Telecom Regulatory Authority of India

Recommendations

On

Valuation and Reserve Price of Spectrum in 700 MHz, 800 MHz, 900 MHz, 1800 MHz, 2100 MHz, 2300 MHz and 2500 MHz bands

(Response to reference received from Department of Telecommunications on recommendations dated 1st April 2016)

18th April 2016

Mahanagar Doorsanchar Bhawan,

Jawahar Lal Nehru Marg, New Delhi-110002

CONTENTS

CHAPTER-I: INTRODUCTION

1. The Department of Telecommunications (DoT), through its letter dated 9th July 2015, requested the Authority to provide recommendations on applicable reserve price for auction of spectrum in 700 MHz, 800 MHz, 900 MHz, 1800 MHz, 2100 MHz bands for all service areas under the terms of clause 11(1)(a) of TRAI Act 1997 as amended. DoT also referred to its earlier reference dated 16th October 2014 and requested the Authority to expedite the recommendations on applicable reserve price for 2300 MHz and 2500 MHz bands for all the service areas. DoT vide its letter dated 06th November 2015, sent another reference and sought the recommendations of the Authority on the liberalization of administratively allotted spectrum in the 900 MHz band.

2. The Authority gave its recommendations on 27th January 2016 on "Valuation and Reserve Price of Spectrum in 700 MHz, 800 MHz, 900 MHz, 1800 MHz, 2100 MHz, 2300 MHz and 2500 MHz Bands".

3. Some of the recommendations have been referred back to the Authority by the DoT through its letter dated 1st April 2016 for clarification/reconsideration. The Authority's earlier recommendations, the views of the DoT thereon, and the response of the Authority are given in Chapter II.

CHAPTER-II: PARAWISE RESPONSE

1. Para No. 4.1

The Authority reiterates its earlier recommendation that APT700 band plan should be adopted for the 700 MHz (698-806 MHz) spectrum band with FDD based 2x45 MHz frequency arrangement. Further, it recommends that entire available spectrum (2x35MHz) in the 700 MHz band should be put to auction in the upcoming auction.

DOT's View

(i) The Government has accepted the recommendations of TRAI to adopt APT 700 band plan in 700 MHz band. The exact frequency spots to be earmarked for use of Defence are being identified by WPC Wing separately.

(ii) At present, various service areas have got 6-9 operators and the quantity of spectrum which is available in this auction is much higher than any other auction. Many operators have acquired spectrum in the auctions held in 2014 & 2015 and are in the process of rolling out/ upgrading the network.

(iii) TRAI is requested to reconsider whether all available spectrum in 700 MHz band be put to auction or the spectrum of 35+35 MHz be split in two phases i.e. 20+20 MHz in first phase and 15+15 MHz in second phase.

Response of TRAI

In its back reference, DoT has requested to reconsider whether all available spectrum in 700 MHz band be put to auction or the spectrum of 35+35 MHz be split in two phases i.e. 20+20 MHz in first phase and 15+15 MHz in second phase. DoT has mentioned that quantity of spectrum which is available in this auction is much higher than any other auction. It has also stated that many operators have acquired spectrum in the auctions held in 2014 and 2015 and are in the process of rolling out/upgrading the

network. While making these assertions DoT has not given any specific reasons for the proposal to put for auction of spectrum in this band in two phases. One could construe from DoT view that it apprehends that enough demand may not be there for the proposed quantum of spectrum being put for auction. The demand for spectrum is basically derived from the demand for final goods and services that require spectrum as an input i.e. different type of telecom services. It is a fact that an increased quantum of spectrum has been put to commercial use. However, at the same time subscriber base has widened, traffic has increased manifold particularly the data traffic due to broadband wireless subscribers tripling in the past two years. Going forward, apart from smartphone penetration and availability of relevant content, network speeds would be a key service differentiator for providing better services to the consumers. Thus, availability of adequate spectrum would be the prerequisite for ensuring better service to the consumer, facilitating growth and development of the sector and economy as a whole. Therefore, DoT presumption that the demand for the spectrum may be less in the forthcoming auction may not be entirely correct.

Spectrum being a scarce resource, auction of spectrum is primarily to solve the allocative problem in an open, transparent manner and revenue maximization cannot be (and should not be) the only objective of auction where the Government is an auctioneer. Government has to a strike a balance between its fiscal targets and its responsibility to promote and encourage growth of the telecom sector.

The Authority is of the view that holding back some of the spectrum in 700 MHz (i.e. 15+15 MHz) from this auction and selling it after a gap of certain period of time from now, would lead to non-utilization of this scarce natural resource for that period, though it has the potential to be reused and reallocated. Any delay in award of spectrum or non-utilization of spectrum would turn into irreversible loss to the Government (in the form

of levies and taxes) and to the society (in the form of better services, contribution to other related activities etc.). Even if it is assumed that greater revenue can be generated by auctioning a part of spectrum in 700 MHz band in future, deferring the revenue receipts now may not be of economic prudence keeping in view the impact of telecom services on the other sectors and overall GDP growth. Telecom connectivity is now the basic infrastructure in any society for networking, conveying important economic and social benefits. The Authority would like to emphasise that the broadband connectivity is the first pillar of 'Digital India' Programme of the Government, which can be fulfilled quickly if sufficient quantity of spectrum is made available. Further, National Telecom Policy-2012 envisages making available additional 300 MHz spectrum by the year 2017 and 500 MHz by the year 2020 for IMT services.

If all the available spectrum is put to auction it will result in increased availability of spectrum which will result in serving larger subscriber base, increased data speed as well as growth and overall increase in economic and other networked activities. This will result in more recurring revenue to the Government in terms of License Fee, Spectrum Usage Charges, Service Tax etc.

Today a number of mobile subscribers are grappling with the issue of frequent call disconnections or 'call drop'. According to the Telecom Service Providers (TSPs), the increasing rate of call drops, especially in urban and metro areas, can also be attributed to spectrum related issues, including shortage of spectrum supply. In order to serve the telecom needs of ever increasing subscriber base, the Authority has recommended to DoT, from time to time, for making additional spectrum available in existing as well as new bands for commercial use. Further, in all the spectrum auctions held since 2012, the Authority has been recommending to put to auction the entire available spectrum with the DoT. In its recommendations on *'Delivering Broadband Quickly: What do we need to do?* Dated 17th April 2015', the

Authority had pointed out that the spectrum holding per operator in India is far less as compared to the global average.

As stated in the Recommendations dated 27th January 2016, 700 MHz band is a sought after band for LTE deployment around the world due to its efficiency and higher penetration inside buildings. Due to lower frequency, it provides wider coverage which reduces number of towers required for setting up the LTE network and thus significantly cuts down capital expenditure involved in making the network live. In 42 countries commercial networks have been deployed in this band. After the assignment of spectrum in this band in India, it is expected that there will be an accelerated deployment of device eco-system due to 'economies of scale' that will be delivered on account of large subscriber base.

Presently, India is way behind in the broadband penetration and the internet speeds in the world and 700 MHz band can prove to be a vital band for proliferation of broadband in the country. In view of the above, the Authority is of the opinion that entire spectrum in the 700 MHz band is required to be made available for commercial use without any delay. Accordingly, the Authority reiterates its earlier recommendation that entire available spectrum (2x35MHz) in the 700 MHz band should be put to auction in the upcoming auction.

2. Para No. 4.2

The Authority recommends that partial spectrum available in Bihar, Rajasthan and North-East LSAs should not be put to auction till such time it becomes available at least in 75% of total number of districts of the LSA including the State capital(s).

DOT's View

(i) It is noted that 1.0 MHz (0.2 + 0.8) spectrum which is available in the entire service area of Rajasthan. Balance 3.8 MHz spectrum in

Rajasthan, 0.8 MHz in NE and 2.0 MHz in Bihar is not available in entire LSA.

