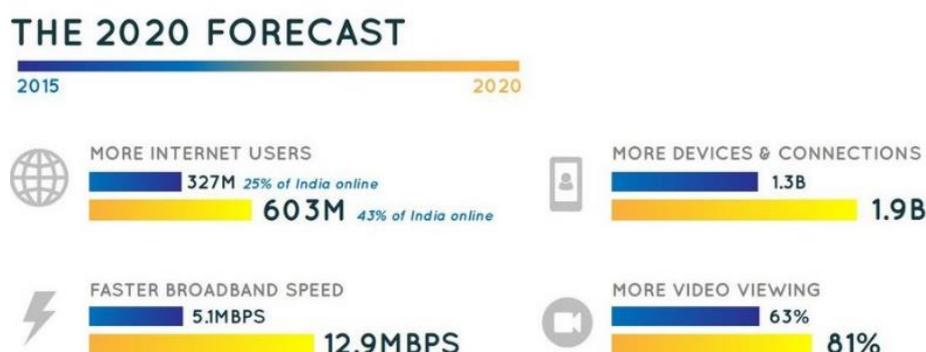


TAIPA Response to TRAI Consultation Paper Titled – ‘In Building Solutions by Telecom Service Providers’

1. TRAI has recently floated a consultation paper titled as ‘In Building Solutions by Telecom Service Providers’ which envisages the deployment of In Building Solutions (IBS) to improve quality of services in residential buildings and commercial complexes.
2. Telecom is a key driver of economic and social development in an increasingly knowledge intensive global scenario. Several studies have acknowledged that an increase in internet and mobile access has been a key factor for economic growth of the country. According to a World Bank report a 10% increase in broadband penetration raises the GDP of a country/state by 1.48%.

Almost 85% of data traffic and 70% voice traffic is generated indoors. It is projected that in India mobile data traffic will grow 12-fold from 2015 to 2020 and mobile data traffic will reach 1.7 Exabytes per month by 2020 from 148.9 Petabytes in 2015. Therefore, mobile network infrastructure has to be ready to handle this spur in the use of data. The main concern in providing mobile coverage is in the high rise buildings, residential and office complexes, shopping malls and plazas, airports and railway stations etc.

3. In India, nearly 31% of the total population lives in urban areas and contributes over 60% of India’s GDP. As more people shift to the urban cities, it is projected that urban India will contribute nearly 75% of the national GDP in the next 15 years. Thus, it is of immense importance that we plan our urban areas well which are well connected digitally and otherwise. The Government of India has recently launched an innovative initiative called the Smart Cities Mission that enables local development by harnessing technology for creating smart outcomes. Smart cities will involve smart infrastructure, smart governance, smart energy & environment, smart buildings and housing, smart mobility and smart health. Information & Communication Technology (ICT) will play a critical role in creation of smart cities. As per NASSCOM, smart cities can create a \$30-40 billion business opportunity for the IT sector in the next five-ten years (assuming that about 10-15% of the outlays on smart cities will be for the ICT component). The accelerated penetration of smart city technologies will drive up demand for Internet of Things (IoT) devices to 1.6 billion units next year, according to research firm Gartner. It also predicts that smart homes will take 21% of total demand for IoT devices in 2016 and will record rapid growth in the next five years. This will demand a robust telecom connectivity in all the areas including residential and commercial complexes.



Glimpse into Future Demand | Data Source: Cisco VNI, Image Source: trak.in

4. Therefore, deployment of In-Building solutions (IBS) like Micro BTS, Femto Cells, Heterogeneous and DAS Networks, is the need of hour to facilitate handling of high speed data for the modern society. IBS facilitates better quality of services and have advantages like: 1) Enhanced Coverage 2) Improved Quality of Service 3) Less Cell – Interference 4) Ensures Adequate Signal Strength 5) Optimizes Spectrum Use 6) Fewer Call Drops.
5. TRAI has brought out in the Consultation Paper (CP) that the telecom infrastructure inside the buildings could be installed either by building owners, or Infrastructure Providers – I (IP – Is) or Telecom Service Providers (TSPs). It has also been brought out that presently builders of such complexes enters into exclusive agreement with one of the TSPs for providing telecom services to the consumers which has led to creation of an artificial barrier for other TSPs since it was not being shared with other TSPs.
6. The solution lies in providing the IBS which can be shared by all TSPs. Experience of sharing passive infra has shown that Infrastructure Providers – I are best suited to lay infrastructure including the In Building Solutions as they share their infrastructure with all TSPs on a fair, non-discriminatory, transparent manner and above all at most competitive rates. It is in the best economic interest of an IP-I as well TSPs to ensure that the IBS Infrastructure installed by IP – I is shared by multiple TSPs.
7. It is worthwhile to mention that the registration certificate of IP-Is also covers in its mandate for IP-I companies' establishment and maintenance of the assets such as Dark Fibre, Right of Way, Duct space and Tower. The registration certificate of IP-I provided that -

