

February 5, 2011



Tower and Infrastructure
Providers Association

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Subject : TRAI Consultation Paper No. 1/2011 on "Issues related to Telecommunications Infrastructure Policy"

Dear Sir,

This is in reference to the consultation paper released by the Authority on 'Issues related to Telecommunication Infrastructure Policy' at a time when the telecom infrastructure requirement in our country is getting its momentum especially considering the pending 3G and BWA rollouts.

We are pleased to submit our detailed response, which are collective and united views of our member organizations to the said consultation paper for your kind perusal.

We hope that our submissions will merit your kind consideration and support.

Kind regards,

Sincerely yours,

A handwritten signature in blue ink, appearing to read "Umang Das", is written over a horizontal line.

Umang Das
Director General

Encl: as above

Tower & Infrastructure Providers Association

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**Tower and Infrastructure Provider Association (TAIPA's)
response to TRAI Consultation Paper No 1/2011 on 'Issues
related to Telecommunications Infrastructure Policy'**

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Tower and Infrastructure Provider Association (TAIPA's) response to TRAI Consultation Paper No 1/2011 on 'Issues related to Telecommunications Infrastructure Policy'

Tower and Infrastructure Provider Association (TAIPA) congratulates the Telecom Regulatory Authority of India (TRAI) for coming out with a consultation paper on 'Issues related to Telecommunications Infrastructure policy'.

The National Telecom Policy 1999 has served the sector for well over a decade, which witnessed significant changes in the socio-economic environment, technological advancements and business dynamics. However, to enable the next wave of growth, the Government of India (GoI) needs to intervene and move the policy to the next generation of reforms. The Ministry of Communications & Information Technology has released the 100-day agenda for the Indian telecom sector, and announced formulation of a new and comprehensive National Telecom Policy, 2011. Therefore, the time is ripe for a comprehensive review to build a forward looking and transparent policy.

The telecom infrastructure is a significant and critical segment of the telecom sector today comprising of approximately 400,000 towers with total investment on a collective basis of over INR100,000 crores. It is imperative that this critical segment gets the required recognition and support of the GoI to enable it to fulfill its mission of supporting telecom growth. Few of the key growth drivers to enable these national telecom objectives would be to reduce the cost of operations of the telecom operators, active promotion of sharing and avoiding duplication of telecom resources and infrastructure, and minimizing the environmental impact.

We strongly believe that following are the top five priorities for the Telecom Infrastructure industry, and any new policy formulation must carefully and comprehensively address these priorities. We are happy to state that even TRAI's consultation paper refers to many of these priorities, and we wish to reiterate these before we attempt to address the specific issues raised in the consultation paper.

- I. **Treatment of telecom infrastructure as a 'critical' industry:** Indian telecom success story is built around the wireless segment. Infrastructure development plays a crucial role in the development of the wireless sector. The high level of growth in the Indian wireless telecommunications market will continue to drive huge investment in infrastructure as well as a speedy rollout of networks into new areas. There is need to lay down a National Telecom Critical Infrastructure Policy (NTCIP), as an integral part of the new National Telecom Policy 2011, stipulating uniform policy and procedures for tower installations in any part of India and more importantly treating it as a "critical industry". Such a policy must address the following issues clearly and comprehensively:
 - a. **Harmonizing rules at the local government:** Currently, the Telecom Infrastructure industry faces challenges in expanding their reach because of multi-stage approval processes from various civil authorities such as municipalities, gram panchayats, forest officials, etc. These challenges further get accentuated as these procedures vary from state to state, and amongst the local authorities within the same state. Even getting permissions to lay down a fiber cable along a 'kachha road' entail long lead times and high costs. The necessary approvals for land usage for the deployment of telecommunication equipment are cumbersome, and a slow process, due to multiple permissions required, and prohibitive and arbitrary fees associated with it. The Telecom Infrastructure industry requires immediate harmonization of policies, guidelines and regulation at all levels across the central, state and local authorities. Such a harmonization would bring around significant time and cost efficiencies to make telecom services affordable and pro-consumer.
 - b. **Civic Taxes and levies:** Today, there is a wider appreciation in the minds of policy planners, regulators and industry stakeholders on the role that a healthy telecom sector plays in the overall socio-economic growth of our country. Unfortunately, this appreciation seems to be missing in the actions of several state and local authorities. There are numerous civic taxes and levies that get charged and many of these are enhanced in a very arbitrary manner. Some of the municipalities are attempting to

levy fees that could increase the cost of towers by as much as 50%. These have started becoming barriers in ensuring ubiquitous access of telecom services. There is a serious lack of consistency and uniformity around these from state to state, and various civic agencies within a state as well. TRAI's consultation paper has appropriately highlighted several of these concerns. Decisions related to taxes and levies on telecom infrastructure must reflect its role as a key utility especially in crisis and emergencies. Accordingly, there is an urgent need to streamline policies and guidelines across the country to rationalize these civic taxes and levies. We suggest that all such civic taxes and levies be charged once at the time of new tower setup or new right of way; and the recurring charges should be done away with.

