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

Introduction:

At the outset it is submitted that VIL fully agrees with Authority's view that, "*Post pandemic era will see a change in the ways we live, work, and interact. We would require living in a world which facilitates socializing and economic activities with minimized human contact"*

The Authority has also rightly recognised that, "*In the post pandemic era, like potable water and electricity, access to broadband would become a necessity. It would be difficult to imagine life without broadband connectivity. The use of telecom and internet connectivity will feature extensively in daily life, and in a sense, broadband would become a fundamental human right*".

We have already witnessed how the present COVID-19 crisis has resulted in a huge reliance on the use of broadband connectivity by Government, private enterprises as well as the common public for day to day interactions vis-à-vis the times prior to COVID-19 crisis.

The Authority has rightly anticipated that "*Demand for high speed and reliable broadband has been growing, and, in the post pandemic scenario, it will grow much faster*"

Not only that the Authority has rightly identified the connection between India's economic growth and broadband while saying that "*As India aims to strengthen its position in the digital economy, it becomes imperative for the country to use broadband as a lever for growth*", it has also rightly identified the threat that the Indian economy faces from competing economies when it asks stakeholders to consider "*the various kinds of policy initiatives competing economies are taking, and amount of investment and resources they are committing towards high speed and reliable broadband proliferation*."

However, to use Broadband as a lever for growth, as is required for strengthening India's position in the Global Digital Economy, it is critical to first identify Broadband as the focal point for relevant investments. The Authority has rightly mentioned that "*A corresponding increase in the supply of broadband services would require increasing investments in the telecom infrastructure, including fiberisation. The telecommunication infrastructure and connectivity are the bedrock for any developing country in the race of digital transformation of the society*."

However, ushering in changes that will bring about this required transformation in the availability of high speed and reliable broadband is easier said than done. This is because the achievement of the above-listed strategic objective hinges on the ability of the sector to attract investments. However, as things stand today, the sector is undergoing tremendous financial stress and has failed to give any returns to the investors who are now struggling with negative returns and abysmally low ROCEs. It is thus essential that the investors find value in their investments for which there is a need to create an enabling environment.

The TSPs are already struggling to generate additional investments / finances for further expansion and many have already closed their operations over the last 3-5 years. Under such an environment, any expectations for further investments in the sector to are unlikely to get met unless there is a fundamental shift in the way the Government views this sector.

We would thus like to submit that in order to enable the country to maintain its strength in the world as a knowledge based economy and to enable the vision of Industry 4.0 that hinges on the right use of technology and cloud computing-based solutions, all of which in turn centre around excellent broadband last mile connectivity, the Government needs to take immediate steps that can attract investments to the sector (both domestic and foreign), by initiating steps that turnaround the sector and make it profitable.

At the same time, there is a need to review all telecom business related processes, and eliminate bottlenecks, obstacles or hindrances that are making it difficult to do telecom business in India, and thus improve "ease of doing business in India. The NDCP-2018 already has identified reforming the licencing and regulatory regime to catalyse Investments and Innovation, and promote Ease of Doing Business through reviewing of levies and fees including LF, SUC and the definition of AGR and rationalisation of Universal Service levy as one of its key objectives. However, so far, there has been very little progress on this front. It is well acknowledged that "Ease of doing business" is one important factor that contributes towards building a mature investment climate**.**

Thus, it is submitted that achievement of the strategic objective of the NDCP-2018 in terms of provisioning of broadband for all by 2022 and to propel India into the top 50 nations in the ICT Development Index of ITU from 134 in 2017 would only be possible with first addressing the issues ailing the Industry.

In view of the same, we would urge the Authority to first address the above-mentioned issues regarding making available to the industry the investments required for setting up networks for high speed and reliable Broadband and to then review what is required in terms of the additional issues relating to this Consultation Paper such as

(i) defining fixed and mobile broadband,
(ii) innovative approaches for infrastructure creation,
(iii) promoting broadband connectivity, and
(iv) Measures to be taken for enhancing broadband speed.

Against the above background, our submission against each of the queries listed in the Consultation Paper are as follows:

VIL Response to queries

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.

