



COAI Response on Consultation Paper on Roadmap to Promote Broadband Connectivity and Enhanced Broadband Speed

Q.1: Should the existing definition of broadband be reviewed? If yes, then what should be the alternate approach to define broadband? Should the definition of broadband be:

- a. Common or separate for fixed and mobile broadband?
- b. Dependent or independent of speed and/or technology?
- c. Based on download as well as upload threshold speed, or threshold download speed alone is sufficient?
- d. Based on actual speed delivered, or on capability of the underlying medium and technology to deliver the defined threshold speed, as is being done presently?

Please suggest the complete text for revised definition of the broadband along with the threshold download and upload speeds, if required for defining broadband. Kindly provide the reasons and justifications for the same.

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Q.2: If you believe that the existing definition of broadband should not be reviewed, then also justify your comments.

COAI Response

The present definition of broadband as notified by DoT is as below:

“Broadband is a data connection that is able to support interactive services including Internet access and has the capability of the minimum download speed of 512 kbps to an individual subscriber from the point of presence (POP) of the service provider intending to provide Broadband service.”

We believe that any changes to the existing broadband definition should be based on the type of services being accessed by the Consumers, Comparable with Global norms, Ensure optimal Utilization of existing Infrastructure and have priority towards availability and affordability.

With the above context, it is evident that with focus towards affordability and availability, the present definition should be continued.

Q.3: Depending on the speed, is there a need to define different categories of broadband? If yes, then kindly suggest the categories along with the reasons and justifications for the same. If no, then also justify your comments.

COAI Response

The first focus should be towards availability and affordability of services and currently there seems no cogent need to define different categories of broadband.

Q.4: Is there a need to introduce the speed measurement program in the country? If yes, please elaborate on the methodology to be implemented for measuring the speed of a customer's broadband connection. Please reply with respect to fixed line and mobile broadband separately.

COAI Response

The parameters for QoS of broadband are already defined by the Authority and we believe that the QoS of broadband should be assessed on the same.

The actual speed available to or experienced by the customer will vary depending upon a number of dynamic factors (Number of subscribers browsing the data services, Low coverage area, Location of the customer, Peak/ off peak time, Kind of device being used, Transmission Bandwidth, External Interference, Spectrum / carrier limitation, QoS based bill plan, External factors like availability of link between the web server and the telecom network, Availability of web server, Website behaviour, etc.) that are beyond the control of the TSP. Further, it is pertinent to state that it is also not possible for TSPs to measure the actual speed availed by the customers at all times.

There are lot of tools and applications, including TRAI MySpeed App, available to the consumer to estimate the broadband speed provided by the operator. There are various applications available over the internet for free which can measure download speed. TRAI has also been publishing download speed for all telecom operators at its website.

Different Apps have innovated to measure different parameters along with the speeds and based on these parameters these Apps are being advertised. It is the customer's choice to opt for whichever App that they want to use depending on the parameters they want to check. Thus, there is no need to mandate any particular methodology.

Consumer experience and speed is also dependant on the type of mobile device and its characteristics viz- spectrum bands supported, receiver characteristics, etc.

Q.5: Whether the Indian Telegraph Right of Way (RoW) Rules 2016 have enabled grant of RoW permissions in time at reasonable prices in a non-discriminatory manner? If not, then please suggest further changes required in the Rules to make them more effective.

COAI Response

No, the Indian Telegraph Right of Way (RoW) Rules 2016 have not enabled grant of RoW permissions in time at reasonable prices in a non-discriminatory manner. Some of the reasons for the same are as follows:

S.No	Issues in RoW Rules, 2016	Details of the issues	Industry's recommendations
1.	RoW Rules, 2016 are not honoured by States/UTs/ Municipalities/ Central Agencies	a) All Municipal Corporations do not follow RoW Rules 2016 b) Difference in Interpretation of RoW Rules, 2016 c) Fees structures of Municipalities/Local Self-governing bodies are different (higher) from the one	i) There should be no other Supervision/Misc. Charges other than administrative charges mentioned in RoW Rules, 2016 ii) Annual charges for using other government infrastructure should be defined uniformly

