

**COMMENTS ON THE CONSULTATION PAPER ON RESERVE PRICE FOR AUCTION
OF SPECTRUM IN 800 MHz BAND**

Introduction

At the outset, we thank the Authority for initiating this public consultative exercise with such a detailed paper surrounding valuation and reserve price of spectrum for the 800 MHz band, a momentous subject for the industry, the government and citizens of this country. We take this as an opportunity to resolve all the present ambiguities in the field of telecom including the concerns relating to pricing of the spectrum.

This paper issued by the Telecom Regulatory Authority of India ("**TRAI**" or the "**Regulator**") entails various aspects relating to the 800 MHz band ecosystem and considerations involved in valuation and reserve price of the spectrum. Before providing our views, we have attempted to provide a background on the telecom policies adopted by the Government from time to time, which have a bearing on the recommendations. We believe that this consultation paper is linked to the upcoming auction process of 900 & 1800 MHz spectrum slated to be held in February 2014 and have thus taken the liberty to re-emphasize key issues in this submission which had been brought to your attention during our submission on the Consultation Paper on Valuation and Reserve Price of Spectrum dated July 23, 2013 as well. We would urge the Government to hold a simultaneous auction of all the three bands- 800, 900 & 1800 MHz.

Policy Background

1. India's National Telecom Policy 1994 ("**NTP 1994**") was announced on 13th May 1994, to deregulate, liberalise and encourage private sector participation in the telecom industry. However, NTP 1994 did not yield desired results. Therefore, a new National Telecom Policy ("**NTP 1999**") was announced on 1st April 1999.
2. The policy on spectrum management as enumerated in NTP 1999 emphasized the need for spectrum to be used efficiently, optimally and economically. It further emphasised the need for a transparent process of allocation of frequency spectrum for use by a service provider and for making it available to various users under specific conditions. Such process required to be effective and efficient and needed to provide for the levy of a spectrum usage fee.

3. On 23rd June 2000, pursuant to a reference made by the Ministry of Communications and Information Technology, TRAI made certain recommendations on the issues of appropriate level of entry fee, basis of selection of new operators and entry of 4th cellular operator. TRAI recommended that all new operators, barring Department of Telecom ("DoT")/MTNL would be selected through a competitive bidding process. Prospective operators would be required to meet pre-determined criteria in order to qualify to bid for the licence. Pre-qualification would be mainly on the grounds of financial strength and experience, minimum roll out obligation, technical and business plan, payment terms and other commercial conditions. **TRAI also recommended that bidding process should be carefully structured so as to guard against the possible misuses of the process such as pre-emptive over-bidding or cartelisation. For this purpose, a bid structure involving "Multi Stage Informed Ascending Bids" was recommended.**
4. TRAI also recommended that, after each stage of bidding, bids received would be made public and all the bidders would be permitted to raise their bids in the subsequent rounds of bidding. The process would be complete only after a pre-determined number of bid rounds are completed at the end of which the highest bidder for each license would have claim to the licence in question and licences would become effective on payment of the amount of the winning bid for the entry fee within a period specified in the tender document.
5. On the issue of entry of third and fourth operator in a spectrum, TRAI opined that considering the issues related to sharing of spectrum, a view could only be taken after getting a full report from the DoT on the quantum of spectrum being made available for the Cellular Mobile Service Providers (CMSP), existing as well as the proposed new entrants, and the allocation of such spectrum, i.e., the bandwidth within which it would fall.
6. On 5th January 2001, the Government of India (GoI) issued guidelines for issue of 4th licence for Cellular Mobile Telephony Services (CMTS). These guidelines envisaged a detailed bidding process for selection of the new service providers. On the basis of these recommendations, many licenses were issued. In addition to this, few basic services licenses were also issued to operators such as **Reliance Telecomm, Tata Teleservices** etc for providing telecom services by utilising the wireless in Local Loop technology. These licenses were eventually misused for providing full mobility by series of actions of omissions and commissions by the DoT and the TRAI. These actions led to a prolonged legal battle, leading to a negotiated settlement in 2003. Pursuant to this,

these licenses were legitimised in 2003. **Reliance Telecomm and Tata Teleservices were the beneficiaries of this backdoor entry into full mobility.**

