



VIL/PB/RCA/2023/006

March 03, 2023

**Advisor (Networks, Spectrum and Licensing)**

**Telecom Regulatory Authority of India,**

Mahanagar Doorsanchar Bhawan,  
Jawaharlal Nehru Marg (Old Minto Road),  
New Delhi – 110002

**Kind Attn: Shri Akhilesh Kumar Trivedi**

**Subject:** Comments on the TRAI's Consultation Paper on "Telecommunication Infrastructure Sharing, Spectrum Sharing, and Spectrum Leasing" dated January 13, 2023

**Dear Sir,**

Kindly find enclosed herewith comments from Vodafone Idea Limited to the TRAI's Consultation Paper on "Telecommunication Infrastructure Sharing, Spectrum Sharing, and Spectrum Leasing" dated January 13, 2023.

We hope our comments will merit your kind consideration please.

Thanking you,

Yours sincerely,

For **Vodafone Idea Limited**

**P. Balaji**

**Chief Regulatory & Corporate Affairs Officer**

**Enclosed:** As stated above

**myvi.in**

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## **VIL Comments to the TRAI Consultation Paper on “Telecommunication Infrastructure Sharing, Spectrum Sharing, and Spectrum Leasing”**

At the outset, we are thankful to the Authority for giving us this opportunity to provide our comments to the TRAI Consultation Paper on “Telecommunication Infrastructure Sharing, Spectrum Sharing, and Spectrum Leasing” dated 13.01.2023.

In this regard, our comments on the said Consultation Paper are as below:

### **Key Submissions**

1. Existing passive infrastructure sharing arrangement includes elements like dark fibres, RoW, duct space, tower space etc. Additionally, **sharing of space and power sharing or lease out of core infrastructure sharing at data center, should be considered to be permitted.** Colocation data center space and power sharing should be permitted for Unified license holders.
2. **We do not recommend sharing of any additional active elements like Core Network nodes as it involves lot of complexities and challenges.** In our view, present license conditions would suffice the technical and market requirements on active infrastructure sharing and there is no need of permitting any additional active infrastructure elements.
3. **Public Money (USO fund etc.) should be used for Public good and not for one TSP good. Existing Universal Service Obligation (USOF) fund arrangement creates assets only for a single TSP more than providing universal connectivity to the public through multiple TSPs, hence, not in interest of general public.**
4. **The Telecom Service Providers (TSPs) should be mandated to share infrastructure that has been funded, either partially or fully, by the Government through USOF or otherwise, with other TSPs on commercial but wholesale rates, i.e. lower than retail rates. This will ensure fairness for all parties concerned, given that USO funds are contributed by all telecom operators.**
5. **No LF/SUC should be levied on payments made by one TSP to another TSP for all arrangements given in the paper like passive infrastructure sharing, active infrastructure sharing, sharing through roaming, inter-band spectrum sharing, spectrum leasing etc.**



6. To put in place roaming arrangements among TSPs in remote and far flung areas, **we recommend Mandatory Roaming to be offered by all TSPs in remote and far flung areas on wholesale charges basis.**
7. **Inter-Band access spectrum sharing should be permitted** in the country. As the spectrum is purchased on a market price through an open and transparent auction, the spectrum holding TSP should have the right to fully exploit commercial value of the spectrum, including through Inter-Band spectrum sharing.
8. **ASA should be implemented to better utilize the spectrum** (especially in low and mid bands). It will go a long way in serving towards the spectrum requirements by the TSPs, for meeting the coverage and capacity demands in the current 4G/5G networks and promotion of efficient utilization of the available spectrum resources.
9. Since, the TSP would not be able to utilize the spectrum in various premium locations which will limit the revenue opportunities and impact to customer experience, thus, the spectrum allocated through **ASA should be made available at discounted prices of at least 50% of the prices for the geographies where it can be used.**
10. **Spectrum leasing should be allowed only to licensed entities** for giving services to its consumers and scope of services which can be provided through such leasing should continue to be as per applicable license of spectrum lessee. **Licensing and regulatory framework for spectrum leasing will need to be formulated and should clearly provide for rights and obligations of both the parties.**

In continuation to above, we would like to submit our question-wise comments for Authority's kind consideration, as given below:

### Question-wise comments

**Q.1 Should passive infrastructure sharing be permitted across all telecommunication service licenses/ authorizations? Kindly justify your response.**

#### **VIL Comments to Question no. 1**

1. The consultation paper under section D and para 2.17 highlights the provisions in Unified License related to infrastructure sharing. As per this para:



- a. Clause 33.3 under Operating conditions of the Unified License allows sharing of active and passive infrastructure, which means it is allowed to all the service authorizations under the Unified License.
  - b. Clause 33.1 under Operating conditions of the Unified license mentions that sharing of active/passive infrastructure shall be governed by the terms and conditions of respective service authorizations.
  - c. Other UL provisions under respective service authorizations of Access Service, Internet Service, NLD service, ILD service, and M2M, as well as provisions of UL-VNO access authorization, allows passive infrastructure sharing and conditions related to the same.
  - d. However, there are no such conditions available in the UL service authorization of GMPCS Service, PMRTS service, commercial VSAT CUG service and Audio conferencing/Audiotex/Voice mail.
2. Presently, passive infrastructure sharing has been working prominently in between Unified Licensees (Access Authorizations) as well as between Unified Licensee (Access authorization) and IP-I registration holders, mostly on the tower side. It has also reaped benefits for the sector, providing cost efficiencies and scalability.
  3. Principally, we are of the view that permitting passive infrastructure across all telecommunication service licenses/authorizations would help achieve further cost efficiencies. However, it should be done through specific and related provision under each of such authorization/service license and not through general/operating conditions of Unified License.
  4. However, at the same time, it must be noted that certain time Access Operators sharing the passive infrastructure hosted by IP-1 providers, find it difficult to expand the capacity or introduce new technologies on the shared sites due to constraints of space on Tower or load bearing capacity of the towers. If more licensees start seeking sharing the same passive infrastructure then, it will defeat the very purpose with which the Infrastructure sharing was allowed and each operator will be forced to put up individual sites to get around the site constraints.
  5. In addition to existing passive infrastructure elements dark fibres, RoW, duct space, tower space etc., it would be worthwhile to consider permitting sharing of space and power sharing or lease out of core infrastructure sharing at data center. Colocation data center space and power sharing should be permitted for Unified license holders.