Annexure-1

		mentioned in RoW Rules, 2016 d) Documentation requirement by municipalities are not aligned with RoW Rules, 2016.	iii) Single online application process for telecom infra to include environment & forest clearances. iv) Define members of State and District level Dispute committees
2.	RoW Rules, 2016 are silent regarding deemed approval/regulation	a) States/UTs are neither adhering to timeline to grant permission nor giving deemed approval	i) Deemed approval clause to be included ii) Regularization procedure and timelines to be defined
3.	Telecom not honoured as essential services	a) Telecom not given stature as essential service b) Telecom not honoured as priority sector	i) EB connection to telecom infra on priority under essential service requirement. ii) Provision for laying of fiber under common duct. iii) Municipal and state authorities to facilitate construction of common ducts for UG electrical cable and OFC during new/widening road construction iv) A 'Dig-once' and 'Call before you Dig' policy should be encouraged as part of State's Policy v) Penalty on destruction of Telecom Infrastructure being essential service
4.	RoW Rules, 2016 not equipped to support upcoming technologies	a) RoW Rules, 2016 are silent on Aerial Fiber laying b) RoW Rules, 2016 do not have provision for use of street furniture for deployment of telecom infrastructure	i) Instructions to SEBs/DISCOMs to give permissions for usage of their poles for the deployment of telecom infrastructure. ii) State Discoms, through a central agreement, to allow Telcos to use their LT Poles for aerial OFC and mounting low power 4G/5G BTS iii) Permissions for laying last-mile aerial OFC/Co-axial Cables in a standardised aesthetic way iv) National Building Code for in-building fibre layout be adopted by new housing societies and link it to issue of completion certificate v) Provision for laying last-mile aerial OFC/Co-axial Cables
5.	No incentives to cover uncovered villages	a) RoW Rules, 2016 are silent on incentives/ support from the states to cover the uncovered villages	i) Bharat Net network may be expedited & USO fund to be utilised for Rural Connectivity

6.	RoW Rules, 2016 are silent on EMF issues	a) States/UTs like Karnataka, Chandigarh, etc. have put clauses on location based restrictions in their RoW Policies	i) No Location-based restrictions ii) Punishment (imprisonment or fine or both) against offences of vandalism on destruction of Telecom Infrastructure iii) Define procedure to handle EMF issues with specify role of TERM officials, Police, etc.
7.	Imposition of Penalty clause for Optical Fibre Cable cut	<p>Fiber cut penalty clause mentioned in point no. 27.4 in the Railtel contracts: Penalty for damaging the Railway Cable: For each case of damaging the Railway cable a lump sum amount of Rs.1.50 lakh (Rupees one lakh and fifty thousand) shall be imposed in the case of any cable cut/damage to railway cable. The penalty shall be multiple if it happens in multiples i.e. if the cable is cut 2 times by the contractor, then the penalty imposed shall be Rs.3.00 lakh.</p> <p>Also, it is pertinent to mention that BSNL bills a penalty of 1.5 lakhs per fibre cut to the defaulting party. We request a deterrent contract clause of financial penalty may be extended to TSPs where permission is held and fiber is damaged without giving any notice by executing agencies.</p>	The penalty for damaging the Optical Fiber Cable: For each case of damaging the Optical Fiber Cable a lump sum amount of <u>Rs.1.50 lakh per Kilometre (Rupees one lakh and fifty thousand) and prevailing restoration charges</u> shall be imposed on the violators in the case of any cable cut/damage to the cable.

Q.6: Is there any alternate way to address the issues relating to RoW? If yes, kindly elucidate.

COAI Response

- 1) Union Cabinet to pass the necessary legislation by the Parliament to clear the RoW Rules, 2016 to be assented by the President for issuing gazette order. This will make RoW Rules, 2016 binding on all States/UTs/Central Agencies/Self Governing bodies.

Other than the Ministry of Telecommunications, the policy needs participation from the ministries of Urban Development, MoD, Rural Development, Panchayati Raj, Road Transport and Highways, and Environment and Forests. Since several ministries are involved, cabinet approval is necessary.

To include broadband connectivity as one of the parameter for India Happiness Report:
<https://currentaffairs.adda247.com/india-happiness-report-2020-announced/>

Q.7: Whether all the appropriate authorities, as defined under the Rules, have reviewed their own procedures and align them with the Rules? If no, then kindly provide the details of such appropriate authorities.

