



Response
on
Consultation Paper
on
National Broadband Plan

Introduction

1. We fully appreciate that the Authority has recognized that broadband infrastructure and services can play a transformative role in advancing core national interests, including economic growth and social development. We welcome Authority's initiative to prepare the first comprehensive, cohesive and forward-looking national broadband strategy.
2. Broadband is much more than a simple communications tool. It is a force multiplier. The broadband deployment and adoption can translate into increase in economic growth, job creation, investment, social welfare etc. Therefore, broadband deployment and acceptance requires thinking beyond typical regulatory solutions. The broadband plan must strive to create a more inclusive society in which people have the opportunity to participate in the digital ecosystem and the adopted approach must be expansive, which involves inputs from, a diverse array of agencies including private-sector service providers.
3. The proposed plan should embrace the diversity of broadband services by providing it on number of platforms including copper, cable, fibre and wireless. No single solution would be sufficient to meet the broadband objectives. Wireless broadband platforms should be central to meeting national broadband goals especially in reaching unserved rural and remote areas. There are several steps TRAI can take to encourage wireless broadband and to remove current obstacles to a more widespread deployment and adoption. The Authority should recommend reforms that expedite the approval process for tower- and antenna site, RoW etc. The Authority should also recommend early release of spectrum in 700 MHz, 900 MHz, 2.1 GHz, 2.3 GHz and 2.5 GHz spectrum bands for commercial deployment of wireless broadband networks.
4. The plan should be based on harnessing existing infrastructure and efficient deployment of resources to provide broadband connectivity in uncovered areas. Operators have expanded the broadband consumer base and gained significant experience in providing these services. They are in a better position to extend affordable broadband connectivity in the villages by not only utilizing their existing telecom infrastructure but also by extending Optical Fibre Cable to uncovered remote areas with support from USOF. The plan should focus on providing support to service providers rather than creating a parallel agency for creation of infrastructure. The private service providers have achieved tremendous success in spreading mobile communication

which is considered nothing short of a revolution and their ingenuity and entrepreneurship must be leveraged to replicate the success in broadband sector also.

5. The USO Fund should be extensively used to provide targeted universal service support for “middle mile” facilities needed to transport Internet traffic to and from rural areas. In addition USO support should also be available provide subsidy for affordable below cost tariffs for people residing in rural and remote areas. The USO support would not only achieve universal service goals but also help achieve a critical mass of subscribers and provide economies of scale to operators which would soon make this a self sustaining business.
6. The TRAI should focus on encouraging competition by pursuing “Pro-Growth” Regulatory Approach. Imposing intrusive new regulations like cost-based tariffs, single flat rate tariffs, stringent quality of service guidelines and broadband speed limits, regulating wholesale tariffs for international bandwidth etc would send negative signal to investing community in wireless broadband sector. Soon atleast 5 new operators would be offering broadband using 3G and BWA technologies besides BSNL and MTNL . Since competition is enhancing and consumers would be loaded with choice, it is not desirable to impose additional regulation for broadband services. Permitting flexibility helps to ensure that service providers are able to meet consumers’ evolving demands for reliable and safe broadband and will further consumer choice.
7. All concerns mentioned above are particularly acute in the context of wireless broadband services. Given the technical challenges in delivering high quality services in a mobile environment and over finite spectrum resources and given the emerging competition scenario, any additional regulation of wireless broadband services can be counterproductive.
8. We believe transparency for disclosing meaningful information to enable informed consumer choice will protect and empower consumers while encouraging the continued innovation and investment fostered by the current pro-growth policy approach to broadband and the Internet.
- 9.. Our specific comments on issues raised in the consultation paper are given below:

Answers for the Questions asked in the Consultation paper

Broadband – Demand & Supply

5.1 What should be done to increase broadband demand?

- a. Though there may be numerous drivers which can increase the broadband demand in developing country like India but these drivers can be broadly categorized into four segments 1) Technological Drivers 2) Economic Driver 3) Social & Behavioral Drivers 4) Government Initiatives. We need to analyze these drivers in the context of socio-economic condition of India of and internet usage behavior of the Indian people. The consultation paper has already done elaborate discussion on these drivers to create broadband demand in India.
- b. We want to further elaborate this demand issue from a different prospective. First of all let us look into those applications which need broadband connection (256 kbps or more) over normal internet connection as mentioned in the table below.

Sr No.	Application Require normal Internet Connection	Application Require Broadband Connection
1	E-mail	Videoconferencing
2	Internet Surfing	IPTV
3	Voice Chatting	Video on Demand
4	Electronic Newspapers	Video Streaming
5	Electronic Banking	Online Gaming
6	Online Booking	Audio on Demand
7	E-Governance	Telemedicine
8		Distance Learning
9		Home Shopping

- c. If we closely look into these applications most of the application where we need broadband connection are video based. Largely people are using these applications in online gaming site, video streaming site like YouTube, Social networking sites like Facebook, Orkut & Twitter. The main trigger for broadband demand in China was the growth of broadband application such as e-commerce, blogging, instant messaging and Internet-based phone and video calls. India will follow China in terms of broadband demand as it happened for other telecom product or services.
- d. Digital Entertainment is one of the major drivers for increasing consumer demands for broadband connection in most the countries as reported by various market research firms. Our cyber and entertainment law should be more flexible to allow more & more of the Digital entertainment to enhance the broadband growth. The total network bandwidth usage has increased many fold in last two years because of these bandwidth hungry applications.

- e. Extrapolating this trend we can definitely expect that future of broadband connection lies on the use of these applications. So the best way to increase demand for broadband connection is to provide thrust in these applications. We need to provide variety and enrich the content of these applications. This content has become a major driver as these applications pull new customers and lead the current ones to migrate from narrowband to broadband.
- f. **Availability of low cost CPE is another major driver which can really enhance the broadband growth in India. This is to be done in two ways; one is introduction of new technology like Thin Client to enable customer to use low cost CPE or introduction of low cost PC/Desktop, secondly various measure taken by government like Exempting CO equipment and CPE's, including STB's and PC's from all customs and excise duties including CVD, special duties and sales tax. Mobile internet can be a big boost for reduction of CPE cost as well as enhancing broadband penetration as per the latest report published by Morgan Stanley.**
- g. Following sectors should be given special focus by Government to increase demand and awareness about broadband.
- **Education**
Lack of education stands as one of the key barriers to the broadband adoption. The Government should ensure that the computer skills needed to function in a broadband are a core part of this country's education system. Computer literacy should go hand in hand with other literacy. Empower 1.72 million school and college in urban and rural areas with 1 broadband connection per 100 students to enable 333 million to student to access broadband connection.
 - **Health**
Empower 50,000 PHC (Primary Health Centre) & 6,000 CHC (Community Health Centre) with broadband connections
 - **Agriculture**
Enable each village to access timely information on agricultural practices & weather information
 - **E-Governance**
Complete all Mission Mode Projects under NeGP (National e-Governance Plan)

Source: <http://www.slideshare.net/UntilROI/rural-broadband-from-digital-divide-to-digital-dividend>