**Q2. Should other active infrastructure elements deployed by service providers under various licenses/ authorizations, which are not permitted to be shared at present, be permitted to be shared among licensees of telecommunication services?**

**VIL Comments to Question no. 2**

1. Unified License allows active sharing and its related provision is given as below:

***Chapter V: Operating Conditions***

*33.2 Sharing of Active infrastructure amongst Service Providers based on the mutual agreements entered amongst them is permitted. Active infrastructure sharing will be limited to antenna, feeder cable, Node B, Radio Access Network (RAN) and transmission system only. Sharing of infrastructure related to Wi-Fi equipment such as Wi-Fi router, Access Point etc. is allowed. Sharing of backhaul is also permitted.*

2. Besides elements mentioned in above-given extract of Unified License, theoretically there could also be sharing of Core Network Nodes like IP Multimedia Subsystem (IMS), Mobile Switching Subsystem (MSS), Gateway Controller Switch (GCS), Policy and Charging Rule Function (PCRF) etc.
3. **However, sharing of Core Network nodes is not recommended as it involves lot of complexities and challenges. The humongous complexity in the Core routing and services would make it difficult for a single node to handle multi PLMN traffic with offered equivalent services. Huge challenge would be to have different/separate charging mechanisms and LI provisioning with most complex connectivity i.e., Inter elements connectivity with greater chances of IP conflict. Subscriber Database is also a major concern of competition conflict if considered for sharing.**
4. The same was already experienced by VIL while integrating and it was observed that many support systems are not aligned for Core sharing e.g. Provisioning, Mediation, IT Data, RA validation in terms of format/interworking with Core nodes.
5. **Therefore, in our view, present license conditions would suffice the technical and market requirements on active infrastructure sharing and there is no need of permitting any additional active infrastructure elements.**



**Q3. If your response to the Q2 is in the negative, which active infrastructure elements should not be permitted to be shared? Further, which active infrastructure elements should be permitted to be shared with which licensees/ authorization holders? Kindly provide details for each authorization with detailed justification.**

#### **VIL Comments to Question no. 3**

- 1. We would like to recommend that there is no need of permitting active infrastructure sharing for Core Network nodes** like IP Multimedia Subsystem (IMS), Mobile Switching Subsystem (MSS), Gateway Controller Switch (GCS), Evolve Packet Core (EPC), Policy and Charging Rule Function (PCRF), Dynamic Routing Agent (DRA), Home Subscriber Server (HSS), etc.
2. For detailed justification, kindly refer to our detailed comments given to Question no. 2 above.

**Q4. In case it is decided to permit sharing of any additional active infrastructure elements among licensees,**

- (a) What precautionary conditions should be put in place to avoid disruption in telecommunication services due to any unforeseen situation? The response may be provided for each active infrastructure element.**
- (b) Whether there is a need to have a provision for permission from/ intimation to the Licensor before commencement of such sharing? If yes, what provisions and timelines need to be prescribed for each active infrastructure element?**

#### **VIL Comments to Question no. 4**

We do not recommend permitting sharing of any additional active infrastructure elements like Core Network sharing. Kindly refer to our comments to Question no. 2 and 3 above.

**Q5. Whether any other amendment is required to be made in the telecommunication services licenses/ authorizations with respect to the provisions relating to both active and passive infrastructure sharing to bring clarity and remove anomaly? If yes, clause-wise suggestions in the telecommunication services licenses/ authorizations may kindly be made with detailed justification.**



## VIL Comments to Question no. 5

We are fine with the existing license conditions except that the existing provisions may be suitably modified to permit passive infrastructure sharing of space and power at data centres as explained at point no. 5 of above-comments to question no. 1.

**Q6. Should there be any obligation on telecom service providers to share infrastructure that has been funded, either partially or fully, by the Government through Universal Service Obligation (USO) Fund or otherwise, with other telecom service providers? Kindly justify your response.**

## VIL Comments to Question no. 6

1. **Yes, the TSPs should be mandated to share infrastructure that has been funded, either partially or fully, by the Government through Universal Service Obligation (USO) fund or otherwise, with other TSPs.**
2. The detailed justification for the same is given as below:
  - a. **Establishing connectivity economically unviable:** Setting up network in every corner of the country involves substantial costs. It is hence a necessity to carefully evaluate whether these returns will exceed the accompanying costs or whether building up such network will go along with economic losses.
  - b. **Universal Service Obligation should not mean service from one TSP:** The resources for meeting the Universal Service Obligation (USO) are raised through a 'Universal Access Levy (UAL)', which is a percentage of the revenue earned by all the operators under various licenses. It is unfair to extend this fund to a single TSP and hence, the same should be accessible to all the contributors.
  - c. **Present tender conditions leads to deep pocketed player winning the bid:** Considering the tender structure and bidding, usually the deep pocketed player will be able to bid on lowest prices (USOF support).
  - d. **Public Money should be used for Public good and not one TSP good:** This arrangement creates assets only for a single TSP more than providing connectivity to the public, hence, not in interest of general public. The funding provided to only one TSP, gives undue advantage to a TSP with a good financial health and allows them to build network and assets on their balance sheets giving coverage to their



own subscribers instead of general public, basis public money or special dispensation from Government.

