

ISpA Response to TRAI Consultation on “Assignment of Spectrum in E&V Bands, and Spectrum for Microwave Access (MWA) & Microwave Backbone (MWB)”

Overview:

1. The Indian Space Association (ISpA) appreciates the opportunity to submit comments on the consultation paper on spectrum assignments for Microwave Access (MWA), Microwave Backbone (MWB) and other bands (E&V). Our comments aim to highlight the importance of satellite systems and advocate for balanced, forward-looking regulatory conditions that spur innovation and connectivity growth leveraging both terrestrial and space-based communications platforms.
2. Space-based communication services using satellites play an important role in providing connectivity to unserved and underserved areas in India as well as backhaul for terrestrial mobile services. Satellite systems require access to harmonized spectrum globally in relevant frequency bands to offer broadband and backhaul effectively. We invite TRAI to recognize the significance of satellite services while enabling efficient spectrum utilization through appropriate coordination mechanisms and technical recommendations as detailed internationally i.e., ITU norms. Satellite and terrestrial services in the 17.7-19.7 GHz band have coexisted internationally for decades. We suggest TRAI adopt technical conditions enabling compatible operation of Fixed Satellite Service (FSS) and Microwave Access (MWA)/Microwave Backbone (MWB) services in this band. The ultimate objective should be promoting pervasive connectivity and digital inclusion for citizens by optimizing India's usage of all available technologies, terrestrial and space based. We have organized our comments issue-wise in response to the specific consultation questions raised.
3. For spectrum assignment in 17.7-19.7 GHz, in what concerns customer terminals, TRAI should facilitate coexistence of uncoordinated earth stations with space-based communication services and MWA services. This can be

done by adopting a non-interference, non-protected mechanism allowing ubiquitous deployment of satellite customer terminals where Fixed Service (FS) and FSS have co-primary status. Uncoordinated earth station operators should be accountable for mitigating any interference from the MWA service.

4. As per Gateway earth stations, considering the more reduced number, coordination is feasible and can be achieved through the implementation of similar methods and parameters described in Appendix 7 of the ITU Radio Regulations.

Preamble:

1. Over the last decade, with growing digitalization, the socio-economic landscape of this country has undergone a complete transformation. This ever-escalating digital traffic growth has necessitated continuous movement towards ever-larger bandwidths and higher speeds which have, in turn, required the Telecom Services Providers (TSPs) to create sufficient capacity not only at access level but also at the backhaul level to carry traffic *inter se*, i.e., from access to core or vice versa.

2. All of this has only been made possible by the reliable, resilient, and huge traffic-carrying telecom networks that are the enabling backbone at the heart of this remarkable digital transformation. And what has become abundantly clear is that a **robust backhaul is essential for complementing the new age access technologies.**

3. There are two modes of establishing backhaul connectivity — fiber and wireless. Although fiber offers better data carrying capacity, levels of fiberization in India at present are untenably low at 35%. What is more, they are not going to improve in the foreseeable future because of various techno-economic limitations. This makes wireless backhaul the only meaningful mechanism by which to roll out these all-important services — and to roll them out within a reasonable timeframe. Indeed, **it is only because of the**

availability of adequate backhaul spectrum, especially E-band, that India has even been able to achieve one of the fastest 5G rollouts globally.

4. The Authority needs to consider certain fundamental premises when framing its recommendations. Those are submitted as follows:

A. Backhaul spectrum is not the same as access the spectrum

1. While access spectrum gives ‘access’ to the subscriber/market, backhaul spectrum only indirectly enables service delivery by carrying internal traffic, i.e., carrying traffic within the telecom network from one end point (i.e., access level/tower sites) to another (i.e., core network).
2. Thus, as part of the telecom network, backhaul spectrum **serves as only supporting infrastructure** to the access network. There is no benefit that a standalone backhaul spectrum will offer to a TSP network.
3. Hence, in its true techno-economic sense, backhaul spectrum is not the same as access spectrum. Therefore, **treating both as identical constitutes a logical fallacy.**

B. Tight coupling of backhaul equipment with backhaul frequencies: disruption will be highly detrimental to legacy networks and hundreds of millions of subscribers.