Quote

“Registered IP1 to establish and maintain the assets such as dark fibres, Right of Way, Duct Space and Tower for the purpose to grant on lease/ rent/ sale basis to the Licensees of Telecom Services licensed under section 4 of Indian Telegraph Act, 1885.”

Unquote

8. Enabling Provisions:

The DoT in 2000 carved out the registration system and initiated issuing IP-I certificate with prime and sole motive of building the neutral host service providers who shall provide services to all TSPs on a non-discriminatory & transparent manner. DoT through its letter dated 9th March 2009 enhanced the scope of the IP-I certificate and also allowed it to provide active infrastructure limited to antenna, feeder cable, Node B, Radio Access Network (RAN) and transmission system, for/on behalf of UASL/CMSP licensees for use by the telecom service provider (TSP) who will then provide services to the end consumers (Letter enclosed as Annexure – I). This enhancement of scope has, on the one hand, helped the IP-I to use its expertise in creating the infrastructure, but at the same time also acts as a barrier for creating a neutral host platform since the IBS infrastructure is set up either for and / or behalf of particular TSP and thereafter offered for sharing with the consent of the said TSP. This is one issue of concern and can be taken care of in case IP-I companies are allowed to set up the IBS at their own using their own resources including the Capex like being done for other IP Infrastructure. This will allow it to be used by multiple operators ensuring that the IBS is shared

with as many operators as per the capacity. This will be similar to the practice already prevalent and as rightly pointed out in the consultation paper itself which acknowledges the model adopted by the Delhi Metro and described that “In India, Delhi Metro Rail Corporation has registered itself as Infrastructure provider and created infrastructure in underground tunnels. Telecom operators share this infrastructure to provide services to commuters.”

9. Background: IP Experience

As on date, Infrastructure Providers own & operate about 4,50,000 towers which serve over 1 million BTSs to provide uninterrupted quality services to more than 1 billion consumers. It is pertinent to mention that Project MOST (Mobile Operators Shared Towers) launched in 2006 by DOT is a unique concept adopted in India under which the IP-Is share their telecom infrastructure with the licensed TSPs on a transparent and non-discriminatory basis with key objectives as reduced capital expenditure, better coverage, enhanced quality of services, economic benefits to service providers and affordability of services to consumers.

10. Challenges faced by IP-I

In urban areas, limited availability of space, reluctance to allow sites due to Radiation concerns amongst neighbours apart from other logistics issues is making installation of new BTS sites very challenging which further leads to coverage gaps, dark spots and call drops. Maintaining network quality therefore is a growing challenge necessitating innovative solutions like IBS urgently. Key challenges faced by IP – Is include –

Key Challenges

- Restriction on location of cell sites
- **Delay in processing of application** and multiple clearances
- Requirement of **multiple NOCs** from various departments resulting in delay for installation
- Alleged **fear of EMF emissions** from citizens encouraging local bodies to take coercive actions. For instance, shutting down of operational sites
- Retrospective implementation of **State specific tower policies**
- **Unreliable Grid Supply** – Erratic/Non availability of power supply
- **High Fees** being levied/**Multiple levies** like registration/sharing/renewal. High incidence of taxes on cellular towers
- Lack of telecom infrastructure in rural areas that is a major hindrance in tapping the potential rural markets
- **Very high rentals expected by the builders**
- **Builders** are hesitant to invite IBS installation for fear of damages to building & **frequent maintenance** leading to **disturbance to occupants**

11. TRAI Suggestions:

TRAI has rightly suggested mandatory provisions for ducts or optical fibre and IBS (In-Building Solutions) while approving construction of new facilities like multiplexes, malls and hotels.

