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The comments of National Centre for Human Settlements and Environment (CAG) on Consultation Paper on Roadmap to promote Broadband connectivity and enhanced Broadband speed are given below:-

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.

Ans: The use of broadband has been increased tremendously in the period of Covid-19 as most of the activities have been carried out online and therefore, a fresh thought should be given on the definition of 'Broadband'. The use of Broadband application in social media and video conferencing has been a faster growth as compared to other application. In the present scenario not only the speed should be the load factor for deciding the definition of Broadband but also its reliability for many applications such as voice and video etc., are important keeping in view the objective of NDCP-2018 the following approach should be considered for defining the Broadband.

- (a) Separate approach for fixed broadband whether it is wire line or wireless and mobile broadband. In case of fixed broadband it is feasible to ensure the delivery of minimum guaranteed speed. But in case of mobile broadband it is not possible due to technological limitations.
- (b) Independent of speed in case of fixed broadband but it should not be lower than 256 Kbps in any case and technological based for mobile broadband.
- (c) Both are essential.
- (d) It should be based on actual speed delivered.

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

Ans: No, Comments as we suggested change in the present 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.

Ans: For enhancing the speed of broadband there are other factors which affects the speed and out of this the most important is the development of infrastructure. Presently most of the TSPS are facing this problem and will take time for improvement in this field. Looking to the present situation /condition the speed should only be the load factor for

deciding the Broadband. But at the same time the minimum speed of broadband should be adhered every time.

Q.4: 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.

Ans: There is a good idea to introduce the speed measurement programme for fixed line the measurement instrument should be fitted in selected areas and in selected consumers which have a full knowledge of it. In case of mobile broadband, the opinion of consumers should be taken into consideration for speed measurement.

Q.5: Whether the Indian Telegraph Right of Way (ROW) Rules 2016 have enabled grant of Row permissions in time at reasonable

Ans: The India Telegraph Right of Way (ROW) Rules 2016 works non-discriminatory manner and therefore no further change is required.

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

Ans: No, Comment.

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.

Ans: All the appropriate authorities have reviewed their own procedures.

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.

Ans: In resolving the ROW disputes it is suggested that one State authority should also be included apart from Central authority, because different States have their different rules at grass root level.

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.

Ans: We totally agree with the suggestion given in Para 4.36 of the text for removal of barriers to approvals. The only point to be added here is that time limit should be fixed for resolving the issue.

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.

Ans: Yes, there should be a Standing Coordination Committee at LSA to address the common issues relating to ROW permission. The Coordination Committee should consist representatives of head of local body like Mayor in cities, Commissioner of Municipal Corporation, Revenue authority of that area and headed by the Collector/ district Magistrate or its representatives. The period of Coordination Committee should be minimum of 2 years and review after words. The issues put forth before Coordination Committee must get clearance in 30 days time.

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

Ans: There is utmost need to develop common ducts along the roads and streets not only for laying OFC alone but all other purposes which have underground requirement. If this system is developed the road transport system may not suffer due to damaging of roads and street.

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

Ans: If common ducts infrastructure is developed on PPP mode then the quantum of investment should decide the percentage of profit from it and this will attract the private sector.

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

Ans: Preferably it should be on PPP mode, so that each agency can be held responsible for its maintenance etc, and more over there may not be any dispute over use of land for this purpose.

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.

Ans: Involvement of Govt. Agency in this process will reduce the conflict at any stage in near future as most of the roads / streets are on Govt. land. Basically the common ducts should not be the single ownership.

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

Ans: It can easily be between Telecom sector and electricity where underground wiring is necessary. Indian Rail can also be come in line but at present the area covered by it is negligible. However, where, Metro is there the three developments can join together in "Dig Once Policy"

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.

Ans: We don't think so.

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?

Ans: Yes, it is advisable to ducts for OFC network from coordination between the departments. This system can also be considered for maintenance point of view.

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

Ans: Serious thought should be given to frame a National Policy at Centre level which will be binding to states in cross sector infrastructure sharing as it is cost saving, economic benefits and lesser time taken to deploy fibre.

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

Ans: As the NDCP-2018 policy emphasis for implementing and to improve the Connectivity, affordability and sustainability the two sectors mainly power and broadcasting can think over it. It will be beneficial to both.