(ii) TRAI is requested to reconsider as why not to put 1.0 MHz of spectrum in 1800 MHz band which is available in entire service area of Rajasthan to auction?

Response of TRAI

The Authority has been in favour of auctioning of all the available spectrum in entire LSA(s). However, the Authority had recommended that partial spectrum available in Bihar, Rajasthan and North-East LSAs should not be put to auction till such time it becomes available in at least 75% of total number of districts of the LSA including the State capital(s). As 1.0 MHz of spectrum in 1800 MHz band is available in entire service area of Rajasthan it should be put to auction. Moreover, DoT is carrying out process of harmonisation of spectrum in this band, therefore, issue of partial spectrum may not arise.

3. Para No. 4.3 & 4.4

4.3 The Authority recommends that DoT should carry out carrier re-assignment exercise in the 800 MHz band at the earliest and ensure that entire spectrum that is available for commercial use is put to auction so as to avoid a situation where precious spectrum in this band remains unutilized resulting in revenue loss to the Government. It should also be ensured that the spectrum, which is getting released due to re-assignment of carriers, is in contiguous blocks.

4.4 The Authority recommends that DoT, in coordination with Defence and the TSPs, should complete the harmonization process in the 1800 MHz band before upcoming auctions so that the entire spectrum that is made available due to this exercise is placed for bidding. The available spectrum must be put to auction in contiguous blocks, preferably in the block of 5 MHz.

DOT's View

(i) While all efforts are being made to harmonise spectrum before auction, the auction of the spectrum in 800 MHz/1800 MHz should not be conditional on reassignment and harmonisation. TRAI is requested to reconsider its recommendation that before upcoming auctions, entire commercially available spectrum in these bands is made available and the available spectrum must be put to auction in contiguous blocks.

Response of TRAI

In its reference dated 9th July 2015, DoT has stated that harmonisation of 1800 MHz band with Defence and TSPs is underway. More than 9 months have already passed since then. Presently available spectrum in 1800 MHz band (21 MHz) is meagre, fragmented and some of the spectrum is available only in parts of some of the LSAs. In 800 MHz band also, DoT intends to put only 37.5 MHz spectrum for auction. By carrying out spectrum harmonisation amongst TSPs and Defence, approximately 201 MHz of additional spectrum in 1800 MHz band and 26.25 MHz additional spectrum in 800 MHz band can be made available for the auction.

As mentioned earlier that keeping spectrum unused not only creates artificial scarcity but also amounts to irreversible revenue loss to the Government and to the nation as spectrum is a perishable commodity. As stated in its recommendations of 27th November 2014 and 27th January 2016, the Authority re-emphasises that the sub-optimal utilisation of spectrum not only amounts to denial of the opportunity for its better use by others but also a revenue loss to the Government in terms of upfront payment, annual licence fees (LF) and spectrum usage charges (SUC). In addition, there is an opportunity cost in keeping the spectrum idle in terms of other taxes and levies such as service

tax, corporate tax etc. Therefore, the harmonization exercise should be expedited.

It is of utmost importance to augment the supply of spectrum mainly in these bands. It is learnt that harmonisation exercise has reached at very advanced stage. Therefore, the Authority is of the view that harmonisation process in both 800 and 1800 MHz band should be completed and the additional spectrum should be put to upcoming auction.

In view the above, the Authority reiterates its earlier recommendations.

4. Para No. 4.5

The Authority recommended that the 1800 MHz band administratively assigned spectrum to Aircel in Haryana and MP, and Tata in HP should be taken back. The Authority also recommends the 800 MHz band administratively assigned spectrum to Tata in WB and Quadrant in Punjab should be taken back. This spectrum should also be put to upcoming auction.

DOT's View

(i) Licensor has no jurisdiction to take back the spectrum from the Telecom Service Providers under provisions of the license agreement and any such action may lead to litigation, jeopardising the process of auction and therefore TRAI is requested to reconsider its recommendation that 1800 MHz band administratively assigned spectrum to Aircel in Haryana and MP, and Tata in HP as well as the 800 MHz band administratively assigned spectrum to Tata in WB and Quadrant in Punjab should be taken back and this spectrum should also be put to upcoming auction.

Response of TRAI

The Authority is of the view that if a service provider is not utilizing the administratively assigned spectrum without any justification, the licensor should take back the assigned spectrum.

The DoT may take the legal opinion on the above issue and start the process of withdrawal of the spectrum separately. As soon as this spectrum becomes available, the same should be put to auction.

5. Para No. 4.6

The Authority recommends that DoT should ensure that the spectrum surrendered by TTSL is not kept idle and takes appropriate legal remedies to put it in the upcoming auction.

DOT's View

(i) It is noted that M/s TTSL/ TTML has filed a Writ in the Hon'ble High Courts of Kolkata and Bombay and the matter is sub-judice. The auction of spectrum proposed to be surrendered by M/s Tata Teleservices (TTL) and Tata Teleservices (Maharashtra) Ltd (TTML) during the pendency of Writ Petitions before the Hon'ble High Courts of Bombay and Kolkata may create third party interest, leading to legal complications and may affect the complete auction process. Therefore, TRAI is requested to reconsider its recommendation that DoT should ensure that the spectrum surrendered by TTSL is not kept idle and takes appropriate legal remedies to put it in the upcoming auction.

Response of TRAI

In its Response dated 27th November 2014 to reference received from DoT on Recommendations on 'Reserve Price for Auction of Spectrum in the 800 MHz Band' of 22nd February 2014, the Authority had stated the following:

"*TTSL surrendered the spectrum in April 2013 to absolve it from any liability arising out of the one-time spectrum charges (OTC) on spectrum holding beyond 2.5 MHz in the 800 MHz band. This spectrum has already been lying idle for the past 18 months. Since conclusion of the entire judicial process may take considerable time, keeping the spectrum idle till such time is certainly neither desirable nor does it make economic sense. The Authority is also not aware about the legal action taken by the DoT to ensure that the spectrum is not kept idle but is gainfully employed.*"

It has already been three years since spectrum surrendered by TTSL is lying unused/idle. In its recommendations of 27th January 2016, the Authority has recommended for taking legal remedies to put it for auction so that spectrum is gainfully utilised. The Authority's intention behind this recommendation is that DoT should take legal course of action so as to ensure that this stalemate does not continue for long. The Hon'ble Court(s) may be apprised that by keeping the spectrum surrendered by TTSL idle, the Government is losing around 170 crore per annum. This monetary loss is recurring and irreparable.

In view of the above, the Authority reiterates its earlier recommendation.

6. Para No. 4.8 to 4.11

4.8 The Authority recommends that spectrum in 700 MHz band should be offered in the block size of 5 MHz (paired). In case a TSP is able to win more than one block of spectrum in the upcoming auctions, it should be allocated spectrum in contiguous blocks.

4.9 The Authority recommends following block size and minimum quantum of spectrum that a new entrant/existing licenses is required to bid for in 800, 900, 1800 and 2100 MHz bands.

Block size and Minimum amount of spectrum for bidding

Band	*Block Size (MHz)*	*Minimum amount of spectrum that a bidder is required to bid for (MHz)*		
		Existing licensees	*New Entrants*	
800 MHz	*1.25*	*1.25*	*5*	*If spectrum availability is 5 MHz or more*
			3.75	*If 3.75 MHz spectrum is available.*
			2.5	*If 2.5 MHz spectrum is available.*
900/	*0.2*	*0.2, if spectrum*	*0.2*	*If spectrum availability is less than*

1800 MHz		*availability is less than 0.6 MHz; otherwise 0.6*	*0.6 MHz*
			5 MHz if at least one chunk of contiguous block of 5MHz is available; otherwise 0.6 MHz
2100 MHz	*5*	*5*	*5*

4.10 The Authority also recommends that in case a TSP is able to win more than one block of spectrum in 2100 MHz band, it should be allocated spectrum in contiguous blocks. Similarly, if the TSP already having spectrum in the 2100 MHz band, acquires additional carrier, it should be ensured that all its carriers are contiguous.

