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To

TRAI/CP/CC/ 2023

Shri Akhilesh Kumar Trivedi,

Dt. 19.06.2023

Advisor (Networks,Spectrum and Licencing),

TRAI,

Mahanagar Doorsanchar Bhawan,

Jawahar Lal Nehru Marg, New Delhi 110002

Sub: Counter Comments on TRAI's Consultation Paper on " Assignment of Spectrum for Space-based Communication Services" dated 6th April,2023

Dear Shri Akhilesh,

Kindly find enclosed my **counter comments** on the TRAI's Consultation Paper dated 6th April,2023 on the above subject for further consideration of the Authority.

Regards,

S.S. Sirohi
19/06/2023

SS Sirohi, ITS (Retd.)

ENCL: As above

Ex Member (T), Telecom Commission, DoT

Ex Board Director (Ind), BEL, MOD

**Counter comments on TRAI's consultation paper on
"Assignment of Spectrum for Space-based Communication Services"
(Consultation Paper No. 6/2023 dated 06th April 2023)**

I had offered my expert comments on the TRAI's consultation paper dated 06 April, 2023 on 01 June, 2023. Now in view of the opportunity being given by the TRAI for offering counter comments on the views of other stakeholders I have further examined comments of various other stakeholders critically and placed my issue-wise counter comments in the following paras.

A. Spectrum for Satellite services is globally assigned in a non-exclusive manner and India should follow the same, instead of auction:

- 1. In the present era of unprecedented change** when technology, needs, solutions, opportunities, human capabilities, resources and tools having undergone a complete transformation from the past have now started showing huge potential for exponential growth, **it is no surprise that yesterday's solutions / methodologies have now become outdated and are no more relevant today.** Therefore, in the present stage of social/economic/technological/geo-political development, the forward-looking Regulators and Policy makers are compelled to align to the emerging realities and are bound to consider latest future-compatible solutions/ methodologies/tools to effectively cater to ever growing varied needs of digital societies for exploitation of the fast developing eco-system of space objects/satellite systems and space-based communication networks / services and to concertedly spur its growth and development simultaneously.
- 2. However, as understood from the comments of certain stakeholders who are bent upon pedalling outdated pleas and retrograde notions in the name of ITU and global precedents that, under this guise, they actually want the TRAI/ India to adopt the same method, as being followed globally over long years in the past, of assigning spectrum for satellite services in non-exclusive manner even though that has now become irrelevant in effectively meeting the goals/demands of the new eco-system. In fact, instead of considering an inefficient and now turned irrelevant methodology of spectrum**

assignment on non-exclusive manner and on administrative basis and adopting a retrograde step and regressive policy in the present context, the Regulators / Policy makers must unequivocally go for a progressive policy with modern, efficient and future-compatible methodology of spectrum assignment on an open competitive bidding/ auction basis and in exclusive manner only. There is no denying the imperative that Indian policy/regulatory decisions must only be governed by larger national interests including national security, consumer benefit, orderly growth of services and industry and efficient, economic as well as optimum utilization of the scarce spectrum, a national asset..

3. **The TRAI and the Government should overlook such comments** referring to non-exclusive use of spectrum, technical feasibility of exclusive spectrum and reference to the past spectrum allocation methodologies in some countries as it is no more relevant and valid in present context. **The spectrum needs to be assigned exclusively**, in order to derive maximum value out of it. **Exclusive** assignment of spectrum is **technically feasible** for space-based communication services and is essential for optimum valuation and efficient utilization of the spectrum.
4. As a matter of fact, **Satellite based services** have been constantly evolving over past 3-4 decades albeit slowly and **were largely confined to specific services and limited use predominantly for government purposes, weather forecasting/remote sensing, emergency and disaster etc. and only to some extent for commercial purposes.** Naturally in such prevailing conditions in the past and in the related context when even technologies in the field were not that advanced and the market potential was not much for a good business case, there was perhaps no other viable option but to assign spectrum for satellite services on non-exclusive basis and without auction.
5. However, the rapid advancement in growth of new related, cost-effective technologies supported by explosive spawning of innovations in the current decade have led to drastic decline in costs and contributed to growth and development of cost-effective and technology-intensive satellite ecosystem with unprecedented improvement of technical feasibilities and constantly improving viability of satellite networks capable of delivering high grade, highly reliable communication services to consumers and enterprise alike on commercial basis. This, in turn, has been fuelling ever-increasing massive demand of satellite-based services with its potentially huge local as well as global market; of course, aided by robust competitiveness of satellite-based communication services becoming

comparable now with the existing/potential terrestrial communication services. Therefore, in today's context and at the prevailing stage of development of global satellite- ecosystem with immense promise of rapid technology advancement, competing economic viability as well huge potential of ever increasing demand of satellite-based communication services it is imperative to prescribe ' auction ', in exclusive manner , as the only mode of assignment of spectrum for space based communication services.