7. As a result of this settlement on 27th October 2003, TRAI made recommendations on 'Unified Licensing' under Section 11 of the Telecom Regulatory Authority of India Act, 1997 ("**TRAI Act**"). These recommendations were made in view of NTP 1994, NTP 1999, international practices, national objectives etc. The recommendations contained various alternatives to decide the benchmark for the entry fees for entry into the '*Unified Access Licensing Regime*'. The recommendations laid emphasis on efficient utilization of spectrum and indicated that it would make further recommendations on efficient utilisation, spectrum pricing, availability and spectrum allocation procedure taking into account the need timing and availability of the spectrum. Few key recommendations were:
 - o To de-link spectrum from the license
 - o To fix a license fee for this plain vanilla license (without any spectrum), and
 - o Most importantly to award all future licenses with spectrum or only spectrum by auctioning as was done for the award of licenses in 2001.
8. Meanwhile, a Group of Ministers ("**GoM**") had been constituted in September 2003, mainly to consider and recommend the best measures to ensure release of adequate spectrum needed for the growth of the telecom sector. The GoM recommended that the DoT and Ministry of Finance ("**MoF**") would discuss and finalise spectrum pricing formula which would include incentive for efficient use of spectrum as well as disincentive for sub-optimal usages. The recommendations emphasised that allotment of additional spectrum is transparent, fair and equitable, avoiding monopolistic situation regarding spectrum allotment usage. The GoM also recommended that the fee paid by fourth cellular operator was to form a benchmark for migration of basic players to the new access regime i.e. for those who made fraudulent entry into full mobility by the back door. The two companies were Reliance and Tatas. These recommendations of the GoM were accepted by the Council of Ministers on 31st October 2003.
9. On 11th November 2003, the DoT issued new guidelines for UAS licensing. The main features of these guidelines were that existing operators would have the option of continuing under the existing regime or to migrate to the new UAS licence. The obligations with regard to licence/entry fee, service area, roll-out obligations and performance bank guarantees would be the same as the 4th operator. Subsequently, the Chairman, TRAI, recommended that the entry fee for new UAS licensees would be same as the fourth operator and in cases where there is no fourth operator, it would be the

fees fixed by the Government for the basic operator or the reserve price fixed by the Licensor. The summary of the recommendations is provided herein below.

Summary of Recommendations

*In the interest of consumers of the telecom sector and to promote and ensure orderly growth of the telecom sector, the Authority recommends that the country should migrate to "Unified Licensing" Regime for all telecom services. As a preparatory step, Unified Access License will be implemented for access services in each circle. Finally, within six months Unified Access Licensing through an Authorisation process for all services and all geographical areas should be initiated. Service providers will be free to offer all services in all geographical areas through automatic licensing/authorisation subject to notifying the Regulatory Authority and compliance with published guidelines. The guidelines will be published by the Government/Regulator to include various terms & conditions of authorisation, e.g., nominal entry fee, Universal Service Obligation (USO), security conditions, etc. **Service providers who need spectrum for their services will approach Government of India separately. The guidelines for spectrum allocation which would cover the methodology for spectrum pricing will also be notified by the Government.** Service providers would be given choice to migrate to the new regime or maintain the present position*

The present licensing regime may not be flexible enough to accommodate changes. To achieve very high growth in the Telecom Sector in a competitive and fast technological development era, the new unified regime will create a litigation free environment because all service providers will be in a position to offer all types of services in all service areas depending upon service provider's choice. As a preparatory step, Unified Access License will be implemented for access services in each circle. Finally, within six months Unified Access Licensing through an Authorisation process for all services and all geographical areas should be initiated."

10. These recommendations were accepted by the Minister of Communication & Information Technology (C&IT) on 24th November 2003, since this was a major policy change to the NTP 1999, these changes were also placed on the table of the parliament. The Ministry also decided that, with regard to grant of a UASL licence on first-come-first-served basis, it could be issued on a continuous basis subject to the availability of spectrum and without any guarantee of a spectrum. A UASL license did not mean allocation of spectrum or attendant right of spectrum to the licensee. It was merely meant to be a

piece of paper for the licensee to start providing Basic telecomm services under the Indian Telegraph Act, 1885 without the use of a spectrum.

