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**Fwd: Submission on Consultation Paper No. 6/2015**

1 message

**Sanjeev Banzal, Advisor TRAI** <advmn@trai.gov.in>

Wed, Dec 23, 2015 at 4:22 PM

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----- Original Message -----

From: "**Dua Consulting.com**" <dua@duaconsulting.com>

Date: Dec 23, 2015 2:02:23 PM

Subject: Submission on Consultation Paper No. 6/2015

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Shri Sanjeev Banzal

Advisor (Networks, Spectrum and Licensing)

TRAI

New Delhi

Dear Sir,

Please find attached our submission to Consultation Paper No. 6/2015 on Valuation & Reserve Price for Auction of Spectrum in 700, 800, 900, 1800, 2100, 2300 & 2500 MHz Band.

We do hope that the regulator's recommendations take into consideration these aspects contained in our submission.

With best regards.

Yours sincerely,

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**COMMENTS ON THE CONSULTATION PAPER ON VALUATION & RESERVE PRICE FOR AUCTION OF SPECTRUM IN 700, 800, 900, 1800, 2100, 2300 & 2500 MHz BAND**

In response to the above mentioned Consultation Paper, we wish to submit the following comments for your review, consideration and inclusion in the consultative process:

- 1) **Spectrum Availability-** First and foremost is the upfront declaration of the availability of the total spectrum to be put to auction. **The availability and adequacy of the spectrum should be on the principle that there should be at least 4 to 5 players in the market for proper competition. May be the availability could be sub-divided into below 1GHz and above 1GHz in view of the differing propagation characteristics leading to reusability of the spectrum.** Therefore, we believe that all available spectrum must be put to auction including the tranches of spectrum lying with other Ministries such as Defence, Space & I&B. We also do not support any backdoor entry in the name of rural applications. These natural resources must be sold at the market determined price, without favours to anyone. With the trading and sharing norms being available it would be easy enough to share spectrum for proof of concept of any technology. There should be clarity on paying market prices for use of such natural resources and clarity as to which bands are being used for the deployment of such technology.

We are of the opinion that the Government must address the issue of rationing of spectrum in this band, why should there be any rationing. It must look to get adequate spectrum released from the present users of this spectrum band, who are merely sitting on this idle spectrum without any actual usage. The Government must put the entire available spectrum up for auction as it just leads to an unnecessary creation of artificial scarcity. An exchange of 15 units of 3G airwaves in the 2100 MHz band in lieu of the 15 units of idle spectrum in the 1900 MHz band will facilitate the liberalisation of three extra 5 MHz slots in the 2100 MHz band.

- 2) **Block Size**- We should ensure that there are 4-5 players in each band segment to ensure healthy competition. We are of the view that the minimum block size to be auctioned should be 5 MHz. We understand that Different latest technologies require different carrier sizes. e.g. Universal Mobile Telecommunications System (UMTS) technology can be deployed only with a carrier size of 5 MHz. Long Term Evolution (LTE) technology can be deployed in different carrier sizes viz.1.4 MHz, 3 MHz, 5 MHz, 10 MHz and 20 MHz. However, our belief is that 5 MHz is the ideal block size of spectrum as it ensures that any technology can be deployed with the allocated spectrum. Fragmented spectrum results in reduced efficiency, increased requirement of inter operator guard bands and availability of lesser amount of spectrum for productive use, even more importantly less accruals from the auction.
  
- 3) **Futilities of Roll-Out Obligations**- We do not see merit in imposing unnecessary roll-out obligations wherein spectrum has been acquired through an auction at a market determined price. Indeed, delayed roll out has causes for concern from a consumer perspective both by way of service availability and competition, but it causes losses to the exchequer by no or delayed payment of license fees. SDCA based roll-out mechanism results in hassles for the operators. Instead of imposing obscenely high penalties for minor indiscretions in roll-out obligations, the Government should look at imposing a fixed fee or a hoarding charge after a certain period of time lapses, in case there is a case of ineffective usage of spectrum by an operator. There are provisions available in the unified license wherein upon completion of one year minimum license fee and spectrum charge payments kick in. These could be further strengthened.
  
