

M.A. Space and Telecommunications Law
NALSAR University of Law
Hyderabad India.

ONLINE LECTURE PROGRAM
Date: 24/08/2021 at 14:00-16:00 Hrs

NALSAR University of Law Hyderabad India.

Lecture Topic:
Telecom Industry in India
Contemporary Issues and Challenges
(Telecommunication Laws in India)

Date: 24/08/2021 at 14:00-16:00 Hrs

Speaker: K S Mohanavelu

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I also want to clarify that short falls in this paper, if any are entirely due to me.

K S MOHANAVELU

Contemporary Issues and Challenges

(Telecommunication Laws in India)

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Contemporary Issues and Challenges (Contd.)

(Telecommunication Laws in India)

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Contemporary Issues and Challenges (Contd.)

(Telecommunication Laws in India)

Introduction

- **Telecom Industry is a vast field**
- **Indian Telecom Industry serves more than 1 Billion People**
- **Presently mobile phones: 1.2 billion; broadband users: 780 million**
- **Wide range of services like Wireless Networks, Optic Fibre Networks, Satellite Services, etc.**
- **Many New Emerging Services and Technologies like 5G, LEO Satellite Technology, IOT, M2M, Cloud, etc.**
- **Infrastructure is capital intensive – Needs Optimum and Efficient Use**
- **Industry faces challenging situations in Spectrum Allocation and Management**
- **Need of the Hour: Free and Open Market Conditions for using Satellite and Mobile Technologies ensuring Competition and avoiding Monopoly**
- **Policy, Regulations and licensing Regime must be enabling Factors - But Requires Constant Reviews and Reforms**
- **TSP - Quality of Service to be ensured**
- **Industry to trigger Business and Job Opportunities**
- **Policy to set immediate, medium term and long term goals and objectives**
- **Telecom Industry to influence and prepare the country and its citizens for the future**

Optic Fibre Network - A Critical Telecom Infrastructure

https://economictimes.indiatimes.com//industry/telecom/telecom-news/traai-paper-to-explore-better-fibre-network-capacity-in-5g/articleshow/69334322.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst

Issue: Low Fibre Penetration in India

- **Government is Exploring Ways to enhance fibre optic network capacity ahead of the launch of 5G Technology in the country.**
- **Currently, India has approximately 1.5 million kilometres of OFC:**
 - Reliance Jio: 3.25 lakh Km;**
 - Airtel: 2.5 lakh Km;**
 - Vodafone: 1.5 lakh Km;**
 - BSNL: 8 lakh Km**
- **There are some far-flung remote villages (around 43,000) in India, still devoid of having any mobile services.**
- **According to the industry estimate, India's fibre penetration is extremely low. Less than one-fourth of the Towers are fibre-connected.**
- **With Data demand surges and Launch of 5G Networks in the immediate future, the need for Fibre Network has also increased manifold.**

Optic Fibre Network - A Critical Telecom Infrastructure (Contd.)

https://economictimes.indiatimes.com//industry/telecom/telecom-news/trai-paper-to-explore-better-fibre-network-capacity-in-5g/articleshow/69334322.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst

- **BSNL has the largest pan-India fibre network.**
- **BSNL is planning to lease out its infrastructure.**
- **Aim is to increase the fibre foot print by fivefold by 2022**
- **The Government Aims to establish a National Fibre Authority (NFA) to expand and speed up fibre deployments.**
- **Telecom Service Providers and Optic Fibre Network makers are demanding the Government to come out with incentives to encourage fibre deployments, a critical telecom infrastructure.**
- **The past attempts for expansion of optic fibre faced difficulties**
- **Now Satellite Networks are also being considered as an Alternate Solution to overcome low fibre penetration.**

Number of Internet Subscribers TRAI Data - End of December 2020 Subscribers per 100 Population

Rural: 34.60 Urban: 103.98 Overall: 58.51

ISSUE: Rural Areas lag in Broadband Services

Table 1.31 : Service Area wise number of Internet Subscribers per 100 population at the end of Dec-20

Service Area	Internet Subscribers (in million)			No. of Internet subscribers per 100 population		
	Rural	Urban	Total	Rural	Urban	Total
Andhra Pradesh	27.85	35.24	62.59	50.26	97.90	69.22
Assam	9.12	6.31	15.48	30.77	117.98	44.11
Bihar	38.01	20.00	58.01	24.20	80.75	32.89
Delhi	0.71	42.50	48.20	515.80	208.60	210.65
Gujarat	14.76	34.05	48.81	40.25	100.07	69.04
Haryana	7.00	10.77	17.77	40.22	89.71	60.42
Himachal Pradesh	4.18	2.39	6.57	68.09	314.81	88.92
Jammu & Kashmir	8.50	4.54	8.04	36.54	110.71	58.75
Karnataka	17.61	31.30	48.91	46.58	108.10	73.26
Kerala	12.05	17.59	29.64	115.71	70.05	88.48
Madhya Pradesh	21.46	31.45	52.91	26.26	98.21	46.52
Maharashtra	27.88	41.14	69.01	45.75	116.42	79.85
Mumbai	1.90	29.54	31.44			
North East	4.49	4.24	8.73	48.68	82.17	56.58
Orissa	13.27	7.38	20.65	36.99	90.78	46.92
Punjab	8.80	18.80	27.59	49.28	137.86	87.59
Rajasthan	20.70	28.15	48.85	35.50	111.24	55.42
Tamil Nadu	14.61	39.85	54.45	39.94	96.89	69.89
UP (East)	31.38	27.27	58.59			
UP (West)	15.33	24.76	40.09	25.47	88.77	40.82
Kolkata	1.44	17.15	18.59			
West Bengal	17.69	17.61	35.30	30.14	97.50	54.37
Total	308.17	487.01	795.18	34.60	103.98	58.51

