

UMTS Forum

Title: Response to the Telecom Regulatory Authority of India (TRAI) Consultation on Spectrum related issues: Efficient Utilisation, Spectrum Allocation and Spectrum Pricing

Document Number SG 47-50Rev3

Draft 15.7.2004

UMTS Forum Response

To the TRAI Consultation

‘Spectrum related issues: Efficient Utilisation, Spectrum Allocation and Spectrum Pricing’

The UMTS Forum congratulates Telecom Regulatory Authority of India (TRAI) for the comprehensive and informative consultation document.

The Forum represents a significant group of spectrum users, which are directly interested in the development of public mobile networks, including UMTS/IMT-2000 and, especially, the related spectrum topics. The UMTS Forum gathers all the kinds of players involved in third generation mobile systems, including equipment manufacturers, operators, administrations, service providers and software developers.

The UMTS Forum welcomes the opportunity to comment to the TRAI consultation concerning the spectrum related issues of public mobile networks in response to the following questions:

The Forum fully understands the claims of some operators in India to gain more spectrum for the current infrastructures but we would like to motivate TRAI to make a strategic decision towards 3G/IMT-2000/UMTS with the assignment of new spectrum in the harmonised IMT 2000 bands. The Consultation addresses this issue so the UMTS Forum feels obliged to respond from its viewpoint emphasizing the important value of a worldwide harmonised band for mobile communications in future:

- ?? IMT 2000 spectrum was discussed for many years worldwide, as IMT 2000 was and still is understood as the largest project ITU ever had on its agenda. The spectrum identified for IMT-2000 spectrum – especially the so called WARC-92 bands (1920-1980 / 2110-2170 MHz) are the result of a consensus process. The process includes radio technologies that fulfil harmonised service listed in ITU-R M.1457, which form the family of coexistent technologies recommended to be deployed in the IMT 2000 bands.
- ?? Today’s 2G bands are also identified for IMT-2000 use, however, the transition to IMT-2000/UMTS in these bands will take place later. This is at least the consensus in the industry and on the ITU side preferring a coordinated approach for mobile communications.

?? The worldwide largest mobile manufacturers and operators, which joined the UMTS Forum, have done comprehensive harmonisation work on spectrum issues for 3G, especially IMT2000/UMTS.

?? We therefore recommend strongly to TRAI to stay with the worldwide consensus achieved so far and to reserve the whole IMT-2000 'core band' 1920-1980 /2110-2170 MHz for IMT-2000/UMTS technologies. Introduction of any other band plans adjacent to the 'core band' would require guard bands and, in addition, additional costs to operators due to tight additional filtering and also additional base stations to recover the impaired coverage due to the losses in these filters.

IMT-2000/UMTS provides combined voice and data services in more spectral efficient manner than any other wide area mobile cellular system has done before. More than 130 new licenses were granted to operators until today, more than 30 networks are in operation with more than 6 million users. Such technology should not be prevented from India. The Forum studied the minimum amount of spectrum per operator under the assumption that voice and also multimedia services should be offered in an integrated way and the outcome is, that the optimum minimal spectrum per 3G operator should be 2 x 15 MHz + 5MHz. But there are also possible initial offerings(with some restrictions), if 2 x10 MHz would be offered. This band assignment would allow in India that six operators could get IMT-2000/UMTS spectrum, being able to prepare for the future, not needing additional 2G spectrum anymore. The Forum, therefore, recommends TRAI and the Indian government, to make allocations for IMT-2000/UMTS soon according to the global band plan B1 in ITU-R M.1036.

Chapter 2: Current spectrum availability and requirement

(i) Should the 450 MHz or any other band be utilized particularly to meet the spectrum requirement of service providers using CDMA technology?

The current trend in spectrum assignments is towards technology neutrality and no new band should be reserved for one technology only. Based on this, no new bands should be reserved for systems using exclusively CDMA technology but all possible new bands should be open for any suitable technology.