11. On 14th December 2005, the DoT issued revised guidelines for UAS licensing. It provided that no restriction should be placed on the number of entrants for provision of UAS in a service area. It further provided that, a licensee would be required to pay an annual licence fee and spectrum charges apart from the non-refundable entry fee. **The guidelines clearly stated that this UASL license did not guarantee them any spectrum.** It appears that the DoT, under pressure, started issuing UASL licenses in the December of 2006 on the plea that there was enough spectrum and not that much demand by the incumbents; therefore those wanting to enter services could do so. It was a farcical situation in the sense that the markets were never tested on the demand and resulted in some 23 licenses to be issued to companies friendly to the then MOC. **However, the spectrum allocation took place in 2008 except for one who had the spectrum in 2007.**
12. It is unknown as to what transpired in the minds of the policy makers, which resulted in a reference to TRAI. Therefore, on 13th April 2007, the DoT requested TRAI to furnish its recommendations on the issues of limiting the number of access providers in each service area and review of the terms and conditions in the access provider licence. TRAI made its recommendations on 28th August 2007. The main emphasis of these recommendations were the principles of fair competition, no restriction on the number of access service providers in any service area, need for spectrum management, measures to increase spectrum efficiency, allocation of spectrum and compliance of roll out obligations by the service providers. **It was also recommended that in future all spectrum; excluding the spectrum in 800, 900 and 1800 MHz bands in 2G services should be auctioned. In addition, allowing the CDMA operators to also offer GSM services under the name of combination of technology and assigning reasons that in view of the existing infrastructure the rollout in rural and sub-urban areas would be faster. These recommendations** were completely flawed for reasons below:
 - o The recommendations stated that "No Auction" in GSM was in complete reversal of the October 2003 recommendations, which recommended auction,
 - o While recommending open competition for unlimited number of players it never treated a scenario where the number of players exceeded the quantum of spectrum,
 - o The key recommendation of combination of technology violated two key licensing clauses of choice of technology for seeking allocation of spectrum and the 10%

equity holding in same areas of operation. The allocation of spectrum under the UASL was categorically either or or and not both. The UASL Licensee had to choose the technology by which he intended to provide Mobile Services ie GSM or CDMA. On receipt of that application, the Wireless Planning and Coordination wing would allocate spectrum earmarked for that Technology. This was a major deviation covered by the government under a policy change in public interest and perhaps under Clause 5 of the unified access service license. **Reliance and Tatas were the beneficiaries of this Largesse yet again.**

13. In 2003, the TRAI Recommendations of auctioning of licenses either with spectrum or spectrum alone were accepted by the Government. It was also accepted that a plain vanilla license would also be created for anyone to enter the Indian telecom market without the use of spectrum. The government was to come up with the entry fee for that plain vanilla license. Also it was clearly mentioned that those service providers who need spectrum for their services will approach Government of India separately, who shall make recommendations for the same. This method of distribution of license in 2007 was at complete variance to the policy approved by the Government in 2003, as is manifest from the foregoing. The recommendations in 2007 wherein it is very clearly mentioned that in future all spectrum; excluding **the spectrum in 800, 900 and 1800 MHz bands in 2G services should be auctioned was completely flawed. This is the Genesis of the problem leading to strictures on the role of the regulator.**

14. It must be emphasised that ever since the telecom markets have opened to the private sector no license, **with spectrum**, whatsoever has been issued without either a bidding process or an auction. **No license with spectrum guaranteed has ever been allocated on FCFS.** The FCFS licenses were granted where there was no requirement of spectrum. The amendment that all licenses would be UASL was the root cause of the problem, though it was implied that such a license carries no guarantee of spectrum

Key Issues

1. Mis-interpretation of Supreme Court judgement dated 2nd February 2012

The TRAI has deliberated on the amount of spectrum to be put up for auction in Chapter II of the Consultation Paper. The Regulator in Para 2.5 of the Paper has cited the Hon'ble Supreme Court's Order and Judgement dated 02.02.2012 wherein the Supreme Court (SC) has directed in Para 81 (i) that "*The licenses granted to the private respondents on or after 10.1.2008 pursuant to two press releases issued on 10.1.2008 and subsequent*

allocation of spectrum to the licensees are declared illegal and are quashed." Consequently, in Para 2.6 of the Paper it has been stated that "A total of 122 licences were granted pursuant to the press releases dated 10th January 2008 and the total spectrum allotted in various LSAs, in respect of these 122 licences was 413.6 MHz in the 1800 MHz band and 60 MHz in the 800 MHz band."

