



Pursuitex/2019-20/12

19th Oct 2020

To

The Chairperson
Telecom Regulatory Authority of India
Mahanagar Door Sanchar Bhawan
Jawahar Lal Nehru Marg
New Delhi-11002
(jams@traigov.in) and
sksinghal@traigov.in.

Kind Attn . Shri Sunil Kumar Singhal, Advisor, (Broadband & Policy Analysis)

Sub: Response to TRAI Consultation Paper No. 6/2020 (Roadmap to Promote Broadband Connectivity and Enhanced Broadband Speed) by Pursuitex LLP
-Submission of Comments reg.

Dear Sir,

We take this opportunity to introduce **Pursuitex Advisory Services**, a recently registered LLP.

Pursuitex is an emerging Think Tank on Policy and Governance matters, led by experts across multiple Industry verticals and policy domains. We are a group of professionals who gained varied experience from Industry, Academics, PSUs, Government, and Regulatory Institutions. We are working actively towards high-quality research on Policy formulation, Advocacy, Infrastructure development, Industry research etc. Our mission is to develop Pursuitex as a center of Research, Analysis and Engagement Institution that generates Policy recommendations and advice on domestic and international issues enabling both Policymakers and other stakeholders to make informed decisions.

Our Organization will collaborate with both Government and Private sectors for knowledge sharing and producing high-quality research and analysis on issues of

Address for Correspondence

Bangalore:B-1/606, Provident Welwoth City, Yelahanka –Doddaballapur Road, P.O Marasandra, Bangalore -563 201

Gurgaon: Plot 758, First Floor, UdyogVihar Phase V, Gurgaon – 122016

Email : pursuitexllp@gmail.com , kv.damodaran@gmail.com



Pursuitex Advisory Services LLP

National priority -related to policy formulations and Business development on diverse areas and Sectors.

We will be happy to engage with TRAI to support its endeavor in all the areas mentioned above. We shall highly appreciate if TRAI keeps us in its mailing list so that we could get the information/invitation etc. for any consultation/discussion as and when takes place. Our comments on the consultation paper on “ **No.6/2020** (Roadmap to Promote Broadband Connectivity and Enhanced Broadband Speed) ” are attached here with. We thank TRAI in giving this opportunity to respond to this consultation paper. We hope our suggestions will be taken into account while finalizing the Regulation. We will be happy to provide any further clarification /information, if required, in this regard.

We look forward to the opportunities in working with TRAI and assure our continuing co-operation and support.

Thanking you,

Yours faithfully,

For Pursuitex Advisory Services.LLP

Dr. KV Damodharan

Managing Partner and CEO

Email kv.damodaran@gmail.com

Mob: 91-98182 48540

Encl: Comments on Consultation Paper.

Response to TRAI Consultation Paper No. 6/2020

(Roadmap to Promote Broadband Connectivity & Enhanced Broadband Speed)

by Pursuitex LLP

At the outset, we thank the Authority in providing us an opportunity to give our comments on this very pertinent issue impacting both the end customers and the industry significantly. Our response to questions posed in the Consultation Paper is furnished against each question.

Q1. *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.

Q2. *If you believe that the existing definition of broadband should not be reviewed, then also justify your comments.*

For Q1 & 2:

We believe that the definition of broadband MUST be reviewed to reflect the development of technology as well as the digital aspirations of Indians across the nation. There is also a need to define different categories of Broadband.

Definition of Broadband (512 Kbps) was released by DoT on 18 July 2013. In 2016, TRAI had recommended that the definition of broadband needs to be reviewed and the minimum download speed needs to be enhanced to 2Mbps. As per NDCP-2018, every citizen must be provided with 15-20 Mbps broadband connectivity. It is appreciated that different technologies/ network topologies - 2G/ 3G/ 4G/ 5G in case of mobile, P2P & P2MP as well as frequency bands in case of FWA, and ADSL/ VDSL/ DOCSIS/ EPON/ GPON & their variants in case of fixed broadband have different underlying speed capabilities, QoS parameters, and downlink/ uplink capacities. However, the customer cannot be expected to understand all the nuances and differences.

We believe that the services should be clearly labelled as “Wired/ Fixed Broadband” and Wireless/ Mobile Broadband” for the user to clearly understand the distinction and the speed threshold definition for the two can be different.

We further believe that the definition and classification of broadband should be based on capability of the underlying medium and technology, and not based on the actual speed offered/ delivered under a specific plan.

Q3. 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.

