



Telecom Regulatory Authority of India



Recommendations

On

Valuation and Reserve Price of Spectrum

(Response to reference received from Department of
Telecommunications on recommendations of
9th September 2013)

New Delhi 23rd October, 2013

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CHAPTER-I

INTRODUCTION

At the outset, it is important to set the record straight. The Authority consciously took the decision not to limit itself to the immediate issues referred to it by the DoT for its recommendation viz., reserve prices. The Authority decided to take a holistic view of the matter with the intention that the recommendations could lay the basis for a revival of investment and growth in the telecom sector. Further, given the dire state of the sector's finances, sectoral consolidation was, quite simply, an imperative. The Authority, therefore, deliberately decided to address issues related thereto. The underlying belief was that the Authority's recommendations and the ensuing auction could form the beginning of a basis for effecting a sectoral turnaround.

The Authority had approached the framing of the recommendations dated 9th September 2013 with the intention of addressing two separate, but related, sets of issues impinging on the efficient management of spectrum. The first set of issues was auction-related viz. issues pertaining to the quantity of spectrum to be auctioned in the different bands, the eligibility criteria for bidders to participate in the auction, the block size, reservation for existing TSPs, reserve price and related matters.

The second set of issues were about the policy changes required in roll-out obligations, Spectrum Usage Charges (SUC) and spectrum trading, which are crucial areas likely to impact the future investment and the growth trajectory of the telecom sector.

With a view to ensure a more optimal utilisation of spectrum allocated to TSPs, the Authority intended to bring clarity to the policy framework with regard to spectrum trading and to spell out the broad terms and conditions for such trading. In respect of roll-out obligations, the Authority attempted to correct the urban-centric bias

of the existing stipulations and to harmonise the approach with the provisions of the National Telecom Policy-2012. In the case of SUC, the Authority drew up a set of recommendations which, taken together, would enable a graduated transition from the existing regime with its many limitations, to a more balanced, equitable and rational system.

Some of these recommendations have been referred back to the Authority by the DoT for reconsideration. The Authority's recommendations, the views of the DoT thereon, and the response of the Authority are discussed below ad seriatim in Chapter II.

CHAPTER-II

PARAWISE RESPONSE

1. Para 7.1

The Authority recommends that there should be no reservation of spectrum for the Renewal Licensees in 900 or 1800 MHz bands. The Authority also recommends that no priority should be accorded to these licensees in the bidding process and all bidders should be treated alike.

DoT View

The TRAI, in para 2.19 of its recommendations, have mentioned that reservation of spectrum for renewal licensees in 900 MHz band (licenses expiring in November, 2014) due will distort the determination of market price and reduces the amount of spectrum available for auction. It has further mentioned that the distortion is further accentuated by the fact that the cost of license renewal depends on the price discovered in the auction and if an operator seeking renewal has assurance of reservation, it would dampen auction bid. Moreover, incumbent TSPs are already in an advantageous position as they are having spectrum in 1800 and 900 MHz bands. Considering, inter-alia, the above, TRAI has made this recommendation.

TRAI recommendations of April, 2012 on Auction of Spectrum were noted wherein a clarification was sought from TRAI vide letter dated 25.10.2012 regarding various issues related to re-farming and modalities thereof as well as quantum of spectrum in various bands that could be retained by a licensee at the time of renewal of licenses. TRAI sent their response on 30.10.2012 giving options of full re-farming and retention of spectrum of say 2.5 MHz in 900 MHz band.

Thereafter, it was decided by the EGoM to allow priority ranking of 2.5 MHz subject to participation and bidding and payment of auction determined price for the retained spectrum.

Accordingly, in the auction of spectrum in March, 2013, simultaneous bidding for 1800 and 900 MHz spectrum was designed with priority ranking of 2.5 MHz in 900 MHz for the incumbent operators to enable the operators to simultaneously compete and balance their bids among the two bands as per their requirement and preference. Further sufficient time was available for them to make changes in their network, if required depending upon the quantum of spectrum won in both or any of the bands as the licenses are expiring in November, 2014. Therefore, the question of disruption of service was also addressed.

It is observed that TRAI, in its response dated 30.10.2012, while conveying the option for permitting the incumbents to retain 2.5 MHz in the 900 MHz band was in the context of continuance of possession of a certain amount of 900 MHz spectrum to ensure continuity of services, especially in rural/ remote areas. Moreover, in so far as metro area is concerned, coverage of rural area is not an issue, and the operators possess spectrum in 1800 MHz band also. It is noted that in the present recommendation, the thrust of TRAI is on adverse impact on the competitive bidding, determination of correct market price and reduction of the quantum of spectrum available for bidding, if spectrum is reserved.

It may be mentioned that EGoM in its meeting held on 26th June 2013 to finalise terms and conditions of forthcoming auction has approved the provision of such reservation. Therefore, TRAI is requested to consider above referred decision of EGoM in this respect while making their reconsidered recommendations.

Response of TRAI

There are good and cogent reasons for not reserving spectrum. Restricting the quantum of spectrum for auction would not enable fair price discovery. This was, in fact, the reason why the EGoM had rejected the idea of reservation of spectrum *per se* and opted for the ‘priority ranking’ solution for the March 2013 auction. The DoT through its letter dated 17th July 2013, intimated that “the EGoM while noting that the retention of 2.5 MHz spectrum in 900 MHz band by the incumbent operators holding spectrum in this band as well as retention of spectrum up to the prescribed limit in both 1800 MHz and 900 MHz bands is subject to the payment of the auction determined price in both these bands, decided that:

- i) These conditions be suitably incorporated in the auction design so as to provide for exercise of the above options by such operations in Delhi and Mumbai service areas solely by means of participation and bidding in the proposed auction of 900 MHz band and 1800 MHz band, and**
- ii)**

In para 2.19 of the recommendations, the Authority has also observed that “..... *reserving a certain amount of spectrum in the 900 MHz or 1800 MHz band for operators renewing licenses reduces the amount of spectrum available for auction, and thereby distorts the determination of the market price. The distortion is further accentuated by the fact that the cost of license renewals depends on the price discovered in the auction and if an operator seeking renewal has assurance of a reservation, it would dampen auction bids. Moreover, incumbent TSPs are already in an advantageous position as they are having network and equipment in both these bands.*”

In making its recommendation against any reservation whatsoever, the Authority was merely extending the reasons (logic) behind the EGoM's decision against reservation. The Authority's prime concern was that any perception that the auction was, in some sense, restricted should be avoided.

While framing these recommendations, the main intention of the Authority was to have an open, transparent, objective, responsive unrestricted and successful auction for 900/1800 MHz spectrum.

The issue of giving priority ranking to the incumbents as envisaged in the NIA was also examined by the Authority. In para 2.21 of the recommendations, the Authority has noted that *"The Authority is not in favour of providing priority in retention in 900/1800 MHz band. The Authority is of the view that in the three metros, if such priority were to be given and if both the renewal licensees were amongst the highest provisional winners, then it would reduce the quantum of spectrum for other bidders in the 900 MHz band and, as far as 1800 MHz band is concerned, there would be hardly any spectrum left for the quashed licensees. This would be against the spirit of the Hon'ble Supreme Court's directions."*

TSPs holding spectrum in the 900 MHz band for whom reservation was proposed, are already in an advantageous position as they are having network and equipment in this band. Therefore, any reservation would create a non-level playing field amongst the bidders. Accordingly, the Authority reiterates its recommendations.

2. Para 7.2

The Authority recommends that, before the upcoming auction, the DoT should come out with a clear roadmap indicating the quantum of spectrum which will be available in future along with time-lines so that licensees whose licences are due for renewal in 2015/16 can take an informed decision about bidding for spectrum in the 1800 MHz band.

DoT View

As regards utilisation of spectrum in 1800 MHz (1710-1785 MHz paired with 1805-1880 MHz), it has been decided by the Government that out of the quantum of 75+75 MHz available, 55+55 MHz is designated for telecom services and remaining 20+20 MHz is for the Defence. Necessary action is underway in consultation with Defence for re-organisation of existing usages including time line for vacation by Defence in 1800 MHz band. It may be mentioned that ensuring availability of spectrum for future auction has attendant time and uncertainty implications, as it is dependent on several other issues including provisioning of Network for Spectrum (NFS) for Defence, spectrum remaining unsold in the next round of auction, etc.

Hence, specifying timeline and availability of spectrum in 1800 MHz for future auctions say for licenses expiring in 2015/16 may not be feasible at this stage except that the current holding of spectrum in 1800 MHz by such licensees will be available for auction.

Nevertheless, Government will take action to carry out auction in respect of licenses expiring in 2015/16, sufficiently in advance and normally 18 months prior to the date of expiry of licenses.

Response of TRAI

In para 2.23 of the recommendations, the Authority has observed that on the expiry of licences during 2015/16, only 27.8 MHz of

spectrum in the 1800 MHz band shall be available for auction. This is because in most of the LSAs, the licensees are holding less than 2 MHz of spectrum in the 1800 MHz band. In order to ensure continuity of service post 2015/16, these licensees will have to take an informed decision before the upcoming auctions whether to participate and buy spectrum in these auctions or wait for the next auction.

As per the available data, with a 55 MHz cap in the 1800 MHz band in each LSA, 142.6 MHz of spectrum will be required to be vacated by Defence as per the MoU between DoT and Defence (Table 1.1). It would be in the interest of all stakeholders if at least a tentative timeline regarding the availability of this spectrum is placed in the public domain.