- 4) **Spectrum Propagation**- We shouldn't be short sighted by the fact that the sub 1 GHz band offers better propagation characteristics in comparison to higher frequency bands. Apart from propagation characteristics, one must also examine from the point of view of reusability. Comparing different bands is after all simply not just a game of addition or multiplication factors. The aspect of reusability needs to be seen in the light of interference patterns associated with the Fresnel zone clearance (Typically the first Fresnel zone (N=1) is used to determine obstruction loss, with methods such as

Bullington. Anytime the path clearance between the terrain and the line of sight path is less than  $0.5F_1$  (half of the first Fresnel zone distance), some knife edge diffraction loss will occur that is there in conjunction with the spectrum). It may be noted that reusability of higher frequency bands is a lot better than these sub 1 GHz frequencies.

- 5) **Avoiding Artificial Scarcity**- We do not support forms of backdoor entry such as payment of 1% charge to convert ISP licenses in the 2300 MHz for voice services? Spectrum of all forms should be technology neutral and there should be a level playing field in terms of license fees and spectrum charges for like by like services in order to prevent backdoor entry of any kind. Similarly there are 57 licenses continuing to operate under the old regime caused by the flawed August 2007 recommendations of no auction, no cap and no remedy should demand exceed supply; and the concept of dual or cross over technology.
- 6) **Valuation of Spectrum**- We are of the view that there should be no linkages other than the determination of a market driven price for the spectrum. We are not in favour of the producer surplus approach. Such an approach is too jargonized in nature and a destructive technique to justify higher input cost. Specially, in urban areas, there would hardly be any visible difference in cell size density for various bands. An accurate comparison of cost for different bands by different people is going to yield in different results.

Each band of spectrum must find its own level of economic and commercial level. We have to have objectivity of purpose and not subjectivity. We must remember that the future of telecom growth will be data-driven. Going forward, voice services will only contribute to a smaller percentage. Voice services could get subsumed into various data services with advent of smart devices and applications. The non-voice revenue as a percentage of total revenue has been on the rise for the past few years and will continue to do so going forward.

We believe that any alternate approach for Valuation of Spectrum should be done after studying the Element of Spectrum Cost in the tariff structure. The Authority should

rationally identify what exactly should be the reasonable tariff and cost component of spectrum built in to the tariff.

**Spectrum Re-farming-** We have often requested the authority and various discipline of the Government to have an official re-farming policy wherein a percentage of the proceeds of the auction is to be made available to the department/Ministry who vacates the spectrum by bringing in more efficient technologies. Such an approach would have a virtuous circle resulting in the availability of even more spectrum. This is an incentive to the user for replacement of a technology by more efficient newer, state of the art technology.

**Spectrum Squatting-** We have also been pleading to impose spectrum squatting charge in case of inefficient or delayed use of spectrum, again depriving government of revenues. An upfront clarity in this regard would not be out of place. Although, there are provisions within the licensing frame work, however a regulatory recommendation would be welcome.

**Conversion of Administrative Spectrum to Market driven pricing-** This is indeed a very serious matter, caused by the flawed recommendations of the August 2007 recommendations on spectrum pricing and allocation. It was a sham of recommendation not to auction 2G spectrum but all others, which resulted in this anomalous situation. No doubt 122 licenses got squashed by the Supreme Court, but 57 licenses continue to provide services under the administered price regime. These 57 licenses must be brought under market driven pricing mechanism, as was the case for those who reapplied in 2013.

**No Loop Holes in the Recommendations-** Briefly, same service same rules. Ensure that:

- All spectrum to be acquired through a market driven process.
- Uniform license fee for all identical services.
- No restrictions in the use of technology as long as they comply with the laws of the land.

No differential charging of the spectrum, **resulting in back door entry into all kinds of services by making use of loop holes as has been with the 2010 auctions of 2300 MHz acquired under ISP for data but converted to all-encompassing portfolios of services.**

**Spectrum for new technologies like Loons and White Spaces etc-** Any frequencies required for such purposes must be acquired through a participative mechanism to acquire spectrum. No freebies in the name of rural proliferation etc.