&

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

VIL Response

The current definition of Broadband, as notified by DoT on 18th July 2013, is as follows *"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.*

However, we believe that in the present situation, any definition based on speed has lost its relevance. This is because:

a. The market is already offering speeds that are several times higher based on demands & requirements of customers.
b. The speeds are currently very much a critical part of the definition of :"technology" and hence a separate definition basis the speed is actually not at all required.

This also explains why there is, as such, no universally adopted definition of broadband and different organisations and countries have followed different approaches for defining broadband.

As mentioned in the Consultation Paper, based on international experience, "*it appears that some of the countries still believe that the broadband definition should be independent of speed or technology May be because, in the rapidly changing technological scenario, the threshold speed that is considered to be adequate for defining broadband at one point of time may become insufficient to meet the expectation of consumers after some time. Instead, the core concepts, such as always-on and high-speed connection, could be preferred alternatives for defining broadband as they would not be as constraining or subject to frequent revision. This can be an alternate for defining broadband in India also as by following this approach the broadband definition may not require frequent revisions*."

We agree with the above approach that defines broadband as an "always on" and high speed" connection without going into the aspect of speed.

Alternatively, the Authority can allow the mobile data services to move through their normal evolutionary cycle without any fresh mandates surrounding definition of Broadband and continue with the current definition of Broadband.

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.

VIL Response

We feel that any categorization of broadband based on speed would only be justified when the market has sufficiently evolved and broadband has become ubiquitous. At this stage when broadband is still in its growth phase with only 687 Million broadband subscribers (as On March 2020, as quoted in the CP) and a long way to go towards "Broadband for all", the current definition should be continued with.

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.

VIL Response

It is submitted that there is no need to introduce any speed measurement program in the country.

At the outset, we wish to highlight that the actual speed experienced by the customer varies depending upon a number of dynamic factors and it is practically not possible to commit or make the customer experience a specified minimum download speed or even an average download speed for wireless broadband services because the same is determined by multiple factors beyond the control of operators like dynamic radio environment (proximity to BTS location, indoor/outdoor/high-rise/basement instances, usage in stationary/mobility environment), subscribers device quality and type, number of subscribers browsing the data services simultaneously, peak/off peak time, external interference, availability of web server / website behaviour etc. For example under the coverage of single BTS, multiple users will experience varying peak, average & minimum speed, purely because of the above-mentioned dynamics. Therefore, there exists no case for introduction of a speed measurement program for users.

Further, currently, the Authority already has its mobile app (MySpeed App) that allows users to measure the QoS parameters, such as speed and packet loss, of wireless data networks and report these back to the Authority. Tests results collected from the App are processed, and analyses of results is already published on its dedicated portal (https://myspeed.trai.gov.in/) to provide a comparative picture of the mobile broadband speeds achieved on various Telecom Service Providers (TSPs)' networks. Further, the consumers also have the option to use mobile apps of other agencies like Opensignal, etc., to measure the achieved broadband speed. Thus the customers already have sufficient choices in terms

of tools and applications to measure the speed of broadband, and no mandate on the methodology needs to be given.

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.

VIL Response

It is submitted that 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. It is known that currently the higher cost of infrastructure is mainly due to ROW related issues. If these issues are addressed, it can speed up infrastructure development to a huge extent. The benefits that would accrue to the country in terms of development would then be far higher than the immediate benefits that accrues to local bodies and Municipal Corporations on account of RoW.