4.11 The Authority recommends spectrum in the 2300 MHz and 2500 MHz bands should be put to auction in the block size of 10 MHz (unpaired). Currently, spectrum trading in 2300/2500 MHz band is permitted in the block size of 20 MHz. The Authority also recommends that after network synchronization of all the TDD networks, spectrum trading in 2300/2500 MHz band should be permitted in the blocks of 10 MHz.

DOT's View

(a) 800 MHz:

TRAI has recommended block size of 1.25 MHz for existing licensees and licensees in the new entrants in 800 MHz band. It is worthwhile to mention that the right to use the spectrum is being auctioned for the next 20 years period and in some cases starting from 2017-18. The existing operators as per the licence conditions should use State of the Art technologies. At present, LTE technology is being inducted by various operators in this band. The block size for LTE is 1.4 MHz, 3 MHz and 5 MHz and thereafter multiples of 5 MHz. In case block size of 1.25 MHz is prescribed then it may lead to wastage of 1.1 MHz spectrum in case anybody takes two blocks or 0.75 MHz spectrum in case anybody takes three blocks.

Therefore, TRAI is requested to reconsider its recommendations.

(b) 900/1800 MHz:

In case of 900/1800 MHz band, TRAI has recommended that new entrant can bid for 0.2 MHz if the spectrum availability is less than 0.6 MHz. Since no network can operate in 0.2 MHz or even in 0.6 MHz, it is felt that new entrants may not be allowed to bid for minimum of 0.2 MHz if availability is less than 0.6 MHz or 0.6 MHz in case the availability is less than contiguous 5 MHz. In these bands also many operators are inducting LTE technology. In this case again for LTE, block size is of 1.4 MHz or 3 MHz or 5 MHz which is a multiple of 0.2 MHz so operators can participate and bid for equivalent number of blocks of 0.2 MHz.

Moreover, in 2012 auction block size was 1.25 MHz with the result 0.15 MHz/0.1 MHz with Government and 0.05 MHz/ 0.1 MHz with TSPs remains unutilised. To allow optimal utilisation of the spectrum, it is desirable to put in a block size of 0.05 MHz in such service areas with minimum of 2/3 blocks as the case may be for such spectrum.

Therefore, TRAI is requested to reconsider its recommendations.

Response of TRAI

(a) 800 MHz:

The spectrum in the 800 MHz band was auctioned in November 2012, March 2013 and March 2015. In all the auctions, the block size in this band was kept as 2x1.25 MHz and it didn't pose any hindrance to either existing TSPs in that band or to the new entrants. As brought in Para 2.52 of the recommendations, a number of stakeholders suggested that the block size and the provisions regarding minimum spectrum required for bidding should be same as prescribed in the January 2015 NIA. Keeping in view the consistency and the views of the stakeholders, the Authority had recommended the block size of 2x1.25 MHz in the 800 MHz band. Moreover, the spectrum availability in the 800

MHz band is in the chunk of 2x1.25 MHz only. Therefore, keeping the block size as a factor of 1.4 MHz or 3 MHz may render lot of spectrum unused/unsold.

Another reason for continuing the block size as 1.25 MHz was that in future 800 MHz band will be primarily used for deployment of LTE wherein for providing satisfactory data speed at least 2x5 MHz carrier size will be required. Carrier size of 2x1.25 MHz does not pose any hindrance for the TSPs to acquire 2x5 MHz spectrum which is practically the minimum quantum of spectrum to launch LTE technology with good data rate. With spectrum trading guidelines in place, TSPs can supplement their spectrum holding through spectrum trading.

In view of the above, the Authority is of the view that the block size and the provisions regarding minimum spectrum required for bidding in 800 MHz band should be same as prescribed in the January 2015 NIA. Accordingly, the Authority reiterates its earlier recommendations.

(b) 900/1800 MHz

As explained in Para 2.54 to Para 2.57 of the Recommendations, the Authority is of the opinion that there is no need for any modification in the provisions of the latest NIA with respect to block size and minimum quantum of spectrum that a new entrant/existing licenses/expiry licensee is required to bid for in 900/1800 MHz band. However, due to limited availability of spectrum in some LSAs in 900/1800 bands minimum spectrum, that a bidder is required to bid for, has been amended in these LSAs.

As expressed earlier also, 5 MHz is the minimum quantum of spectrum that enables the TSP to launch newer technologies such as LTE with good data rate. Therefore, ideally a new entrant in 900/1800 MHz band should take minimum of 5 MHz spectrum. However, since the spectrum available in most LSAs is <5 MHz, it

is not feasible to put this restriction on the new entrants as it would practically debar them from participating in the auctions in respect of 900/1800 MHz bands.

As per the provisions of January 2015 NIA also, a new entrant was allowed to bid for 0.6 MHz in the 1800 MHz band, if no single 5 MHz contiguous block of spectrum was available in the LSA. Same provision has been extended by the Authority in the 900 MHz band also because the spectrum availability in all the LSAs in this band is less than 5 MHz. In the upcoming auctions, not even 0.6 MHz is available in 900/1800 MHz in some of the LSAs. Therefore, in those LSAs only, the minimum spectrum, that a bidder is required to bid for, has been amended.

In view of the above, the Authority reiterates its earlier recommendations.

7. Para No. 4.13 to 4.19

4.13 The Authority recommends that the following roll-out obligations should be imposed for licensees who acquire access spectrum in 700 MHz band:

- *All towns/villages having population of 15,000 or more but less than 50,000 to be covered within 5 years of effective date of allocation of spectrum for access services and all villages having population of 10,000 or more but less than 15,000 to be covered within 7 years of effective date of allocation of spectrum.*

- *To prevent, duplication of infrastructure, a TSP should also be permitted to fulfill the obligations by sharing network of other operator to the extent permissible as per guidelines/instructions applicable from time to time. A licensee should be allowed to cover any town/village as part of roll-out obligations using intra-service area roaming amongst TSPs having 700 MHz band spectrum, subject to the condition that at least one-third of the towns/villages shall be covered without intra-circle roaming.*

- *Self-certifications by the TSPs should be taken as compliance of roll-out obligations subject to the condition that at least 10% of such towns/villages self-certified by the TSP will be sample test checked by the TERM cell.*

4.14 The Authority recommends that the quantum of test fee for the purpose of roll-out testing requirements may be reduced to 20% of the existing rates for testing in the block headquarters (for phase 3, 4 and 5 of the rollout obligations) and similarly for testing of coverage in rural SDCAs.

4.15 The Authority recommends that test schedule for the roll-out obligations testing for 700 MHz should be released within a period of one year from the date of completion of auction in this band.

4.16 The Authority recommends that the same roll-out obligations, which were imposed on the successful bidder of spectrum in 800 MHz, 900 MHz, 1800 and 2100 MHz band in the auctions held in 2015, should be prescribed for these spectrum bands in the upcoming auctions for new entrant(s). The Authority also recommends that no fresh roll-out obligation should be imposed on existing service providers who are already operating their services in 800, 900, 1800 or 2100 MHz band, in case they acquire additional block of spectrum in the same band.

4.17 The Authority recommends that same roll-out obligations, which were imposed on the successful bidder of spectrum in 2300 MHz band in the auctions held in 2010, should be prescribed for spectrum in 2300 and 2500 MHz band in the upcoming auctions too. The Authority also recommends that in case the existing TSPs, having spectrum in the 2300/2500 MHz band, acquire additional block of spectrum in the same band, no additional roll-out obligations should be imposed on them.

4.18 The Authority recommends that 900 and 1800 MHz bands should be treated as separate bands for the purpose of roll-out obligations if a licensee deploys different technologies in these bands. This would be

applicable for the existing licensees also who have acquired spectrum through auction of 2012 and onwards.