We do not agree with this notion that the number of licenses which stand cancelled as a result of the SC Judgement amounts to 122 and the total spectrum which stands quashed amounts to 473.6 MHz. In past, we have discussed the issues relating to eligibility and the quantum of spectrum to be auctioned but the authority totally ignored that input. Nonetheless, we remain convinced that the quantity of spectrum has to be that which was allocated on or post 10th January 2008 and quashed following the landmark Supreme court judgment of 2nd February 2012, Para 2.5 to 2.11 of the Consultation paper refers. There is also a misleading statement in the Consultation paper in Para 1.13 where it states that all licenses granted post-2001 till 2010 were given by the DoT (licensor) through an administrative process. In all these licenses, spectrum was tied to the license and the entry fee remained constant in respect of each service area, totaling to Rs.1659 crore for the entire country. The factual position is post 2004 till 2010, as would be evident from discussions below. In order to establish the quantum of spectrum and some of the statements referred to above it would be prudent to go into a bit of the history to arrive at our conclusions logically. In this connection it is advisable to refer to the 27th October 2003 recommendations of TRAI.

The details of those recommendations are on page 30 of the 27th October 2003 recommendations of TRAI. The relevant sections are reproduced below with emphasis on Para 7.39:

"Competition

7.37 On the issue of introducing more competition, the TRAI has always been in favour of open and healthy competition. In its recommendations on the introduction of the 5th and 6th Cellular Mobile license, the TRAI opined that "Induction of additional mobile service providers in various service areas can be considered if there is adequate availability of spectrum for the existing service providers as well as for the new players, if permitted."

Taking cognisance of spectrum availability, the TRAI is in favour of introducing more competition. However, we feel that in lieu of more cellular operators, it would be more

appropriate to have competition in a Unified Licensing framework which will be initiated after six months.

Time and need of introduction of more service providers

7.38 As already mentioned earlier, with the continuing growth trend, the expected wireless subscriber base by December, 2005 will be 100 million. To achieve 100 million wireless subscribers (cellular & WLL both) the required investment is of the order of Rs.50, 000 Crore. As brought out in Para 6.5 this highlights a need at present itself for greater efforts by existing and new service providers to expand the investment and to meet the market demand for telecom services and help achieve the objectives of telecom growth and development in the country.

7.39 As brought out in Para-7.37 above, the induction of additional mobile service providers in various service areas can be considered if there is adequate availability of spectrum. As the existing players have to improve the efficiency of utilisation of spectrum and if Government ensures availability of additional spectrum then in the existing Licensing Regime, they may introduce additional players through a multi-stage bidding process as was followed for 4th cellular operator.

7.40 Considering the above, the role of existing and new players in wireless services at the present juncture is well established."

Following these recommendations policy distortions were introduced in the December of 2005 abolishing Cellular Mobile Telephone Services (CMTS) License, which came bundled with spectrum, had to be auctioned as per TRAI recommendations of 2003 and replacing this license by Unified Access Service License (UASL), with certain interesting provisos like pick this UASL off the shelf and wait for spectrum when available, thus introducing administered price regime as alluded to in Para 1.13 of the Consultation paper. With this backdrop what was the timeline under which licenses were issued: 28 Licenses were issued in 2004, quite in line with the 27th October 2003 policy. The issuance of these licenses was in full compliance of the 2003 policy.

23 licenses were issued between 2006 and 2007 after tweaking the policy in 2005, but without spectrum. The spectrum allocation to all these was post 10th January 2008 except 1. From the above it is abundantly clear that these 23 licenses were in violation

of the extant policy of 2003. They were 5th or 6th licenses without auction, but were without spectrum. 22 of these 23 licenses were allocated spectrum on or after 10 January 2008 in an administered manner.