5.2 What, according to you, will improve the perceived utility of broadband among the masses?

5.3 What measures should be taken to enhance the availability of useful applications for broadband?

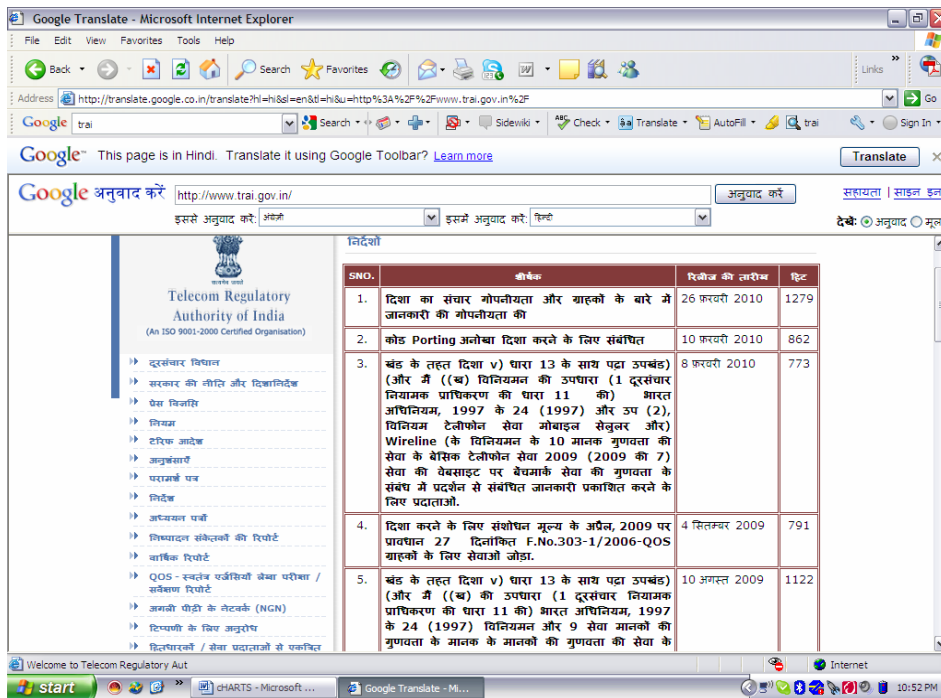
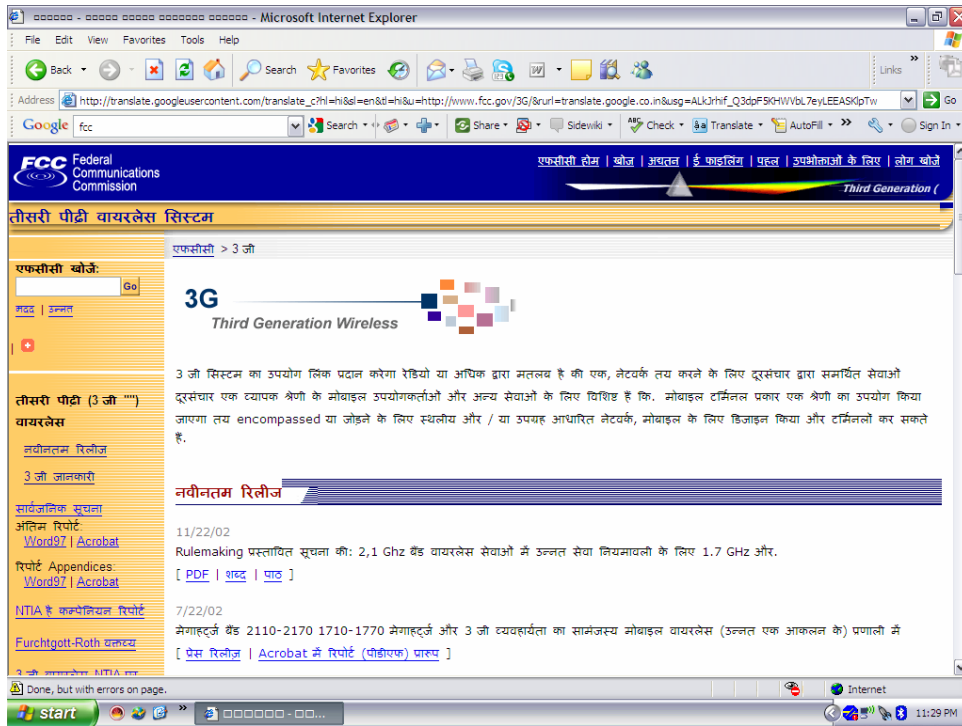
- a. Since 2004, the focus has shifted from content for the general Internet to content for broadband services. Focus over localized content has now given way to data and multimedia-rich content for high-speed connections. Almost all broadband service providers need to have plans for content delivery, not necessarily content development. Content developers and service providers need to come together to provide Live TV, webcasts, telecommuting, streaming audio/video applications

(VoIP, Video Conferencing), gaming, software on demand, remote education, telemedicine, entertainment to name a few. The Government should play a leading role in developing and deploying applications (e-governance, e-education, agricultural services, healthcare services, etc) that could be used by the masses, especially, in rural areas. Apart from this, service providers should also be encouraged to develop rich local content the same way they are encouraged for rural telecom expansion through the USO fund.

- b. Increase spend on internet based education has significantly helped boost broadband take-up rates- eg. Brazil and the National Education project in UK. Government should give higher emphasis to provide education through broadband services.
- c. **Government can spur broadband adoption by becoming a more robust provider enabled services, applications and content. Expanding the range and quality of online Government services can increase civic participation and Government efficiency, while also significantly improving consumer perceptions of the value of broadband access.**

5.4 How can broadband be made more consumers friendly especially to those having limited knowledge of English and computer?

- a. It is true that there is dearth of non-English online content and definitely the lack of comfort with English is correlated with low levels of broadband adoption. However, there are number of examples like Korea, Japan, China etc which defy the assumption that one must be familiar with English to achieve a high level of Internet use.
- b. The development of Korean content has been astounding and today the nation has one of the highest usage ratios of home grown content. The top 10 web sites accessed by Korean users are all in Korean. The success of broadband adoption in these countries proves that language barrier can certainly be reduced by making available the content in local languages.
- c. Even computer and other devices to access broadband are mostly in English. Local language input is as challenging as creation of locally relevant content as keyboards have only English letters. Manufacturers are not sure if making keyboards in vernacular language is a good idea because they are not sure of the demand. Thankfully now tools are available to translate web content from one language to another and also use applications like virtual key boards to interact and punch in details in the local language. Google provides local languages translation and virtual keyboard applications, free of cost. A snapshot of translated version of FCC website and TRAI website is given below.



- d. Thus technology is available to even translate content in local languages. The Government should encourage development of such applications so that highly reliable translation services are made available to people. Broadband acceptance would also improve with technologies, functionalities, services, and experiences being available in local languages.
- e. Notwithstanding the availability of technology to translate content in local languages, the Government should also extensively invest in development of content and applications in

Indian vernacular languages which has local relevance so as to increase popularity of broadband for the people having limited knowledge of English and computer. Public Private Partnership is also a good idea for this kind of development.

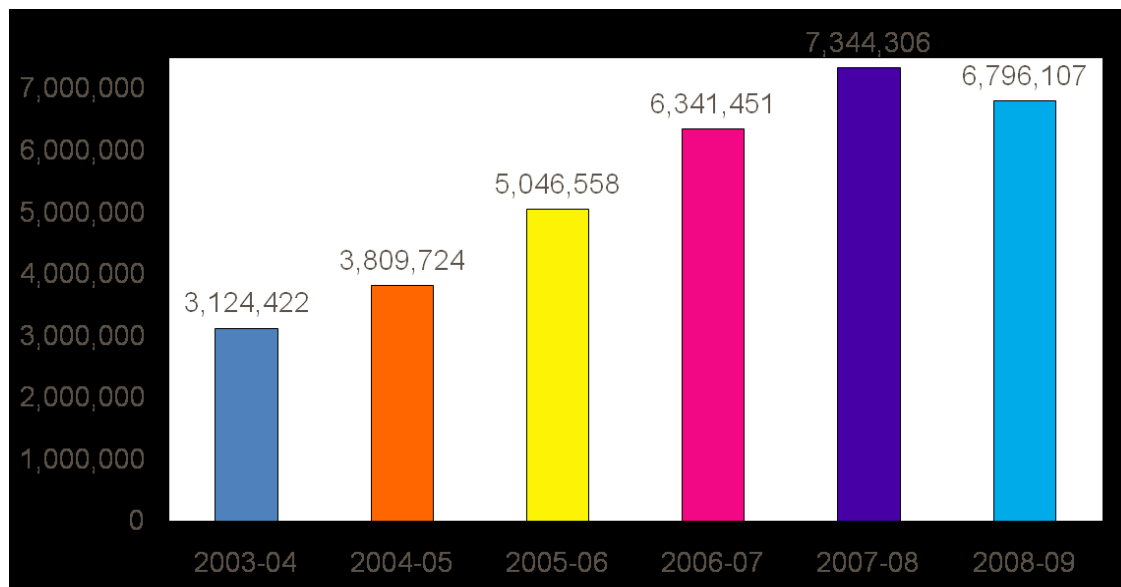
f. In view of the above it is suggested that:

- a. Technology should be perfected and exploited to translate and make available any content in local language;
- b. Extensive investments are needed to make available local content and relevant applications so that consumers perceive higher value of broadband services.
- c. More investments should be made in education.