- e. **Monopolistic service from one TSP - Not good for Public:** As it is clear that it is economically unviable to create infrastructure/connectivity in areas where Government funding is being extended, coupled by the fact that the funding is being given to only one TSP in a particular area, will lead to connectivity from only one TSP in such area, as other TSPs will never be able to provide coverage/connectivity to that area. This will lead to consumers getting service option from one TSP only.
- f. **Creates competitive arbitrage between deep pocketed large players and comparative weaker players – that too based on Government funding:** Such distribution of funds on the basis of reasonable bidding, widens the competitive gap between the financially strong TSP and the weaker one. This is because the USP creates its connectivity island in such areas adding onto the subscribers and revenue, on the strength of public funds.
- g. **USO agreement allows sharing but, no TSP is willing to share:** Even though the scope of Agreement of USOF allows the USP to share infrastructure with other Licensed Service Providers basis compliance of DoT, but no USP has been found keen to practice this. This is because any USP would consider such network (setup based on Government/public funds) to be giving them competitive advantage.

### 3. International Examples:

- a. Globally, many countries had already realized the concern of expanding services of multiple telecom service providers in uneconomical geographies like rural areas, with support from Government funds.
- b. The justification behind such support through Government funds, and service to be provided by multiple telecom service providers, is well established across countries as being public good as well as benefit to the economy.
- c. Some of the examples of other countries having implemented similar schemes, are given below:





### **United Kingdom<sup>1</sup>:**

- i. The UK Government and the other TSPs are working to put together a joint solution to issues around coverage in rural areas. This model has the potential to be implemented in other countries as everyone benefits from the same as below:
  - Government can achieve their policy goals in terms of coverage at a reasonable cost.
  - TSPs can reasonably deliver network expansion without onerous and distortive coverage obligations.
  - Consumers get better services by more Mobile Network Operators (MNO) in more places.
- ii. The UK Government realized two main concerns regarding coverage:
  - Significant parts of the country had coverage by some but not all MNOs (called as partial not-spots)
  - Significant part of the country didn't have any coverage at all (total not-spots).
- iii. To address the issue, it was proposed to build a Shared Rural network (SRN) over a period of 20 years to:
  - Address partial not-spots (i.e. places where only some operators are present), TSPs committed themselves to upgrade their existing rural sites so that they can host all four TSPs.
  - Address total not-spots by jointly building new sites.
- iv. This collaboration of TSPs could be possible as the Government planned that if only one TSP won the coverage obligation, then it would impose national roaming on it. It was expected that this scheme will provide high-quality 4G coverage to 95% of the country by 2025 (each MNO will reach at least 92% by this date – expectation is that 88% coverage by each MNO should be achieved through increased sharing on existing sites).

**Germany<sup>2</sup>:** The Government has approved a €1.1bn plan to fund building of around 5,000 sites in the country, with the aim to increase coverage to 99.95% of households and 97.5% of the landmass.

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<sup>1</sup> [https://www.ofcom.org.uk/\\_\\_data/assets/pdf\\_file/0027/174645/letter-nicky-morgan-to-sharon-white-25-oct-19.pdf](https://www.ofcom.org.uk/__data/assets/pdf_file/0027/174645/letter-nicky-morgan-to-sharon-white-25-oct-19.pdf)

<sup>2</sup> <https://www.bundesregierung.de/breg-de/service/archiv/mobilfunkstrategie-1693528>



4. **How the obligation should work:**

- a. While large TSPs or TSPs who have already got such USO funds to build infrastructure may put across various reasons as to why it can't be done however, we request the Authority to look this from the prism of larger public good and not from perspective of any competitive or commercial reasons put across by such TSPs.
- b. **Amendment in Tender/Agreement clauses:** Scope of the USOF Agreement with the USP for Provision of Mobile Services usually states:

*“USP, at its discretion, may share infrastructure with other Licensed Service Providers, subject to compliance of the guidelines instructions issued by DoT in this regard. However, there shall be no extra financial support from USOF”.*

Further, there are conditions in existing agreement which empowers the USOF Administrator to make changes in the scope of the agreement through a written order, extract referred as below:

*The Administrator may, at any time, by a written order given to a USP, make changes within the general scope of the Agreement in any one or more of the following, subject to the condition that such changes will not have any major financial implications:*

- (i) *specifications of the Scheme*
- (ii) *the location and number of the towers; or*
- (iii) *The services to be provided by the USP*

**To ensure the public reap the benefits of coverage from all TSPs and the Government funding delivers long term public good, the above mentioned scope of the agreement (in both existing projects and new projects), requires amendment and following can be included in the scope of such services:**

**Suggestive Amended Clause**

*“Inter-circle Roaming is to be mandatorily offered to all other licensed telecom service providers, over the sites put on-air under this project. The inter-circle roaming should be offered to other licensed TSPs on wholesale commercial*



*rates, which would be subject to determination from TRAI from time to time. Other active/passive infrastructure like fibre, DG sets etc. being deployed under this project, would also have to be mandatorily offered for sharing by other TSPs.”*

**Q7. In case it is decided to impose some obligations on telecom service providers to share the infrastructure funded by Government with other telecom service providers, is there a need to provide a broad framework for sharing of such infrastructure? If yes, kindly suggest the key aspects of such framework with detailed justification.**

#### **VIL Comments to Question no. 7**

1. Yes, there is a clear need to provide a broad framework for sharing of such infrastructure.
2. If Authority decides to impose the obligations, same may not get implement unless there is a clear framework prescribed. Even presently, the agreement executed by telecom service providers for USO funding do contain provision permitting sharing of the infrastructure thus created however, no TSP is willing to share the said infrastructure.
3. For obligations to implement mandatory sharing of infrastructure created using funds from Government/USOF, to actually work on the ground and deliver long-term public good, there has to be robust framework prescribed which should cover:
  - a. Changes in Contractual Provisions i.e. in Tender and Agreement signed with TSPs (for both existing and new projects)
  - b. Ways of Mandatory sharing
  - c. Time bound offer for sharing
  - d. Roaming rates on wholesale basis.
  - e. TRAI to determine ceilings of roaming rates if TSPs unable to mutually agree.
  - f. Fiscal incentives
4. In this regard, we would like to recommend following broad framework:
  - a. **Amendment in Contractual Provisions**
    - i. **Tender conditions:** Tender conditions should be amended suitably.