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.

Ans: There is need of e-market place supported by GIS platform for sharing. Now the question who should establish, operate and maintain. We think that participation of public and private sector should be involved in this mechanism and should feel their responsibility. Fifty- fifty formula can apply.

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.

Ans: Frankly speaking, most of the mobile subscribers as a fashion specially the retailers and house workers in urban areas do have smart phone just show their status to others of the same level. They do not bother that smart phone has also added features. If we, at all free the broadband services for a certain period the situation may not change much. If we want to achieve NDCP– 2018 goal by -2022 “Universal broadband connectivity” than we must educate such population who have smart phone but do not use other features in it. Especially the rural population must be educated through various programmes, lecture series, workshop and advertisement etc.

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?

Ans: The following can be the main reasons of it:-

- a) Smart phone is handier.
- b) Easy to carry out anywhere.
- c) Low mobility.
- d) Speed.
- e) Mobile band is cheaper has compare to fixed band while compare to video calling Whatsapp etc.,

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.

Ans: The only reason of slower growth of FTTH subscribers of broadband seems to be higher monthly subscription rates as compared to mobile broadband. If we talk about affordability of fixed broadband services the prices / charges should be lower from the mobile brand services. As regards the availability aspects this area is something lagging behind. The availability of public Wi-Fi, hotspots to access broadband services is very poor.

The availability of other wired line to broadband networks is limited. The following measures can be taken to improve the fixed broadband services:-

- a) Laying down the optical fibre line in those areas which are neglected specially the rural areas, north east areas of India, Hilly areas but it requires huge investment in the initial stage and for that PPP model should try to attract investment.
- b) There should be linkage between cable T.V operators and TSPS. Some of the TSPS have their own DTH and this coordination can be possible amongst cable TV operators and TSPS.

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.

Ans: Licensing frame work or system holds back the local cable operator (LCO) from providing broadband services stock. The licensing system should be such that when the LCO gets the license for operating cable TV services they can also be allowed to enter into commercial arrangement with existing TSPS to provide broadband connectivity. In this process if there is a need to change the licensing system may be considered.

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.

Ans: The demand for high speed broadband has come up in recent years. Prior to it there was broadband connection and people did not require much more. The system has drastically changed with the mobile technology and that too, video conferencing facilities, etc., are available on smart phone. Since the FWA technology is comparatively cheaper from the FTTH, the service providers may think in this direction and hope in future more and more service providers may go for FWA technology for providing affordable and availability of fixed broadband.

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.

Ans: The requirement or necessity of high speed broadband connectivity has come up late and before that TSPS were free to provide broadband speed as they like. With entering of Reliance JIO the field of Tele communications the speed factor has grown up at a much faster space. In 2018 NDCP has set an objective of universal broadband connectivity @ 50 Mbps which require lots to be done to enhance the broadband speed. The speed factor generally affects by the core network and its capacity only.

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.

Ans: Yes, there is need of regulatory intervention by way of checks in relation to contention ratio, latency and bandwidth utilisation and for that TRAI should formulate regulations. In the regulation that two things to check the speed and no network congestion. If the system of core network affect those two things adversely, TRAI may instruct TSP and ISP to improve the system. Survey can identify the places where the system to be checked.

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.

Ans: As suggested that it should be mandated for TSPS and ISPS to declare actual contention ratio etc., to customer is not possible and not practical because of large number of customers. Second thing every month this exercise to be repeated which is impracticable.

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.

Ans: Allotment of spectrum per operator and this could be reason, besides other reasons also for slower mobile broadband speed.

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.

Ans: No comments on this issue.

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.

Ans: No comments on this issue.

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.

Ans: It is true that broadband speed is affected by the consumer devices to some extent. In fixed broadband the instrument is supplied by the TSPS and therefore no problem with regard to speed. But in case of mobile broadband in India handsets are being purchased by the consumer from the open market and in that process some of the handset which may affect the speed due to non updation of techniques in handsets. Therefore there is need of regulation and this must be applied to manufacturer of devices. Like FSSAI mark on consumer consumption goods makes consumer sure that they are going to purchase quality product.

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.

Ans. Yes, we do not think if regulatory intervention for minimum standards for consumer devices is applicable, may affect affordability or accessibility for consumers.