Telecom Regulatory Authority of India

Consultation Paper

on

Inputs for Formulation of
National Telecom Policy - 2018

New Delhi, India

03rd January, 2018

Mahanagar Door Sanchar Bhawan,

Jawahar Lal Nehru Marg,

New Delhi – 110002

Stakeholders are requested to furnish their written comments by 19th January, 2018. The comments may be sent, preferably in electronic form to, Shri Sunil Kumar Singhal, Advisor, Telecom Regulatory Authority of India, on the e-mail sksinghal@trai.gov.in.

Comments will be posted on TRAI's website www.trai.gov.in.

For any clarification/ information, Shri Sunil Kumar Singhal, Advisor, Telecom Regulatory Authority of India, may be contacted at Tel. No.: +91-11-23221509, Fax: +91-11-23220442

CHAPTER-I: INTRODUCTION

A. Background

1. The Department of Telecommunications, through its letter dated 21.08.2017 (**Annexure-I**), requested the Telecom Regulatory Authority of India (hereinafter, referred to as TRAI, or, the Authority) to suggest its policy inputs for formulation of National Telecom Policy - 2018. Based on preliminary discussions with various stakeholders including telecom service providers, telecom equipment manufacturers, industry associations, consulting firms, cloud service providers etc.; the Authority has prepared inputs for formulating the National Telecom Policy - 2018 in line with the technological advancements in the sector and customer aspirations for digital services. Through the present Consultation Paper (CP), the Authority intends to seek views of stakeholders on the inputs for formulating National Telecom Policy, 2018.

B. Indian Telecom Sector

2. The Indian telecom sector is the second largest in the world by number of telephone subscribers with 1.2 billion subscribers as on 31.10.2017. India also has the world's second-largest internet subscriber base with 340 million internet subscribers as on 31.10.2017. It has one of the lowest tariffs for telecommunication services in the world.

3. The Indian telecom sector has undergone through a high pace of market liberalization and growth since the 1990s and is, at present, one of the fastest growing telecom markets. It has played a significant role in the socio-economic development of India. As per industry estimates, the Indian telecom sector accounted for 6.5% of India's GDP while providing direct and indirect employment to four million people in 2015.

4. Department of Telecommunications (DoT), Ministry of Communications, is responsible for formulating Policy Frameworks aimed at accelerating growth of the telecommunication services. The main functions of DoT relating to policy formulation are listed below:

(i) Policy, Licensing, and Coordination matters relating to telegraphs, telephones, wireless, data, facsimile and Telemetics services and other like forms of communications;

(ii) International cooperation in matters connected with telecommunications including matters relating to all international bodies dealing with telecommunications;

(iii) Promotion of standardization, research and development in telecommunications;

(iv) Promotion of private investment in Telecommunications;

(v) Financial assistance for the furtherance of research and study in telecommunications technology, and for building up adequately trained manpower for telecom programme;

(vi) Administration of laws with respect to any of the matters specified in the Acts, namely:

   a. The Indian Telegraph Act, 1885 (13 of 1885),

   b. The Indian Wireless Telegraphy Act, 1933 (17 of 1933); and

   c. The Telecom Regulatory Authority of India Act, 1997 (24 of 1997).

C. Telecom Policies in India

5. Recognizing that provision of world class telecommunications infrastructure is the key to rapid socio-economic growth of the country, the Government has been announcing its telecom policy statements on a regular interval since the onset of market liberalization in the country in the early 1990s. In effect, post-liberalization the Indian telecom sector has been shaped by four policy statements viz. –

   (a) National Telecom Policy, 1994,

   (b) New Telecom Policy, 1999

   (c) Broadband Policy, 2004

   (d) National Telecom Policy, 2012

6. A brief description of the afore-mentioned policy statements is given below:

   ### 6.1. National Telecom Policy, 1994:

   National Telecom Policy, 1994 (hereinafter, referred to as, the NTP-94) provided for opening up the telecom sector to competition in Basic Services as well as Value Added Services like Cellular Mobile Services, Radio Paging, VSAT Services etc. It also set targets for provision of telephone on

demand and universal service (connecting all villages) by the year 1997 apart from opening up of long distance telephony.