- ii. **Amendment in Agreements with TSPs (for both existing and future projects):**  
To ensure the public reap the benefits of coverage from all TSPs and the Government funding delivers long term public good, the above mentioned scope of the agreement (in both existing projects and new projects), requires amendment and following can be included in the scope of such services:

**Suggestive Amended Clause**

*“Inter-circle Roaming is to be mandatorily offered to all other licensed telecom service providers, over the sites put on-air under this project. The inter-circle roaming should be offered to other licensed TSPs on wholesale commercial rates, which would be subject to determination from TRAI from time to time. Other active/passive infrastructure like fibre, DG sets etc. being deployed under this project, would also have to be mandatorily offered for sharing by other TSPs.”*

- b. **Ways of Mandatory sharing:** The most effective way of sharing would be to offer it through Roaming.
- c. **Roaming Charges from one TSP to another:** Roaming should be charged by the USP on wholesale basis (i.e. pricing should be below retail tariffs).
- d. **TRAI determination if market failure:** There can be a scenario where a USP can inflate the roaming pricing to indirectly deny access to such infrastructure or if TSPs fail to mutually agree on wholesale prices in a defined time-period. In such situation, TRAI can intervene and provide ceilings for said roaming arrangements, to be paid by one TSP to another.
- e. **Time-bound offer for roaming:** Such offer of mandatory sharing through roaming by the USP to all other TSPs, should be made time-bound i.e., within 6 months of project going live.
- f. **Fiscal incentives for encouraging Sharing:** TSP who is offering the infrastructure for sharing, should get deduction of the revenues received from such sharing and there should not be any LF/SUC levied on such revenues.

**Q8. Any other suggestion to facilitate infrastructure sharing may kindly be made with proper explanation and justification.**



## **VIL Comments to Question no. 8**

1. The provision of pass-through of lease line / bandwidth charges has only been permitted for the transaction between TSP/NSOs and VNO and not between two TSPs/NSOs.
2. Both the TSPs/ NSOs and the VNOs have been issued licenses under Section 4 of the Indian Telegraph Act and both are required to operate under the principles laid down in the Unified License. Therefore, it is only logical that both the TSPs/ NSOs and VNOs are treated at par by DoT and this provision is also extended to the TSPs/NSOs as well.
3. Hence, the pass-through charges for bandwidth/leased line should be permitted for NSOs/TSPs also at the earliest, as already done for the VNO vide Amendment to the VNO License dated October 24, 2018. This will also avoid incidence of double charging of License Fee and encourage sharing of infrastructure more efficiently.
4. Also, no LF/SUC should be levied on payments made for any telecom input resource by one TSP to another TSP. This will remove double taxation in the system, which is also envisaged in NDCP, 2018.
5. Furthermore, TRAI has issued a Recommendations recently on “Rating of Buildings or Areas for Digital Connectivity” dated February 20, 2023 and infrastructure sharing is also at the heart of said recommendations. Various recommendations made there should be implemented at the earliest possible. Some of related ones have been listed below for quick reference:
  - a. *In case of development of Buildings in rural, semi-urban, remote and hilly areas, etc. where MBBL is not directly applicable, the Authority recommends that the Government may work with State Governments/ UTs for incorporation of suitable provisions for DCI development in the respective bye-laws or other relevant laws of the State Governments/ UTs.*
  - b. *Further, the Authority recommends that, an amendment to the present Unified license conditions with a proviso for compulsory sharing of active wireless equipment in the Buildings may be carried out.*
  - c. *Revenues earned by sharing of active wireless equipment, as part of DCI, by lessor licensees should not attract License Fee (LF). For the same, such revenues should be reduced from the Gross Revenues (GR) of the lessor licensee to arrive at Applicable Gross Revenue (ApGR) of such lessor licensee.*



6. Also, TRAI's recommendations on "Use of Street Furniture for Small Cell and Aerial Fiber Deployment" dated November 29, 2022, listed below, should also be implemented at the earliest possible:
- a. *Enabling provisions or suitable terms and conditions shall be introduced in all telecom licenses and IP-I registration agreement prohibiting the TSPs/IP-I providers from entering into any exclusive contract or right of ways with infrastructure owners/Controlling Administrative Authorities (CAAs) or any other authority.*
  - b. *In future, tenders for setting up new SF structures by the appropriate authorities, the possibility of sharing of SF on non-exclusive basis, for hosting DCI like small cells and aerial fiber, should be kept in mind. The terms and conditions for offering all assets that are catalogued and uploaded on GIS portal, should have a mention that the SF is being offered on non-exclusive basis and will be shared with other eligible entities.*

**Q9. What measures could be taken to encourage roaming arrangements among telecom service providers in remote and far-flung areas? What could be the associated regulatory concerns and what steps could be taken to address such concerns? Kindly provide details on each of the suggested measures with justification.**

**and**

**Q10. What could be the other ways to ease out the hardship faced by the subscribers in remote and far-flung areas due to connectivity issues of the home network provider? Kindly provide detailed response with justification.**

#### **VII Comments to Question no. 9 and 10**

1. Roaming is already permitted but, certain TSPs are generally not willing to execute Roaming arrangements.
2. We recommend following measures to put in place roaming arrangements among TSPs in remote and far flung areas:
  - a. Mandatory Roaming to be offered by all TSPs in remote and far flung areas
  - b. Roaming to be offered by one TSP to another on wholesale charges basis.
  - c. Ceilings for roaming charges to be prescribed by TRAI if TSPs fail to mutually agree on roaming charges.
  - d. Remote and far flung areas to be notified.



