RECOMMENDATIONS ON "WLL(M) ISSUES PERTAINING TO TRAI BASED ON HON'BLE TDSAT'S ORDER"

No. 411-15/FN-2003 Dated 26th October 2003

These recommendations are set out as follows:

- Context & Background
- Discussion of Issues and Recommendations covering –

i) Additional entry fee payable by BSOs for providing WLL (M) Service.

ii) Additional spectrum fee chargeable for the additional spectrum beyond 5 MHz for WLL (M) Service.

iii) Relief to Cellular Mobile Operators with regard to Points of Interconnection between CMSPs and BSOs.

iv) Increasing the retention of 5% Access Charge of CMSPs to a reasonable level.

CONTEXT & BACKGROUND

1. In October, 2001, in the context of recommendation of TRAI on grant of licences for Basic Service Operators (BSOs) in 15 Circles/ migration of Basic Service Operator in 6 Circles from fixed licence fee to revenue sharing, DOT had sought the recommendations of TRAI on

(a) Scope of Area of Hand Held subscriber terminals under Wireless Access System operations,
(b) Basis for assigning WLL frequency,
(c) Amount of Entry Fee and spectrum charges as a percentage of revenue to be charged from the Basic Service Operator for extending the above facility in respect of existing as well as future Basic Service Licensees, so as to ensure a level playing field with the Cellular Operators.

2. After following a transparent public consultation process, which included release of a Consultation Paper for seeking comments of stakeholders, open house sessions and meeting with experts, TRAI had given its recommendations to the Government on 8th January, 2001. After considering these recommendations, DOT issued Guidelines on 25.1.2001 for issue of fresh basic service licenses. These guidelines allowed Basic Service Providers to provide mobility to its subscribers restricted to local area i.e. SDCA (Short Distance Charging Area). The same day DOT also permitted the six old Basic Service Licensees to provide mobility to its subscribers on WLL restricted to local area.

3. Cellular Mobile Service Providers (CMSPs) challenged in the TDSAT the DOT guidelines dated 25.1.2001. Challenge to the DOT guidelines were on various grounds, particularly, that the decision was against the avowed policy viz.

the New Telecom Policy, 1999. Before the Tribunal, large number of issues on facts and law had been raised, which were:-

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i) The decision of the Government is vitiated for non-compliance of Section 11 (1)(a)(i) of the Act.

ii) The NTP-99 never contemplated of WLL with limited mobility and as such the decision to provide WLL with limited mobility to the Fixed Service Providers is beyond the policy in question.

iii) The permission to offer WLL with limited mobility is arbitrary, unreasonable and unjust decision on the part of the Government.

iv) TRAI while recommending by its letter dated 08.01.2001 had indicated for compliance of two conditions, but the government decision ultimately taken is contrary to the said recommendations and, therefore, is vitiated.

v) The ultimate decision of the government in fact does not deal with the question of level playing field between FSPs offering WLL with limited mobility and CMSPs, as a result of the discriminatory regulatory regime.

vi) The impugned decision conferring the benefit of WLL with limited mobility to the Fixed Service Providers is nothing but a Cellular Mobile Service in SDCA and as such is a substitution for the same and such a substitution ought not to have been allowed.

vii) The Government decision allowing Fixed Service Providers to provide WLL with limited mobility without any entry fee and without any charges for allocation of spectrum and even without a competitive bidding, amount to violation of recommendations made by the TRAI dealing with new CMSPs licenses."

Vide its judgment dated 15th March 2002, the Telecom Dispute Settlement Appellate Tribunal (TDSAT) dismissed the petition particularly on the ground that granting limited mobility in WLL was a matter of policy of the Central Government on which Tribunal could not adjudicate.

4. An appeal was filed by the CMSPs against the TDSAT judgment in the Hon'ble Supreme Court of India vide the Civil Appeal No.3092 of 2002. The Hon'ble Supreme Court had allowed the appeal against TDSAT order dated 15.3.2002 in Petition No.1 of 2001 and remitted the case back to the Tribunal for reconsideration. In the judgment of the Supreme Court two judges did not examine the issues raised before the TDSAT but held that the Tribunal erred in its judgment that they could not review the Government decision to allow WLL service since it was a policy decision and held that they could do so in terms of Section 14 of the Act. The judges, therefore, remitted the matter to the Tribunal for reconsideration with special emphasis on the question of level playing field. The third judge agreed with the findings of the two judges but also wanted the Tribunal to look into the legality of the decision of the Government.

5. The Hon'ble TDSAT after considering all the above 7 issues delivered its judgment in the matter on 8.8.2003. The extracts of paras of the majority judgment giving direction to TRAI is as follows:

> *"67. While considering the level playing field issue, it is necessary to keep in view the character and the features of the two services, namely the Cellular and WLL (M), the obligation cast on these two categories of service providers, the area of their operation, their customer segment as well as their revenue earning potential. We have already discussed at great length the distinct features of these two categories of services. It is important to note here that WLL(M) operations are restricted to SDCA within a circle whereas the cellular service covers the entire circle. The cellular service providers obligation in the mater of roll out is limited to cover only 50% of the District headquarters in three years while in the case of WLL (M) service coverage of rural, semi-urban and urban areas in equal*

proportion is required to be ensured. Similarly, the cellular market is a protected market whereas there is no restriction on the nature of new operators in basic [WLL (M)] Service. Even in the matter of spectrum allocation the cellular operators are allocated 10 MHz (Maximum) whereas the Basic Operators (WLL) are allocated 5 MHz (Maximum). Keeping these distinct features of the two categories of service in view it is equally important to correct the imbalance by ensuring level playing field. First and foremost it is important to ensure that mobility in the case of WLL (M) service remains restricted to SDCA and no handover from one SDCA to another is allowed under any circumstance. It should be possible to ensure this through application of appropriate software.