1. The traditional microwave backhaul equipment currently deployed in the networks of legacy TSPs is tightly coupled with the specific frequency spots in which they operate. This is unlike access spectrum where a particular piece of equipment can be deployed for the entire spectrum band range.
2. Today, close to ~5 lakh links are running in Indian TSP networks, the majority of which are legacy like above. Any change in the current assignment of MWA/MWB carriers will instantly leave all such legacy equipment redundant, requiring replacement.

3. As evident, this **change of backhaul radios would be a massive and deeply complex operation, and services to hundreds of millions of subscribers would be affected or put at risk.** Instead of investing in improving and providing coverage, TSPs would have to expend their resources (capital, human, network and time) on totally avoidable issues to manage and mitigate the disruption caused.
4. **Thus, prevention of disruption in network and services must be the topmost consideration for the Authority while framing its recommendations.**

C. Auctioning backhaul spectrum: *Risk of winner's curse.*

1. First, there is absolutely no reason to even consider adopting an auction approach for complementary backhaul spectrum since it does not confer any (market) access rights.
2. Second, **in the scenario of an auction for backhaul spectrum, there are likely to be attempts at destructive bidding** or hoarding by competition to hurt the interests of competitive legacy operators who will have no option but to somehow secure their currently assigned carriers (due to the tight coupling of spots and equipment and avoiding risks to customer service). This could very well become a **'winner's curse'** for legacy TSPs forcing them, as it will, to incur substantial financial costs or go out of market.
3. Third, this winner's curse and/or failure to secure the same spots (at reasonable cost) would thus give (an undue) competitive edge to other operators while increasing the overall cost of operations for TSPs with legacy networks.
4. Fourth, since it (backhaul) is an indirect enabler/multiplier of public good, **auctioning the same would destroy the value of the public good element in this.** In economic terms, it would take away (an indirect) producer surplus that would have led (indirectly) to consumer surplus.

5. In any case, a prerequisite for (the success of) an auction is that the resource being auctioned is scarce, is in high demand and that it will outstrip supply. It does not meet any of these prerequisites since it is **available in ample quantity**.
6. **Auctioning ancillary/complementary resources like backhaul spectrum will put at risk the huge investments** (lakhs of crores) made by TSPs in obtaining access spectrum via auctions over the years (including 5G). Any risk or uncertainty to the backhaul will have an adverse impact on the auctioned access spectrum.

D. Auction of backhaul spectrum: *neither relevant to 2G Judgment, nor in line with international practices, and, against TRAI's own precedent on the same issue*

1. **The Authority itself favoured an administrative approach in its 2014 Recommendations.** It had based its decision on a variety of factors, like ample availability of backhaul spectrum, its supporting role in telecom infrastructure, international best practices, etc. There have been no changes in those parameters in 2023 either.
2. It is also pertinent to note that **the 2G Judgement came much before the TRAI 2014 Recommendations**, and it did not act as a bar for TRAI recommending administrative assignment of backhaul spectrum then. In any case, **the 2G Judgment was applicable in case of allocation of access spectrum** and no relation to backhaul which only (indirectly) supports the access network by backhauling the traffic to core network.
3. A study of international practices on the assignment of backhaul spectrum suggests that **administrative assignment is the preferred mode the world over**. Even the Authority has not provided any instance of auction in the present CP.
4. We submit that since there has been no material change in these factors that may warrant an auction now, the only appropriate way forward for

the Authority would be to reiterate its stand and continue with the method that has served it so well thus far.

Thus, conclusively, the administrative assignment of backhaul spectrum is the right (only) and better approach to consider. It is this approach that has already served the networks and government policy objectives admirably. It is the **least disruptive method** for transitioning from the current provisional allotments to the final allotments based on the assignment methodology decided by the Government. It will safeguard the existing spots of legacy operators, thus ensuring continuity of operations and seamless services to subscribers.