6.2.   New Telecom Policy, 1999:

With a view to remove some of the bottlenecks, and move the liberalization process forward, the Government of India, in 1999, announced New Telecom Policy, 1999 (hereinafter, referred to as, the NTP-99). Provision of 'Universal Service' (including unconnected and rural areas, re-targeted for year 2002), and, provision of sophisticated telecom services capable of meeting needs of the country's economy were the main objectives of NTP-99. It had targets to provide 'Internet' access to all district-head-quarters (DHQs) by 2000 and to provide high speed data and multimedia capabilities to all towns of population of 2, 00,000 and above by 2002. Apart from a target for overall tele-density of 7% by year 2005 (and 15% by 2010), NTP-99 had a target for achieving rural 'tele-density' of 4% in the same period.

6.3.   Broadband Policy, 2004

Recognizing the potential of ubiquitous Broadband service in growth of Gross Domestic Product (GDP) and enhancement in quality of life through societal applications including tele-education, tele-medicine, e-governance, entertainment as well as employment generation by way of high speed access to information and web-based communication, Government announced Broadband Policy, 2004 to accelerate the growth of Broadband services. The Broadband Policy, 2004 visualized creation of infrastructure through various access technologies which can contribute to growth and can mutually coexist. It defined broadband connectivity as an 'always-on' data connection that is able to support interactive services including Internet access and has the capability of the minimum download speed of 256 kbps to an individual subscriber. The Policy also estimated that, by 2010, Internet subscription and broadband subscription would rise to 40 million and 20 million respectively.

6.4.   National Telecom Policy, 2012

With a vision to transform the country into an empowered and inclusive knowledge-based society, using telecommunications as a platform, the Government of India, in 2012, announced the National Telecom Policy, 2012 (hereinafter, referred to as the NTP-2012). In the NTP-2012, the

Government laid special emphasis on providing affordable and quality telecommunication services in rural and remote areas. It targeted - to increase the rural tele-density to 70 by 2017, and, to 100 by 2020; and to provide 'broadband-on-demand' by 2015. It also targeted to make India a global hub of domestic manufacturing and provided a roadmap to become a leader in cutting edge, state of the art technologies through R&D, and creation and incorporation of Indian IPRs in global standards. On licensing and spectrum management front, the NTP-2012 aimed for simplification of licensing framework and for ensuring adequate availability of radio spectrum with a view to further extend converged high quality services across the nation including rural and remote areas.

D.   Government's proposed telecom policy statement of 2018

7.   DoT, on its web-site, has stated that the new telecom policy will be governed by the key guiding principle of alignment with the national vision. Its major themes will, *inter-alia*, be regulatory & licensing frameworks impacting the telecom sector, connectivity-for-all, quality of services, ease of doing business, and absorption of new technologies including 5G and IoT.

8.   Apparently, the Government through the new telecom policy seeks to spur the socio-economic development up to the bottom of the pyramid by ensuring voice, video and data connectivity for all, provide reliable and secured connectivity with assured quality of service, facilitate development of infrastructure and services for new technologies including 5G and IoT, encourage innovation and manufacturing, and develop a large pool of digitally skilled man-power, by restructuring regulatory & licensing frameworks impacting the telecom sector with an overall aim to aid digital transformation of the Government, enterprises and industry, infrastructure development including development of world-class cities through planned urbanization, and assume the leadership role in the world economy.

9.   Upon receiving the Government's request through its letter dated 21.08.2017 for providing inputs for formulating the proposed National Telecom Policy, 2018, the Authority invited a wide range of stakeholders for brainstorming on the matter as to what objectives and strategies should form part of the new Policy. Stakeholders included telecom service providers, equipment manufacturers, consulting organizations, industry associations, Information Technology (IT) companies, content

providers, data center companies, broadcasting and cable services companies, etc. Based on the discussions with stakeholders and further analysis, the Authority has formulated inputs for formulating the National Telecom Policy, 2018. Through this CP, the Authority solicits views of stakeholders on such inputs, discussed in detail in Chapter-II. After taking into consideration the comments, counter comments, and views of stakeholders, the Authority shall send its final inputs to the Government for formulation of the National Telecom Policy, 2018.