- c. **Highest priority for Electricity Board (EB) connections:** Availability of electricity or lack of it is one of the biggest challenges adversely affecting the rollout of services and sustained functioning of telecom services, especially in rural areas – there are approximately 20% villages in India today, which have no electricity supply. It is often also difficult to get state electricity boards to give electric connection to the Base Transceiver Stations (BTS) as state governments do not recognize this as a priority sector. This results in high dependence on diesel, which is not only more expensive but also, has an environmental impact. Telecom towers consume about 2 billion liters of diesel every year. The use of generators in such remote inaccessible rural areas increases the cost of operations, making the service economically unviable and expensive. It is imperative that this critical industry is provided power by the State Electricity Board's (SEB's) on priority basis by ensuring priority for new electric connections, priority for continuous supply at par with emergency services, and the lowest applicable rates.
- d. **Lowest possible EB tariff:** The facilitating role of electricity boards and discoms is highly critical for the success and growth of the telecom infrastructure in India. There is no clarity on the electricity rates to be paid by Telecom Infrastructure companies, as some electricity boards/discoms charge industrial tariffs, while others charge at commercial tariffs. Since power consumption is a significant component of operational expenses for a tower, such a varied treatment of the segment on electricity charges is not desirable. Henceforth, the lowest possible EB tariff should be levied on tower companies

II. Fiscal incentives at par with the general policy for “infrastructure designated sectors”: Hundreds of millions of people are dependent on telecom services on a 24X7 basis, and therefore, the criticality of telecom infrastructure should be considered at par with other “infrastructure sectors” such as power, ports, natural gas distribution, etc. Telecom Infrastructure companies should be provided similar incentives, as provided to other “infrastructure companies” in India.

- a. **Tax holiday:** Infrastructure is the backbone of an economy. Given the substantial capital investment required, it is imperative to invite private sector participation in infrastructure development. Tax incentives play a significant role in attracting these private sector investments. The Govt provides a tax holiday under section 80IA of the Income Tax Act, 1961 to infrastructure companies such as in the power sector, ports, natural gas distribution etc. A similar tax holiday should be extended to tower companies, which are seen as a critical infrastructure. Such a step is expected to bolster the overall development of the telecom sector, and help in boosting the socio-economic development in the country. In order to incentivize private sector participation in infrastructure projects, State Governments need to extend the exemption from state levies like VAT, Entry Tax and Stamp Duty etc. for these projects. There is urgent need that authorities at Central and State level work in tandem to achieve the objective of overall telecom infrastructure development.
- b. **Accelerated depreciation:** The telecom infrastructure is a highly capital intensive sector and benefits of accelerated depreciation would encourage further investments in expanding the telecom infrastructure to rural areas. The advent of newer technologies, such as IBS, DAS, use of greener solutions, etc., would amount to

significant increase in the overall capital investments. As an incentive to the industry to adopt such newer technologies, the Government needs to provide accelerated depreciation of equipment to tower companies. The accelerated depreciation of equipment scheme could address the current infrastructure deficiency such as low rural teledensity and adoption of newer technology.

- c. **Lower import duties and excise exemption:** The market size for wireless infrastructure equipment is estimated to be INR36,000 to INR45,000 crore and equipment worth INR19,000 crore was imported last year. As the telecom sector is highly dependent on imports, it is necessary to levy the lowest import duties. Exemption of excise duties on telecom infrastructure equipment in India would also help in boosting the local manufacturing, and reducing the cost of telecom infrastructure.

III. Subsidies/Incentives: Subsidies can have a major impact in augmenting the growth of the telecom sector, especially to promote rural coverage and use of green energy. They are expected to significantly boost the overall growth of the sector, and provide an impetus to the GDP growth. Tower companies should be given subsidies on key aspects such as USOF and usage of renewable energy for the development of telecom infrastructure.