## **Issues for Consultation**

### **Spectrum Availability (Q1-Q2)**

**Q1. Whether the entire spectrum available with DoT in the 800 MHz band be put for auction? Justify your answer.**

**Q2. How can the spectrum in the 800 MHz band, which is not proposed to be auctioned due to non-availability of inter-operator guard band, be utilized?**

<Combined Answer for 1, 2>

We believe that all available spectrum must be put to auction including the tranches of spectrum lying with other Ministries such as Defence, Space & I&B. Our suggestion is based on the principle of minimum fragmentation of spectrum and a visibility to the bidder of the availability of spectrum enabling him to choose technologies and create a better environment for technology induction. We also do not support any backdoor entry to be allowed for unexplored technologies. They should pay for a national resource. There must be clarity on paying market prices for use of such natural resources and clarity as to which bands are being used for the deployment of such technology.

Allowing experimentation on such new technologies is one thing, but to allow commercial usage in the name of rural exploitation on a free ticket is a whole new ball game altogether and shouldn't be taking place. There must be clarity on paying market prices for use of such natural resources and clarity as to which bands are being used for the deployment of such technology.

We are of the opinion that the Government must address the issue of rationing of spectrum in this band. It must look to get adequate spectrum released from the present users of this spectrum band, who are merely sitting on this idle spectrum without any actual usage. The Government must put the entire available spectrum up for auction as it just leads to an unnecessary creation of artificial scarcity. An exchange of 15 units of 3G airwaves in the 2100 MHz band in lieu of the 15 units of idle spectrum in the 1900 MHz band will facilitate the liberalization of three extra 5 MHz slots in the 2100 MHz band.



The artificial scarcity has been majorly caused due to scams and spectrum caps. Taking care of the scarcity problem is well within the control of the Government. A credible re-farming policy could bring in some much needed economies of scale.

Spectrum is a scarce national resource. In India, up till now, spectrum for wireless telephony was being allocated along with the UAS license under an allegedly flawed spectrum allocation policy. A pan India UAS license with a cost of around Rs 1658 crores, which was a price discovered in 2001, was in reality way below the cost of the 2G spectrum which came bundled with it. Additional spectrum was granted on a subscriber linked criteria. The realization of a flaw in the 2G spectrum allocation policy, probably started to dawn with the sale of Hutch to Vodafone at around \$22 billion. The subsequent stake sales in new telecom licensees Swan and Unitech at multiple valuations to the license fee paid by them appears to have fortified the realization that our spectrum allocation policy was flawed and was leading to huge losses to the public exchequer and benefitting private pockets. These two new licensees had not even rolled out a network, making it obvious that the multiple valuation reached reflected the valuation of the spectrum held by these companies. In effect these new licensees, who have failed to rollout any networks, are spectrum squatters, hogging up precious spectrum for making an overnight killing at the expense of the public exchequer.

While arriving at a methodology of calculation of a fee to prevent spectrum squatting, the government will need to bear in mind that the announcement of such a fee is likely to depress the upfront bid amounts as the bidding player is likely to factor in such payments into its business model. Too high a fee could depress bids substantially and too low a fee could encourage spectrum squatters. However, it is beyond doubt that a fee to prevent spectrum squatting is necessary and the government will need to establish a fee that does not impact the bid price substantially, but at the same time deters spectrum squatters.

### **Block Size (Q3-Q5)**

**Q3. What should be the block size in the 700 MHz band?**

**Q4. Whether there is any requirement to change the provisions of the latest NIA with respect to block size and minimum quantum of spectrum that a new**

**entrant/existing licenses/expiry licensee is required to bid for in 800, 900, 1800 and 2100 MHz bands. Please give justification for the same.**

**Q5. What should be the block size in the 2300 MHz and 2500 bands?**

<Combined Answer for 3, 4, 5>

We should ensure that there are 4-5 players in each band segment to ensure healthy competition. We are of the view that the minimum block size to be auctioned should be 5 MHz. We understand that Different latest technologies require different carrier sizes. e.g. Universal Mobile Telecommunications System (UMTS) technology can be deployed only with a carrier size of 5 MHz. Long Term Evolution (LTE) technology can be deployed in different carrier sizes viz. 1.4 MHz, 3 MHz, 5 MHz, 10 MHz and 20 MHz. However, our belief is that 5 MHz is the ideal block size of spectrum as it ensures that any technology can be deployed with the allocated spectrum. Fragmented spectrum results in reduced efficiency, increased requirement of inter operator guard bands and availability of lesser amount of spectrum for productive use, resulting in eventual loss of revenues to the exchequer. The industry should reaffirm its belief in the 700 MHz band ecosystem, and not later offer an excuse for this band.