4.19 The Authority reiterates its earlier recommends of 2nd January 2013 that for the purpose of compliance of roll-out obligations, the following needs to be fulfilled by the Licensee in each phase of the roll-out before offering it for testing:

i. Installing sufficient number of BTSs/Node-Bs for the required coverage;
ii. Launch the services commercially;
iii. File the tariff with TRAI as per TRAI's Telecom Tariff Order; and
iv. Make arrangement for subscriber complaint redressal.

For efficient utilization of spectrum, and early delivery of services, the above provision may be made applicable for existing licensees too who are assigned spectrum from 2010 onwards.

DOT's View

(a) With reference to the roll out obligation recommended by TRAI in 700 MHz band, it is felt that telecom facility at affordable rates and in rural, remote and in accessible areas is being funded by Universal Service Obligation Fund. Prescribing roll out obligations, with a span of five to seven years from the date of acquisition of the spectrum in 700 MHz band, does not serve any useful purpose for providing communication facilities in uncovered villages having a population of 15000 or more but less than 50000 at this point of time. Further, once the right to use spectrum is being acquired through auction, it is expected that the licensee will roll out the network expeditiously to recover the investment made in equipment as well as in spectrum and market forces should be allowed free play of joints. There is no doubt that for proliferation of broadband services in rural and remote areas expeditiously, the regulatory intervention may be required which has been separately recommended by TRAI in the context of Bharat Net and is being dealt separately.

(b) TRAI has recommended that the roll out obligations which were imposed on the successful bidders of spectrum in 800/900/1800/2100 MHz band in the auctions held in 2015 should be prescribed for these spectrum bands in the upcoming auctions for new entrants. TRAI has also recommended that no fresh roll out obligations should be imposed on existing service providers who are already operating their services in 800/900/1800/2100 MHz band in case they acquire additional block of spectrum in the same band. Similarly, TRAI has recommended that the existing TSPs having spectrum in 2300/2500 MHz band acquire additional block of spectrum in the same band, no additional roll out obligation should be imposed. TRAI has also recommended that 900 & 1800 MHz band should be treated as a separate band for the purpose of roll out obligations if a licensee deploys different technologies in this band. This would be applicable for existing licensees also who have acquired spectrum through auction of 2012 onwards. It is noted that so far 900 & 1800 MHz band are treated as a same band. Now, with the advancement of technology, same technology is available in 700/800/900/1800/2300 MHz band. The various networks and the frequency band of operation are being engineered on the basis of coverage and capacity criteria. The basic aim of roll out obligation is to ensure that the telecommunication services are available to the consumer.

(c) The recommendation of TRAI that same roll out obligation should be imposed on successful bidders of spectrum in 800, 900, 1800 & 2100 MHz band in the auctions held in 2015 and in 2300 & 2500 MHz band in auctions held in 2010 for the new entrants is accepted subject to the condition that there should not be any need for mandatory roll out obligation in different bands once the number of district headquarters or block headquarters are covered by use of any technology in any band by a licensee. The same roll out obligation may be prescribed for 700 MHz band. TRAI is requested to reconsider this recommendation.

(d) It is also worthwhile to mention that in some of the States, the different terminology for block is used such as Mandals, etc. The equivalent terminology of block headquarter may be used for prescribing rollout obligation. TRAI is requested to reconsider this recommendation.

(e) In respect of roll out obligation in 2100 & 2300 MHz band in the NIA of 2010, it was mentioned that SDCAs should be as per census of 2001 but the census does not define SDCA and the rural SDCAs were notified by the Department of Telecommunication. This practice may continue therefore, it may be prescribed in NIA that the rural SDCA shall be as notified by Department of Telecommunication. TRAI is requested to reconsider this recommendation.

(f) TRAI recommendation for submitting self certification by TSPs for compliance of roll out obligations may be accepted. As TRAI has recommended that at least 10% of such towers/ villages self certified by the TSPs will be sample test checked by TERM Cell.Since the word 'at least' creates ambiguity, it is proposed that figure of such sample test check may be taken as 10%. TRAI is requested to reconsider this recommendation.

(g) As regards recommendation of installing sufficient number of BTS/Node-Bs for the required coverage, launch for services commercially, file the tariff with TRAI as per Telecom Tariff Order (TTO) and make arrangement for subscriber complaint redressal as a part of roll out obligation, it is felt that when coverage testing is done, the required number of BTS and BTSs are already installed. Before launching the service commercially, the operators are required to file tariff with TRAI and therefore there is no need to prescribe it again. Mandating to launch the service commercially is not a practical approach as the service provider may argue that it has launched the service commercially but no subscriber is willing to take its services. TRAI is requested to reconsider this part of recommendation.

Response of TRAI

7 (a)

The Authority is broadly in agreement with the views expressed by the DoT that once the right to use spectrum is being acquired through auction, it is expected that the licensee will roll-out the network expeditiously to recover the investment made in equipment as well as in spectrum. However, TSPs usually roll-out networks first in places having denser population in order to maximize the return on their investment – i.e. in urban areas. Moreover, as pointed out by the Authority in Para 2.91 of the Recommendations:

> **"*Despite the introduction of mobile service for more than two decades there are still more than 55,000 villages which do not have any mobile coverage. On accessibility to wireless internet/broadband, the rural-urban divide is even more visible. As on QE September 2015, there are only 27 million broadband connections in rural areas as against around 94 million broadband connections in urban areas. There are around 84 million internet connections in rural areas whereas there are around 120 million internet connections in urban areas while population distribution is in the range of 70:30 in rural and urban India.*"**

The Authority is aware that all the towns/villages with population more than 15000 may have voice coverage, but keeping in mind the primary objective of increasing broadband penetration in rural areas and reducing the urban-rural divide, the Authority is of the view that special focus should be given for the broadband coverage in smaller towns and villages. As rural roll-outs are mostly commercially unviable, regulatory interventions are needed to ensure roll-out of networks in the remote areas.

Ideally, the period of mandatory roll-out obligations should have been less. However, as discussed in Para 2.94 of the

recommendations, during the consultation process some stakeholders have raised issue about non-availability of device ecosystem in 700MHz band and have raised concerns that the device cost in this band will be prohibitively high due to lack of economy of scale at present. Keeping the concerns of the stakeholders in mind the Authority has recommended a relatively longer period for the mandatory roll-out obligations. Accordingly, the Authority has recommended a period of five years to roll-out networks in villages/towns having population between 15000 to 50,000 and seven years in the villages/towns having population between 10000 to 15,000.

The Authority in its recommendations on 'Implementation Strategy for Bharat Net' dated 1st February 2016, has dealt with implementation aspects related to BharatNet. BharatNet aims to provide a highly scalable network infrastructure accessible on a non-discriminatory basis, to provide on demand, affordable broadband connectivity for all households and on demand capacity to all institutions. This will act as an enabler for the proliferation of broadband services in rural and remote areas. However, Mobile services will still be vital in providing data services in these areas. Therefore, the Authority does not agree with the DoT's views that prescribing roll-out obligations with a span of five to seven years from the date of acquisition of the spectrum in the 700 MHz spectrum band does not serve any useful purpose for providing communication facilities in uncovered villages having a population of 15000 or more but less than 50000 at this point of time. On the contrary, the Authority reiterates that:

"Mobile networks are a viable way to offer affordable broadband services in rural areas. Being a lower frequency band, 700 MHz band has the excellent propagation characteristics and, therefore, possesses the ability to support wider coverage using fewer base stations/sites than higher frequency bands like 1800 MHz, 2100 MHz, 2300 MHz etc. As is evident from the roll-out obligations

imposed in Germany, Sweden and UK, this band may play an important part in improving broadband coverage in the remote areas and could be a cost-effective means to achieve the NTP 2012 broadband target 'broadband for all'." (Para 2.90 of the Recommendations)

In view of the above, the Authority reiterates its earlier recommendation.

