

Telecom at a Glance

A. TELECOM SCENARIO

Communications Sector has assumed the position of an essential infrastructure for socio-economic development in an increasingly knowledge-intensive world. The reach of telecom services to all regions of the country has become an integral part of an innovative and technologically-driven society.

India is currently the world's second-largest telecommunications market with a subscriber base of 1189.28 million (of which mobile telephone connections are 1168.32 million and landline telephone connections are 20.96 million). The overall teledensity in the country is 90.23%. While the rural teledensity is currently 57.01%, the urban teledensity stands at 160.87% at the end of July, 2019.

Internet and broadband penetration in the country is increasing steadily, boosting the Government's Digital India campaign. The number of Internet subscribers (both broadband and narrowband put together) now stands at 665.31 million by the end of June'19. The number of subscribers accessing internet via wireless phones etc. was 643.64 million and there were 21.67 million wired internet subscribers at the end of June, 2019, while the number of Broadband subscribers was 594.59 million.

FDI equity inflow in the telecom sector was US \$ 2.67 billion in the financial year 2018-19. During 2019-20 (April-June) it jumped to US \$ 4.23 billion. This is 58.43 % higher than the FDI received during 2018-19.

During the period April-June 2019, Telecommunications Sector attracted FDI Equity inflows of US\$ 4,227 million (Rs. 29,352 crore) accounting for 25.89% of total FDI Equity inflows of US\$ 16,330 million (Rs. 113,511 crore).

Total internet connections (broadband plus narrowband) during the period 2014-15 to 2019-20 (April-June) are given at the following table:

Table 1: Total internet connections 2014-19

As on 31st March	Rural	Urban	Total
2014			251.58
2015	107.56	194.77	302.33
2016	111.95	230.71	342.66
2017	136.52	285.68	422.19
2018	145.83	348.13	493.96
2019	227.01	409.72	636.73
2019-2020(April-June)	238.26	427.05	665.31

Source: TRAI

B. PROGRAM, INITIATIVES AND PROGRESS

1. Telecom Infrastructure:

- **BharatNet:** The Government is implementing the flagship BharatNet project (in phases), to link each of the 2.5 lakh Gram Panchayats of India through optical fibre network. This is the largest rural connectivity project of its kind in the world and is the first pillar of Digital India Programme. It will facilitate the delivery of various e-Services and applications including e-health, e-education, e-governance and e-commerce in the future. The project envisages optimal mix of underground fibre, fibre over power lines, radio and satellite media for providing broadband connectivity which can be utilized by all categories of service providers on non-discriminatory basis.
- Work on phase I of the project has been completed. Phase II of BharatNet project is under implementation, which aims to connect 1.5 lakh GPs through high speed broadband, and is targeted to be completed by August 2019. Under BharatNet project a total of 3,60,370 km of Optical Fibre Cable (OFC)pipes have been laid as on 29.08.2019. The number of Gram Panchayats (GPs) where OFC have been laid are 1,35,242. The number of GPs made Service Ready are 1,23,242.

- **Wi-Fi Hotspots:** For accessing broadband services in all the 2.5 lakh Gram Panchayats under BharatNet, around 12.5 lakh Wi-fi hotspots will be set up (with 5 hotspots in each panchayat on an average) in rural areas. This is going to provide broadband access to millions of people in rural areas. In addition to the Wi-Fi hotspots provisioned in the BharatNet, the Government is going to setup 1 Wi-Fi Hotspots infrastructure at BSNL's Telephone Exchanges in rural areas
- **Network for Left Wing Extremism Areas:** Department of Telecom executed a project for providing Mobile Services in 2199 locations in Andhra Pradesh, Bihar, Chhattisgarh, Jharkhand, Maharashtra, Madhya Pradesh, Odisha, Telangana, Uttar Pradesh and West Bengal, which are affected by Left Wing Extremism (LWE). This large project was completed in a short period of 18 months and has brought connectivity to about 3000 villages and helped in the operation of security forces.