Ans: In continuation to the previous response, we recommend that two categories can be made and labelled as “Wired/ Fixed Broadband” and “Wireless/ Mobile Broadband” for the user to clearly understand the distinction. The speed threshold definition for these can be different – For Wireless/ Mobile Broadband, it can be 50 Mbps (high in case any assured BW is subscribed by user in future 5G scenario) and for Wired/ Fixed Broadband, it can be 100 Mbps.

Rationale for our suggestion:

- (a) Using the same criteria for speed for all the medium (Wireline and Wireless) is not correct as both have different characteristics.
- (b) Customers are paying differential prices based on the category of services, data speeds, data volume and latency.
- (c) Availability of different flavours of broadband at different price-points would help in better penetration and availability of Wireless/Wireline broadband services in Rural as well as Urban areas.
- (d) This would ultimately result in better services to the users and better revenue generation for the service providers.

Q4. Is there a need to introduce the speed measurement program in the country? If yes, please elaborate 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.

Yes, there is a need for speed measurement framework in the Country. We believe that a speed measurement program must be developed to accurately assess and improve network performance across the nation. Given the nature of quality of services that can be enabled on fixed vis-à-vis mobile networks.

A Speed measurement program is critical primarily to ensure that different customers across the nation are getting assured services. Methodologies such as crowd sourcing need to be leveraged to measure speeds. Testing should also move beyond speed to understand web and video latencies also in detail. This would be critical to ensure that all the customers in different categories can be continuously verified, and every customer can get an understanding of what category of broadband he/she is getting.

The speed measurement program once developed will also help to accurately assess and improve network performance across the nation. DoT has its presence in each LSA with a mandate to ensure adherence to License conditions by the Licensees. TRAI also regularly conducts speed tests and monitoring of QoS parameters. It is suggested to formulate a similar framework for monitoring the broadband speeds.

Q5. 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.

Yes- but to a very limited extent. RoW Rules of November 2016 are extremely practical, reasonable and non-discriminatory in nature and if implemented pan-India, shall go a long way to streamline and smoothen the RoW process, and allow for quicker and more efficient broadband rollouts and adoption. Although, Right of Way Rules 2016 was a path breaking initiative by the Government, but it has only been able to achieve partial results even after four years. Some of the States, UTs and local administrative bodies not aligned themselves to the above mentioned RoW Rules. There is a necessity that Government of India should persuade all states and local bodies to align to the Central Rules. Further Fiber Connectivity be identified and declared as a public utility and ROW be made a Centre subject and not a state subject, alternatively remove the ROW charges or declare a uniform subsidised ROW charges. It is further suggested that the RoW application processing timeline should be made uniform across the country and accordingly permission should be granted in 21 days and deemed approval in 30 days instead of current timeline of 60 days.

Q6. Is there any alternate way to address the issues relating to RoW? If yes, kindly elucidate.

The rollout of fibre networks is closely linked to and has large dependency on RoW rules. The success depends upon liberal RoW rules. However, new wireless technologies operating in the E& V bands, Free space Optical Communication (FSOC), satellite communications and legacy cable TV networks are suitable alternatives that have little dependence on RoW rules. These technologies and services need to be promoted.

Q7. 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.

It will be appropriate if the TRAI examine/investigate this issue and find out real position in the field. Our understanding is that on one hand many states are taking step in right direction but in some states authorities are yet to implement the rules. One of the primary reasons for slow adoption is because, the Local Bodies, State Governments etc view allocation of ROW as revenue generating machine at the behest of being the state subject.

Q8. 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

It is a fact that many states are yet to align to the Central Rules and at many states/UT matter has been left to be handled at the local level. Disputes if any, are typically addressed via litigation.

Need of hour is that central government should take suitable steps so that state government and UT are made accountable for easy and uniform RoW implementation methodology which can be beneficial for speedy spread of high speed Internet across the country with uniform speed. We believe civil society has a critical role to play in driving local demand for

high speed broadband services, which in turn will create incentives for local authorities to act in the interest of consumers.

Q9. What could be the most appropriate collaborative institutional mechanism between Centre, States, and Local Bodies for common Rights of Way, standardization of costs and timelines, and removal of barriers to approvals? Justify your comments with reasoning. level to address the common issues relating to RoWpermissions. If yes, then what should be the composition and terms of reference of this committee? Justify your comments with reasons.

We are of the view that a coordination committee comprising members from Centre, States, Local Bodies, Civil Society and Industry can serve the purpose of Institutional mechanism for the purpose(s) stated in the question. We also believe the establishment of a National Digital Grid and the National Fibre Authority would be critical for the timely resolution of all issues and will facilitate infrastructure growth in the country.