7 (b) and 7 (c)

Since the introduction of mobile services in the country, the roll-out obligations have been band-specific. All the bands have specific roll-out obligations, irrespective of the fact that same technology can be deployed in many bands. For instance, HSPA/HSPA+ can be deployed in 900 and 2100 MHz bands; still separate roll-out obligations have been prescribed for each of these bands. Moving from band-specific roll-out obligations to technology specific roll-out obligations will have wider implications, particularly when in all the recent auctions, provisions for band-specific rollout obligations have been kept. Modifying roll-out obligations at this stage may construe non-level playing field. The whole issue needs detailed examination. Therefore, the Authority is in favour of continuing with the band-specific roll-out obligations like earlier auctions.

The only exception has been the treatment of 900 and 1800 MHz band as the same band for the purpose of roll-out obligations. As explained in Para 2.120,

> **"*Still there are a few licensees who acquired only a meagre amount of spectrum in either 900 to complement its spectrum holding in 1800 MHz band or vice versa and use it jointly for the deployment of same technology. In that case, it won't be possible for such licensee to fulfill roll-out obligations separately in each band. However, there are some TSPs who have acquired sufficient spectrum in each of these***

bands and are deploying separate technologies in each of them. In such a case, there is no justification for treating 900 and 1800 MHz bands as the same band for the purpose of roll-out obligations. Therefore, the Authority is of the view that if licensee deploys different technologies in these bands, then there is no justification for relaxing it from the independent roll-out obligations in each of these bands." (Emphasis supplied)

Accordingly, the Authority is of the view that 900 and 1800 MHz bands should be treated as separate bands for the purpose of roll-out obligations if a licensee deploys different technologies in these bands.

7 (d) The Authority agrees with DoT.

7 (e) The Authority agrees with DoT.

7 (f) The Authority agrees with DoT.

7 (g)

The Authority is of the opinion that for efficient utilisation of spectrum, and early delivery of services, the roll-out obligations should not be limited to only coverage obligations but should be linked to installing sufficient number of BTSs/Node-Bs for the required coverage, launch of services commercially, filing the tariff with TRAI as per TRAI's Telecom Tariff Order and making arrangement for subscriber complaint redressal. As pointed out in the Recommendations, some licensees, who otherwise have complied technically with the roll-out obligations, had either not started commercial services or the number of BTSs installed was very less or negligible. For instance, the licensees who acquired BWA spectrum in 2010, in general have offered their networks for testing of roll-outs to Telecom Enforcement, Resource and Monitoring (TERM) Cells, but many of them have not launched commercial services using this spectrum. It effectively means

that spectrum is not being utilised even after 5 years of its assignment.

In view of the above, the Authority reiterates its earlier recommendations.

8. Para No. 4.22

The Authority recommends that the same eligibility criteria that have been made applicable for other bands viz. 800 MHz, 900 MHz, 1800 MHz and 2100 MHz band in January 2015 NIA should be made applicable for 2300 MHz and 2500 MHz bands. The same eligibility criteria should also be made applicable for 700 MHz band also.

DOT's View

The TRAI has recommended that the same eligibility criteria that have been made applicable for other bands viz. 800 MHz, 900 MHz, 1800 MHz and 2100 MHz band in January 2015 NIA should be made applicable for 2300 MHz and 2500 MHz bands. The same eligibility criteria should also be made applicable for 700 MHz band also. It is noted that there are certain conditions such as networth, lock-in condition in NIA which adversely affect wider competition in the auction. Therefore, TRAI is requested to reconsider this recommendation.

Response of TRAI

The TRAI has recommended that the same eligibility criteria that have been made applicable for other bands viz. 800 MHz, 900 MHz, 1800 MHz and 2100 MHz band in January 2015 NIA should be made applicable for 700 MHz band. DoT's suggestion is equivalent to modifying the eligibility conditions across board. This was not the part of the original reference/consultation process.

Therefore, the Authority reiterates its earlier recommendations that the same eligibility criteria that have been made applicable

for other bands viz. 800 MHz, 900 MHz, 1800 MHz and 2100 MHz band in January 2015 NIA should be made applicable for 700 MHz, 2300 MHz and 2500 MHz bands.

9. Para No. 4.24

The Authority reiterates its earlier recommendation that there is an urgent need of audit for all allocated spectrum both commercial as well as spectrum allocated to various PSUs/ Government organizations. This should be done by an independent agency.

DOT's View

(i) TRAI has reiterated its earlier recommendation that there is an urgent need of audit for all allocated spectrum both commercial as well as spectrum allocated to various PSUs/ Government organizations and this should be done by an independent agency. It is noticed that the Government is moving towards a regime of self certification and soft touch regulation. DoT shall internally audit the spectrum allocated to various PSUs/Government organisations within a period of 6 months and submit the report to Telecom Commission. TRAI is requested to reconsider this recommendation.

Response of TRAI

DoT should be cognizant of the fact that as per the rough estimates, approximately 800 MHz of spectrum with the potential of commercial usage is available with the Government agencies in the spectrum between 470 MHz to 3600 MHz. The market value of such spectrum (20 years) will be several thousand crore on a conservative basis. Without prejudice to strategic use of spectrum by Government agencies, the Authority merely wants to point out that the spectrum is valuable and perishable resource. Therefore, DoT should do due diligence while carrying out the spectrum audit.

The role of spectrum audit is of utmost importance. Audit by an independent agency through a transparent and objective

mechanism is desired. However, if DoT intends to carry out audit by itself, it should be completed in a time-bound manner and its methodology and the outcomes should be shared with the Authority.

10. Valuation of Spectrum (Para 4.25 to 4.29 of TRAI Recommendations)

Para 4.25

The Authority is of the view that a fresh valuation of 800 MHz, 900 MHz, 1800 MHz and 2100 MHz spectrum is the preferred way to initiate the process of determining valuation and reserve price of these four bands for the forthcoming auction.

Para 4.26

The Recommended reserve prices for 1800 MHz band, 900 MHz band, 800 MHz band and 2100 MHz band for the forthcoming auction are tabulated below:

RECOMMENDED RESERVE PRICE PER MHz (PAIRED) IN 1800 MHz BAND

(Rs. in crore)

(1)	(2)	(3)	(4)
LSA	Category	Reserve Price (as calculated)	Recommended Reserve Price (Rounded off)
Delhi	Metro	398.71	399
Mumbai	Metro	297.94	298
Kolkata	Metro	149.10	149
Andhra Pradesh	A	242.80	243
Gujarat	A	238.00	238
Karnataka	A	185.00	185
Maharashtra	A	318.04	318
Tamil Nadu	A	225.00	225
Haryana	B	46.60	47
Kerala	B	83.45	83

Madhya Pradesh	*B*	*82.74*	*83*
Punjab	*B*	*77.00*	*77*
Rajasthan	*B*	*90.99*	*91*
U. P. (East)	*B*	*114.87*	*115*
U.P. (West)	*B*	*95.95*	*96*
West Bengal	*B*	*45.68*	*46*
Assam	*C*	*39.54*	*40*
Bihar	*C*	*62.00*	*62*
Himachal Pradesh	*C*	*15.90*	*16*
Jammu & Kashmir	*C*	*13.02*	*13*
North East	*C*	*11.00*	*11*
Orissa	*C*	*38.10*	*38*

** 1800 MHz spectrum is not available in Tamil Nadu. However, recommended reserve price for this LSA has been included in the table since there is linkage with 700 MHz spectrum band.*

RECOMMENDED RESERVE PRICE PER MHz (PAIRED)
IN 900 MHz BAND

(Rs. in crore)