6. As the Government is liberalising the space segment under new Space -com policy and the expectation is to mobilize the space segment with entry of multiple new players investing in India, including the global giants of space-based communications. With these expectations and assuming that there is sufficient business case, one would naturally expect millions of **user terminals of different companies competing for same customers in same geographies in India. In such a scenario, any shared use of the same spectrum by multiple service providers will lead to severe wide-spread and unmanageable interference related issues. Some of the stakeholders are wilfully ignoring the potential service issues due to wide spread interference in the absence of no real case study on it for a network commensurate with the size of Indian geography/ population and deliberately avoiding to show any data on appropriate assessment and quantification of interference in various scenarios.**
7. **Hence, it is necessary to call their bluff** , otherwise the entire promise of a new technology that is expected to deliver reliable and affordable services to the so far uncovered areas and to remove congestion in dense urban areas will be lost forever. **Therefore, it is imperative that the only interference free mode of spectrum assignment i.e. auction is deployed.** As regards Gateway- links, we can use angular separation to assign exclusive spectrum in a specified geographical area.
8. **The international examples for Gateways are also irrelevant as exclusive geographic zones for Gateways links can be created, using angular separation.** Therefore, the service providers will have ample opportunity for bidding for spectrum in the area where Gateway Earth Station is located or plan a new Gateway where spectrum is available. In any case, already available option of spectrum sharing, trading and leasing will help fulfil all such requirements whether foreseeable or unforeseen.

9. **I am constrained to reiterate that auction of spectrum is the only legally tenable mode of spectrum assignment as per the law of the land as on date.** TRAI should not lose sight of the fact that this is a public asset/resource and the Apex court of the country has deemed auction to be the most preferred and customer beneficial mode of assignment. **And specific to the spectrum, as per the law declared in Hon'ble Supreme court judgement in 2G case, spectrum is to be alienated only by auction and no other method.**
10. **The TRAI is strongly urged to take a serious note of and to bust the ongoing misleading propaganda by certain stakeholders, particularly the foreign-based ones, for wilfully promoting fallacious arguments of superiority of technical feasibility and cost effectiveness of shared use of spectrum over exclusive use of spectrum for space-based communication services as well as of non-feasibility of auctions misplacably citing so called failure of auction of spectrum in the past in other countries; that is being cleverly orchestrated through alternate communication channels too like business news -media etc. primarily aimed at misleading the policy/ regulatory authorities in India with ulterior motive of acquiring spectrum for free or at cheap rates only for garnering maximum financial benefits for themselves.**
11. It is pertinent to point out here that **India has, over the years, established its own methodology for assignment of spectrum which is rooted in strong legal foundations and has time and again immensely benefitted the country as well as consumers and has also contributed to the robust growth of the telecom sector; therefore, the TRAI should not be swayed by flimsy arguments pointing towards international practices which are simply out of context.** As a matter of fact, on the back of its continued success with spectrum auctions and fast roll-outs of new technology networks/ new high quality services, India is now poised to prescribe the most optimal and appropriate policy framework of spectrum assignment for the world, which would eventually be followed by other countries. **Hence, there is no need for India to treat the past and out of context policies of other countries which were relevant only to earlier satellite ecosystem as benchmarks.** Rather, the TRAI should have faith and conviction in the auction-based spectrum assignment framework, which TRAI itself has successfully helped to evolve over the years with its persistent efforts.
12. It is also submitted that **auction has proved to be the biggest facilitator and enabler for technology upgrade and increased optimal competition** that leads to reducing the digital divide while simultaneously contributing to social and economic progress and meeting of national goals, **therefore process of**

auction of spectrum should not be sacrificed to the clamour of a few interested foreign based stakeholders seeking cheaper spectrum where as some of the Indian stakeholders are already pitching for auction.