- a. **Universal Service Obligation Fund (USOF):** The purpose of the USOF is to enhance rural penetration, which is currently below 30%. A very small proportion of it has been disbursed on telecom infrastructure in the recent past and the lack of progress with the USOF is largely attributed to the inefficiencies related to the disbursement process. The USOF subsidies are most urgently required to defray the costs on infrastructure creation in the rural areas. There is a need to lay down the guidelines for rural roll-out and USOF support in accordance. Incentives need to be provided for time bound deployments to hasten the much needed broadband infrastructure to facilitate the next telecom revolution.
- b. **Encouragement for the development of Green Power:** Given the poor availability of grid power in India the telecom industry, which requires energy on 24x7 basis, it is compelled to rely on diesel generator sets. As a result, this industry is one of the largest consumers of diesel in the country consuming around 2 billion liter per annum creating a significant diesel-subsidy burden on the government, besides the potential environmental damage due to increased green house gas emissions.

The dependence on diesel must be reduced by promoting use of renewable sources of energy such as solar, fuel-cells, wind, etc. Besides the environmental objectives, if the government wishes to save on long-term subsidy burden on diesel, it must think of an innovative approach towards use of alternative energy for telecom infrastructure, by inducing various incentives under the National Action Plan on Climate Change (NACC). Such initiatives would establish sustainable business models, beneficial to all in line with the Govt's stated policy objective of the Ministry of New Renewable Energy (MNRE).

IV. Expansion of the role under IP-I: Currently, tower companies, which are registered with the Department of Telecommunications (DoT) as Infrastructure Provider category - I (IP-I), can provide assets such as dark fiber, right of way, duct space, tower, and 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. In the future, Telecom Infrastructure industry providers can be "one-stop-shop" for optimum utilization of resources required for expeditious deployment of much needed wireless services in the country. The role of tower companies need to be expanded under IP-1, for providing the following:

- a. **Provisioning microwave links and utilizing frequency spots for microwave (Backhaul) directly by the tower infrastructure companies:** The lack of an optical fiber (OFC) backbone in India has serious impact on backhaul required for telecom services. Hence, telecom infrastructure has to depend upon the microwave and very

small aperture terminal (VSAT) technology; and each operator has to create its own backhaul from its towers. It is necessary to increase the availability of microwave and VSAT for backhaul usage. Telecom tower and infrastructure companies should be allowed to provision microwave links and utilize frequency spots for microwave to the operators to avoid duplication of scarce resources. It will result in more efficient use of microwave bandwidths.

- b. **Lit fiber:** Tower companies, which are registered as IP-I companies can provide assets such as dark fiber services. The authority should consider extending the provision of providing lit fiber as asset. This is expected to encourage a speedy roll out of OFC network across the country, and strengthen the backhaul.

Post the requested expansion of the role as an IP-I provider, we assure that these services will not be provided to any entity which is not licensed by the DoT.

V. Rejection of the proposal to levy license fee on infrastructure companies: Over the years, the significance of the telecom sector has grown immensely in the Indian economy, with the telecom sector having a significant contribution towards GDP. As aptly outlined by the authority, what telecom is to economy, telecom infrastructure is to telecom services. Post the emergence of tower infrastructure companies, infrastructure sharing has become a common practice leading to lower tariffs and increase in teledensity and coverage. Such innovative business models based on sharing of the telecom infrastructure have resulted in optimization of capital investments and operational expenses; leading to the phenomenal growth of the sector through tariff reduction for end-consumers and thereby increased teledensity. Even the government has been a large beneficiary of this telecom growth, through increased collection of taxes and license fee. We strongly believe that government should be encouraging such models that drive overall efficiency in the sector rather than taxing those through license fee.

- a. Tower infrastructure companies are registered companies with the DoT as IP-1, and they do not fall under the ambit of the Indian Telegraph Act 1885. Hence, the right of levying license fee on these companies would be an extreme step, and is expected to act as an impediment to the growth of the overall telecom sector and infrastructure build up. If, tower and infrastructure services, which are input services to a telecom operator, are levied license fee, then the same license fee would also become applicable on various other input services such as:
 - Manages service providers.
 - Telecom equipment providers.
 - IT service providers.
 - Business Process Outsourcing units
 - Manufacturer of DG sets, steel, cement, etc.
- b. In the extreme case, where the new policy regulates levying such a license fee on the telecom infrastructure companies, which only provide input services to the telecom operators, it would tantamount to a double-license fee, since the operators would be paying the license fee on their input services, as well as the output services. Any fair and equitable licensing policy would have to allow for the telecom operator to off-set the licensing fee on their input services with the licensing fee due on their output services. In such a scenario, we do not see what gains would accrue to the Government. In case, the new policy does not allow for this off set, the biggest danger would be that the operators would stop outsourcing their infrastructure services, and bring it in-house. This would be a very regressive step and the gains accrued over the years through optimization of capital investments and operational expenses on infrastructure services would be lost. This would slow down the growth of telecom sector, and the end-consumers would be deprived of economical telecom services. In the medium to long term, even the Government would be losing out on its license fee collection due to reduction in the AGR of telecom operators.