(1)	*(2)*	*(3)*	*(4)*
LSA	*Category*	*Reserve Price (as calculated)*	*Recommended Reserve Price (Rounded off)*
Gujarat	*A*	*673.00*	*673*
Karnataka	*A*	*557.50*	*558*
Haryana	*B*	*151.20*	*151*
U. P. (East)	*B*	*775.60*	*776*
U.P. (West)	*B*	*738.55*	*739*
Bihar	*C*	*444.30*	*444*

RECOMMENDED RESERVE PRICE PER MHz (PAIRED)
IN 800 MHz BAND

(Rs. in crore)

(1)	*(2)*	*(3)*	*(4)*
LSA	*Category*	*Reserve Price (as calculated)*	*Recommended Reserve Price (Rounded off)*
Delhi	*Metro*	*847.70*	*848*
Mumbai	*Metro*	*727.50*	*727*
Kolkata	*Metro*	*160.39*	*160*
Andhra Pradesh	*A*	*605.98*	*606*
Gujarat	*A*	*284.91*	*285*
Karnataka	*A*	*303.00*	*303*
Maharashtra	*A*	*799.42*	*799*
Tamilnadu	*A*	*360.00*	*360*
Haryana	*B*	*57.05*	*57*
Kerala	*B*	*243.33*	*243*
Madhya Pradesh	*B*	*408.39*	*408*
Punjab	*B*	*119.14*	*119*
Rajasthan	*B*	*204.21*	*204*
U. P. (East)	*B*	*218.64*	*219*
U.P. (West)	*B*	*182.23*	*182*
West Bengal	*B*	*82.12*	*82*
Bihar	*C*	*136.20*	*136*
Himachal Pradesh	*C*	*23.97*	*24*
Orissa	*C*	*57.47*	*57*

RECOMMENDED RESERVE PRICE PER MHz (PAIRED)
IN 2100 MHz BAND

(Rs. in crore)

(1)	*(2)*	*(3)*	*(4)*
LSA	*Category*	*Reserve Price (as calculated)*	*Recommended Reserve Price (Rounded off)*
Delhi	*Metro*	*553.56*	*554*
Mumbai	*Metro*	*461.10*	*461*
Kolkata	*Metro*	*115.59*	*116*
Andhra Pradesh	*A*	*271.81*	*272*
Gujarat	*A*	*258.00*	*258*
Karnataka	*A*	*328.47*	*328*
Maharashtra	*A*	*341.27*	*341*
Tamilnadu	*A*	*344.00*	*344*

Haryana	*B*	*55.29*	*55*
Kerala	*B*	*177.26*	*177*
Madhya Pradesh	*B*	*122.98*	*123*
Punjab	*B*	*91.18*	*91*
Rajasthan	*B*	*139.82*	*140*
U. P. (East)	*B*	*109.98*	*110*
U.P. (West)	*B*	*111.32*	*111*
West Bengal	*B*	*51.62*	*52*
Assam	*C*	*45.68*	*46*
Bihar	*C*	*86.45*	*86*
Himachal Pradesh	*C*	*19.90*	*20*
Jammu & Kashmir	*C*	*10.95*	*11*
North East	*C*	*12.39*	*12*
Orissa	*C*	*38.05*	*38*

Para 4.27

The recommended reserve price of 700 MHz spectrum band for each LSA is tabulated below:

RECOMMENDED RESERVE PRICE PER MHz (PAIRED) IN 700 MHz BAND

(Rs. in crore)

(1)	*(2)*	*(3)*	*(4)*
LSA	*Category*	*Recommended Reserve price per MHz*	*Recommended Reserve Price (Rounded off)*
Delhi	*Metro*	*1594.84*	*1595*
Mumbai	*Metro*	*1191.75*	*1192*
Kolkata	*Metro*	*596.40*	*596*
Andhra Pradesh	*A*	*971.20*	*971*
Gujarat	*A*	*952.00*	*952*
Karnataka	*A*	*740.00*	*740*
Maharashtra	*A*	*1272.15*	*1272*
Tamilnadu	*A*	*900.00*	*900*
Haryana	*B*	*186.40*	*186*
Kerala	*B*	*333.80*	*334*

Madhya Pradesh	*B*	*330.96*	*331*
Punjab	*B*	*308.00*	*308*
Rajasthan	*B*	*363.98*	*364*
U. P. (East)	*B*	*459.47*	*459*
U.P. (West)	*B*	*383.80*	*384*
West Bengal	*B*	*182.72*	*183*
Assam	*C*	*158.17*	*158*
Bihar	*C*	*248.00*	*248*
Himachal Pradesh	*C*	*63.60*	*64*
Jammu & Kashmir	*C*	*52.07*	*52*
North East	*C*	*44.00*	*44*
Orissa	*C*	*152.40*	*152*

Para 4.28

The recommended value and reserve price of 2300 MHz spectrum band for each LSA is tabulated below:

RECOMMENDED VALUATION AND RESERVE PRICE PER MHz (UNPAIRED) IN 2300 MHz BAND

(Rs. in crore)

(1)	*(2)*	*(3)*		*(4)*
LSA	*Category*	*Recommended Valuation per MHz*	*Recommended Reserve Price per MHz*	*Recommended Reserve Price (Rounded off)*
Delhi	*Metro*	*178.61*	*142.89*	*143*
Mumbai	*Metro*	*182.75*	*146.20*	*146*
Kolkata	*Metro*	*41.70*	*33.36*	*33*
Andhra Pradesh	*A*	*84.41*	*67.53*	*68*
Gujarat	*A*	*48.92*	*39.14*	*39*
Karnataka	*A*	*123.00*	*98.40*	*98*
Maharashtra	*A*	*72.98*	*58.38*	*58*
Tamilnadu	*A*	*164.93*	*131.95*	*132*

Haryana	*B*	*9.56*	*7.64*	*8*
Kerala	*B*	*20.62*	*16.49*	*16*
Madhya Pradesh	*B*	*9.94*	*7.95*	*8*
Punjab	*B*	*26.48*	*21.19*	*21*
Rajasthan	*B*	*7.76*	*6.21*	*6*
U. P. (East)	*B*	*11.36*	*9.09*	*9*
U.P. (West)	*B*	*14.65*	*11.72*	*12*
West Bengal	*B*	*5.66*	*4.52*	*5*
Assam	*C*	*2.63*	*2.11*	*2*
Bihar	*C*	*7.91*	*6.33*	*6*
Himachal Pradesh	*C*	*1.65*	*1.32*	*1*
Jammu & Kashmir	*C*	*1.70*	*0.68*	*1*
North East	*C*	*1.70*	*0.68*	*1*
Orissa	*C*	*5.07*	*4.06*	*4*

Para 4.29

The Authority recommends that the Reserve Price of 2500 MHz spectrum band should be equal to recommended Reserve Price of 2300 MHz.

DOT's View

Further the Committee observed the following:

(a) The TRAI has indexed the February, 2014 auctioned determined price using the SBI base rate, as one of the approaches while determining the valuation of spectrum. It is noted that in the DoT Guidelines for liberalisation of administratively allocated spectrum in 800 MHz and 1800 MHz bands dated 5.11.2015, the concept of SBI PLR for indexing the price has been used (instead of SBI base rate) basing in the TRAI recommendation, dated 9-9-2013 (para- 7.11, iii). In 800 MHz band the TRAI recommended reserve price is higher than the 2015 auction

revealed price in Kolkata, Gujarat, Haryana, Punjab, UP(E), UP(W), West Bengal, Bihar, Himachal Pradesh, North East and Odisha. Similarly in 1800 MHz band the TRAI recommended reserve price is also higher than the 2015 auction revealed price in Punjab, Rajasthan, UP (E) and Odisha. In case the recommended reserve price is accepted by the government then there will be two different prices available at the same time i.e. the reserve price for the NIA which will be higher than the 2015 auction revealed price used for calculation of liberalization charges.