At best, the Government may consider allocating the MWA/MWB spectrum bundled with the access spectrum on a prospective basis, as the latter is already auctioned. This would assure continued availability of adequate backhaul spectrum.

Having said the above, there is another critical aspect of charging of backhaul spectrum that requires the Authority's attention.

E. The current charges of MWA/MWB carriers and E, V band need significant rationalisation:

1. The charging of MWA/MWB carriers and E-band spectrum is presently based on a percentage of AGR. This should continue.
2. However, the current rates are exorbitantly high. They continue to escalate (and aggregate) with the increase in the number of carriers, leading to substantially increased costs. It may be noted that the quantum of SUC being paid in respect of backhaul spectrum is about 3x that of access spectrum.
3. Considering that standalone backhaul spectrum does not generate any revenue on its own, and in the interests of expanding the reach of

- telecom services, this escalation matrix (of rates) should be done away with and only a flat and low rate applied, irrespective of carriers held.
4. The rates of backhaul spectrum are significantly lower in other jurisdictions. For instance, the rates of an E-band carrier in India are approximately 1400 and 3000 times those of Saudi Arabia and Iraq, respectively, the top 2 positions in the list of countries analysed by India for E-band pricing.
 5. Rationalised charges will still benefit the exchequer as adequate availability of backhaul spectrum will lead to a more efficient utilisation of access spectrum and a consequent increase in the TSPs' revenue leading to higher LF and SUC payouts, even when the spectrum itself would not be generating any revenue.
 6. Further, there are many other equally critical aspects of backhaul spectrum that could have a significant impact on legacy TSPs networks as well as competition dynamics. Some of these aspects include, what carrier sizes MWA/MWB and E/V bands should be, to whom should they be assigned (e.g., which UL authorisation entity should have access to them), should they be assigned exclusively or for the entire licensed service area (LSA) or on a link-by-link basis. There are also detailed comments on each of these areas in our responses to these specific questions raised in the consultation paper.
 7. We urge the Authority to take into consideration the context and background elaborated upon in this Preamble and make appropriate recommendations vis-à-vis an administrative assignment of backhaul spectrum.

A one-size-fits-all approach without contextualising the diverse scope, needs and nuances of the telecommunications sector will not be prudent. Rather, a balanced and well-considered approach that incorporates a variety of allocation methods to accommodate the sector's myriad requirements while promoting serviceability, competition and orderly growth will best serve all stakeholder objectives.

Key asks:

- **The existing MWA/MWB assignments should not be disturbed as legacy backhaul equipment is incompatible to change in frequencies due to technical restrictions.**
- **Administrative assignment is the best method to ensure minimal disruption.**
- **The logic of auction does not apply in the case of backhaul spectrum as there is no market access conferred in this. Further, the supply of backhaul spectrum significantly outstrips its demand.**
- **Both international best practices and TRAI 2014 Recommendations favour an administrative approach.**
- **MWA/MWB carriers and E/V band spectrum should be assigned on an exclusive basis for the entire LSA.**
- **The carrier size(s) and ceiling(s) should be as follows:**

S. No.	Spectrum	Carrier Size	Ceiling
1.	MWA Carriers	28 MHz	8 carriers per LSA in Metros & Category A circles and 6 carriers per LSA in Category B & C circles
2.	MWB Carriers	28 MHz	2 carriers per LSA in all categories of circles
3.	E-band	250 MHz	4 carriers per LSA in all categories of circles

4.	V-band	50 MHz	40 carriers per LSA in all categories of circles
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➤ **MWA/MWB carriers should be assigned to TSPs with Access Service Authorisation for the entire LSA on an exclusive basis, and to TSPs with other than Access Service Authorisation and non-TSPs on a P2P link basis.**

