IBSL's Comments on CP 04/12 on 'Auction of Spectrum'

The Hon'ble Supreme Court of India in its Judgment dated 2nd February 2012 in the writ petitions no 423/2010 and 10/2011, has directed TRAI to make fresh recommendations for grant of licence and allocation of spectrum in 2G band in 22 Service Areas by auction, as was done for allocation of spectrum in 3G band, keeping in view the decision taken by the Central Government in 2011. The principles laid down in the said judgment and the decision taken by Central Government in 2011 will, therefore, have to be the guiding principles while designing the proposed auction.

TRAI after floating a pre-consultation on Allocation of spectrum in 2G band in 22 Service Areas by auction has floated a Consultation paper on Auction of Spectrum. In this Consultation paper, the Authority has brought out not only the issues related to the auction of spectrum in 1800MHz band but also those relating to auction of spectrum in 900MHz and 700MHz bands. We assume that the purpose might be to standardize the procedures for spectrum auction but, it is respectfully submitted that, **keeping in view the diverse nature, economic value, availability status and utility of the said bands, clubbing the issues together would not only complicate the processes but also likely to delay the auction of spectrum in 1800MHz band.** In order to give road map for the 122 licenses ordered for cancellation by the Supreme Court and to comply with the orders of the Hon'ble Court, it is submitted that the present consultation process concentrates on the auction of 1800 MHz spectrum for 2G licenses and the auction of other bands of spectrum is taken up in a separate consultation paper taking into consideration the technology developments.

Further, any attempt to liberalise the spectrum in 1800 MHz band at this stage will also delay the auction process. It will also disturb the level playing field and will be highly detrimental to the interest of all the 122 licensees whose licenses have been ordered to be cancelled as their present investment into the network will go waste**. It is, therefore**, **emphasized here that the Auction of 1800MHz spectrum at present shall be made for 2G services only and in a non-liberalised form to meet the Court's directive**.

Before submitting our views on the various issues highlighted in the Consultation Paper, we would like to reiterate that **the Authority may kindly ensure that Recommendation on Unified Licensing Regime and Migration of existing licenses to unified license are submitted to the Department of Telecommunications at the earliest** now that the comments and counter comments on Draft Guidelines have been received. The Government needs to finalize and implement the unified license regime before the auction of spectrum in any band. This exercise needs to be completed simultaneously to facilitate the process of spectrum allocation for 2G services. The Central Government

has decided that in future, the spectrum will not be bundled with the license and the license to be issued to telecom operators will be in the nature of 'unified license'. Thus, it has become vital that Unified Licensing Regime shall be put in place before Spectrum Auctions take place in future.

The Authority has raised various issues relating to the Auction of 1800/700/800/900MHz bands. Our views on these issues are as below:

Q1. How can the various principles outlined by the Hon'ble Supreme Court in various observations brought out in para above be sufficiently incorporated in the design of spectrum auction?

The guiding principles outlined by Hon'ble Supreme Court in the said judgment can be summarized as below:

- Keeping in view the decision taken by the Central Government in 2011, TRAI shall make fresh recommendations for grant of licence and allocation of spectrum in 2G band in 22 Service Areas by auction, as was done for allocation of spectrum in 3G band.
- The Central Government shall consider the recommendations of TRAI and take appropriate decision within next one month and fresh licenses be granted by auction.
- Spectrum has been internationally accepted as a scarce, finite and renewable natural resource which is susceptible to degradation in case of inefficient utilisation.
- It has a high economic value in the light of the demand for it on account of the tremendous growth in the telecom sector.
- As natural resources are public goods, the doctrine of equality, which emerges from the concepts of justice and fairness, must guide the State in determining the actual mechanism for distribution of natural resources. The people should be granted equitable access to the natural resources and/or its products.
- The process of distribution must be guided by the constitutional principles including the doctrine of equality and larger public good.
- The State and its instrumentalities should design their activities in a manner which would ensure competition and not discrimination.

The Decision of the Central Government taken in 2011, referred in the apex court in its said judgment may be summarized as below:

- In future, the spectrum will not be bundled with licence. The licence to be issued to telecom operators will be in the nature of 'unified licence'

- to make available adequate spectrum to meet the entire requirement of the telecom sector
- there are adequate measures in place to ensure that operators use allocated spectrum efficiently and optimally
- spectrum will have to be obtained only through a market driven process
- In future, there will be no concept of contracted spectrum and, therefore, no concept of initial or start-up spectrum.
- While moving towards a new policy dispensation, it is necessary to ensure a level playing field between all players.
- Going forward, any new policy of pricing would need to be applied to equally to all players. Additionally, assignment of balance of contracted spectrum may need to be ensured for the existing licensees who have so far been allocated only the start up spectrum of 4.4 MHz.
- The adoption of an auction process for allocation and pricing of spectrum beyond 6.2 MHz while ensuring that there is adequate competition in the auction process.
- Design a policy that ensures that existing licence holders get the spectrum they need and are entitled to, while simultaneously, ensuring that the Government also receives revenues commensurate with the current market value of spectrum.