A 2010 like situation must be avoided at all costs.

In the earlier auction of 2010 block size for 2300 was 20 MHz. This was acquired against an ISP license for data services, but subsequently liberalised for all services, but at a much reduced cost. The use of this band was changed after the auction. This is extremely anomalous. An immediate correction to the fallacious situation is needed.

### **Spectrum Cap (Q6-Q9)**

**Q6. Considering the fact that one more sub-1 GHz band (i.e. 700 MHz band) is being put to auction, is there a need to modify the provisions of spectrum cap within a band?**

**Q7. Is there any need to specify a separate spectrum cap exclusively for the spectrum in 700 MHz band?**

**Q8. Should a cap on the spectrum holding within all bands in sub-1 GHz frequencies be specified? And in such a case, should the existing provision of band specific cap (50% of total spectrum assigned in a band) be done away with?**

**Q9. Should 2300 MHz and 2500 MHz bands be treated as same band for the purpose of imposing intra-band Spectrum Cap? Please support your suggestions for Q6 to Q9 with proper justifications.**

<Combined Answer for 6, 7, 8, 9>

We shouldn't be short sighted by the fact that the sub 1 GHz band offers better propagation characteristics in comparison to higher frequency bands. Apart from propagation characteristics, one must also examine from the point of view of reusability. Comparing different bands is after all simply not just a game of addition or multiplication factors. The aspect of reusability needs to be seen in the light of interference patterns associated with the Fresnel zone clearance that is there in conjunction with the spectrum. It may be noted that reusability of higher frequency bands is a lot better than these sub 1 GHz frequencies.

We do not see any harm in capping spectrum in the different bands involved (be it the 700-900 MHz category or 1800-2300 MHz category) as long as it encourages healthy market economics of 4-5 players in the band (including one government player).

### **Roll-Out Obligations (Q10-Q13)**

**Q10. Suggest an appropriate coverage obligation upon the successful bidders in 700 MHz band? Whether these obligations be imposed on some specific blocks of spectrum (as was done in Sweden and UK) or uniformly on all the spectrum blocks?**

**Q11. Should it be mandated to cover the villages/rural areas first and then urban areas as part of roll-out obligations in the 700 MHz band?**

**Q12. In the auction held in March 2015, specific roll-out obligations were mandated for the successful bidders in 800 MHz, 900 MHz, 1800 MHz and 2100 MHz spectrum bands. Stakeholders are requested to suggest:**

**(a) How the roll-out obligations be modified to enhance mobile coverage in the villages? Which of the approaches discussed in para 2.58 should be used?**

**(b) Should there be any roll out obligation for the existing service providers who are already operating their services in these bands.**

**Please support your answer with justification.**

**Q13. In the auction held in 2010, specific roll-out obligations were mandated for the successful bidders in 2300 MHz spectrum band. Same were made applicable to the licensee having spectrum in 2500 MHz band. Stakeholders are requested to suggest:**

**(a) Should the same roll-out obligations which were specified during the 2010 auctions for BWA spectrum be retained for the upcoming auctions in the 2300 MHz and 2500 MHz bands? Should both these bands be treated as same band for the purpose of roll-out obligations?**

**(b) In case existing service providers who are already operating their services in 2300 MHz band acquire additional block of spectrum in 2300 or 2500 MHz band, should there be any additional roll out obligation imposed on them?**

<Combined Answer for 10 to 13>

We do not see merit in imposing unnecessary roll-out obligations wherein spectrum has been acquired through an auction at a market determined price. SDCA based roll-out mechanism results in hassles for the operators. Instead of imposing obscenely high penalties for minor indiscretions in roll-out obligations, the Government should look at imposing a fixed fee or a hoarding charge after a certain period of time lapses, in case there is a case of ineffective usage of spectrum by an operator. All Unified Licensees are expected to pay AGR & spectrum usage charges for the investment they have made on the spectrum. To put an additional burden on these players for penalties in placing a slew of roll-out obligations would be unnecessary. In any case there are provisions for levying License fee and spectrum usage charge after a lapse of 1 year, should there be a delay in commercial utilization of resources. These provisions could be further strengthened.