(b) In few other cases like Delhi, Mumbai and Maharashtra in 1800 MHz and Delhi, Mumbai in 900 MHz where 2014 auction revealed price duly indexed at SBI base rate has been recommended as the reserve price the same will be lower than the indexed price calculated for the liberalization purpose using SBI PLR.

Therefore, TRAI may be requested to reconsider this aspect and offer its reconsidered opinion to deal with such situations.

(c) It is noted that the base rate practice is in line with the present financial services regime and has been used only for estimation purpose for arriving at the Reserve Price of spectrum in various bands for the forthcoming auction as one of the approaches. However, TRAI has not provided the period for which the SBI base rate has been applied for indexing the previous auction determined price.

(d) The Government had decided the reserve price in case of Metro and Category 'A' service areas, without applying the multiplication factor of 0.8 on the average valuation as arrived by TRAI to arrive at the reserve price for the auction held during February, 2014 and March, 2015 while no such change was made in respect of reserve price for category 'B' and 'C' service areas.

(e) It is noted that the reserve price in 800 MHz, 900 MHz, 1800 MHz band was fixed by reducing it by 50% in the last auction in J&K & NE Service areas.

(f) TRAI in its recommendation has suggested that the reserve price of 700 MHz should be 4 times of 1800 MHz. It is worthwhile to mention

that TRAI in its recommendation has observed that valuation based only on technical efficiency with other bands will not be correct approach. As it denotes all other factors i.e. development stage of ecosystem, market preference towards any particular band, timing of auction, etc Technical efficiency based evaluation can be one of the possible valuation but not the only one. The market revealed value and the trends is a better indicator of value placed to the spectrum. TRAI has also noted that in April, 2014, it has recommended reserve price in 700 MHz band as 4 times that of 1800 MHz band and has followed the same approach in the absence of any better approach. TRAI has not indicated whether the various factors as indicated by it or valuation has been taken into consideration while arriving the reserve in 700 MHz band as 4 times of 1800 MHz band. It is worthwhile to mention as far as propagation characteristics are concerned, it is more near to 800/900MHz rather 1800 MHz and the FDD, LTE is available only in 42 countries.

(g) TRAI is requested to reconsider these recommendations in respect of the following:

(g)(i) Whether TRAI has considered various factors, which inter-alia includes demand, availability of eco-system etc. while recommending the Reserve Price of spectrum in all the bands?

Response of TRAI

It has been the consistent view of the Authority that "bottom-up" approach (use of band and LSA specific inputs) is best suited for arriving at valuation and reserve price of spectrum. The key inputs used in valuation and reserve price estimation exercise are: projected subscriber growth, demand for services, likely network costs, projected investment, past auctions experience etc. The "bottom-up" approach was used in 800 MHz, 900 MHz, 1800 MHz and 2100 MHz in view of availability of historical information/data. Other spectrum bands (700/2300/2500 MHz) where historical information/data are not available, valuation and reserve price has been worked out on the basis of other spectrum

bands reserve prices and outcome of the auctions held in the past.

(g)(ii) DoT View

In few other cases like Delhi, Mumbai and Maharashtra in 1800 MHz and Delhi, Mumbai in 900 MHz where 2014 auction revealed price duly indexed at SBI base rate has been recommended as the reserve price the same will be lower than the indexed price calculated for the liberalization purpose using SBI PLR.

Response of TRAI

DoT Guidelines for liberalization of administratively allotted spectrum dated 5th November 2015 state that a Telecom Service Provider (TSP) can liberalize its administratively allotted spectrum after payment of required price charges. The amount payable for liberalization would be equal to the latest *auction determined price* for the frequency band. In case, *auction determined price* is more than one year old than the prevailing market rates would be determined by indexing the last auction price by SBI PLR. Further, Para 16 of the guidelines state that these guidelines shall not be applicable for liberalization of a frequency band in a service area where *auction determined price* is not available for that band. Guidelines do not mention or contain any clause on adoption of Reserve Price (R.P.) as price to be charged for liberalization. Therefore, DoT contention that there will be two different prices available at the same time, is not correct.

A reference is also invited to the Authority's Recommendations of 27th January 2016 on liberalisation of administratively allocated spectrum. The Authority has recommended that in LSAs where auction determined price is not available, as an interim measure, reserve price recommended by the Authority may be taken as provisional price for liberalisation. On availability of auction determined price in the LSA, adjustment will be made for provisional price already charged. Thus, these Recommendations

were made for the specific situation and need to be seen in that context only. Nowhere, the Authority has recommended for adoption of reserve price as final price to be charged for liberalisation of administratively allocated spectrum.

(g)(iii) Para 3.64

The reserve price for 800 MHz band, 900 MHz band, 1800 MHz band and 2100 MHz band should be higher of the two figures – 80% of the average valuation of spectrum band in the LSA or the price realised in the March 2015 auction /February 2014 (duly indexed with SBI base rate) auction.

(Para 3.81)

The value of 2300 MHz spectrum band should be equal to the May 2010 auction prices duly indexed with SBI base rate and the recommended Reserve Price should be 80% of the arrived valuation.

DoT's View

TRAI has suggested higher of valuation and auction price and not suggested 80% in the frequency bands 800, 900, 1800 and 2100 MHz bands, whereas TRAI has recommended Reserve Price as 80% of indexed price of 2300/2500 MHz.

Response of TRAI

It has been a well-articulated position of the Authority that market revealed prices are the best indicative value of spectrum. In the valuation process, auction revealed prices can serve as a benchmark price representing a lower bound while arriving at estimated value of spectrum. However, each auction outcome is different and is a function of a host of context-specific factors such as demand and supply, macroeconomic conditions which may or may not remain same over longer period etc. Thus, the Authority was of the considered view that the auction determined prices of a band revealed in last two years can be taken while applying the principle of lower bound. Any market revealed price older than two years (indexed or not) may not be relevant for the

purpose of applying the principle of lower bound in view of the time elapsed. Accordingly the spectrum bands (i.e.800 MHz, 900 MHz, 1800 MHz and 2100 MHz) where auction determined prices of last two years are available, the same have been taken into consideration while applying the lower bound principle. In the case of 2300/2500 MHz, no auction prices are available of last two years, therefore base principle of arriving reserve price (i.e. higher of 80% of estimated valuation or auction determined price) has not been applied in 2300 MHz and 2500 MHz band. It is also pertinent to note here that there are LSAs in other bands (800/900/1800/2100 MHz) also where no auction determined price was available in last two years. Reserve Price for such LSAs have also been arrived and recommended on similar principle as followed for 2300/2500 MHz bands subject to qualifications mentioned in Para 3.64 of the January 2016 Recommendations.

Thus, on the DoT observation that TRAI has suggested higher of valuation and auction price and not suggested 80% in the frequency bands 800, 900, 1800 and 2100 MHz, is not correct. In these bands, the Authority has recommended that the reserve price should be higher of the two figures – 80% of the average valuation of spectrum band in the LSA or the price realised in the March 2015 auction /February 2014 (duly indexed with SBI base rate) auction.

(g)(iv) Para 3.28

The Authority has decided that the auction determined price of 800/900/1800/2100 MHz spectrum bands in March 2015 auction (and where auction determined price in March 2015 auction is not available, then duly indexed available auction determined price of last auction) can be taken as one of possible values in the respective spectrum bands in the current valuation exercise.

DoT's View

However, TRAI has not provided the period for which the SBI base rate has been applied for indexing the previous auction determined price.

Response of TRAI

The Authority has used the weighted average SBI Base Rate of respective years in indexing the past auction determined prices. Taking the validity of auction determined price, no indexation has been done for the first year. For example, auction determined price of February 2014 auction (after leaving the first year i.e. 2014-15) has been indexed for one year (i.e. for 2015-16) by using weighted average SBI base rate for 2015-16 (i.e. 9.54%).The year-wise weighted average SBI base rate (for last six years ended 2015-16) used by the Authority in the valuation and reserve price exercise are: 8.73%, 9.65%, 9.86%, 9.83%, 10% and 9.54% respectively.