Keeping in view the judgment of Supreme Court and the decision of the Central Government, we are of the view that **the efforts should be concentrated on the formulation of Auction process for 2G spectrum on utmost priority**. The Apex court has indicated towards the urgency of the process by prescribing time lines in its judgment. The sub-1GHz band frequencies are highly efficient frequencies and involve various issues peculiar to their respective nature, availability, value, utility, etc which are different from that of 1800MHz spectrum in its present form. These issues are extremely vital and need to be dealt with separately and not in haste.

We also note that in the review petition submitted with Supreme Court the Licensor has represented that planning and execution of 2G spectrum auction would be far more complicated compared to 3G auction as this auction will have to deal with both legacy issues as well as issues arising out of policy decisions and therefore has stated that assignment of 2G spectrum through auction will take at least 400 days. Under such circumstances, combining other issues not directly associated with 2G spectrum auction in this consultation is likely to complicate the entire process further which will render even March 2013 timeline submitted by DOT difficult to achieve. It is important to first clear the uncertainty related to cancellation of 122 licenses by working out the 2G spectrum auction recommendations and send a positive signal to foreign investors.

Therefore,

- We are of the opinion that the procedure for Auction of spectrum in 1800MHz band for 2G services should be framed up **first and foremost**. This will not only address the directive of the Apex court but also offer a **fair opportunity** to the parties whose licenses are to be cancelled and spectrum to be revoked in four months time period from the date of judgment. These players have to ensure uninterrupted services to their customers as well as protect their investments.
- Further, in case of 800MHz which is recognized worldwide as Digital Dividend band, only that many blocks of 2.5MHz of 800MHz spectrum may be auctioned for CDMA services so as to comply with the Supreme Court judgment. Meanwhile, the Department of Telecommunications may be asked to explore opportunities/substitutes in other bands like 1900MHz band for provision of CDMA services.
- Thereafter, the Digital dividend bands i.e. 800MHz & 900MHz bands should be totally refarmed and liberalized for broader usage including provision of IMT advanced services, in line with the international practices.
- In the interim, the Authority should initiate the exercise to ascertain the exact availability of spectrum in 700MHz in each of the 22 circles and can start separate public consultation process to decide upon various issues including the finalization of the Band Plans for sub-1GHz bands.
- Then, the spectrum in 700, 800, and 900MHz may be put to auction simultaneously with mutually exclusive clause on spectrum holding.

Auction of 1800MHz spectrum

The Central Government has, in its decision of 2011, stated that '…While moving forward towards a new policy dispensation, it is necessary to **ensure a level playing field between all players**….design a policy that ensures that **existing license holders get the spectrum they need and are entitled to**…'. Together with this decision, one may consider the basic objective behind issuing fresh licenses in 22 service areas in 2008, which was to introduce sufficient competition in the telecom market for ensuring faster proliferation of services as well as fairness and reasonability of the prices at which these services are made available to the public. In the light of the above decision of the Central Government and the said judgment of the Hon'ble Supreme Court, we are of the view that:

1. At present, the market is unevenly matched between those who have received spectrum in sumptuous quantities without any price; those who are awaiting allotment of start-up/additional spectrum, despite eligibility, due to lack of availability of spectrum; and those who were allotted fresh licenses in 2008 and are now being cancelled. There is a need to ensure a level playing field amongst these players.
2. Therefore, as stated in our comments earlier, the auction should first be held for the players whose licenses are being cancelled and those who want to participate afresh, including pending applications, subject to their eligibility for new Unified License. In addition, the existing operators who are awaiting the allocation of initial spectrum shall also be allowed to participate in this auction. This will give fair chance to the serious players, whose licenses are being cancelled to make good of their investments and protect the interest of their customers as well as forward equal opportunity to the pending applicants and new aspirants, if any. This will introduce adequate competition in the market so that good quality services are made available to the public at reasonable prices. Nevertheless, the participation of the existing players who are awaiting initial spectrum will forward them a fair chance and introduce adequate competition amongst the bidders in the auction process. This will facilitate determination of true economic value of the spectrum and ensure that the Government receives revenue commensurate with its current market value.
3. It is a known fact that the economic efficiency of the spectrum increases manifold with the block size. Thus, the fair economic value of spectrum beyond 6.2MHz has multifold higher value than the spectrum upto 6.2MHz. This fact is also highlighted by TRAI, in its Expert Committee Report on pricing of 1800MHz spectrum wherein it has priced spectrum per MHz 'upto 6.2 MHz' separate from the spectrum per MHz 'beyond 6.2 MHz' and the price per MHz of the latter is much higher than that of the former. Therefore, the parties who require spectrum beyond 6.2MHz, subject to the spectrum cap of 8MHz and 10MHz in the respective circles, should be classified /categorized separately and **should be allocated the residual spectrum by subsequent auctions** after the allotment is made to the winners of auction held for fresh/new players. Here, the priority should be given to the auction of spectrum for those who are having only 4.4 MHz over the auction for ones who are looking for spectrum beyond the contracted spectrum of 6.2 MHz.