10.   Chapter-II of this consultation paper deals with proposed structure of Policy Framework for preparing inputs to Government for formulation of the National Telecom Policy-2018. Chapter-III of this paper summarizes issues for consultation.

CHAPTER-II: STRUCTURE OF POLICY FRAMEWORK

A.   Preamble

1. World-over, the telecommunication services are being recognized as enabler of socio-economic development. An Indian Council for Research on International Economic Relations (ICRIER) study pointed out that a 10 percent increase in the rate of growth of broadband subscribers will result in a 2.4 percent increase in the GDP rate. International experience also suggests that telecommunication services catalyze the growth of all sectors of economy, particularly, the fundamental sectors viz. health, education, agriculture, digital services, and industry. The bottom-of-the-pyramid gains the most from the virtuous cycle of growth fueled by telecommunication services.

2. After pronouncement of NTP-2012, during last few years, telecommunication sector in India has seen massive transformation. While the mobile networks have got upgraded from 3G to 4G in large parts of the country, the availability of smart phones at affordable prices is driving the mobile internet subscriptions. Further, with the steep decline in tariffs of telecommunication services, the affordability has increased and the consumption of data has increased multifold. Access to internet has empowered millions of Indians by giving them access to real-time information, Government services, marketplaces, and social media that is having positive impact on quality of life.

3. Growth of data communication systems and services is helping in enhancing the economic conditions in rural and remote areas, and spur new businesses by enabling access of markets to a large number of small and medium enterprises (SMEs). Above all, growth of digital communication networks is boosting competitiveness, enabling innovation, and improving productivity. As such, enhanced investments in telecom network infrastructure that allow fast, reliable, and affordable internet connectivity are leading to socio-economic growth and job creation in India.

4. The convergence of voice, video and data services has also become reality now. Online audio-visual content in regional languages is immensely popular because of the low literacy rates. While the telecom networks are being extensively used to deliver video services, after digitization of the cable TV networks, these are being

used to provide broadband services. In order to meet the growing demand for the video, it would be necessary to encourage development of converged broadband and broadcast networks, and cloud infrastructure for Video on Demand (VoD) services. While video distribution in broadcast mode can fulfill the need of masses, the video on demand can meet the specific requirements of the consumers. Convergence of the networks can ensure efficient utilization of the available resources. The convergence of information, communication, and broadcasting services are creating vast new capabilities that are benefiting individual, businesses and society as a whole.

5. While the objectives of NTP-2012 relating to telecommunication services have largely been met except the rural tele-density, the expected success in making India a global hub of domestic manufacturing, development of state of the art technologies through R&D, and creation and incorporation of Indian IPRs in global standards have not been achieved.

6. The digital transformation is emerging as a key driver of sweeping change in the world around us. The telecommunication industry is at the forefront of this transformation. After connecting the individuals and enterprises, innovators are turning their attention to the Machine to Machine (M2M) communications which promise to connect billions of sensors/ devices. Upgradation to 5G networks will connect wearable computers, a vast array of sensors, and other devices, leading to better health, economic gains, and other advantages. 5G networks not only addresses Internet of Things (IoT) deployments on a massive scale, but also of applications previously not possible that depend on ultra-reliable and low-latency communications.