* Population data/projections are available state-wise only.

Notes:

**DOT initiative for LEO Satellite Constellation Technology Based Solution
For Broadband Service in Rural Areas**

Internet Connectivity Services

Optical Fibre based internet connectivity services are highly competitive in India.

India's Fastest Broadband Internet service providers 2021 are:

Airtel; Reliance Jio Fiber; Excitel Broadband; BSNL; Hathway's Broadband; ACT Fibernet Broadband; You Broadband

(<https://freekaamaal.com/miscellaneous/best-internet-service-provider-in-india>)

Satellite based internet services are expensive but Technology brings down the price;

GSO and NON GSO Satellite Based Internet Access Services Example Tariffs

Provider	Best For	Price	Download speed	Details
	Fastest satellite internet speeds	\$30.00– \$150.00/mo.*	12–100 Mbps	12–300 GB
	Budget-friendly low-end plans	\$59.99– \$149.99/mo.**	25 Mbps	10–50 GB

Non GSO Satellite Based Internet Access Services may bring down the price and the availability:

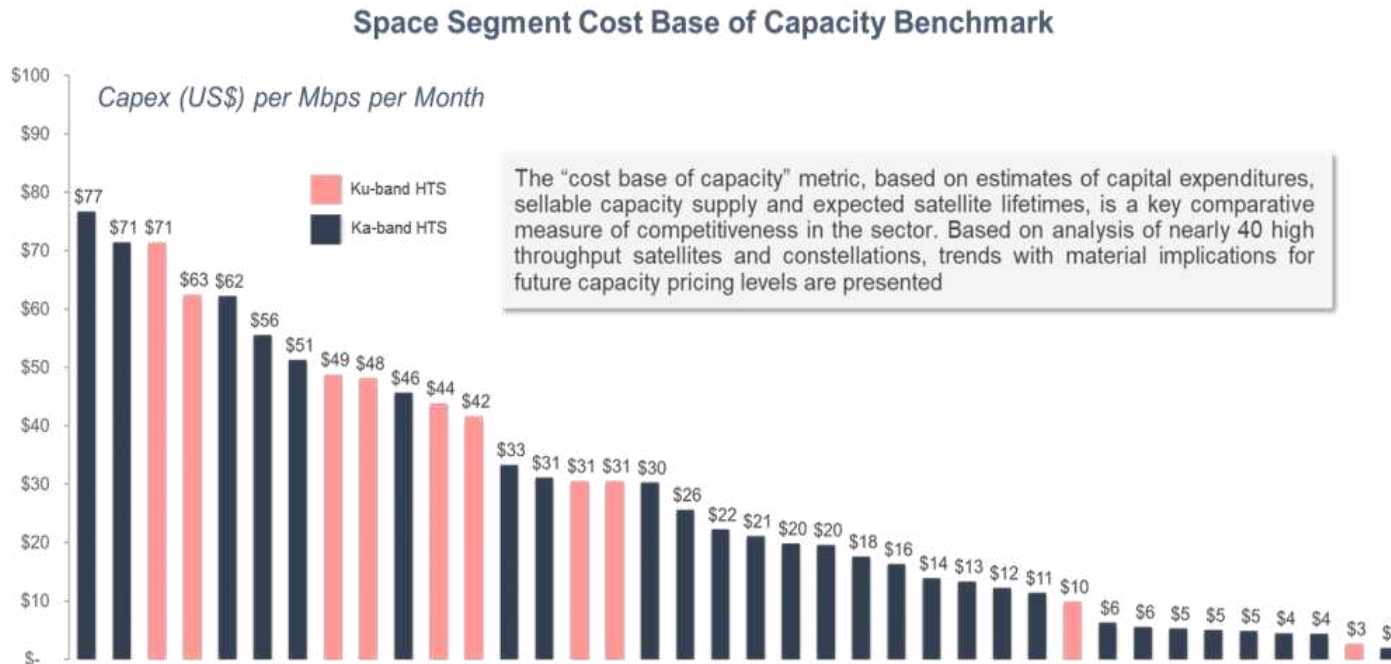
SpaceX / Starlink satellite internet price

Plan	Price	Downlink Speed	Data Cap
	\$99/mo.	50–150 Mbps	Unlimited

Other Non GSO Systems like mO3b, OneWeb, etc are likely to offer similar highly competitive satellite based internet service services and prices.