68. We have carefully appraised all the documents and arguments preferred and there is no doubt in our mind that entry of Basic Service Operators with Limited Mobility services has affected the Cellular Mobile Service Providers in an area where competition hitherto was limited. However, we have seen no patent illegality in the action of the Government and have also noted the various reliefs granted to the CMSPs by the Government in order to level the playing field conditions. The Cheaper alternative offered by Limited Mobility Service, even though not exactly substituting all that fully mobile services can and do offer, has certainly introduced an unsettling element in the Cellular Mobile Industry, particularly in the Metro Cellular areas. Prices have crashed dramatically, incentives to retailers and consumers have multiplied, and the increasing competition has led to more price-cuts and offering of several supplementary and /or value-added services which will sooner or later have an impact on both growth and profitability. While in this bonanza the consumer is definitely the beneficiary, one needs to see as to whether the continuation of the aggressive price wars would ultimately benefit the industry and also the consumer. In this context, we have not found the *reasons given by the TRAI for not recommending any additional entry fee for this service as convincing enough as this is an enormous value added service over the fixed service, which the Basic Service Operators have been providing. In the meanwhile, one cannot fail to notice the fact that the customer base of both the CMSPs and Basic Service Operators offering WLL (M) has expanded enormously ever since the decision taken by the Government on 25.01.2001. Since it is a value addition to WLL service which has a definite impact on the playing field conditions, we feel that there is enough justification for imposing additional entry fee over and above what they are paying as required under the basic service license agreement. Further basic service operators are presently entitled to allocation of frequency spectrum for WLL technologies for which they are required to pay under DoT letter dated 25th January, 2001 an additional revenue share of 2% of annual gross revenue earned from WLL subscribers as spectrum charge. Since, we have already noted that WLL (M) is a value addition to the WLL service for operation of which on a large scale there would be a need for additional spectrum we would suggest the Government may allocate additional spectrum for WLL(M) service. The cell operators are also paying 2% as spectrum usage charge. Hence, we are not suggesting any revision on the higher side of the spectrum charge presently being paid by WLL(M) service operators. However, there would be a case for levying additional spectrum charge for WLL(M) service over and above what is being paid at present if allocation of additional spectrum becomes a necessity for operation of this service on a large scale as also for improving the quality of service. The modality for determining additional entry fee may be examined and recommended by the Telecom Regulator (TRAI) by following a transparent process with due consultation with all the concerned stake-holders. The same method may be followed in case additional spectrum is made available. Further, some relief should be given to the cell operators in regard to the points of interconnection and whether these points should go beyond Level I and*

Level II TAX up to Tandem Exchange level may be considered by the TRAI. In regard to retention of 5% access charges which has been allowed to cellular operators there is a case for increasing this percentage to a reasonable level. Higher percentage in this regard could be recommended by the Telecom Regulator after due and comprehensive consideration of the issue in a transparent manner."

6. DOT vide its letter dated 18th August 2003 **(Annex-II of Consultation Paper**) has sought TRAI's Recommendations based on the above judgment of TDSAT. To formulate its recommendations on the above issues, TRAI in line with its established practice, has completed a process of public consultations to ensure transparency and due consultation in its decision making process. This process included preparation of a Consultation Paper on the matter which made an attempt to analyse various issues arising out of the orders of the Hon'ble TDSAT and in the context of DOT's reference to TRAI raised questions on the following issues on which inputs from stakeholders were solicited (a copy of the Consultation Paper is available as Supporting Document 'B').

i) Additional entry fee payable by BSOs for providing WLL (M) service

ii) Additional spectrum fee chargeable for the additional spectrum beyond 5 MHz for WLL (M) service

iii) Relief to cellular mobile operators with regard to Points of Interconnection between CMSPs and BSOs

iv) Increasing the retention of 5 % access charge to a reasonable level"

Discussion of on the above Issues and Recommendations are covered in Sections A to D.

SECTION "A"

Calculation of Additional Entry Fee for WLL(M)

I. Introduction

1. The majority judgement of the Supreme Court in this case had emphasized the matter of level playing field. In this context, of the seven points referred in the TDSAT majority judgment as above, the following points encompass the relevant issues:

- level playing field between FSPs offering WLL(M) and the CMSPs;
- entry fee for WLL(M);
- charges for allocation of spectrum;
- competitive bidding by WLL(M) to obtain spectrum.

2. The text of the TDSAT majority judgement of 8th August, 2003 which addressed these points and pursuant to which this Recommendation is being provided, is already covered in the Section "Context and Background".

3. The issue of a level playing field would include a consideration of various factors including the entry fee. The manner in which these were addressed by the TRAI is given in Part III below. The matter relating to charges for allocation of spectrum and competitive bidding by WLL(M) are related, with the latter point also overlapping with the issue of entry fee. Charges for allocation of spectrum have been addressed in another part of this Recommendation. Here we look at the issue of additional entry fee, as it is one of the items to be addressed by TRAI following the judgement of the TDSAT in the case relating to WLL(M).

<u>The Majority Judgement of TDSAT, dated 8th August, 2003</u>

4. The relevant portion of the majority judgement of the TDSAT is already covered in the earlier Section "Context and Background".