7. The convergence of the digital and physical products through M2M and IoT services and applications is paving the way for Fourth Industrial Revolution (Industry 4.0). It represents a transition to a new set of systems that bring together digital, biological, and physical technologies in new and powerful combinations. The Industry 4.0 is being built around the IoT/ M2M infrastructure and services for which the availability of global and digital communications; low-cost processing and high-density data storage; and an increasingly connected population of active users of digital technologies are pre-requisite. Therefore, just like physical form of connectives like Roadways, Railways, Airways, and Waterways, telecommunication networks i.e. I-

ways are also becoming essential infrastructure for industrial development. To keep pace with these developments, it would be necessary to formulate policies that would encourage development of networks especially suited for IoT, data centers and associated services, data analytics, cloud computing, and homegrown digital platforms and applications. As these services can be delivered remotely, India can become global hub for such systems and services.

8. In spite of development of telecommunication sector at rapid pace during the last two decades, there are number of challenges that need to be overcome. India is still ranked much lower in international indices relating to network readiness and connectivity. The gains from increased connectivity have been inequitable, with the full benefits not reaching those who need them most. Further, the average speed of the internet in India is still much lower than the global average. Regulatory policies and their governing institutions are striving to keep pace with technological developments happening in the sector to address complex issues that include convergence of ICT and media, coordination with other sectors for IoT, and ensuring privacy and security.

9. For achieving the inclusive socio-economic growth in the country, it is essential that benefits of health, education, and digital services reach to the population of urban as well as rural areas. Connectivity plays a vital role in extending such benefits. While the physical connectivity - Roadways, Railways, Airways, and Waterways - requirements are dealt with by respective Ministries, this policy shall be aimed to meet the digital connectivity requirements. Access to secured data connectivity at affordable prices to every person, enterprise, and industry can help in extending such benefits to every Indian citizen across the country.

10. Therefore, National Telecom Policy-2018 (hereinafter, referred to as, the NTP-2018) can have twin goals viz. (i) facilitate development of communication infrastructure and services to achieve inclusive socio-economic growth in the country, and (ii) to propel India to become the front-runner in the Fourth Industrial Revolution. This policy would set the mission and objectives to be accomplished by the end of calendar year 2022, when India will be celebrating its 75 years of independence. It would also specify the strategies to accomplish such objectives as well as capacity building in general.

B.   Mission:

- To fulfil the communication needs of the people, enterprises, and industries at affordable prices;
- To develop state-of-the-art secured communication infrastructure for delivering high-quality quality services to man and machines in urban as well as rural areas;
- To establish India as global hub for internet and data communication systems and services in a net-neutral environment;
- To make available ubiquitous, ultra-reliable, and secured connectivity with extremely low latency for IoT/ M2M applications;
- To develop home-grown digital platforms and services for meeting the specific need of the country;
- To aim for self sufficiency in telecom equipment manufacturing;

C.   Objectives:

(a)   To increase rural tele-density to 100 %;

(b)   To provide data connectivity of at least 1 Gbps speed to all the Gram Panchayats;

(c)   To enable access for wireline broadband services to 50% households in the country;

(d)   To enable access for high-quality wireless broadband services at affordable prices to 90% population;

(e)   To achieve 900 million broadband connections at a minimum download speed of 2 Mbps, out of that at-least 150 million broadband connections at a minimum download speed of 20 Mbps;

(f)   To develop 10 million public Wi-Fi hotspots in the country;

(g)   To attain average speed of 20 Mbps for wireless, and 50 Mbps for wireline internet connectivity;

(h)   To leapfrog India amongst top-50 nations in international rankings in terms of network readiness, communications systems, and services;

(i)   To enable access for connecting to 10 billion IoT/ M2M sensors/ devices;

(j)   To attract an investment equivalent to USD 100 billion in communication sector;

(k)   To become net positive in international trade of communication systems and services;

D. **Common Strategies to leapfrog India amongst top-50 nations in international rankings in terms of network readiness, communications systems and services, to attract an investment of USD 100 billion in telecommunication sector, and to attain average speed of 20 Mbps for wireless and 50 Mbps for wireline internet connectivity:**

(a) By recognizing communication systems and services as essential connectivity infrastructure for development of India;

(b) By making available finance for communication infrastructure projects (i-ways) at par with other connectivity infrastructure sectors like Roadways, Railways, Waterways, Airways etc.