**Synchronization of TDD Networks & Liberalizing Spectrum (Q14-Q18)**

**Q14. Keeping sufficient guard band or synchronization of TDD networks using adjacent spectrum blocks are the two possible approaches for interference management. Considering that guard band between adjacent spectrum blocks in 2300 MHz band is only 2.5 MHz in a number of LSAs, should the network synchronization amongst TSPs be mandated or should it be left to the TSPs for the interference free operation in this band? Please support your suggestion with proper justifications.**

Best left to the TSPs, these are operational matters, soft touch approach is better.

**Q15. In case, synchronization of the TDD networks is to be dealt by the regulator/licensor, what are the parameters that the regulator/licensor should specify? What methodology should be adopted to decide the values of the frame synchronization parameters?**

See response above.

**Q16. If synchronization of the TDD networks is ensured, is there a need for any guard band at all? If no guard band is required, how best the spectrum left as inter-operator guard band be utilized?**

Please put that spectrum in the kitty as well.

**Q17. Whether the ISP category 'A' licensee should be permitted to acquire the spectrum in 2300 and 2500 MHz bands or the same eligibility criteria that has been made applicable for other bands viz. 800 MHz, 900 MHz, 1800 MHz and 2100 MHz band should be made applicable for 2300 MHz and 2500 MHz bands also?**

**Q18. Stakeholder are requested to comment on**

- (a) Whether the guidelines for liberalisation of administratively allotted spectrum in 900 MHz band should be similar to what has been spelt out**

**by the DoT for 800 and 1800 MHz band? In case of any disagreement, detailed justifications may be provided.**

Yes, see below

**(b) Should the liberalisation of spectrum in 800, 900 and 1800 MHz be made mandatory?**

Let all spectrum, all means all, be liberalised upfront with no doubts whatsoever to get the best market driven price. Let there be no scope for back door entry manipulations.

The Regulator/Authority must avoid at all costs any backdoor entry manipulations, as happened post 2010 auctions. Same service same laws. These back door entries have three times already all due to flawed nepotistic approach of the regulator. These were:

- 1 2001 limited to unlimited mobility,
- 2 2007 cross over or dual Technology (34 of the 57 administered licenses), and finally
- 3 2010 an ISP license during auction and full service provision post auction and that too at much reduced spectrum charge. Had the Government let it be known prior to the auction that the spectrum would be liberalised; possibly accrual would have been higher.

**Concluding, let there be no scope for any manipulations.**

### **Valuation of Spectrum (Q19-Q30)**

**Q19. Can the prices revealed in the March 2015 auction for 800/900/1800/2100 MHz spectrum be taken as the value of spectrum in the respective band for the forthcoming auction in the individual LSA? If yes, would it be appropriate to index it for the time gap (even if this is less than one year) between the auction held in March 2015 and the next round of auction and what rate should be adopted for indexation?**

**Q20. If the answer to Q.19 is negative, should the valuation for respective bands be estimated on the basis of various valuation approaches/methodologies adopted by the Authority (as given in Annexure 3.1) in its Recommendations issued since 2013 including those bands (in a LSA) for which no bids were received or spectrum was not offered for auction?**

**Q21. Should the value of 700 MHz spectrum be derived on the basis of the value of 1800 MHz spectrum using technical efficiency factor? If yes, what rate of efficiency factor should be used? Please support your views along with supporting documents/literature.**

**Q22. Should the valuation of 700 MHz spectrum be derived on the basis of other sub-GHz spectrum bands (i.e. 800 MHz/900 MHz)? If yes, what rate of efficiency factor should be used? Please support your views along with supporting documents/literature.**

**Q23. In the absence of financial or non-financial information on 700 MHz, no cost or revenue based valuation approach is possible. Therefore, please suggest any other valuation method/approach to value 700 MHz spectrum band along with detailed methodologies and related assumptions.**