➤ **E/V band spectrum should be assigned to TSPs with Access Service Authorisation holding IMT spectrum for the entire LSA on an exclusive basis, and to TSPs with Access Service Authorisation but not holding IMT spectrum on a P2P link basis if required. There is no need at all to assign this spectrum to TSPs with other than Access Service Authorisation and non-TSPs.**

➤ **In case of assignment of new MWA/MWB carriers, an effort should be made to maintain the contiguity of a TSP's holdings, wherever feasible.**

➤ **For already assigned MWA/MWB carriers, harmonisation exercises must be made completely voluntary.**

➤ **In E-band, four contiguous carriers should be reserved for each TSP in order to avoid frequent harmonisation in the future.**

➤ **Validity of administratively assigned backhaul should be co-terminus with licenses.**

➤ **There should be no separate rollout obligations in cases of backhaul spectrum.**

- **The spectrum charging mechanism for MWA/MWB carriers and E/V band spectrum should continue to be based on a percentage of AGR, but with the current rates significantly rationalised.**
- **The rates should not escalate with the increase in the number of carriers; they should be kept uniform.**

Issues for Consultation:

Q1. Whether spectrum for MWA (Microwave Access) and MWB (Microwave Backbone) should be assigned for the entire LSA (Licensed Service Area) on an exclusive basis, or on Point-to-Point (P2P) link basis? Response may be provided separately for (i) TSPs with Access Service License/ Authorization, (ii) TSPs having authorizations other than Access Service License/authorization, and (iii) Other entities (non-TSP, for non-commercial/ captive/ isolated use) in the table given below with detailed justification.

ISpA Response: A balanced approach optimizing use of spectrum access technologies is imperative to connect the unconnected areas of India efficiently.

For 17.7-19.7 GHz band, we recommend against exclusive LSA-wide assignment of spectrum which may disrupt the effective coordination-based coexistence regime enabling satellite systems to provide essential connectivity solutions. Point-to-point authorization methodology for Fixed Service use, be it for access providers or other TSPs, has proven effective for managing coordination between satellite customer terminals and terrestrial links in other countries.

Accordingly, ISpA suggests retaining the status quo of link-based coordinated spectrum sharing among satellite and terrestrial services. This allows for greater flexibility in deployment - a critical aspect as satellite broadband

demand proliferates across areas unviable for terrestrial coverage. It also spurs healthy competition at service level, ultimately benefiting Indian citizens relying on connectivity platforms.

Administrative coordination mechanisms between individual terrestrial and satellite links applying case-by-case interference mitigation is a pragmatic solution rather than outright exclusion of either service even as data consumption scales multi-fold. The possibility of LSA-wide exclusive licensing risks connectivity disruption which is against public interest. ISpA recommends TRAI adopt licensing terms enabling coexistence of transportable satellite terminals subordinate to coordination needs of terrestrial links for 17.7-19.7 GHz.

Q2. Whether spectrum for MWA and MWB should be assigned for the entire LSA on an exclusive basis, or on Point-to-Point (P2P) link basis? Response may be provided separately for (i) TSPs with Access Service License/ Authorization, (ii) TSPs having authorizations other than Access Service License/ authorization, and (iii) Other entities (non-TSP, for non-commercial/ captive/ isolated use) in the table given below with detailed justification:

ISpA Response: Some satellite systems will use 17.7-19.7 GHz frequencies for space-to-Earth transmissions to gateways and customer terminals. MWA licensing should permit continued coexistence with satellite services. TRAI should adopt established international provisions enabling smooth operation of both terrestrial and satellite services sharing this band historically. Appendix 7 of ITU Radio Regulations provides coordination area determination methods around earth stations to use as baseline. ITU-R Recommendation P.452 can further refine terrestrial path modelling between earth station and fixed station.

Uncoordinated satellite customer terminals should be permitted on non-interference, non-protected basis with respect to Access Service Provider using MWA spectrum. The operators of satellite customer terminals should mitigate interference from MWA service. Exclusive spectrum assignment should only apply for terrestrial services, not space-based communication services. The Supreme Court's 2G judgment does not mandate auction as the only method for spectrum assignment by the government.