The reasons for the inability of RoW Rules 2016 to facilitate grant of RoW permissions in time and at reasonable prices and the changes suggested to address those issues are as follows:

S.No	Issues in RoW Rules, 2016	Details of the issues	VIL recommendations
1.	RoW Rules, 2016 are not honoured by States/UTs/ Municipalities/ Central Agencies	a) Difference in Interpretation of RoW Rules, 2016 by Municipalities b) Fees structures of Municipalities/Local Self-governing bodies are different (higher) from the one mentioned in RoW Rules, 2016 c) Documentation requirement by municipalities are not aligned with RoW Rules, 2016.	i) There is a need to ensure that the RoW rules are strictly implemented through the use of statutory teeth. ii) There should be no other Supervision/e/Misc. Charges other than administrative charges mentioned in RoW Rules, 2016 iii) Annual charges for using other government infrastructure should be defined uniformly iv) Single online application process for telecom infra to include environment & forest clearances. v) Define members of State and District level Dispute committees
2.	RoW Rules, 2016 are silent regarding deemed	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

	approval/regularisation		
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 utilized 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	i) No Location-based restrictions ii) Punishment (imprisonment or fine or both) against offences of

		restrictions in their RoW Policies	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 along with Police action for deliberate actions	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. 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.	The penalty for damaging the Optical Fiber Cable: For each case of damaging the Optical Fiber Cable a lump sum amount of Rs.1.50 lakh per Kilometre (Rupees one lakh and fifty thousand) for all violators and prevailing restoration charges shall be imposed in the case of any cable cut/damage to the cable. Any damages by Government bodies to be restored / compensated for by respective Authorities Complaint Assistance and strict action on deliberate perpetrators by Administration / Police

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

VIL Response

We have already highlighted that the RoW rules are currently not honoured by States/UTs/Municipalities, etc. because of the federal structure and the statutory powers of Municipalities and Municipal Corporations

Under these circumstances the only option appears to be a Central Legislation by the Parliament to clear the RoW Rules, 2016 to be assented by the President for issuing of a gazette order. That will make RoW Rules, 2016 binding on all States/UTs/Central Agencies/Self Governing bodies.

The policy also needs active support of other ministries such as the ministries of Urban Development, MoD, Rural Development, Panchayati Raj, Road Transport and Highways, and Environment and Forests.

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.

VIL Response

Currently 19 States/UTs have notified their Telecom Infrastructure Policy in accordance with the RoW Rules, 2016; However, issues are being continuously faced in terms of getting the rules followed by local municipalities / Self-governing bodies like Nagar Palikas, Nagar panchayats, Zilla panchayats, Gram panchayats, Municipal Corporation which defeats the very purpose of having these Rules. This has adverse effect on the rollout of telecom infrastructure across these states and as a result the Quality of Service (QoS) in relevant areas.

At the same time, there are challenges concerning central authorities such as Indian Railways, Airports Authority of India, Ministry of Urban Development, MoD, Metro Rail, etc. that do not follow these rules citing differences with their Departmental Rules. 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.

The status of implementation across various States Authorities is as given below:

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**	**1st October 2020**			

G.O Only (Detailed Policy is under discussion)
***** Policy notified with some clause not aligned with RoW Rules, 2016***
*****TSPs to be included in DTC***

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.

VIL Response

It is submitted that the RoW disputes under the Rules are not getting resolved objectively and in a time-bound manner. It is recommended that members of State Broadband Committees and District Broadband Committees be defined to include 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.

&

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.

VIL Response

The Authority has rightly pointed out the need for an institutional mechanism, to address the common issues relating to RoW permissions, It has also rightly pointed out that such a mechanism could be enforced through a standing coordination committee constituted at each Licensed Service Area (LSA) level with the State-level representatives from each appropriate authority and the telegraph authority which could then coordinate the common issues in grant of RoW permissions and resolve the same. *The convenor of this committee could be an LSA level senior officer of DoT as the responsibility of orderly growth of the telecommunication services is vested in the Central Government*.

In this regard, we would like to bring to the kind attention of the Authority that the National Broadband Mission that is required to design and implement the strategy to be adopted by all stakeholders to achieve the goal of 'Broadband for All' has already envisaged this type of an institutional set-up and has recommended the constitution of National /State / District Level Broadband Committees with officials from the DoT HQ, DoT -LSA and State Local Bodies (PWD/Urban development/ Forest and Environment/ IT) together. As a matter of fact, action to constitute these committees has already been undertaken by the NBM across various LSAs.

These Committees are thereby expected to cater to the need for a collaborative institutional mechanism between Centre, States, and Local Bodies for addressing all RoW related Policy and execution issues.

