

File No. SIA-India/TRAI CP -2023/01

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To:

Shri Akhilesh Kumar Trivedi  
Advisor (Networks, Spectrum and Licensing)  
Telecom Regulatory Authority of India  
Mahanagar Doorsanchar Bhawan,  
Jawahar Lal Nehru Marg, New Delhi- 110002

Subject: SIA-India response to TRAI Consultation Paper on Telecommunication Infrastructure Sharing, Spectrum Sharing, and Spectrum Leasing

Dear Sir,

At the outset, we are pleased that TRAI has come out with a well-timed Consultation Paper on Telecommunication Infrastructure Sharing, Spectrum Sharing, and Spectrum Leasing. Regarding spectrum sharing, we believe that the sharing of spectrum among satellite operators and service providers is a critical practice that should be valued by authorities as a means for India to achieve a leading position in the space technology sector. Auctioning spectrum for satellite services would not add any value due to the lack of exclusivity, and that the administrative assignment model for spectrum used by satellite operators and service providers should be maintained to ensure there are no delays in enabling increased connectivity in India.

The recent draft telecom bill released by the Ministry of Communications should recognize the assignment of spectrum for satellite services as an administrative process route out of necessity.

As an industry association our emphasis is on importance of maintaining the sharing of spectrum by satellite operators and service providers as an essential practice that provides numerous benefits, including accelerating the availability of quality education and healthcare and enabling the overall development of rural and remote parts of the country.

Please find attached our point wise response on the concerned issues for your kind consideration.

Thanking you,

Yours sincerely



Anil Prakash  
Director General  
SIA-India

Enclosed as above

**SIA-India response to TRAI Consultation Paper on Telecommunication Infrastructure Sharing, Spectrum Sharing, and Spectrum Leasing.**

SIA-India is a non-profit organisation established with the objective of serving and promoting the common interests of the satellite communication ecosystem in India. As a trade association, the SIA-India is pleased to provide its views/comments on Telecommunication Infrastructure Sharing, Spectrum Sharing, and Spectrum Leasing as under:

**A. Issues relating to Infrastructure sharing.**

Q1. Should passive infrastructure sharing be permitted across all telecommunication service licenses/ authorizations? Kindly justify your response.

SIA-India submits that the TRAI should not make any recommendation regarding infrastructure sharing that undoes the positive effect of prior recommendations on satellite gateway infrastructure that have been carried out and are already incorporated into the Unified License.

In regard to the current consultation, we offer no specific comments on whether both active and passive telecommunications infrastructure sharing should be allowed amongst all telecommunications service providers (TSPs), including the terms and conditions for doing so.

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?

Please refer to our response to Q no. 1

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.

Not applicable in view of our response in Q2 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.

No comments from SIA-India

(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?

No comments from SIA-India

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.

No comments from SIA-India

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.

Yes, if the Government considers it necessary to augment the network connectivity and meets its obligations, the TSPs should be advised to share the infrastructure that is fully funded by USOF. In the case of partially funded by USOF, there needs to be further discussions with stakeholders for evolving a suitable framework for infrastructure sharing.

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.

Yes, SOP can be devised involving stakeholders for compliance on the points discussed above.

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

We urge the USOF to allow creative business models in their framework that should allow satellite service providers to participate and bid for USOF tenders to build and operate remote Telecom infrastructure to be used on a sharing basis by different mobile service providers, both private and government. Currently, the USOF support is available only to ASPs and not the VSAT service licensees

**B. Connectivity Issues Faced by the Subscribers in Remote and Far-flung Areas of the Country**

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.

No response from SIA-India

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.

As the TRAI correctly notes in the consultation, telecommunications services in remote areas of India have not improved, and the need to promote connectivity in these regions is an essential element to guarantee social and economic development.

The satellite industry is best positioned to promote connectivity in areas that lack essential access to fast and reliable communications networks. The satellite industry is ready and willing to invest in connectivity solutions and to contribute to bridging the digital divide in the country. Therefore, we submit to the TRAI that satellite technology is the best solution to promote connectivity in remote areas of the country due to its naturally extended coverage.

