

The Chairman,
Telecom Regulatory Authority of India
Mahanagar Door Sanchar Bhavan,
Jawahar Lal Nehru Marg, (Opposite Ram Lila Ground),
New Delhi 110002

Dear Sir,

Subject: Comments on Consultation paper on Overall Spectrum Management and review of license terms and conditions dated 16th Oct 2009

We welcome the opportunity to respond to the Telecom Regulatory Authority of India's (TRAI) Consultation Paper on `Overall Spectrum Management and review of license terms and conditions`. We appreciate TRAI for this excellent consultation which will help in policy development for future telecom licensing and spectrum issues.

Please find below our selective response to the consultation paper.

We would like to participate in any case any further opportunity is provided to discuss these issues. Also, we are available for discussions in taking some of these recommendations forward.

Yours Sincerely,

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Disclaimer: Please note that the views presented in the paper are of the students and not of the Institute.

Spectrum Requirement and Availability

1. Do you agree with the subscriber base projections? If not, please provide the reasons for disagreement and your projection estimates along with their basis?

Yes we agree with the subscriber base projections. Till now the estimates have been beaten by the actual growth of subscribers. So the authority must be prepared for the much faster report.

2. Do you agree with the spectrum requirement projected in ¶ 1.7 to ¶1.12? Please give your assessment (service-area wise).

We agree with point number 1.7. Teledensity has already hit 100% in some of the metros.

We agree with the point number 1.8.

For point number 1.9, we do not agree to it in entirety.

- For the above estimates the authority has assumed that **in future** Internet Telephony (VoIP) will not be allowed from IP to PLMN/PSTN and vice versa in the given service area.
- Any positive changes in regulations in VoIP can lead to WiMAX (and 3G) also serving voice subscribers. To predict the actual number of subscribers the authority should publish the estimates for WiMAX and 3G subscribers and how it plans to go ahead with internet telephony (from PC to Phone and Phone to PC etc).
- Considering that the authority has already come out with a consulting paper on NGN and we predict Telecom Operators taking NGN and positive steps taken for VoIP, we estimate that load on spectrum (800 MHz, 900 MHz and 1800 MHz) to be less than estimated.
- Considering that Internet Telephony from IP to IP (i.e. PC to PC) is allowed under the current regulations, we believe the same to be applicable on WiMAX handheld devices. If the number of WiMAX subscribers becomes very large, even without making any changes in regulations related to Internet Telephony, WiMAX will be able to serve large number of voice customers.

We believe that with proactive steps by the authority, the frequencies to be auctioned (2.1 GHz, 2.3 GHz and 2.5 GHz) can also serve significant number of voice customers. The authority must explore this option by interacting with Telecom Service Providers and WiMAX bidders and explore the options of **separate regulations for voice (VoIP) to be provided over Wireless Broadband.**

We agree with point number 1.10.

We agree with point number 1.11. We need clarification from the authority that though the authority mentions that the frequency in 700 MHz is largely unused (1.18) but in table 5 it does not show it as likely additional available for telecom by 2014. The auction of this frequency has already been conducted in countries like USA (Auction 73 ; March 08) ¹

We agree with point number 1.12 though with some difference mentioned above.

3. How can the spectrum required for Telecommunication purposes and currently available with the Government agencies be re-farmed?

We believe that proper planning by the authority can help telecom industry and consumers reap benefits from spectrum re-farming. But the Government will have to make sweeping changes in the present structure. The authority must first decide:

- Which frequency band does it see a band which will serve telecom industry for a longer term i.e. 10 to 25 years.
- Out of the 700 MHz, 800 MHz and 900 MHz band which band the authority see being appropriate band for UMTS and LTE. **If its 900 MHz then :**
 - **The Government must allow 3G on 900 MHz band along with 2.1 GHz.** The implementation of 3G has happened in many countries on this band (1.38 to 1.40). We understand that there is no spectrum available in the 900 MHz frequency band but if spectrum sharing is allowed then the industry can take the steps to utilize 900 MHz spectrum for the purpose.
- If the authority sees 700 MHz band as the appropriate band for future use then:
 - It must ensure it is freed up for the use of telecommunication.
 - Planning and Using 700 MHz frequency now will lead to better management of spectrum.
 - The authority must in coordination with WPC and Department of Telecom come out with the white paper on how it plans to utilize each frequency. **The decision of use of precious spectrum bands cannot be made on the case to case** (i.e. before allocation of 3G spectrum, before allocation of licenses to new 2G operator) **basis like how the authority is doing now.** The authority must come out with a 10 year plan for the same.
 - According to table 5, up to 84 MHz out of 108 MHz spectrum is occupied by Government and other commercial users. The Authority must ensure its release before giving it to the industry on whatever basis.
- As BSNL is building alternative infrastructure for Defense forces, it should also build infrastructure for other captive users as an obligation to its first use of the freed spectrum (First to launch 3G services and first to occupy WiMAX spectrum).