Regarding the 450 MHz band, the Forum sees it useful for operators as a coverage band due to more beneficial propagation characteristics than in the higher frequency bands. The amount of spectrum that could be made available from 450 MHz is not sufficient to really fulfil the operators' capacity needs, at least for more than one (or maximum two) operator(s).

In general, the best way to fulfil the spectrum needs of CDMA networks would be to assign part of the IMT-2000 core band (1920-1980/2110-2170 MHz), based on their relative success compared to other networks/operators interested in this band.

(ii) The consultation paper has discussed ITU method for assessment of spectrum requirement. Based upon the methodology submit your requirement of spectrum for next 5 years. While calculating the required spectrum, please, give various assumptions and its basis.

As the consultation document states, the ITU methodology was created for WRC-2000 to estimate the total frequency demand for IMT-2000/3G networks. The methodology suits for this kind of very general calculation and the assumptions are correct. The Forum has some doubts of using the same methodology for the calculation of operators' spectrum, as the results are given in the form of total estimated traffic, which is then transferred to the required spectrum assuming general network planning principles. The method does not give any guidance of, how the traffic is divided between different operators, which is the main question to be answered. Also, the results depend strongly (or totally) of the initial assumptions. Users can easily choose assumptions that fit to their

purposes but the result reflects only assumed total traffic (and based on this, the amount of spectrum) at a certain place. The Forum believes that the operator spectrum amount should be based on other means, e.g. together on the relative market share, development of subscriber numbers, carried traffic (if this information is available) and their forecasted development.

For instance, the Forum has estimated that a good start up IMT-2000/UMTS spectrum is 2x15 MHz (+5 MHz for TDD), which would give an operator a firm basis for the network development. The possible further spectrum could later be evaluated by the development of networks, by comparing the success and assumed developments of the competing networks. However, there seems not to be any generically applicable method for this kind of evaluation, which depends on the situation in an individual country.

(iii) Whether IMT-2000 band should be expanded to cover whole or part of 1710-1785 MHz paired with 1805-1880 MHz?

The whole band 1710-1785/1805-1880 MHz was identified as an IMT-2000 band in WRC-2000. However, as in many countries (as also partly in India) the band is currently occupied by a number of existing public mobile networks, the time schedule for its availability in a wide scale for IMT-2000/UMTS is uncertain. This means that the time schedule for equipment availability for this band is not yet known either. So, later in the future, this band will be widely used for IMT-2000/UMTS but it cannot replace the IMT-2000 core band from equipment availability or roaming point of view.

(iv) Should IMT-2000 spectrum be considered as extension of 2G mobile services and be treated in the same manner as 2G or should it be considered separately and provided to operators only for providing IMT-2000 services?

IMT-2000 spectrum should be considered independently from 2G networks, e.g. both 2G and non-2G operators should be allowed to bid for the IMT-2000 spectrum.

Regarding services, it would be difficult to separate between 2G and IMT-2000 services, as they partly overlap and, also, more and more differ between operators pending on their business models.

(v) Reorganization of spot frequencies allotted to various service providers so as to ensure the availability of contiguous frequency band is desirable feature for efficient utilization of spectrum. Please, suggest the ways and means to achieve it.

Wider frequency blocks would be more spectrum efficient and give more flexibility for operators in their networks operation. Reorganization of the current operators blocks should be done as soon as possible as it would benefit all operators concerned. It should be planned in cooperation with the operators concerned.

(vi) Whether the band 1880-1900 MHz be made technology neutral for all BSOs /CMSPs / UASLs and be made available with the pair 1970-1990 MHz or should it be kept technology neutral but reserved for TDD operation only?