5.5 Do you agree with projected broadband growth pattern and futuristic bandwidth requirements?

a. The real challenge in rural broadband lies in increasing the PC penetration. The Government should promote vendors to look at sub INR 10,000 PCs in a big way. If we see the total PC (Desktops & Notebooks) sales upto 2009 and extrapolate it upto 2014 then it is estimated India will add approximately 30 million PCs in next four years. This number is quite less compared to the 91.25 million; which is the gap between existing 8.75 million connections and targeted 100 million Broadband connections in 2014. The gap can be filled only by using other CPEs like 3G mobile. So the success of 3G mobile technology for broadband penetration is really going to play a key role in increasing broadband penetration.

Total PC (Desktops & Notebooks) sales: 2003-2009



CAGR2003-09:17%, Growth over 2007-08:-7%

Source: http://www.mediamughals.com/docs/research/2008-09_IT_Annual_review.pdf

b. The estimate for futuristic bandwidth requirements is too high considering the present dismal picture of broadband services. Definitely there will be increase in bandwidth requirement to support the emerging applications as the number of broadband connections increase but the average bandwidth

requirement per household may not be so high i.e. 3 Mbps as assumed by TRAI to calculate the futuristic bandwidth requirements. Considering the Global average connection speed of 1.7 Mbps, the average bandwidth requirement per household in India may reach upto 1 or 1.5 Mbps by 2014 and consequently the forecast for bandwidth requirement will also change.

5.6 Do you agree that existing telecom infrastructure is inadequate to support broadband demand? If so what actions has to be taken to create an infrastructure capable to support futuristic broadband?

- a. The biggest barrier for the growth of the broadband in India is affordability. Broadband in India is very expensive when compared to Western Europe and USA. The per capita income of India doesn't allow people of the country to spend much on the broadband infrastructure. Indian customers are price and quality sensitive; they spend only when they think that they are getting good value for the money spent.
- b. There is a very strong link between income level and broadband penetration. The broadband boom in India would only happen with the timely and inexpensive deployment of broadband access technology. This would make the access to broadband much more feasible for the large masses similar to the mobile subscriber boom the country is currently experiencing. Wide coverage, India specific Applications, cheaper access devices and improved speed are the need of the hour to make broadband a huge success and to ensure that India is at par with other advanced nations.
- c. It is clearly understood from the TRAI paper that though there are 104 service providers in India who are providing broadband, at present only top ten service providers have occupied more than 95% of market. Out of this 95% market, 70% market is occupied by the state owned companies BSNL and MTNL who are providing broadband connection through DSL technology. These service providers offer cheap rates for broadband connections. So they are far ahead of the other broadband service provider though the top 4-5 service providers have their own nationwide network.
- d. Our experience in mobile telephony has established that there is high level of price elasticity among the service takers. So there is real need of price reduction to achieve the targeted broadband penetration of 100 million by 2014 in India.
- e. Government has taken steps recently to allot 3G and BWA spectrum to a number of operators. These operators are going to create suitable infrastructure for the support of futuristic broadband services. But the operators who got license to roll out these services have already spent a huge amount on spectrum charges and they need additional CAPEX for roll out of these services. The biggest worry in this case is the affordability of these service as the operators will try to pass all these expenses to the customers so these service are likely to be costly in first few years until unless subscriber number increase upto a desired level when the operators can take advantage of economy of scale and able to offer lower price. **We should remember that mobile usage became viable for the common man only after both the mobile equipment prices and the mobile usage charges became one of the**

cheapest in the world. That led to the rapid growth of mobile users. So either government or the operators need to provide subsidy to provide broadband connection to kick off the demand.

- g. The Government has a major role to play in this context and needs to come forward with various initiatives to reduce the broadband price. Following is suggested :**
- i. Use of USOF fund for creating fiber network in each state connecting all sub district head quarters like Assam Circle Fiberization model and providing cheaper bandwidth to ISPs for providing broadband service.**
- ii. Laying emphasis on infrastructure sharing between service providers so that the cost of service comes down and services are offered at an affordable price to the consumers.**
- iii. Unbundling of local loop**
- iv. Development of content by government for rural people**
- v. Spending from other government scheme like Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) for fiber roll out & content development. It appears that the Government has allocated fund of Rs 39100 Crores for this scheme in the current financial year.**
- vi. Subsidising of Broadband dongles and Broadband tariffs in rural areas.**

National Broadband Network

5.7 What network topology do you perceive to support high speed broadband using evolving wireless technologies?

- a. There are various access technologies available for providing broad band access but the most popular technologies are DSL, Wireless, Cable TV, Satellite and optical Fibre.**
- b. Right now majority of wireless internet connections is working on 2G technology which can't provide broadband connection. With the allocation of spectrum for 3G and BWA services, high speed wireless access will soon be a reality. The main advantage of wireless broadband access is that it can be deployed very quickly and the cost of maintenance is also very low. Hence it is likely to be handy to increase broadband penetration within minimum time.**
- c. We feel that no single network topology would meet the universal service requirement. The National Broadband Plan should recognize and embrace all fixed, mobile wireless and satellite platforms as part of the broadband eco-system to ensure that broadband is available to maximum number of citizens. The Government should continue to adopt technology neutral policy and all technologies should be provided level playing field to compete in the market.**

d. Following is suggested:

- (i) National Broadband Plan should not define network topology.**
- (ii) The plan should in particular avoid definitions based on arbitrary speed thresholds which do not adequately capture performance capabilities.**
- (iii) Government should continue to adopt technology neutral policy so that all technologies are provided level playing field.**

5.8 What actions are required to ensure optimal utilization of existing copper network used to provide wireline telephone connections?

- a. Though at present, 86% of broadband connections are provided using DSL technologies but it is not the best access network. One of the reasons for DSL to be in forefront is due to the fact that the state owned telecom companies BSNL & MTNL are having wide spread copper network.
- b. Right now India has around 40 million landline connections. Even if we consider that about 50% of available copper loop is capable to deliver broadband services and only 50% of these capable connections exist within 3 Km range from the exchange, we can provide broadband capable to support upto 2 Mbps to 25 - 30% of fixed line connections through DSL. Thus it would be possible to provide about 10 million broadband connections capable to support upto 2 Megabit. We must ensure that 100% of this copper loop is being used to provide broadband connections.
- c. **It is suggested that Government should unbundle the local loop so as to make use of the underground copper to the maximum extent possible.**

5.9 Do you see prominent role for fibre based technologies in access network in providing high speed broadband in next 5 years? What should be done to encourage such optical fibre to facilitate high speed broadband penetration?