Satellite capacity pricing declines slow, but price pressure expected to increase with new supply entering service in 2023

Seeing the on-going pricing disruption of successive generations of HTS, With the scheduled 2021 launch of Viasat-3, it is estimated that the base cost will be just \$5 per Mbps per month, when accounting for satellite, launch and ground segment CAPEX. In comparison, Viasat-2, which launched in 2017, has a cost base roughly three times higher than Viasat-3.



Source: Euroconsult 2020 research “FSS Capacity Pricing Trends” <https://www.geospatialworld.net/news/satellite-capacity-pricing-declines-slow-but-price-pressure-expected-to-increase-with-new-supply-entering-service-in-2023/>

Govt set to notify new Satcom Policy - Key role of LEO satellite operators

- https://economictimes.indiatimes.com//industry/telecom/telecom-news/govt-set-to-notify-new-spacecom-policy-that-will-underline-key-role-of-leo-satellite-operators-dot-official/articleshow/85431714.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst

Key role of low earth orbit (LEO) satellite system operators

- **New Satcom Policy:** Government is set to notify new Satcom policy boosting broadband coverage particularly in rural India
- Very significant role for non-geostationary (NGSO) satellite systems
- Enabling regulations for use of new age Satellite Constellations optimally
- Without duplicating existing telecom network infrastructure
- Satellite Service companies are not keen on pan-India permits
- DOT to explore **geography specific** licensing framework – a **New Licensing Framework** – It is an innovative approach
- Satellite operators intend offering satellite broadband connectivity only in some markets
- DOT wants to apply Geographic specific permits for LEO constellations
- DOT will shortly seek the TRAI's views on issuing geography specific permits for LEO constellations

Govt set to notify new Satcom Policy - Key role of LEO satellite operators (Contd.)

- Bharti backed OneWeb, SpaceX, Amazon and Tata Telesat ready to enter India's Broadband market
- India's broadband Market Access for Space Segment leveraging LEO Satellite constellations.
- Industry experts see India as a key emerging satellite internet market
- Almost \$1 billion annual revenue opportunity for LEO satellite Operators
- Nearly 75 % of Rural India does not have access to broadband without cellular or fibre connectivity
- Accordingly LEO satellite systems are being seen as a viable alternative though it is costly at present
- New policy is also expected to pave the way for 100% FDI through the automatic route in the Satcom space

Key role of LEO Satellite operators

LEO Satellite Constellation Operators Getting Ready to provide Broadband Connectivity

Countdown Begins

SpaceX, Bharti Global's OneWeb and Amazon's Project Kuiper are eyeing India's **satellite broadband space**

SpaceX has been accepting pre-orders for beta version of its service in India for a fully refundable deposit of **\$99**

Co's satellite broadband services are being targeted in **India** in 2022 subject to regulatory approvals



Frequency Assignments for Satellite Networks

Industry bats for administrative allocation of Satcom spectrum

Issue: No Auction for Satellite Spectrum

- **Industry body Broadband India Forum (BIF) has made a pitch for administrative allocation of Satellite Spectrum in tune with global norms**
- **Terrestrial Concept of exclusivity does not apply to Satellite Spectrum**
- **Satellite Operators Coordinate Spectrum internationally and share for Multiple Satellites and Uses**
- **Satellite Spectrum is subject to international obligations as per ITU Radio Regulations**
- **Forum argues for Liberal Licensing Policy and Regulatory Framework for Satellite Services**
- **Free and Open Market Eco System for the use of satellite Technologies**

Frequency Assignments for Satellite Networks

Industry bats for administrative allocation of Satcom spectrum

Issue: No Auction for Satellite Spectrum (Contd.)

- **World over Satellite Spectrum is authorized for 'right-to-use' principle**
- **Satellite Spectrum Allocation only by administrative process just to cover the cost of administration**
- **Satellite bandwidth is from internationally coordinated satellites over Indian Skies**
- **BIF says such Satellite bandwidths must be also put into use through the process of direct negotiations**
- **Proposes utilizing the available foreign satellite capacity and promoting local equipment and components in gateways**

Frequency Assignments for Satellite Networks

Industry bats for administrative allocation of Satcom spectrum

Issue: No Auction for Satellite Spectrum (Contd.)