Table 1.1

Sl.No.	Circle	Total Spectrum (available & allotted) with cap of 55 MHz	Additional Spectrum to be available with cap of 55 MHz
		MHz	MHz
1	Delhi	43	12
2	Mumbai	55	0
3	Kolkata	55	0
4	Maharashtra	55	0
5	Gujarat	44.6	10.4
6	AP	55	0
7	Karnataka	55	0
8	Tamil Nadu	55	0
9	Kerala	55	0
10	Punjab	42.8	12.2
11	Haryana	49.6	5.4
12	UP - West	50.8	4.2
13	UP - East	43.8	11.2
14	Rajasthan	48.4	6.6
15	M.P.	55	0
16	West Bengal	37.6	17.4
17	H.P.	45.4	9.6
18	Bihar	48.2	6.8
19	Orissa	55	0

20	Assam	40.2	14.8
21	North East	40.8	14.2
22	J&K	37.2	17.8
	Total	1067.4	142.6

A policy decision has already been taken that all future allocations of spectrum will be through market-based mechanisms (such as auctions). Spectrum trading has been accepted in principle. Therefore, the Authority is of the opinion that the DoT should come out with a clear roadmap regarding availability of spectrum in future including a tentative timeline for the vacation of spectrum by the defence authorities. This will remove the air of uncertainty and help stakeholders in planning future spectrum acquisitions including in the upcoming auction.

3. Para 7.5

The Authority recommends that eligibility conditions prescribed in the recently held auctions (November 2012 and March 2013) should be retained for the upcoming auction.

DoT View

The eligibility condition would require modification with respect to quashed licensee as there would be no quashed licensee in the next auction. Any eligible entity can participate as 'New Entrant' or existing licensee. This will have to be suitably incorporated in the NIA.

Response of TRAI

Agreed.

4. Para 7.6

The Authority recommends that all CMTS/UASL/UL(AS)/UL providing access service should have the same set of roll-out obligations and the DoT should amend the licence conditions to incorporate the same.

DoT View

It is noted that roll out is now linked with spectrum auction, and spectrum is delinked from license. It was also noted that existing CMTS/UASL licensees who acquired spectrum in the last auctions have to fulfil fresh roll out obligations as per relevant NIA which are same for all the licensees including the New Entrants. The New Entrants also have roll out obligations based on DHQs which is similar to the obligations already fulfilled by the CMTS/UAS licensees as a part of their license conditions. Delay in fulfilment or non-fulfilment of roll out obligations is subject to Liquidated Damages.

Therefore, the Government is of the opinion that there is no necessity for amending the license. TRAI may reconsider its recommendation.

Response of TRAI

The main motivation of the Authority in recommending the course of action contained in paras 7.6 to 7.9 was to ensure (i) equal treatment to all TSPs in like circumstances; and, (ii) policy initiatives to improve rural coverage.

In future, the allocation of spectrum through market-based mechanisms will be a continuous process and linking roll-out obligations with each auction will create different sets of roll-out obligations for various TSPs holding the same licence for providing similar services. In para 2.48 of the recommendations, the Authority clearly brought out that in view of the additional set of roll-out obligations mandated in the auctions held in November 2012 and March 2013, the DoT has created a non-level

playing field between two sets of licensees providing the same service in the same LSA: existing licensees who have not acquired any spectrum in the recently held auctions are required to fulfil one set of roll-out obligations while licensees including existing licensees who participated in the auction and have acquired additional spectrum (even one block of 1.25 MHz) to enhance their network capacity, are required to comply with a different and more onerous set of roll-out obligations.

The Authority is of the opinion that apart from creating a non-level playing field, this is also against the basic objective for mandating roll-out obligations which is to ensure that the TSPs utilise their initial spectrum to provide coverage across the service area. What is more, mandating additional roll-out obligations for a TSP, which is acquiring spectrum only to enhance its network capacity, will discourage TSPs from participating in auctions resulting in poor quality of service (QoS) to its customers.

It has been pointed out in the recommendations that spectrum has now been delinked from the licence and TSPs would be acquiring spectrum at different points of time and in different quantities with different periods of validity. Therefore, roll-out obligations should not be linked with each auction. The need is to delink roll-out obligations from allocation of spectrum (except where spectrum is purchased by a new entrant).

In view of the above, the Authority reiterates its recommendations that all licensees having access spectrum (800/900/1800 MHz band) should have the same roll-out obligations.

5. Para 7.7, 7.8 and 7.9

- 7.7. The Authority recommends that in addition to the roll-out obligations already prescribed in the CMTS/UASL/UL (AS)/UL, the following roll-out obligations should also be incorporated for licensees having access spectrum (spectrum in 800/900/1800 MHz band).
- All villages having population of more than 5000 to be covered within 5 years of effective date of allocation of spectrum for access services and all villages having population of more than 2000 to be covered within 7 years of effective date of allocation of spectrum.
 - These amendments should be made effective from 1st April 2014. However, in case of TSPs holding CMTS/UAS licences prior to the year 2008, the time period for completing these additional roll-out obligations shall be two years/four years from the effective date, while for TSPs acquiring licence post-2008 the time period shall be five years/seven years.
- 7.8. The Authority recommends that if a quashed licensee had already met its roll-out obligations in certain DHQs before its licence was quashed but it did not stop providing service in that LSA before re-acquiring spectrum in the auction, the roll out obligations already met by it before cancellation of its licence should be taken into account and the licensee should not be required to re-offer its that part of the network for the re-test. Similarly, a renewal licensee should not be asked to re-offer its network for test of roll-out obligations already met before the renewal of its licence, if the licensee continues to provide access services.
- 7.9. The Authority recommends that regarding compliance of roll-out obligations involving coverage of villages, self-certifications by the TSPs should be taken as compliance subject to the condition that 20% of the villages self-certified by the TSP will be sample test checked by the TERM cell. The sample test check by the TERM cell will be carried

out within a time period of three months from the date of self-certification.

DoT View

Para 7.7 to Para 7.9:

It is noted that prescription of additional roll out obligation in rural areas was made by TRAI first in their 2010 recommendations which were reiterated in their recommendations on Auction of Spectrum dated April 2012.

Following were some of the observations and concerns of DoT on the above recommendations:

1. The operators are already paying 5% of their AGR towards USOF levy. Whether there will be any need to close/modify any of the present USOF schemes.
2. How the scheme will be enforced and monitored on continuing basis in the face of serious technical difficulties in measurement of coverage of villages/ habitations due to undefined boundaries in order to ensure availability of coverage in the rural areas which are presently suffering from poor up-time of BTSs.
3. In terms of the best utilisation of resources and viability, is it advisable that all the operators deploy their networks in each and every village.
4. In the above situation, will there be an issue of underutilisation of the resources of all the operators and consequent reduction in Government revenue in terms of the incentive to the operators.
5. How the new rollout obligation will operate, given that:
 - i. Existing Access Services providers are operating their networks ranging from 3 years to 15 years in various LSAs.

- ii. Most of the operators have already completed the 3 year roll out period currently in force.
 - iii. Wherever there has been delay in roll out, liquidated damages as per licence conditions have already been imposed and show cause notices have been issued in terms of existing licence conditions in most of the cases.
 - iv. What will be the fresh Liquidated Damages, if any, for failure in meeting the new rollout obligations, if introduced?
6. If the claim of an operator of rural coverage is found to be incorrect, then what would be the penalty for such a wrong claim?

The matter was examined and DoT decided for a 5 phase roll out obligations which included the 2 phases as in existing licenses plus 3 phases of roll out in Block Hqs. This roll out was to be met by way installation of BTS in the Block HQs, commencing 3rd year from the effective date of spectrum as specified in the NIA. These conditions were included in the NIA.

It may be noted that the Clause No.3.6.1 (iv) of the NIA of November, 2012 for auction of spectrum in 1800 MHz and 800 MHz band states that:

“ the ‘new entrant’ will have to fulfill rollout obligations as provided in the existing UAS license with the option of sharing of passive infrastructure as presently permissible. All existing Access Service licensees shall be treated as ‘New Entrant’ for the bidding in those frequency bands in which they do not hold spectrum at present in that particular service area. The companies/licensees whose licenses are slated to be quashed as per the direction of Supreme Court will need to re-offer the network to the TERM cells for testing of the compliance of rollout obligations in case the network already been established.”

Similar provisions exist in the NIA of March, 2013 auction.

The recommendation of TRAI made in para 7.8 regarding roll out obligations to be met by holders of quashed licenses amount to

amendment of NIA conditions. Further, these conditions have also been made part of the licenses issued to such entities. Therefore, it is felt that the NIA condition should continue to apply.

As far as the renewal licensees/existing licensees for metro service areas are concerned, it was mentioned in the NIA of 2013 (cond.3.6.2) there will be no additional roll out obligation if they acquire the spectrum through this auction process in the same band (i.e. 900/1800 MHz). It is opined that similar conditions may be applied in the next auction also.

Further, it may be noted that there are about 56,000 inhabited villages in the country which are yet to be connected with mobile communication services. A scheme is being envisaged to extend financial support from USO Fund for provisioning of mobile communication services in inhabited uncovered villages of the country.

In view of the above, TRAI is requested to reconsider its recommendations.

Response of TRAI

These recommendations cover basically two important aspects relating to roll-out obligations.

- i. Correction in the present urban-centric bias in the roll-out obligations by prescribing roll-out obligations to enhance rural coverage.**
- ii. Simplifying the certification procedure for compliance of roll-out obligations.**

As rightly brought out by the DoT in its back reference, the Authority has been consistently advocating since its recommendations of May 2010 that the current roll-out

obligations are lenient besides being urban-centric. The result is that even 19 years after the introduction of mobile services in the country, rural teledensity has reached only 40% as against urban teledensity of around 147% notwithstanding the establishment of USOF since 2002. If there was a so-called telecom revolution, then why is it that, nearly two decades later, more than 50,000 villages still do not have basic coverage? Surely, such a situation cannot be allowed to continue. The Authority is of the considered view that roll-out obligations are required to be amended to align with ground realities and to achieve the stated objectives of NTP 2012 to “increase rural teledensity from the current level of around 39 to 70 by the year 2017 and 100 by the year 2020”.