2. Connecting the Unconnected

- The Government has approved a Comprehensive Telecom Development Plan for North East Region to be funded from Universal Service Obligation Fund (USOF). This project will connect 8621 villages through installation of 6000 mobile tower sites. The Department is also implementing a project for laying over 3000 km of Submarine Optical Fibre Cable between Mainland (Chennai) and Port Blair and five other islands namely Car Nicobar, Little Andaman, Havelock, Kamorta and Great Nicobar Islands of Andaman & Nicobar Islands.
- **Active Infrastructure sharing:** The Government issued a notification on 11.2.2016 permitting sharing of active infrastructure amongst service providers based on mutual agreements. The active sharing cover antenna, feeder cable, Node B, Radio Access network (RAN) and transmission systems.
- **Introduction of Virtual Network Operators (VNO):** The Government has issued guidelines for UL(VNO) on 31st May, 2016. VNO system allows Telecom Service Providers to utilize their networks and spectrum efficiently by sharing active and passive infrastructure. Further, VNOs can provide services in small towns and rural areas using the network of existing TSPs having unutilised capacity or by last mile connectivity. This apart, the VNOs can be effective in providing services in airports or buildings or in smart cities.

- **Right of Way Rules:** The Government has notified the Indian Telegraph Right of Way Rules, 2016 to regulate underground infrastructure (optical fibre) and over ground infrastructure (mobile towers). This rule is applicable to all telecom service providers holding a licence issued under sub-section (1) of section 4 of the Indian Telegraph Act, 1885. These rules have simplified the grant of right of way permissions for creation of telecom infrastructure by making it transparent and time-bound. This measure is expected to facilitate an increase in the pace of creation of infrastructure both in both rural and urban areas.
- **Registration Certificate of Infrastructure Provider Category-I (IP-I):** Under IP-I registration, a company can provide assets such as Dark Fibres, Right of way, Duct Space, Tower for the purpose to grant on lease/rent/sale basis to the licensees of Telecom Services licensed under Section 4 of Indian Telegraph Act, 1885 on mutually agreed terms and conditions. As on 27.06.2018, 862 companies have been registered as Infrastructure Provider Category-I.

2.1 Telecom Spectrum:

A major achievement in the sector has been bringing in transparency in the allocation of spectrum by adopting an auction process. This has also resulted in the highest ever upfront payment to the Government. There has been a marked thrust on improving efficiency in the use of spectrum by allowing spectrum sharing, trading and harmonisation.

3. Harnessing emerging technologies: In order to ensure that India is on track to harness the benefits of emerging technologies government has taken the following initiatives: -

- **5G Network:** The fifth generation of mobile network communication technology- known as 5G, holds the promise of applications with high social and economic value, leading to a 'hyper-connected society' in which technology will play an even more important role in people's lives. 5G will not only facilitate but also add a new dimension to the missions like 'Digital India' and 'Smart Cities'. The Government envisages positioning India as a globally synchronized participant in the design, development and manufacturing of 5G based technologies, products and applications. Therefore, Government has constituted a multi- disciplinary High Level Forum to suggest vision, mission and goals for 5G India 2020 along with action plan & roadmap.

DoT is supporting research and study in 5G through financial assistance to institutions of national importance for establishment of 'Indigenous 5G Test

Bed at IIT Chennai, in collaboration with premier technology institutions including IIT Delhi, IIT Mumbai, IIT Hyderabad and IISc Bengaluru.

- **M2M Communications:** M2M represents tremendous opportunities in bringing substantial and tangible social and economic benefits to consumers, businesses, citizens and governments. Department of Telecommunications (DoT) intends to facilitate complete ecosystem around M2M networks in the backdrop of 'National Telecom M2M Roadmap' which will act as the foundation for a digital society leading to integration of physical & digital infrastructure.
- **Transition to IPv6:** Planned transition to Next Generation Internet Protocol i.e. IPv6 assumes significance as it is essential for sustainable growth of Internet, one of the key pillars of Digital India. Department of Telecommunications (DoT), being the nodal department for IPv6 transition in the country, has been constantly working with all stakeholders including States/UTs/Central Ministries/Departments for smooth transition to IPv6 since the release of 'National IPv6 Deployment Roadmap version-II' in 2013 containing IPv6 transition guidelines/timelines.