Q2. What are the key objectives to be kept in mind in the auction of the spectrum?

As highlighted above, the Hon'ble Supreme Court has elaborated on the principles that should be borne in mind while designing a process for distribution of natural resources. Also, the apex court has mentioned in its judgment that while making a fresh recommendation for grant of licence and allocation of spectrum in 2G band in 22

Service Areas by auction, the decision taken by the Central Government in 2011 should be kept in view.

Thus, the key objective for the auction of spectrum in 1800MHz can be summarized as below:

- The auction should be designed in a manner which would ensure competition and not discrimination.
- The auction should maintain a level playing field between the existing players and new players for 2G services.
- It has been recognized by the apex court that spectrum has high economic value in India in the light of the tremendous growth in the telecom sector. Therefore, the auction process should discover the true economic value of the spectrum to ensure revenue to the Government commensurate with its current market value.
- Spectrum has an incremental economic value increasing with the quantum of spectrum held. Therefore, to generate true economic value of the spectrum, the auction for the entry level should be distinguished from that held for the allocation of additional spectrum.
- Fair and equitable opportunity shall be given to the players whose licenses are being cancelled and any other new eligible participant, including pending applications.

Q3. What should be the amount of spectrum which should be auctioned?

As expressed earlier in our comments to the pre-consultation paper, to ensure fair competition and protect the consumers' interest, adequate number of spectrum slots in the 1800MHz band will be required to be brought under the spectrum auction process to ensure sufficient number of operators in each service area. However, the quantum of spectrum for auction shall be decided after setting aside an adequate amount of spectrum for Refarming of 900MHz. **The quantum set aside should cover entirely the quantum of 900MHz spectrum allotted to the UAS licenses which are due for expiry in 2014-16.**

The Cancellation of 122 licenses has resulted in an addition of 308 MHz of spectrum (available across the service areas) in the pool of 211 MHz spare spectrum available in 1800 MHz band. In addition, the Hon'ble minister after the meeting of eGOM on 5th March, 2012 has stated that the matter relating to the release of spectrum in 1800MHz band shall be resolved soon. Out of the prospective release, 110MHz of spectrum is likely to be assigned for telecom use which increases the inventory size to ~629MHz.

Now that there is ample amount of spectrum in 2G band, the Authority can smooth out the process of refarming of more efficient spectrum in 900 MHz band by setting aside a quantum of spectrum for refarming from the newly created stock of spectrum in

1800MHz band after considering the prospective availability and excess spectrum already held up by the operators. This will not only ensure that the scarce resource is put to most efficient use but will also fetch the true market value of 900MHz spectrum, which is multi-fold higher than 1800MHz spectrum, when auctioned at right time.

The remaining stock of 1800MHz spectrum can be put to auction for the induction of new players in 2G segment to ensure fair competition in the market as well as to render a fair opportunity to the parties whose licenses are being cancelled. Thereupon, the remainder of the spectrum, if any, shall be subsequently put to auction to meet the requirement of the existing players who need and are entitled to additional spectrum. Balance of the spectrum available in 1800 MHz band, if any, may be gainfully deployed at this stage itself to refarm the precious spectrum in 900 MHz band allocated to balance of the 2G licensees whose licenses are likely to expire in 2030 or thereafter.

The Hon'ble minister has stated that Defence is likely to vacate the spectrum in 1800MHz band which may include the border districts as well. Thus, the current gaps in the partially unavailable spectrum blocks may be fulfilled in due course. Therefore, we opine that the partial spectrum of 105.6MHz allotted to the 122 licensees shall also be put to auction with a clearly defined availability status and the time frame within which the spectrum in the remaining districts will be available. The market forces will determine the fair price for such spectrum blocks factoring the opportunity loss on the geographical gaps.

Q4. Should the spectrum be liberalised before it is put to auction?

The Hon'ble Supreme Court has given a directive that TRAI shall make fresh recommendations for grant of licence and allocation of spectrum in 2G band in 22 Service Areas by auction. Therefore, the spectrum in 1800MHz band cannot be liberalized at this stage. The spectrum should be auctioned with the existing channel plan for 2G services. This will not only maintain a level playing field with the existing players but will also give the players whose licenses are cancelled a fair chance to utilize their existing infrastructure.

However, we are in sync with the concept of liberalization. As submitted earlier, we have proposed for expediting the process of refarming of 800/900MHz bands. Post refarming, these bands are to be put to auction in liberalized form (technology neutral) so that they may be put to more efficient usage like IMT Advanced services.

Q5. For the refarming of 800 and 900 MHz bands from the existing licensees, which of the three options given above should be adopted? Please elaborate with full justification.

Q6. What are the issues that may arise in the above mentioned refarming process?