Then came the most flawed Recommendations of August 2007, which resulted in the issuance of 122 GSM licenses and 34 Combination of Technology Licenses. These Combination of Technology Licenses were again in defiance of the pre 2007 policy, which had two key stipulations before 2007: 10% cross holdings and upfront choice of technology for providing a type of cellular service i.e. either GSM or CDMA. Reliance and Tata chose willfully CDMA in 2001 to regret that decision as events unfolded. The matter is sub-judice in the Supreme Court. In order to cover up that mistake they engineered this flawed Combination of technology recommendations in 2007.

Notwithstanding, the root cause of the foregoing is the flawed TRAI Recommendations of 28th August 2007, where the then regulator, in suggesting no cap and no auction, in the pious belief that the demand supply equation will be balanced, which was not to be? There was a long queue of gold diggers and speculators.

Concluding, the licenses issued post 2004 and in defiance of the 2003 recommendations are 179 [(Aircel 14), (Idea 2), (Vodafone 7), (Reliance 15), (Tata 19) and (122 various others)]. They all, except some, received spectrum post 10th January 2008. The total spectrum thus issued post 10th January 2008 is 673.2 MHz and not 473.6 MHz. The estimated cost of this missing 200 MHz anything from Rupees 20, 000 crore upwards. Our humble submission is that these 57 licenses have been fraudulently acquired (Rupees 40, 000 Crore loss), hence must be cancelled and asked to participate in the auction or forced to pay the discovered price and not allowed to continue to that of 2001 price in order to provide level playing field for the distressed licensee who bid in November 2012 and March 2013 and to those whose licenses come up for renewal. It would be prudent for them as well to be part of the price discovery then be subjected to a price discovered by others, should that happen by a quirk of a miracle in DOT to force the discovered price on these 57 licenses. If action is not taken, they would be unlawful owners of licenses and completely upset the level playing field.

If no action is taken, it would lead to a skewed level playfield in favour of Aircel, Idea, Vodafone, Reliance and Tata. Most importantly, the spectrum to be auctioned should be increased to the amount vacated and not artificially rationed and hoarded by the government in the name of re-farming, eviction. It is essential that entire spectrum vacated

by all cancellations of 179 licenses must be put for auction to avoid creation of artificial scarcity.

The mess in the sector for the last over 4 years is because of –

- The Recommendations of the Authority in August 2007, especially relating to the issue of no auction, no Cap
- The contravention of the October 2003 Recommendations of the Authority, which set out the road map for inducting additional players, and
- The introduction of combination of technology dispensation, in complete violation of the extant policy then, in favor of Reliance.

The Authority could have taken *suo motu* action as per Section 11 (a) (viii) Chapter III of the TRAI Act of 1997 as amended in 2010. In any case, all allocations in 2008 were provisional, conditional and subject to the outcome of various court cases.

2. Liberalized technology deployment with the 800 MHz spectrum

With the diminishing interest of operators in CDMA and the reducing subscriber base of the technology, we recommend that the 800 MHz spectrum band is harmonized with the international band plan to become part of an “extended” 900 MHz band. This will increase the availability of spectrum in the 900 MHz band by up to 10 MHz (approximately 40%). **In turn, this will lead to optimum utilization of 800 MHz spectrum and the government will also be able to generate revenues that it was earlier denied, because there will be no absence of bidders from among GSM operators for the 800 MHz spectrum during the auctions.**

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. The 800 MHz band is very much suited for deployment of LTE technology, which is believed to be superior to 3G technology as well. **It may be noted that substitutability of 800 MHz and 1800 MHz spectrum will be possible when 800 MHz is deployed for LTE.** And, there is some degree of technical efficiency which can be achieved with 800 MHz spectrum as well. It is an established market condition that LTE services in this band has been launched in some countries and utilization of commercial UMTS 850 networks is also underway in countries such as USA and Canada as well. We

must ensure that 800 MHz band is allowed for usage of technologies such as UMTS and LTE to ensure competitive and healthy market conditions for this band.