In order to evaluate and assess the direction in which the Mission is proceeding on the timelines and roadmap and to see that objectives and outcomes of the National Broadband Mission are achieved, the Mission may shall have monitoring at three levels – Central, State and District/Municipal.

We thus believe that an 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 is already in place and only needs to work as per its laid out objectives.

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

&

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

VIL Response

We agree with the Authority's observation that another approach for speedy rollout of OFC networks, in towns and cities as well as along the State and National highways and Railways, could be developing the common duct infrastructure for laying OFC. The NDCP-2018, under the mission Connect India, for establishment of a National Digital Grid, emphasises on "*Establishing Common Service Ducts and utility corridors in all new city and highway road projects, and related elements*". Further, for 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, the NDCP-2018 also emphasises on '*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*'

The Authority is also right in pointing out that "*Given that Optical Fibre is now considered as public utility in the NDCP-2018, the time has come for development of common ducts"*.

We fully support the development of common ducts along the roads and streets for laying OFC.

Development of common ducts infrastructure by private sector entities for laying OFC can be encouraged by bringing in suitable incentives such as finance at cheaper interest rates, waiver of RoW charges in lieu of ownership of part of the common ducts' infrastructure proposed to be developed by the implementing agency or grant of leasing rights for a specified period of time based on non-discriminatory terms, etc.

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.

&

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.

VIL Response

There is no need to specify any particular model for development of common ducts infrastructure and the same should be left to the discretion of the land-owning agencies. In a diverse country like India, it is possible that different States and Local Bodies may adopt different models. It is however critical that the infrastructure so developed is available to all on non-discriminatory terms and at reasonable charges that may be fixed by the TRAI/DoT based on a proper study of the costs incurred and the return on investment aspects. It may also help if TRAI/DoT can lay down the contours of basic guidelines and terms and conditions for lease of common infrastructure ducts by the developer to be incorporated as part of the agreement between the land-owning agency and the developer for all such projects that impact telecom infrastructure development.

These safeguards if properly implemented will ensure that the implementation agency even if it has the exclusive rights for construction of common ducts for a certain project does not end up misusing its monopoly over the infrastructure.

Since this is a critical subject and requires detailed discussions, we request the TRAI to carry out a separate Consultation on this issue so that the various pertinent aspects can be looked at holistically and a way forward decided on the same.

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

VIL response

The Authority has rightly pointed out at infrastructure creation through cross-sector collaboration as being an innovative idea for infrastructure creation. Such collaboration could either be in the beginning of the infrastructure development itself or at later stage by leveraging the existing assets of other sectors

Different types of infrastructure in use by other sectors can be used for sharing with commercial telecommunications network operators. Some examples of such cross-sector infrastructure that can be put to use for telecom 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 pipelines 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.
- **i)** Metros/ Railways Signaling
- **j)** State Fiber Grids
- **k)** Bridges

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.

VIL response

Voluntary joint coordinated trenching is certainly possible.

Coordinated trenching requires informing interested excavators, in advance when underground work or road construction is going to happen so that they can be prepared to install equipment in conjunction with scheduled excavations. However, it would be very difficult to coordinate the same in India due to the lack of automation / digitalization of such processes

at present. Further, the network planning and design of different TSPs & IPs in telecom sector may not match and the same will definitely not match with other sectors. Thus, the major concern area would be as to who will take a lead in such co-ordination before trenching, when each stakeholder has a separate timeline.

However, as mentioned in the Consultation Paper, if ICT can be leveraged and various State Governments establish a single electronic application process for RoW permissions for all appropriate authorities under their control and also provide access to all other public utilities to apply for RoW permissions, the online portal can be used to inform interested excavators in advance when any other utility applies for permission to do underground work or road construction. Therefore, whenever anyone of such public utility agencies seeks RoW permission for laying underground pipes or cables, the TSPs and IPs-I can be informed through online portal automatically, so that, if required, the ducts for laying OFC can also be buried simultaneously.

In view of this, we submit that while joint / coordinated trenching will be feasible, laying of Common Duct will be a better solution

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?