Need of the Hour:

Free and Open Market Conditions for using Satellite and Mobile Technologies

- **Liberal Regulatory Framework for Satellite Services will trigger flow of foreign investments.**
- **BIF also proposes also lowering the levies in the Telecom Sector**
- **Such measures will drive Satellite Operators providing rural broadband coverage and services**
- **Public Data Offices use satellite powered VSATs and mobile networks for many societal applications**
- **These applications demand high volumes of capacity at affordable prices**
- **This calls for Changes to current regulations**

Frequency Assignments for Satellite Networks

LOI issued to OneWeb

- According to India Broadband India Forum (BIF) Terrestrial concept of exclusivity does not apply and auctioning therefore is not applicable.
- On the other hand Telecom Service Providers like Jio and Vodafone wanted that assignment of Ka/Ku/C band spectrum for Geo/Meo satellite must be done through auction only.
- In the mean time, in August 2021, Department of Telecommunications (DOT) has issued a letter of intent (LOI) to Bharti Group backed OneWeb for satellite services in India.
- OneWeb is eyeing a full global coverage including India market by the middle of 2022 with a constellation of 648 low earth orbit (LEO) satellites.
- On completing the formalities, the licensee will be issued to the Company.
- This trend indicates that there may be no auction for Satellite Spectrum.
- The existing Satcom Policy is also not for conventional way of auctioning.

Another Boost to Satellite Services

Existing VSAT Infrastructure to provide Back-haul Connectivity

<https://economictimes.indiatimes.com/industry/telecom/telecom-news/dcc-allows-vsats-operators-to-provide-satellite-based-backhaul-connectivity-to-telcos/articleshow/84145904.cms?from=mdr>

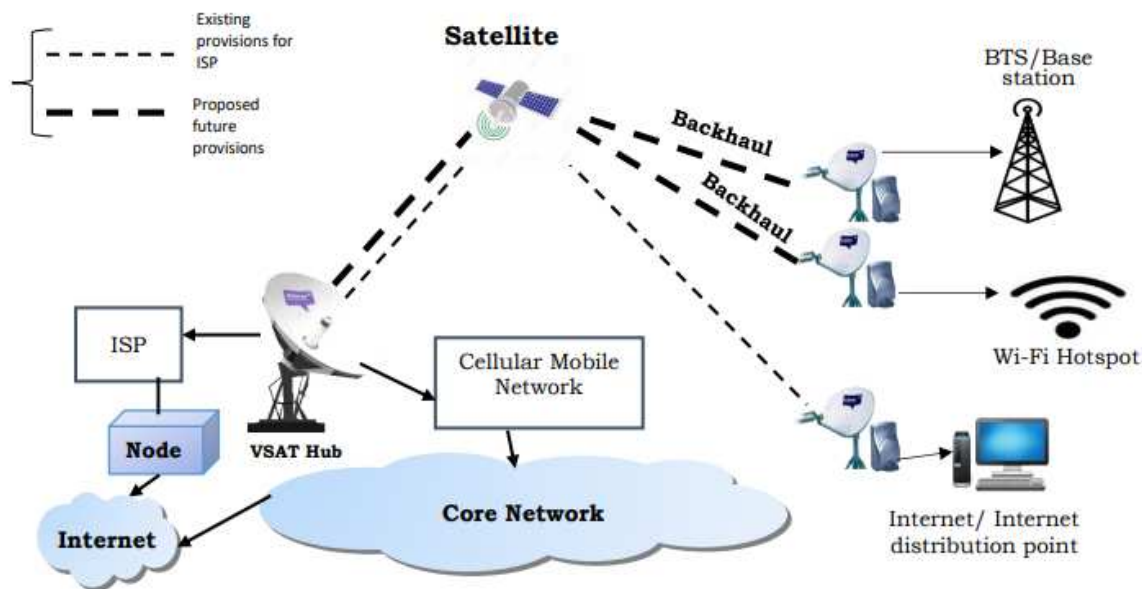
- Digital Communications Commission (DCC) has accepted TRAI recommendation to allow VSAT operators to provide satellite based cellular backbone connectivity to Telcos to ensure uninterrupted mobile broadband coverage in remote and far-flung regions.
- This move to allow carriers to use satellite-based cellular backhaul connectivity would pave way for Jio, Bharti Airtel and Vodafone/Idea to use satellite capacity of the existing VSAT licence holders such as HNS, Nelco and BSNL to provide back haul connectivity for 4G/5G services and Wi-Fi based broadband in rural regions.
- This decision is also significant for Bharti backed OneWeb and Elon Musk's Starlink as they prepare to start high speed internet from space services in India next year
- In this situation Satcom Policy is being reviewed.