3. There would be regulatory concerns like commercial and competitive decision of a TSP. To address this concern, the TSP who uses the said mandatory roaming arrangement can be directed not to acquire connections in areas where roaming is provided.

**Q11. Whether inter-band access spectrum sharing among the access service providers should be permitted in the country?**

**VIL Comments to Question no. 11**

1. **Yes, Inter-Band access spectrum sharing should be permitted in the country.**
2. Inter-band sharing would provide significant opportunities to the TSPs, to collaborate and make optimum use of the spectrum especially in lower bands.
3. Unlike earlier when different bands were used for specific services, most of the bands are being used presently for LTE services as such, frequency bands are growingly becoming technology agnostic.
4. For example, while LTE can be launched in different bands however, the propagation characteristics of each bands being different, it would provide different experience to consumers. LTE on higher band would provide more capacity but, lower coverage and LTE on lower bands would provide more coverage but, lower capacity. In said scenario, if an operator has launched LTE services in one of the band then, it also makes business, technical and economic sense for that operator to seek sharing of other band spectrum from another TSP.
5. In 5G, as the gap between different bands (low, mid and higher) is much higher as compared to LTE thus, the propagation characteristics across these bands are quite distinct. For optimum experience of 5G after it is launched pan-India and acquisition of significant subscriber base on it, TSPs would need mix of spectrum bands (across low, mid and high) in the long run.
6. While one argument could be that TSPs can purchase the spectrum across low, mid and high range, from auction and provide optimum experience to the consumers. However, spectrum being a finite resource, its optimum utilization is much desired over any other short term goal.



7. As the spectrum is purchased on a market price through an open and transparent auction, the spectrum holding TSP should have the right to fully exploit commercial value of the spectrum, including through inter-band sharing.
8. **Fiscal incentives:**
  - a. The spectrum is being allocated using spectrum auction process for which the TSP's have to make a significant payment, hence, the fee for such arrangement should be a nominal fixed fee that should cover the cost of administering such sharing.
  - b. Also, sharing is presently discouraged as revenue received from other TSP (TSP-A) for using telecom resources, is considered as part of AGR of TSP-B for purpose of levying LF/SUC. Hence, to incentivize sharing of infrastructure and network elements. No LF/SUC should be charged on the Revenues received by a TSP from other TSP for such sharing.

**Q12. In case it is decided to permit inter-band access spectrum sharing among access service providers, please provide detailed inputs to the following questions:**

**(a) What measures should be put in place to avoid any potential adverse impact on competition and dynamics of spectrum auction? Kindly justify your response.**

**VIL Comments to Question no. 12 (a)**

1. While the telecom service providers purchase spectrum to meet their coverage and capacity demands, however due to the shortage of spectrum available in the sub 3 GHz and all the future spectrum available in mid band and high band, Inter-band access spectrum sharing will provide the service provider an opportunity to get into the sharing agreement with operator holding that spectrum and use the same for the benefit of their subscribers.
2. Following measures should be looked into to avoid any potential adverse impact on competition and dynamics of spectrum auction:
  - a. Lock-in of 2 or 3 years can be put in place before the spectrum can be shared with other service providers.





- b. Spectrum being taken for sharing from another TSP, should be counted to check the spectrum holding of the TSP w.r.t. spectrum caps. If spectrum sharing being done in part geography of an LSA, still shared spectrum should be counted for whole LSA for this purpose.

**(b) Considering that surrender of spectrum has been permitted in the country, what provisions need to be included in the guidelines for inter-band access spectrum sharing so that any possible misuse by the licensees could be avoided? Kindly justify your response.**

**VIL Comments to Question no. 12 (b)**

1. No additional conditions are required to be included in guidelines for inter-band access spectrum sharing considering surrender of spectrum.
2. The lock-in of 2/3 years from the start of spectrum allocation can be kept during which TSP would not be allowed to enter into inter-band spectrum sharing.
3. Inter-band Spectrum sharing would primarily work in part geographies of a LSA. The scenario wherein a TSP would surrender the spectrum in whole LSA and would opt for inter-band spectrum sharing in part-LSA would be far-fetched.
4. Therefore, the concern of misuse by licensees would not arise.

**(c) What should be the broad framework for inter-band access spectrum sharing? Whether the procedure prescribed for intra-band access spectrum sharing could be made applicable to inter-band access spectrum sharing as well, or certain changes are required to be made?**

**VIL Comments to Question no. 12 (c)**

1. Same process as applicable for Intra-band sharing can be made applicable for Inter-band sharing.
2. In addition, the Operator sharing the Inter-band access spectrum has to be allowed to procure the network equipment for the shared band, for inter-band sharing to effectively work.



**(d) What should be the associated charges, and terms & conditions for inter-band access spectrum sharing?**

**VIL Comments to Question no. 12 (d)**

1. Since the shared spectrum is secured by the operator through the auction at the market determined price hence, it should be left to the operators getting into the mutual agreement with broad guidelines from the government to prevent any revenue loss due to the sharing arrangement.
2. To cater for administrative requirements, only a nominal fee should be paid to the Government before entering into inter-band spectrum sharing.

**Q13. Any other issues/ suggestions relevant to the spectrum sharing between access service providers, may be submitted with proper explanation and justification.**

**VIL Comments to Question no. 13**

**Fiscal incentives:** To encourage optimum utilization of spectrum through inter-band sharing, fiscal incentives should be given like no LF/SUC on the revenue received by a TSP from another TSP for inter-band spectrum sharing.

**Q14. Whether there is a need to explore putting in place a regime to implement Authorised Shared Access (ASA), wherein an access service provider as a secondary user could use the frequency spectrum assigned to a non-TSP primary user (government agencies and other entities) on a dynamic spectrum sharing basis? Kindly justify your response.**

**VIL Comments to Question no. 14**

1. Spectrum is a finite resource and extending the right to use it to single entity in a limited geography, denies everyone else the right to do the same in rest part of the geographies, under present norms.
2. There is a need to bring in more and more spectrum for providing quality and affordable services to the consumer. Presently, spectrum being allocated to many



Government agencies, is utilized in limited geographies across an LSA and thus, it gets blocked in other than said limited geographies leading to waste of a national resource.