VIL 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. Hence it is very much advisable to lay ducts for OFC networks along with any other utility networks being constructed.

The Authority has rightly highlighted how 'Dig Once' policy can be used to minimize the number and scale of excavations when installing the telecom infrastructure and has several advantages such as Cost Savings, Economic Benefits in terms of fostering growth in existing businesses in the area and boosting the local economy and Decrease in time needed to deploy fibre. The Authority has also rightly pointed out how various states of India are increasingly adopting new PPP models and associated policies that are increasingly encouraging the co-deployment of OFCs at the time of road construction itself and how various a number of American states have now adopted the "Dig-Once" policy to benefit from this approach.

Hence it is very much advisable to lay ducts for OFC networks along with any other utility networks being constructed.

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

VIL Response

At the outset, we would like to thank the Authority for having started engaging with the Central and State level electricity regulators in the country for the purpose of exploring cross-sector infrastructure for faster 5G rollouts in the country.

That said, we feel that the right enabling environment will definitely give a boost to cross-sector infrastructure sharing, being a win-win for all the involved parties. It is further submitted that:

a) Cross-Infrastructure sharing would be required to facilitate 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. Huge demand for passive telecom infrastructure would come from the rollout of 5G networks. As rightly pointed out in the Consultation Paper, 5G will use much higher radio frequencies than today's cellular networks and while these higher frequencies will carry larger amounts of data, they also have very short ranges. Thus for 5G to work well, many additional small radios or "cells" will have to be installed close together — as close as 200 feet apart. Thus 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) Step that can be taken to facilitate cross-Infrastructure sharing

i. The Government needs to extend special benefits to the cross-infrastructure sharing entities as is done for infra sharing between 2 TSPs so long as both entities happen to be infrastructure providers. Such benefits could be in the form of tax benefits, pass-through benefits or lower license fees. This will require collaboration between the various Ministries of the Government of India to arrive at a common agreeable policy.

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

VIL Response

Currently, there are no explicit restrictions on sharing of passive assets of broadcasting and power sectors to improve connectivity, affordability and sustainability, however, what is lacking is an enabling regulatory environment.

A well-defined policy with inbuilt incentives for the sharing entities could go a long way in promoting use of existing assets of the broadcasting and power sector and 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.

VIL Response

We feel that setting up any such mechanism will require a lot of effort and most importantly time.

As of now, it would be better to focus all the energy on making the ROW rules effective and putting in place policies that weed out inefficiencies from the current system.

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.

VIL Response

The Authority has correctly pointed out that Even though mobile broadband services are easily available and accessible, approximately 40% of total mobile subscribers do not access data services. The probable reasons for such a variation could be many, but as per us the key ones are:

a) **Lack of Literacy**: Adoption of web based devices and use of internet requires a basic level of literacy. However, because of lack of primary education and relatively high rate of illiteracy, large sections of the population are not familiar with the method to access and use data services. While availability of multilingual keypads of mobile devices in Indian languages has reduced the language barrier there is still a large gap between availability and usage due to the high illiteracy.

b) **Lack of content / Apps in local language**: Due to the many different socio-cultural profiles in India, there is a need for relevant content in local languages. However, currently most of the content available on the internet is in English which makes it difficult for users with English language limitations to find anything useful. Further, Government initiatives to digitise services and enable access to government services can significantly help in demand generation.

c) **Non-availability of Low cost devices:** Cheaper Smartphones can be a big enabler for use of broadband services. The Government can consider incentives for local manufacturing of devices which can further result in device price reduction.

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?

&

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.

VIL Response

We believe that the demand of fixed line broadband in the country has been low because of the low penetration of broadband through fixed lines and that a high percentage of internet usage happens through smartphones for which a separate fixed line subscription would be an additional cost. Further, as also mentioned in the Consultation Paper, the monthly subscription rates of fixed wireline broadband are generally higher than mobile broadband.

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.

&

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.

VIL Response

We have no comments.

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.

&

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.

&

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.

VIL Response

It is submitted that the core network is not a limitation with the TSPs in providing Broadband speeds.