The band 1880-1900 MHz should be reserved for TDD technologies within IMT-2000 family members listed in ITU-R M.1457, in line with the countries that have applied the IMT-2000 core band plan. The studies within UMTS Forum, e.g. Report #5 have shown that TDD component may have a vital role, especially, in providing capacity in hot spots. Pairing this TDD band with 1970-1990 MHz would, in addition, create a totally new band arrangement that is not in line with ITU-R M. 1036,

Chapter 3: Technical efficiency of spectrum utilization

(vii) Please offer your comments on the methodology outlined in this chapter for determining the efficient utilization of spectrum. Also, provide your comments, if any, on the assumptions made.

First of all, the Forum would like to congratulate TRAI on the extensive and comprehensive study on the topic. However, as this good-quality study shows, clear conclusions cannot be drawn based on the theoretical considerations. All studied networks are built quite well and spectrum efficiently – there can be differences but it will be difficult to say that a particular network has not been built spectrum efficiently, as the operators’ business model or status can be different: A new entrant may need to focus on coverage, where another operator may concentrate on providing capacity. On the other hand, all operators could deploy more micro and pico cells, which would increase their networks’ capacity but also the cost of networks building.

The Forum view is that this kind of theoretical consideration is only valid, when comparing carried traffic in networks using the same technology in exactly the same geographical area during their busy hour. The achieved information is the carried traffic but it may still not tell, how efficiently the network is built, as the gathered information does not tell, if there is still capacity left or is the whole capacity in use already.

On the other hand, operators’ business case contains a numbers of options: One option is spectrum, as additional spectrum (if the price is at a reasonable level) is usually the most economic way to increase networks capacity. Other options include smaller cells but this also increases operators’ costs, especially, if the network is not planned for Micro/pico cells from the beginning or if there is not enough spectrum for a separate micro/pico cell layer. And always, when more cells are introduced, new sites will create additional costs.

(viii) Please provide your perception of the likely use of data services on cellular mobile systems and its likely impact on the required spectrum including the timeframe when such requirement would develop?

Increased provision of data services should be the plan for each operator. In the beginning the focus may be on the voice services, especially, if the availability of fixed telephone services is limited but the clear trend is towards data services and the basic data features are already included in all equipment. The Forum strongly believes that all networks will provide some kind of data services in the long term.

Chapter 4: Spectrum pricing

Before answering questions (ix) to (xvii), the Forum would like to comment on Section 4.0 because it mentions seven basic objectives a) to g) for spectrum pricing, and any spectrum pricing policy is primarily determined by the goals it pursues:

a) “Promote spectrum efficiency”

This goal is perfectly necessary, provided something is clarified. Since spectrum is a scarce resource for society, in a given situation, solution A is more efficient than solution B if solution A leaves more spectrum to others than solution B. Spectrum is “saved”, inasmuch as it is usable by other users. Therefore, when spectrum is allocated by fixed amounts the size of which the recipient cannot negotiate, presenting a pricing method as an incentive to spectrum efficiency makes little sense.

The consultation document also mentions that there are areas where spectrum supply is greater than demand (Section 5.8.1). In such cases, there is no reason for a pricing method differing from recovering administrative costs, and the Forum does not see any meaning in the concept of “technical efficiency” which would justify any pricing other than administrative cost recovery.

b) simplicity and transparency

These goals are justified, provided that it is understood they are not primary goals, but rather qualities of the spectrum pricing process

c) Cost recovery

If this means recovering administrative costs, this goal is universally recognised as justified for commercial spectrum (and a majority of non commercial spectrum).

d) Reflecting market value of spectrum

The word "Reflecting" and the whole expression are not very explicit, but if this means bringing the value of spectrum into commercial mechanisms, it is definitely one of several possible means for improving spectrum efficiency and, ultimately, bringing benefits to society.

e) Promoting competition

Promoting competition is definitely an important goal in general.

f) Increasing rural roll out;

This social goal is definitely a essential goal

g) Raising government revenue

In itself, this is a perfectly possible goal, and acceptable in today's society, provided we understand that it is a goal which can have negative impacts and will call for compromises.

(ix) Is there a necessity to change from the existing revenue share method for determining the annual spectrum charge?