While explaining its directive and the judgment, the Hon'ble Supreme Court has stated the principle that- as natural resources are public goods, the **doctrine of equality**, which emerges from the concepts of justice and fairness, must guide the State in determining the actual mechanism for distribution of natural resources. The people should be granted **equitable access to the natural resources** and/or its products. Spectrum has been internationally accepted as a scarce, finite and renewable natural resource which is **susceptible to degradation in case of inefficient utilisation**. In the true spirit of these principles, we had submitted earlier and reiterate again that the serious efforts should be made and options be explored to refarm the entire 800/900MHz spectrum allotted initially for 2G services so that equitable access be granted to all on the precious resource and can be gainfully utilized for more efficient usages like IMT advanced services.

The need for refarming of spectrum in 900MHz band brought out by TRAI in its Recommendation on 'Spectrum Management and Licensing Framework' dated May 11, 2010. TRAI supported the efforts underway in different countries to refarm the 900 MHz spectrum in view of its value for providing 3G services and for future technologies. However, due to the insufficiency of equal amount of spectrum in 1800MHz band, TRAI had mentioned that spectrum in 900MHz band would be refarmed on renewal. Cancellation of 122 licenses has resulted in an addition of 308 MHz of impartial spectrum in the pool of spare spectrum in 1800 MHz band. As per the data released by WPC as on January 31, 2011, there is a spare spectrum of 211 MHz available with DOT. This builds up the total pool of ~519 MHz in the 2G band. In addition, the Hon'ble minister after the meeting of eGOM on 5th March, 2012 has stated that the matter relating to the release of spectrum in 1800MHz band shall be resolved soon. Out of the prospective release, 110MHz of spectrum is likely to be assigned for telecom use which increases the inventory size to ~629MHz. Now that there is ample amount of spectrum in 2G band, TRAI can expedite the process of refarming of more efficient spectrum in 900 MHz band by setting aside partially a quantum of spectrum for refarming from the newly created stock of spectrum in 1800MHz band after considering the prospective availability and excess spectrum already held up by the operators and then auction the rest of the stock. **The quantum set aside should cover entirely the quantum of 900MHz spectrum allotted to the UAS licenses which are due for expiry in 2014-16**, **as given in**

Option-1 of the Consultation Paper. This will not only ensure that the scarce resource is put to most efficient use but will also fetch the true market value of 900MHz spectrum, which is multi-fold higher than 1800MHz spectrum, when auctioned at right time subsequent to the proposed auction of spectrum in 1800 MHz band. Currently, the operators are expanding their networks to proliferate broadband services all across the country. An earlier release of the 800/900MHz band can lay down a roadmap for future network planning and can ensure a timely and efficient utilization of the scarce resource.

Therefore, we are supportive of the first option for refarming that sufficient spectrum in 1800MHz band should be set aside to refarm entirely the 900 MHz spectrum due for renewal in 2014 and 2016. The 900MHz spectrum due for renewal after 2016 can also be refarmed with the residual 1800MHz spectrum after the auction and the eventually freed up spectrum in the 1800MHz band. To decide the exact quantum of spectrum required to be set aside for refarming, following steps should be followed:

1. The spectrum over and above the prescribed limits should be withdrawn at the earliest from all operators. (As per the Recommendations, 900MHz is to be surrendered first)
2. As recommended by the Authority, spectrum over and above the contracted spectrum of 6.2MHz should be charged retrospectively. If the said policy is implemented on immediate basis, the concerned operators would be liable to pay the retrospective charge. For the future use, the operators may be given an option either to pay the charges as prescribed by the Government else surrender the excess spectrum immediately. (In case of surrender, 900MHz spectrum shall be surrendered first)
3. This will crystallize the actual quantum of spectrum in 900MHz that is to be refarmed and the spectrum needed to be set aside in 1800MHz.
4. Meanwhile, as stated by the Hon'ble Minister, the Defence is likely to vacate 110MHz of spectrum in 1800MHz band soon. This will also aid in meeting the requirement.

Therefore, we are of the opinion that if the above steps are followed, the quantum of spectrum in 900MHz required to be refarmed will be less than what is indicated in Table 3.4 of the Consultation paper. This will reduce the quantum of spectrum required in 1800MHz band and leave behind sufficient spectrum to be auctioned to the new players. Additionally as proposed earlier, in view of likely vacation of spectrum in 1800 MHz band by Defence including border districts, the partial spectrum of 105.6MHz allotted to the 122 licensees can also be put to auction with a clearly defined availability

status and the time frame within which the spectrum in the remaining districts will be available. All such measures shall ensure that sufficient spectrum in 1800 MHz band will be available for allocation in the proposed auction.

Besides this, we do not see there would be any other major issue involved in refarming. Minor issues like usage charges, for simultaneous holding of spectrum in both the bands during the period of refarming, etc. can be dealt with by the Government.

Q7. For new technologies e.g. UMTS/LTE, 5 MHz is the minimum amount of spectrum required. Certain licensees have only 4.4 MHz spectrum in 900 MHz band and 2.5 MHz spectrum in 800 MHz band. What are the possible options in case of such licensees?