4. In view of the policy of technology and service neutrality licenses, should any restriction be placed on these bands (800,900 and 1800 MHz) for providing a specific service and secondly, after the expiry of present licenses, how will the spectrum in the 800/900 MHz band be assigned to the operators?

We believe this question to be the single most important question the consultation paper. We do not understand that even though the country has the provision of UASL license (Universal Access Service

License) but a separate license is required for NLD/ILD, ISP, VSAT, Cellular Services etc. We believe that all these telecommunication services should come under one license i.e. UASL.

Secondly, **we however firmly believe that there should not be restrictions on the bands to provide a specific service as allowing that would lead to a level playing field for all players.** Following are the points to be considered:

- CDMA operators are being allowed to provide 3G services on 800 MHz band. Allowing Service Providers to do the same on 900 MHz and 1800 MHz will lead to a level playing field. Even if the Government does not have any additional spectrum to give in 900 MHz and 1800 MHz, but by Spectrum sharing and other mechanisms like freeing up spectrum by the uptake of subscribers of UMTS services, the providers can use 900 MHz and 1800 MHz for providing all services in long term.
- Since the bands mentioned are IMT-2000 Bands and are used for 2G and 3G services around the world (1.38 to 1.42) we believe availability of equipment will not be a problem.
- UASL will become a Universal Access License in true sense. The Authority should ideally just decide the service to be provided and let the industry take a call on which technology to use to provide the service.
- Though, removing all restrictions has its benefits but it will create a sort of mess that means no particular frequency band for a particular service. Although that should not be the problem until the authority and the government plans in advance i.e. 10 to 20 years.

The Government can take one of the 5 ways to assign spectrum when it is freed up:

1. Put in the pool and then assign it to the players who need it. (Using auctions, beauty contest etc). – *No First Right of Refusal to Existing Users of that Spectrum*
2. Address it as a 3G frequency and auction it like 2.1 GHz.
3. Address it as a 3G frequency and reassign it to the original operators to be used for 3G.
4. Allow service neutrality and reassign it to the original operators to be used for 2G + 3G.

Option 1 Option 4 and Option 5 will be economically viable for the current operators of 900 MHz band as they will not have to shift their equipments in other bands. We believe option 4 to be the most suitable as it will bring UMTS in the 900 MHz band and will be cost effective for the current operators as well. We believe, **Existing Users of 900 MHz spectrum must be given First Right to it.**

5. How and when should spectrum in 700 MHz band be allocated between competitive services?

We believe that earmarking the 700 MHz frequency and allowing service and technology neutrality on 800, 900, 1800 bands along with allotment of 2.1 GHz, 2.3GHz, 2.5 GHz and planning the use of 3.3 GHz and 3.5 GHz when it becomes available will lead to very easy accessibility of telecommunication to 1 Billion population. **The Government plan properly with a view point of 10 to 20 years.**

For the allocation of the band, Cue can be taken from USA (Auction 73) or other western countries. Since many technologies are competing for 700 MHz band (initially the authority asked for consultation of WiMAX on 700 MHz ref Consultation paper on Allocation and Pricing for 2.3-2.4 GHz, 2.5-2.69 GHz & 3.3-3.6 GHz bands). **We believe 700 MHz band along with 800,900 and 1800 should be technology and service neutral.**

5. What is the impact of digital dividend on 3G and BWA?

As we know that lower frequencies has better propagation and are better for providing telecommunication services, we believe freeing up spectrum and providing services on 700 to 900 MHz would be far better than providing services on 2.1,2.3 and 2.5 GHz. The efficiency of these lower frequencies is 60-70% better than the frequencies up for 3G and BWA auction (1.17 and GSMA website). Any decision to use the lower frequencies will result in lower cost of deployment and thus will be beneficial to the end consumer.