4. Citizen and customer centric measures

- **Full Mobile Number Portability (MNP):** Government has allowed One Nation Full Mobile Number Portability (MNP) recently. This has enabled the subscribers to change their licence service area and still retain their mobile number. MNP also allows subscribers to retain their existing mobile number when they switch from one telecom service provider to another irrespective of technology or service area limitation.
- **All new mobiles to have panic button:** The Government has mandated the feature of Panic Button feature in all mobile phone handsets. Mobile phone handset manufacturers have intimated that they have implemented panic button in all their mobile handsets (smart as well as feature phones) that are being sold in India from 01-03-2017.
- **Single number 112:** DoT has instructed TSPs to map Single Emergency Number '112' with existing Emergency Number '100' in all States /UTs in August 2016. At present Single Emergency Number 112 is operational and mapped on existing emergency number '100' in all States/UTs except Delhi. '112' is designed to be used to replace the multiplicity of Emergency Numbers operations in India such as 100, 101, 102 and 108 etc. The project is to be made operational by all States/UTs under the supervision of Ministry of

Home Affairs through PSAP (Public Safety Answering Point). When an emergency call is received at the PSAP, it would be answered by a specially trained officer/call taker/operator of respective state/UT that will transfer the call on the type of emergency, dispatchers to police, fire medical and other response mechanisms.

- **Public Awareness Programs on EMF emission issue:** The Department initiated in 2016-17 a nation-wide Awareness Programme, on EMF Emissions & Telecom Towers to build a direct bridge of engagement between different stakeholders and to fill the information gap with scientific evidence. It has been further followed up at sub-state level by the TERM field units of DoT so that more and more people are made aware about the scientific facts on health effects of EMF emissions from mobile towers.
- **Launch of National EMF Portal:** Department of Telecommunications (DoT) has launched Tarang Sanchar, a web portal for Information sharing on Mobile Towers and EMF Emission Compliances, with a view to generate confidence and conviction with regard to safety and harmlessness from mobile towers and clearing any myths and misconceptions. The EMF Portal provides a public interface where an easy map-based search feature has been provided for viewing the mobile towers in vicinity of any locality.
- **Social Media Presence of DoT:** To have a Social Media presence of Department of Telecom for generating awareness & education on National action plans & implementation strategies, re-pronouncement of public policies, dissemination of important events/activities, seeking feedback from citizens etc., the officially verified Twitter Handle (@DoT_India) and Facebook page (www.facebook.com/DoTIndia) were started on May 2016 along with logo of the Department. Further, to widen the reach and as an effective time bound response to address grievances/queries/feedback, Twitter Seva of Department of Telecom was launched on 2nd August 2016 by the Hon'ble Minister.

C. NATIONAL DIGITAL COMMUNICATIONS POLICY

The National Digital Communications Policy, 2018 unveiled by the Government seeks to unlock the transformative power of digital communications networks - to achieve the goal of digital empowerment and improved well-being of the people of India and attempts to outline a set of goals, initiatives, strategies and intended policy outcomes.