12. In the consultation paper, TRAI has also suggested that provisions for providing telecom infrastructure in future buildings be included in the National Building Code of India to facilitate unhindered access to all telecom operators. In this regard, Common Telecom Infrastructure (CTI) housed in buildings has been proposed. Further, it is proposed that DoT can take up the issue with the Ministry of Urban Development or it could be extended to the Real Estate Regulatory Agency (RERA) of India.
13. This is also in line with the objectives laid down in National Telecom Policy 2012 to maximize public good by making available affordable, reliable and secure telecommunication & broadband services across the country. Thus, it is to reiterate that IP – Is are best placed to provide/lay telecom infrastructure in buildings to allow unhindered access to telecom service providers on a non-discriminatory and in an uniform manner to the TSPs licensed under section 4 of the Indian Telegraph Act 1885.
14. **International Practices:** In the context of provision of telecom infrastructure inside high rise buildings, sprawling complexes like airports, malls; international practices of Singapore, Europe and Hong Kong have been discussed in the CP wherein the respective Regulator has mandated code of conduct for builders, telecom service providers to provide necessary telecom infrastructure for broadband and high speed data services. IDA, the Regulator in **Singapore**, issues Code of Practice Infocomm Facilities (COPIF) to ensure adequate measures for communication facilities inside the buildings. In **Europe**, the European Union (EU) has set specific infrastructure requirements vide 2014 Broadband Cost Reduction Directive to all member states. The Communication Authority (CA) of **Hong Kong** grants the authorization to various licensees like builders TSPs for installing the In – Building Telecommunication Systems (IBTS) and other telecom equipment, cables, OFC etc.
15. In the **U.S.**, an IBS can be installed by the TSP, an IP or the property owner itself. There is generally no regulatory requirement and the private building owner allows the IBS Provider and other telecom operators to use the system. It would be customary for the government entity granting the rights to require that the IP or TSP owner of the system lease to others on a non-discriminatory basis. The IP owns the entire system of infrastructure (passive or DAS which are neutral devices). The carriers own and operate their own radio equipment and all electronics up to the connection point to the neutral host owned by the IP. In 2012 the U.S. passed legislation that precluded jurisdictions from arbitrarily denying collocation on towers. This practice has resulted in helping facilitate greater local municipal cooperation
16. TRAI has sought response and views on the following issues –

Issue 1) Do you agree that there is a need to address the issues discussed in this consultation paper or the market is capable of taking care of these issues without having any policy intervention/guidelines in this regard?

Telecommunication has emerged as a key driver of economic & social development in an increasingly global scenario. Thus, for the continued growth trajectory of the telecom sector, it

is crucial to establish appropriate mechanism to facilitate unhindered access to consumers. Hence, there is a fundamental need to address the issue of In Building Access for telecom services.

Regulatory intervention is strongly required to address the issue of coverage in buildings and complexes; leaving the solution to market forces has led to distortion and discrimination. Further, prescribing certain norms for future buildings beyond a threshold areas to build and provision duct space will go a long way in ensuring that building owners readily allow the Industry to install IBS at reasonable terms. DoT should be advised to intervene and advise Ministry of Urban Development to incorporate provision for IBS/Wi-Fi access point in all buildings and provide the same to IP-I for installation of Telecom Infrastructure. For faster roll out of IBS, it is also required that the State ministries of local bodies be directed to exempt the IBS installation from seeking separate permission and following the building regulations/bye-laws. This will give much desired stimulus for IP-I industry to install IBS infra on a more proactive basis leading to more and more sharing of IBS Infra among TSPs.

Therefore, it is reiterated that IP – I are best suited for creation of the telecom infrastructure inside the buildings. The detailed logic and background has already been explained in the earlier paras. Reiterating the scope of ownership and installation of the equipment by IP-I would help IP-Is to step up the IBS installation and ensure that multiple operators share the IBS so as to meet the ultimate objective of improved telecom connectivity and the exponential growth of data base traffic.

Issue 2) How can sharing of telecom infrastructure inside a residential or commercial complex/airport/hotels/multiplexes etc. among service providers be encouraged? Should the sharing of such telecom infrastructure be made mandatory?

In this regard we would like to highlight that over the years nearly 4,50,000 telecom towers have been established and maintained by the IP – Is; these towers house more than 1 million BTSs providing highly reliable and uninterrupted services to the consumers.