The Authority reiterated its recommendations in November 2011, April 2012 and, now, again in September 2013.

Recently, in its recommendations on “Improving Telecom Services in the North-Eastern States: An Investment Plan” the Authority has observed that:

“the development of telecom services in the NER has not been as extensive and as fast as in other parts of the country. This is borne out by the fact that of the total 45,214 villages, 9190 inhabited villages do not have even basic voice coverage. The roll-out of 3G coverage is also not very encouraging in most States.”

In response to the recommendations of April 2012, the DoT had informed the Authority in its reference dated 02nd May 2012 that:

“This recommendation regarding rural roll out obligations was considered by Telecom Commission and it was decided that a comprehensive techno-economic study may be carried out to examine issues relating to increase in coverage and tele-density in rural areas while at the same time ensuring sustained quality of service and to examine the adequacy of USOF mechanism

alone to achieve these objectives. The roll out obligation can be decided after the study is completed.”

To the best of our understanding, the proposed techno-economic study was not carried out, before the DoT finalised the roll-out conditions in the NIA. The Authority would be happy if it is shown that it has erred in this assessment.

One of the reasons mentioned by the DoT in its reference for requesting the Authority to reconsider its recommendations is that the recommendations of the Authority relating to roll-out obligations amount to an amendment of the NIA conditions. In this context, the Authority would like to remind the DoT that any policy decision is a sovereign prerogative exercised for promoting the greater public good. Therefore, the Authority is not convinced that the NIA conditions remain sacrosanct even in the face of a sovereign policy decision taken in larger public interest. E.g. surely, a public policy initiative such as NTP-12 overrides clauses contained in the NIA.

The Authority is, accordingly, unable to concur with the view of the DoT that an amendment to NIA condition constitutes an insuperable hurdle in implementing a number of recommendations made by the Authority. A sovereign policy decision is supreme: in terms of the pecking order, it always trumps any earlier executive decision. [And, such a view has been aired by the DoT in its reference in response to a number of recommendations of the Authority]

On the concerns raised by the DoT, about the advisability of all operators deploying their networks in each and every village and on the issue of underutilisation of resources and consequent reduction in the Government revenues in terms of incentives to the operators, the Authority partially agrees with the DoT that, for villages having population between 2000 and 5000, it may not

be commercially viable for all TSPs to deploy their network as of now. The Authority is of the view that this issue can be adequately addressed in case the TSPs are permitted to meet a part of their roll-out obligations through intra-circle roaming as recommended in May 2010 viz. in villages with habitations ranging between 2000 to 5000.

Accordingly, the Authority recommends that the TSPs may be allowed to cover villages having a population between 2000 and 5000 through intra-circle area roaming, subject to the condition that at least one third of the villages shall be covered by its own network.

The recommendations at para 7.8 and 7.9 deal with simplification of certification procedures for test check of compliance of roll-out obligations. The DoT in its reference has not provided any major disagreement with these recommendations. Nevertheless, it has requested “the Authority to reconsider its recommendations”.

The main motivation of the Authority in giving these recommendations was to simplify the process of verification of roll-out obligations. For the revised roll-out obligations recommended by the Authority, there will be a requirement to verify coverage in a large number of villages, and it will simply not be feasible for the TERM cells to verify each and every village in a time-bound manner. Hence the recommendations in para 7.9.

Here too, the DoT has averred that the changes proposed in para 7.8 would amount to an “amendment in the NIA conditions”. As brought out earlier, this is not really a good defence; and, in this instance, who would be the aggrieved party? Surely not the TSPs!

Adoption of these recommendations will assist the TERM cells in executing their responsibilities in an efficient and timely manner.

It will also rid the TSPs of bureaucratic delays in obtaining certificates from the TERM cells. Accordingly, the Authority reiterates these recommendations.

6. Para 7.10

The Authority recommends that the frequency rearrangement in the same band, from within the assignments made to the licensees, should be permitted, amongst all licensees irrespective of whether the spectrum is liberalised or not.

DoT View

Based on the TRAI recommendation of April 2012, Government decided that frequency reconfiguration i.e. rearrangement of spot frequencies in the same band, from within the assignments made to the licensees, may be carried out, with the authorization of WPC Wing, among the licensees, only when the entire spectrum held by them is liberalized. No charges will be levied for rearrangement of frequency spots.

The above provision was incorporated in the NIA dated 28.9.2012 and 30.01.2013 for auction of spectrum in November, 2012 and March, 2013 respectively.

It may be noted that TRAI on 12.5.2012, in response to back reference from DoT, had recommended that:

“Regarding the availability of the option of reconfiguration of frequencies in the same band to operators in scenario B in recommendation 31, it is clear from the recommendations that this will be allowed only between spectrum holders having obtained spectrum through auction or having paid the auction determined price for the spectrum held by them.”

In this regard Telecom Commission recommended that, *“..... the Frequency reconfiguration within the same band may be carried out, with the authorisation of WPC Wing, among the licensees only when the entire spectrum is held by them is liberalised. No charges may be levied for the same.”*

The TRAI, in its present recommendation has opined that TSP may be permitted to rearrange carriers from within the spectrum allotted to them irrespective of whether the spectrum is liberalized or not in order to ensure continuity of spectrum.

It is further noted that TRAI has not provided specific reasons for revised recommendation within a span of about one year.

TRAI is requested to clarify the same.

Response of TRAI

The DoT in its reference has noted that “TRAI has not provided specific reasons for revised recommendation within a span of about one year”. This observation is both baffling and mistaken. The rationale for modifying the Authority’s earlier recommendations and permitting frequency rearrangement in the same band amongst all licensees irrespective of whether the spectrum is liberalised or not has been clearly spelt out in paras 2.62 and 2.63 of the recommendations.

2.62. “The main motive behind the above provision was to allow such licensees to rearrange their assigned frequencies so as to make them contiguous for use for newer technologies which require higher carrier sizes than the GSM, e.g. for UMTS, a contiguous block of 5 MHz is the minimum requirement. Frequency harmonisation will certainly provide more capacity by reducing the number of guard bands, providing larger blocks of spectrum and will also simplify frequency planning in future. But in the present setting, most spectrum held by TSPs is in un-liberalised form. More often than not, the frequency re-arrangement by TSPs having liberalised spectrum shall entail corresponding frequency re-arrangement for those TSPs who hold un-liberalised spectrum. Since such TSPs having unliberalised spectrum, are not allowed to participate in mutual re-arrangement, therefore, in effect re-configuration of frequencies would not be feasible in many cases, until all TSPs either liberalise their entire spectrum holding or are permitted”

to participate in such re-arrangement without liberalising the spectrum.

2.63. The Authority is of the opinion that since the sole motive for permitting such an arrangement is to facilitate that spectrum holding of TSPs becomes contiguous, the frequency rearrangement in the same band, from within the assignments made to the licensees, should be permitted, amongst all licensees irrespective of whether the spectrum is liberalised or not.” (Emphasis supplied)

The primary purpose for giving the original recommendation in April 2012 was to promote public good by facilitating contiguous spectrum holdings. It was hoped that this would lead to deployment of the latest technologies and a more efficient and optimal utilisation of spectrum. However, since the scope of recommendations was limited to TSPs having liberalised spectrum, it has not achieved the desired objective. Therefore, the Authority has recommended a slight modification to its earlier recommendation and it sees no reasons to revise the now proposed course of action.

7. Para 7.11

The Authority recommends that:

- iii. If the market determined prices are more than one year old, then these prices have to be suitably adjusted to reflect prevailing market conditions. One way of determining the prevailing market rates could be by indexing the last auction prices at the rate of SBI PLR. Another way could be the market price as realised through spectrum trading.

DoT View

Issue of determination of market price based on spectrum trading may be considered after spectrum trading guidelines are issued.

Response of TRAI

Noted. The DoT has conveyed its in-principle acceptance of spectrum trading. Accordingly, the Authority will shortly work out the detailed guidelines for its implementation.

8. Para 7.12

The Authority recommends that the feasibility of adoption of E-GSM should be explored in a time-bound manner. The Authority also recommends that the auction in the 800 MHz band should not be carried out now.

DoT View

1. Issues related to EGSM:

TRAI proposal on adoption of EGSM was examined. Preliminary study reveals the following:

- (i) Carriers have been allotted to various TSP in the band 880-890 MHz in different service areas and detailed technical examination would be necessary for reconfiguration of carriers.
- (ii) In order to avoid interference to services in the 900 MHz band, TSPs are required to put appropriate filters in their network. Presently, these filters are working at 889 MHz to avoid interference from 800 MHz to the adjacent band.
- (iii) With the proposed EGSM, these filters would be required at 879 MHz to avoid interference from 800 MHz to the proposed EGSM band, which will have additional financial implications for TSPs.
- (iv) With the proposed EGSM, following would be the spectrum utilisation scenario in 800 and 900 MHz Bands:

A. Existing frequency usage in 800 / 900 MHz Band

Usage of Band	Uplink frequency MHz	Paired downlink frequency MHz
800 MHz	824-844	869-889
900 MHz	890-915	935-960
Other usage	925-935 (Defence, PSU etc.)	