Another Boost to Satellite Services (Contd.)

https://www.trai.gov.in/sites/default/files/CP_29012020.pdf

Extract from TRAI Report: Consultation Paper on 'Provision of Cellular backhaul connectivity via Satellite through VSAT under Commercial VSAT CUG Service Authorization'

Fig 1.4: Proposed backhaul provisioning by Commercial VSAT licensee



28 GHz Band Allocation for Space or Terrestrial Services

Issue: 28 GHz Spectrum Allocation

5G vs Satellites

- **Satellite Companies oppose auctioning satellite spectrum 28 GHz band (27.5-29.5 GHz) for 5G mobile services**
- **The frequency band 27.5-29.5 GHz is considered highly efficient band for 5G Mobile Services**
- **Telcos argue that 5G deployment costs would surge in the absence of 28 GHz band**
- **Telcos have been allocated spectrum in the 700 MHz, 3.3-3.6 GHz, and 24.25-28.5 GHz bands for 5G trials in India in various locations**
- **Satellite Companies and Telcos may need to discuss frequency sharing and other possibilities to find solutions**

Global, local players seek ways to lower cost of satellite services

Issue: High Cost of Foreign Satellite Broadband Services

- <https://economictimes.indiatimes.com/industry/telecom/telecom-news/global-local-players-seek-ways-to-lower-cost-of-satellite-broadband-services/articleshow/82257223.cms>
- **Satcom players in India want to buy Foreign Satellite Bandwidth directly**
- **VSAT operators must have choice to directly execute agreements with foreign satellite operators for leasing bandwidth on long term basis i.e. for 10-15 years.**
- **Global satellite players including OneWeb, Hughes, Amazon and Viasat want India to allow direct, long term bandwidth capacity leasing pacts with foreign satellite operators.**
- **It is claimed that the satellite bandwidth cost in India at around 10 times the global average cost.**
- **Satellite operators have also suggested that India emulates the procedure of ‘approved list of foreign satellites from whom Satcom providers in India can lease the capacity.**

In this regard Satcom Policy and Space Act aspects need to be addressed.

SATCOM Policy

- In 1997-2000 time frame, the Department of Space, in partnership with the Department of Telecommunication and the Department of Science and Technology, framed the Satellite Communication Policy in 1997 (**SATCOM Policy**).
- Through the SATCOM Policy, the government aimed to develop a strong satellite communication service industry in India
- Policy to enable private companies in India to own, launch and operate Satellite Systems known as Indian Satellite Systems (ISS).

Recommendations on Satcom Policy in the National Digital Communication Policy, 2018

- There has been lot of discussions to review and revise the 1997 /2000 Year SATCOM Policy to make it at par with the emerging trends
- Consequently, the National Digital Communication Policy, 2018 (NDCP 2018) agreed to a long standing demand of the industry to review the SATCOM Policy developed in 1997 and 2000 time frame.
- NDCP 2018 accordingly suggested several measures by which the satellite communication technology can be strengthened in India.

New Satcom Policy (Draft)

- Draft Space Based Communication Policy of India-2020 (Spacecom Policy- 2020) and draft Norms, Guidelines and Procedures for implementation of Spacecom Policy-2020 (Spacecom NGP-2020) are published for public consultation by DOS.

https://www.isro.gov.in/sites/default/files/draft_spacecom_policy_2020.pdf

- The new Policy fosters promotion of Indian industry as co-traveller with DOS towards meeting the objectives.

New Satcom Policy (Draft)

Under the ambit of Spacecom Policy-2020, the Government of India shall –

- - adopt measures to monitor and authorize use of space assets for communication to or from Indian territory.
- - ensure protection of space assets already put in place and adopt measures to bring in more space assets under the administrative control for enhancing ability to utilize space based communication for national needs.
- - promote increased participation of commercial Indian industry to provide space based communications both within the country and outside.
- - concentrate on realization of space based communication systems for addressing the requirements that cannot be effectively, affordably and reliably satisfied by commercial Indian Industry either because of national security concerns or economic factors.
- - provide a timely and responsive regulatory environment for the commercial Indian industry to establish and operate space based communication systems

What is the Important Addition in the New Draft Satcom Policy?

Creation of IN-SPACe: Satcom Authorization Centre

- As per Draft Space Based Communication Policy of India – 2020 (Spacecom Policy - 2020), Indian National Space Promotion & Authorization Center (IN-SPACe), an independent body, under Department of Space (DOS), shall accord necessary authorizations and permissions for all satcom related activities, to or from Indian territory, as per the applicable acts, regulatory provisions & exemptions and statutory guidelines.

IN-SPACe is to Ensure Independent Actions on Regulations

Web References:

- <https://www.isro.gov.in/sites/default/files/article-files/indias-space-policy-0/satcom-policy.pdf>
- <https://www.isro.gov.in/sites/default/files/article-files/indias-space-policy-0/satcom-ngp.pdf>
- <https://www.ilntoday.com/2020/07/indian-satellite-communication-policy-the-recent-reforms/>
- https://www.isro.gov.in/sites/default/files/draft_spacecom_policy_2020.pdf

Space Act

Background Information on Space Activities Bill

International Treaty Obligations on Outer Space Activities:

- Internationally, the outer space activities are governed by relevant chapters of international law in general and by United Nations' (UN) Treaties and principles evolved under UN Committee on Peaceful Uses of Outer Space (UNCOPUOS) in particular.
- Obligations of a State Party under international treaties on outer space activities are expected to be
- complied/ discharged through national mechanisms, namely domestic space legislations.
- Basic tenets of treaty obligations, namely, 'bearing International responsibility' and 'liability for damages caused by space activities and space objects' are more applicable to a State Party, where space activities are performed by non-governmental/ private sectors.
- Hence, non-governmental space activities are required to be licensed / authorized and continuously supervised by a State in order to comply with treaty obligations.