4.1 The Hon'ble TDSAT in its Order dated 8th August, 2003 has observed that "we have not found the reasons given by the TRAI for not recommending any additional entry fee for this service as convincing enough as this is an enormous value added service over the fixed service, which the Basic Service Operators have been providing. In the meanwhile, one cannot fail to notice the fact that the customer base of both the CMSPs and Basic Service Operators offering WLL (M) has expanded enormously ever since the decision taken by the Government on 25.01.2001. Since it is a value addition to WLL service which has a definite impact on the playing field conditions, we feel that there is enough justification for imposing additional entry fee over and above what they are paying as required under the basic service license agreement."

4.2. The Hon'ble Tribunal had considered two factors while justifying the need for imposing additional entry fee over and above what the basic service operators are paying as per their license. One factor is the enormity of value addition and the other is the impact of this value addition on the level playing field with the cellular operators.

II. STAKEHOLDER VIEWS

5. The first and foremost issue is whether additional entry fee is to be levied on basic service operators for providing WLL (M) service. Different views were received from stakeholders whether additional entry fee is to be levied for WLL(M).

These views are summarised below:

a) WLL (M) is part of Basic Service license and entry fee has already been paid. As such no additional entry fee can be levied. However, according to CMSPs, the entry fee paid by FSPs is to provide 'fixed services' and the entry fee paid for WLL(M) is NIL.

b) At the time of inviting bids for the 4th cellular operator the entire telecom industry was aware of the terms and conditions under which WLL(M) was allowed for in the BSO licenses. Therefore CMSOs took a conscious decision with the knowledge of the prevailing market situation. However, CMSP's views on this is that the permissibility of WLL(M) was under challenge by them and that the entry into cellular was a closed door regulated process. CMSPs desirous of enhancing their cellular footprint had no choice but to bid for the 4th license. Further, the TDSAT interim order made it clear that the license granted will be subject to the outcome of the petition.

c) After 25.01.2001 guidelines no changes favourable to BSOs have been made. On the other hand their rollout condition were made far more onerous on BSOs as a result of the GOT-IT Report.

d) The differences on the entry fee are substantially tilted against BSOs.

e) BSOs have more onerous rollout obligations in terms of 100% SDCA coverage in the circle for post NTP-99 licensees and VPT/DEL obligation for Pre-NTP-99 licences as compared to CMSOs who have to cover only 50% DHQs/ towns which is 1/10th of BSOs obligation. However, according to CMSPs, the FSPs are still woefully short of meeting their rollout obligations whereas the CMSPs have not only met, but exceeded their rollout obligations.

f) BSO have to provide Bank Guarantees linked with rollout obligations which are four times the entry fee for each circles, ranging from Rs.4 crores to Rs.460 crores. The CMSOs have to provide Bank Guarantee of only Rs.2 crores for Category-C circles, Rs.10 crores for Category-B circles and Rs.20 crores for category C circles. According to CMSPs, the imbalances as pointed out by TDSAT and as referred by the DoT, have to be corrected between WLL (M) and cellular and not between fixed and cellular. The terms and conditions on which FSPs have been permitted to offer “fixed” services are of no relevance in this context. It is only the dispensation of limited mobility and the terms on which it has been permitted vis-à-vis the terms and conditions applicable to CMSPs that needs to be corrected. Therefore the reference in Para 2.2 in the Consultation Paper to the Entry Fee and Performance Bank Guarantees applicable to fixed services are of no relevance in the process of this consultation. The Performance Bank Guarantee is only a guarantee for ensuring performance vis-à-vis the rollout obligations and other commitments and is not a cash outgo.

g) No additional entry fees were levied on the CMSPs when they were allowed to offer nation wide and international roaming and mobile PCOs, which severely impacted revenues of BSOs. According to CMSPs, Mobile PCOs allowed to them were not an additional facility as in terms of the their license they are allowed to offer all types of mobile services.

h) WLL(M) was not in fact mainly responsible for “an unsettling element in Cellular Industry”. Since the introduction of WLL(M) the rate of growth of the cellular industry has multiplied. The cellular operators have never taken any initiative to reduce tariffs on their own, but they have only reacted to competitive pressures within their own industry, from the third and fourth cellular operators.

i) Various sops to the CMSPs have more than compensated for any impact that WLL(M) is imputed to have had on the playing conditions. These included introduction of calling party pays regime for cellular service, allowing mobile PCOs for CMSPs without any compensation to BSOs, allowing 5% long distance and pass through revenue, reduction of license fee, allowing direct interconnection between cellular operators so that they can carry traffic on each others network within their own service area, bypass of intra-circle long distance traffic of BSO. The reduction in license fee has resulted in license fee savings for CSMPs of about Rs.1000 crore till March, 2004. By way of mobile PCO they were given benefits worth Rs.1,000 crores annually.

j) BSNL has claimed a projected annual loss of around Rs. 2400 crores towards inter-operator settlements on account of CPP implementation from 1.5.2003.

k) There is no case of imposing additional entry fee, keeping in view the affordability factor.

l) The case of the six pre-NTP-99 BSOs is different. These licensees operate under a different set of operating conditions as compared to post NTP-99 licensees. The pre-NTP-99 BSOs had paid very high entry fees as compared to the new entrants. They had dual rollout obligations for VPTs and DELs. They also had to give Performance Bank Guarantee of Rs.100 crores, of which Rs.50 crores is to be maintained for the entire license period. Hence TRAI should revisit the case of the Pre-NTP-99 BSOs and recommend suitable relief, particularly in terms of entry fee, rollout obligations and Performance Bank Guarantee.