To answer this question, first of all, we would like to comment on the difficulties mentioned in the consultation paper in Section 4.3.2-a), b) and c)

a) It is true that when the network matures, the levy increase necessarily restricts the infrastructure and tariff reduction.

b) It is stated that the fact that the fees are low in the early stages of the network rollout "*does not provide any significant financial incentive to use spectrum more efficiently*". In fact the low level of levy (2% of AGR) is not the cause of low incentive. The real reason is simply that any levy based on an AGR percentage is not an incentive per se. Since trying to be spectrum efficient does not modify the levy, efficiency cannot improve the operator's financial situation.

On the contrary, since spectrum efficiency has a cost ("*more base stations*" as rightly mentioned in first paragraph of Section 4.1.1.1), trying to be more spectrum efficient would be counterproductive in this case. However, when approaching network saturation (in the case of twice 4.4Mhz), an incentive appears since at this point the operator can try avoiding the increase from 2% to 3% of AGR. As a general rule, even if it is high, an existing expense, which one cannot avoid, is never an incentive to save. It is the desire of avoiding a future expense (or avoiding an expense increase), which can be an incentive.

Hence, the current increasing percentage system is an incentive only when the operator approaches the saturation point, and definitively not when it just received spectrum. Purely in terms of spectrum efficiency, the first levy percentage should have been zero.

c) It is true that inasmuch as AGR is roughly a measure of the operator's economical efficiency, it is probably the most efficient operators, which are penalised. Charging per MHz used is much better and this is the AIP/Administrative Incentive Pricing method

In conclusion, the current revenue sharing system does not seem to be the most adequate.

(x) If yes, what methodology should be used to determine spectrum pricing for existing and new operators? (Please, refer table in Section 4.8)

Most of the Forum's members are not familiar with the Indian domestic situation, and have no opinion about the possible goal of *'raising government revenue'*. Therefore, our reply will not mention this goal, or only from a purely theoretical point of view.

Auctions seem to be the least adequate method, either for existing operators or new entrants. In the case of auctions, bidders raise their bid as long as they still see a benefit. The winner(s) are those who most value the benefit they can draw from the auctioned spectrum, but:

- all this estimated added value is automatically taken away from them and given to Government, and neither they nor the users will benefit from this added value
- the past experiences show that in many cases, players overestimate the benefits, and the auction goes to levels which hamper the players' subsequent development, or bring them to bankruptcy
- those prone to overestimation are the least experienced, i.e. new entrants, and their bankruptcy will leave incumbents alone, to the detriment of competition

Among the proposed formulae, cost recovery and/or AIP are preferable. Furthermore, one time entry fees, if they mean an up-front payment are particularly detrimental for those who have to deploy a new network and even more so when they are new entrants.

The possibility of secondary trade is not evoked in this section but could definitely also be used for pursuing spectrum efficiency. In the case of cost recovery and/or AIP, one possibility could be to grant the right of trading after a certain number of years.

(xi) In the event AIP is adopted as a means to price spectrum, would it be fair to choose GSM as a reference for determining the spectrum price?

This question is specific to 2G networks operations, and it is unsure that CDMA is the most efficient technology (what type of CDMA?); also, costs issues are in fact dependent on local and operator specific factors. Therefore, the Forum cannot provide an answer.

(xii) Please, provide your comments on the assumptions used in A.I.P.

Section 4.4.1.1 rightly states that AIP should be an incentive to saving spectrum only in areas where there is some spectrum scarcity and that the right principle is considering the cost implications for the operator of adding or subtracting quantities of radio spectrum.

This being said, as mentioned in the previous question, the Forum cannot debate placing the different technologies on an equal footing by different AIP calculations reflecting specific Indian economical contexts.

(xiii) In case of Auction methodology is used for pricing the spectrum, please, give suggestions to ensure that spectrum pricing does not become very high and spectrum is available to those who need it.