B. Challenging the legal precedence on spectrum assignment in India:

13. Some stakeholders have attempted to reverse the legal precedent by re-agitating the Hon'ble Supreme Court's view on auction being the only tenable mode of spectrum assignment under the guise of a misleading plea that said judgement pertained to exclusive assignment of spectrum while spectrum for satellite-based services is allegedly not so.
14. It is submitted that such twisting of the text as well as inferring unintended meaning therefrom appears to be **an attempt to mislead the Authority only**. In any case, it is not at all tenable as the Hon'ble Supreme Court judgement and its opinion on subsequent presidential reference specifically dealt with **the methods to be used for alienation / allotment of natural resource like spectrum and would cover all spectrum irrespective of technology or use**. Ridiculously, such arguments can also be extended to further absurdity with claims that even terrestrial spectrum allocation is also not exclusive since same spectrum is allocated to other operator in different Service Area.
15. It needs to be emphasised that as per the law declared in Hon'ble Supreme Court judgement in 2G case, spectrum is to be alienated only by auction and no other method. Hence this leaves no scope, whatsoever, for any discussion on any other mode of assignment.

C. Auction is detrimental to sharing arrangements currently prevailing across the globe:

16. This is another propaganda tirade of advancing fallacious arguments based on global precedents that date to the period when there were no conditions nor intent to commercially exploit space-based communication services and these services were used for almost exclusively for Government, emergency and scientific use only. This is also explained in para 4 & 5 above.
17. India has a robust spectrum sharing mechanism in place, that has worked well with terrestrial networks, so there is no reason to believe that this system will not work with satellite-based communications networks. Spectrum sharing being a function of demand and supply, therefore once there is demand

for sharing, the supply will be created as an additional mode of income for spectrum holder.

18. Further, in order to promote sharing in space-based communication services, the TRAI can go beyond the tenets of spectrum sharing in terrestrial networks in order to create excess demand by simply permitting even the non-spectrum holders to share the spectrum. Additional monetary /non-monetary incentives may also be offered to licensee entering into spectrum sharing arrangement.

D. Exclusive assignment of spectrum will lead to insufficient coverage for some operators:

19. This concern is misplaced and based on conjectures only. This is **not based on the fact. On the contrary , it is the non-exclusive spectrum assignment which will lead to insufficient coverage by certain service providers due to unfair dynamics of spectrum sharing.** In any case , the new entrant in space segment will have the following opportunities to acquire spectrum:

- a. Auction, every year
- b. Spectrum sharing
- c. Spectrum Trading
- d. Spectrum Leasing

20. These measures will put effectively all spectrum at the disposal of these players. However, **in practice, auction itself will help optimise right number of players for a healthy competition as well as ensure commensurate spectrum availability to all players ;** availability of additional spectrum in any case will keep on increasing as and when required as the services expand and grow over time and new spectrum bands are approved for use.

E. Auction can lead to hoarding of spectrum and will create intermediaries:

21. This concern is misplaced and based on conjecture only. It is **the auction and only auction that can attract financially/technologically strong , serious and capable players and ensure optimal competition in the market at a given time. Post monumental failure of administrative "First Come First Serve" Spectrum assignment policy , resounding success of series of auctions later during last decade in terrestrial communications space in India bears ample testimony to that where no hoarding of spectrum or cartelisation has been**

seen. In fact, it is the well-designed auction of spectrum which leads to discovery of its true optimal market price/valuation, fostering competition and technological innovation and enhancing efficiency of spectrum usage as well as economic efficiency while providing level playing field.

22. Therefore, it is simply preposterous to insinuate spectrum hoarding to market-based auction process. **On the contrary, it is the other way round as allocation of spectrum through administrative process at throw away prices is more prone to hoarding. This, in fact, will promote unfair, monopolistic and rent-seeking behaviour of certain dominant player to the detriment of others as well as the Govt. Therefore, it is only the auction mode of spectrum assignment which is fair, transparent, non-discriminatory, competition-promoting, equitable, rational, non-arbitrary and value-accretive for all stakeholders.** The above averment becomes further far-fetched when we consider that auctions will happen every year and there is always a spectrum cap. It is now well known that "first come, first serve" model is actually prone to spectrum hoarding as also seen to an extent in terrestrial communications space around a decade back.