We are of the view that there should be a framework in place for conversion of existing spectrum holdings into liberalized spectrum, like adequate set time lines to bring in new technologies. This should however be done as long as the technologies adopted are in line with the internationally accepted ITU Standards. There should not be any restrictions in inducting technologies which bring economies of scale and delivery of better consumer experience. In addition, there is a need for the continuation of the services in the old technologies. In order to meet that obligation a part of the spectrum could be set aside as suggested for 900 MHz band.

3. Quantum of Spectrum to be Auctioned

- Total Spectrum to be auctioned – Apart from 122 licenses, as detailed in point number 1 there are 57 additional licenses issued and subsequent spectrum allocation done post 10 January 2008. These 57 licenses issued and subsequent spectrum allocated must be cancelled and quashed, respectively. Therefore, total spectrum issued post 10th January 2008 is 673.2 MHz and not 473.6 MHz. The estimated cost of this missing 200 MHz anything from Rupees 20,000 crore upwards.
- We believe that there should be no multiplication factor for auctioning the 800 MHz spectrum. Linkages and arbitraries should be removed and let the market determine the price.
- Spectrum cost element in the end tariff - **Authority should rationally indentify what exactly should be the reasonable tariff and cost component of spectrum built in to the tariff. We are of the view that there should be a spectrum usage charge and also there should be an extra charge on usage of additional spectrum. 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.** In our view validity of the spectrum should be 20 years from the date of allocation of spectrum, as it is in the current scenario. Also, validity of price of spectrum should be between 3 years to 5 years with suitable indexation limited to inflation and PLR (Primary Lending Rate). Government should not allow any deferred payment of spectrum and

the payment should be upfront in nature. The industry will come up for any number of excuses to defend their inefficiencies.

4. Block Size of 5 MHz

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.

5. Other important Issues

- Spectrum Squatting
 - 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 1648 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.
 - With these massive losses caused due to the government doling out 2G spectrum, the issue seems to have become explosive in the public arena and it

has virtually forced the government to rewrite policy such that future spectrum allocation happens via open and transparent auctions, which can help achieve the market value of the spectrum to the benefit of the public exchequer. The following table reflects, the kind of fee that the government earns out of license fee/ revenue share and spectrum charges based on the AGR. Thus, spectrum squatting can lead to substantial losses to the public exchequer.

TABLE-1

Year	Approximated Jan to year end-No of mobile users	ARPU1	ARPU2	TR1	TR2	Govt revenue 1	Govt revenue 2	Per MHz revenue 1	Per MHz revenue 2
	mn	250/m annualised	350/m annualised	crores	crores	crores	crores	crores	crores
1997	0.339	3000	4200	102	142	20	28	0.34	0.47
1998	0.882	3000	4200	265	370	53	74	0.88	1.23
1999	1.2	3000	4200	360	504	72	101	1.20	1.68
2000	1.884	3000	4200	565	791	113	158	1.88	2.64
2001	3.577	3000	4200	1073	1502	215	300	3.58	5.01
2002	6.432	3000	4200	1930	2701	386	540	6.43	9.00
2003	12.998	3000	4200	3899	5459	780	1092	13.00	18.20
2004	33.701	3000	4200	10110	14154	2022	2831	33.70	47.18
2005	52.175	3000	4200	15653	21914	3131	4393	52.18	73.05
2006	129.54	3000	4200	38862	54407	7772	10881	129.54	181.36
2007	233.62	3000	4200	70086	98120	14017	19624	233.62	327.07
2008	346.29	3000	4200	103887	145442	20777	29088	346.29	484.81
March 2009	391.76	3000	4200	117528	164539	23506	32908	391.76	548.46

** Revenues in this chart have been approximated for the purpose of arriving at losses to the government due to spectrum squatting*

- o The fee that the government earns from spectrum usage includes service tax of 10%, a blended revenue share of 7%, 2% blended spectrum charges and 1% contribution to the Universal Services Obligation Fund (USOF). Thus, spectrum squatting can potentially lead to a 20% of AGR loss to the public exchequer. For the purpose of computation, the total revenue has been projected on the assumption of approximately Rs 250 (ARPU1) and Rs 350 (ARPU2) as the blended average revenue per user (ARPU) and has been used as an approximation of AGR to calculate the approximate government revenues TR1 and TR2. The last column above indicates the per MHz revenue to government

