up to 10x faster), much lower latency (up to 50x lower) and greater capacity allowing many more devices to be connected at the same time

3. LITERATURE

Indian Telecommunication plays vital role in servicing in communication sector. Typical Wi-Fi hotspot venues cafés, airports libraries, Wi-Fi hotspots can be added to rural areas as well.

Telecom services at affordable prices can increase the ability of the rural masses to participate in the market economy which will in turn improve their earnings. Growth of the telecom sector is a critical component of the infrastructure which acts as a catalyst in the entire development process of the country. Telecom connectivity in the rural areas poses a major challenge because of low income and geographical variance across the country. (1)

India is one of the largest and fastest-growing markets for digital consumers. Now, let's talk numbers! According to world o meters, a real-time statistics website, the current population of India is 140 Cr. Among this, an estimated 35.2% of India's population resides in urban centers, while 64.8% lives in rural areas. According to the Telecom Regulatory Authority of India report of August 2021, the total number of internet subscribers increased from 79.5 Cr at the end of December 2020 to 82.5 Cr at the end of March 2021. The Internet penetration rate in India went up to nearly 61% in the year 2021. It meant that nearly half of the population had access to the internet that year. This also ranked the country second in the world in terms of active internet users. Further India is projected to have 113.4 Crore, active users, by 2025.Over the last few years, the industry has witnessed exponential growth primarily driven by affordable tariffs, wider availability, the roll-out of Mobile Number Portability (MNP), expanding 3G and 4G coverage, evolving consumption patterns of subscribers, and a conducive regulatory environment. Now, looking at the telecom sector, India ranks second in the world in this sector with a subscriber base of 117 crores. The teledensity of the rural market, which is largely untapped, has increased to 59.48% while the overall teledensity of India has reached 87.26%, as of 2021.(2).

4.NEED/IMPORTANCE FOR THE STUDY

Villages can be divided as small, mid-sized or large based on area and population, Wireless network topology depends on factors like size of village, distribution of residential houses and terrain map of village. Today communications network facility need to promote the subscribers need. It must be spread to subscribers utility with smart and dynamic usage. It consists the customer ideas and choice. The subscribers needs changes from time to time so the connections also need to increase

5.OBJECTIVES OF THE STUDY

The following objectives are the current study

a) To know the development of telecommunication in India
b) To Indentify the service providers share in Rural India
c) To analyze Brand wise occupations of telecommunication in India

6. RESEARCH METHODOLOGY

a. SOURCE OF DATA

Purely Secondary data used . Secondary data relating Telecommunication regulatory authority of India Annual reports are used .

b. TOOLS OF ANALYSIS

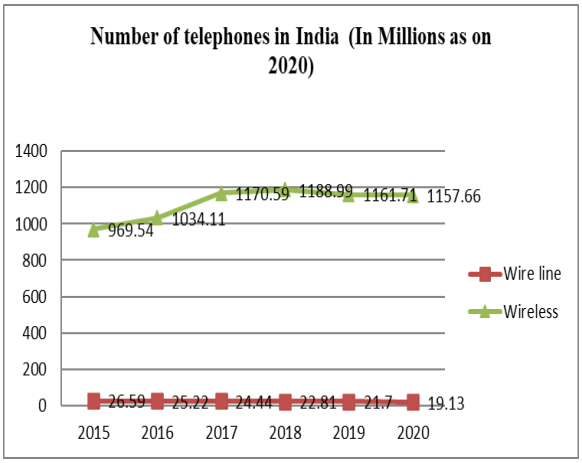
Secondary data is processed systematically and applied classification, tabulation and analysis in appropriate place.

c. SCOPE OF THE STUDY

The scope of the study is restricted to secondary data. Data taken from TRAI annual reports from 2012 to 2021 only.

7.DATA INTERPRETATION

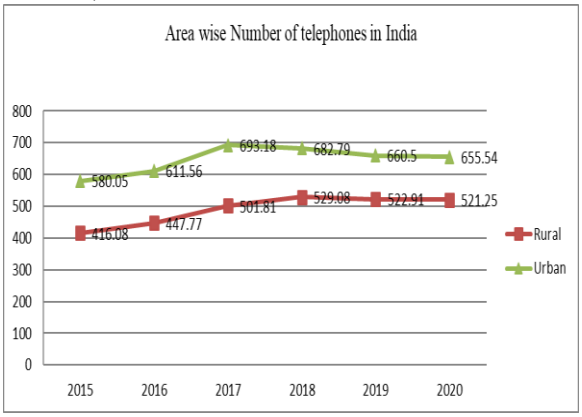
Graphs-1-Number of telephones in India (In Millions as on 2020)



Source: TRAI Annual Reports from 2015 to 2020

Graph 1 shows the Number of telephones in India in Millions. Wireless network increases year to year. Compare to wireless network connection wire line connection decreases continuously.