COAI Response

Telecom Infrastructure Policy Alignment with RoW Rules, 2016					
Policies notified & Aligned			Draft Policies Released, notification pending	Existing Policies Under Discussion	No Uniform Policy
S.No	State	Notified / Cabinet Approval Date	State	State	State
1.	Jharkhand	4th Dec 2015	Andhra Pradesh	Gujarat	Andaman & Nicobar
2.	Rajasthan	6th Feb 2017	Chhattisgarh	Chandigarh	Daman Diu and DNH
3.	*Tripura	8th Sept 2017	Delhi		Lakshadweep
4.	Odisha	14th Sept 2017	Himachal Pradesh		
5.	**Haryana	6th Oct 2017	Jammu & Kashmir		
6.	Assam	16th Feb 2018	Kerala		
7.	Maharashtra	18th Aug 2018	Ladakh		
8.	*Tamil Nadu	21st Feb 2018	Puducherry		
9.	Arunachal Pradesh	15th June 2018	Punjab		
10.	Uttar Pradesh	15th June 2018	Sikkim		
11.	Uttarakhand	26th Nov 2018	Telangana		
12.	Meghalaya	20th Dec 2018	West Bengal		
13.	Madhya Pradesh	8th Mar 2019			
14.	**Karnataka	29th May 2019			
15.	Nagaland	2nd December 2019			
16.	Manipur	9th June 2020			
17.	***Bihar	19th August 2020			
18.	**Goa	20th August 2020			
19.	Mizoram	1 st October 2020			
*G.O Only (Detailed Policy is under discussion)					
** Policy notified with some clause not aligned with RoW Rules, 2016					

<p>***TSPs to be included in DTC</p>

19 States/UTs have notified their Telecom Infrastructure Policy in accordance with the with RoW Rules, 2016; the purpose of alignment of the policy gets defeated when it's not honoured by local municipalities / Self-governing bodies like Nagar Palikas, Nagar panchayats, Zilla panchayats, Gram panchayats, Municipal Corporations, - Brihan Mumbai Municipal Corporation, Municipal Corporation of Gurgaon, UDH & Local Self Government (LSG) Department of Government of Rajasthan etc. which raise questions on the effectiveness of the RoW Rules, 2016. As a result, industry is facing a lot of issues for the rollout of telecom infrastructure across these states which is affecting the Quality of Service (QoS) in these areas.

Further, we would like to bring to your notice that we are facing many challenges in implementation of RoW Rules, 2016 with the central authorities like Indian Railways, Airport Authority of India, Ministry of Urban Development, MoD, Metro Rail, etc. stating that these rules are not consonant into their Departmental Rules, thereby it is not obligatory on them to follow. There is a need to align various RoW rules under various Acts to be a single RoW applicable across all land and building owning authorises in India.

Q.8: Whether the RoW disputes under the Rules are getting resolved objectively and in a time-bound manner? If not, then kindly suggest further changes required in the Rules to make them more effective.

COAI Response

No, RoW disputes under the Rules are not getting resolved objectively and in a time-bound manner. There is a need to define members of State Broadband Committees and District Broadband Committees including decision making representatives from Forest Dept., UDD Dept., IT Dept., Railways Dept., BSNL and BBNL.

Q.9: What could be the most appropriate collaborative institutional mechanism between Centre, States, and Local Bodies for common Rights of Way, standardisation of costs and timelines, and removal of barriers to approvals? Justify your comments with reasoning.

COAI Response

The National Broadband Mission has envisaged this where in it has recommended the constitution of National and State Broadband Committee which have officials from the Department of Telecommunication, DoT -LSA officials and IT Department of States together. This should provide for a collaborative institutional mechanism between Centre, States, and Local Bodies for forging the common Rights of Way policy in their jurisdictions and also monitor the progress of approvals and execution of installation of telecom infrastructure on ground. , This will facilitate the standardisation of costs and timelines, and removal of barriers to approvals. However, we emphasize that the functioning of these committees and the monitoring progress in meeting of the yearly targets to be achieved (as specified in the NBM) should be based upon data collated from the various stakeholders viz.- state/UT Governments, DoT, TSPs, IPs, TRAI (for broadband speeds – MySpeed app).

Q.10: Should this be a standing coordination-committee at Licensed Service Area (LSA) level to address the common issues relating to RoW permissions? If yes, then

what should be the composition and terms of reference of this committee? Justify your comments with reasons.

COAI Response

Action to constitute these committees has already been undertaken by the NBM. The list of State Broadband Committees formed so far is attached at Appendix A.

RoW Rules, 2016 have a Dispute resolution provision where-in the central government has to appoint officers to resolve disputes between telecom companies and the appropriate authority within 60 days of the implementation of the RoW rules. The officer designated by the central government have to resolve disputes within a period not exceeding 60 days in a manner specified by the central government from time to time formation of State level and District level committees headed by Nodal officer for a speedy resolution of RoW issues.

However, some States/UTs have still not appointed Nodal officer leading to no resolution of RoW policy implementation issues. Also, there is a need to define members of State (STC) and District level (DTC) Dispute committees. Apart from TSPs/IP1s, these committees should have representatives from the Information Technology Department, Urban Development Department, PWD, Forest & Environment Department, Sr DDG of LSA of DoT, BSNL & BBNL for faster resolution of the issues.

Q.11: Is there a need to develop common ducts along the roads and streets for laying OFC? If yes, then justify your comments.