Q10. 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.

The empowered standing committee as mentioned in the answer to Q 9 can be at LSA level; but it is the Local Government that should be held accountable for providing ROW clearances on priority through a single window concept.

Q11. Is there a need to develop common ducts along the roads and streets for laying OFC? If yes, then justify your comments.

Yes, there is a need to have a Common Duct Policy on the lines of Ministry of Roads Transport and Highways. We believe that the development of common ducts along roads, streets and highways would yield significant benefits for the rollout of high-speed access services over large areas, as well as help conserve, time, effort and resources

Transportation/utility corridors would make it easier and more economically viable to connect to vital economic and quality of life enhancing infrastructure (such as power, communications, road and rail)

Q12 How the development of common ducts infrastructure by private sector entities for laying OFC can be encouraged? Justify your comments with reasoning.

We are of the view that an appropriate incentives must be put in place to incentivize the participation of private sector entities. Further rules must be created to ensure that new real estate projects include Telecom plans for infrastructure that ensures equal access to all service providers with respect to each dwelling unit.

Q13. Is there a need to specify 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.

We believe that Common ducts could be developed by the Central agencies like National Highway Authority of India or involving the Real Estate Sector with relative ease and can be leased or sold to service providers. Alternatively, above entities could grant long-term RoW to utility companies, which could in turn develop, maintain & operate common ducts infrastructure. RoW charges may be waived off in lieu of part ownership of the common ducts infrastructure proposed to be developed by the implementing agency.

Q14. 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.

We are of the opinion that there would be a need to put in place institutional mechanisms to check the system misuse by any party. A National Fibre Authority as suggested in the NDCP, would be ideal to focus on this essential part of Infrastructure development

Q15. What could be the cross-sector infrastructure development and sharing possibilities in India? Justify your comments with examples

To enable a proper regulatory and industry environment, several steps will be required to be taken by respective stakeholders to facilitate cross-sector infrastructure sharing. They are summarized below.

Consider constructing utility corridors in new roads and infrastructure so that all utilities (including gas, water, and Fiber) are laid together leading to the reduced effort, time and cost of RoW. The 'common duct policy' for which the pilots are being conducted, is a step in the right direction and would help reduce operational costs by eliminating the need for frequent digging up of roads. Adopt 'Call Before You Dig'/'Dig Safe' policy which should encourage notifying all concerned utilities before the digging process begins, to prevent any damages or Fiber cuts.

Adopt "Dig once" and "Dig safe" policies. Foster partnerships with public sector units to lay fiber cable in their existing utility corridors, speeding up the overall execution, as PSUs already have RoW clearances and fresh digging is not required in such cases. Incentivize infrastructure utilities like power, water, gas to include ducts and optical Fiber networks as part of the new infrastructure. Encourage real estate developers to partner with or right to lay Fiber at pre-specified rates, ducts or trenches and utilize assets of other infrastructure providers

Consider accord of Telecom Optic Fibre cables the status of Public utility. Promote collaboration models involving state, local bodies and private sector as necessary for the provision of shared duct infrastructure in municipalities, rural areas and national highways.

Uniform RoW policy and faster implementation across States and Union Territories are required. Requisite approvals to be provided within the stipulated time submitted with minimum documentation requirements. In case of no action (within say 21 days) deemed approval to come into play. As far as possible uniform pricing need to be enforced. Rationalize RoW charges across states/cities considering the cost of restoration of a road or damaged facilities and levying charges depending on city types in line with the RoW Rules 2016.

A single window clearance need to be framed by leveraging digital means to bring transparency and predictability. As of today, the online portal has been started by few states. It should be implemented by all. Utilize technology for surveillance and documentation. Digitize the document submission, which is currently manual. Network operators seeking to share infrastructure also face greater challenges and opportunities. The common business models adopted by infrastructure owners for cross-sector infrastructure sharing take many forms and can be designed around the unique circumstances to make a viable model. Policymakers and other stakeholders can facilitate greater information exchange and dialogue to raise awareness of cross-sector infrastructure sharing opportunities and points of entry into state-owned infrastructure owners

Q16. 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.

Voluntary or coordinated trenching is possible in India. Proper regulatory mechanism should be in place to make it a successful model. There are few examples in India which are running successfully. This will allow to reduce costs that would have been required to install a separate OFC network.

Q17. 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?