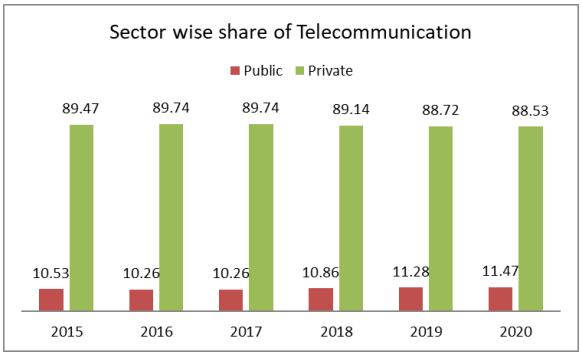
Graph 2-Area wise number of telephones in India (in Millions)



Source: TRAI Annual Reports from 2015 to 2020

Graph 2 indicates Area wise Number of telephones in India in Millions. Telephones numbers are increased in urban areas. But in rural areas it decreases.

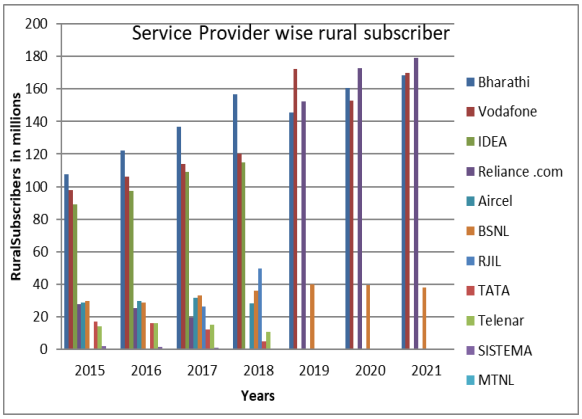
Graph-3-Percentage Share of Tele communication in India.



Source: TRAI Annual Reports from 2015 to 2020

Graph 3 indicates Percentage Share of Tele communication in India. Public share of telecommunications is more in Private sector and low in public sector.

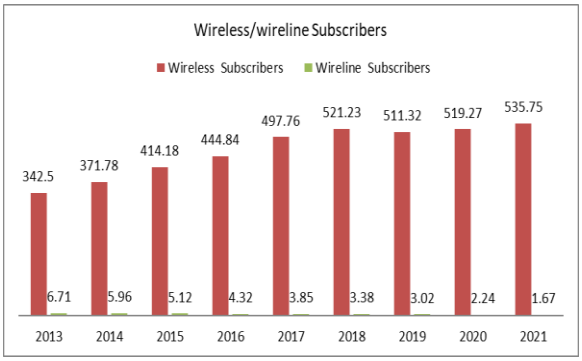
Graph-4-Service Provider Wise Rural Subscriber (In Milions)



Source: TRAI Annual Reports from 2015 to 2020

Graph 4 depicts the service provider wise rural subscriber. The Reliance JIO occupies 1 place, Bharathi network occupies 2nd place, Vodafone and Idea occupies 3nd place followed by BSNL, MTNL and others.

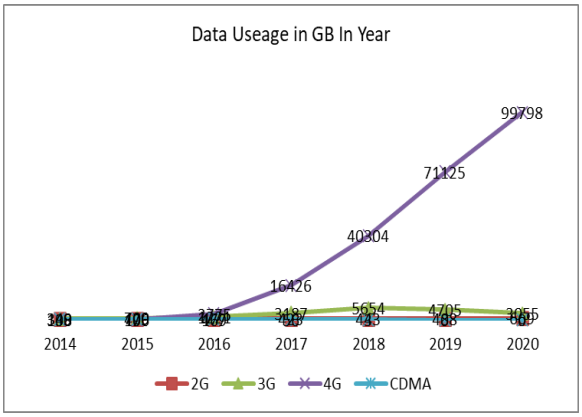
Graph-5-Rural Subscribers From 2013 To 2021



Source: TRAI Annual Reports from 2013 to 2021

Graph 5 shows Rural subscribers based on wireless/wireline. The wireless subscribers are more in rural area. But the wireline subscribers are very low in rural India. Compare to year wise, wireless subscribers increased constantly but Wireline subscribers are gradually decrease year by year.