- on the assumption that approximately 60 MHz of 2G pan India spectrum is in usage and has been calculated both for TR1 and TR2.
- o The calculations from the table clearly suggest that auctioned 3G/2G spectrum, if allowed to remain idle could lead to losses in government revenue. With the government allegedly planning to auction four 5 MHz 3G slots amounting to 20 MHz of spectrum, the potential revenue loss due to spectrum squatting can amount to nearly Rs 9000 crores per year given that the approximate government revenue in 2008 was between Rs 3462 million and Rs 4848 million per MHz as per the table above.
 - o It may be argued that the new 2G UAS licensees have been stipulated with a rollout obligation. However, it may be noted that the rollout obligation is miniscule in relation to the total revenue potential and the potential loss of revenue to the government. Thus, a player may choose to do a minimum rollout just to continue to hold the spectrum till a suitable buyer for the spectrum is found. It may also be noted that almost none of the new UAS licensees have rolled out any 2G network till now as apparent from the latest TRAI release on subscribers added in June and July 2009. This appears to be a clear example of spectrum squatting leading to huge losses to the government exchequer in terms of revenues to be earned out of license fee, spectrum charges, service tax and USO fund contribution. In the case of 3G it may be argued that a 3G winning bidder who pays a substantial amount for 3G spectrum would want to deploy the spectrum to start earning revenues. However, it is also likely that the 3G winning bidder may want to sit out in the wait for a capital gain and in the process lead to losses to the government. As demonstrated above, the total loss to government on 20 MHz 3G spectrum can amount to Rs 9000 crores. On a per player basis, this would amount to Rs 2250 crores.
 - o In this respect some of the following deterrents can be built into the policy framework such that spectrum squatting does not lead to losses to the government:
 1. Introduction of a spectrum trading charge such that sale of spectrum and its subsequent transfer results in a fee payable to the government
 2. Closure of loop holes like issuance of fresh equity for fresh capital, which can be subsequently en-cashed by issuance of bonus shares and their sale

3. A clear re-write of the subjective and arbitrary rollout obligations, which are open to various interpretations by the operators
 4. Introduction of a fee, which becomes due to the government, whether or not the 3G winning bidder deploys the spectrum or not. This fee should take into account the 20% revenue that the government earns from usage of spectrum
 5. Apply the same yardstick to the 2G spectrum holders to pay up for spectrum squatting.
- o 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. Also, this fee needs to be announced before 3G auctions such that various bidders can include it in their business model and determine the bids they would like to place.



Issues for Consultation

1. What should be the quantum of spectrum in the 800 MHz band that should be put up for auction?

As far as total spectrum to be auctioned is concerned, apart from 122 licenses, as detailed in point number 1 there are 57 additional licenses issued and subsequent spectrum allocation done post 10 January 2008. These 57 licenses issued and subsequent spectrum allocated must be cancelled and quashed, respectively. Therefore, total spectrum issued post 10th January 2008 is 673.2 MHz and not 473.6 MHz. The estimated cost of this missing 200 MHz ranges from Rupees 20,000 crore upwards.

We believe that if no action is taken, it would lead to a skewed level playfield in favour of Aircel, Idea, Vodafone, Reliance and Tata. Most importantly, the spectrum to be auctioned should be increased to the amount vacated and not artificially rationed and hoarded by the government in the name of re-farming, eviction. It is essential that entire spectrum vacated by all cancellations of 179 licenses must be put for auction to avoid creation of artificial scarcity.

2. What should be the block size in the 800 MHz band?

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.

3. Should the value of 800 MHz spectrum be derived on the basis of the value of 1800 MHz spectrum using technical efficiency factors?
4. Is there any case for application of a lower efficiency factor (1.3) over the valuation of 1800 MHz spectrum, for determining the valuation of 800 MHz, as was done in the previous auction? If yes, give detailed reasons for the same.