Drafting Space Activities Bill

<https://www.thehindu.com/sci-tech/science/the-hindu-explains-what-is-the-space-activities-bill-2017/article20680984.ece>

https://www.prsindia.org/sites/default/files/bill_files/Draft%20Space%20Activities%20Bill%202017.pdf

- Applications and services for national needs and beyond have been rapidly growing.
- This scenario also encourages the participation of Indian industry and service providers at much higher levels in all round space activities
- Need for national space legislation for supporting the overall growth of the space activities in India especially Indian Non Government Entities to own, launch and operate space assets in particular satellites.
- Efforts included studies on Model Law on National Space Legislation formulated by the International Law Association (ILA), to the UN Committee on Peaceful Uses of Outer Space (UNCOPUOS) serves as a useful reference.
- A draft Space Activities Bill has been formulated with due preliminary consultations with a few relevant Ministries. It is intended to have a basic framework with very essential provisions for treaty obligations.

Draft Scope of Space Activities Bill

- The provisions of this Act shall apply to every citizen of India and to all sectors engaged in any space activity in India or outside India
- A non-transferable licence shall be provided by the Central Government to any person carrying out commercial space activity
- The Central Government will formulate the appropriate mechanism for licensing, eligibility criteria, and fees for licence.
- The government will maintain a register of all space objects (any object launched or intended to be launched around the earth) and develop more space activity plans for the country
- It will provide professional and technical support for commercial space activity and regulate the procedures for conduct and operation of space activity
- It will ensure safety requirements and supervise the conduct of every space activity of India and investigate any incident or accident in connection with the operation of a space activity.

Some of the Issues affecting Telecom Industry Players

Issues:

**Adjusted Gross Revenue AGR Calculation Methodology,
3G Spectrum Charges**

No Minimum Floor Price for Telecom Tariff

Example: Current Vodafone Financial Crunch as per various media reports

- **The total gross debt is of June 2021 of Vodafone stood at Rs 1,91,590 crore.**
- **It comprised spectrum payment obligation of Rs 1,06,010 and AGR liability of Rs 62,180 crore that are due to the government.**
- **Vodafone Idea may face an annualized cash flow shortfall of at least USD 3.1 billion (over Rs 23000 crore) in absence of any policy relief or tariff hike.**
- **Adjusted Gross Revenue (AGR) instalment of Rs 9000 crore due in March 2022;**
- **(The Supreme Court dismissed the applications filed by Telecom Majors including Vodafone and Airtel seeking rectification of the alleged errors in the calculation AGR related payments)**
- **Spectrum-related payments of Rs 15900 crore**
- **Vodafone Idea needs to quickly raise smartphone users segment (which garners 50-80 % of telco revenues) to drive genuine growth in average revenue per user (ARPU).**
- **Vodafone and Bharti Airtel have been trying to get their AGR dues reduced through legal means. SC denied such requests.**
- **Review and curative petitions may be possible but such petitions rarely succeed.**

AirTel and Vodafone operate 3G Mobile Networks in India

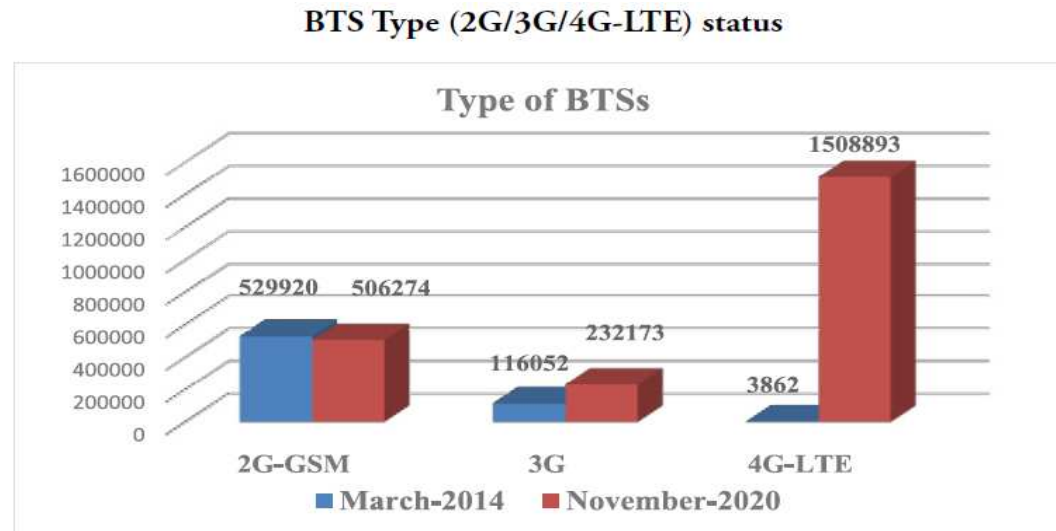
<https://www.nepalitelecom.com/2017/02/frequency-bands-2g-3g-4g-mobile-india.html>