- a. The plan should not focus on one technology like fibre, to the exclusion of other technologies based on the assumption that fibre may be a future proof technology. The broadband plan must also ensure that sufficient spectrum is provided for the provision of wireless broadband services in access as well as backhaul services.
- b. Optical Fiber provides maximum access bandwidth for any applications. Service providers have realized this fact and are in the process of laying optical fibre upto customer premises/cabinet. In India, there is high population concentration in metros and cities, although majority of population lives in rural areas. There is a need to create optical fibre access network in all major cities and metros to provide high speed broadband. These big cities are having optical fibre in core network but in access network optical fibre penetration is limited. In these cities, optical fibre to the home

will be better option in case of individual dwelling units and optical fibre to the curb will do well for multiple dwelling units. Optical fibre up to the villages may do well to start with and last mile should be taken care by wireless, Ethernet and copper cable.

c. Following is suggested:

- (i) **It is true that fibre based technology in access networks will play a prominent role, yet wireless technologies can also play equally prominent role in access network if sufficient spectrum is provided for broadband technologies e.g. 3G / 4G / BWA.**
- (ii) **To encourage fibre deployment in uncovered and unviable rural and remote areas, the authority should suggest subsidy from USO Fund.**

5.10 *What changes do you perceive in existing licensing and regulatory framework to encourage Cable TV operators to upgrade their networks to provide broadband?*

- a. Though there are 85 million Cable TV households in India but most of the cable TV networks are analog and one way. Only 10% of existing cable TV network i.e. approximately 8 million cable TV connections are capable to provide broadband access at present. However, it requires substantial amount of CAPEX to upgrade this network for providing broadband services. Moreover the cable TV network is highly fragmented and also they do not have permission to provide additional services to make viable business model by bundling different services. So the Government should permit them to provide additional services to make their business viable.
- b. The cable services should be licensed and digitalization mandated. This will not only provide better reception quality, increased channel carrying capacity, new features, interactive services but will also provide potential for triple play services like voice, video and data.

c. Following is thus suggested:

- (i) **Cable network should be licensed**
- (ii) **Digitalization should be mandated in a time bound period.**

5.11 *Is non-availability of optical fibre from districts/cities to villages one of the bottlenecks for effective backhaul connectivity and impacts roll out of broadband services in rural areas?*

5.12 *If so, is there a need to create national optical fibre network extending upto villages?*

- a. If the government's objective is to cover 40% of the households for broadband, then fiber connectivity to the villages will be desirable. It is estimated by TRAI that the total optical fibre requirement (in Km) for connecting villages will be whopping 11.5 lakh kms. The cost for laying this amount of fiber cable as estimated by TRAI is more than Rs. 32,000 Crores. Spending this much amount of CAPEX only in OFC laying is not going to be viable to the private operators. Therefore, the existing fibre network must be leveraged so as to keep investments at reasonable level without

compromising on broadband objectives. So the Government needs to play key role here specially for the rural connectivity.

- b. It is also true that without Government support, it is unlikely that high quality backbone network for high speed broadband would be available in remote and thinly populated areas. Therefore, USO support should be available for creating fiber infrastructure by private and public sector companies for ubiquitous broadband services. World over, the Governments have invested huge amounts in providing backhaul connectivity for facilitating broadband connections.
- c. Although fiber network is desirable but Microwave backhaul also plays crucial role especially with RoW permissions being a challenge. Microwave backhaul currently constitutes a significant portion of a cellular operator's network. With 3G and deployment of broadband wireless technologies, the demand for wireless backhaul capacity will increase. Therefore, the TRAI should take steps to ensure that sufficient microwave spectrum is available to meet future demand. Policies that facilitate microwave usage for backhaul will expedite broadband deployment, lower the cost of broadband and increase its availability in rural and remote areas. Therefore, the Authority should also give an equal emphasis to microwave backhaul as to the optic fibre.
- d. Following is therefore suggested**
 - (i) Creation of Fiber Optic Infrastructure from Districts/cities to villages is essential to meet the broadband objectives;**
 - (ii) Existing optic fibre must be harnessed for meeting broadband objectives;**
 - (iii) Microwave deployment in the backbone cannot be ignored and Government support must also be available for microwave based backbone deployment in remote and rural areas.**

5.13 *In order to create National optical fibre core network extending upto villages, do you think a specialized agency can leverage on various government schemes as discussed in para B?*

- a. Like other broadband rich countries, Indian government need to set example by investing heavily to create nationwide robust backbone to increase broadband penetration as this is going to boost economic development. Government has to initially fund the creation of optical fibre network upto the villages to boost broadband penetration. Telecom service providers are not actively engaged in such projects due to huge expenditure with low rate of returns at present. There are various options available to the Government like meeting the requirements from USOF, free ROW and support through other Government schemes like Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS).
- b. We believe that fibre deployment in the uncovered areas should be through public / private partnership by providing subsidy through USOF. Creation of National Optic Fibre Agency would result in uncertainty with regard to commercial investments and as such is not required when the same work could be carried out by the large number of telecom operators in each area. Creation of such an agency would be duplication of the efforts by the Government.

- c. **It is thus our view that there is no need for a specialized agency to create optic fiber core network. The existing operators will take the OPC to villages if right incentive and ROW approvals are provided**

5.14 Among the various options discussed in Para 3.35 to 3.37, what framework do you suggest for National Fibre Agency for creating optical fibre network extending upto village level and why?

- a. We are not in favour of creation of any National Fibre Agency for the creation of optical fibre networks as a number of existing service providers are already making efforts to lay optical fibre cables as per business viability. These operators could be helped through USO funding for laying optical fibre cables to the villages to make business viable.
- b. Among the various options discussed in Para 3.35 to 3.37, we think that option 3.36 i.e. public private partnership (PPP) is the best option to create nation wide optical fibre network. OFC may be leased out to other service providers on demand on predetermined rates prescribed by the government/regulator as was the case **for Assam circle fiberization project initiated by government by using USO Fund**. Revenue earned by this leasing operation may be shared between USOF and private partner.
- c. **It is therefore suggested that no national optical fibre agency need to be created. The existing telecom licensees should be encouraged by funding through USOF to lay optical fibre cables upto village level.**

5.15 What precautions should be taken while planning and executing such optical fibre network extending upto villages so that such networks can be used as national resource in future? What is suitable time frame to rollout such project?

We are of strong view that the fibre should be deployed by service providers in unviable rural and remote areas through funding support from USO Fund. Deployment through service providers would be most efficient and would result in optimum utilization of resources. **In case, the Authority is still of the view that the optic fiber agency is necessary so that networks upto villages can be used as National Resource, then it should be created on the following principles:**

- (i) The agency should be regulated by the same licensing and regulatory regime under which other NLDOs are operating.
- (ii) Complete competitive neutrality between private and public sector operators and National Fiber Agency should be maintained;
- (iii) The agency should solely focus on the provision of bottleneck fibre access services for those who are residing in remote areas or where private investment is not viable.
- (iv) The focus should be to setup network in areas *where there is no private sector business case to provide broadband*.

- (v) The agency ownership arrangements should minimise the scope for conflicts of interest between the Government's role as promoter and its role as policy-maker. Further this agency must be independent so that it maintains its independence and there is not unfair discrimination between access seekers.
- (vi) Agency should only deal with service providers. Its resources should not be available for retail consumers.

Regulatory Challenges and Future Approach

5.16 Is there a need to define fixed and mobile broadband separately? If yes, what should be important considerations for finalizing new definitions?

- a. Yes, there is a definite need to define fixed and mobile broadband separately. The TRAI's existing broadband definition is designed for wireline networks and not for wireless networks. There are a number of reasons for not extending same definition to wireless providers because wireless networks present unique technical challenges and concerns that distinguish them from wireline broadband networks.
- b. The core networks for wireless and wireline networks are not substantially different but the "last mile" distribution / access system is entirely different. In respect of wireline networks, the access is earmarked to a particular customer while in case of mobile networks, the access is shared and is dependent on the number of customers in that BTS. All the subscribers on a wireless network in the same area share the same capacity.
- c. The bandwidth that can be delivered in broadband wireless access is spread across all the active customers on the same base station antenna. Resource-intensive use by one wireless broadband customer impacts the speeds at which others can communicate. This is unlike the dedicated user access technology used in wireline broadband systems, where sharing of capacity occurs only at more central points in the network and not at the access level.
- d. Mobile wireless networks, unlike fixed networks, enable customers to change locations and still gain access and even communicate while traveling. The wireless network has to be designed to accommodate mobile subscribers rather than subscribers sitting in one place. The cell sites for mobile networks have constantly changing volume of voice and data usage, which put varying strains on the available spectrum resources.
- e. Wireless networks have limited capacity compared to an optical fibre cable system. Although new wireless technologies, such as LTE and Wi-MAX, will substantially improve wireless system speeds but will still lag behind the speeds available using wireline networks.

(i) In view of the above, it is suggested to define fixed and mobile broadband separately. There should not be any requirement of Always on” condition for the mobile Broadband Wireless Service.