Q3. Keeping in view the provisions of ITU's Radio Regulations on coexistence of terrestrial services and space-based communication services for sharing of the same frequency range, do you foresee any challenges in ensuring interference-free operation of terrestrial networks (i.e., MWA/ MWB point to point links in 6 GHz, 7 GHz, 13 GHz, and 18 GHz bands) and space-based communication networks using the same frequency range in the same geographical area? If so, what could be the measures to mitigate such challenges? Suggestions may kindly be made with justification.

ISpA Response: Coexistence of MWA service and space-based communication services needs case-specific management through appropriate assignment mechanisms and technical conditions. For the 18 GHz band, TRAI should prescribe MWA service technical conditions following relevant ITU-R Recommendations for fixed service applications. ITU-R Recommendation F.699 has antenna patterns facilitating compatibility with space-based services by controlling off-axis emissions. Recommendation ITU-R F.595 has channel arrangements enhancing operational transparency. Applying these along with ITU Radio Regulations coordination provisions will make the interference magnitude and behaviour predictable for space-based services, especially gateways. MWA services get protected from interference using ITU Radio Regulations Article 21 power flux-density limits.

We implore that TRAI should extend the blanket licensing practice for satellite customer terminals to 17.7-19.7 GHz band enabling large-scale uncoordinated earth station deployments. The CEPT Electronic Communications Committee studied fixed service/FSS compatibility in ECC Report 232 concluding long-term coexistence is feasible in less populated areas. In urban areas, FSS earth stations could use over 65% of the band as per the report. Alternative frequencies can be assigned if interference occurs. These conclusions support TRAI adopting methodologies for uncoordinated earth stations in 17.7-19.7 GHz. National-level administrative assignment and non-protected operation status with respect to MWA service should apply to such earth stations using space-based communication services. This prevents regulatory uncertainty from large future deployments of earth stations receiving in this band. TRAI can refer to CEPT ECC Decision (00)07 for more information on uncoordinated earth station procedural considerations.

Uncoordinated satellite customer terminals should get permitted on non-interference, non-protected basis with respect to MWA Access Service Provider. The operators of uncoordinated satellite customer terminals should mitigate interference from MWA service. Spectrum assignment exclusivity should apply only to terrestrial services, not space-based communications services. We would like to reiterate that the Honourable Supreme Court's 2G judgment does not mandate auction as the only method for spectrum assignment by the government.

We request TRAI to extend the blanket licensing practice for satellite customer terminals to the 17.7-19.7 GHz band enabling uncoordinated earth station deployments. The CEPT ECC studied fixed service/FSS compatibility in ECC Report 232 and concluded long-term coexistence is feasible in less populated areas. In urban areas, FSS earth stations could use over 65% of the band as per the report. If interference occurs, alternative frequencies can be assigned. These conclusions support TRAI adopting methodologies for uncoordinated earth stations in 17.7-19.7 GHz band. Such earth stations using space-based

communication services should follow national-level administrative assignment methodology and operate on a non-protected basis with respect to MWA service. This provides regulatory certainty regarding blanket-licensed earth station deployments receiving in this band. TRAI may refer to CEPT ECC Decision (00)07 for uncoordinated earth station procedural considerations.

Q6. For the existing service licensees holding MWA/ MWB carriers, whether there is a need to create some specific provisions (as discussed in para 2.38 of this CP) such that if the licensee is successful in acquiring the required number of carriers through auction/ assignment cycle, its services are not disrupted? If yes, kindly provide a detailed response with justification.