Yes. It is advisable to lay ducts for OFC networks from coordination, commercial agreement, and maintenance point of view along with any other utility networks being constructed. Proper rules and procedures must be in place;

Q18. What kind of policy or regulatory support is required to facilitate cross-sector infrastructure sharing? If yes, kindly provide the necessary details.

Yes. To enable a proper regulatory and industry environment, several steps will be required to be taken by respective stakeholders to facilitate cross- sector infrastructure sharing. They are summarized below.

- Uniform RoW policy and faster implementation across States and Union Territories are required. Requisite approvals to be provided within the stipulated time submitted with minimum documentation requirements. In case of no action (within say 21 days) deemed approval to come into play.
- A single window clearance by leveraging digital means to bring transparency and predictability. An Online application mechanism should be in place. Self-certification should be encouraged which can optimize time, resource and cost. Digitize the document submission, which is currently manual.
- The Policy makers and other stakeholders can facilitate greater information exchange and dialogue to raise awareness of cross-sector infrastructure sharing opportunities and points of entry into state-owned infrastructure owners

Post 1990's, the Government spending in the telecom infrastructure development has reduced substantially and it has been left to the TSPs/ISPs, IP-1 companies to develop necessary telecom infrastructure. This, incidentally, has created a massive digital divide between the urban and rural areas. TSPs find it economically unviable for expanding their networks in rural areas/ backward pockets in urban areas. The current economic health of the industry has very limited scope for deployment of additional capital for Telecom Infra development. In view of the foregoing, it is suggested to take following measures:

- Emphasis be given by Govt on Service delivery rather than fiscal benefits when it comes to infrastructure development.
- Govt to increase its spending and ownership in development of fiber network in the country through direct participation, PSUs, Extra Budgetary Support, and Non-lapsable dedicated budget support, promoting local telecom equipment and fiber manufacturers through fiscal and policy support.

Q19. In what other ways the existing assets of the broadcasting and power sector could be leveraged to improve connectivity, affordability, and sustainability.

The reach and availability of existing infrastructure of broadcasting and power can be leveraged to improve broadband connectivity. Amalgamation of the Power Infrastructure and Fiber Grid can be carried out to improve better connectivity. In fact the feasibility of involving National Highway Authority of India (NHAI) should be seriously considered .

Q20. 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.

Yes-there is apparently a need of an e-marketplace supported by a GIS platform to help facilitate sharing leasing & trading of passive infra. There are several IP-I, TSPs, ISPs and many LCOs operating in India, majority of them have either laid or leased OFC

infrastructure for delivery of various services. Availability of infrastructure like the OFC and passive components is a major impediment in proliferation of broadband in the country.

Trading of passive telecom infrastructure in the form of leasing, sharing and trading of Duct space, Dark Fibre, and Mobile Towers would be worth considering. Modalities of this trading can be undertaken separately through an open consultation with all the stakeholders.

Q21. 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.

To increase mobile broadband usage following are our suggestions.

There are many rural & remote areas where rollout of terrestrial connectivity is challenging. Such areas would need a liberalized Satcom Policy which enables Satellite Communications to be used to offer Broadband services

Undertaking massive Fibreization and de-risking the connectivity by deploying minimum 96 fibre cables .Increase Fibreization of towers for long term benefits.

Enacting data privacy laws that support the privacy of telecom subscribers and protects them from cybercrimes, this would help in higher people participation in digital payments and social media interactions.

Q22. Even though fixed broadband services are more reliable and capable of delivering higher speeds, why its subscription rate is so poor in India?

Ans. We believe that the following are possible reasons

Subscribers prefers easily available and hassle free wireless data subscription which is major reason for decline in fixed wireline broadband.

Cheap and variety of Wireless end devices are important . The smart phone is today a popular medium for accessing a wide range of services and also allows flexibility across services.

Further the cost and tariff of Fixed line Broadband is steeply higher as compared to Wireless Data services.

Non availability of universal Fibre based telecom network is a big bottleneck. .

Higher cost of deployment and maintenance of Fixed Telecom Network is also a reason in comparison to Mobile Networks.

Q23. What could be the factors attributable to the slower growth of FTTH subscribers in India? What policy measures should be taken to improve Justify availability and affordability of fixed broadband services? your comments.

Some of the reasons for low penetration of fixed broadband which are attributable to slower growth of FTTH subscribers in India is given in the answer at Ques. 22. However it is to again submit that there is a need for policies to promote big investments in fixed infrastructure which can include Availability of Fibre, Ease of RoW rules. Mandating the 'Dig-Once' Policy, mandating a Common Duct Infra Policy etc.