5.17 *Is present broadband definition too conservative to support bandwidth intensive applications? If so, what should be the minimum speed of broadband connection?*

- a. Generally regulators do not define or set broadband speeds and leave it to the competition and players to provide higher speeds to customers. For example Japan, Canada, Australia etc have not defined minimum download speeds. In some countries, where minimum speed has been defined, there are separate definitions for wired and wireline connections in order to protect the interests of both technologies.
- b. In India, the wireless technologies are at a very nascent stage with just around 1% of broadband users using wireless connections. Recent technological innovations in mobile telephony are capable of generating high speed internet access through mobile phones. Wireless as a technology has immense potential and high uptake and wireless broadband is likely to have similar uptake and can be an important lever in realization of Government’s objective of providing internet connectivity to large number of subscribers. Since service is at a nascent stage, the authority should not regulate wireless broadband and set very challenging speed limits.
- c. The Government has recently auctioned and allotted 3G & BWA spectrum to a number of operators. Both these technologies are capable of providing mobile broadband services. The networks based on these technologies are likely to be rolled out in 2010 – 11. There are four operators for 3G networks and three operators for BWA and as such there will be seven operators rolling out their networks for broadband services during this course of time. All these operators having paid a substantial amount of spectrum charges will definitely try to make maximum use of its network by providing innovative services at competitive rates.
- d. **It is therefore suggested that :**

The authority should not change the existing speed of broadband services and keep 256 kbps unchanged for both wireline and wireless networks. This will provide an open competitive field for all the wireline and wireless operators, including the 3G and BWA operators to offer higher and higher speeds at competitive rates.

5.18 *What specific steps do you feel will ease grant of speedy ROW permission and ensure availability of ROW at affordable cost?*

Delay in approvals for RoW and Tower Sites by Local Bodies

- a. Intervention of the TRAI / DoT can help to obtain timely clearances for all ROW applications and tower sites. The delays in granting approvals have resulted in legal complications where despite payment of fees, submission of supporting documents including structural safety certificates, it has been alleged that such towers are illegal. All cases of tower sealings in Delhi, Noida and few other municipalities have arisen due to delays in granting approvals. In a few areas like Lutyens

Delhi, Local Authorities have taken more than 2 years but still permissions are awaited. Timely processing of applications and granting approvals can avoid unnecessary litigation.

- b. In this regard, we would like to draw the Authority's attention to the **Federal Communication Commission, USA's recent declaratory ruling dated 18.11.2009 where they have established timeframes of 90 days for collocations and 150 days for all other tower siting applications reviewed by state and local governments.** FCC found that while most state and local jurisdictions currently process tower sitting applications in a timely fashion but there were many instances of unnecessary delays. Congress specifically requires that state and local authorities act "within a reasonable period of time" on requests for tower siting. The FCC's decision achieves a balance by defining reasonable and achievable timeframes for State and local governments to act on zoning applications while not dictating any substantive outcome on any particular case or otherwise limiting State and local governments' fundamental authority over local land use. A copy of FCC press release is enclosed for your ready reference (**Annexure I**).
- c. Section 12 of the Indian Telegraph Act, 1885 also provides that the permission by the local authorities may be granted on reasonable conditions. The reasonable condition also includes reasonable time period to grant approvals for setting up of the mobile towers. **The Authority is requested to consider powers under Section 12 of the Indian Telegraph Act, 1885 to specify time limits for processing of applications for mobile towers.**

High ROW and Tower Clearance fees

- d. Although extensive use of fiber in broadband networks considerably improves the performance and reliability of those networks but its deployment is very expensive. The largest element of deployment costs is not fiber but the placement costs associated with burying the fiber in the ground and ROW charges payable to state and municipal governments. These costs, in certain cases are more than three-quarters of the total cost of fiber deployment.
- e. Since large part of the cost of deploying fibre networks is in form of RoW and exorbitant levies are being imposed by various municipalities, **there is a need to have appropriate policies in place for ensuring access to right of way at reasonable prices. RoW should be available at no charge to facilitate mobile service providers to offer affordable broadband and mobile telecom services.** Large scale deployment of fiber in the access network would never be possible unless exorbitant RoW charges are rationalized. Details of charges demanded by various State Agencies are given in Annexure II.
- f. The Telecom Operators have been guaranteed the Right of Way (ROW) under Section 10 of the Indian Telegraph Act, 1885 but various municipalities and other State agencies have stipulated their own norms across the country for granting permission / access. As per the Act, the charges that can be levied for granting RoW shall be limited to the restoration charges or any other thing connected with or related to any work. Going by the rates it can be seen that there is no rationality/ uniformity in charging as well as there is no uniformity across various states / municipalities and within a state.

- g. This exorbitant RoW charges are impacting the business plans of the telecommunication/ infrastructure service providers. The imposition of high RoW and tower setting levies would create additional burden for the telecom service providers and delay the expansion of networks especially in the rural areas and augmentation of capacities in the urban areas.
- h. The DOT had circulated draft model guidelines in 2005 for RoW which clearly indicated that all State governments should extend the facility of rights of way for laying underground Telecom cables to all licensees without payment of any compensatory charges / levy /lease rentals / license fee / free bandwidth / revenue share / cashless equity etc. The only admissible charges are reinstatement charges or charges directly linked to the restoration work. Therefore, the RoW charges may be levied only to ensure proper restoration and compaction of the dug portion of the trenches to the satisfaction of the civic authorities.

Coordination of Infrastructure Projects for single digging for laying of ducts

- i. Although fiber based network considerably improves the performance and reliability of broadband service but the deployment cost in last mile as well as in backhaul is exorbitant. The largest element of deployment costs is not the fiber but the cost involved in digging, restoration and RoW permissions. Running a strand of fiber through an existing conduit can be even less than half the cost of fresh laying of fiber. Substantial savings can be captured if fiber builds are coordinated with other infrastructure projects in which the right-of-way (e.g., road, water, sewer, electric, etc.) is already being dug.
- j. The government should mandate National Highway and State Highways Authorities, Railways etc to build ducts along all laying of new roads and tracks for carrying electrical and telecommunication cables. Municipalities should also have policies to approve new township or housing society only if they have provision for fiber ducts. This policy is in vogue in many countries.
- k. **In view of the above, Authority may specify through appropriate legislation:**
 - (i) **reasonable period for granting permissions for RoW and Tower clearances;**
 - (ii) **reasonable RoW and Tower Clearance fees;**

5.19 *Does the broadband sector lack competition? If so, how can competition be enhanced in broadband sector?*

- a. Current broadband penetration statistics in India clearly indicates that the sector lacks competition. Though there are 104 service providers in India who are providing broadband, at present only top ten service providers have occupied more than 95% of market. Out of this 95% market, 70% market is occupied by the state owned companies BSNL and MTNL. This uneven distribution of subscribers proves that the sector lacks competition.

- b. However, the situation is going to change in near future since the DoT has recently allocated spectrum for 3G and broadband technologies to seven operators. Both these technologies are capable of providing broadband services meeting most of the requirements of the country. Only three slots of 20 MHz each of broadband spectrum have been allotted out of a total of 290 MHz of earmark spectrum in 2.3 – 2.4 and 2.5 – 2.69 GHz bands, the authority should emphasis on the Government to allot another 100 MHz of BWA spectrum so that ubiquitous presence of broadband becomes a reality and on the other hand Government will also benefit by another Rs. 50,000 crores.
- c. The Authority can encourage broadband competition by making available additional spectrum in 700 MHz band by facilitating digitalization of the analog TV network. In a large number of countries, the Governments have got the spectrum in 700 MHz band vacated through digitalization of TV and allotted it for the broadband services as this spectrum is ideal for providing broadband services in rural and far flung areas.
- d. The entire 900 MHz spectrum is being used by some of the 2G operators. This spectrum is ideal for providing broadband networks like 3G and 4G requiring lesser CAPEX. Thus, the Authority should recommend the refarming of 900 MHz spectrum immediately and not as recommended by the Authority earlier at the time of renewal of licenses.
- e. The growth of wireless broadband will be constrained if government does not make available enough spectrum for network expansion. Absence of sufficient spectrum leads to increase in cost of infrastructure rollout which would make services more costly. This will also inhibit growth, innovation and investment in the sector as creation of new applications also depend on bandwidth available on internet.
- f. Due to pro-competition policies of the Government, many operators in the mobile sector could setup new networks. The cellular subscribers have tremendously benefited from competition and now local and long distance services are available at affordable rates. The pulse options like per second billing, per minute and longer duration call billings are available. The new features like flat rates for local, STD, roaming etc have been introduced. Similarly making available additional spectrum would lead to higher competition in the market.
- g. **In view of the above it is suggested that:**
 - (i) **Sufficient spectrum in 700 MHz, 2.1 GHz, 2.3 GHz and 2.5 GHz bands should be made available urgently.**
 - (ii) **Reform the 900 MHz spectrum immediately.**
 - (iii) **Time bound programme for making available spectrum in 450 MHz and 1900 MHz for EVDO services.**