B. Usage / allocation as per proposed EGSM:

Usage of Band	Uplink frequency MHz	Paired downlink frequency MHz
800 MHz	824-834	869-879
900 MHz	890-915	935-960
EGSM	880-890	925-935
Band falling vacant	834-844 (No proposal by TRAI for future utilisation)	

From the above tables A & B, it may be seen that for the proposed EGSM band, 10 MHz slot i.e. 834-844 MHz will remain unutilised as it will not have corresponding paired frequency as EGSM band will use the paired frequency of 925-935 MHz.

- (v) It would also need vacation of spectrum by Defence, PSUs, etc. from 925-935 MHz band and re-arrangement of carriers allotted including inter operator guard band requirements, in 824-834 MHz paired with 879-889MHz band, to the existing operators. Further identification of suitable band for existing operations presently in 925-935 MHz will also be required.
- (vi) It needs to be examined whether all the handsets/devices in use in India for GSM technology support proposed EGSM band.

The resolution of issues brought out above has attendant time and uncertainty implications.

In view of the above, introduction of EGSM, at present, may not be feasible.

2. Auction of 800 MHz spectrum:

TRAI has recommended no auction in 800 MHz band due to, inter-alia, the following:

- (i) Government has already put entire spectrum released as a result of quashing of licences by Supreme Court, thus complied

with the court order. Therefore there is no compulsion on the Government to auction this band.

- (ii) Subscriber base and ARPU and MOU of CDMA services are diminishing faster compared to GSM.
- (iii) In view of increasing demand for spectrum in sub GHz band for data, it would be desirable to explore alternate usage in line with international practices.
- (iv) It would not be prudent to allocate spectrum in this band, for a technology whose eco system is diminishing worldwide, at a far lower price than its true value.

It is noted that there are about 4 operators in an LSA operating in 800 MHz band. In the auction held in March 2013, one operator has purchased spectrum in 800 MHz band as 'New Entrant'. Further, the existing operators have significant period of remaining licence validity ranging from 7 to 20 years. Department has received representations that operators may expand their services in new LSAs in addition to expansion of their services in the existing LSAs in this band.

The existing operators are also providing data services. Use of data services is on growth path worldwide. It is difficult to predict the growth of services during next 7-20 years. In view of the above and looking at the current scenario, it is felt that it may be appropriate and desirable to put 800 MHz spectrum to auction in the next round.

It is further noted that as per already accepted TRAI's recommendations of 2012, all future spectrum to be auctioned shall be liberalised spectrum.

As per the decision of the Government, one time charges is to be levied as per reserve price, later to be adjusted in accordance with the market determined price. For this reason also market determined price for 800 MHz spectrum through auction is required.

It may also be noted that the government decided in June 2013 which requires that 800 MHz spectrum be auctioned along with 900 and 1800 MHz spectrum and that the recommendation of TRAI be sought for the reserve price. Based on this decision, TRAI's recommendations were sought in July 2013.

Keeping in view the above, TRAI is requested to reconsider and provide its recommendations on reserve price and block size for 800 MHz spectrum also so that auction of spectrum in 800, 900 and 1800 MHz band can be conducted together in the next round.

Response of TRAI

A basic objective of a spectrum manager is that spectrum is adequately priced and efficiently utilised in the best possible manner in line with international practices. In assessing the auction of spectrum, the spectrum manager has to take into account best available alternative uses viz. the -- opportunity cost of auctioning the spectrum is the value of the best foregone opportunity,

In India, the 800 MHz band is presently being used for CDMA technology. However, over the last few years its eco-system is continuously in decline. In the auction of spectrum for the 800 MHz band in November 2012, there were no bidders for the spectrum. The spectrum in this band was put up for auction again in March 2013 after reducing the reserve price by 50%. This time, only one TSP (SSTL), whose licences in 20 LSAs were cancelled by the Hon'ble Supreme Court in February 2012, took part in the auction. SSTL purchased 3.75 MHz of spectrum in eight LSAs at the reserve price only; there were again no takers for spectrum in the remaining LSAs even at the reduced price.

Keeping in view the above developments, the Authority analysed the matter *de-novo*. As the propagation characteristics of 800

MHz band are comparable to the 900 MHz band, the Authority had earlier recommended the same reserve price for both the bands. However, as detailed above, there was not much interest evinced in the 800 MHz band in the recently held auctions despite significant lowering of the reserve price. In view of this, the Authority was of the opinion that, considering the increasing demand for spectrum in sub 1-GHz band for data, it would simply not be prudent to allocate spectrum in the 800 MHz band at a far lower price than its true value for a technology whose eco-system is diminishing worldwide.

The Hon'ble Supreme Court has also observed in its opinion on special reference no. 01/2012 dated 27th September 2012 that "no part of natural resource can be dissipated as a matter of largess, charity, donation or endowment for private exploitation. Each bit of natural resource expended must bring back a reciprocal consideration. The consideration may be in the nature of earning revenue or may be to 'best sub serve the common good.' It may well be the amalgam of the two. There cannot be a dissipation of material resource free of cost or at a consideration lower than their actual worth. One set of citizens cannot prosper at the cost of another of citizens, for that would not be fair and reasonable."

The Authority is of the opinion that there is a vast difference in the valuation between the opportunity cost of 800 MHz spectrum in E-GSM band and the price at which it was sold in the last auction. The deployment of an existing technology in a band does not provide an accurate measure of the worth of that spectrum, especially if the technology is dying. What must be considered is the opportunity value of that spectrum band using the most optimal technology.

In view of the above, in para 2.77 of the recommendations, the Authority had recommended exploration of feasibility of adoption of E-GSM in a time bound manner.

In its reference, the DoT has conveyed certain issues which will need examination before E-GSM is adopted in this band. As can be seen from para 2.37 of the consultation paper, the Authority is fully conscious of the issues raised by the DoT in its reference. However, keeping in view the fact that the spectrum will be auctioned for 20 years, the Authority is of the view that the DoT should not summarily reject, on a cursory examination, the recommendations without first fully exploring the feasibility of adoption of E-GSM for efficient utilisation of spectrum in the 800 MHz band.

With such a large gap in the worth of the spectrum in its present use as against its potential use, it would simply not be prudent, in the opinion of the Authority, to take a hasty decision in the matter.

In its recommendations, the Authority has analysed the present allocation of spectrum and has come to conclusion that it will be possible to allocate 10 MHz of spectrum in 7 LSAs and at least 5 MHz spectrum for the up-link of E-GSM band in all 22 LSAs. In the downlink (925-935 MHz), it has been reported that 7 MHz is being used by defence. In case even 2 MHz of spectrum is vacated by defence, then it will be feasible to carve out 5 MHz of spectrum for the E-GSM band.

In the 900 MHz band, the amount of spectrum available in each LSA is around 20 MHz (18.6 MHz to 22.2 MHz). In case it is possible to make available even 5 MHz of spectrum in the 800 MHz band, then it means an addition of more than 25% of spectrum in the 900 MHz band.

The Authority is of the view that as in the 800 MHz band the directions of the Hon'ble Supreme Court have already been complied with, there is no compelling reason for the DoT to auction the spectrum in 800 MHz band along with 900/1800 MHz spectrum.

In view of the above, the Authority reiterates its recommendations that the Government should first fully explore the feasibility of adoption of E-GSM band before reaching any hasty conclusion.

9. Para 7.13

The Authority recommends that the reserve prices for 1800 MHz spectrum for 22 LSAs should be as in the table below:

LSA	Reserve Price per MHz (Rs. in crore)
Delhi	175
Mumbai	165
Kolkata	59
Andhra Pradesh	130
Gujarat	115
Karnataka	124
Maharashtra	138
Tamilnadu	166
Haryana	27
Kerala	52
Madhya Pradesh	43
Punjab	54
Rajasthan	26
U. P. (East)	61
U.P. (West)	62
West Bengal	21
Assam	7
Bihar	37
Himachal Pradesh	6
Jammu & Kashmir	5
North East	7
Orissa	16
Pan India	1496

DoT View

1. It is noted that TRAI in its earlier recommendations in May 2010 and April, 2012, based the reserve price of spectrum on 3G auction price

discovered in April 2010. Now, TRAI has provided reasoning in para 5 of Foreword, paras 3.11 to 3.22 and in some other paras of recommendations for deviating from earlier approach and formulated new alternative approaches.

2. It is also noted that, broadly, following are reasoning given by TRAI in support of their approach adopted now:

- (i) TRAI could not but be influenced by the prevailing atmosphere subsequent to the Supreme court order and observations on the administrative allocation of licences and spectrum.
- (ii) Due to the failure of auction partial or complete, viability of approach of 3G auction based pricing need to be reconsidered.
- (iii) For basing the reserve price on a particular auction results, (a) both the spectrum should be identical. (b) auction should have been held very close in time so that market and macro-economic conditions have not changed materially over the period. Both these conditions do not hold good in respect of 3G auction (2010) and 1800 MHz auction (2012 & 2013) due to time gap, deteriorating financial performance and overall financial position of the sector, the general slowdown in the economy etc.
- (iv) Aggressive bidding in some LSAs for 3G spectrum due to sense of scarcity of spectrum due to grant of licences in 2008.

Keeping (i) to (iv) above, inter-alia, TRAI in para 3.22 has expressed the view that an independent assessment of the value and reserve price for 1800 MHz spectrum is the preferred way forward.

- (v) Further, TRAI has recommended price of 1800 MHz band for all LSAs, inter-alia, considering that purchase of spectrum by some of the TSPs, whose licenses were quashed by SC, was in the nature of distress purchases and cannot be construed as true price discovery. This view has been indicated in para 3.61.