S.N	Mobile Technology in India	Frequency bands in India	Major Operators
1	GSM (2G)	900 MHz, 1800 MHz	Airtel , Idea Vodafone, Aircel , BSNL
2	CDMA	850 MHz	Reliance, BSNL, Tata
3	WCDMA (3G)	2100 MHz, 900 MHz	Airtel , Idea Vodafone
4	WiMAX	2300 MHz	BSNL
5	4G LTE (4G)	1800MHz	Airtel , Idea Vodafone, Jio
		850 MHz	Jio
		2300 MHz	Airtel , Idea Vodafone, Jio
		2500 MHz	BSNL, Idea Vodafone
5G: 700 MHz, 3.3-3.6 GHz, and 24.25-28.5 GHz; 4G spectrum for trials in the 900 MHz, 1800 MHz, and 2300 MHz bands.			

Some of the Issues affecting Telecom Industry Players (Contd.)

ISSUE: 3G Spectrum Costs

<https://dot.gov.in/sites/default/files/Annual%20Report%202020-21%20English%20Version.pdf>



(Source TARANG Sanchar Portal & CoAI)

Comparison 3G and 4G-LTE Technologies

This Figure shows that 4G-LTE system is more successful and versatile as compared to 3G.

TSPs (like AirTel, Vodafone) who operate 3G and also went through the highly competitive auction process for 3G Services way back in 2010 are affected.

Some of the Issues affecting Telecom Industry Players (Contd.)

Vodafone Eroding Subscriber Base Low ARPU

Alarm Bells					
	Q1 FY21	Q2	Q3	Q4	Q1FY22
Subscriber Base (EoP)	279.8	271.8	269.8	267.8	255.4
Blended Churn (%)	2	2.6	2.3	3	3.5
Total Data Subscribers (m)	136	138	138	140	136
Data Usage by Broadband Subscribers (GB/month)	13.12	11.98	12.28	13.06	14.94
Capex (₹ cr)	600	1,040	970	1,540	940
Net Debt (₹ '000 cr)	115.5	114.5	117.1	180	190.7
ARPU (₹)	114	119	121	107	104
Illustration: ZAHID					
Source: Citi Research					

Some of the Issues affecting Telecom Industry Players (Contd.)

Fixing Floor Price for Mobile Phone Prices

Issue: No Minimum Tariff

- **Mobile data rates in India are the lowest worldwide, which at present stands around Rs 8/GB a month**
- **Vodafone requested authorities to set a minimum rate for mobile phone services at least for data services**
- **TRAI is not considering fixing a floor for mobile phone tariffs**
- **Regulatory officials say that the mobile phone tariff must be under the self control rather than regulator fixing the minimum tariff.**

Issue: Customer Concern for Quality of the Service Provided by the TSP

Mobile Number Portability Regulations

MNP allows mobile subscribers to retain their existing telephone numbers when they switch from one telecom operator to another irrespective of mobile technology.

TRAI introduced the Telecommunications Mobile Number Portability Regulations, 2009 .

As per the regulations, the subscribers would be allowed to retain their mobile number while moving from one TSP to another.

This in turn is likely to compel the telecom service providers to maintain/improve the quality of their service to avoid losing subscribers.

This can be seen as mature element of the Indian telecom industry and a natural step for the industry to go forward.

Issue: Customer Concern Regarding Unsolicited Commercial Communications

SMS Regulations

The SMS Regulations have mandated the creation of a National Customer Preference Register, a national database with a list of the telephone numbers of all subscribers who have registered their preferences regarding receipt of commercial communications.

Subscribers have been given the option of indicating their preference by registering either under the fully blocked category or the partially blocked category.

In the fully blocked category, a subscriber opts not to receive any type of commercial communication, while the partially blocked category enables subscribers to receive commercial communications only in the categories they have chosen.

Subscribers under the partially blocked scheme may choose from a selection of categories including: banking, insurance, financial products and credit cards; real estate; education; health; consumer goods and automobiles; communication, broadcasting and entertainment; IT; and tourism.

Issue: Regulations for providing Services Using Telecom Infrastructure

Other Service Provider (OSP) Registration with DOT

Other Service Providers (OSPs) do not require a specific license; however a registration process is required to be fulfilled subject to fulfilling certain criteria. The most important of which is the Other Service Providers registration.

Call centers (international and domestic), BPOs, Network Operation Centers, Vehicle Tracking Systems, services with respect to tele-banking, tele-medicine, tele-education are allowed to operate (with 100% FDI) upon registration as “Other Service Provider” or “OSP” with the DoT.

These OSPs operate the service using the telecom infrastructure provided by licensed telecom service providers.