m) There should be entry fee payable by BSOs for WLL(M) and this should be over and above the entry fee already paid by BSOs for providing fixed service. As per NTP-99, FSPs are required to pay an additional one time entry fee over and above the FSP entry fee for use of spectrum for WLL(Fixed). While NTP'99 clearly provided for additional entry fee and revenue sharing for use of spectrum even for WLL (Fixed), TRAI did not consider it appropriate to recommend any additional entry fee or revenue share for WLL spectrum with the additional dispensation of mobility.

n) As long as the mobility under basic service licence is strictly limited to within the SDCA and additionalties like free inter SDCA call transfer, multiple SDCA registration, over the air authentication etc are not allowed, there is no justification for extra entry fee to be levied on the Basic Service Operators. With strictly limited mobility, there is no comparison between a cellular licence and a basic licence. The competition in cellular market is limited to four operators while in the case of basic services, the competition is open for any number of operators and there is no justification for any additional entry fee to be levied on the Basic Service Operators.

o) The level playing field conditions have to be brought out by ensuring that the technological neutrality objective of NTP-99 is not vitiated.

Discussion based on various arguments and counter arguments

6.1 The BSOs argue that WLL(M) is a part of their basic service license and they have already paid the entry fee. Hence no additional entry fee should be levied on BSO. On the other hand the CMSOs view is that the entry fee paid by the BSOs was only for providing fixed service and no entry fee was paid for WLL(M). In this connection it would be pertinent to have a look at the orders of the Hon'ble TDSAT. According to the Hon'ble TDSAT, WLL(M) is a value added service over the fixed service and this is a value addition to WLL. The views of BSOs regarding rollout obligations, open entry in WLL(M), limited spectrum available etc. have also been considered by the Hon'ble TDSAT. The Tribunal has noted that the Government should have, both on policy considerations as well as on economic grounds, levied an appropriate fee for permitting the Basic Service Operators to provide limited mobility within the SDCA. The Hon'ble Tribunal has also ordered that there is enough justification for imposing additional entry fee for WLL(M). The Authority feels that reading of the judgment of the TDSAT as above makes it binding on TRAI to recommend additional entry fee.

6.2 The need for imposing additional entry fee for WLL(M) having been given by the Hon'ble TDSAT, it may have to be considered as to what should be the quantum of additional entry fee for WLL(M), In this regard the Hon'ble TDSAT had noted that "What should be the quantum of such fee, whether it should be linked to revenue sharing, whether it should be a one time fee, whether the fee should be limited to only SDCAs located in the four Metro cities of Delhi, Mumbai, Chennai and Kolkata and those in 'A' Circles etc. are issues which are best decided by the Government in consultation with the Regulator viz. TRAI."

6.3 The Hon'ble Tribunal has also impressed on the need for maintaining level playing field while considering the entry fee. On level playing filed the Tribunal has noted that "while considering the level playing field issue, it is necessary to keep in view the character and the features of the two services, namely the Cellular and WLL (M), the obligation cast on these two categories of service providers, the area of their operation, their customer segment as well as their revenue earning potential".

6.4 As stated earlier, the BSOs are against imposing any additional entry fee. One of the CMSPs have suggested that the additional entry fee payable by BSOs should be determined based on the entry fee paid by the 4th cellular operators for the corresponding circle keeping in view the business potential and relative infrastructure cost of setting-up GSM (1800 MHz) network and CDMA (800 MHz) network for catering to the same number of subscribers in a service area. This additional entry fee should be over and above the entry fee already paid by BSOs for providing Fixed Services.

6.5 COAI representing the CMSPs has suggested that the WLL(M) entry fee being equated to 4th CMSP license fee less entry fee for fixed services is not acceptable to them. According to them, in case the 4th cellular license fee is to be used as the basis for determining the entry fee for WLL(M), it should be adjusted to take into account of the fact that the FSPs have been given spectrum in the 800 MHz band while the 4th CMSP has been housed in the 1800 MHz band, which is about 1.5 - 2 times costly, the CDMA requires 80% fewer base stations than GSM. In addition CDMA spectrum efficiency being about 5 times higher than GSM spectrum, has also been claimed. However if that was the case, fourth cellular operators would have deployed CDMA based mobile services because the cellular license is technology neutral and the available spectrum could be used either for CDMA or GSM.

6.6 Further COAI had stated that WLL(M) operators have been offering services since 2001 and any additional entry fee recommended must be applicable with retrospective effect and the operators should be required to pay the same at current PLR rates. COAI has further indicated that their revenues from Intra-SDCA calls are about 80% and as such WLL(M) services are giving additional competition for about 80% of their revenue streams. They further indicated that additional entry fee should be the average of the entry fee paid by the three CMSPs, excluding BSNL/ MTNL.

6.7 CMSPs have argued that spectrum should be the main factor in deciding the additional entry fee. Their main argument is that they had bid for the spectrum, as without spectrum, the cellular license does not have any significance. However, according to ABTO the cellular operators did not bid for the spectrum that they currently utilize. In support of their argument, the BSOs have quoted from

(i) Part-1, Section V (Financial Conditions Page 32 of the Tender document which reads "Clause of WPC Royalty: Licensee shall pay royalty charges to the WPC":

(ii) Part – II, Terms of Financial Bids, Page 67 of Tender document which reads Clause 7.4: The cellular levy/ license fee shall be paid in lump sum prior to signing the license and 7.6: The annual license fee referred to above does not include Royalty fees payable to WPC Wing of Ministry of Communications for use of Radio Frequencies which shall be paid separately by the licensee on the rates prescribed by the WPC and as per procedure specified by it;

(iii) License Terms: Clause 20.1 on Page 31: A separate license shall be required from the WPC Wing of Ministry of Communications which will permit utilization of appropriate radio frequency spectrum for the establishment and operation of CMTS under usual terms and conditions of the license. Grant of license will be governed by normal rules procedures and guidelines and will be subject to completion of necessary formalities.