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Q10. Which methodology should be used for assignment of MWA carriers? Response may be provided in the table given below:

User category	Assignment methodology [Auction/ Administrative/ Any other (please specify)]	Justification
(i) TSPs with Access Service License/ Authorization		
(ii) TSPs with other than Access Service License/ authorization		
(iii) Other entities (non-TSP, for non-commercial/ captive/ isolated use)		

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Q12. Which methodology should be used for assignment of MWB carriers? The response may be provided in the table given below:

User category	Assignment methodology [Auction/ Administrative/ Any other (please specify)]	Justification
(i) TSPs with Access Service License/ Authorization		
(ii) TSPs with other than Access Service License/ Authorization		
(iii) Other entities (non-TSP, for non-commercial/ captive/ isolated use)		

ISpA Response:

The fundamental purpose of assignment methodology should be to prioritise network stability, cost-effectiveness for existing users and the preservation of high quality of service (QoS) without causing network disruption. Administrative assigning of backhaul spectrum will achieve better policy outcomes and support public interest better than an auction will.

Therefore, MWA/MWB carriers should be assigned on an administrative basis rather than auctioned. Further, existing TSPs must be allowed to continue with the spots currently assigned to them. Our detailed submissions in this regard are as follows:

Critical for service rollout: As elaborated in the Preamble and response to Q1 earlier, the volume of mobile data traffic has not just been growing by leaps and bounds but is expected to grow even faster with access technologies constantly evolving to cater to requirements. This in turn requires that backhaul systems and capacities are also sufficiently bolstered so that they are able to support access aggregation.

Due to backhaul spectrum being quickly scalable, highly reliable and rapidly deployable at relatively lower costs than fiber (which also takes a much longer time to rollout), wireless backhaul is the only practical solution available – more so in certain rural and remote areas and even congested urban areas where fiber is infeasible or too costly. Indeed, it is due to the availability of adequate backhaul spectrum that India has succeeded in achieving one of the fastest and most cost-effective 5G rollouts globally.

No flexibility for introducing change in vast legacy networks: In India, presently, in the existing backhaul bands, a vast number of microwave hops, estimated to be ~5 lakh links, are already deployed. The legacy backhaul equipment has inherent limitations related to ‘occupied bandwidth’ (“OBW”) and ‘instantaneous bandwidth’ (“IBW”). The designs of these systems are optimised for performance within specific frequency bands and sub-bands. Attempting any modifications to these systems could render existing backhaul equipment obsolete, necessitating a complete overhaul of the backhaul network. Therefore, practically, there is no flexibility to change the currently assigned spots.

If such an exercise were undertaken, it would not only be a huge costly affair for TSPs, but also a colossal and time-consuming undertaking – as new links would have to be commissioned in place of existing links, followed by a change-over, and finally the withdrawal of the old links.

Moreover, there may be two scenarios in case of change in frequency: (1) the operator is assigned a different sub-band within the same band, and (2) the operator is assigned a different band altogether. While a different sub-band

would require a change in radios (which itself would be a massive exercise), a different band (especially when the bands are widely separated) would disturb the entire link planning that the operator's network would be based on.

For instance, in case an operator currently has spots in the 13 GHz band, it would have planned its network, including the number of links, their locations, etc., on the basis of the capacity of the 13 GHz band and its radiation and penetration characteristics. These factors would be very different for the 21 GHz band and would essentially require the operator to re-plan its network from scratch, in case it is assigned spots in the 21 GHz band instead of the 13 GHz band.

To prevent this, it is essential that each TSP re-obtains the same frequencies in the same band and sub-band. Such an outcome is only possible in the case of an administrative assignment.

Adverse impact on consumers: As explained above, any change in the existing frequency spots assigned to MWA/MWB carriers would require the overhauling of the entire legacy backhaul systems. This would potentially cause service disruptions for hundreds of millions of subscribers of legacy operators.

As per the latest TRAI data, industry has over a billion wireless subscribers. The interests of this huge customer base would be adversely affected in case of any service disruption.

Since the prime objective of any policy has to be protection of the interests of consumers and public at large, the Government would do well to avoid taking the mammoth risk of auctioning the backhaul spectrum at all costs.