**Q24. Should the value of May 2010 auction determined prices be used as one possible valuation for 2300 MHz spectrum in the next round of auction? If yes, then how? And, if not, then why not?**

**Q25. Should the value of the 2300 MHz spectrum be derived on the basis of the value of any other spectrum band using the technical efficiency factor? If yes, please indicate the spectrum band and technical efficiency factor with 2300 MHz spectrum along with supporting documents.**

**Q26. Should the valuation of the 2500 MHz spectrum be equal to the valuation arrived at for the 2300 MHz spectrum? If no, then why not? Please support your comments with supporting documents/ literature.**

**Q27. Is there any other method/approach than discussed above that could be used for arriving at the valuation of 700/800/900/1800/2100/2300/2500 MHz spectrum bands or any international auction experience/ approach that could be used for valuation of any of these bands? Please support your suggestions with detailed methodology and related assumptions.**

**Q28. As was adopted by the Authority in September 2013 and subsequent recommendations and adopting the same basic principle of equal-probability of occurrence of each valuation, should the average valuation of the spectrum band be taken as the simple mean of the valuations obtained from the different approaches/methods attempted for that spectrum band? If no, please suggest with justification that which single approach under each spectrum band, should be adopted to value that spectrum band.**

**Q29. What should be the ratio adopted between the reserve price for the auction and the valuation of the spectrum in different spectrum bands and why?**

**Q30. Should the realized prices in the recent March 2015 auction for 800/900/1800/2100 MHz spectrum bands be taken as the reserve price in respective spectrum bands for the forthcoming auction? If yes, would it be appropriate to index it for the time gap (even if less than one year) between the auction held in March 2015 and the forthcoming auction? If yes, then at which rate the indexation should be done?**

<Combined Answer for 19 to 30>

We are of the view that there should be no linkages other than the determination of a market driven price for the spectrum. We are not in favour of the producer surplus approach. Such an approach is too jargonized in nature and a destructive technique to justify higher input cost.



Specially, in urban areas, there would hardly be any visible difference in cell size density for various bands. An accurate comparison of cost for different bands by different people is going to yield in different results.

Each band of spectrum must find its own level of economic and commercial level. We have to have objectivity of purpose and not subjectivity. We must remember that the future of telecom growth will be data-driven. Going forward, voice services will only contribute to a miniscule percentage. The non-voice revenue as a percentage of total revenue has been on the rise for the past few years and will continue to do so going forward.

We believe that any alternate approach for Valuation of Spectrum should be done after studying the Element of Spectrum Cost in the tariff structure. The Authority should rationally identify what exactly should be the reasonable tariff and cost component of spectrum built in to the tariff.

It must be noted that a reserve price is the price at which bidding begins. If there is a transparent auction with enough competition among bidders, the final price will be largely independent of the reserve price (unless the reserve price is set too high, in which case the auction may not result in a transaction). On the other hand, if there is only one bidder, or if there is collusion, then the final price will be close to the reserve price.

In our view, there should be an economic study to analyse the various cost elements involved in the production of data and voice time. These should be taken into consideration before deciding on a reserve price.

Let us take the key performance indicators for the GSM market as a marker to elucidate on this spectrum cost aspect. We have taken the five base years during the period of 2001-13 to illustrate the growth numbers and the element of spectrum cost involved.

**TABLE 1- KEY PERFORMANCE INDICATORS IN THE TELECOM DATA<sup>2</sup>**

Base Year	2001	2004	2007	2010	2013
GSM Subscriber Base (in millions)	3.58	33.7	120	479	894
ARPU (INR/month)	1113	469	301	156	105
MoU (mins/month)	310	322	471	425	360
Total Revenue <sup>1</sup> (INR millions)	47814.5	189664	433440	896688	1126440

Let's take the scenario of the 2001 licensing regime. All licences were given by DoT through an auction process. In all these licenses, spectrum was tied to the licence and the entry fee remained constant in respect of each service area, totalling Rs. 1659 crore pan-India. There were four pan-India operators at the time. In the table below, we have analysed the spectrum cost involved.