- (vi) However, TRAI has mentioned in para 3.64 that the realised price of spectrum in LSAs where spectrum was successfully auctioned in November 2012/March 2013 can certainly be taken as one of the indicators of the value of the spectrum.
3. It is further noted that during last auction, spectrum was acquired by existing licensees also, as incremental spectrum, in many LSAs in addition to purchase of spectrum by holders of quashed licenses. Therefore, a question arises whether it would be appropriate to conclude that purchases made by licensees during last two auctions were 'distress purchases' and auction price was not a true market price.
 4. It is also noted that TRAI has relied on the following approaches to arrive at the reserve price of 1800 MHz spectrum:
 - (i) Reserve price / achieved price during last two auctions (November 2012 and March 2013)
 - (ii) Correlation with AGR and ARPU
 - (iii) Multiple regression (4 combinations of variables)
 - (iv) Opportunity cost based on producer surplus & production function
 - (v) Expert price of 2011 indexed for 3 years
 5. It is seen that TRAI has utilised the average expected valuation through the method of simple mean of the values obtained through the approaches mentioned in 4 above.
 6. TRAI has also made the following recommendations in paras 4.40 and 4.42
 - (i) In Rajasthan, TRAI has recommended the price for 1800 MHz at Rs. 26 crore, which is a rounded off figure of Rs. 26.29 Crore, i.e. a discount of 30% on the earlier reserve price (in March, 2013) of Rs. 37.56 crore per MHz.

(ii) In remaining service areas, TRAI has recommended price for 1800 MHz as lower of the two values:

- 80% of the average valuation

OR

- price realised per MHz in November 2012 for 18 LSAs and reserve price per MHz of 1800 MHz spectrum in March 2013 for three LSAs i.e. Delhi, Mumbai, Karnataka where no bids were received during November, 2012.

7. Having gone through these recommendations, following is observed:

- It is noted that the recommended Pan India reserve price for 5 MHz spectrum in 1800 MHz band has now reduced from earlier recommended price (2012) from Rs 18110 crore to Rs 7480 crore. It is also noted that Government had decided Pan India reserve price for 5 MHz in 1800 MHz as Rs. 14, 000 crore for November, 2012 and Rs. 11,877 crore for March, 2013 auction (with reduced price for 4 LSAs in March, 2013).
- Derivation of various constants, co-efficient and variables to arrive at the reserve price under different approaches appears to be based on certain assumptions, on which no clarity could emerge from the recommendation.
- Recommended price of TRAI in the November 2012 auction was moderated by EGoM subsequent to which bids were received by the existing as well as quashed licensees and determined the market price in 1800 MHz Band except in four service areas i.e. Rajasthan, Delhi, Mumbai and Karnataka service area. It cannot be said that this was not in accordance with their business case. However, as per the reserve price recommended by TRAI, reduction in recommended reserve price ranges widely (refer Annexure-I of this Report) among similar category of LSA as given below:

Category of LSA	Reduction in price (variation in percentage compared to last auction/reserve price)
Metros	35 to 69
A	32 to 53
B	-1.5 to 51
C	-8.8 to 3.6

- TRAI while calculating the price based on production function approach has used the formula $X=Ay^{\alpha} z^{\beta}$ where

X is minutes of usage

y is allocated amount of spectrum; and

z is number of BTS deployed by a service provider

A in above formula is undefined

The parameters α and β reflect the percentage change in minutes of usage for a unit change in spectrum and BTS respectively.

Above formula has been used for calculating Minutes of Usage (MoU) in the network. However, it is opined that linkage of quantum of spectrum allotted to a TSP and number of BTS to be deployed with 'Minutes of Use' (MoU) does not appear to be appropriate. MoU is generally linked with number of subscribers and their usage pattern. Therefore, the value given in Annexure 4.4 based on approach for estimation of opportunity cost using production function given Annexure 4.3 needs clarification and reconsideration of TRAI.

- A reading of Annexure 4.3 (paras 4 to 9) indicates that for arriving at valuation of spectrum based on production function TRAI has used BTS cost for 2G services. Therefore, the present valuation does not appear to reflect the value of the liberalised spectrum as its potential for use is much more than 2G over next 20 years – period of assessment and allotment.
- In Annexure 4.4 of the recommendations, it is seen that value of all the approaches have been calculated only in case of 4 LSAs while many of the values in other LSAs have been calculated

leaving out 5-6 approaches. This would certainly affect the mean values arrived.

- It is not known whether any of the approaches considered by TRAI also takes into account the future growth potential and projections in telecom sector.

TRAI is requested to reconsider the recommended reserve price keeping in view the above.

Response of TRAI

In the November 2012 auction, the quantum of spectrum put up for auction in 22 LSAs was unsold in 4 LSAs, partially sold in 17 LSAs and only in Bihar was the entire spectrum on auction sold. It may be noted that, in para 4.40 of the recommendations, the Authority has observed that, as spectrum put up for auction was not sold or partially sold (with Bihar as exception), the realised price was not a market-clearing price in the absence of sufficient demand. This is why the Authority decided to carry out fresh valuations and recommend reserve prices for 1800 MHz spectrum in all LSAs. However, the realised prices at which spectrum was sold in November 2012 auction do represent the valuations of bidders who purchased spectrum in these auctions. It may also be noted that in 14 LSAs spectrum was bought by an existing TSP as incremental spectrum. This was clearly a voluntary purchase. Hence, the purchaser exercised the choice to buy and revealed his preference. Thus, the Authority was of the view that the realised prices in the November 2012 auction could be taken as an indicator of the value of the spectrum viz. the fact that a bidder was willing to buy spectrum was surely market information that indicated the underlying value of spectrum. Accordingly, the realised price of 1800 MHz spectrum in the November 2012 auction was taken as one of probable

valuations in calculating the average valuation of 1800 MHz spectrum.

The DoT has observed that the derivation of various constants, co-efficients and variables to arrive at the reserve price under different approaches appears to be based on certain assumptions, on which no clarity could emerge from the recommendations. The DoT's observation on this aspect is puzzling, to say the least. Assumptions, data sources and methodology adopted in calculating the value of spectrum under different approaches have been clearly explained in the recommendations as detailed below:

<i>Approach to value of 1800 MHz spectrum</i>	<i>Relevant Chapters and Annexure</i>
Single Variable Co-relation	Chapter 4 (Para 4.2 & 4.13) and Annexure 4.1
Multiple Regression	
Producer Surplus	Chapter 4 (Para 4.14) and Annexure 4.2
Production Function	Chapter 4 (Para 4.20 & 4.21) and Annexure 4.3
Discounted Cash Flow	Chapter 4 (Para 4.30 & 4.31)

Perhaps a re-reading of the relevant portion of the report would clear the air.

DoT has observed that the linkage of quantum of spectrum allotted to a TSP and the number of BTS to be deployed with minutes of use does not appear to be appropriate. Minutes of use is generally linked with the number of subscribers and their usage pattern. There is a fundamental misunderstanding here. The Cobb- Douglas production function is a standard analytical device used to examine and measure substitutability of factors in a production process. Thus, BTSs and spectrum are treated as

substitutable factors of production in the production of telecom services viz. MoUs. The purpose of the model is to use data on MoUs, spectrum and BTSs to derive valuations of the factors of production, namely, spectrum and BTS. Since the price of the latter is known, the valuation of spectrum can be derived from a set of equations that are explained in detail in Annexure 4.3.

DoT is of the view that the valuation does not appear to reflect the value of the liberalised spectrum, which has a much greater potential than 2G over the next 20 years. It is clarified that in both the production function and the producer surplus approaches, minutes of usage for the next 20 years have been projected based on expected growth of subscribers, voice minutes of usage SMS and data as can be seen in Table-A of Annexure 4.2 of the recommendations. The projected minutes of usage therefore reflect the growth of both voice and non-voice traffic.

DoT has observed that in Annexure 4.4, the value of all the approaches have been calculated only in the case of 4 LSAs while many of the values in other LSAs have been calculated leaving out 5-6 approaches and that this would certainly affect the mean values arrived at. Once again this represents a basic misunderstanding. The average valuation of spectrum has been done taking into account a variety of approaches: single variable correlation, multiple regression, producer surplus, production function, experts' price (based on discounted cash flow) and realized prices of 1800 MHz spectrum in November 2012. It must be understood that econometric methods of valuation through single variable correlation and multiple regression are empirical methods which use observed data to predict values where observed data is not available. For example, it may be posited that spectrum prices depend on AGR and GSDP per capita. Thus, in such a model, spectrum prices are a dependent

variable and AGR and GSDP per capita are the independent explanatory variables. Regression techniques use observed values of dependent and independent variables to estimate a quantitative relationship which, in turn, can be used to predict values of the dependent variables given the value of independent variables.

In the recommendations, observed data (spectrum prices) from some LSAs has been used to predict valuations (of spectrum) in other LSAs. For example, in one approach observed data (spectrum prices) in 18 LSAs along with a set of explanatory variables (AGR, ARPU, residual teledensity, GSDP per capita etc.) have been used to estimate spectrum value for 4 LSAs (Delhi, Mumbai, Karnataka and Rajasthan) using single variable correlation and multiple regression methods. Obviously, the predicted values obtained through these methodologies would apply only to the LSAs in which observed data was not available; for the LSAs in which observed data is available, there is no need to make any predictions (in fact making predictions would not even be a valid exercise) and the observed data suffices. This is why valuation all LSAs in all methodologies/approaches is simply not possible. Therefore, predicted values have been taken for the LSAs where observed data was not available (two combinations of variables in single variable co-relation and 4 combinations of variables in multiple regression) and observed data (realized auction price) has been taken for LSAs where observed data was available, for calculating the average valuation of spectrum. The mean value of spectrum for each LSA is the average of all the possible valuations obtained from various approaches.