(g)(v) Para 3.75

The Authority recommends that reserve price of 700 MHz band should be equal to four times of reserve price of 1800 MHz.

DoT's View

Why fresh Valuation has not been made by TRAI for 700 MHz band.

Response of TRAI

Please refer to Para 3.75 of the Recommendations of January 2016 which contains the explanation for methodology adopted (4 times of reserve price of 1800 MHz) to arrive at reserve price for 700 MHz spectrum and also the constraints faced in valuation and reserve price of 700 MHz using "bottom-up" approach.

(g)(vi) Para 3.57

The reserve price for North East and Jammu & Kashmir LSAs in 800 MHz band, 900 MHz band, 1800 MHz band and 2100 MHz band may be fixed at a discount of 50% on the reserve price.

DoT's View

Why 50% discount has been recommended by TRAI for J&K and NE service areas on auction determined price.

Response of TRAI

Please refer Para 3.57 of the Recommendations of January 2016 which contains the rationale for recommending 50% discount on computed reserve price in North East and J&K LSAs. This is also in line with the Government's overall objective of development of the telecom facilities in these regions.

(g)(vii) Para 3.75

The Authority recommends that reserve price of 700 MHz band should be equal to four times of reserve price of 1800 MHz.

DoT's View

The TRAI recommended Reserve Price of 700 MHz band is lower than that recommended for 900 MHz for UP (E), UP (W) and Bihar service areas. Similarly, the recommended Reserve Price of 700 MHz band for MP is lower than that recommended for Reserve Price of 800 MHz band. TRAI may provide clarifications on these issues.

Response of TRAI

As noted in para 3.75 of its recommendations, the Authority "considers "bottom-up" approach (use of band and LSA specific inputs) to be best suited for the valuation exercise. However, in view of the non-availability of historical financial and non-financial information and 700 MHz band being put for auction for the first time in the country, a "bottom-up" approach based valuation is currently not possible in this band. Valuation based only on technical efficiency with other bands may not be correct approach as it ignores all other factors i.e. development stage of eco system, market preference towards any particular band, timing of auction etc. Technical efficiency based valuation can be one of possible valuation but not the only one. Market revealed

value and trends is a better indicator of value placed to the spectrum".

However, in the case of 700 MHz band which is being auctioned for the first time, the Authority did not have any historical data – financial as well as non-financial relating to this band. There is no denying the fact that technical propagation characteristic-wise 700 MHz is nearer to 800/900 MHz band than 1800 MHz band. Moreover, it is also a fact that as per international trends 700 MHz band will be primarily used for LTE technology and presently 1800 MHz is the most deployed band for LTE technology. Therefore, the Authority has decided to benchmark the reserve price of 700 MHz with reference to 1800 MHz band and not 800/900 MHz band. In view of the above and keeping in view its recommendations of April 2012, the Authority has recommended the reserve price of 700 MHz as four times the 1800 MHz band. As it has not benchmarked reserve price of 700 MHz band with reference to either 800 or 900 MHz, therefore the contention of DoT that in some LSAs the recommended reserve price is lower than the reserve price of either 800 or 900 MHz band is not relevant.

The Authority therefore reiterates its Recommendation on reserve price for 700 MHz band.

11. Para 4.30

The Authority reiterates its Recommendations of 9th September 2013 on 'Valuation and Reserve price of Spectrum' (Para 5.31, 5.33, 5.35 and 5.37) on Spectrum Usage Charges for all the spectrum bands in the forthcoming auction.

DoT's View

(a) It is noted that:-

(i) For spectrums acquired in 2015 auction in 800, 900, 1800 and 2100 MHz bands the SUC shall be charged at 5% of AGR;

(ii) In case of combination of existing spectrum in this band and spectrum acquired through auction, the weighted average will apply to all the spectrum held by the operator in 800, 900, 1800 and 2100 MHz bands;

(iii) The licensees who do not acquire spectrum in this auction (2015 auction) shall continue to pay SUC as per applicable rates;

(iv) In respect of BWA spectrum acquired through 2010 practice (i.e. para 3.5 of NIA, dated 25.10.2010) i.e. 1% of AGR and such revenue would be required to be reported separately. The operator will have to put in place a system for independently monitoring and verifying the revenue earned from BWA spectrum to prevent revenue misrepresentation.

(b) TRAI has reiterated its Recommendations of 9th September 2013 on 'Valuation and Reserve price of Spectrum' (Para 5.31, 5.33, 5.35 and 5.37) on Spectrum Usage Charges for all the spectrum bands in the forthcoming auction.

(c) While spectrum acquired in forthcoming auction in 700, 800, 900, 1800, 2100, 2300 & 2500 MHz band is to be charged at the rate of 3% of AGR but

(i) In case of combination of spectrum in 700, 800, 900, 1800, 2100 MHz band and spectrum acquired through forthcoming auction, the weighted average will apply to all the spectrum held by the operator in these bands;

(ii) The licensees who do not acquire spectrum in the forthcoming auction (2016 auction) shall continue to pay SUC as per applicable rates;

(iii) In respect of the spectrum in 2300 and 2500 MHz band, the weighted average shall be calculated separately (with SUC @ 1% of AGR for the spectrum acquired through 2010 auction and @ 3% of AGR for the spectrum acquired through forthcoming auction) and such revenue would be required to be reported separately. The

operator will have to put in place a system for independently monitoring and verifying the revenue earned from BWA spectrum to prevent revenue misrepresentation.

(d) TRAI is requested to reconsider this recommendation.

Response of TRAI

Regarding the request of DoT to the Authority to reconsider its recommendations given in January 2016 on Spectrum Usage Charges (SUC) for all the spectrum bands, the Authority notes that in the present reference, DoT has already conveyed its decision on the subject as given in Para 11 (c) (i) to (iii). In view of the same, the Authority has no further comments to offer.

MISCELLANEOUS ISSUES

Payment terms

The Authority is of the view that the structuring of the payment terms is a matter that needs to be decided by the Government factoring in, amongst other things, the current budgetary requirements. Though this issue was not discussed in the CP, however the Authority in the past had given its Recommendations on the issue. The Authority has examined this issue again and is of the view that the longer tenure for payment enhances the bidder(s) capacity to pay/liquidity and will also incentivize them to participate in the auction. The liberal terms of payment in the form of reduced upfront payment and longer payment schedule will result in a situation where bidders would find themselves in 'pay as you earn' situation and will not be burdened by payments in the initial years. There would be no loss to the Exchequer as the instalment will contain the interest element also. At the same time there may be larger participation of the TSPs in the auction as they get some leverage in making payment over a longer time horizon. The Authority further notes that there is possibility where (a) successful bidders may like to

opt for option of lump sum payment of bid amount (i.e 100% upfront payment) or (b) under instalment scheme after payment of some annual instalments, may like to prepay the entire or part of the outstanding balance.

In view of the above, the Authority recommends the following payment schedule options for successful bidder in the forthcoming auction.

(i) Full upfront payment of bid amount or

(ii) Following schedule for deferred payment (instalment scheme) of the bid amount:-

Spectrum	Initial Payment	Period for balance payment
All Spectrum Bands (i.e. 700/800/900 /1800/2100/2300/ 2500 MHz)	10% of the Bid amount	18 years (18 equal annual instalments with interest)

The 1st instalment of the balance amount shall become due on the first anniversary of the date on which the upfront payment was made. Subsequent instalment shall become due on the same date of each following year. In case successful bidder after payment of some annual instalments, chooses to prepay the entire or part amount of the outstanding principle, he may be allowed to exercise the option of full or part prepayment.