COAI Response

Under NDCP 2018 (1.1 (b)), Government aims to create a Robust Digital Communication Structure by Implementing a 'Fibre First Initiative' to take fibre to the home, to enterprises and to key development institutions in Tier I, II and III towns and to rural clusters. While development of common duct is very helpful, the State / UT's should also support the following clauses of NDCP:

- a) Promoting collaboration models involving state, local bodies and private sector as necessary for provision of shared duct infrastructure in municipalities, rural areas and national highways
- b) Facilitating Fibre-to-the-tower programme to enable fiberisation of at least 60% base stations thereby accelerating migration to 4G/5G.
- c) Leveraging existing assets of the broadcasting and power sector to improve connectivity, affordability and sustainability.
- d) Incentivising and promoting fibre connectivity for all new developmental construction
- e) By making requirement for telecom installations and the associated cabling and in-building solutions mandatory in all commercial, residential and office spaces by amending National Building Code of India (NBC), through Bureau of Indian Standards (BIS)
- f) Fibre to home mandatory to get a construction completion certificate for construction of building from local self-governing authority. The government has emphasised the importance of fibre for fixed broadband (to serve homes and enterprises) and next generation mobile technology (4G/5G) transitions.

Q.12: How the development of common ducts infrastructure by private sector entities for laying OFC can be encouraged? Justify your comments with reasoning.

COAI Response

- Devise special subsidy schemes for wireless broadband, fiber based back haul, use of alternate energy sources, broadband applications & services, technology development, etc.
- Grant substantial incentives to operators who roll out network faster than specified timelines
- Devise attractive schemes for rural broadband.
- Devise scheme for providing subsidy for laying OFC network to all Village Panchayats to be shared by various operators for backhaul purposes.
- Subsidize microwave/wireless/VSAT based backhaul wherever feasible, for effective and quick roll out of services.
- Development of area specific local content to address the local and immediate needs of the people
- Devise schemes for rural broadband connections in government run schools, primary health centers etc.
- DoT to frame a National Telecom Infrastructure Policy to speed up deployment of infrastructure in rural areas by laying down guidelines for RoW, land acquisition, availability of power supply etc. desirable to make this policy into “National Telecom Infrastructure Act” or appropriate changes in Indian Telegraph Act which will be binding on state governments.
- USO should devise scheme to provide subsidy to service providers who deploy alternate energy sources in rural network.

It is relevant to note that rolling out broadband infrastructure itself is an expensive proposition and a subsidy or support from the USO fund would go a long way in helping achieve the desired penetration levels. Given below are a few other important issues that need to be dealt with for provisioning of broadband to the rural areas, which need to be considered by the Authority and the Government:

Q.13: Is there a need to specify particular model for development of common ducts infrastructure or it should be left to the landowning agencies? Should exclusive rights for the construction of common ducts be considered? Justify your comments with reasoning.

COAI Response

1. There are two scenarios that emerge both for inter-city as well as intra-city infrastructure:
 - i. **Greenfield Development:** laying of underground infrastructure in case of new development including expansion of existing roads
 - ii. **Brownfield Development:** laying of underground infrastructure on existing roads
2. For implementation of common infrastructure, both for Greenfield and Brownfield development, the following operational models are possible:
 - i. The land owning agency, invests in the creation and maintenance of common infrastructure on the basis of common standards laid down by a central agency. This infrastructure is then leased on commercial terms to the utilities and other interested parties.

- ii. The land owning agency grants one time, long term RoW to the utilities companies in line with the Common RoW Framework. The land owning agency shall make public its intent to grant RoW for creation of common infrastructure so that all the required utilities can participate in creation of this infrastructure. The ownership of infrastructure would lie with the respective utilities. In order to resolve the issue of investment in civil works such as pits and trenches, the land owning agency may choose to co-invest in the same and recover it from the RoW charges. For example, the land owning agency, instead of just providing land, may invest in creation of common trenches and pits, and offer the same to utilities to enable them to put their ducts through the same.
- iii. The land owning agency may bring in a private sector partner in PPP mode, selected through open tender. The land owning agency may provide the RoW for laying of common infrastructure ducts while the PPP partner invests in creation of infrastructure. RoW charges may be waived off in lieu of ownership of part of the common infrastructure developed by the implementing agency. The land owning agency may utilize / monetize their part of the common infrastructure while the implementing agency may have the rights to monetize their part basis the market needs. The implementing agency shall have the long term rights (min 10 years) to monetize the common infrastructure. Two examples of such models have been implemented in two cities – namely in Gurugram and Kolkata.
 - a) Gurugram Metropolitan Development Authority Gurugram (GMDA) recently released a tender for interested infrastructure providers to bid for laying of optical fibre cables through identified routes in the city. The GMDA is to provide RoW at no charge to the selected bidder and get few cores of fibre for their use. Rest of the fibre cores can be retained by the selected bidder, on long term lease basis, for offering commercial services to other service providers.
 - b) The Rajarhat New Town, Kolkata, a greenfield city, formed a Joint Venture company called New Town Telecom Infrastructure Development Company Ltd (NTTIDCO) between West Bengal Housing and Infrastructure Development Corporation (HIDCO), a Government company and WEBFIL, a private sector telecom infrastructure company. NTTIDCO invested creating common ducts in a planned utility corridors across the city. This infrastructure is being offered to service providers on a long term lease for them to lay their optical fibre cables through these ducts.