**C. Issues relating to inter-band spectrum sharing among access service providers.**

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

No Comments from SIA-India

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:

No Comments from SIA-India

(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.

(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.

(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?

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

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

No Comments from SIA-India

#### **D. Issues relating to Authorised Shared Access (ASA) of Spectrum**

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.

Spectrum is a finite resource and should be optimally utilized. If the spectrum is allocated without proper interference study, analysis and planning, it may hinder the operation of incumbent services and limit their future uses. Since spectrum is the backbone of wireless industry, the vulnerabilities and weaknesses in the spectrum allocation process should be properly and adequately addressed before considering ASA on a dynamic basis.

For example, if the government allocates spectrum to a particular service in a way that does not allow for flexibility or future expansion, it may limit the ability of other services to use that spectrum in the future. This can create bottlenecks in the allocation of spectrum, which can harm the ability of businesses to innovate and deploy new services and harm the interests of consumers who may be deprived of new and innovative services.

The sharing of spectrum that takes place among satellite operators and service providers should be valued by the authorities as a means for India to achieve a leading position in the space technology sector, accelerating the availability of quality education and healthcare, and enabling the overall development of rural and remote parts of the country.

In addition, interference can also occur if the allocated spectrum is used in a way that is not consistent with the technical rules and standards established for that band. For example, if a wireless carrier exceeds its power limits or does not use proper filters on its antennas, it can cause interference with other services operating nearby.

To avoid interference issues, it is important for the government to conduct a study with a thorough analysis of the spectrum needs of all the services that will be using the spectrum,

and to carefully plan and allocate frequencies to minimise the risk of interference. Proper technical rules and standards should also be established and enforced to ensure that all users of the spectrum comply with best practices to avoid interference. For instance, satellite operators have a long history of difficulty sharing with FS and MS due to the legacy design of FSS networks, which use large beams requiring access to large swaths of spectrum over a large geographic area. Despite new sharing techniques, the experiences particularly in C-band inhibit productive sharing discussions.

Overall, it is essential for the government to take a measured and thoughtful approach to spectrum allocation to minimize these risks and ensure the efficient and effective use of this limited resource. Proper interference study, planning, analysis, and coordination with all stakeholders can help avoid these risks and ensure that the allocated spectrum is used in the best interest of all. SIA-India opposes the 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.

SIA-India strongly opposes the proposal for secondary allocation of already allocated spectrum to other services for use by access service providers without conducting in-depth studies of co-existence and interference. WRC considers multiple aspects of such studies to arrive at optimum spectrum allocations for various services. The huge unused FR2 spectrum should be put to use by IMT for its spectrum requirements.

Given the context, it is imperative that the critical and interrelated gaps and failures in the process and policies used for efficiently allocating the spectrum including sharing should be properly examined and adequately addressed first before discussing the issue of ASA on a dynamic basis by the access service providers.

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:

Please refer to our comments for Q no 14

- (a) What are the potential spectrum bands in which ASA implementation can be considered?
- (b) What measures should be taken to encourage and motivate the incumbent users for participation in the spectrum sharing through ASA technique?
- (c) What should be the broad framework for implementation of ASA 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?

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

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

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

Please refer to our comments for Q no 14

(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.

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:

Please refer to our comments for Q no 14

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

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

(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?

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

(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?

(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?

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

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.

Please refer to our comments for Q no 14

#### **E. Issues relating to Leasing of Spectrum**

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

No comments from SIA-India

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?

No comments from SIA-India

(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?

No comments from SIA-India

(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?

No comments from SIA-India

(ii) Whether there should be a maximum duration for which spectrum leasing may be permitted?

No comments from SIA-India

(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?

No comments from SIA-India

(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?

(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?

(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?

No comments from SIA-India

(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?

(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?

No comments from SIA-India

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

No comments from SIA-India

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

The desire to develop innovative solutions to achieve universal access has led to sometimes experimenting with new technologies or business models in some communities. Effective monitoring of such projects is critical to document the services' success or failures. The lessons learned from previous projects can provide useful feedback to improve future development. An effective monitoring mechanisms should be put in place to ensure that public money invested in rural ICT initiatives delivers meaningful benefits to the people.