**TABLE 2- SPECTRUM COST INVOLVED<sup>3</sup>**

Cost Element	Amount (in INR crore)
<b>Pan-India entry fee paid by 4 operators in 2001</b>	7000 crore (approximated)
<b>EMI per month at 1% for 20 years</b>	70 crore
<b>Monthly Book Value (taking into account depreciation and capital amortization)</b>	45 crore
<b>Per day spectrum cost</b>	1.5 crore

We now examine the correlation between this spectrum costs paid by the operators vis-à-vis the actual performance indicators of the telecom data contained in Table 1 above. We have

<sup>1</sup> Revenue has been computed on the basis of multiplier of the ARPU taken annually and the subscriber base.

<sup>2</sup> All data contained in the table have been sourced from TRAI Study Paper on 'Indicators for Telecom Growth', TRAI Annual Performance Indicator Reports and COAI statistics published on its website.

<sup>3</sup> The values are based on back-of-the-envelope calculation through numbers which have been approximated.

taken two data sets in the form of 2001 and 2007 when the licensing was still based on an auction process to illustrate the gradual decline in the cost element of spectrum paid up-front with the rapid telecom growth witnessed over the years.

**TABLE 3- CORRELATION BETWEEN THE SPECTRUM COST AND SUBSCRIBER USAGE IN 2001 and 2007<sup>4</sup>**

Base Year	2001	2007
<b>Per day spectrum cost<sup>5</sup> involved (In INR Crore)</b>	1.5 crore	1.5 crore
<b>Minutes of Usage (in mins/day/subscriber)</b>	10.33	15.7
<b>GSM Subscriber Base (in crores)</b>	0.358	12
<b>Overall Subscriber Usage per Day<sup>6</sup> (crores/min)</b>	3.70	188.4
<b>Ratio of the Spectrum Cost to Daily Subscriber Usage (paisa/min)</b>	40 p/min	.79 p/min

It is evident from all the facts and figures contained in the tables above that the cost element of spectrum based on the payment made up-front even under the auction process during the 2001 economic scenario and the licensing regime at the time has gone down exponentially with the growth in the performance indicators in the form of subscriber base as well as minutes of usage. So much so, that the cost of spectrum has become quite negligible in absolute terms.

We therefore believe that there are a lot of misrepresentations made by players when they refer to increasing tariffs and stagnant growth of the economy in seeking reduced reserve price or annual spectrum charges. Annual spectrum charges should be technology neutral and based on the revenues of the operator. A minimum annual spectrum charge can also be levied based on the quantum of spectrum held so that it acts as a deterrent against spectrum squatters.

<sup>4</sup> Id. At Citation 3 above.

<sup>5</sup> Derived from the value contained in Table 2 contained herein above

<sup>6</sup> Based on a multiplier of the MoU per day and the GSM subscriber base

Each band of spectrum must find its own level of economic and commercial level. We have to have objectivity of purpose and not subjectivity. We must remember that the future of telecom growth will be data-driven. Going forward, voice services will only contribute to a miniscule percentage. The non-voice revenue as a percentage of total revenue has been on the rise for the past few years and will continue to do so going forward.

We believe that any alternate approach for Valuation of Spectrum should be done after studying the Element of Spectrum Cost in the tariff structure. The Authority should rationally identify what exactly should be the reasonable tariff and cost component of spectrum built in to the tariff.

It must be noted that a reserve price is the price at which bidding begins. If there is a transparent auction with enough competition among bidders, the final price will be largely independent of the reserve price (unless the reserve price is set too high, in which case the auction may not result in a transaction). On the other hand, if there is only one bidder, or if there is collusion, then the final price will be close to the reserve price.

In our view, there should be an economic study to analyse the various cost elements involved in the production of data and voice time. These should be taken into consideration before deciding on a reserve price.

**By way of an illustration, even if the bidding yield is Rupees 5, 00, 000 crore, the EMI would be only Rupees 5,000 crore/ month, which are a minuscule percentage of the revenues of around Rupees 4, 00, 000 crores and increase in double digits for years to come. Is that too high a price to pay for acquiring an asset for 20 years with a moratorium of three years and only part payment upfront?**

**In view of the increased usage of Data and everything being data driven; voice also would be subsumed into Data. Therefore, prudence demands that there should be a tariff rebalancing between Voice charges and Data Charging to keep TSPs happy, Technology to flourish and innovations galore.**