Licensing Issues

Q1. Should the spectrum be delinked from the UAS License? Please provide the reasons for your response.

NO, provision of spectrum is necessary for the services. Hence whenever a new entity applies for a license the Telecommunication authority has to assure that required spectrum is available. In India UAS License provides you the

Q2. In case it is decided not to delink spectrum from UAS license, then should there be a limit on minimum and maximum number of access service providers in a service area? If yes, what should be the number of operators?

Yes, there should be a cap on number of service providers allowed to operate in a circle. Though competition often results into better customer services however as the reports and the Hirschman-Herfindahl Index (HHI) show the optimum number to be maintained is 4 , which i think is appropriate. There could be one state owned (BSNL/MTNL) operator and 3 private operators. Even if this is not implemented immediately, as the industry grows we will see the natural order of top 3 (power of 3) being established. However Indian market being such a diverse one we would have powers emerging circle wise.

Q3. What should be the considerations to determine maximum spectrum per entity?

There shouldn't be undue advantage to any operator irrespective of the its number of subscribers, technology used or private/public status of the operator. Maintain Fair-Play.

Special Case on Case basis Requirements can be considered. A 10 % extra spectrum can be assigned in such special circumstances. However deliberation is needed on the exact scope of these special requirements.

Q4. Is there is a need to put a limit on the maximum spectrum one licensee can hold? If yes, then what should be the limit? Should operators having more than the maximum limit, if determined, be assigned any more spectrum?

As mentioned above, yes the limit needs to be present to maintain equality which regulator has to oversee. Limits can vary depending on the circle, higher for metros and lower for rural (depending on the subscriber density being served). Ideal scenario would be to provide spectrum in metros to a particular which can serve close to 50% of the teledensity. Considering the number of 4 that we mention above it seems that 25% should suffice however metros normally have a greater than 100 teledensity figures and regulator should ascertain that scarcity of spectrum should never be a reason for the operator for not meeting the QOS.

Q5. If an existing licensee has more spectrum than the specified limit, then how should this spectrum be treated? Should such spectrum be taken back or should it be subjected to higher charging regime?

Spectrum provided under Special Circumstances mentioned above should be charged higher. If the authority feels that the operator doesn't necessary need the spectrum over the maximum limit it should be relocated back to the pool. Authority must maintain a firm stands against spectrum hoarding. One particular example is MTNL GSM spectrum in the Mumbai circle it is considerably higher than as required by the operator considering the number of subscribers its is currently serving. MTNL can argue that it will be adding more subscribers in future. This future needs to be given a specific date. If the operator fails to achieve the desired subscriber-spectrum ratio some of the spectrum needs to be pooled back

Q6. In the event fresh licenses are to be granted, what should be the Entry fee for the license?

The current structure is appropriate.

Q7. In case it is decided that the spectrum is to be delinked from the license then what should be the entry fee for such a License and should there be any roll out condition?

No Roll-out obligation should be enforced. The viability of such a model in under question.

Q8. Is there a need to do spectrum audit? If it is found in the audit that an operator is not using the spectrum efficiently what is the suggested course of action? Can penalties be imposed?

Absolutely, authorities need to be strict on the operators who do not use the spectrum a very scarce resource efficiently. Appropriate Penalties should be levied.

Q9. Can spectrum be assigned based on metro, urban and rural areas separately? If yes, what issues do you foresee in this method?

Yes the amount of spectrum allowed can vary according to subscriber density. Number of operators can increase in areas where lower subscriber density is present.

Q10. Since the amount of spectrum and the investment required for its utilisation in metro and large cities is higher than in rural areas, can asymmetric pricing of telecom services be a feasible proposition?

No asymmetric pricing is not a feasible option, since the service model has to be consistent across all platforms. The differentiation factor would be the number of subscribers being served rather than pricing differentiation, which wouldn't be fair to an urban consumer having the same voice services like a rural consumer but bearing the price of living in a geographically populated and developed area.

M& A

Q.1 whether the existing license conditions and guidelines related to M&A restricts consolidation in the telecom sector? If yes, what should be the alternative framework for M&A in the telecom sector?