In view of the above, it is requested that the earlier proposal to levy license fee on infrastructure companies should be rejected outrightly.

Issue-wise Submissions

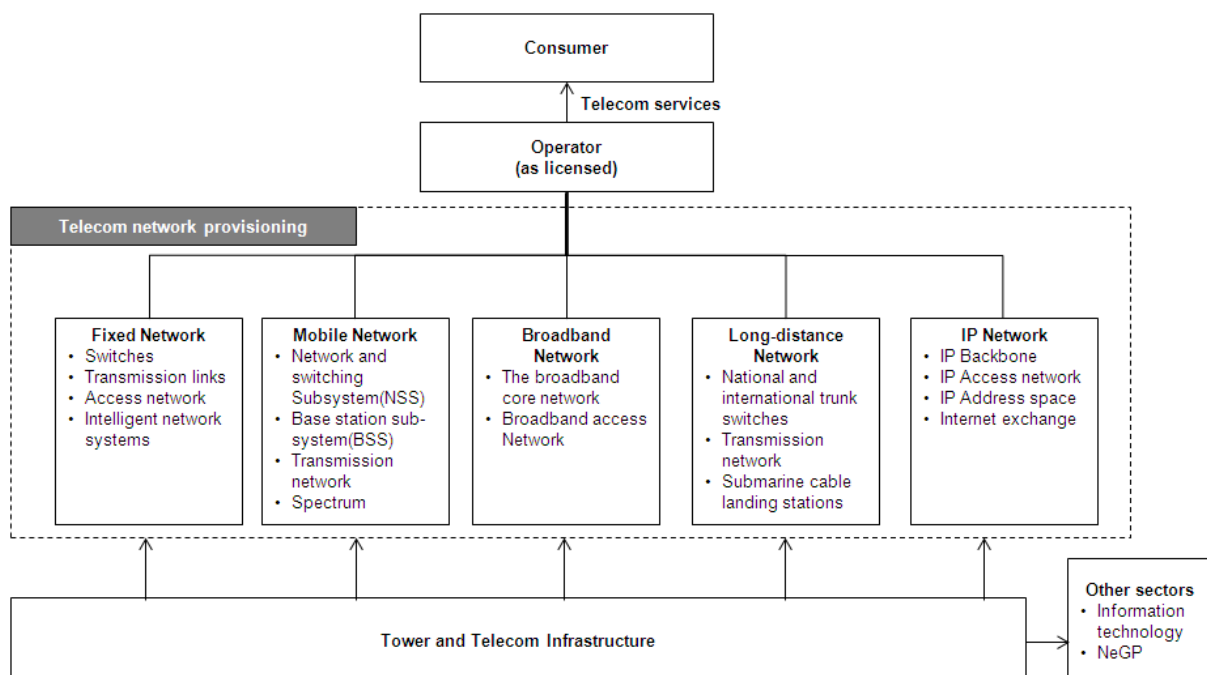
Overview of Telecom Infrastructure

6.1 Do you agree with the classification of infrastructure elements described in this chapter? Please indicate additions/modifications, if any, particularly where you feel that policy interventions are required.

- Currently the tower infrastructure comprises of more than 60% of the capital expenditure of the overall telecom network infrastructure. It is a distinct infrastructure industry, and its position should be regarded as a Key/Critical element of the telecom ecosystem, especially due to the high investments and intensive efforts required for its creation and management.
- Tower infrastructure acts as an input service towards all telecom services – fixed, mobile, broadband, long distance and IP, and has no direct contact with the end consumers. This makes it a very unique segment in the telecom sector. It is an inherent part of the telecom value chain, and supports other key sectors of the Indian economy.
- Since, the evolution of tower infrastructure is primarily a fall out of outsourcing activities by telecom operators driven by the foremost criteria of efficiency in capital investment and operational expenses. Such outsourcing activities have helped to reduce tariffs, making it possible for the Indian telecom sector to operate at one of the lowest tariff across the world and witness phenomenal growth.
- Telecom infrastructure is a critical infrastructure, which not only supports the telecom services, but also, supports other allied services such as the Common Services Centers (CSC) facilitating various NeGP initiatives. The same telecom infrastructure can be optimally utilized for surveillance, climate warning/national disaster warning, ATMs, etc.