This issue will not arise if spectrum in 800MHz and 900MHz is first refarmed entirely and then auctioned in blocks of 5MHz for technology neutral usage. The existing licensees have been given the spectrum in 900MHz and 800 MHz bands only for 2G GSM/CDMA services and cannot be allowed to use this spectrum for providing UMTS/LTE services as it will not only be discriminatory, it will also violate the principles laid down by Hon'ble Supreme Court in the said judgment. Further, it will disturb level playing field and cause huge revenue loss to the exchequer as the government will not be able to determine the true economic value of these highly efficient spectrum bands.

Q8. Some GSM spectrum allocations may be interleaved between operators; to avoid fragmentation, reconfiguration between operators may be required. Whether frequency reconfiguration is required and what are the challenges and possible solutions?

If the entire spectrum in 800MHz and 900MHz band is refarmed as suggested above, most of the spectrum will become available in continuous 5MHz slots. In some cases, few carriers of 200 KHz may be in use by other licensees and may require reconfiguration and can be dealt with by the Government.

Q9. Should the refarming of spectrum in 800/900 MHz bands be dealt independently or should a comprehensive approach be adopted linking it with the availability and auctioning of 700 MHz band?

We opine that the refarming of spectrum in 800/900MHz bands should commence at the earliest in the manner suggested above so that the operators having spectrum in 900MHz band for 2G services do not avail an undue advantage of their holdings on this highly efficient and precious spectrum resource.

After the spectrum in 800/900MHz is refarmed and the band plans of 700/800/900 MHz are decided through public consultation, the spectrum in 700, 800, and 900MHz may be put to auction simultaneously with mutually exclusive clause on spectrum holding i.e. a single player will be allowed to hold spectrum in only one of the three sub-1GHz spectrum bands to ensure fair and equitable competition in these highly precious bands. The auction of spectrum in sub-1GHz bands involves many issues and need to be resolved through separate public consultation, once the definite availability in all the bands is known and the band plans are finalized.

Q10. Which of the two approaches outlined above be adopted?

Q11. When should 700 MHz spectrum be auctioned?

Q12. Should the auction in 700 MHz band be linked with the granting permission for the liberalised use of 800/900 MHz band?

Q13. How much spectrum in 700 MHz band should be put to auction initially and what should be the amount of spectrum which a licensee should be allowed to win in that auction?

The Authority has already completed consultation process on IMT-Advanced Mobile Wireless Broadband services encompassing broad level issues of spectrum auction for IMT services. It is respectfully submitted that in the absence of additional details regarding spectrum availability etc., raising similar issues in this consultation will not offer any incremental benefits to any stakeholder. Therefore, **the Authority should initiate the exercise to refarm the spectrum in 800/900 MHz bands and ascertain the availability** of spectrum in 700/800/900 MHz in each of the 22 circles and then start separate public consultation process to decide upon the band plan of 700/800/900MHz spectrum.

Thereafter, the sub-1GHz bands may be put forward for auction simultaneously in the manner stated above.

Q14. What should be the structure of the auction process?

We are of the view that the method adopted for 3G or BWA auction has resulted in the determination of fair market value of the spectrum bands comparable to international standards and factoring the market dynamics. Also, the Supreme Court judgment states that the allocation of spectrum in 2G bands in 22 service areas by auction shall be done in the manner as was done for allocation of spectrum in 3G band. Therefore, we believe that there is no reason for looking for a different methodology.

Q15. Should auction be held in single stage or multi stage?

As submitted in response to Q1, the auction for 1800MHz band should be held in multi-stages in a manner suggested below:

1. The auction should first be held for the players whose licenses are being cancelled and those who want to participate afresh, including pending applications, subject to their eligibility for new Unified License. In addition, the existing operators who are awaiting the allocation of initial spectrum shall also be allowed to participate in this auction. This will give fair chance to the serious players, whose licenses are being cancelled to make good of their investments and protect the interest of their customers as well as forward equal opportunity to the pending applicants and new aspirants, if any. This will introduce adequate competition in the market so that good quality services are made available to the public at reasonable prices. Nevertheless, the participation of the existing players who are awaiting initial spectrum will forward them a fair chance and introduce adequate competition amongst the bidders in the auction process. This will facilitate determination of true economic value of the spectrum and ensure that the Government receives revenue commensurate with its current market value.
2. It is a known fact that the economic efficiency of the spectrum increases manifold with the block size. Thus, the fair economic value of spectrum beyond 6.2MHz has multifold higher value than the spectrum upto 6.2MHz. This fact is also highlighted by TRAI, in its Expert Committee Report on pricing of 1800MHz spectrum wherein it has priced spectrum per MHz 'upto 6.2 MHz' separate from the spectrum per MHz 'beyond 6.2 MHz' and the price per MHz of the latter is much higher than that of the former. Therefore, the parties who require spectrum beyond 6.2MHz, subject to the spectrum cap of 8MHz and 10MHz in the respective circles, should be classified/categorized separately and should be allotted the residual spectrum by subsequent auctions after the allotment is made to the winners of auction held for fresh/new players. Here, the priority should be given to the auction of spectrum for those who are having only 4.4 MHz over the auction for ones who are looking for spectrum beyond the contracted spectrum of 6.2 MHz.