The Authority will appreciate that 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. We have already highlighted that the actual speed experienced by the customer varies depending upon a number of dynamic factors and it is practically not possible to make the customer experience a specified minimum download speed for wireless broadband services because the same is determined by multiple factors beyond the control of operators like dynamic radio environment (proximity to BTS location, indoor/outdoor/high-rise/basement instances, usage in stationary/mobility environment), subscribers device quality and type, number of subscribers browsing the data services simultaneously, peak/off peak time, external interference, availability of web server / website behaviour, etc.

It is further submitted that we see no benefit accruing out of declarations on actual contention ratio, latency, and bandwidth utilisation achieved in our core networks during the previous month, while communicating with our customers or offering tariff plans**.** These are technical parameters which the customer would not be able to understand or relate with and hence this entire exercise would only serve to make the communication more confusing for the customers. We believe that any communication to the customer should be simple and easy to understand without use of any technical jargon.

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.

&

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.

VIL Response

It is submitted that 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 quantum of spectrum that the operator has.

There is huge amount of development happening on the network side to improve customer experience. With given spectrum availability and huge ever-increasing volumes of data, the mmobile network operators need to implement various techniques to ensure the smooth flow of data traffic across the networks between the end users and content /service providers. Network operators use traffic management to minimize the incidence and impacts of congestion, ensuring that as many users as possible get the best online experience possible.

While engineering greater spectral efficiency and building more cell sites have enabled increased capacity that alone is unlikely to address the expected demand. Going forward, more spectrum would be needed to enable mobile operators to keep pace with consumer demand for higher and faster mobile broadband.

Further, the requirement of increased backhaul capacity needs to be immediately addressed through greater fiberization, enhancement in the quality of fiber assets, availability of increased microwave carriers and E & V band spectrum. We strongly believe that India urgently requires the V-band and E-band that are extremely valuable resources for India for 5G as well as backhaul for mobile broadband. ,.

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. Further, rrapidly evolving wireless networks, dynamic nature of the radio environment, explosive growth in wireless data traffic, and the scarcity of wireless network resources pose non-trivial challenges to the implementation of Traffic management practices in the TSPs network. Given the varied and evolving nature of wireless networks, network management practices often need to be customized to address particular situations and thus the TSPS need to have the flexibility to manage their networks in an efficient and reasonable manner to ensure the internet remains open and thriving. This will ease the congestion issues much better than any other proposed regulatory intervention in form of checks on RAN user plane

To summarize, the infrastructure issues including availability of affordable and harmonized access spectrum, backhaul spectrum (E & V Bands specifically) and fiberization need to be handled on an urgent basis rather than the radio network's design, which is best left to the operator's judgment and 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), 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.

VIL Response

We reiterate our submissions made in the response to Q28 that that any communication to the customer should be simple and easy to understand without use of any technical jargon.

It is further submitted that we see no benefit accruing out of declarations on actual congestion, average across the LSA, recorded during the previous month over the air interface (e.g., LTE), 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**.** These are technical parameters

which the customer would not be able to understand or relate with and hence this entire exercise would only serve to make the communication more confusing for the customers.

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.

&

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.

VIL Response

India being a price sensitive market would need affordable handsets for uptake of broadband. Hence, we need to have a device ecosystem (Both on smartphones as well as FWA- Fixed Wireless Access),

The devices have a significant role in user experience. Poor quality of handsets can lead to instances such as 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. It is, therefore, important to mandate device certification in the country.

The Authority has also rightly pointed out that the broadband speed, to some extent, may also depend on consumer devices. In case of fixed broadband, it is the CPE, which in most cases in India is supplied by TSPs. In case of mobile broadband, it is mobile handsets, which in India in most cases are purchased by customers from open market.

The Authority is also right in saying that In case of 3G and 4G technologies, even the network performance to some extent may get affected because of the quality of mobile devices attached with the network. The capabilities of the chipset in the device along with OS dictates the device behaviour and the way it negotiates and reacts to the response from the network.

We thus support having a minimum set of standards for consumer devices available in the open market.