6.8 Here two issues are involved. One is that the bid was for the cellular license to operate mobile services and the other was that without the spectrum, the license has no value. The bids for the cellular license were invited with specific provisions that spectrum needed for operating the cellular service would be provided. However, same was the case for fixed services licences wherein

WLL was the preferred technology in the access loop. Moreover even for BSOs separate license has to be obtained from the WPC Wing of the Ministry of Communications for using the spectrum and the terms and conditions and price is as prescribed by them. In this respect the bids invited for granting license for operating cellular service cannot be said to be based on spectrum auction.

6.9 Another argument by the BSOs in this regard is that had the license/ entry fee bid been for spectrum only, then as per the license Clause No.20.3, the cumulative frequency upto 4.4 MHz was to be allocated. The cellular operators claim that they had bid Rs.7000 crores for 4.4 MHz of spectrum. However, for additional spectrum allotted, they had not paid any entry fee corresponding to the bid price.

6.10 The BSOs point out that the Cellular Operators have been enjoying the freely available spectrum till now and using it inefficiently and have not exercised the options available to them to get CDMA technology in their present allotted bands. GSM licensees were made technology neutral with effect from 14.9.99 and they had the option to switch to CDMA technology to utilize their spectrum efficiently in their 900/1800 MHz band. They chose not to do so consciously. In this regard BSOs have pointed out that the Cellular Operators had made multiple applications (about 80 out of 147 applications) for basic licences in the year 2000 but they did not opt for basic licences which had 800 MHz band spectrum because of SDCA rollout requirement as the spectrum is made available only after establishment of a POP. It was further argued that Cellular Operators can very well make efforts to get spectrum in 1900 MHz band or 2000 MHz band in which CDMA equipment are available and are being utilized in many countries.

6.11 In this connection the Authority would like to highlight that 20 MHz spectrum in the 800/ 900 MHz has been reserved for WLL and as per the spectrum policy 5 MHz each of these frequencies will be allotted to BSOs on first-come-first-served basis. Even when spectrum is available, in most of the circles not many new BSOs have come forward to take the license and in some circles there is no operator other than BSNL.

6.12 The other arguments of the BSOs are that the 4th Cellular bid was made on the basis that spectrum charges would be paid as percentage of revenue and there was no upfront payment made and in the long run, the CAPEX is similar for 900 MHz and 1800 MHz bands of Cellular Operators and Spectrum allocation is decided by NFAP for different types of service providers. As regards the cost of the two cellular networks in the 900 MHz and 1800 MHz band, the BSOs argue that in the initial deployment, when the coverage of the area is being done, the number of cell sites is relatively more as the 1800 MHz cell site has a smaller radius than that in 900 MHz band. However, as the subscriber base grows, the radius is a function of number of subscribers and the initial argument ceases to be valid. As the capacity in Erlangs for cell sites is same in 900 MHz and 1800 MHz band, the effective subscriber capacity and hence the overall Capex is similar. This issue can be seen in terms of the above mentioned aspect that cellular licenses are technology neutral and the spectrum available could be used for CDMA also.

6.13 Another issue to be considered in assessing the level playing field between the two services is the area of operation of the two services, their customer segment as well as their revenue earning potential. These aspects have to be considered together as these are linked to one another. One view is that in metro cities which is a separate licensed circle for cellular operators there is hardly any difference between the cellular services and WLL(M) service. However, in the case of cellular metro licensees, the license area also include the satellite towns like Gaziabad, Faridabad and Gurgaon in Delhi circle. In the case of WLL(M), the licensed area is restricted to the SDCA area of the metro city. For metro cities, there is a community of interest between the metro city and its satellite towns which requires mobility between the metro city and its satellite towns. This kind of mobility is not available for WLL(M). The cellular subscriber also has the advantage of roaming when moving out of the service area. Hence, in metro cities the scope of the two services is different. However, the revenue earning potential of WLL(M) is more in metro circles as compared to WLL(M) in other circles.

6.14 In circles other than metros, the impact of mobility is much more. Here, the mobility of a WLL(M) handset is restricted to the boundaries of the SDCA in which the subscriber is registered. Hence, people moving from one SDCA to another cannot use this handset. However, in the case of cellular service, the mobility is available in the entire circle on a single rate. The BSOs have been complaining that this results in the bypass of their long distance revenue. A long distance call originating in a BSOs network and meant for termination in a cellular network is charged at a local call rate as the call is handed over at the near end.

6.15 Another issue to be considered while assessing the level playing field between the cellular service and the WLL(M) service, is the rollout obligations and performance bank guarantee of the two services. As mentioned above, BSOs are required to provide Bank Guarantees linked with rollout obligations and these are larger than the entry fee for CMSOs. No Bank would risk in providing a Performance Bank Guarantee without any costs. According to the Hon'ble TDSAT, while considering the level playing field between the two services, the obligations cast on these two services have to be considered. As such, it is relevant to consider the performance bank guarantee, entry fee and rollout obligations of the two services.