5.20 *Do you think high broadband usage charge is hindrance in growth of broadband? If yes, what steps do you suggest to make it more affordable?*

- a. Yes, affordability is one of the main hindrance in the growth of broadband services. The tariffs are high because the usage has not reached a critical mass which can provide economies of scale for the operators and the number of operators providing broadband services are limited. It is expected that after launch of 3G and BWA services, there would be at least five new operators excluding BSNL and MTNL providing broadband services which would increase competition and result in reduction of tariffs. Mass adoption of broadband services would also provide economies of scale to the operators.
- b. **The Authority is requested to take following steps to make broadband more affordable:**
 - (i) **Extensive use of USO fund for creation of infrastructure in remote and rural areas and also provide subsidies for providing tariffs at affordable rates;**
 - (ii) **USO fund should be used to provide subsidy for customer premises equipment at affordable rates;**
 - (iii) **There should be concerted efforts to make broadband more relevant for people so that there is large scale adoption of broadband service. All applications which are critical for mass adoption should be subsidized.**

5.21 *Do you think simple and flat monthly broadband tariff plans will enhance broadband acceptability and usage?*

- a. Simple and flat monthly broadband tariff plans to enhance broadband acceptability and usage may be a good idea but its success depends upon how much will be charged for this type of scheme. Flat monthly tariff plans are already available in the market and being offered by almost all major ISPs and PSUs. Subscribers use tariff plans based on their usage pattern and speed requirement. **It would not always be true that subscribers find flat monthly charges to be most suitable tariff for them.**
- b. TRAI should continue to follow the current practice to allow service providers to launch tariff plans and segment the market on the basis of usage pattern of subscribers. Subscribers take tariff plan which is most suitable for them. The Authority may recall that during the last review of number of tariff plans that may be allowed, most consumer groups had opined that various options available are beneficially for them.
- c. **It is thus suggested that the tariff plans should be left at the discretion of the operators.**

5.22 *Should broadband tariff be regulated in view of low competition in this sector as present?*
&

5.23 *What should be the basis for calculation of tariff for broadband, if it is to be regulated?*

Tariffs for Broadband should not be regulated as competition is likely to enhance in near future. There would be at least 5 new 3G operators and BWA operators in all service areas in addition to BSNL & MTNL which would make wireless broadband market fiercely competitive. In addition, many CDMA and GSM operators are already providing high speed internet services. Tariff regulation at this stage would delay investments in the sector. It is therefore suggested that tariffs should not be regulated.

5.24 *How can utilization of International Internet bandwidth be made more efficient in present situation?*

- a. Utilization of International bandwidth can be made more efficient if content hosting in the country is increased up to a substantial level. Although there are more than 100 ISPs but the number of registered ISPs on NIXI for the respective locations are as follows:

Mumbai	24
Noida	24
Chennai	15
Kolkata	5
Hyderabad	5
Ahmadabad	3

- b. **All the Government units should be encouraged to host sites in India. It is suggested that the TRAI may consider to encourage domestic hosting/mirroring of sites & domestic routing of traffic by creating an economically viable model through effective data centers and NIXIs by recommending Tax breaks and concessional power. This will make hosting of internet content much cheaper in India**

5.25 *How can use of domestic and international internet bandwidth be segregated? Will it have direct impact on broadband affordability? If so, quantify the likely impact.*

Segregation of domestic and international internet bandwidth will not have a direct impact on broadband affordability as this will hardly reduce the broadband charges to user unless content hosting in the country is increased up to a substantial level. This is expected to take lot of time considering law and social structure of India.

5.26 *What steps should be taken to bring down the cost of international internet bandwidth in India?*

5.27 *How can competition be enhanced in the International bandwidth sector?*

- a. TRAI has already created environment for competition in the international bandwidth market through RIO for access to cable landing station. Its effects are seen in the sharp drop in the prices of international bandwidth as evident from the competitive prices offered to MTNL and BSNL

through tender. Hence in our view no further steps are need in this regard. What needs to be ensured is that the benefit of reduced international bandwidth be passed on to customers by services providers serving the customers.

- b. Sufficient competition already exists in the international internet bandwidth market. Tata Communications, Bharti Airtel and Reliance Globalcom are three major operators who own international cables and bandwidth In addition, it is learnt that Sify is also going to have their own submarine cable systems and cable landing stations. There are a number of other major international operators including AT&T, Cable and Wireless, BT who can access international bandwidth and accessing that through Cable Landing stations owned by Indian ILDOs.
- c. **There is no shortage of submarine bandwidth in India. This is born out from data compiled by TRAI, showing a total capacity of 18.6 Tbps across all existing submarine cables reaching India.**
- d. **Hence in our view, no regulatory intervention is needed neither to regulate the costs of international bandwidth nor for enhancing the competition in the international bandwidth sector. Regulation would discourage investments in the sector which is already thriving on the competition.**

5.28 *QoS of broadband, availability of bandwidth, adherence to given contention ratio, affordability, availability and spread are some intricately linked parameters. In your opinion what should be done to ensure good quality broadband to subscribers?*

5.29 *Do you think that bad quality of broadband connection is impacting the performance of bandwidth hungry applications and hence crippling the broadband growth? If so, please suggest remedial actions.*

5.30 *Is there a need to define new/redefine existing quality of service parameters considering future bandwidth hungry applications, time sensitivity of applications and user expectation? What should be such parameters including their suggestive value and should such parameters be mandated?*

- a. With changing demand and increase in bandwidth hungry applications, the quality of broadband will automatically improve.
- b. Regulations on quality of service may not bring the desired results. Increase in competition is the only way to ensure good quality broadband to subscribers.
- c. The Authority is requested to make more spectrum available for broadband technologies in 700 MHz, 2.1 GHz, 2.3 GHz and 2.5 – 2.69 GHz bands so that more new operators could be allotted spectrum for these services which are capable of providing broadband services in reasonable time

frame. The Authority should also have a time bound program for the allotment of spectrum in 450 MHz and 1900 MHz bands for the use of EVDO services as a forward path for CDMA operators.

- d. The quality of service can further improve if lower frequency bands like 450 MHz, 700 MHz and 900 MHz are used for providing broadband services. The Authority is requested to recommend refarming of 900 MHz spectrum with immediate effect and for making sufficient spectrum available in 450 MHz and 700 MHz bands.
- e. It is true that the bad quality of broadband connection is impacting the performance of bandwidth hungry applications and hence crippling the broadband growth. However, the Authority has already notified “Quality of Service of Broadband Service Regulations 2006” which mandate benchmarks for number of customer centric and network centric parameters. This regulation would be sufficient to meet the quality objectives and there is no need to define or redefine any other quality parameter.

5.31 *What measures do you propose to make Customer Premises Equipment affordable for common masses? Elaborate your reply giving various options.*

- a. Following measures are proposed to make Customer Premises Equipment affordable for common masses
 - (i) Introduction of low cost PC & Notebook
 - (ii) Exempting CO equipment and CPE’s, including STB’s and PC’s from all customs and excise duties including CVD, special duties and sales tax
 - (iii) Use of technology like **Thin Client** to reduce the CPE cost
 - (iv) Schemes to bundle PC/Laptop/Notebook with broadband subscriptions and provide it to subscriber on installment basis
 - (v) Sale of refurbished or discarded computers should be encouraged by incentivising this industry through tax breaks.
 - (vi) The sale of TVs is very high in India. The government should encourage sale of TVs which have additional feature for broadband access.
 - (vii) Financing Schemes and education

5.32 *What measures are required to encourage development of content in Indian vernacular languages?*

- a. Content development in Indian vernacular languages will automatically take its own pace once the broadband penetration increases. Government should provide soft infrastructure status to

digital content in vernacular language (education, health, governance, local language, web content and interactive entertainment) to enable incentives and interventions.