Therefore, the tower infrastructure segment needs to be recognized and treated as a distinct segment from the traditional telecom services provisioning infrastructure segments, which are covered under the Telegraph Act.

We believe that the below diagram is a better representation of the Telecom infrastructure. Therefore, we would like to reiterate that since this segment is a distinct segment within the telecom ecosystem, **it should not be bundled or treated similar to the licensed services/segments as is being envisaged by the authority in its consultation paper.**



In-Building Solutions (IBS)

The Indian telecom industry continues to experience rapid growth, and has become the second largest market in the world in terms of mobile subscribers, with urban penetration above 130%. This growth would not have been possible without the growth of telecom infrastructure, which is an inherent and vital part of the telecom ecosystem. As a result, the country has witnessed proliferation of telecom towers, especially in urban areas. Currently, there are more than 400,000 telecom towers across the country. This proliferation is largely due to lack of spectrum. The absence of Local Loop Unbundling (LLU) of OFC has also resulted in the large scale proliferation of telecom towers. However, the emergence of innovative technologies such as IBS and Distributed Antennae Systems (DAS) may prove helpful in reducing the proliferation of telecom towers.

6.7 What methods would you propose for reduction of the number of towers?

- In our opinion the most effective way to reduce the number of towers would be to encourage and promote sharing of tower infrastructure by the operators. One of the key policy interventions, which could promote tower sharing, would be to have clear guidelines around zoning norms and cut-out distance band (CDB) norms for new towers. Distinct CDB norms could be formulated for metropolitan cities, cities – Tier 1, 2 and 3; and rural areas.
- Various other innovative options such as IBS and DAS could help in reducing the dependence on setting up new towers; however, the impact of these technologies in bringing about a significant reduction in the number of towers would be limited.

6.8 In what ways do you think that IBS can be encouraged for better In-Building coverage, better QoS and reduction in level of radiated power from Macro cell sites?

- Currently, 70-75% of the mobile usage is inside a building, and the remaining calls are made outside. The adaption of innovative solutions such as IBS serves the purpose of reducing telecom towers during the rollout of a network. Going forward, provision for providing conduits for telecom/internet can be added to requirements of large commercial buildings which have optic fiber connectivity on the lines of current bye-laws for fire safety, rain harvesting, and waste management. However, suitability of IBS is primarily in large buildings such as large commercial complexes, stadiums, airports, etc.
- IBS would help in reducing the number of towers and also, the reducing the visual impact of towers. The usage of IBS needs to be incentivized for encouraging its wider acceptance in existing buildings and new buildings. Suitable incentives could be provided to owners of existing and new buildings to install IBS.
- Going forward, the introduction of 3G and Broadband Wireless Access (BWA) services across India is expected to create additional demand for telecom towers. The advent of these 3G/BWA services is likely to boost the usage of data services among consumers. The biggest advantage of using IBS would be when the data usage increases significantly, since technologies such as IBS ensure efficient usage of scarce spectrum and reduce the load on macro cell-sites. The deployment of IBS would be easier in new and upcoming buildings than a retro-fit into existing buildings.

6.9 How can sharing of IBS among service providers be encouraged? Does TRAI need to issue any guidelines in this regard?

- Sharing of IBS among service providers can be encouraged by providing suitable incentives or subsidies for their usage. Appropriate guidelines would need to be issued by TRAI to promote IBS sharing.
- However, if the IBS deployment is to be encouraged, the TRAI needs to issue guidelines on other related issues such as zoning, deployment of a tower near an IBS enabled building, etc.

Distributed Antennae Systems (DAS)

6.10 Do you agree that innovative technologies such as ‘Distributed Antenna System’ (DAS) can be effectively utilized to reduce number of towers and migrate towards tower-less cities?

- Innovative technologies such as DAS do help to reduce number of towers and migrate towards tower-less cities. However, the current urban landscape in India cities may not be amenable for deployment of DAS due to various impediments, as listed below. The new cities or new urban settlements being planned could be more suitable for planning of DAS deployments, and should be encouraged to incorporate DAS deployments in their urban infrastructure planning.
- An important issue to be considered for DAS deployments is whether our government and local bodies are ready for use these innovative technologies, given some serious impediments associated with these.