Lease rentals and other commercial terms for use of common infrastructure ducts by private entities and utilities may be decided as per the guidelines issues by CDA. **This is to ensure that the implementation agency does not misuse its monopoly over the infrastructure.**

Q.14: How to ensure that while compensating the land-owning agencies optimally for RoW permissions, the duct implementing agency does not take advantage of the exclusivity? Justify your comments with reasoning.

COAI Response

BBNL should be converted to a Common Ducts Agency (CDA) in PPP mode with 51% as private equity for efficiency, as most of the Bharatnet phase-II fibre laying happening in PPP mode for following responsibilities -

- a) Enforcing the common Rights of Way framework, including timelines for grant of RoW and charges, for laying and O&M of infrastructure by various utilities. The CDA may ensure that rules in this regard may be uniformly enforced by all States and Local Bodies.
- b) Identify/lay down technical and operational standards for laying and O&M of the common infrastructure.
- c) Investing in creation of common infrastructure and leasing out later so as to align the investment cycles of various utilities.
- d) Participating in certain cases, on behalf of Central Government, in entities/SPVs to be created at local level for creating and managing the common ducts infrastructure.

During the initial inception phase, the CDA may be constituted as a division within the Ministry of Roads, Transport and Highways (MoRTH). The operational expenses of CDA may be met out of the Ministry grant.

Q.15: What could be the cross-sector infrastructure development and sharing possibilities in India? Justify your comments with examples.

COAI response

Different types of infrastructure can be used in the network sectors are useful for sharing with commercial telecommunications network operators. Some these cross-sector infrastructures are:

- a) The land corridors established for roads, railways, electricity transmission lines and pipelines.
 - b) Ducts, conduits, poles and towers used for electricity lines
 - c) The inside of pipes used for water, sewer, steam or gas transport & water
 - d) Radio towers used for the private radio networks of utilities
 - e) excess dark fiber in the internal networks installed by utilities
 - f) Water, sewer and gas utilities pipes along or under the road
 - g) Installed access shafts and manholes in or along the road.
 - h) Buried ducts for power lines under or along the road and/or installed poles or towers for overhead electricity lines within the road reserve.
- a) Metros/ Railways Signaling
 - b) State Fiber Grid

Q.16: Whether voluntary joint trenching or coordinated trenching is feasible in India? If yes, is any policy or regulatory support required for reaping the benefits of voluntary joint trenching and coordinated trenching? Please provide the complete details.

COAI response

Voluntary joint coordinated trenching is certainly possible, however, very difficult to coordinate in India. There are various agencies with varying levels of digging requirements, thus coordinating between all agencies for such digging will be a huge challenge. Instead, it is better to promote common duct policy for greenfield developments.

Q.17: Is it advisable to lay ducts for OFC networks from coordination, commercial agreement, and maintenance point of view along with any other utility networks being constructed?

COAI Response

Internationally, co-deployment of new infrastructure is considered as one of the most effective ways of optimizing infrastructure development costs along with measures such as sharing of existing infrastructure. European Commission estimates that a saving of up to 75% can be realized if new infrastructure can be developed in a planned manner so that re-digging of the roads is avoided. A number of American states have now adopted the “Dig-Once” policy to benefit from this approach.

It is estimated that delay in completion of various infrastructure projects in telecom, power and other utilities varies from one to six years. Various departments have attempted to address this issues by issuing various Rights of Way (RoW) policies, leading to multiple such policies across ministries. Delays in on going central sector infrastructure projects account for approximately Rs. 1.5 Lac Crores in cost overruns.

Q.18: What kind of policy or regulatory support is required to facilitate cross-sector infrastructure sharing? If yes, kindly provide the necessary details.