23. In regard to the concern ventilated by some that new entrants and start-ups in space-based communication services will be excluded due to higher spectrum costs, it is however important to mention that the satellite-based communication services is a cost-intensive sector and the contention that companies will be ready to invest billions of dollars in satellites, Gateways and other network elements but will not be able to pay market price for spectrum to be used as essential raw material for their business seems far-fetched and unrealistic. Nevertheless, even for smaller and newer entrants, the option of spectrum sharing/leasing etc. will reduce the spectrum cost.

F. Spectrum auction vs. governing role of ITU, International treaties and NFAP:

24. It is important to clarify that assignment of spectrum within a nation's jurisdiction is its sovereign right and **ITU Constitution and Radio Regulations do not impinge on the same.** Further, with regard to space-based communications, ITU is focused on the allocation of orbital slots and the management of interference. It is beyond comprehension how the sanctity of ITU orbital assignment will be compromised due to the auction of the spectrum earmarked for these services by any country.

25. Similarly, **NFAP** (National Frequency Allocation Plan), specifies what spectrum bands are designated for various services and has **no role in mode of assignment of spectrum.**
26. It is important to point out that auction-based spectrum assignment will not be a new experiment in India and **many countries have already successfully used it like Saudi Arabia and Thailand, where spectrum for satellite services has been auctioned.**

G. Concerns with flexible use of spectrum:

27. It is to clarify that **flexible use of the spectrum is very much feasible as well as more valuable , hence more desirable.** Though some stakeholders have contended that flexible use of spectrum may not be feasible, their concerns are actually misplaced. It is submitted that flexible use of spectrum is also in line with Government policy of **technology neutrality.** Therefore , it is proposed that spectrum awarded in auction **should be permitted for flexible use** by the service providers for both terrestrial and satellite-based communication services, as per their business case. **This will go a long way not only in enhancing economic efficiency, efficiency of spectrum usage and ensuring need-specific commensurate spectrum availability but also in providing high quality services and generating greater value to consumers, service providers as well as satellite ecosystem and the nation.**

H. Other issues:

28. Surprisingly, some stakeholders have even sought bundling of spectrum with licence as well as bundling of spectrum for user link and that for gateway link. It is submitted that these sub-optimal options are in any case not legally tenable post the Hon'ble Supreme Court's judgement in 2G case.
29. Referring to international nature of satellites some stakeholders have sought assured administrative assignment of spectrum due to possible international encumbrances. **It is reiterated that the spectrum assignment methodology needs to comply with prevailing Indian laws and to be in consonance with the larger interests of Indian people and that the same cannot be made subservient to the commercial pursuits of international/private players of maximising their profits at the cost of common man.**

I. In the final analysis:

30. Therefore, it is once again stated with all emphasis that, in case of the proposed commercial exploitation of spectrum by private entrepreneurs/ multi-national corporations , the mode of "auction" being the best means for assignment of spectrum for space-based communication services is the only option which is fair, transparent, reasonable, equitable, non - discriminatory, rational, non- arbitrary , non- capricious and while ensuring level playing field along with fostering innovation and competition is legally tenable and basis holistic assessment subserves the public good. In the present context/ conditions and stage of development and digital revolution witnessing emergence of new global order in the fast growing eco-system of satellites and space- based communications networks and services being dynamically shaped by tectonic pace of innovations and development of new technologies (where even any kind of so called challenges of technical feasibility etc. relating to any innovative solution are easily turned in to opportunities), there is a compelling need to thoughtfully provide an inclusive and growth-oriented , progressive, predictable , investor-friendly , modern and future-ready regulatory/ policy regime and spectrum assignment framework keeping in mind commercial / business wisdom, ease of doing business and above all national security. The TRAI and the Govt. are, therefore, earnestly urged to adopt and make only "auction mode" as integral part of its recommendations / policy for assignment of spectrum for space-based communications services in order to secure the orderly growth and development of the telecom / digital communications sector as a whole (including space-based) and to provide equitably accessible , high quality, efficient, reliable and affordable communication services (including high speed broad-band services) to one and all anywhere and everywhere , bridging the existing digital divide , and enable transformation of the country timely and surely in to "Digital India".

S.S.S. Sirohi
19/06/2023

SS Sirohi, ITS (Retd.)

Ex Member (Technology),

Telecom Commission, DoT

Ex Board Director (ID), Min. of Defence