Issue: Telecom Infrastructure is Capital Intensive

Telecom License Permits Sharing of Telecom Infrastructure

The telecom sector is a very capital intensive sector and requires large investments.

The telecom licenses permit the telecom operators to share passive infrastructure such as building, tower, dark fibre, etc.

Sharing of active infrastructure amongst licensees shall be governed by the license conditions/amendments issued by the DoT.

As a result of this policy, new entrants who are allotted spectrum by the WPC can easily launch their telecom services within a short period by taking the assistance of the existing active infrastructure of other telecom service providers and thereby will not have to incur huge infrastructural costs

Issue: Domination of Foreign Telecom Equipment Vendors

Government Departments Grant Preferential Market Access to Indian Telecom Equipment Manufacturers

Government issued a notification granting preferential market access to domestic telecom manufacturers.

The notification, mandates that domestically manufactured telecom products must be given preference, when the same is being procured by Government departments and agencies .

The main objective is to give impetus to Indian Telecom Equipment Manufacturers.

Issue: Restrictions on Telecom Service Providers (TSP)

Balanced and Transparent License Provisions

The licenses themselves have a number of provisions which can be seen as quite restrictive.

These are mostly security driven restrictions and have not led to any dampening of foreign interest in this sector. Some of these restrictions are discussed as follows:

- i. Telecom licenses are only granted to companies which are registered in India;
- ii. The majority of directors of the board of the company have to be Indian citizens;
- iii. Certain positions which are instrumental to the operations of the company such as Chief Officer in charge of technical network operations, Chief Security Officer and Officials dealing with lawful interception of messages have to be occupied by resident Indian citizens;
- iv. Certain key positions (such as chairman, managing director, chief executive officer and/ or chief financial officer), if held by foreign nationals are required to be security vetted by the Ministry of Home Affairs.

MERGERS AND ACQUISITIONS (M&A) IN THE INDIAN TELECOM SECTOR

DoT Guidelines on M&A

With the liberalization of the Indian economy, the telecom sector has become very attractive for mergers and acquisitions.

Some of the big deals that have taken place in the Indian telecom include the following:

- SingTel increasing its stake in Bharti telecom from 30.8 % to 32.34 % in 2013;
- Reliance Industries Limited acquiring 95% of the equity shares of Infotel Broadband Services to gain access to the BWA spectrum won by Infotel Broadband Services.
- Aditya Birla Telecom acquiring Spice Telecom
- Providence's investment into Aditya Birla Telecom in 2009
- Vodafone taking over Hutchison-Essar in 2007
- Malaysia Telekom's 49% stake in Spice Telecom
- Temasek Holdings' 9.9% stake in Tata

DoT Guidelines on M&A

A. *Prior Approval of the DoT*

B. *Validity of the License*

C. *Lock In on Sale of Shares*

D. *Easing of Rules to Avoid Monopoly in the Market*

E. *Acquirer to Pay Difference Between the Market Price of Spectrum and the Entry Fee Paid by the Target*

Issue: Telecom Service Security Aspects

Security Related Requirements

Details of infrastructure/network diagram could be provided on a need basis only to telecom equipment suppliers/manufacturers and affiliate/parent of licensee company.

Clearance of DoT would be required if such information is to be provided to anybody else.

Licensee company should ensure that the information transacted through their network is secure and protected.

Incorporation of Provisions in the Telecom Network for Monitoring of identified Calls Originated and Terminated in India

Government Preparing Relief Package for Telecom Sector

Issue: Telecom Company in Bankruptcy type Situation

Government already announced Rs 70,000 crore package for BSNL

Telecom Department may firm up a relief package to allow

**surrender of spectrum,
reduce bank guarantees, phase out levies and
proactively define AGR**

to provide relief to the Telecom Sector

Way Forwards identified in National Digital Communications Policy (NDCP)2018

- Promoting Next Generation Technologies
- Enabling Hi-speed internet, Internet of Things and M2M by rollout of 5G technologies:
- Establishing India as a global hub for cloud computing, content hosting and delivery, and data communication systems and services
- Leveraging Artificial Intelligence and Big Data in a synchronized and effective manner to enhance the overall quality of service, spectrum management, network security and reliability
- Strengthening Satellite Communication Technologies in India - Review the **regulatory regime for satellite communication** technologies - **Optimise Satellite communications** technologies in India - Developing **ecosystem for satellite communications** in India
- Widening the scope of Telecom Infrastructure Providers, Attracting Investments and Capacity Building, Ensuring a holistic and harmonised approach for harnessing Emerging Technologies
- Channelizing the Universal Service Obligation Fund (USOF) for various deserving Developmental Activities
- Ensuring Standards and Quality Assurances for Telecom Services
- Facilitating the establishment of a Pan-India network for Public Protection and Disaster Relief (PPDR)
- Research and Development and Local Manufacturing and Value Additions
- Creating Job Opportunities and Training Personnel in the Digital Communications Sector

Thank You