This method of sharing the passive infra has been a great success and is time-tested. Under Project MOST, the telecom infrastructure is shared in an unbiased way with the telecom service providers; thereby maintaining competition and facilitating connectivity simultaneously. Sharing the telecom infrastructure has several advantages such as –

- Service Access: Faster Rollout,
- Economics: More efficient Use of Capital,
- Competition: Reduced cost of entry and operations for new entrants,
- Aesthetics: Reduce Tower Proliferation
- Quality of Service: Better coverage quality.
- Safety: Players have incentive to follow prescribed norms
- Standardization: by using IIT/TEC designs for Towers

Therefore, it should be mandated that buildings are made ready for telecom infrastructure setup for In Building Solutions like Wi-Fi, LAN, W-LAN, Femto cells, Heterogeneous Networks (HeNet), etc. so that these can be shared with TSPs by IP-Is. Implementing the scope enhancement letter of March 2009 in letter and spirit would certainly ensure that IP-Is install IBS in the context of data networks to meet the exponential data traffic growth and to share it amongst the TSPs/Licensed Service Providers.

In addition, a public education program by the government and the industry bringing ads in the media highlighting benefits of the IBS would significantly help in better mobile coverage and greater consumer satisfaction.

Issue 3) In view of the international practices given in para 18-23 of Chapter-II of the Consultation Paper, what provisions should be included in the National Building Code of India to facilitate unhindered access for all the TSPs?

The DoT in its letter dated 26th May 2015, wanted the industry to install increasing number of IBS to improve the quality of services inside the buildings specially the Hospitals. (Enclosed as Annexure – II)

Further inclusion of a provision to install IBS, an entry point for OFC in the complex etc. in National Building Code would benefit immensely as it would lay down a standard criterion for establishment of Telecom Infrastructure in buildings which can be best implemented by the Infrastructure Providers – I.

TRAI should approach and advise appropriate authority / Ministry to enforce the provisions to be included in the National Building Codes.

Also, Ministry of Urban Development is currently in the process of revising Building Bye-laws and has come up with Model Building Bye-laws 2016. The DoT should intervene and advise Ministry of Urban Development to incorporate therein provision for IBS/Wi-Fi access point in all buildings and provide the same to IP-I for installation of Telecom Infrastructure.

Issue 4) Any other option, which in your view, could resolve the issues discussed in this consultation paper?

Many international practices like in the case of Singapore, Europe or Hong Kong wherein the regulator lays down the rules and regulations for establishing the telecom infrastructure in the high rise buildings and complexes may be adopted in Indian context. Further, the rules adopted by the Regulator should specify that Infrastructure Providers – I shall only be allowed to establish and maintain the telecom infrastructure requirements like dark fibres, ducts, IBS, Wi-Fi in such buildings and complexes.

Also, IP – I envisages to lay optical fibres for enhancing connectivity to the masses and bridge the digital divide across the country. Therefore, permitting only IP – Is for establishing and maintaining the telecom infrastructure for enabling IBS and other infra would be critical in

accelerating the dream of a Digital Bharat with unhindered access to telecom connectivity. It would be relevant to mention that in USA; IPs own the entire system of infrastructure (passive or DAS which are neutral devices); the Carriers own and operate their radio equipment and electronics up to the connection point of the neutral host which is owned by the IP.

Conclusion:

We would summarise the above submission as follows -

- Mobile coverage needs to be enhanced particularly inside buildings as data usage by civil society is multiplying at a phenomenal rate, fuelled by Internet, surpassing all estimates and forecast, across the world. Therefore the Regulator has to step in and arrest the deteriorating coverage issues.
- IP-Is are best placed to provide IBS; their registration certificate and the DoT Letter dated 09 March 2009 also allows to establish and maintain the assets such as Dark Fibre, Right of Way, Duct space and Tower and other active elements for TSPs. The concept of infrastructure sharing adopted by the IP-Is under which they share their passive infra like towers, ducts, dark fibres with all the licensed TSPs in a transparent and non-discriminatory manner at a competitive rates has been a great success story.
- Hence, Infrastructure Providers – I should be mandated to provide a Common Telecom Infrastructure (CTI) which includes ducts, cables, OFC, IBS, DAS, LAN / WAN etc. for broadband and high speed data connectivity complexes and buildings using their expertise and capital. This CTI shall be shared by all TSPs. This will result in a win-win scenario for all stake holders viz. improved QOS, hence greater consumer satisfaction and enhanced revenue to the TSPs and government.
- It may be suitably taken up with BIS / MOUD etc. to mandate builders, architects etc. to earmark space for the above CTI by suitable provision in the NBC, Building bye – laws and other laws on the subject. NBC is reportedly under revision by Bureau of Indian Standards (existing NBC 2005 is being modified to NBC 2015) in which facilities of a Common Telecom Infrastructure (CTI) are proposed to be included. It is high time to take up with BIS to include provision of CTI in such complexes and buildings in the NBC.
- We are of the view that commercial terms and negotiations between building owners and IP-I for provision of space should be left to the market forces and once an agreement is reached between the parties, the entire space shall be available to all TSPs on non-discriminatory basis.