The Forum would like to mention that in addition to the problem mentioned in question (x), auctions usually do not create incentive to save spectrum. Auctions are usually based on a fixed amount of spectrum. Once an operator has become indebted through its spectrum acquisition, since a spectrum efficient network is more expansive than a non efficient one, the operator is not spurred to spend more than necessary. Furthermore, since this operator is not allowed to surrender its spectrum regardless of any efforts on its part to become more efficient, these would not provide more spectrum for the rest of society, which would have been the sole purpose of being efficient in the collective context of scarce resources.

Unless auctions are divided and organised carrier per carrier, or small amount per small amount of spectrum, and unless one can surrender spectrum against remuneration, auctions are no incentive to spectrum efficiency (furthermore, preserving the network frequency plan coherence must prove difficult to organise). Usually, auctions do not ensure spectrum efficiency. On the contrary, they are usually an incentive to use spectrum loosely when the spectrum price deprives the operator of the means of investing in a more spectrum efficient network.

If auctions are used by TRAI in spite of the problems they represent, the Forum recommends that separate auctions be organised for new entrants first, then for incumbents. This is to avoid influencing new entrants and tempting them to equal the price levels reached by incumbents. For similar reasons of escalation, sealed bids are better for new entrants.

The reserve prices should be based on cost recovery. The statement that the reserve price should be “at a level that ensures that spectrum cannot be won cheaply” makes little sense. One should accept the verdict of market forces (unless the goal is to maximise government revenue).

(xiv) Should the new pricing methodology, if adopted, be applicable for the entire spectrum or should we continue with revenue share mechanism till 10+10 MHz, and apply the new method only for spectrum beyond this?

Revenue sharing is not an incentive to spectrum efficiency, and where there is no scarcity, no other pricing than cost recovery is justified (unless government revenue is at stake). Therefore, it seems that the current revenue sharing system cannot be kept.

(xv) What incentives be introduced through pricing to encourage rural coverage and/or using alternate frequency bands like 450 MHz?

Rural coverage by whatever bands, if deemed non profitable, can be better ensured by universal service funding rather than simply adapting spectrum pricing, or even bringing this price to zero. Universal service funding would be a financial contribution to an operator which covers an area with mobile service, to be made by those operators which do not cover the said rural area. The net cost of providing mobile service at an affordable customer price, incurred by the universal provider, would thus be shared between all telecommunication providers which benefit from this coverage when they handle calls terminating in, or originating from, such areas. The universal provider can also be compensated by public funds. Such a mechanism is already in place in the European Union for the fixed service (EU directive 2002/22¹) and the possibility to have the same framework dealing with mobile service will be examined in 2005.

¹ European Parliament and Council Directive 2002/22/EC of 7 March 2002, on universal service and users' rights relating to electronic communications networks and services (Universal Service Directive), OJEC 24.02.2002.

(xvi) Does M X C X W formulae for fixed wireless spectrum pricing need a revision? If so, suggest the values for M, C, W?

This question is a bit too specific to the Indian situation for the Forum to give an appropriate answer.

(xvii) Should there be different pricing levels for shared spectrum versus spectrum that is allocated with protection? How should this be determined?

Having no such shared spectrum, but rather exclusive spectrum with spectrum efficiency incentives instead, is certainly better for mobile service. If there is some shared spectrum, lower pricing seems logical.

Chapter 5: spectrum allocation

(xviii) How much minimum spectrum (refer approach (I) and (II) in section 5.4) should each operator be provided? Give the basis for your comments.

In general, this concept of 'minimum spectrum/operator looks quite theoretical concept and it is difficult to see, how it could improve spectrum efficiency. On the contrary, an automatic procedure to gain more spectrum without a comparison with other networks would lead to an over-estimated spectrum requirements, as the total traffic remains the same in spite of higher number of operators.