5.33 Do you perceive need for any regulatory or licensing change to boost broadband penetration?

- a. As discussed above, the The Authority is requested to make more spectrum available for broadband technologies in 700 MHz, 2.1 GHz, 2.3 GHz and 2.5 – 2.69 GHz bands so that more new operators could be allotted spectrum for these services which are capable of providing broadband services in reasonable time frame. The Authority should also have a time bound program for the allotment of spectrum in 450 MHz and 1900 MHz bands for the use of EVDO services as a forward path for CDMA operators.
- b. The quality of service can further improve if lower frequency bands like 450 MHz, 700 MHz and 900 MHz are used for providing broadband services. The Authority is requested to recommend refarming of 900 MHz spectrum with immediate effect and for making sufficient spectrum available in 450 MHz and 700 MHz bands Governments
- c. Unbundling of local loop should be mandated.
- d. Streamlining of existing system for SACFA clearances and related fees can expedite wireless network deployment.
- e. ISPs are providing fixed wireless broadband services in 3.3 GHz, 3.4 GHz and 10.5 GHz bands. The government levies for fixed wireless broadband services need to be rationalized so that these could be made more affordable. Following changes are suggested:
 - (i) Currently, a license fee of INR 1000 per customer site (RRU) is payable by the licensee. This directly adds to the service provisioning costs and is a hindrance in uptake of the broadband. This fee should not be charged as operators pay spectrum charges for this frequency.
 - (ii) The spectrum usage charge in 3.3GHz, 3.4 GHz and 10.5 GHz is levied on formula basis i.e. $\text{Spectrum Charges} = M * W * C$; Where C = Number of carriers; M = 2400 for distance between 5 Km to 25 Km and W = 60 for bandwidth greater than 2 MHz to 7 MHz.
 - (iii) The calculations assume that the distance upto which the services are being provided is more than 5 kms and all the way upto 25 kms. However, the field experience indicates that the distance upto which the services can be provided is normally limited to around 2 kms due to the following:
 - 3.3 GHz is on higher end of spectrum and suffers from higher attenuation (free space loss, building wall attenuation etc).
 - Since the system is meant for mass broadband deployment, the customer prefers indoor installation of CPE. This requires that the wall attenuation be budgeted for in the RF design, requiring the distance from the base station to be kept much lower than the outdoor deployment.
 - Available spectrum per MHz is limited (3MHz per sector) and hence capacity available per sector is quite limited. (At 1.7bits/Hz spectral efficiency, total capacity of only 5.1 mbps (uplink + downlink) is available.
 - Requirement from the broadband customers limits the number of concurrent customers that can be served per sector.

- (iv) Due to above observations on RF propagation and system capacity perspective, the 3.3 GHz system requires to be designed and operated with limited radius of operation, with maximum being 2 km.
 - (v) Current calculations are leading to annual license (annual royalty) payment of Rs. 2.89 lakh per BTS, which makes the entire operation unviable due to limitations as described above.
 - (vi) As the coverage that the operators are getting is only upto 2 kms, the factor used for arriving at annual royalty (M) be changed to 1200, correctly reflecting the actual field situation.
- f. There is a need for the simplification of SACFA approvals for towers and Customer Units for Fixed Wireless services:
- SACFA approvals are required for each and every antenna on every tower and each and every customer site for Fixed Wireless Broadband. This is a voluminous and time consuming job and a major hindrance in achieving the broadband objectives.
 - WPC has licensed spectrum to all operators and signals are required to be propagated within the specified bandwidth. Since frequencies are exclusively allocated, there are minimal chances of hindrance. Service providers are submitting large number of SACFA applications but hardly any wireless deployment is rejected because of possibility of interference.
 - Once towers have been approved by SACFA, there should not be any additional requirement for more clearances. There should be only reporting requirement for deployment of wireless infrastructure.
 - Internationally, approvals are required for only towers and no additional clearance is required for installing antennas.
 - Further, for Fixed Wireless Broadband, the power transmitted by a customer unit is not high enough to cause any interference with other operational wireless systems therefore SACFA clearance should be done away with.

5.34 *Are there any specific competitions and market related issues that are hindering growth of broadband?*

- a. The DSL service on copper cables is a monopoly of state run companies. In order to increase competition in this market and also to increase internet penetration, there is a need to un-bundle the local loop. Unbundling would provide other operators an access to copper network and entry into the DSL market.
- b. Digital entertainment is one of the major drivers for increasing the consumer demand for broadband connection in most of the countries as reported by various market research firms. The cyber and entertainment laws should be more flexible to allow some of the digital entertainment to enhance the broadband growth.

5.35 *What other fiscal/non-fiscal measures should be considered to boost broadband penetration?*

Encouraging Broadband Adoption and Deployment through Tax Reform

- a. In order to encourage broadband penetration and deployment, it should be ensured that tax policies encourage broadband adoption, investment and deployment particularly in unserved areas. Tax incentive schemes would make broadband affordable and also spur investment in new broadband infrastructure. Tax policy can prove highly effective at addressing various “demand-side” concerns like affordability.

Refundable Tax Credits

- b. An efficient and effective way to address broadband affordability concerns faced by some consumers would be to establish a refundable tax credit for low-income citizens to help them afford online access. Government should consider a 100% refundable tax credit for those citizens that qualify for the earned income tax credit, to help these individuals pay for broadband service.
- c. The Government should also provide refundable tax credits to help low-income families purchase computers or other devices including mobile phones that could be used to access internet service. This approach would directly address one obstacle to greater broadband adoption in a sensible and competitively neutral way.
- d. The resulting increase in demand for broadband service would also increase service providers’ incentives to deploy and upgrade their broadband networks.

Address Regressive Taxes That Make Consumers Pay More for Communications Services

- e. The price of telecom services are burdened by one of the highest taxes. The service providers pay license fee, spectrum fee, service tax besides corporate taxes. The existing regime exempt ISP and IP-I from payment of license fee. However, the Authority has recommended imposition of license fee even on these services which we feel is regressive and would be counter productive in broadband deployment and adoption. Further, imposition of license fee for IP-I would result in double taxation and therefore UASL may be allowed to set off in its revenue against charges paid to IP I service providers.
- f. Capping the universal service fund to the actual requirement would be a good starting point for limiting the taxes and fees on consumers’ bills.

Classification of Telecom Services as an Essential Service

- g. Wireless Telecom Services is an essential component for execution of Disaster Management, policing functions and daily life needs. Policies facilitating unhindered growth of telecom services are required but on the contrary, the policies being followed by states and local bodies in general are disruptive and cause delay in rollout of services. Towers are essential part of infrastructure for wireless services but generally, it is very difficult to acquire suitably located site due to non-cooperation from individuals, societies because of inadequate or improper knowledge about health hazards/radiation issues. Government should publish radiation norms and initiate awareness campaign on print and electronic media to suitably educate the people.

- h. Telecom service providers including IP1 registered companies should be classified as essential services. The DoT may issue suitable directive to respective state governments/UTs/local bodies for achieving the common cause of building telecom infrastructure so that the benefit of exemption of statutory levies like municipal taxes / octroi / property taxes etc for establishment of telecom infrastructure should be available to them.

Utility Power Connection Priority and Tariff

- i. Currently the Tariff category for the power connection to service providers is treated as a “commercial establishment” and thus highest Tariff slab is applied for Telecom facilities. The Telecom services should be treated as a “Public Utility Service” and the Tariff structure of industrial category should be made applicable to all the telecom facilities across all states. The state electricity boards should be advised to process the utility connection applications from service providers on priority and treat the connection as Industrial connection.