6.16 As per the new basic service license, the BSOs have to fulfil rollout in all the SDCAs in four phases by setting up a Point of Presence in each SDCA. The time period for these phases are 2 years, 3 years, 5 years and 7 years with cumulative % of coverage in terms of POP to be ached at SDCA level at the end of each phase of 15%, 40%, 80% and 100% respectively. Further, in each phase the rollout has to be completed in equal proportion of urban, semi-urban and rural SDCAs. The performance guarantee will be released on fulfilment of the rollout obligations in the percentage of 20% on completion of Phase II (3 years), 30% on completion of Phase III (5 years) and the balance 50% on completion of Phase IV (7 years) or 100% coverage. On the other hand the CMSPs have to cover only 50% DHQs/ towns. The CMSPs can also cover any town in lieu of the District Headquarters. According to BSOs, the cellular rollout obligation is only about 1/10th of their rollout obligation. The stringent rollout conditions may be the reason for a few takers for basic service license, even when spectrum is available.

III. TRAI's Recommendation on WLL(M), dated 8th January 2001

Keeping the comments, viewpoints, various arguments and counter arguments as our background, we will first look at the text and context of the Recommendation on WLL(M) that was given by TRAI on 8th January, 2001, and will then estimate the amount of additional entry fee that should be charged from WLL(M) operators.

7. In its Recommendations of 8th January, 2001 on WLL(M), the Authority had addressed the matter relating to additional entry fee for WLL(M) as follows:

> "*For Basic Service Providers, the Authority is not treating the provision of limited mobility with WLL as a service outside the ambit of their service provision. To do otherwise would be to prevent consumers to benefit from the fruits of technological progress. The Authority views WLL with mobility similar to a supplementary or value added service for basic service. In that sense, this service would be similar to the supplementary services and roaming services that are presently allowed for cellular mobile. The Authority is of the opinion that there is no reason to re-consider the issue*

of entry fee of Basic Service Providers, particularly because the purpose of entry fee was mainly to deter non-serious entry of service providers.

Likewise, the Authority is of the view that the license fee percentages recommended earlier need not be altered for Basic Service Providers. Though their revenue streams will now be higher, the amount of revenue share license fee would also be higher as a consequence. The Authority does not favour imposing a greater license fee burden on the service provider, unless there is a need at any time to do so for the purpose of USO funding. Such increase will almost certainly pass on to the consumer, which as long as it is possible must be avoided.

In the light of the above the Authority would like to recommend that WLL with limited mobility should be provided as part of the Basic Service License. The entry fee and percentage revenue share license fee should not be altered and be as applicable to Basic Service as at present."

8. Thus, the Authority had not recommended any additional entry fee in order to allow the market price to be low and to encourage both consumer demand and growth of the industry as a whole. The same type of decision was taken by the Authority when it had earlier recommended that cellular mobile service providers be allowed to give community telephone (PCO) service on mobile, when recommendations on Public Mobile Radio Trunking Service was given, and recently when ISPs have been allowed to give internet telephony. The objective of the Authority that License Fee should be kept low and that entry fee should be primarily used only to dissuade non-serious entrants rather than to gain Government revenues has been stated on a number of occasions. This case was also treated in a similar manner by the Authority, where no additional entry fee was prescribed over and above the amount which would dissuade non-serious entrants.

9. Furthermore, it is noteworthy that the bidding for the fourth cellular mobile operator was to begin after the policy announcement on the entry of WLL(M). Thus, the bids would have taken into account the impact of the introduction of WLL(M) on the market for cellular mobile. To the extent that there would have been an additional entry fee for WLL(M), the additional competitiveness of cellular mobile would have been reflected in terms of a notionally higher surplus for it, which in turn would have meant a higher bid by the fourth cellular mobile on that account. Therefore, additional entry fee for WLL(M) and a higher bid amount by the fourth cellular operator are effectively similar to no additional entry fee by WLL(M) and the (lower) entry fee that is quoted by the fourth cellular operator.

10. It is also worthwhile to recall that the TRAI had taken account of the fact that the entry of WLL(M) would adversely affect the competitive situation of cellular mobile. Its analysis, however, took account not only of the competition to cellular mobile from WLL(M), but also the competition from the third cellular operator, that this operator would enter the market prior to WLL(M) and would exert downward pressure on cellular tariffs, that the competition from WLL(M) would have a specified likely impact on reduction in ARPU of cellular mobile, and that the reduction in ARPUs would be more than made up with the increase in subscriber base of cellular mobile. The relevant excerpts from the TRAI Recommendation of 8th January 2001 are given below in this regard.

> "*CMSOs have time and again stressed the point that they are not against competition. The issue, then, is only about comparability of the two services and their pricing. The currently obtaining competitive environment for cellular service, even with only two operators in each service area, has already driven the tariffs of mobile services substantially down. This process is bound to intensify with the entry of the third and fourth operators into the market in the very near*

future. Noticeably, in at least one service area viz. Tamil Nadu competition has already driven the air time tariffs of cellular services down to the levels which are quite comparable with the basic services tariffs. However, even as cellular tariffs continue to fall, the subscriber base is growing fast mitigating to a large extent the loss in revenue caused by tariff reduction. The direction of the market is, thus, clear. The fall in tariff rates is to be made up and in fact more than made up by the increasing subscriber base. This has been the pattern of the growth of cellular mobile services worldwide and there is every reason for it to be so here as well. The TRAI is, therefore, of the view that as long as the extent of WLL mobility is not comparable with that of the mobility and roaming enjoyed by mobile subscribers of GSM networks, the apprehensions of the CMSOs that they may be priced out of the market are exaggerated. In the short run, there would be some loss of revenue as the CMSOs in their effort to retain the customers reduce their tariffs to match that of their competitors. However, in the longer run the effect will largely be mitigated as with the reduced tariff the customer base expands faster. It also needs to be kept in view that due to paucity of the available frequency spectrum the supply of WLL services will be limited. …