Based on the various points raised in their observations, the DoT has requested the Authority to reconsider the recommended reserve prices. The specific points raised by DoT have been

addressed by the Authority above and, therefore, need no further elaboration. It is re-iterated that the Authority's approach has been to adopt objective and scientific methodologies for arriving at valuations for spectrum and then, based on average valuations derived from these approaches, to determine reserve prices for spectrum in the different LSAs. The methodologies used by the Authority are grounded in economic theory and have widespread international acceptance. In fact, several of these methodologies have been adopted by regulatory authorities across the world in various exercises. These methodologies were discussed with stakeholders during the consultation process. Stakeholders were also requested to give any alternate methods for arriving at the valuation of spectrum. However, no new approaches were suggested by the stakeholders except for the lone suggestion that the DCF method could also be adopted; the Authority accordingly incorporated the valuation based on the DCF approach in the calculation of average valuation. In the absence of any other suggestions for alternative approaches/methodologies, the Authority has proceeded on the basis of the methodologies explained in the recommendations. Since the recommendations on reserve prices for different LSAs follow, in logical sequence, from the valuations obtained through adoption of different methodologies, there is no scope at all for the Authority to "reconsider" the reserve price, as suggested by the DoT. The Authority, therefore, reiterates its recommendations on the reserve price of 1800 MHz spectrum for different LSAs.

10. Para 7.14

The Authority recommends that reserve prices for 900 MHz spectrum for Delhi, Mumbai and Kolkata LSAs should be as in the table below:

LSA	Reserve Price per MHz (Rs. in crore)
Delhi	288
Mumbai	262
Kolkata	100

DoT View

- (i) Reserve price of 900 MHz spectrum is largely based on reserve price of 1800 MHz spectrum by applying multiplication factor of 1.5, 2 and economic premium. Moreover, various assumptions related to economic premium, economic efficiency approach etc. have not clearly spelt out in the recommendations. In this situation, DoT is not in a position to arrive at a conclusion.
- (ii) TRAI is requested to provide reserve price of 900 MHz spectrum in remaining 19 LSAs.

Response of TRAI

- (i) Once again, the observations are puzzling and erroneous. The assumptions and methodology adopted in estimating the value of 900 MHz spectrum based on value of 1800 MHz spectrum have been lucidly and elaborately spelt out in Chapter 4 (para 4.45 to 4.49) and Annexure 4.5 of the recommendations. Perhaps a re-reading will provide the necessary clarity.**
- (ii) The DoT through its letter dated 10th July 2013 had requested recommendations on reserve prices in the 900 MHz band for Delhi, Mumbai and Kolkata only; these were provided vide TRAI's recommendations dated 9th September 2013.**

11. Para 7.16

The Authority recommends that payment terms should be structured by the Government to address financing issues of the bidders in the proposed auction.

DoT View

DoT is of the view that same terms as in the last auction could be adopted.

Response of TRAI

The Authority would request that the matter be brought to the attention of the Government at the time a final decision is being taken. The Authority is clear that this decision reposes entirely in the Government; however, since stakeholders have raised some concerns in the matter, it is only appropriate that these concerns be brought to the attention of the Government.

12. Para 7.17, 7.18 and 7.19

- 7.17 The Authority recommends that all spectrum allocated through auction should henceforth be charged at a flat rate. The Authority also recommends that spectrum acquired on through auction or trading or on which TSP has paid the prescribed market value to the Government should not be added to any existing spectrum holdings for determining the applicable slab rate. This will also apply to spectrum allocated in the auctions held in November 2012 and March 2013.
- 7.18 The Authority recommends that SUC for all auctioned spectrum should be at a flat rate of 3% of AGR of wireless services. This will come into effect from 1st April, 2014.
- 7.19 The Authority recommends that the SUC rate for BWA spectrum should also be fixed at 3% where services are provided under CMTS/UASL/UL (AS)/UL.

DoT View

Para 7.17 to 7.19:

Present structure of SUC for 2G spectrum is noted where there are varying percentages of AGR based on slab of spectrum holding. There are 6 slabs each for GSM and CDMA. In case of spectrum auctioned for BWA, where revenues were considered to be segregable, SUC is 1%, while for 3G spectrum, it is 3% for standalone 3G operator (none at present), and when used in conjunction with 2G, 3G-2G combined revenues get charged at applicable 2G spectrum slab rate. It was noted that no problem has been reported in administering this structure of SUC for 2G-3G spectrum holders.

Considerable time lag will be there to reach to a situation when all operators will have purely auctioned spectrum/liberalised spectrum. When such situation is reached, uniform rate of SUC may be

examined afresh. The question of arbitrage would arise only when revenues are recognized separately spectrum-wise held by the licensee, at different rates, which is technically not feasible in many cases. There are issues under study for segregation of revenues from BWA also where operators have 2G/3G-BWA spectrum.

Further, the minutes of the EGoM meeting dated 20th July, 2012 were noted wherein it has been noted that after presentation of TRAI Chairman on impact of NPV of likely revenues of the government with different combination of SUC and one-time charges of spectrum and the fact that the total government revenues from the auction will depend both on the one time charge for the spectrum and the SUC made the recommendations for reserve price pan India to be either Rs. 14000 or Rs. 15000 crore. Spectrum Usage Charges at the existing slab rate as the preferred option.

Further, it is noted that TRAI has also opined in para 5.32 that, *“since price discovery for spectrum will be through market mechanism and as long as the SUC proposed to be levied are notified in advance, the market will factor this into the auction bids.”* These slab rates have been notified in the NIA of the last 3 auctions.

In para 5.32, TRAI has also mentioned that *“Ideally, the Authority would have liked to keep the flat SUC charge at a nominal level, say, 1% of AGR. However, the Authority also noted that, at present, the lowest rate of SUC charges is 3% of AGR.”* In so far as the UASL licensees holding BWA spectrum is concerned, they can provide all the services using BWA spectrum as per the scope of their license including voice services. In fact, the minimum SUC under such UASL is 1% of AGR for BWA spectrum.

In so far the raise of SUC w.r.t BWA is concerned, it would be important to establish adequate rationale for such consideration as it would entail changing the terms and conditions of NIA.

However, recognising the need for uniform SUC, detailed recommendations of TRAI are sought taking into account the following factors:

- Legal limitations of contractual obligations arising out of license conditions and NIA
- Need to maintain revenue neutrality
- Detailed roadmap for transiting to uniform SUC regime

Response of TRAI

The recommendations contained in paras 7.17, 7.18, 7.19 and 7.20 pertain to the establishment of a new SUC regime. The primary motivation of the Authority was to enable a graduated transition from a slab rate system to a flat ad valorem regime. On the understanding that the complex structure of the existing SUC system cannot be rationalized instantaneously, the Authority had advocated a gradual shift to a new single flat rate regime over a period of time.

In Paras 5.4 to 5.13 and 5.15, the Authority had pointed out the various deficiencies and anomalies spawned by the existing SUC regime. The table below indicating the quantum of average spectrum holding per LSA of each TSP and the quarterly SUC paid for the first quarter of 2013-14, illustrates the disproportionate impact of the existing regime on different TSPs and brings out many, but not all, of the anomalies brought out in the Authority's recommendations.

Spectrum usage charges and spectrum allocation for the quarter ending June, 2013

(Rs. in crore)

Name of TSP	Overall Spectrum* allocation (MHz)	Average spectrum per LSA (MHz)	SUC**	SUC per MHz
BSNL	340.10	17.01	112.46	0.33

Reliance	270.50	12.30	75.50	0.28
Bharti	232.65	10.58	494.66	2.12
Vodafone	217.15	9.87	334.42	1.54
Tata	195.45	10.29	95.05	0.49
Idea	194.30	8.83	249.29	1.28
Aircel	169.00	7.68	67.76	0.40
MTNL	41.05	20.53	14.60	0.36
Sistema Shyam	39.40	4.38	6.99	0.18
Unitech	30.00	5.00	15.32	0.51
Videocon	30.00	5.00	1.99	0.07
Loop	10.00	10.00	7.47	0.75
Quadrant	6.90	6.90	1.01	0.15
Total	1776.50		1476.52	0.83

*800/900/1800/2100 band

** based on quarterly return submitted by TSPs on GR/AGR

The comments of DoT appear to be influenced by a selective reading of the recommendations and do not absorb the holistic view of the SUC regime taken by the Authority.

The Authority has brought out the inherent defects of the escalating slab rate on spectrum usage in para 5.15 and 5.28 of the recommendations. Among other things, it has been pointed out that slab rate structure acts as a disincentive for any merger or acquisition, spectrum sharing and trading viz. it acts as a disincentive to acquire any additional spectrum, no matter how. It also creates opportunities for arbitrage between bands and technologies that are likely to operate under a common unified license. DoT's stand that it faces no problem while administering the present SUC regime is only to be expected: they designed the SUC system and would obviously maintain there is nothing difficult about it. This misses the point altogether. It glosses over the various defects/inadequacies clearly brought out in the recommendations. The real issue is this: has the DoT devised a

way to overcome the inherent difficulties of the extant SUC regime? The ease of administering a flawed system surely cannot be a justification for continuing the flawed system!

The benefits of a graduated transition to a uniform rate are that it will not only simplify the levy structure but will also enable the policy initiatives on merger acquisition, sharing and spectrum trading to be implemented without any inherent disincentives. What is more, the transition to a uniform flat rate regime is also in consonance with international practice where the value of spectrum is captured upfront through an auction and the spectrum usage charge is in the nature of a minimal administrative charge. While it is true that it may take 13-15 years to transition to a point where all operators hold only auctioned spectrum, it is not necessary to wait that long to realise the benefits of a uniform SUC regime. The recommendations are precisely tailored to achieve this objective.