COAI Response

a) Infrastructure sharing is a must for the roll-out of networks including the future 5G networks

- i. Telecom, being a capital-intensive business, needs huge investments for growth and expansion. The cost of deploying telecom networks is expected to rise even further, with operators’ focus shifting to roll out of 5G Infrastructure in the near future.
- ii. 5G will provide ultra-fast, low latency and highly-reliable connectivity, enabling a range of new use cases. These include mission-critical IoT and massive IoT solutions like smart cities as well as enhancing consumers’ broadband experience. In the 5G network, densification will result in 10 times more new sites compared with 3G and 4G and each will require fiber connection and additional spectrum. This will lead to significant CAPEX outlay as well as additional operational complexities, including location agreements and negotiations with municipalities to ensure the Right of Way (RoW).

b) Current Regulatory Framework on Infrastructure Sharing

- i. The Indian telecom sector was among the first to adopt passive infrastructure sharing in a big way. TSPs shared the passive infrastructure with their peers that led to significant savings.
- ii. Meanwhile, active infrastructure sharing including antennas, feeder cables, Node B, RAN and transmission systems, was allowed to the TSPs by DoT in February 2016. However, adoption of active Infrastructure sharing has been slow.
- iii. One of the major reasons for the slow adoption is that the payment made by one TSP to another TSP for the sharing of the active Infrastructure has not been allowed as a pass through by the Government.

c) Step that can be taken to facilitate active Infrastructure sharing

Pass through should be allowed for any consideration paid by one TSP to another for active infrastructure sharing

- i. As highlighted above, currently, all the TSPs are allowed to share the active infrastructure, however, the payment made by one TSP to another TSP is not allowed as a pass through, to calculate the Adjusted Gross Revenue (AGR), in order to determine the amount of License Fee (L.F) and Spectrum Usage Charges (SUC).
- ii. Thus, in order to facilitate the sharing of the active infrastructure elements, Government should immediately allow the pass-through for any consideration paid by one TSP to another for active infrastructure sharing.
- iii. Further, irrespective of the issue of the active Infrastructure sharing, the regime of pass through charges for admissibility of deductions from Gross Revenue for the levy of LF & SUC be reviewed and all kind of payments (either fixed or variable) made for any telecom input resource by one TSP (Licensee) to another TSP (Licensee) should be allowed as a deduction to the former.

We believe that if pass-through is allowed for these payments made for the sharing of active infrastructure between the TSPs, the same will facilitate the active infrastructure sharing and no additional change in the licensing regime is required.

Allow sharing of the Core Infrastructure of the TSPs:

The policy on infrastructure sharing should be further liberalized to allow sharing of core infrastructure such as MSC, HLR, IN etc. among Licensee having the UL (Access Authorization).

Q.19: In what other ways the existing assets of the broadcasting and power sector could be leveraged to improve connectivity, affordability, and sustainability.

COAI Response

There are no explicit restrictions on sharing the passive assets of broadcasting and power sectors to improve connectivity, affordability and sustainability, however, what is lacking is a well-defined policy guideline for such sharing and indicative costs that suit both the sides, so that there is no seeker-provider set-up and equitable costing can be worked out. A simple policy framework can go a long way in promoting such sharing.

Q.20: For efficient market operations, is there a need of e-marketplace supported by GIS platform for sharing, leasing, and trading of Duct space, Dark Fibre, and Mobile Towers? If yes, then who should establish, operate, and maintain the same? Also, provide the details of suitable business model for establishment, operations, and maintenance of the same. If no, then provide the alternate solution for making passive infrastructure market efficient.

COAI Response

The e-marketplace generally evolves from free market scenarios, based on demand and supply and to explore uncharted territories. However, the same is not applicable for sharing of passive telecom resources. The market is well developed and owing to a handful of users

and providers, the need for e-marketing has not arisen. Therefore, a regulatory intervention is not warranted, and all such energies should be directed at making the ROW rules effective.

Q.21: Even though mobile broadband services are easily available and accessible, what could be the probable reasons that approximately 40% of total mobile subscribers do not access data services? Kindly suggest the policy and regulatory measures, which could facilitate increase in mobile broadband penetration.

COAI Response

- a) Perceived utility lies in the amount of economic value that users are able to derive from the availability and use of broadband. It is also dependent on awareness levels and how broadband usage can enhance productivity, quality of life and benefit society.
- b) Perceived utility for broadband can be increased by providing the suitable applications to the target customers so that they are able to utilize their benefits. In urban areas, the key driver is communications, social networking, entertainment and peer to peer information sharing. In more remote and rural areas, it is the ability to use it as a productivity enhancer like e-governance, e-health, e-education, web access, online commerce, banking and transactions, etc.
- c) Moreover, **the availability of various applications on the move will attract more users by increasing the value of broadband.** Various stakeholders like service providers/ vendors have started investing heavily for the creation of application stores which allows users to browse and download applications with no or minimum costs, thereby increasing the accessibility and adoptability of broadband.