(c) Review of license fee, USOF levy, and SUC keeping in view importance of communication infrastructure in socio-economic development;

(d) By restructuring of legal, licensing and regulatory frameworks for reaping the benefits of convergence;

(e) With the separation of network and service layers, by separating licenses/ permissions for rollout of networks, and provisioning of services;

(f) By working towards One Nation – One License for services;

(g) By easing grant of licenses/ permissions processes for spectrum, wireless apparatus, and SACFA clearance to improve efficiency, innovation, and research;

(h) Review of license and regulatory compliance costs on licensees keeping in view the international practices;

(i) By allowing broadcast services using cellular mobile networks;

(j) Integrated regulation of ICT and broadcasting sector led by economic and social policy goals of the country;

(k) Restructuring of TRAI as converged regulator for ICT and Broadcasting sector;

(l) Review of SATCOM policy for communication services keeping in view the international developments, and social & economic needs of the country;

(m) By engaging with the State Governments and Local Bodies for faster rollout of communication infrastructure;

(n) For ensuring non-discriminatory time bound RoW permissions - a nation-wide common portal for application and approval.

(o) By developing a network readiness index for States/ UTs to address RoW challenges;

(p)   By mapping telecom infrastructure assets like OFC cables, common service ducts and towers on NIC's National GIS Platform;

(q)   By making provisions for establishment of common service ducts for underground telecom infrastructure in the Indian Telegraph Right of Way Rules, 2016.

(r)   By reviewing the objectives of spectrum management to maximise socio-economic gains;

(s)   By monitoring efficient utilization of spectrum by conducting regular audit of the spectrum allocated to both commercial as well as government organizations;

(t)   By declaring roadmap for availability and auction of spectrum in different bands in ensuing period;

(u)   By ensuring adequate availability of contiguous, broader and globally harmonised spectrum.

(v)   By earmarking unlicensed frequency bands periodically for operation of low power devices for public use;

(w)   By reduce entry barriers to promote R&D, innovation, and Startups in the sector;

(x)   By developing digitally skilled human resources in the country;

(y)   By establishing NTIPRIT as an apex institute for policy practitioners, industry, researchers, academicians

(z)   By strengthening consumer grievance redressal mechanisms through awareness & protection

(aa)   By establishing office of telecom ombudsman and centralized web based compliant redressal system

(bb)   By increasing international coordination

E.   Strategies to increase rural tele-density to 100% and to provide data connectivity of at least 1 Gbps speed to all the Gram Panchayats

(a)   By further developing institutional capacity to improve focus on execution of Universal Service Obligation Fund (USOF) schemes for equitable development;

(b)   By promoting sharing of telecom infrastructure among telecom service providers;

(c)   By incentivizing the telecom service providers for faster roll-out of services in remote and rural areas;

(d) By facilitating sub-marine cable connectivity to the inhabited islands of Andaman and Nicobar Islands and Lakshadweep Islands; and

(e) By promoting use of satellites to provide telephony and broadband services in remote and inaccessible areas through–

    i) rationalization satellite transponder and spectrum charges; and

    ii) making available additional transponders, and new spectrum bands (such as Ka band) for satellite-based commercial communication services.

F. **Strategies to enable access for wireline broadband services to 50% households in the country; to enable access for high-quality wireless broadband services at affordable prices to 90% population; to develop 10 million public Wi-Fi hotspots in the country; and to achieve 900 million broadband connections at a minimum download speed of 2 Mbps, out of that at-least 150 million broadband connections at a minimum download speed of 20 Mbps:**

(a) By adopting a National Broadband Plan (NBP) for enabling access to at least 90% household using wireline, wireless, and satellite resources optimally;

(b) By facilitating development of Open Access Networks to improve access and affordability of communication services;

(c) By promoting sharing of telecom infrastructure amongst telecom service providers;

(d) By upgradation of cable TV networks for delivery of converged broadcast and broadband services;

(e) By incentivizing fixed-line broadband services;

(f) By devising enabling provisions for sustainable development of public Wi-Fi hotspots;