Q16. Should there be a simultaneous auction for spectrum in 800 and 1800 MHz bands?

The 800MHz band has also been termed as the Digital Dividend Band and worldwide efforts are being made to refarm the band for IMT-Advanced services. In Region 1, some of the countries in Europe and Africa have already rolled out 4G services via LTE technology in this band. Thus, we opine that similar to 900MHz band, this band should

also be refarmed and no further be allocated for CDMA services. However, only that many blocks of 2.5MHz of 800MHz spectrum may be auctioned for CDMA services so as to comply with the Supreme Court judgment. For this, the auction for 800 MHz band will have to be held at the same time as that for the 1800 MHz band. Meanwhile, the Department of Telecommunications may be asked to explore opportunities/substitutes in other bands such as 1900MHz to facilitate the provision of CDMA services.

Q17. What should be the block size of the spectrum?

Q18. Should the block size be dependent on the frequency? If so, what should be the block size in each band?

As stated above, we are of the opinion that at this stage, we should be focused on the Auction of spectrum in 800 and 1800MHz for 2G GSM/CDMA services only to comply with the Court's directive in time-bound manner.

Keeping in view the previously mentioned Judgment of the Hon'ble Court and the decision taken by the Central Government in 2011, it can be seen that the outcome of the auction is expected to provide true economic value of start-up spectrum i.e. 4.4MHz (2.5 MHz for CDMA), additional spectrum of 1.8MHz (i.e. upto contractual limit of 6.2MHz) and spectrum beyond 6.2 MHz (upto the prescribed limit) while ensuring fair and equitable access to natural resources for all players. Further, the basic objective of this auction is to invite new competition in 2G services, we are of the opinion that the block size for this auction should be 4.4MHz with allocation in slots of 200KHz in order to have parity with the existing players.

In the subsequent stages of the auction, block size may be kept at 1.8MHz/1MHz.

For the CDMA operators, the block size should be of 2.5 MHz for start-up spectrum in 800 MHz band for provision of CDMA services as at present to maintain parity with the existing operators. However, as submitted above, no more spectrum in 800 MHz band should be allocated to any of the existing operators for 2G services and the actions should immediately be initiated to refarm the spectrum in this band so that it can be gainfully deployed for provision of the IMT advanced services.

Q19. Should there be a cap on amount of spectrum one can bid? If so, what should it be?

To ensure efficient utilization of the scarce resource and to maintain level playing field with the existing players, we opine that one may be allowed to bid only for one block of 4.4MHz in the first stage of bidding.

In the subsequent stages of the auction, one may bid for more than one block of 1.8MHz/1MHz with the spectrum cap that overall holding does not exceed the prescribed limits.

Q20. Should there be a separate cap on the total amount of spectrum one can hold; if so, what amount should it be?

Q21. Should there be a cap on the amount of spectrum one can hold in respect of sub-GHz spectrum? If so, what should it be?

For 2G band, the present prescribed limit of **8MHz and 10MHz** shall continue.

We are of the opinion that the spectrum in 700MHz, 800MHz, and 900MHz should be allocated on mutually exclusive basis. The spectrum cap for these bands should be set at the time of auctions of these bands. Further, these bands can be put to auction simultaneously like 3G and BWA services, open for all existing and new operators. This will provide equal chance for all, ensure level playing field to all operators in terms of time to market and access to the highly efficient bands, no operator will be at advantageous position on account of legacy allocation.

Q22. Who all should be eligible to participate in the auction?

e. Only licensees whose licenses have been cancelled;

f. Only eligible applicants as on 10.01.2008;

g. Only licensees whose licenses have been cancelled and all new eligible entrants at the time of auction; or

h. Open to all including the existing Licensees.

As submitted above in Response to Q1, in the first stage only licensees whose licenses are cancelled and all new eligible entrants, including pending applications, at the time of auction can be allowed to participate. In addition, the existing players who are awaiting the allocation of initial spectrum in the 1800 MHz band shall also be allowed to participate in this auction. This will ensure level playing field, introduce adequate competition in the market, offer fair and equitable opportunity to all, the determination of true economic value of spectrum and that the Government receives revenue commensurate with its current market value.

Subsequently, the remaining spectrum in 1800 MHz band, if any, it shall be put to auction for all including existing players having spectrum less than the prescribed limits.

Q23. What should be reserve price per MHz of spectrum in the year 2012 for 1800 MHz band?