The impact of permitting mobility on the WLL platform is likely to be felt by both the BSOs and the CMSOs. While the common consumer will emerge a clear winner and the BSOs will get a market which they have not been able to cover so far, the CMSOs are likely to encounter, at least in the immediate run, some loss of market. It will be especially so because WLL mobility will be available to the consumers at the price of basic services or at prices quite close to it. …

The Authority has examined the above contention of the CMSOs. Although the nature of the proposed WLL mobility (limited to SDCA) will not be the same as that offered by the CMSOs, and the latter service will continue to be a premium service as it already has and will have many additional features and far greater flexibility, their apprehensions about the loss of market are not entirely ill-founded. Notwithstanding the fact that the mobility of WLL will be limited to the SDCA, the ordinary consumers will find in WLL(M) a highly acceptable and a cheaper option than Cellular Mobile. In a certain segment of the telecom market, the cheaper pricing of WLL and its mobility will become important determinants in the consumer's choice of service.

These tariff differentials which are mainly due to policy considerations such as affordability of basic services, could trigger migration of subscribers from cellular mobile to WLL, especially of high revenue subscribers, i.e. those making a high proportion of STD calls. An indication of such a likely customer response was provided, for instance, when CDMA mobile services were introduced by MTNL in Delhi last September.

It can be visualised that to retain their present subscriber base, Cellular Mobile Service Providers would have to face stiff competition from the basic service providers and in the process significantly reduce their air time charges. The rate of growth of cellular service which in the last one year has on an average been over 96% nationally may also come down for some time. The full extent of such a decline can not be foreseen at this stage but ***the point pertinent in this context is that even before the BSOs are able to deploy WLL (M) systems fully, the third and fourth cellular operators would have entered the market with***

significantly lower tariff due to dramatic reduction in per line cost of GSM network infrastructure. The main threat to the market of the existing CMSOs, is therefore, likely to come from the third and the fourth CMSOs rather than the WLL (M) operators i.e. the BSOs. *(Highlight added)*

A study conducted to estimate the probable impact of the introduction of WLL with mobility on cellular operators has yielded interesting results which may be mentioned here. The study relates to the situation in Tamil Nadu where competition between the two cellular service providers has brought the air time tariff level of cellular services to almost the level of basic services. It gives fair indications of things to come. As is known in Tamilnadu, out of the two cellular service providers, one viz. BPL preceded its competitor Srinivas Cellcom by about two years and during that period had the entire market to itself. Srinivas Cellcom on its arrival sought to get its share quickly by following a strategy of keeping the tariff very low. However, the Tamilnadu market of BPL was not affected so seriously by the entry of the competitor Srinivas Cellcom, who offered its mobile service at a very low air time tariff which at present is at almost the rate of basic services, with nominal or no incoming call charges. Despite an aggressive price war raged by the latter, BPL has come out largely unaffected in so far as subscriber growth rate and ARPUs are concerned. These are, in this case, close to several other circles i.e. where the competition has not been so intense. Their airtime usage is much higher than that registered for most CMSOs.

The main inferences that are drawn from the study are as follows:-

*(a) **Competition from WLL(M) is unlikely to have a major restraining effect on the growth of air time usage and cellular mobile subscribers**. This is expected to be so due to high elasticity of the GSM cellular market and the host of tele and supplementary services which the cellular mobile operators offer. (Highlight added)*

*(b) **While there will be a fall in ARPU due to a reduction in tariffs, contributed in good measure by the entry of the third and the fourth cellular mobile operators in the market, the total revenue is unlikely to fall in any significant manner** because of the high price elasticity of cellular mobile markets as evidenced by the Tamilnadu example. Also, the decline in the ARPU of the cellular mobile operators due to the introduction of the WLL (M) should not be substantial as it is foreseen that the cellular mobile operators ability to offer sophisticated supplementary services and better quality of service on the GSM platform will enable them to hold their own against the competition offered by WLL (M).*

*(c) The revenues for cellular service providers are likely to be higher than projected. **Due to high price elasticity of demand, the reduction in cellular mobile tariffs should normally be followed by a larger increase in subscriber base**. A good portion of the new subscriber base could come from the large basic service segment.*

(d) The quality and scope of service provided by cellular mobile will be quite different and superior to WLL (M). This would imply that these service providers will be able to command a premium on their service in comparison to WLL services.

(e) The existing cellular networks will continue to grow fast as their marginal costs will be much lower than the average costs of a

new network. In the case of expansion of mature networks, incremental and marginal costs would need to be taken into account whereas for new networks it is the average cost which is more relevant.

The Authority has no doubt that competitive price decreases should be encouraged. However, the aforesaid likely changes have to be viewed in the overall context of the growth of the industry and it needs to be assessed whether certain modifications in the policy regime should be made to promote competition in a level playing field.