Yes, existing license conditions and guidelines related to M&A restrict consolidation in the telecom Industry. Some of the conditions and guidelines that restrict consolidation are:

- I. Guidelines say that no merger between two companies can take place before three years from the effective date of license. In the present slowdown in economy there can be a need for a license holder to combine with another company to achieve the rollout as it may not be able to raise the fund from debt or equity. Although the reason for three years restriction may be to restrict the trading of license. According to us, DoT should permit case by case exemption to this rule.

- II. Under the competition Act 2002, mergers are regulated by Competition Commission of India. This act defines various parameters whether a business activity is competitive or not. It will be best if the regulatory gap between the DoT and CCI is avoided and decision regarding whether the merger is competitive or not should be left to CCI only.

Q.2 whether lock-in clause in UASL agreement is a barrier to consolidation in telecom sector? If yes, what modifications may be considered in the clause to facilitate consolidation?

Lock in Clause in UASL agreement is a barrier to consolidation in telecom sector. As the inefficient operators who lack the capacity and resources for innovation add little to the competitive dynamics and restrict efficiency. Competition between three or four players is better than inefficient 10 operators. Therefore, the provision of not allowing the operator to sell the equity for 3 years from the date of license should be overlooked. As it is also discouraging the foreign investment required for expanding in rural areas which may be required by Telcos by diluting equity shares

Q.3 Whether market share in terms of subscriber base/AGR should continue to regulate M&A activity in addition to the restriction on spectrum holding?

According to us, market share in terms of subscriber base/AGR should not continue to regulate M&A activity. Instead of it, maximum limit of spectrum should be the criteria to regulate M&A activity. According to which maximum limit of say 25 percent to be set up in each circle from the total allotted spectrum. According to it, no operator can hold more than 25 percent of the spectrum and cannot go for M&A if after M&A his spectrum share is more than 25 percent of the spectrum in that circle. This will not only help in restricting monopoly but also led to affective utilization of spectrum.

Q.4 whether there should be a transfer charge on spectrum upon merger and acquisition? If yes, whether such charges should be same in case of M&A/transfer/sharing of spectrum?

Yes, there should be transfer charge on spectrum upon merger and acquisition. If transfer charges will not be their, then some of the players will sell or merge their spectrum with other company making huge profit without rolling out a network. And we will see the similar case which was happened after 2G auctions when operators had sold their equity shares with other companies and earned a lot of profits. The charges should not be same for M&A/transfer/sharing. According to us, more transfer pricing should be their for M&A as compared to spectrum sharing and spectrum transfer. As spectrum transfer and sharing doesn't forbid competition but M&A forbid competition from the market.

Q.5 whether the transfer charges should be one-time only for first such M&A or should they be levied each time an M&A takes place?

Transfer charges should be one time only. Government sells the spectrum at subsidy to the company so that it is easy for the company to roll out the service which needs a lot of investment. But if company is merging or selling the spectrum then they are earning a lot of profit. In first M&A, spectrum has already sold or merged on market price and company is paying the government the transfer price. Therefore, it is not required by the company to pay transfer price again and again.

Q.6 whether transfer charges should be levied on the lesser or higher of the 2G spectrum holdings of the merging entities?

No Comments

Q7. Whether the spectrum held consequent upon M&A be subjected to a maximum limit?

Maximum limit of spectrum should be the criteria to regulate M&A activity. According to which maximum limit of say 25 percent to be set up in each circle from the total allotted spectrum. According to it, no operator can hold more than 25 percent of the spectrum and cannot go for M&A if after M&A his spectrum share is more than 25 percent of the spectrum in that circle. This will not only help in restricting monopoly but also led to affective utilization of spectrum.

Spectrum Sharing

1. Should Spectrum sharing be allowed? If yes, what should be the regulatory framework for allowing spectrum sharing among the service providers?