The Policy aims to accomplish the following Strategic Objectives by 2022:

1. Provisioning of Broadband for All
2. Creating 4 Million additional jobs in the Digital Communications sector
3. Enhancing the contribution of the Digital Communications sector to 8% of India's GDP from 6% in 2017
4. Propelling India to the Top 50 Nations in the ICT Development Index of ITU from 134 in 2017
5. Enhancing India's contribution to Global Value Chains
6. Ensuring Digital Sovereignty

In pursuit of accomplishing these objectives by year 2022, the National Digital Communications Policy, 2018 envisages three Missions:

1. Connect India: Creating Robust Digital Communications Infrastructure To promote Broadband for All as a tool for socio-economic development, while ensuring service quality and environmental sustainability.
2. Propel India: Enabling Next Generation Technologies and Services through Investments, Innovation and IPR generation To harness the power of emerging digital technologies, including 5G, AI, IoT, Cloud and Big Data to enable provision of future ready products and services; and to catalyze the fourth industrial revolution (Industry 4.0) by promoting Investments, Innovation and IPR.
3. Secure India: Ensuring Sovereignty, Safety and Security of Digital Communications To secure the interests of citizens and safeguard the digital sovereignty of India with a focus on ensuring individual autonomy and choice, data ownership, privacy and security; while recognizing data as a crucial economic resource

D. DIGITAL COMMUNICATIONS COMMISSION (erstwhile TELECOM COMMISSION)

The Telecom Commission was set up by the Government of India vide the Resolution dated 11th April, 1989 with administrative and financial powers of the Government of India to deal with various aspects of Telecommunications. The Government, vide Resolution dated 22nd October 2018, has re-designated the 'Telecom Commission' as the 'Digital Communications Commission'.

The Digital Communications Commission consists of a Chairman, four full time members, who are ex-officio Secretaries to the Government of India in the

Department of Telecommunications and four part time members who are the Secretaries to the Government of India in the concerned Departments. The Secretary to the Government of India in the Department of Telecommunications is the ex-officio Chairman of the Digital Communications Commission. The full-time Members of the Digital Communications Commission are Member (Finance), Member (Production), Member (Services) & Member (Technology). The part-time Members of the Digital Communications Commission are Chief Executive Officer, NITI (National Institution for Transforming India) Aayog, Secretary (Department of Economic Affairs), Secretary (Department of Electronics & Information Technology) and Secretary (Department of Industrial Policy & Promotion).

The Digital Communications Commission is responsible for:

1. Formulating the policy of Department of Telecommunications for approval of the Government;
2. Preparing the budget for the Department of Telecommunications for each financial year and getting it approved by the Government; &
3. Implementation of Government's policy in all matters concerning telecommunication.

E. UNIVERSAL SERVICE OBLIGATION FUND (USOF)

To give impetus to the rural telephony, the Government in June, 2002, had established Universal Service Obligation Fund (USOF) by an Act of Parliament. Subsequently, the scope of USOF was widened to provide subsidy support for enabling access to all types of telegraph services including mobile services, broadband connectivity and creation of infrastructure like optical fiber in rural and remote areas. Therefore, various schemes have been launched by USOF for provision of telecom services in rural and remote areas of the country.

F. REGULATORY FRAMEWORK

TRAI has played catalytic role in the development of the telecom, broadcasting and cable services. It has been its endeavour to provide an environment, which is fair and transparent, encourages competition, promotes a level-playing field for all service providers, protects the interest of consumers and enables technological benefits to one and all. A number of recommendations on various telecom issues were made by TRAI during 2017-18. TRAI has also taken steps to ensure the quality of service provided by the service providers by way of monitoring the performance of Basic and Cellular Mobile Telephone Service on quarterly basis and Point of Interconnection (POI) congestion on monthly basis. The regulatory

measures taken by TRAI facilitate orderly growth of telecom sector by promoting healthy competition and enhancing investment efficiency besides protecting the interest of consumers.

F. PUBLIC SECTOR UNDERTAKINGS (PSUS)

DoT has the following PSUs under its administrative control:

- a) Bharat Sanchar Nigam Limited (BSNL)
- b) Mahanagar Telephone Nigam Limited (MTNL)
- c) ITI Limited
- d) Telecommunications Consultants India Limited (TCIL)
- e) Bharat Broadband Network Limited (BBNL)
- f) Hemisphere Properties India Limited (HPIL)