Q.22: Even though fixed broadband services are more reliable and capable of delivering higher speeds, why its subscription rate is so poor in India?

COAI Response

The demand of broadband in the country has been low because of penetration of broadband through fixed lines, which is dismally low. To achieve the above objectives, it is essential to **establish a holistic Broadband approach** that includes resolution of issues pertaining to RoW, maintenance of existing structure, promotion of dig one policy, to ensure availability of the network (pipe) that support high-speed data communication and the applications (content) provided by these services.

Q.23: What could be the factors attributable to the slower growth of FTTH subscribers in India? What policy measures should be taken to improve availability and affordability of fixed broadband services? Justify your comments.

COAI Response

As per an E&Y study, India's construction cost to reach a FTTH household is among the highest in the world at \$1,580, i.e., `1,10,000, against \$200 in China, \$307 in Thailand, \$334 in Indonesia, and \$432 in Malaysia. The reasons for high FTTH rollout cost in India include exorbitant cost of RoW, high lead time for approval, uncooperative building societies, unorganised/expensive fibre construction services, high fibre maintenance cost, etc. (source:

<https://www.financialexpress.com/opinion/fibre-to-the-home-shared-fibre-infrastructure-is-key/1736692/>)

It will not be possible for one or two players to allocate scarce financial capital to address this FTTH country wide demand while meeting capex requirements for India's future 5G technology rollout.

Q.24: What is holding back Local Cable Operators (LCOs) from providing broadband services? Please suggest the policy and regulatory measures that could facilitate use of existing HFC networks for delivery of fixed broadband services.

and

Q.25: When many developing countries are using FWA technology for provisioning of fixed broadband, why this technology has not become popular in India? Please suggest the policy and regulatory measures that could facilitate the use of FWA technology for delivery of fixed broadband services in India.

COAI Response

- a) We support the development of a robust pan-India National Broadband network in the long-term, however would like it to be technology neutral. We believe that it is important for the Authority to leverage and harness all available technologies to achieve the national broadband objectives in the most expeditious and effective manner. Hence, the focus should not only be on a particular media, but all available technologies should be leveraged for building up such a national broadband backbone.
- b) We also believe that for this purpose, public assets such as the National Internet Backbone (NIB) and the others in the public sector (BSNL, MTNL, PGCIL, RAILTEL & GAIL, etc.) should also be utilized. It should be made sure that sharing of these assets is done on a non-discriminatory manner and a cost-based approach is followed.
- c) The already existing wireless infrastructure should also be leveraged.

Q.26: What could be the probable reasons for slower fixed broadband speeds, which largely depend upon the core networks only? Is it due to the core network design and capacity? Please provide the complete details.

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Q.27: Is there a need of any policy or regulatory intervention by way of mandating certain checks relating to contention ratio, latency, and bandwidth utilisation in the core network? If yes, please suggest the details. If no, then specify the reasons and other ways to increase the performance of the core networks.

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Q.28: Should it be mandated for TSPs and ISPs to declare, actual contention ratio, latency, and bandwidth utilisation achieved in their core networks during the previous month, while to their customers while communicating with them or offering tariff plans? If no, state the reasons.

COAI Response

Core network is not a limitation with the TSPs in providing Broadband speeds. It is highly dependent on the backhaul, quality of fiber from access to core network, insufficiency of bandwidth provisioned by content platforms, absence of content servers for some application providers etc.. Since, fibre is not available in all parts of the country, the main means of providing Broadband is through wireless medium, in which no speed can be guaranteed.

Also, from the customer perspective, there is no use of declaring contention ratio, latency, bandwidth requirement, etc. as these would only make the offering complicated. Any plan offered to the customer should be simple and easy to understand.

Q.29: What could be the probable reasons for slower mobile broadband speeds in India, especially when the underlying technology and equipment being used for mobile networks are similar across the world? Is it due to the RAN design and capacity? Please provide the complete details.