The DoT has noted that the slab rates have been notified in the NIA of the last 3 auctions. It is especially pertinent that the NIA also states that the Government can alter, change/modify the rules/rates from time to time. Clearly, the SUC charge lies in the policy domain and is a sovereign prerogative of the Government. There can be no estoppel by virtue of what is written in the NIA against the exercise of sovereign policy privilege.

The rationale for raising the SUC charges for BWA from 1% to 3% as recommended, is already furnished in para 5.34 of the recommendations. A rate of 1% SUC was stipulated in the NIA in the context of the provision of broadband services by the purchasers of BWA spectrum and Government's policy to encourage the growth of broadband in the country. This could be the only reason for stipulation of a differential SUC rate for BWA spectrum. It is argued that with technological development, it

has become possible to offer multiple services including voice using this spectrum. As a TSP holding BWA spectrum is able to offer all services as available on a mobile platform under a Unified Licence, it would be inherently unfair if the holders of BWA spectrum are charged an SUC rate which is lower than that charged from mobile TSPs who do not hold such BWA spectrum. In order to ensure a level playing field between such TSP and others, the DoT has included the following provision in the Guidelines for grant of Unified License:

“Entry fee applicable to migration to Unified License shall be equal to entry fee for new Unified License except for Internet Service Provider with BWA spectrum. For migration of ISP with BWA spectrum to UL regime with authorisation of providing access services, which enables it to provide mobile voice services also using BWA spectrum, an additional fee equal to the difference between the entry fee for UASL as per details in Annexure V and entry fee paid for ISP license shall be payable in addition to the entry fee as applicable for new UL.”

In the opinion of the Authority, keeping a differential rate of SUC between such TSP and others giving voice services using other spectrum e.g. 800/900/1800 MHz would fundamentally alter the balance of the playing field against the latter group of TSPs and could potentially hamper effective competition in mobile services. The manner in which this could happen is explained as follows. A basic requirement for implementation of a differential SUC rate for BWA spectrum is segregability of revenues for different kinds of spectrum. Further, if the holder of BWA spectrum provides voice as well as other mobile services in addition to broadband, it would be necessary to segregate the revenues earned by the TSPs from broadband and revenues earned from voice and other mobile services using BWA spectrum. Such segregation is fraught with difficulties. There will be a question mark on verifiability of any segregation of revenues, as had been observed by the Authority in its recommendations on

'Allocation and pricing of spectrum for 3G and Broadband Wireless Access services' of 27th September 2006 (Para 5.82). This has also been acknowledged by the DoT in the current reference. This will lead to opportunities for arbitrage and will create a non-level playing field between the TSPs who hold BWA spectrum and those that do not own such spectrum. Suppose a TSP owns spectrum in 1800 MHz and 2300 MHz and is able to provide voice and LTE using the two bands. Revenue from 1800 MHz spectrum would be charged SUC at say 3% and revenue from 2300 MHz (BWA) would be charged SUC at the rate of 1%. The TSP will have the incentive to declare higher revenues from the 2300 MHz band so as to gain from the arbitrage. The possibility of arbitrage will arise as soon as other services including voice are provided by the BWA spectrum holder under the Unified Licence, and not at some remote future date as averred by DoT.

If a single uniform rate is applied on all spectrum, it will make it easier for a bidder to factor this into the auction price. The DoT has stated that the lowest rate applicable as SUC is 1% of AGR for BWA spectrum. It is not fully clear whether the DoT is advocating a minimum uniform rate of SUC of 1% of AGR. The Authority has already stated in the recommendations that, ideally, a 1% flat SUC charge is desirable when all spectrum is assigned through auctions (para 5.32). The Authority however, has, at this time, recommended a flat rate of 3% of AGR rate as this is the minimum of the slab rates applicable for 2G spectrum and is also the applicable rate for 3G spectrum. If DoT is of the view that the uniform rate of SUC should be 1%, the Authority would not have any objection.

The DoT has opined that the recommendations at para 7.17 and 7.18 are not implementable on the ground that the revenue from administratively assigned spectrum and auctioned spectrum cannot be segregated. However, the point to note is that the

recommendations do not require any such segregation of revenues. While recommending that all spectrum allocated through auction should henceforth be charged at a flat rate, the Authority has also pointed out in para 5.29 of the recommendations that there are 3 kinds of 2G spectrum holders: viz. licensees owning only auctioned spectrum, licensees owning a mix of administratively assigned spectrum and auctioned spectrum, and licensees owning only administratively assigned spectrum. The move to a flat ad valorem charge has to take into account the graduated transition of these three categories to a regime in which all spectrum is assigned through auction. This clearly implies that TSPs holding only administratively assigned spectrum and TSPs holding a mix of spectrum acquired through auction and administrative assignment, would continue to pay the SUC at slab rates. The following table clarifies the Authority's viewpoint on how SUC rates would apply for 2G spectrum in different scenarios:

TSP	Spectrum holding	Nature of spectrum assignment	Applicable SUC as per existing slabs	Applicable SUC as per TRAI's recommendations (September 2013)
X	7.5 MHz	Administrative (7.5 MHz)	5%	5% till the time he pays the prescribed market value for administratively assigned spectrum and thereafter @ 3%
Y	7.5 MHz	Administrative (6.25 MHz) and Auction* (1.25 MHz)	5%	
Z	7.5 MHz	Auction* (7.5 MHz)	5%	3%

* represents spectrum acquired through auction, spectrum trading or on which TSP has paid prescribed market value.

The recommendations further state that spectrum acquired through auction or trading or on which a TSP has paid the prescribed market value to the Government should not be added to any existing spectrum holdings for determining the applicable slab rate. The following table clarifies the Authority's viewpoint:

TSP	Spectrum holding (GSM)	Nature of spectrum assignment	Applicable SUC as per existing slabs	Applicable SUC as per TRAI's recommendations (September 2013)
A	4.4 MHz	Administrative (4.4 MHz)	3%	3%
B	7.4 MHz	Administrative (4.4 MHz) and Auction (3 MHz)	5%	3%

Therefore, there should be no problem in implementing the recommendations contained in paras 7.17 to 7.19. The Authority sees no valid grounds to reconsider these recommendations and, accordingly, they are reiterated.

13. Para 7.20

The Authority recommends that the highest slab rate of SUC may be brought down to 5% of AGR with effect from 1st April, 2014.

DoT View

In para 5.36, TRAI has mentioned, that

“Ideally, the escalating slab rate system should be changed to a flat rate across the board for all TSPs. However, the Authority observed that there are a number of TSPs who hold a mix of administratively assigned and auctioned spectrum, or only administratively assigned spectrum. While the first two licenses given in 1994-95 in most LSAs, will come up for renewal from end 2014 to early-2016, there will be a number of licenses in which the licensee is holding administratively assigned spectrum (in whole or part), that will continue up to 2024. Since the flat rate regime cannot be fully implemented because of this legacy issue, the Authority is of the view that, in the interim, the highest slab rate may be brought down to 5% with effect from 1st April, 2014.”

The following is observed:

- (i) It is an interim measure, as mentioned by TRAI
- (ii) There are some licensees is holding administratively assigned spectrum (in whole or part), that will continue up to 2027 not 2024 as mentioned by TRAI.
- (iii) TRAI has recommended highest slab rate 5%, however, it has not provided distribution across the different slabs of spectrum holding (ref Table 5.1 in para 5.3).
- (iv) TRAI has not provided any rationale or justification for arriving at the figure of 5% as the highest slab rate.

- (v) This reduction on recommended highest slab rate will apply to a large pool of spectrum, which is administratively allotted.
- (vi) Revenue implications as well as financial neutrality aspects have not been indicated by TRAI.
- (vii) Linking the rate of SUC with quantum of spectrum assigned promotes efficient utilisation and also prevents spectrum hoarding tendency.
- (viii) The reduction in SUC assessed on lowering the peak rate to 5% of those who are paying above 5% comes to approximately Rs. 287.83 Crore for 2010-11 and Rs. 319.68 crore for 2011-12.

Keeping in view the comments in para 7.17 to 7.19, TRAI recommendations are sought as requested above.

Response of TRAI

The recommendations of TRAI are specifically to reduce the rate of the slab higher than 5% to the slab rate of 5%. In effect, it means that the slab rates of 6%, 7% and 8% should be removed and the highest slab rate should be 5%. The revised rates of SUC charges as per the recommendations will be:-

Spectrum slab		Annual spectrum charges (as a percentage of AGR)
GSM (900/1800 MHz)	CDMA (800 MHz)	
Up to 4.4 MHz	Up to 5 MHz	3
Up to 6.2 MHz	Up to 6.25 MHz	4
Above 6.2 MHz	Above 6.25 MHz	5

The rationale for the recommendations of the Authority to reduce the maximum slab rate to 5% are explained in para 5.36. These recommendations are an attempt to rationalize the slab rate structure and to enable a graduated transition to a uniform flat

rate regime. There are only two licensees that pay at the 8% slab rate and none that pay at 7% slab rate. In about 33 licenses in various LSAs, the TSPs are paying SUC at the slab rate of 6% of AGR. Some of these licences are coming up for renewal from end 2014 to early 2016; however a number of these licences will fall due for renewal up to 2024. The licenses falling due after 2024 are not in the bracket of slab rates higher than 5% of AGR and therefore are not impacted by these recommendations. The total approximate savings over the next 10 years to the industry resulting from this recommendation of reducing the highest slab rate to 5% of AGR is to the tune of Rs.1500 crore at present value (discounted at the rate of 12.5%) i.e. around Rs 150 crore per year. It must be kept in mind that some of these savings may be offset (as a trade-off) by higher upfront charges paid by TSPs when they purchase spectrum through auctions.