We would like to re-emphasize here that in compliance with the Court's directive, the 1800MHz band is needed to be put to auction in non-liberalised form for the provision of only 2G services. The reason for emphasizing here is the fact that the economic value of the spectrum will increase multifold if it is auctioned in liberalized (technology neutral) manner. Currently, the prime mandate is to provide a fair opportunity to the parties whose licenses are being cancelled and allotted spectrum being revoked. The purpose for which this spectrum was given was to provide 2G services, so the purpose of allocation cannot differ at this juncture. Therefore, the auction needs to be for 2G services and the channel plan needs to be in line with the current allocations.

Value of Spectrum is a function of the business potential and profitability outlook for the service that are to be offered using the spectrum. For **determining true economic value of Spectrum** through Auction, fixing the Reserve Price for various spectrum bands closer to their fair market value is crucial. The thumb rule is that Spectrum in lower bands has far better propagation characteristics giving larger cell radius, and hence has much higher economic value. Here it is important to note that economic value of the spectrum within the same band may also vary if the purpose of allotment is different or the quantum of holding is more. Keeping the above in view, the Authority has recommended that the Current price of spectrum in the 800 MHz and 900 MHz band be fixed at 1.5 times that of the 1800 MHz band. In addition, the Authority has recommended the price for spectrum in 1800MHz band 'upto 6.2MHz' different from spectrum 'beyond 6.2MHz'.

In India, the participants are unevenly matched. The incumbents have been allotted spectrum in sumptuous quantities when the spectrum was in abundance. But, as the market has been opened for competition, fair opportunity should be given to new entrants to procure spectrum to have a level playing field. Thus, the State holds a bigger responsibility to rationalize the spectrum allocation and **to fix a fair Reserve Price**; else the stronger may collude, hoard the spectrum and manipulate the auction prices to their benefit.

Keeping in view the directions given by Hon'ble Supreme Court and its earlier Recommendations, the Authority may fix the Reserve price for the first block of 4.4MHz spectrum at a level which promotes competition, provides level playing field, and gives fair and equitable opportunity to all those whose licenses are being cancelled and new aspirants, if any.

As mentioned above, the Expert Committee of TRAI has determined the price of spectrum in 1800MHz band for spectrum holding 'Beyond 6.2MHz' higher than the price of holdings 'upto 6.2 MHz' by 2.6 times. Thus, the Reserve price for Auction for allocation beyond 6.2MHz may be priced by the Authority at higher of its own Recommended Price for spectrum holding 'Beyond 6.2MHz' OR 2.6 times of the winning price of the first stage of auction.

Reserve price for 1800MHz spectrum in liberalized form cannot be based on the above prices as the 1800MHz band has better propagation qualities and significantly better geographic and in-building coverage than 2100MHz; and LTE technology is now compatible with the 1800MHz band. Therefore, in case the 1800MHz band is auctioned with technology neutrality, its economic value is much higher than 2100MHz band and the reserve price should be much above the 3G Auction prices (2010).

Alternatively, once the price for 900MHz band in liberalised form is discovered, the reserve price for 1800MHz band in liberalised form can be set as two-third of this price, based on the factor suggested by the Authority in its Recommendation on Spectrum Management and Licensing Framework in 2011.

Q24. What should be the reserve price per MHz of spectrum in the 700/800/900 MHz bands.

We have proposed that separate consultation shall be held for these bands after the exact availability is determined and band plans are finalized. The economic value of spectrum is highly dependent on these factors and thus, the reserve price for these bands can be assessed only after clarity is obtained on the above data.

Reserve Price for 900/800MHz

On the available information, the reserve price for 1MHz of 900/800MHz Band can be determined on the basis of relative valuation i.e. applying a comparable factor, based on benchmarking of international auctions, to the market determined price of some other band. While deriving the comparable factor, following steps are followed:

1. To avoid the impact of market dynamics peculiar to each country, we have derived the multiple (comparable factor) only in those countries which have witnessed auction in sub1-GHz band as well as 3G/BWA bands in recent past.
2. The median of these multiples is then derived to be used for Relative valuation.
3. In deriving the average, one may give more weightage to the multiple of those countries which have had auctions in different bands simultaneously or on close time intervals.

4. By using a multiple between the auction prices of different bands in a country pacifies the impact of country specific factors like business potential, growth, population density, profitability, etc.

Following are the recent auction prices of different bands in USD/MHz/Population base:

Countries/Bands	Sub 1GHz	2000MHz	2100MHz	2300/2600 MHz	Sub 1GHz vs 2/2.1GHz	Sub 1 GHz vs 2.6 GHz
Germany	0.97	0.14		0.03	**6.9x**	**32.3x**
Italy	0.81			0.08		**10.3x**
US	1.11		0.53		**2.1x**	
Sweden	0.5			0.2		**2.5x**
Hong Kong	1.69			0.31		**5.5x**
Spain	0.62			0.03		**20.7x**
Median Multiple					**4.5x**	**10.3x**

As per the above median multiple, the reserve price for sub 1GHz can be 4.5 times the 3G auction price or 10.3 times the 2.3/2.6GHz spectrum in FDD mode.

- 10.3x of time-valued BWA Auction prices*, or

- 4.5x of time-valued 3G Auction prices.