6.11 What are the impediments in adoption of new technologies such as DAS and how can these be removed?

- The impediments associated with DAS are as follows:
 - Ensuring uninterrupted power supply at each of the DAS node.
 - Obtaining Right of Way (ROW) clearances and enabling access to the backbone network especially through an optical fibre network.
 - Higher costs of maintenance due to expanded footprint of DAS nodes.
 - Prevention of theft of DAS equipment.
- Given these critical issues, we believe that providing the requisite service assurance for a DAS infrastructure to work seamlessly is going to be a challenging for telecom operators.

Standardization of Tower Design

Some of the observations made by the authority in its consultation paper around tower design standardization are unfounded and incorrect. No telecom infrastructure is deployed without ensuring the structural safety, and in quite a few civic jurisdictions it is done only after taking clearances such as No Objection Certificate (NOC). Moreover, the tower infrastructure companies have followed self-regulation in adoption of designs, keeping in mind the various geographical challenges, where safety is inherent in the design. Tower infrastructure is approved by technically competent agencies such as TEC, SERC, CPRI and IITs, before its deployment. The telecom infrastructure companies follow the fire safety and pollution norms. Although, there is a need for policy intervention, it should take in consideration the current good practices being followed by the telecom infrastructure companies. The objective of the policy intervention should bring cost efficiencies through standardization of tower designs.

6.12 Would you agree that the design of towers can and should be standardized?

- Any efforts for standardization must ensure that the standards only define optimal functional specifications. The safety is paramount, and specifications to that effect should be standardized vis-à-vis to the designs of the tower. Currently, the consideration for design criteria are specific to each geographical area such as wind speed, seismic activity, nature of soil, load bearing capacity of the building in case of a roof top tower, shear strength, pollution, fire, etc.
- Innovation in designs help further in efficiencies and enhancing safety, and should be encouraged in our opinion. Therefore, while functional specifications need to be standardized, the tower infrastructure companies must be allowed to continuously improve designs through innovation and R&D.

6.13 If yes, how many different types of towers need to be standardized?

- As stated above, only functional specifications should be standardized. The functional classification should be broadly classified on the basis of Ground Based Towers (GBT) or Roof Top Towers (RTT). While standardizing the functional specifications, the scalability of the tower should be considered, and create an optimal balance. Four to six different types of standardized functional specifications may be sufficient. However, the advancement in tower functional specifications should be considered at a regular time period.

6.14 What are the important specifications that need to be included in these standards?

- The important specifications that need to be included are:
 - Antenna load bearing capacity
 - Height of tower
 - Wind-speed
 - Factor of safety
 - Foundation design (as per soil conditions for GBT)
- However, these important specifications are already inherent in the current designs being used by telecom infrastructure companies.

6.15 Which is the best Agency to standardize the tower design?

- Any of the technically competent agencies such as Indian Institute of Technologies (IIT), Structural Engineering Research Centre (SERC), Central Power Research Institute (CPRI), State Electricity Regulatory Commissions (SERC), and Telecommunication Engineering Centre (TEC) could be considered as the agency to standardize tower functional specifications.

Reducing Visual Impact of Towers

6.16 What is the likely cost of camouflaging the towers?

- It is difficult to assess the cost of camouflaging towers, as it would depend on the camouflaging needs and required designs to enable it. There could be a significant cost associated with the camouflaging to towers. From some similar experiences of camouflaging towers in other countries, we believe, the cost of such towers could be as high as two to three times that of a regular telecom towers.

6.17 Can camouflaging be made mandatory? If so, can this be made part of the design standards of the towers?

- We do not support camouflaging of towers being mandatory. We must recognize that there are significant costs associated with camouflaging towers, which will have to be passed on to the operators by the telecom infrastructure providers, and it would lead to additional burden on the end-consumer.
- There could also be special consideration made for camouflaging towers in and around certain specific urban areas having heritage or other architectural significance; and not for all generic urban areas. Even for these limited camouflaging, there should be a joint endeavor between civic agencies and other related departments. Telecom infrastructure providers would be willing to extend their cooperation.