Yes, we feel the Indian Telecom industry has become mature enough and has needs which are grown over the years for the authority to take positive steps in the direction of spectrum sharing. Following are some of the key points regarding the same:

- The spectrum requirements are different for rural and urban areas. The load on spectrum is very high in urban areas.
- Spectrum Sharing will encourage active infrastructure sharing thus reducing cost which can be passed on to the customers.
- For sharing of spectrum, the telecom service providers have paid more or less the same amount of Fees to the Government for the amount of license they hold.
- Spectrum Sharing will encourage service and technology neutrality as a GSM player will be able to launch CDMA services by sharing the spectrum of a CDMA player and vice versa.
- The most beneficial companies will be PSUs. Considering the failure of 3G services by MTNL and BSNL, they will be able to share unused spectrum to other telecom service providers and cover cost.
- The Government must ensure that each and every Spectrum sharing deal is known to it and it earns certain revenues out of it. As ability to serve additional customers through

shared spectrum (though it may not have exclusive right over it) is may be considered equivalent to serving customers with its own spectrum.

2. What should be criteria to permit spectrum sharing?

No Comments

3. Should spectrum sharing charges be regulated? If yes then what parameters should be considered to derive spectrum sharing charges? Should such charges be prescribed per MHz or for total allocated spectrum to the entity in LSA?

Yes, Spectrum sharing charges should be regulated by the Government.

The important parameters for Spectrum Sharing Charges can be:

- a) Service Area i.e. A, B or C.
- b) Amount of Spectrum Shared.
- c) Number of Existing Subscribers. The more the number of subscribers the lesser should be the charges.
- d) Other parameters if any.

4. Should there be any preconditions that rollout obligation be fulfilled by one or both service provider before allowing the sharing of spectrum?

No Comments

5. In case of spectrum sharing, who will have the rollout obligations? Giver or Receiver?

We believe sharing of spectrum should not be a reason for not meeting the roll out obligations.

Perpetuity of licenses

Q1. Should there be a time limit on license or should it be perpetual?

There should be time limit on license. At the time of renewal of the license, DoT can renew the license on the basis of effective utilization of spectrum by the operator. And the license will be renewed only to those operators who have effectively utilized the spectrum.

Q2. What should be the validity period of assigned spectrum in case it is delinked from the license? 20 years, as it exists, or any other period?

Validity period of the assigned spectrum should not be 20 years. It should be for the period which is left for the license to be renewed. If the incumbent has completed for example 10 years of the license and he applies for the spectrum, he should be provided the spectrum for

the next 10 years instead of 20 years. And if operator wants to renew the licensee and want to use the spectrum, he should apply for renew at the en of 19th year of the license. Final decision to renew license should be of licensor.

Q3. What should be the validity period of spectrum if spectrum is allocated for a different technology under the same license midway during the life of the license?

For different technology, validity period of the spectrum should be 20 years. If the licence of the operator expires before the 20 years duration then he should renew the license during 19th year.

Q4. If the spectrum assignment is for a defined period, then for what period and at what price should the extension of assigned spectrum be done?

The extension of the spectrum should be on the basis of bidding process. The one who auctions high should be assigned the spectrum.

Q5. If the spectrum assignment is for a defined period, then after the expiry of the period should the same holder/licensee be given the first priority?

Same holder should not be given the first priority, it should be based on the auction process. The one who will auction at high price should be given the priority. Everyone who has UASL license should be eligible to bid for the process.

Uniform License Fee in Telecom Sector

Q1. What are the advantages and disadvantages of a uniform license fee?

Advantages: Uniform license fee will help avoid arbitrage over integrated operators, who are allegedly loading up maximum revenues on licenses with lower fee. Mobile operators in metro regions and Circle A states will, however, gain since they currently pay a 10 per cent license fee.

Disadvantages: Due to uniform license fee the government revenue may decrease. It will have an adverse impact on the long distance operators, ISP and mobile operators working in Circle C as they pay the lowest percentage of AGR. And the Uniform license fee is expected to be higher than the lowest license fee paid.

Q2. Whether there should be a uniform License Fee across all telecom licenses and service areas including services covered under registrations?

After looking at the advantages of Uniform License Fee, it will be more advantageous to implement Uniform License Fee. It should cover all the telecom licenses and service areas but there isn't any requirement of licenses fee regime for the services covered under registrations.

Q3. If introduced, what should be the rate of uniform License Fee?

License fee at present lies between 6 to 10 percent. So to prevent the government from huge losses by making the Uniform License Fee lowest, it should be in between 6 to 10 percent. It should be near about 7.5 percent. Though it will benefit the one who are providing services in Metro and Circle A but it will affect the one who are in rural areas.