(g) By facilitating content delivery networks for improved quality of experience;

G. **Strategies to enable access for connecting to 10 billion IoT/ M2M sensors/ devices:**

(a) By prescribing licensing and regulatory framework for IoT/ M2M service providers;

(b) By earmarking of suitable licensed and unlicensed spectrum for IoT/ M2M services;

(c) By creating appropriate institutions for coordinated development of 5G services, IoT/ M2M systems, and their security framework;

(d)   By closely working with sector specific industry councils for preparing roadmap for transformation of each sector to Industry 4.0;

H.   **Strategies to establish India as a global hub for data communication systems and services:**

(a)   By prescribing licensing and regulatory framework for cloud service providers;

(b)   By declaring data privacy, protection, and security laws;

(c)   By prescribing policy for cross-border data transfer;

(d)   By enacting net-neutrality laws;

(e)   By incentivizing setting up of International Data Centers (IDCs) in India;

(f)   Internationally comparable bandwidth capacity and costs for businesses to encourage Data Centre localization in India;

(g)   By facilitating establishment of interconnect exchanges for data services;

(h)   By expeditious availability of land, electricity, and security for data centers;

(i)   Human capital for data analytics and product development;

I.   **Strategies to become net positive in international trade of telecommunication systems and services:**

(a)   By facilitating set-up of 'Special Technology Zones (STZs)' for experimental products to invite product and technology innovation and development in India;

(b)   By allocation of spectrum for demonstration and experimental purpose on expeditious basis;

(c)   By establishing Telecom Research and Development Center for identification, customization, and development of digital products and services in the country to substitute imports;

(d)   By facilitating development of required infrastructure for research and development, incubation centres, standardization, testing, and certification of digital communication systems, products and services;

(e)   By earmarking 40% of incremental USOF for financing R&D, Innovation, and development of communication systems and services as per indigenous needs;

(f)   By providing financial incentives for the development of Standard Essential Patents (SEPs) in the field of telecommunication services and systems;

(g)   By encouraging partnership between industry and academia for development of human capital;

(h)   By incentivising local manufacturing of network equipment and devices;

(i)   By becoming global hub for remote management of telecommunication networks;

(j)   By coordinating with EXIM Bank and Telecom Export Promotion Council (TEPC) to facilitate international trade of telecommunication systems and services;

(k)   By making TEC and TSDSI responsible for development and enforcement of standards for telecom products and services;

(l)   By developing own test labs and certification infrastructure;

(m)   By upgrading the manufacturing PSUs under DoT to actively exploit their strategic and operational synergies;

Issues for Consultation

Q.1   Stakeholders are requested to give their comments on structure and contents of the proposed inputs for National Telecom Policy, 2018, clearly outlining the specifics along with justification.

Q.2   Stakeholders may also suggest any other issue related to Policy Framework which stakeholders feel is important for growth of telecom sector, along with justification.

CHAPTER-III: ISSUES FOR CONSULTATION

Q.1 **Stakeholders are requested to give their comments on structure and contents of the proposed inputs for National Telecom Policy, 2018, clearly outlining the specifics along with justification.**

Q.2 **Stakeholders may also suggest any other issue related to Policy Framework which stakeholders feel is important for growth of telecom sector, along with justification.**

F.No. 2-8/2017-Policy-I
Government of India
Ministry of Communications
Department of Telecommunications
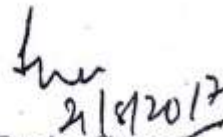(Policy-I)
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New Delhi, the 21 August, 2017

OFFICE MEMORANDUM

Subject: National Telecom Policy - 2018

The Department of Telecommunications is in the process of formulating a New Telecom Policy in line with the technological advancements in the sector and customer aspirations for digital services.

It is requested that TRAI suggest policy inputs in the context of New National Telecom Policy. It is also requested that TRAI may anchor stakeholder consultation workshops in this regard.

Shri N. Sivasailam, Additional Secretary and undersigned will coordinate with you in the matter.

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