Clearances from Local Authorities

There is an urgent need for simplification and harmonization of complex rules and processes so that unreasonable barriers do not impede rollout of tower and infrastructure. The GoI should announce National Telecom Critical Infrastructure Policy (NTCIP), which focuses on simplifying these procedures. If legislative amendments are needed, the same should be adopted in a time bound manner. There is a need for creating a Right of Way (ROW) policy for the speedy rollout of telecom networks. Telecom services should be treated as a necessity such as water and power in every housing and commercial building, and its provisioning and ROW could be included in bye-laws for buildings of the respective civic jurisdictions to be followed by the buildings designers, architects, builders and civic agencies. There is also a need for a structured instrument in form of an empowered committee or similar structure to engage with roads and power ministries which are directly connected with the growth of telecom infrastructure.

6.18 Do you consider that the existing framework of different civic authorities to grant permission for telecom towers is adequate and supportive for growth of telecom infrastructure?

- The existing framework of different civic authorities to grant permission for telecom towers is inconsistent and ad-hoc across states, and at times across local bodies within the same state; and makes the process of network roll out inefficient both in terms of time and costs.

6.19 Is there a need to set-up a single agency for approval and certification of towers? Is there an existing agency that can do this work? If a new agency is proposed, what should be its composition and framework?

- As stated earlier, there is an urgent need to formulate a National Telecom Critical Infrastructure Policy (NTCIP), which lays down clear guidelines to be followed by various ecosystem players and civic agencies. We believe that tower infrastructure companies should be allowed to setup telecom infrastructure components in accordance with these policy guidelines on a self-certification basis. Local civic authorities should have a limited role, perhaps, only in grant of very specific approvals for setting up telecom towers, such as certification of buildings' structural strength, or permissions to set up towers in certain sensitive areas such as defense cantonments, heritage sites, border areas, etc. There should be a single nodal agency set up in each state, which grants these limited specific approvals and certification, in accordance with the policy guidelines.

6.20 Is it feasible to have a uniform framework of guidelines including registration charges, time frame, single window clearance etc for granting permission for installation of telecom towers and laying of optical fiber cables? If so, can it be prescribed by the Licensor or the Regulator?

- It is certainly essential to have a consistent framework of guidelines covering registration charges, time frame, single window clearance, etc. for granting permission for installation of telecom towers and laying of optical fiber cables. These could be set-up for various categories such as metros, tier-1, 2 and 3 cities, and rural areas.
- Such a framework could be prescribed by the regulator.

6.21 What can be an appropriate time frame for grant of permission for erection of towers?

- The telecom infrastructure industry operates in a mechanism which is standardized. As a result, telecom infrastructure companies should not normally require any approval for the erection of towers. These companies could provide self certification for the erection of towers.
- However, in case permission is required, say in sensitive areas such as defense cantonments, heritage sites, border areas, etc., the local authority will grant permission within such reasonable time as it thinks fit, but not exceeding 30 days from the date of receipt of requests. Beyond 30 days, the application should be deemed to be approved.

6.22 How can a level playing field be ensured for telecom service providers vis-à-vis other utility service providers especially in reference to tower erection?

- Telecom Infrastructure industry must reflect its role as a key and critical utility given the heavy investments required, and also, the role this industry plays in the overall economic growth. As discussed earlier, adequate support is needed for the industry by recognizing their services as a critical public utility. Also, the same level of priority must be accorded, as is available for some other public utilities, by the local authorities especially in the context of granting Rights of Way (ROW).

6.23 Which agency is best suited to inspect the buildings and certify the structural strength of the buildings in case of roof based towers?

- A Government certified architect/civil engineer is best suited to inspect the buildings and certify the structural strength of the buildings in case of roof based towers. However, these inspections and certifications do not pertain to the structural strengths of tower, which are inherent in the designs.

Infrastructure sharing

Telecom operators' capital expenditure is dominated by considerable investment in technology and network deployment. Such investments are fixed, and irreversible, and represent a high risk factor. Often, such investments turn out to be risky propositions given the rapid introduction of successive generations of new technology. Telecom operators are occasionally faced with a situation where even before recovering their investments in existing infrastructure they need to embark on further investments in new generation networks. This phenomenon is common in the mobile sector, particularly in the context of 3G services. In response to this phenomenon, policy-makers, regulators and operators are increasingly placing greater emphasis on alternatives to the traditional high-cost infrastructure development model by considering measures such as infrastructure sharing.

The need for infrastructure sharing is driven by burgeoning wireless subscriber base and the emergence of next generation networks. The sharp rise in real-estate prices, site rentals have also prompted infrastructure sharing among telco's. In India, telecom operators are also forced to roll out more number of cell sites due to spectrum constraints, which is a scarce natural resource. The successful roll out of these cell sites is augmented by infrastructure sharing. Moreover, in today's business environment, installation of cell sites has become a cumbersome process as there are a number of clearances required and involves labor-intensive micro management, which calls for infrastructure sharing.