Government of India
Ministry of Communications & IT
Department of Telecommunications
Sanchar Bhawan, 20-Ashoka Road, New Delhi-110001.
(Carrier Services Cell)

No. 10-51/2008-Cs-III

Dated: 09-03-2009

To.

All IP-I Providers

Subject: Clarification regarding scope of IP-I providers.

It is to clarify that the scope of IP-I category providers, which is presently limited to passive infrastructure, has been enhanced to cover the active infrastructure if this active infrastructure is provided on behalf of the licensees, i.e., they can create active infrastructure limited to antenna, feeder cable, Node B, Radio Access Network(RAN) and transmission system only for/on behalf of UASL/CMSP licensees.

This issues with the approval of competent authority.


9.3.2009
(S.T.Abbas)
Director(CS-III)

Important

No.: 15-2/2015-AS-IV (III)
Government of India
Ministry of Communications & IT
Department of Telecommunications
(AS – IV Division)

11th Floor, Sanchar Bhawan, New Delhi
26th May, 2015

To

1. Aircel Limited
2. Bharti Airtel Limited
3. Idea Cellular Limited
4. MTNL
5. Reliance Communications Ltd.
6. Reliance Jio Infocomm Limited
7. Sistema Shyam Teleservices Limited
8. Tata Teleservices Ltd.
9. Vodafone Mobile Services Limited ✓

Subject: Difficulties faced by patients and other visitors to the hospitals, particularly in Delhi, to communicate through mobiles due to poor connectivity – Action to be taken in the matter by all concerned.

It has been brought to the notice that the patients and other visitors to the hospitals, particularly in Delhi, are finding it difficult to communicate through mobile phones due to poor connectivity.

2. In the matter, after examination of the issues, following observations are made:
 - (a) Some of the hospitals are well covered while some, mainly Government hospitals, are not well covered.
 - (b) Outdoor coverage is generally good; however, indoor coverage is not that good at most of the hospitals.
 - (c) In order to provide coverage to all the persons visiting a hospital, availability of adequate coverage (indoor as well as outdoor), in the hospital premises, from all the Telecom Service Providers (TSPs) is essential.
 - (d) Otherwise, the visitors, who are customers of an operator having poor coverage in that hospital, would face problems in communicating through mobile phones.
3. In the light of above observations, it is felt that following actions are required to be taken urgently by all the TSPs:

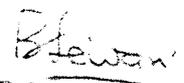
1. As the hospital premises are generally large and the building structures are complex, indoor coverage issues in hospitals are inevitable. Therefore, the focus of TSPs should be to provide wider indoor coverage using innovative methods and new technologies.
2. TSPs should endeavour to provide sufficient number of BTSs near hospital premises.
3. Permission may be endeavoured by all the TSPs that existing infrastructure BTS towers, fibre facilities, etc. may be readily shared with other TSPs to provide coverage to customers of other TSPs.
4. The TSPs should ensure the uninterrupted functioning of the existing BTSs inside near the hospital premises.

For installation of IBSs and additional BTSs within hospital premises, permission is required from hospital local authorities. In this regard, the department has written to all concerned authorities in Delhi. (copies enclosed).

TSPs may approach DoT in specific cases, along with the details of the cases, where they find difficulty in maintaining installing sites inside near the hospitals.

In view of above, it is requested to take all the necessary measures, as observed above or otherwise, in order to ensure ubiquitous mobile network coverage to all the visitors to hospitals. An action taken report in the matter may be furnished to this office at the earliest.

Encl: As above


(R R Tiwari)

Director (AS-IV)

Ph: 23370263/ 2303-6051

Copy to:

1. Secretary, TRAI
2. Director (IT), DoT for posting on DoT website