3. Foremost priority should be to free up IMT spectrum from Government/other users by allocating them non-IMT spectrum. In other cases, spectrum being used by Government/other users in limited geographies, should be brought for use by the TSPs as secondary users. This would serve a better purpose and would be of good benefit to the telecom sector as a whole.
4. **In our view, ASA should be implemented to better utilize the spectrum (especially in low and mid bands). It will go a long way in serving towards the spectrum requirements by the Telecom service providers, for meeting the coverage and capacity demands in the current 4G/5G networks and at the same time promote efficient utilization of the available spectrum resources.**
5. An additional benefit of ASA is that it provides a harmonized way to utilize existing assets and to achieve economy of scale. When applied to those IMT frequency bands that are not worldwide available for IMT, the ASA concept could contribute towards the global harmonization of IMT bands. Whilst different regions cannot easily assign all the IMT spectrum bands on an exclusive basis, sharing with existing incumbent use through ASA increases the availability of those bands and the widespread adoption of mobile broadband.
6. Sharing under the LSA concept provides administrations with an additional regulatory tool that could help to alleviate some of the problems of spectrum inefficient utilization.
7. However, spectrum should be allocated only to licensed TSPs (LSA technique) as secondary users.
8. The biggest challenge for ASA would be if the primary user (i.e. the Government agency) wants to expand their area of usage of spectrum, which may have clash with the area of operation of secondary user (a licensed TSP).
9. Most importantly, the TSPs would need a certain amount of assurance and longevity to such arrangements before it plans to utilize such spectrum and deploy network with such spectrum in giving services to the consumers.
10. Besides, the commercial value of the spectrum also diminishes much more than the proportionate reduction in geography, as this spectrum would also come with various conditions and longevity of TSPs business plan would have uncertainties. Moreover,



TSP would also not be able to utilize the spectrum in various premium locations thereby, limiting the revenue opportunities and impact to customer experience.

11. **For example, Indian Railways has taken the initiative to modernize its infrastructure across the country and in line with this step, the transformation of major railway stations has already started. Indian railways would be using the spectrum allocated to it as a closed network with no connectivity to public networks for data, SMS or voice.**
12. **However, in such cases, if ASA is implemented for the spectrum allocated to Indian Railways, then the TSP who shares the same spectrum band, would be deprived of revenue from that band at high footfall areas like Railway stations and Railway lines in the heart of cities. Therefore, the spectrum allocated through ASA should be made available at discounted prices of atleast 50% of the prices for the geographies where it can be used.**

**Q15. In case it is decided to implement ASA technique for secondary use of frequency spectrum assigned to non-TSP primary users, please provide your response to the following questions with detailed justification:**

**(a) What are the potential spectrum bands in which ASA implementation can be considered?**

**VIL Comments to Question no. 15 (a)**

1. In our view, it would make more technical and economic sense, to consider Low bands and mid band spectrum to start with for ASA Implementation (LSA technique only).
2. The Government should provide detailed list of spectrum available with Government/other users which it intends to put up for utilization under ASA (LSA technique only) and the geographies where it is being already used or planned to be used in future (5 years) by primary users.

**(b) What measures should be taken to encourage and motivate the incumbent users for participation in the spectrum sharing through ASA technique?**



#### **VIL Comments to Question no. 15 (b)**

1. For the incumbent, the LSA technique shall give confidence that it can continue to use the spectrum with primary rights under specified conditions whenever and wherever necessary, while providing capacities to the ASA licensees and benefit from uncontested access to the new spectrum resource they are authorized to exploit.
2. The ASA concept (LSA technique only) could give licensed TSPs the possibility to gain access to new spectrum, which may be impossible otherwise (at least in the short term) on an exclusive basis.
3. In addition, primary users can be suitably compensated from the revenue received from allocation of the spectrum through ASA (LSA technique only) for any upgradation required at their end.

#### **(c) What should be the broad framework for implementation of ASA technique?**

#### **VIL Comments to Question no. 15 (c)**

1. **ASA should be implemented through the LSA technique only i.e. the spectrum should be allocated to licensed TSPs only.**
2. The ASA (LSA technique) could be one solution for mobile network operators to access complementary spectrum for mobile broadband and could be explored to facilitate access to specific capacity bands, within specified geographical or technical limits. Consequently, the ASA (LSA technique) is not applicable to bands for which mobile network operators have acquired exclusive spectrum usage rights.
3. Sharing framework shall be intended to provide a simple method for users to access spectrum in a number of frequency bands. The ASA licensee can be held responsible for managing interference according to pre-defined/agreed criteria, giving additional security to the incumbent.
4. **There should also be a central authority which should coordinate the criteria for managing interference and also the sanctity of the area where the spectrum can be utilized by the secondary users through ASA (LSA technique).**



**(d) Is there a need for putting in place a mechanism for dispute handling including interference issues in case of ASA? If yes, what should be the framework?**

**VIL Comments to Question no. 15 (d)**

- 1. Yes. Time-bound dispute handling mechanism should be formulated along with ASA (LSA technique) framework and sharing agreements.**
2. Central Authority shall also be responsible for negotiating sharing conditions/usage requirements on national or regional level. The coordination procedure between sharing partners in adjacent frequency bands and border coordination also fall within its scope.
3. This will maintain governments' sovereign rights over spectrum management and policy which are usually based on national requirements and needs. Indeed, the ASA approach (LSA technique only) is consistent with government exercising different spectrum management policy approaches.