6.24 Should sharing of mobile towers be mandated?

- The infrastructure sharing model enables more efficient use of capital, reduces time to market for rollout, reduce tower proliferation, provides better coverage quality, and minimizes issues related to local authorities. Therefore the sharing of mobile towers should be decided by market forces, and not through an administered mechanism.
- The sharing of mobile towers should not be mandated, the Government needs to encourage the sharing of mobile towers. As discussed earlier, one of the key policy interventions, which could promote tower sharing, would be to have clear guidelines around zoning norms and cut-out distance band (CDB) norms for new towers. Distinct CDB norms could be formulated for metropolitan cities, cities – Tier 1, 2 and 3; and rural areas.

6.25 Should sharing of active infrastructure, created by themselves or infrastructure providers, be allowed?

- The sharing of active infrastructure is already allowed on behalf of the telecom service providers. In our opinion, the further sharing/permission of active infrastructure created by the telecom infrastructure companies should be allowed, as this is expected to reduce costs, encourage standardization, and ultimately result in further decline of tariffs.

- a. **Provisioning microwave links and utilizing frequency spots for microwave (Backhaul) directly by the tower infrastructure companies:** The lack of an optical fiber (OFC) backbone in India has serious impact on backhaul required for telecom services. Hence, telecom infrastructure has to depend upon the microwave and very small aperture terminal (VSAT) technology; and each operator has to create its own backhaul from its towers. It is necessary to increase the availability of microwave and VSAT for backhaul usage. Telecom tower and infrastructure companies should be allowed to provision microwave links and utilize frequency spots for microwave to the operators to avoid duplication of scarce resources. As towers are shared by multiple operators, if tower infrastructure companies also provision for microwave backhaul and enable its sharing with multiple operators, it will result in more efficient use of microwave bandwidths also.
- a. **Lit fiber: Tower companies, which are registered as IP-I companies can provide assets such as dark fiber services. The authority should consider extending the provision of providing lit fiber as asset. This is expected to encourage a speedy roll out of OFC network across the country, and strengthen the backhaul.**

Use of USO for rural areas

6.26 Please comment on the issues raised in paragraph 5.6 of Section A of Chapter 5.

We support the recommendations made by TRAI vide 5.2 (iii), (ix), (x) reiterated in the consultation paper No 1/2011, and strongly feel that these directives would help in the faster roll-out and various other objectives.

General

6.31 Please give your comments on any related matter not covered above.

The recommendation on other related matters are given below.

Grievance redressal:

- Since, telecom infrastructure companies' grievances cannot be addressed by TDSAT, it makes it imperative to set up a grievance redressal mechanism for these companies. The broader framework should be laid down for grievance escalation/redressal related to telecom infrastructure companies, which these companies can seek in situation of a conflict.

Misplaced apprehensions on health hazards of Electromagnetic radiation from Mobile Antennae-BTS:

- There is a need to increase awareness of local authorities and consumer groups. While, the operators are making their best efforts to educate the general public, however, the regulator positive public position will be extremely helpful in this direction.
- In December 2010, premier engineering institutes in India carried out an independent study, specific to the Indian environment. The report on Electromagnetic Radiation Measurement at New Delhi was in compliance with International Commission on Non-Ionizing Radiation Protection (ICNIRP) standards. The study revealed that the "Level of Radiation" from cellular base stations in Delhi fall hundreds of times below the international safety standards. International institutions like the World Health Organization, the British Medical Association, the ICNIRP and the GSM Association, have opined that there is no conclusive evidence of any health hazards due to radiation from mobile towers.
- Recent surveys have shown that the RF exposures from base stations range from 0.002% to 2% of the levels of international exposure guidelines, depending on a variety of factors such as the proximity to the antenna and the surrounding environment. In fact, due to their lower frequency, at similar RF exposure levels, the body absorbs up to five times more of the signal from FM radio and television than from base stations. This is because the frequencies used in FM radio (around 100 MHz) and in TV broadcasting (around 300 to 400 MHz) are lower than

those employed in mobile telephony (900 MHz and 1,800 MHz) and because a person's height makes the body an efficient receiving antenna. Further, radio and television broadcast stations have been in operation for the past 50 or more years without any adverse health consequences being established.