* BWA auction prices of 2010 are of unpaired spectrum and need to be adjusted while determining the price for paired spectrum

Reserve Price for Digital Dividend 700MHz band

The Authority has stated in its Recommendation on Spectrum Management and Licensing Framework and its Consultation Paper for IMT – Advanced Mobile Wireless Broadband Services that the 700 MHz (698-806 MHz) spectrum band is considered the **most important band** for broadband deployment. It is suitable from the point of both capacity and coverage. The digital dividend spectrum in the UHF range has very good propagation characteristics and is highly suitable for the roll-out of mobile broadband in rural and other difficult-to-reach areas. It has following characteristics:

- Better propagation.
- Signals travel farther and pass through walls and other obstacles much better than existing cell phone networks do, leading to a less number of cells to provide the same coverage.
- Less capital expenditure is required for roll-out of services.

- Less power is required to run a mobile phone/Internet cell on the 700 MHz band than other bands, which are at higher frequencies.
- Due to less CAPEX, larger wavelength and better propagation characteristics, this band is useful to provide wireless broadband services particularly in rural & far flung areas. Also, it is suitable for the higher bandwidth hungry application e.g. 4G services. Thus higher bandwidth at lower cost can be provided.
- The spectrum in the 700 MHz band allow for the creation of a national broadband public network with enhanced communication capability.

Reduced Capex

The Authority in its Presentation on Digital Dividend: Use of 700MHz frequency band dated 4th September 2009 has stated that

- An LTE network at 700 MHz would be 70% cheaper to deploy than an LTE network at 2.1 GHz - GSMA.
- Two to three times as many less sites required for initial coverage at 700 MHz compared to 2.1 or 2.5 GHz.

As the duration of the Spectrum holding is of 20years, the reduced Capex has a multiplier effect (mostly, Replacement Capex is required in 8-10 years). In addition, the reduced Base stations would mean reduced Opex as well. Therefore, **the economic value of the spectrum in 700MHz band is not only higher than 2100MHz band but is also higher than the 900/800MHz band. Based on the above comparable factors given by the Authority, the reserve price for 700MHz spectrum may be kept around 7-8x of 3G auction prices.**

Q25. Whether the reserve price should be uniform across the country or service area wise?

The reserve price shall continue to be categorized as for Metros, Class A, B, and C circles as was in the case of 3G auctions and, should be in the same ratio as was in the 3G auction.

Q26. What should be the roll out obligations linked to the auctioned spectrum?

For 1800MHz spectrum, the rollout obligations should be same as applicable to existing 2G service providers to ensure level playing field.

For spectrum holdings beyond 6.2MHz, the rollout obligations should be stringent, in line with the international practices. They should be mandated that 95% of rural SDCA shall be covered within the prescribed time-limit.

Q27. What should be the annual spectrum usage charge for the spectrum being auctioned?

Q28. Should the spectrum usage charge be in line with present criteria of escalating charge with the amount of spectrum holding or a fix percentage as was done for 3G and BWA spectrum?

Same for the auctioned spectrum as that for 3G/BWA services i.e. 1% of AGR.

The existing players who obtain additional spectrum through auction shall continue to pay charges as per the present criteria of escalating charge applicable to existing players.

Q29. What should be the period of validity of spectrum?

In context to the time period of spectrum allotment, we propose that the time duration of spectrum should be co-terminus with that of license, to reduce the possibility of complex scenarios emerging at the time of expiry of either of the two. The Auction may be held for a period of allocation of 20 years. However, the winner shall be allotted the spectrum for the remaining life of the license and charged accordingly on pro rata basis.

Q30. What should be the period of price of spectrum?

We are of the opinion that the period of price of spectrum shall be 20 years**.**

Q31. Should the government allow deferred payment schedule of the spectrum auction fee, or should the payment be upfront in nature?

We suggest that the auction price shall be **paid up front.**

Q32. Should Spectrum trading be allowed in India?

Q33. (a) Among the various models discussed above, in your opinion which model of spectrum trading is best suited for India?

(b) In your opinion is there any other model which can be implemented in India? If yes, please describe.

Q34. What should be the eligibility criteria to trade the spectrum?

Q35. Whether the spectrum assigned for 3G and BWA services be allowed to trade? If yes, give reasons.

The Government has already decided and announced in its press statement dated 15 February 2012 that spectrum trading will not be allowed in India at this stage. This will be re-examined at a later date. In view of this and the submissions made above for compliance of the orders of Hon'ble Supreme court in a time bound manner, we are of the opinion that issues related to trading of spectrum should be deferred for the time being till the time the new telecom policy is announced.

Q36. Can spectrum be allowed to be mortgaged for raising capital for telecom purposes?

Permission to mortgage spectrum by treating it as tangible asset will only be a notional step unless spectrum trading is permitted. As submitted above, we are therefore of the opinion that issue related to mortgage of spectrum may also be deferred for the time being till the time the new telecom policy is announced.