Fuel subsidy

- j. One of the major problems faced in the rural areas is the non availability of reliable grid power. In the absence of reliable grid power, Telecom Infrastructure service providers are forced to extend the power to the sites through Diesel Generator Sets for most of the time. The operational costs of these sites are about 200% more than the normal ones where grid power availability is normal; which translates in to @ Rs. 5 lacs additional cost per site per year, which is a waste of precious foreign exchange in terms of import of fuel. Covering such rural areas is not feasible for the Telecom operators due to exorbitant fuel cost associated with DG set operation. Hence it is requested to introduce fuel subsidies to all the service provider.

Funding support for Alternate Renewable Energy Sources

- k. The wireless industry i.e. BWA and cellular in India is going to continue its expansion plans and it is the need of the hour that this growth needs to factor in the need for reducing its carbon footprint. Indian mobile operators and equipment vendors are working on a number of initiatives to develop energy efficient networks by designing and deploying low energy BTS's that are powered by renewable energy.
- l. Cell sites account for most of the energy consumed by our wireless networks, however, these are dependent on diesel generators power for sustained operations. Current situation in India is that as a country approx. 2 billion litres diesel per year is required for cell sites and all sites require autonomous power setup.
- m. The present cost of using alternative energy technologies like Solar, Wind and fuel cell etc are prohibitively expensive and the payback period for such investment is ranging from 6 to 10 years. Hence government should support operators who adopt these technologies.

Request for benefit Under Section 80-IA of the Income Tax Act, 1961

- n. The objective of introducing Section 80-IA was to provide incentives to the infrastructure companies as infrastructure projects involve large capital investments and have a long gestation period. The government recognizing this fact provided a time frame of 15 years within which the infrastructure companies could claim exemption for a period of 10 years. The infrastructure companies are the backbone of the economy and currently in the consolidation stage but by introducing the proposed amendment; undue hardships to various companies have been caused.
- o. The Telecom Industry is one of the beneficiaries of Section 80-IA and because of the huge capital investment and accumulated depreciation along with the rapidly reducing Tariffs have put tremendous pressure on the profitability of the Telecom Companies. Hence, most of the investments in the Telecom Industry which have happened in the last five years presuming the 80-IA benefit, would elect the option of deducting Profits under Section 80-IA from the 6th year(last possible year) or higher to obtain the benefits of deduction in respect of Profit and Gains available under this section.



NEWS

Federal Communications Commission
445 12th Street, S.W.
Washington, D. C. 20554

ANNEXURE I

News Media Information 202 / 418-0500

Internet:

This is an unofficial announcement of Commission action. Release of the full text of a Commission order constitutes official action.
See MCI v. FCC, 515 F 2d 385 (D.C. Circ 1974).

FOR IMMEDIATE RELEASE:
November 18, 2009

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FCC ISSUES DECLARATORY RULING ESTABLISHING TIMEFRAMES FOR STATE AND LOCALITY PROCESSING OF APPLICATIONS FOR WIRELESS TOWERS

Washington, D.C. – In a Declaratory Ruling (“Ruling”) adopted today, the Federal Communications Commission (“FCC”) cleared the way for broadband deployment by establishing timeframes of 90 days for collocations and 150 days for all other tower siting applications reviewed by state and local governments. This action will assist in speeding the deployment of next generation wireless networks while respecting the legitimate concerns of local authorities and preserving local control over zoning and land use policies.

Congress specifically requires that state and local authorities act “within a reasonable period of time” on requests for tower siting. The deployment of next generation mobile broadband networks promises tremendous benefits for American businesses and consumers and realizing these benefits will require new physical networks, including many new towers.

While most state and local jurisdictions currently process tower siting applications in a timely fashion, the FCC found that there are many instances of unnecessary delays. In order to ensure a timely review of these applications and to prevent unnecessary delay, the FCC interprets a “reasonable period of time” under Section 332(c)(7) of the Communications Act as 90 days for collocations and 150 days for all other towers. If a jurisdiction “fails to act” on the application within this reasonable time period, applicants may file a claim for relief in court within 30 days of the failure to act. The court will then decide what action to take based on all the facts of the case.

The FCC decision achieves a balance by defining reasonable and achievable timeframes for State and local governments to act on zoning applications while not dictating any substantive outcome on any particular case or otherwise limiting State and local governments’ fundamental authority over local land use. The FCC stated that the timeframes adopted, and the requirement that parties seek injunctive relief from a court, are consistent with preserving State and local sovereignty and the intent of Congress.

The Ruling also finds that it is a violation of the Communications Act for a State or local government to deny a wireless service facility siting application because service is available from another provider. Finally, the Ruling denies CTIA’s request to find that it is a violation of

the Communications Act for a State or local regulation to require a variance or waiver for every wireless facility siting.

The findings in the Declaratory Ruling will be effective upon release of the item. Action by the Commission, November 18, 2009, by Declaratory Ruling (FCC 09-99).

Chairman Genachowski, Commissioners Copps, McDowell, Clyburn, and Baker. Separate statements issued by Chairman Genachowski, Commissioners Copps, McDowell, Clyburn, and Baker.

For additional information, contact Angela Kronenberg at (202) 418-2963 or Angela.Kronenberg@fcc.gov.

WT Docket No. 08-165

– FCC –

News and other information about the Federal Communications Commission
is available at www.fcc.gov.

Annexure II

RoW Charges (Per Km)

Circle	Authority		ROW charges demanded / Km (Rs)		
	Name	City	Concrete	BT Road	Soil
AP	Municipality	GHMC	1040000	1040000	570000
AP	R&B	All	2200000	1500000	700000
AP	APIIC	All		1040000	200000
AP	Gram Panchayat	All	650000	500000	150000
AP	Cantonment Area	All	940000	1040000	570000
AP	Municipality	Nellore	600000	400000	200000
AP	Municipality	Sanga Reddy	2200000	1500000	700000
AP	Municipality	Vijayawada	992000	992000	992000
AP	Municipality	Palacole	525000	325000	
AP	Municipality	Tenali	186000	330000	
AP	Municipality	Rajahmundry	2200000	1500000	700000
MP	Municipal corporation	Jharsuguda			
MP	Municipal corporation	Durg		No Demand Note	
MP	Municipal corporation	Bhilai		No Demand Note	
MP	Municipal corporation	Dewas		No Demand Note	
MP	Municipal corporation	Chindwara		No Demand Note	
DL	GAZIABAD NAGAR NIGAM	GAZIABAD	ASPR	270/SQ MT	200/SQ.M
DL	DLF GGN	GURGOAN	400000	400000	400000
DL	MCD NEW DELHI	NEW DELHI	260/SQ.MTR	260/SQ.MTR	260/SQ.MTR
KL	Corporation	Emakulam		636000	
KL	Corporation	Emakulam		907000	
KL	PWD	Emakulam		360000	48000
KL	PWD	Emakulam		1308500	
KL	PWD	Emakulam		226000	
KL	NH	Emakulam		2617000	248000
KL	NH	Emakulam		695000	
KN	BBMP	Bangalore	105000	105000	105000
KN	KIADB	Bangalore			65000
KN	ELCIA	Bangalore		2,85,000	250000
KN	MMP	Mysore			1,35,000
MH	Pune Municipal Corporation	Pune	1900000	1900000	1900000
MH	Municipal Corporation	Pimpri			
MH	Municipal Corporation	Chinchwad	2200000	2200000	2200000
PJ	Municipal council	Mohali			
PJ	HUDA	PANCHKULA		575 PER MTR	
RJ	Nagar Nigam	Jaipur	1000000	1000000	NIL
RJ	Gram Panchyats	All Rajasthan	500000-1000000	500000-1000000	25000-100000
RJ	RIICO	Rajasthan	1000000	1000000	NIL
TN	SIDCO	Chennai		160000	
TN	SH	Coimbatore			127000
TN	NH	Attur		600000	
TN	corporation	Chennai		250000	
UP	Lucknow Nagar Nigam	Lucknow			
UP	Lucknow Development Authority	Lucknow			
UP	Kanpur Nagar Nigam	Kanpur			
UP	Kanpur Development Authority	Kanpur			
WB	Kolkata Municipal Corporation	KOLKATA	1050000	2500000	