Competition issues: The scale of fiberization in India is very low, and the situation is not going to change materially for the next few years. In case backhaul spectrum is auctioned, only the TSP with the largest fiber footfall and without a legacy network will benefit. The networks of all other TSPs will be massively disrupted. This would give the competitive advantage to only one

TSP, at the expense of others. Hence, making backhaul spectrum available to TSPs administratively is vital.

Risk to massive investments in access network (access spectrum): TSPs have sunk lakhs of crores into obtaining access spectrum through auctions over the years (including recent 5G auctions). To provide context, a prominent TSP of the country has acquired spectrum worth 1.78 Lakh Crores till date. In the interests of investment stability and sustenance of business operations, it is imperative to ensure that TSPs are able to monetise their access spectrum. Such certainty is possible only with continued administrative allocation of backhauls spectrum.

Further, in addition to affecting the investments already made, any risk or uncertainty about the backhaul will also have an adverse impact on the auction of access spectrum going forward. This would represent a regressive move for the telecom sector, just as the Cabinet decision is commencing its efforts to bolster and stabilise the industry following years of instability. Furthermore, it would run counter to the Government's vision of enhancing the ease of doing business in the country.

Supporting role of backhaul spectrum: Backhaul spectrum is only a complementary infrastructure resource to the auctioned access spectrum. The backhaul spectrum does not generate any revenue on its own and, hence, there is no rationale for auctioning the same.

Additionally, auctioning access spectrum is fundamental from a market access and competition perspective. However, that is not the case with backhaul. Access and backhaul spectrum cannot be equated and should not be treated in a similar way.

A one-size-fits-all approach that does not take into account the diverse scope, needs and nuances of the telecommunications sector is neither apposite, nor

prudent. Rather, a balanced and well-considered approach that incorporates the vast variety of allocation methods employed to accommodate the sector's myriad requirements while promoting serviceability, competition and orderly growth would be the best way forward.

Adverse consequences of auctioning backhaul spectrum: The operators with legacy backhaul allocations do not have any flexibility to change their currently assigned spots. Given that relinquishing their existing spectrum allocations will be very difficult, such operators will be at significant risk of getting disturbed/disrupted by destructive bidding during auction.

In such a situation, TSPs will be obliged to acquire the same spectrum that has already been invested in since they will, otherwise, face various risks, including (but not limited to) substantial costs of replacing equipment, potential network disruptions and deteriorated QoS for the public. Such a situation might also result in inadvertently conferring an unwarranted competitive advantage to competitors.

Even if existing spectrum holders were to be granted the right of first refusal (RoFR) in auctions, it would still become a winner's curse for the legacy operators as they would have to outbid the other bidders. An auction may also potentially see attempts at spectrum hoarding and this would hurt the interests of TSPs with legacy networks.

No supply constraints in MWA/MWB carriers that justify an auction approach: As is evident from Table 2.4 of the Consultation Paper, there is no dearth of MWA carriers with 76% of carriers already lying vacant with the government. Even in the case of MWB carriers, there is no instance of shortage or limited availability. Even with the current assignment methodology, it is evident that 53% of carriers in the 13GHz band, 22% in the 15GHz band, 83% in the 18GHz band, and 93% in the 21GHz band remain unutilised.

Considering this, there does not seem to be any logic to auctioning MWA/MWB carriers where supply is in abundance, demand limited and less than supply.

International precedents favour administrative assignment: MW carriers are assigned administratively in most jurisdictions – as either a bundle or mandatory allocation (with nominal charge), whenever access spectrum is assigned. The TRAI Consultation Paper has also not provided any instances where backhaul spectrum has been auctioned. It is therefore fair to argue that India should also follow international practices in this regard.