There is no agreed value for the minimum amount of spectrum for each operator but, in practice, the amount is usually determined by the amount of available spectrum and number of wanted operators. Operators can gain additional spectrum based on the success of their networks, if there has been spectrum available. The success of a network can be measured e.g. by $Erl/(km^2MHz)$. The number of subscriber is only one indication of the success but cannot be taken as the only basis for the additional spectrum.

The amount of total spectrum needed should be based on the forecast traffic e.g. in Delhi, which is probably the most congested area in India. To carry out this traffic requires a certain amount of spectrum (calculated e.g. by the ITU-R methodology). In the case of Delhi the amount of total 2G spectrum (all GSM + CDMA800) is 2x68.4 MHz. If the forecast traffic requires e.g. 2x60 MHz, the spectrum requirement should be about the same despite the number of operators and the problem is to ensure that successful operators have enough spectrum. Of course, this is not an easy task to estimate. The system of 'minimum spectrum/operator (10 MHz) requires (No of operators x 10 MHz), which is more than 60 MHz, if the number of operators is higher than 6. Therefore, the Forum does not see any justification for the minimum spectrum that each operator should be provided – in the contrary, this concept can lead to inefficient use of spectrum in the case of big number of operators.

Regarding IMT-2000/UMTS initial spectrum per operators the Forum recommendation is 2x15 MHz (paired) and 5 MHz (unpaired). The reasoning for the recommendation is given in the Forum Report #5. This consideration is, however, only valid for the initial phase of 3G/IMT-2000/UMTS services in the condition of wide high bit rate data services.

(xix) At what stage the amount of spectrum allocation to new entrants be considered in the 800 MHz / 900 MHz / 1800 MHz frequency bands?

The priority should be in giving additional spectrum for existing operators.

(xx) Should spectrum be allocated in a service and technology neutral manner?

The new spectrum assignments in IMT-2000 bands (as identified by ITU-R) should be made for IMT-2000 technologies that are listed in ITU-R M.1457. This would give flexibility for operators, benefits of harmonization and ensure the future development and evolution of the current 2G networks.

(xxi) What should be the amount of cap on the spectrum assigned to each operator?

The IMT-2000 band(s) should be made available in 10-15 MHz blocks. There is no need for a 'generic cap' neither within 2G spectrum, IMT-2000 spectrum or in combination of these two.

(xxii) What procedure for spectrum allocation be adopted for areas where there is no spectrum scarcity and in areas where there is scarcity?

The Forum believes that the same procedure for spectrum allocation can be used for both areas. The best option for operator networks deployment would be to assign nation-wide blocks. This would also support spectrum efficiency.

(xxiii) Which competitive spectrum allocation procedure (Auction / Beauty Contest) be adopted in cases where there are scarcity?

The Forum supports beauty contest in all cases, as it gives a possibility to evaluate the licensee candidates and to choose the best ones.

(xiv) Should we consider giving some spectrum in 900 MHz band to fourth CMSPs?

Usually, it is more beneficial to assign more spectrum for the existing operators, as a big number of operators does not automatically increase the benefits of additional competition but may lead to unhealthy competition with the result of a smaller number of operators in the end. A new CMSP can be considered, if there is available spectrum after fulfilling the need of existing operators

(xxv) Comments of stakeholders are invited on the minimum blocks such as 2x2.5 MHz / 2x5 MHz of additional spectrum to be allocated to existing service providers in situations where IMT-2000 band is opened as well as in situation where it is not opened. Additionally, comments are also invited on the minimum allocation to new entrants.

A minimum block size for IMT-2000 networks is 2x5 MHz to be technology neutral and facilitate all ITU IMT-2000 technologies. Regarding IMT-2000/UMTS initial spectrum per operator the Forum recommendation is 2x15 MHz (paired) and 5 MHz (unpaired). The reasoning of the recommendation is given in the Forum Report #5. The minimum spectrum applies for both existing operators and new entrants.