Q24. 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.

The LCO is generally small player in Broadcasting market and thus is adversely affected and deterred by provisions like imposition of a licence fee, as a percentage of adjusted gross revenue, and including revenues from broadcasting which could be a reason for Local cable operators to hold back. This needs to be addressed.

Q25 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.

Compared to mobile broadband, FWA rollouts typically face different constraints. The FWA service often requires line-of-sight access between the subscriber's location and the transmission tower. Obstructions from hills or trees, and even local topographies prevent it from being installed in some locations. However we suggest that TRAI can commission a study/survey in the field to get a first-hand knowledge. This will help to develop the required regulatory policy to improve FWA service.

Q26. 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.

Fixed Broad band network is mainly being provided by Incumbent PSU or older TSPs who laid their core network quite long back. These days the Fixed Wireline Broadband network are using same core network which TSPs/ NSPs are now mainly using for Wireless Data Network traffic which are major reason of slower network speed for Fixed Wireline users or fixed broadband speed. Bandwidth hungry applications from Mobile and Fixed broadband users like Social Media, Video on demand (VoD), real-time gaming, video conferences, and Rich Communication Services send and receive continuous stream of packets and thereby require more bandwidth over simple text and information.

However FTTX accounts for a very small fraction of India's broadband user base. Technologies using copper as the medium – ADSL/ VDSL/ DOCSIS/ Ethernet LAN – all

suffer from attenuation and SNR limitations. FTTX technologies do not suffer from speed issues. It can also happen due to core network design and capacity.

Q27. 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

Not required. It may be left to competition in the market. Contention ratio is a non-relevant parameter in broadband services. Actual bandwidth utilization is the true indication of traffic pattern and usage behaviour. Current regulatory stipulations are adequate to serve this aspect.

Q28. 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?

Not required. It may be left to competition in the market. Contention ratio is a non-relevant parameter in broadband services. Actual bandwidth utilization is the true indication of traffic pattern and usage behaviour. Current regulatory stipulations are adequate to serve this aspect.

Q29. 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.

Ans: Already discussed in Question 26. However some of the reasons for slow mobile speeds in India are as follows:

- i. Limited Spectrum availability to Indian TSPs as compared to TSPs developed countries.
- ii. This has resulted in largest number of users/Mhz of spectrum and further leading to very higher Contention Ratio and congestive network performance.
- iii. Lower capital investments in up gradation of legacy networks.
- iv. Backhaul challenges: Most of our Backhaul is based on low capacity MW networks. Fibre reaches to barely 22% of our Towers.

Q30. 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.

Indian TSPs Radio Access Network is marred by limited and haphazard radio network mainly in dense to highly dense urban areas which grossly affects primarily the indoor coverage to Wireless users which further leads to low data speeds and poor radio connectivity.

Actually the proper radio network is mainly challenged by the RoW for installation of mobile BTSs. Recent and disturbing trends are that although the mobile radiation are very safe, the perception in public, residential societies even government bodies about harmful effects of radiation is deterring setting up of tower as per the requirement of TSPs and some time the working sites are getting stopped leading to even poorer network in urban to dense urban areas of cities.

TRAI should positively come out with recommendation about RoW and public awareness about “no harm from the Mobile radiation within safe limits” failing which the dream of 5G in country will be adversely impacted in near future.

Q31. 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.

Until and unless the RoW is properly addressed as stated above the TSPs will not be able to address the challenges for ensuring these technical parameters within limits. Further the rock bottom prices of data services as triggered by the green field operator has also resulted in drastic reduction in the revenue of incumbent TSPs which has steeply limited their ability to invest in their PoP and upgradation of existing networks. Therefore it will be prudent that until the basic and fundamental challenges are addressed for fulfilment of above requirement of TSPs no further mandate for technical parameters are stipulated by Authority.

Q32. 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.

The Handset manufactures in India should be advised for ensuring that their devices support 4G network services of all TSPs in India. They should also be directed to implement CMAS(early warning protocol) across all devices domestically manufactured /imported as is done in other parts of World. This is essential to facilitate dissemination of early warning in disaster situations.

Q33. 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.

We are of the opinion that there is no need of any policy or regulatory intervention by way of mandating minimum standards relating to consumer devices. However we suggest that minimum standards of all consumer devices should be specified for the reasons as specified in Question 32. This should be based on an amalgamation of Indian and International standards with the aim to ensure uniform quality of service. Competition should take care and force the supplier to provide the devices which are above the specified standards.