TRAI favoured administrative assignment in 2014: Even TRAI in its earlier Recommendations in 2014 on this issue after due consideration concluded that “...*(a) the assignment of spectrum for MW fixed point-to-point links is done administratively in most countries; (b) there is no shortage of MWA/MWB carriers; (c) MW carriers are essential for the roll-out of network; and, (d) since the access spectrum is being assigned through auction, there seems to be no justification for another auction for the assignment of MW carriers as these will be used by only those TSPs who have got the access spectrum...*”

Accordingly, the Authority recommended that assignment of MWA and MWB carriers should continue on an administrative basis. Since the situation has not changed materially since 2014 and the rationale given by the TRAI stands true even today, it is only appropriate that TRAI continue in its recommendation of administrative assignment of MWA/MWB carriers.

In fact, the TRAI Act provides that the objectives of establishment of the Authority is to protect the interests of both the service providers and the consumers and ensure orderly growth of the telecom sector. However, as explained earlier, backhaul spectrum auctions would be in conflict with each of these objectives. Thus, in case the Authority now takes a view contrary to

its 2014 Recommendations, it would go contrary to its mandate under the TRAI Act itself.

The 2G Judgment did not mandate auction as the sole method in every case: The Hon'ble Supreme Court Order in the 2G matter was in the context of arbitrary grant of access spectrum. It neither extends to allocation of all natural resources in general nor prohibits administrative allocation of natural resources.

The Hon'ble Supreme Court had specifically observed that the submission that the mandate of Article 14 requires that *disposal of a natural resource for commercial use must be for revenue maximisation and thus by auction* is based neither on law nor logic. Even the mandate of 39(b) imposes no restrictions on the means adopted to subserve the public good and uses the broad term 'distribution', suggesting that the methodology of distribution is not fixed.

The economic logic of alienation/allocation of natural resources to the highest bidder may not necessarily be the only way to subserve the common good and, at times, may even run counter to the public good. Hence, it needs little emphasis that the disposal of all natural resources through auctions is clearly not a constitutional mandate. There is no directive under the 2G Judgement that natural resources can be allocated only through auctions.

Moreover, and importantly, as already highlighted previously, backhaul spectrum is there to complement the access spectrum, not to replace it/compete with it in the access market. Therefore, the logic of auctions does not hold in the case of backhaul spectrum. It is also pertinent to note that the 2G Judgement came much before the TRAI 2014 Recommendations, and it did not act as a bar for TRAI recommending administrative assignment of backhaul spectrum then. Therefore, the same approach should continue to be followed even now.

If for argument's sake, it is assumed that the 2G Judgment does bar the assignment of spectrum through any methodology other than auction, then even delicensing of spectrum would fall foul of it. However, even after the 2G Judgment, TRAI has recommended for and DoT has actually delicensed various spectrum bands, for use cases like short-range devices, tracking and telemetry, etc. Hence, it follows that 2G Judgment does not mandate auction as the only methodology for assignment of spectrum.

In view of the foregoing, we recommend MWA/MWB carriers should be assigned on an administrative basis.

Bundling Approach:

TSPs have invested lakhs of crores in acquiring access spectrum to manage the surging network traffic. For instance, just between 2022 and 2021, close to ~2.2 lakh crores were invested by TSPs to acquire access spectrum through auctions.

Backhaul spectrum plays a critical but complementary role with regard to access spectrum. Any uncertainty about its unavailability not only jeopardises the significant investments already made but also raises questions about future investments in access spectrum. Therefore, when TSPs acquire access spectrum by paying substantial amounts at auctions, they must be assured of backhaul spectrum availability for network rollout using the acquired access spectrum. This assurance can only be guaranteed through administrative assignment.

Thus, the best approach would be to continue with the existing policy of assignment of backhaul spectrum. What would be best is if the government were to consider allocating backhaul spectrum bundled with the access spectrum prospectively.

Going forward, we recommend:

- (i) MWA & MWB carriers must be assigned on an administrative basis following a well-defined process.**

- (ii) Legacy operators should not be compelled to give up their existing MWA/MWB spots or change carriers.**

By adhering to these principles, a fair and balanced approach that benefits all stakeholders in the industry can be ensured.