Answer for Question 3 & Question 4

In our view it would not be appropriate to use valuation of 1800 MHz spectrum as the basis for this valuation exercise. Linking this auction to calculate the valuation of spectrum to the 1800 MHz band spectrum price is arbitrary, irrational and illogical. Each band of spectrum must find its own level of economic and commercial level. We have to have objectivity of purpose and not subjectivity.

5. Should the value to be paid for 800 MHz spectrum be based upon the potential growth in data services? If yes, please state whether you agree with the assumptions made.

Yes, 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. The 800 MHz band is very much suited for deployment of LTE technology, which is believed to be superior to 3G technology as well. **It may be noted that substitutability of 800 MHz and 1800 MHz spectrum will be possible when 800 MHz is deployed for LTE.** And, there is some degree of technical efficiency which can be achieved with 800 MHz spectrum as well. The 800 MHz band does have the benefit of certain inherent transmission characteristics which are suited for the anticipated spurt in data usage as well. As far as the assumptions which have been made are concerned, we do not support the view that there will be a burdensome or substantial additional network operating and maintenance cost involved for deployment of technologies in the 800 MHz band.

6. Should the value of spectrum in the 800 MHz band be assessed on the basis of producer surplus on account of additional spectrum? If you are in the favor of this method, please furnish the detailed calculations and relevant data along with results.

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 favor 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.

7. Should the value of spectrum in the LSAs in India for 800 MHz be determined by utilizing the data on international prices? What other variables do you suggest for arriving at robust value estimates using the multiple regression approach? Is there any alternate approach for valuation of spectrum in 800 MHz using the data on international auctions?

We are not in agreement with the proposal that value of spectrum in the LSAs in India for 800 MHz be determined by utilizing the data on international prices, considering "broad similarity in market and economic conditions" is difficult to empirically evaluate and there is scope for evolving an independent methodology to determine spectrum cost. Our suggestion with respect to approach for valuation of spectrum in 800 MHz is encapsulated in our response to the next question.

However, we strongly advocate wider technology deployment in the 800 MHz band beyond CDMA, and would like to cite success stories from international jurisdictions to the same end. The 850 MHz band is also among the prominent LTE bands with an impressive eco-system of 189 devices. Operators in South Korea have recently launched LTE in 850 MHz and 1800/2100 MHz band by deploying carrier aggregation technology. Carrier aggregation being a recent development, it is expected that in future more number of networks will be rolled out using a combination of carriers in 850/1800/2100 MHz spectrum bands. Philippines is another country where LTE services have been commercially launched in the 850 MHz band.

We believe that the same can be replicated in India to the benefit of consumers, if the 800MHz band is made open to LTE services.

8. Apart from the approaches discussed in the paper, is there any alternate approach for valuation of spectrum in 800 MHz that you would suggest? Please support your answer with detailed data and methodology.

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 analyze 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 DATA²

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 ¹ (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, totaling Rs. 1659 crore pan-India. There were four pan-India operators at the time. In the table below, we have analyzed the spectrum cost involved.

TABLE 2- SPECTRUM COST INVOLVED³

Cost Element	Amount (in INR crore)
Pan-India entry fee paid by 4 operators in 2001	7000 crore (approximated)
EMI per month at 1% for 20 years	70 crore
Monthly Book Value (taking into account depreciation and	45 crore

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

² 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.

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

capital amortization)	
Per day spectrum cost	1.5 crore

We now examine the correlation between this spectrum cost paid by the operators vis-à-vis the actual performance indicators of the telecom data contained in Table 1 above. We have 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 2007⁴

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

⁴ Id. At Citation 3 above.

⁵ Derived from the value contained in Table 2 contained herein above

⁶ Based on a multiplier of the MoU per day and the GSM subscriber base

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.

9. What should be the ratio adopted between the reserve price for the auction and the valuation of the spectrum? Would it be optimal to fix reserve price equal to valuation of spectrum?

In view of our arguments presented herein above, we do not see any merit in adopting a specific ratio. It is quite evident that the present day cost of spectrum is quite negligible in absolute terms in the context of the entry fee which had been paid up-front in 2001.