(xxvi) In the event that IMT-2000 spectrum is treated as continuum to 2G, should existing operators using spectrum below the specified benchmark be treated as those eligible from IMT-2000 spectrum?

All applicants should be treated in an equal manner.

Chapter 6: Re-farming, Spectrum trading, M&A and Surrender

Refarming

(xxvii) What approach should be adopted to expedite the refarming of 1800 MHz and IMT-2000 spectrum from existing users?

The review of possible means and procedures for refarming (Sections 6.1 and 6.2) seems very complete. Nevertheless, the Forum may not be in a very good position to answer this domestic question, since most of our Members do not know who the current spectrum holders in those bands are, what the current applications are, what stage in their life-cycle these systems are at, etc.

(xxviii) What approach should be adopted for refarming of spectrum after expiry of license?

This depends of the circumstances at the expiry. If the spectrum assignee does not request an extension the related spectrum should be reassigned according to the current spectrum allocation regime and policy. If the holder applies an extension, it should be given the opportunity to do so several years before.

Surrender of spectrum

(xxix) Should there be any refund for spectrum surrender in principle?

This is specific to the previous fee regime. The Forum is not fully aware of what this regime was and prefers not to answer this question.

(xxx) Should there be refund for spectrum surrender consequent to Unified Access license policy? If yes, what should be the basis?

The Forum is not sufficiently aware of the Unified Access policy to be in a position to reply to this question

(xxxi) How should the amount of refund be estimated?

No reply (see above)

Spectrum trading

(xxxii) Should we open up the spectrum market for spectrum trading? If yes, what should be the time frame for doing so?

The Forum recommends that spectrum trading be opened because this is certainly a way to improve spectrum efficiency and adapt supply and demand precisely and quickly, in terms of time, space, and frequencies. In particular, real market forces are very preferable to regulated allocation, especially, when it comes to the complex Indian situation. The complex mathematical regulations proposed in the consultation document for a spectrum pricing system attempting to capture fairly the various economical and technical situations of the various operators, technologies, environments, etc have their limitations. They will never be as good and quick as direct commercial negotiations between the interested parties.

(xxxiii) What are the pre-requisites to adopting spectrum trading?

The Forum thinks that the first spectrum trading experiments in the world show that the transition from regulated spectrum to traded spectrum should be carefully prepared, and be implemented gradually within an adequate legal framework. For instance, the flexibility provided by spectrum trading may have to be the subject of compromise in situations where it can erase the benefits of standardisation.

Everyone the world over is experiencing a learning curve in this field, and the Forum expects to have the opportunity to observe spectrum trading developments in India.

Mergers and Acquisitions

(xxxiv) Whether we should specify a cap higher than 2x15 MHz for Metros and Category 'A' service area and 2x12.4 MHz for Category 'B' service area in case of M&As or should it be retained?

The consultation document evokes a likely type of mergers, which could create unbalanced and unfair situations where the merged entity would have access to more spectrum than needed. The Forum does not have a detailed enough vision of the Indian context to allow it to assess the likeliness and seriousness of this threat. However, pervasive mergers can certainly create near monopolies or lead to strategies akin to spectrum hoarding and the Forum admits that regulators should keep this type of situation under control, whether it builds up through mergers or spectrum trading.

(xxxv) In case, IMT-2000 is considered as a continuum of 2G services, is there a need to have a cap higher than that without IMT-2000 services? Should there be individual caps on 2G and 3G spectrum or a combined cap?

IMT2000, whether you consider it through the technological families it encompasses, or the new services it offers, is to a certain extent, always a continuum from 2G, 2.5 G... Nevertheless, since mobiles will need spectrum increasingly, they as a whole are bound to be allocated more and more spectrum, and any cap should also follow this trend.

In case of M&As where the merged entity gets spectrum exceeding the spectrum cap, what should be the time frame in which the service provider be required to surrender the additional spectrum?

This seems to be a decision to be taken on a case per case basis by the regulators or competition authorities.

(end of Response document)