**(e) What methodology should be adopted for spectrum assignment to secondary users? What could be the spectrum charging mechanism for such assignment?**

**VIL Comments to Question no. 15 (e)**

1. Allocation of spectrum for secondary usage should be on fair and unbiased conditions without any goal of revenue maximization. It should also prevent any attempt to hoard the spectrum by any operator.
2. The charges, if any, for the use of spectrum through ASA (LSA technique only) should be cost-based with adequate discounting.
3. Considering, the commercial value of the spectrum also diminishes much more than the proportionate reduction in geography, as this spectrum would come with various conditions and longevity of TSPs business plan would have uncertainties. Moreover, TSP would also not be able to utilize the spectrum in various premium locations thereby, limiting the revenue opportunities and impact to customer experience.
4. For example, Indian Railways has taken the initiative to modernize its infrastructure across the country and in line with this step, the transformation of major railway



stations has already started. Indian railways would be using the spectrum allocated to it as a closed network with no connectivity to public networks for data, SMS or voice.

5. However, in such cases, if ASA is implemented for the spectrum allocated to Indian Railways, then the TSP who shares the same spectrum band, would be deprived of revenue from that band at high footfall areas like Railway stations and Railway lines in the heart of cities.
6. **Therefore, the spectrum allocated through ASA should be made available at discounted prices i.e. with a discount of atleast 50% of the proportionate prices for the geographies where it can be used.**

**(f) Who should be entrusted the work of managing shared access of spectrum?**

**VIL Comments to Question no. 15 (f)**

This should be done by an expert body from telecom sector having technical expertise. It can be done by DoT or TRAI or TEC.

**Q16. Whether there is a need to permit the ASA technique-based dynamic spectrum sharing among access service providers? If yes,**

- (a) What are the possible regulatory issues involved and what could be the possible solutions?**
- (b) What measures should be put in place to avoid any adverse impact on competition and dynamics of spectrum auction?**

**Kindly justify your response.**

**VIL Comments to Question no. 16**

1. A complete framework with broad guidelines and central spectrum assignment database will be required to be created for assignment of spectrum which is available for use for the secondary user.



2. The shared spectrum cannot provide the main coverage and capacity spectrum for the operator and will only serve to complement the spectrum secured through auctions hence is not expected to have an adverse impact on dynamics of spectrum auction.

**Q17. In case it is decided to permit ASA technique-based dynamic spectrum sharing among access service providers in the country, please provide your response to the following questions with justification:**

- (a) Whether there is a need for prescribing any framework for such shared use? If yes, what should be the framework?**

**VIL Comments to Question no. 17 (a)**

Framework should include various terms and conditions for the sharing, possible tenure, emission requirements and synchronization requirements among other things and directions to arrive at the sharing charges if any to keep the cost to the operator to the lowest extent possible.

- (b) Whether access service providers should be required to obtain approval or intimate to DoT before entering into such arrangement?**

**VIL Comments to Question no. 17 (b)**

Intimation of the arrangement to the DoT shall suffice in order to simplify the process.

- (c) Whether any fee (one time, or recurring), should be prescribed on the spectrum sharing party (ies)? If yes, what should be the fee and who should be liable to pay such fee?**

**VIL Comments to Question no. 17 (c)**

1. As the spectrum is purchased on a market price through an open and transparent auction, the spectrum holding TSP should have the right to fully exploit commercial value of the spectrum, including through inter-band sharing.





2. Thus, the fees, if any, for the Shared Access should be cost-based – which means the fee shall be calculated to recover the costs of administering the shared access.

**(d) What should be the treatment of spectrum shared through ASA technique for the purpose of computation of spectrum cap?**

**VIL Comments to Question no. 17 (d)**

Since this spectrum is not available to the service provider exclusively and in the complete geography, it should not be used for the purpose of computation of spectrum cap. However proper care must be taken to prevent the spectrum hoarding.

**(e) Whether there is a need for an independent entity for managing spectrum access? If yes, who should be entrusted this work? If not, how should the spectrum access be managed?**

**VIL Comments to Question no. 17 (e)**

Independent entity for managing the spectrum access will greatly simplify the sharing of spectrum to the secondary user based on the availability of spectrum.

**(f) Is there a need for putting in place a mechanism for dispute handling including interference issues or should it be left to the access service providers? If yes, what should be the framework?**

**VIL Comments to Question no. 17 (f)**

There's a small chance that if licensees in this band operating in very close proximity to each other happen to be using adjacent channels within the band, they may interfere with each other. In these situations, we'd encourage both parties to work together and reach a mutual agreement on how to avoid this. Measures to avoid interference might include users synchronizing their transmissions.



**(g) What other terms and conditions should be applicable for the sharing parties?**

**VIL Comments to Question no. 17 (g)**

Terms and conditions should be reasonable, fair and consistent without any bias and no exclusivity.

**Q18. Suggestions on any other spectrum sharing technique(s), which needs to be explored to be implemented in India, may kindly be made along with the relevant details and international practice. Details of likely regulatory issues with possible solutions, interference management, dispute handling etc. may also be provided.**

**VIL Comments to Question no. 18**

No additional comments.

**Q19. Where there is a need to permit spectrum leasing among access service providers? Kindly justify your response.**

**VIL Comments to Question no. 19**

1. Spectrum leasing is a method by which exclusively licensed bands can be leased from one user to another and we understand that at present, there is an untapped potential of spectrum leasing.
2. It can be typically done for a limited/defined period of time and/or for a specific geographical area or for limited/full quantity of the spectrum and has certain probability to yield positive market outcomes in terms of delivering additional coverage and strengthening services for consumers.
3. However, while we believe that leasing should be encouraged, it should not give a back door entry to any unlicensed entity or entity licensed with any other license except UL (Access), for providing services which otherwise can be provided only under the UL (Access authorization).
4. **Therefore, we would like to submit that spectrum leasing should be allowed only to the licensed entities for giving services to its consumers and the scope of services**



which can be provided through such leasing should continue to be as per applicable license of the spectrum lessee.