The complex developments in the SUC regime have been brought out at paras 5.4 to 5.13 in the recommendations of TRAI. It is difficult to reverse the various decisions taken over the past decade and rationalize the impact at one stroke. Therefore, the Authority has recommended a graduated transition to flat rate regime through the two recommendations of 3% of AGR as SUC charges for auctioned spectrum and reduction in the number of slabs by fixing 5% as the highest slab rate (reducing the number of slabs to 3). As a result, more TSPs, as they progressively convert their spectrum holdings to only auctioned spectrum, will be able to move to a simplified regime of a flat rate of SUC at 3% of the AGR. The DoT's comment that linking the rate of SUC with quantum of spectrum assigned promotes efficient utilization and also prevents spectrum hoarding tendency, is not relevant in the current context as all spectrum allocations for access services are hereafter to be done through auction.

The analysis in the following table shows the quantum of average spectrum holding per LSA of each TSP, the quarterly AGR earned per MHz, and the quarterly SUC paid for the first quarter of 2013-14.

**Spectrum allocation, AGR and SUC paid
for the quarter ending June, 2013**

(Rs. in crore)

Name of TSP	Overall Spectrum* allocation (MHz)	Average spectrum per LSA (MHz)	AGR – Wireless **	AGR per MHz	SUC**	SUC per MHz
BSNL	340.10	17.01	1830	5.38	112	0.33
Reliance	270.50	12.30	1801	6.66	76	0.28
Bharti	232.65	10.58	8337	35.84	495	2.12
Vodafone	217.15	9.87	6614	30.46	334	1.54
Tata	195.45	10.29	1749	8.95	95	0.49
Idea	194.30	8.83	4747	24.43	249	1.28
Aircel	169.00	7.68	1498	8.86	68	0.40
MTNL	41.05	20.53	182	4.44	15	0.36
Sistema Shyam	39.40	4.38	215	5.46	7	0.18
Unitech	30.00	5.00	457	12.25	15	0.51
Videocon	30.00	5.00	32	1.05	2	0.07
Loop	10.00	10.00	128	12.76	7	0.75
Quadrant	6.90	6.90	22	3.25	1	0.15
Total	1776.50		27614	15.54	1477	0.83

*800/900/1800/2100 band

** based on quarterly return submitted by TSPs on GR/AGR

As can be seen from the above table, the slab rate regime has no direct relationship to the efficient utilisation of spectrum by different TSPs. On the one hand, there are TSPs who have large spectrum holdings per LSA and earned high AGR per MHz of spectrum. On the other hand some TSPs including the 2 PSUs

have large spectrum holdings but earn comparatively far less AGR per MHz. It is the efficiency of the business model and the revenue generation capability of TSPs that determines AGR earned from spectrum which forms the basis on which SUC is paid on spectrum holdings. Reducing the highest slab rate to 5% may actually have the effect of incentivizing rather than discouraging higher productivity efforts by the TSPs. The Authority therefore reiterates its recommendation to bring the highest slab rate of SUC down to 5%.

14. Para 7.21 to 7.30

- 7.21. The Authority recommends that spectrum trading should be permitted in the country. Initially, only outright transfer of spectrum should be permitted.
- 7.22. The Authority recommends that the eligibility conditions for spectrum trading and participation in spectrum auctions should be the same.
- 7.23. The Authority recommends that only that spectrum should be allowed to be traded which has either been obtained through auction or on which the TSP has paid the prescribed market value to the Government. This will also include the spectrum in 2100 MHz and 2300 MHz bands. In case, the spectrum being traded by the TSP was assigned to it administratively, the prescribed market value shall be payable to the Government after adjusting the entry fee paid by the TSP for acquiring the spectrum (bundled with licence) prorated for the remaining validity of the spectrum. After the first trade, the spectrum shall be at par with the spectrum acquired through auction. Through trading, the validity period of spectrum will not change.
- 7.24. The Authority also recommends that the seller and the purchaser shall be required to inform the Licensor about the spectrum trade. However, no permission shall be required from the Licensor/ Government. The information of the prospective trade is for the purpose of updating the spectrum register. The register should be updated within a maximum time of eight weeks. On expiry of the time limit, the spectrum trade will be treated as effective.
- 7.25. The Authority recommends that trading transactions should be subject to the spectrum cap of 50% of the spectrum in a band and 25% of the total commercial spectrum assigned in an LSA.
- 7.26. The Authority recommends that in case a TSP wishes to sell its spectrum through spectrum trading, after completion of the roll-out obligations, the TSP will be permitted to sell the access spectrum in

parts, subject to the minimum quantum of spectrum permitted for trading. However, in case the TSP has not fulfilled its roll-out obligations, then it will have to sell its entire holding of access spectrum and the roll-out obligations will also be transferred to the transferee.

- 7.27. The Authority recommends that a transfer fee of one percent (1%) of the transactional amount or the prescribed market price, whichever is higher should be imposed on all spectrum trade transactions. The transfer fee should be paid by the transferee to the Government.
- 7.28. The Authority recommends that if, after a trade, spectrum is intended to be used for any purpose other than its present use, then the details of the technology have to be submitted to the WPC, so as to ensure that the intended use does not create any interference with other users.
- 7.29. The Authority recommends that the Government may first accept the above recommendations relating to spectrum trading. After the acceptance of the recommendations is conveyed TRAI, the Authority shall constitute a Steering Committee consisting of TSPs and Industry Associations to work out the details of the implementation issues.
- 7.30. The Authority recommends that before the proposed auction, the Government should take the decision on the recommendations pertaining to spectrum trading and incorporate the same in the NIA for the proposed auction. This will help participants in the auction to take an informed decision.

DoT View

Para 7.21 to 7.30

Recommendation for permitting spectrum trading is accepted in-principle and comprehensive recommendations from TRAI are requested in this regard to issue detailed guideline.

Response of TRAI

Noted. The DoT has conveyed its in-principle acceptance of spectrum trading. Accordingly, the Authority will shortly work out the detailed guidelines for its implementation.

AFTERWORD

The Authority's remit on this particular task is over; at least, for now. However, the last word is the prerogative of the Government. Then why this epilogue? Primarily, to place things in perspective.

2. The mobile telecom sector has seen both boom and bust in its short two decade history. Till some years ago it was the toast of industry and the country. But, in a short span of 5 years, a series of man-made mistakes has brought the sector to its knees. Those misguided decisions and reactions thereto have already been alluded to in the Authority's recommendations. And, there are no innocents; bystanders, observers, commentators and principal actors all actively participated. But, errors made can also be corrected. As James Joyce observed: "*A man of genius makes no mistakes. His errors are volitional and are the portals to discovery*". We must learn from the mistakes and move on.
3. Where do we go from here? The Authority devoted considerable attention to this specific issue. And, this is precisely why the Authority did not restrict its ambit to merely such issues as posed by the DoT. It is clear that while auction-related issues are important, they cannot be viewed in isolation from key policy issues. The policy framework in which they are embedded is of crucial importance. The Authority was only too conscious of the phenomenon of economic hysteresis. That the past determines the future seems almost trite. But, even more importantly, the current environment shapes the future. Hence, it was clear that the policy regime would not only impact the success of the auction but a suitably responsive policy regime could well determine the very future of the sector.
4. That the sector is in dire straits is widely accepted. That consolidation in the sector is necessary is well appreciated. That restructuring and reform can no longer be procrastinated is evident. The writing on the wall is clear: reform or perish. The policy setting has changed over the

past twenty years. There have been ad hoc changes responding to problems of the day. There have also been responses to external stimuli e.g. the Hon'ble Supreme Court's Judgement. What is inescapable is that the policy responses have not measured up to the challenges posed. If they had, the sector would not be in the shape it is in. Reform is now the only way out. Twenty-two years ago, the Prime Minister, then grappling with one of India's major economic crisis, while speaking in Parliament to garner support for the restructuring and reform agenda quoted a variant of Victor Hugo's comment on the strength of an idea. This Authority can do no better than echo a similar paraphrased variant "*Nothing is as powerful as an idea whose time has come*".

5. The Authority is also absolutely clear that the opportunity presented today must be seized. There are several compelling reasons to do so. The banking sector is not in the pink of health. Large exposures in power, roads, telecom, steel, textiles and construction, to name a few, are in a fair degree of distress. Recessions typically bring such weaknesses into starker relief; as Non Performing Assets (NPAs) have grown, so too has Corporate Debt Restructuring. The first reason to initiate reform and restructuring is to prevent NPAs from spilling over and becoming serious banking difficulties. Second, the current account deficit continues to be a problem. We need flows from abroad, especially those not easily reversible. While FIIs may come and go, foreign direct investors, especially in telecom, are currently chary of venturing into the market. The media recently reported that the Department of Economic Affairs (DEA) had asked the DoT to explain why FDI flows to the sector have plummeted. Surely, this is a rhetorical question. If we are to revive any interest amongst foreign investors, it cannot be on the basis of a business-as-usual approach; outlining a clear programme and credible commitment to its implementation demonstrated through action must form the basis for attracting enduring flows of capital to the sector. Third, in the five

years that we have spent navel-gazing, the rest of the world has moved on. And, howsoever unpleasant it may be, the truth that we need to face is we have lagged behind the rest of the world just when we had begun to catch up. There is a telecom revolution under way in many parts of the world. By conservative estimates, we are 5-10 years behind. The Authority could list a number of other reasons why urgent policy action is called for. However, we shall end the exhortation with a quote from William Shakespeare that encapsulates the Authority's views *"There is a tide in the affairs of men, which taken at the flood, leads on to fortune. Omitted, all the voyage of their life is bound in shallows and in miseries. On such a full sea are we now afloat. And we must take the current when it serves, or lose our ventures."* (Julius Caesar Act IV Scene III)