COAI Response

- a) The capacity of a wireless network (and therefore the network's ability to support wireless broadband services and applications) in any given location depends on spectral efficiency, as well as the amount of spectrum the operator has. Mobile network operators have implemented or considering various mechanisms to maximize capacity by managing bandwidth consumption in the absence of access to more licensed spectrum. While engineering greater spectral efficiency and building more cell sites have increased some capacity, alone they are unlikely to address the expected magnitude of the demand. Long term, more spectrum is needed to enable mobile operators to keep pace with consumer demand for more and faster mobile broadband. Further, the requirement of increased backhaul capacity needs to be addressed in terms of greater fiberization, enhancing the quality of fiber assets, availability of more microwave carriers and E & V band spectrum.
- b) Thus, it should be ensured that internationally harmonized spectrum bands through large contiguous blocks are made available in a time bound manner to allow operators to deploy such services.
 - a. Internationally harmonized spectrum: Countries are identifying spectrum in sub-GHz, Mid band (3.5GHz) & mmWave band for 5G deployment. India does not have even sufficient spectrum in 3.5GHz for 5G deployments.
 - b. We can make ourselves ready for 5G when we have identified at least the following spectrum per operator for 5G-
 - i. 3.5GHz : at least 80MHz per operator
 - ii. Mm Wave (26, 28, 37 GHz): at least 400MHz per operator
 - iii. Sub-GHz (600MHz / 700MHz): at least 2x10MHz per operator
 - iv. E-Band: at least 1GHz per operator
 - c. Harmonization of spectrum already allocated to TSP in B40 & B41 bands to make them contiguous so they can be used for 5G at higher Channel BW.
 - d. Lower reserve price will support TSPs to focus on achieving objective of 'Digital India', while allowing TSPs to make investments in expansion of service.
- c) In similar vein, the focus should be on making available more and more spectrum so that spectrum availability is commensurate with the wireless data demand. This will ease the congestion issues much better than any other proposed regulatory intervention in form of checks on RAN user plane.

Q.30: Is there a need of any policy or regulatory intervention by way of mandating certain checks relating to RAN user plane congestion? What should be such checks? If yes, then suggest the details, including the parameters and their values. If no, then specify the reasons and other ways to increase performance of RANs.

COAI Response

As stated in response to Q29, the infrastructure issues including affordable and harmonized access spectrum, backhaul spectrum and fiberization needs to be handled on an urgent basis rather than the radio network's design, which would only work once infrastructure issues are taken care of.

Therefore, we do not recommend the need for any policy or regulatory intervention by way of mandating certain checks relating to RAN user plane congestion.

Q.31: Should it be mandated to TSPs to declare actual congestion, average across the LSA, recorded during the previous month over the air interface (e.g., LTE Uu), in the radio nodes (e.g., eNB) and/or over the backhaul interfaces between RAN and CN (e.g., S1-u), while reaching out to or enrolling a new customer? If so, then suggest some parameters which can objectively determine such congestions. If no, then specify the reasons and other ways to increase performance of the RAN.

COAI Response

As mentioned in the prior responses, congestion over air interface or backhaul is beyond network design. This is due to a shortage of assets such as spectrum in the access and backhaul network, fiber reach, quality of fiber, etc., which need to be taken care of to improve the user experience in the mobile broadband network.

Customers are looking for an end-to-end experience and communicating congestion parameters of radio networks to customers would be very narrow and misleading information to the customers. Even if the radio network congestion is low, users will not get good experience if all other parameters are not as per their service requirements.

The new customers are already provided sufficient information for making an informed decision and piling on more such information that too highly technical information will not help the consumer in anyway. As mentioned earlier, more such additions will only make the offering complicated.

Hence, we do not foresee any need for mandating the TSPs to declare actual congestion, while reaching out to or enrolling a new customer.

Q.32: Is there a need of any policy or regulatory intervention by way of mandating certain checks relating to consumer devices? If yes, then please suggest such checks. If no, then please state the reasons.

COAI Response

- a) India being price sensitive market would need affordable handsets for promotion of 5G.
- b) Hence, we need to have device ecosystem (Both on smartphones as well as FWA-Fixed Wireless Access),
- c) Ideally, users should have option of sub-10K (INR) smartphones and sub-5K FWA CPE-Customer Premise Equipment.

- d) The devices have a significant role in user experience. Some such instances include degraded experience of the second SIM on dual SIM handsets, un-availability of location based services, non-support of prevalent frequency bands, VoLTE and VoWifi and enhanced Codecs etc.
- e) It is, therefore, important to mandate device certification in the country. The country may adopt GCF certification of devices alongwith adherence to minimal certification defined for Indian network scenario and services.

Q.33: To improve the consumer experience, should minimum standards for consumer devices available in the open market be specified? Will any such policy or regulatory intervention have potential of affecting affordability or accessibility or both for consumers? Please justify your comments.

COAI Response

- a) As deliberated in response to Q32, **there should be a minimum set of standards that should be defined for any open market smartphone / device to be launched in India**
- b) Further, it is important to have globally harmonized standards to:
 - i. Allow interoperability
 - ii. Allows economies of scale
 - iii. India should adopt globally harmonized 3GPP standards.
- c) If India adopts any standard other than 3GPP, it would disconnect India from globally harmonized standard, device & network ecosystem and would severely impact 5G rollouts, its adoption in India and increase cost.