5. **The licensing and regulatory framework for spectrum leasing will need to be formulated and should clearly provide for rights and obligations of both the parties, fulfilment of regulatory norms like end subscriber KYC, roll-out obligations, lawful interception, applicability of SUC, quality of services, obligations towards end subscriber etc. Also, spectrum leasing should be based on intimation to the licensor without any charges and not approval-based.**

**Q20. In case it is decided to permit spectrum leasing among access service providers, please provide detailed response to the following questions:**

- (a) Whether spectrum leasing should be permitted for short-term period only, or for both short-term as well as long-term?**
- (b) In case only short-term leasing is to be permitted, what should be the maximum duration for such spectrum leasing? Should there be any restrictions on renewal of such short-term lease?**
- (c) In case it is decided to permit long term leasing, please provide your response to the following questions with justification:**
  - (i) What measures should be put in place to avoid any adverse impact on competition and dynamics of spectrum auction?**
  - (ii) Whether there should be a maximum duration for which spectrum leasing may be permitted?**

#### **VII Comments to Question no. 20 (a), (b) and (c)**

1. The period of spectrum leasing should be made flexible, to be mutually agreed by TSP. Value of spectrum leasing will accrue if there is certainty on the arrangement to be long-term, with minimal intervention from Government at any later stage.
2. Therefore, there should not be any restriction on term period for spectrum leasing, and it should as per mutual agreement of TSPs.
3. As TSPs have already paid market price for the spectrum acquired through auction there is no need for any additional steps to be taken.
4. Considering roll-out obligations attached to the spectrum and there are four pan-India access telecom service providers, spectrum leasing is expected to happen only for



limited geographies and it would not compensate for the full LSA roll-out of services which can happen only through spectrum acquired through auction.

5. Therefore, long-term spectrum leasing would not have any adverse impact on the competition and dynamics of spectrum auction.

**(d) What should be the applicable roll-out obligations for the Lessee (the access service provider which takes spectrum through leasing arrangement from the Lessor)? Whether the spectrum leasing should have any effect on the roll-out obligations applicable for the Lessor (the access service provider which has leased out the spectrum)? Whether the provisions for roll-out obligation require to be different for short-term and long-term spectrum leasing?**

#### **VII Comments to Question no. 20 (d)**

1. Rollout obligations of the leased spectrum shall remain with lessor. Further, to encourage spectrum leasing, the roll-out carried out by the lessee should be added to the roll-out of the lessor.
2. Depending on the lease tenure, lessee may utilize the leased spectrum based on its network requirement of capacity or coverage as the case may be. This may not be enough for meeting any rollout condition imposed on the lessee and will discourage the spectrum leasing process itself if imposed. Therefore, there should be no roll-out obligations on the lessee.

**(e) Should the spectrum leasing charges be levied on similar lines as applicable for spectrum trading? If no, what charges should be made applicable in case of spectrum leasing?**

#### **VII Comments to Question no. 20 (e)**

1. As the spectrum is purchased on a market price through an open and transparent auction, the spectrum holding TSP should have the right to fully exploit commercial value of the spectrum, including through inter-band sharing.
2. Low commercial costs have a great capability to enable and materialize the positive business case through leasing. While less than buying the spectrum asset, transaction



costs fall disproportionately on smaller lessees who have to incur spectrum leasing costs. Charges for the spectrum being put on lease, are already being paid through auction.

3. A low burden for applicants in terms of time, effort and cost need to be ensured by the Government and charges for spectrum leasing should be minimal to encourage the arrangement.
4. **Thus, the spectrum leasing charges should be cost-based – which means the charges shall be calculated to recover the costs of administering the leasing.**

**(f) Should there be a lock-in period, after acquisition of spectrum, to become eligible for spectrum leasing as applicable in spectrum trading? If yes, what should be the lock-in period post which, spectrum holder would become eligible to lease it to another access service provider?**

#### **VIL Comments to Question no. 20 (f)**

Just like spectrum sharing, there should be a lock-in of 2-3 years from acquisition of spectrum through auction, for it be made available for spectrum leasing.

**(g) Whether there is a need for an approval from, or intimation to DoT before the proposed leasing of spectrum? If yes, whether prior approval/ prior intimation requirement be different for long-term and short-term spectrum leasing? What should be the timelines for approval from, or intimation to DoT in each case?**

#### **VIL Comments to Question no. 20 (g)**

1. Since, the market price for spectrum has already been paid to acquire the resource, there should be a principal consensus that the TSP has exhaustive privilege to commercial exploit the spectrum.
2. Considering this, there should be a requirement to intimate DoT and no approval should be required. The intimation to DoT should also include details of the geography where spectrum leasing is being carried out.
3. Further, it is also important that such information is made public by the Government.



**(h) Whether the spectrum held by an access service provider on short-term, or long-term lease be included to calculate compliance to spectrum caps?**

**VIL Comments to Question no. 20 (h)**

1. The spectrum in a given spectrum band, held by an access service provider on short-term, or long-term lease should be included in the caps if leasing has been exercised in more than a significant number of districts in an LSA as the same gives rise to a significant contribution to overall spectrum holding of a TSP.

**(i) Considering that surrender of spectrum has been permitted in the country, what provisions need to be created in the guidelines for leasing of spectrum between access service providers so that any possible misuse by the licensees could be avoided?**

**VIL Comments to Question no. 20 (i)**

1. Considering roll-out obligations attached to the spectrum and there are four pan-India access telecom service providers, spectrum leasing is expected to happen only for limited geographies and it would not compensate for the full LSA roll-out of services which can happen only through spectrum acquired through auction.
2. Therefore, we do not believe there would be any significant probability of misuse by the Licensee.

**(j) What other terms and conditions need to be prescribed in respect of spectrum leasing between access service providers?**

**VIL Comments to Question no. 20 (j)**

No comments.



**Q21. Any other issues/ suggestions relevant to the spectrum leasing, may be submitted with proper explanation and justification.**

**VIL Comments to Question no. 21**

No comments.

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