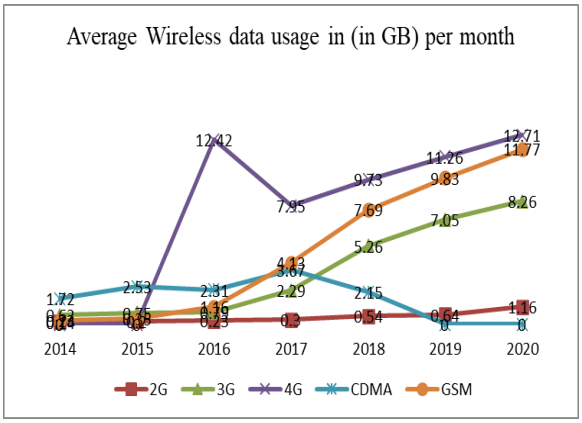
Graph-6-Wireless data usage in (in million GB per year)



Source: TRAI Annual Reports from 2013 to 2020

Graph 6 shows Wireless data usage in million GB per year. In this graph 4G data usage gradually increases from 2016 to 2020. 2G date usage is gradually decreases from 2017 to 2020.

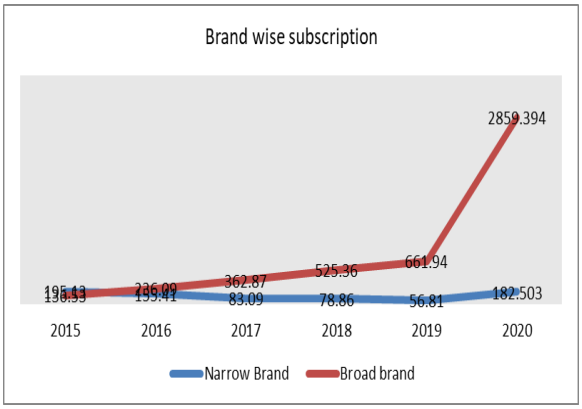
Graph-7-Average Wireless data usage in (in GB) per month



Source: TRAI Annual Reports from 2013 to 2020

Graph 7 shows Wireless data usage in million GB per month. In this graph 4G data usage gradually increases from 2016 to 2020. 2G date usage is gradually decreases from 2016 to 2020.

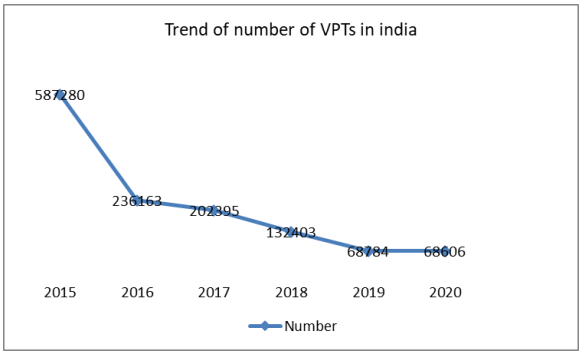
Graph-8-Internet brand wise subscription (in Millions)



Source: TRAI Annual Reports from 2015 to 2020

Graph 8 shows Internet brand wise subscription in Millions. In this graph broad brand subscription increases from 2019. Narrow brand connection decreases from 2016.

Graph-9-Trend of number of VPTs in india



Source: TRAI Annual Reports from 2015 to 2020

Graph 9 shows Trend of number of VPTs in India. In this graph Village public Talks are gradually decrease year by year. Because of the various alternative communicative tools are available.

8.PROBLEMS IN CONNECTIVITY

1. Towers maintenance cost is very high because of subscribers are poor
2. Internet availability is low because of users are preferred urban areas.
3. Electrification is not sufficient
4. Literacy is low compare with urban subscribers
5. Gender disparities are more in rural area relating to use of internet.
6. Digital literacies are poor in use of telecommunication services.

7. Pandamic situation also increase the problems in use of internet in villages
8. Income disparities indicates another problem
9. Formers are little aware the availability of telecommunication services about agriculture, Govt. Programmes, schemes.

9.CONCLUSION

Indian digital economy and knowledge society is depending on service sector. The sector implies the power of society and highlights the future of Indian economy., Some initiatives that are being taken by the government of India in this direction. Bharat Net Network for left-wing extremism areas Connecting the unconnected Wi-Fi hotspots Digital villages. It is a successor of the 3G and provides ultra-broadband internet access for mobile devices. The high data transfer rates make 4G networks suitable for use in USB wireless modems for laptops and even home internet access. The future of telecommunications is 5G. However, a large number of people in India live in rural and low-income zones. The govt. should take necessary steps to prevent subscribers problems in rural area.

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