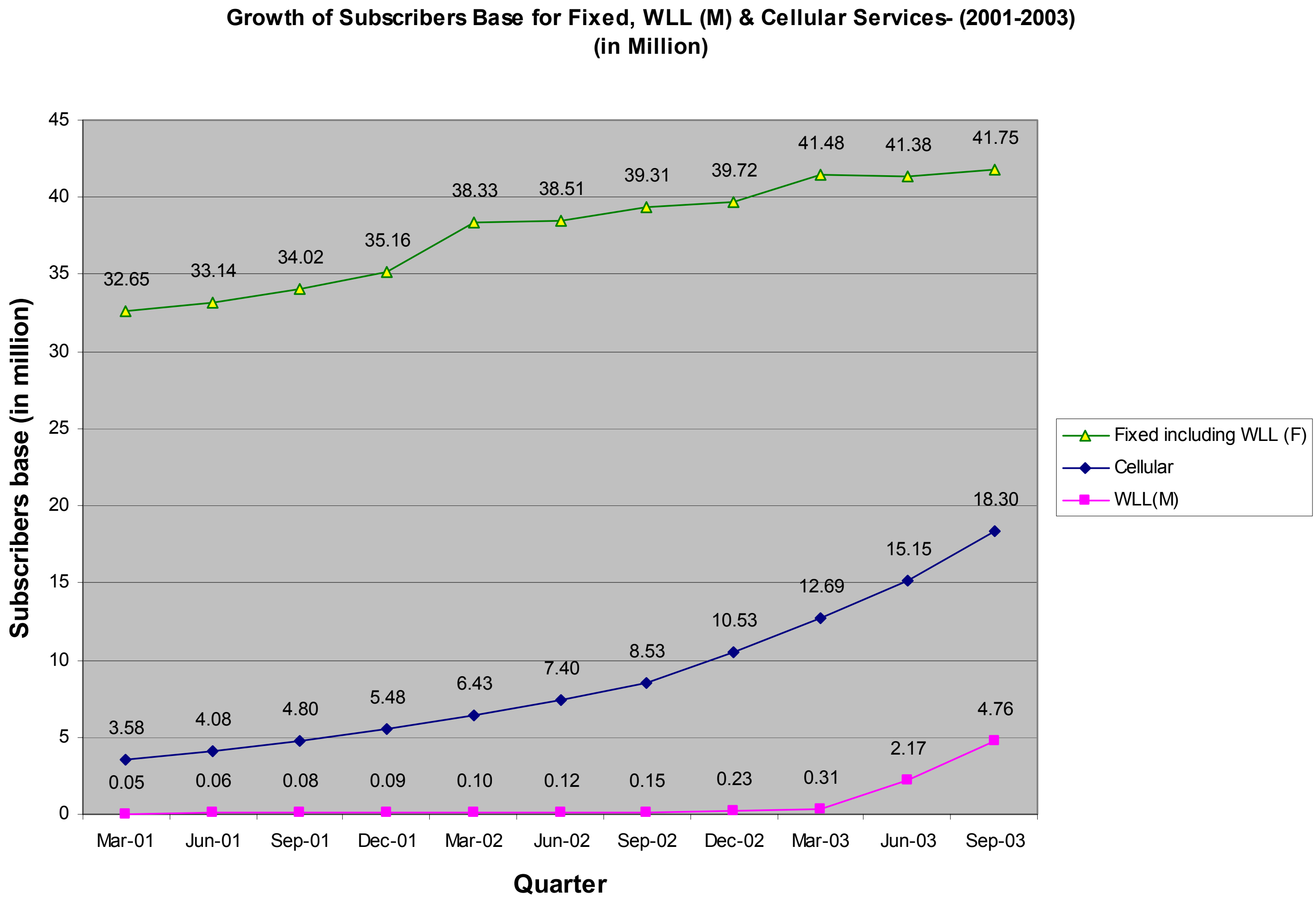
***In all probability reduced ARPUs would characterise the cellular mobile market in the next two to three years**. The issue before us, therefore, is that a somewhat unforeseen market development viz. introduction of WLL with mobility, could be forcing the prices down at a pace faster than what competition at the earlier anticipated levels would have achieved. The precise task, therefore, is one of managing the unanticipated level of competition in the immediately forthcoming years. (Highlight added) …*

*TRAI has made efforts to estimate reasonably the extent of the aforesaid adverse impact. In doing so the current rate of business growth, the future growth potentials of cellular mobile services, the growth potential of the WLL(M) services and the impact of the latter on that of the former have been taken into account. It is extremely difficult at this stage to project the market precisely and to make inarguable estimates of loss or gains by a given class/set of service providers. However, taking into account the experience in markets where conditions have already become comparable to the likely future market scenario, **TRAI estimates that generally CMSOs are***

***likely to face a reduction in the rate of their growth as well as ARPU of the order of 10 to 20% in the first two years of effective introduction of WLL services. Effective introduction of WLL(M) services is relevant because in different service areas it may not be introduced simultaneously or with equal success. Save in few specially chosen pockets, WLL(M) service is not likely to make its presence felt as a competitor to cellular mobile services before another 8-12 months. At quite a few places it could be even more. The Cellular Service Operators are sure to utilize this time to their advantage for consolidating their positions further. Competition from WLL(M) will affect the cellular operators in different metros and circles, differently.*"** (Highlight added) …

11. The TRAI's expectations on the initial tariff decline due to competition from the third and fourth cellular operator was correct. The entry of MTNL in Mumbai and Delhi, and later of BSNL in the rest of the country had a major impact on the cellular mobile tariffs. The effect on tariffs on account of WLL(M)'s competition has happened later. WLL(M) did not make its presence felt for much more than the at least 8 to 12 months delay envisaged by the Authority. TRAI was expecting the competition from WLL(M) to come mainly from the established incumbents, and not from the new entrant. But its expectation on subscriber growth and ARPU has been reasonable. The growth in subscriber base has been very large (see Chart 1 below), substantially contributed by BSNL's sharp subscriber growth. Chart 1 also shows that the growth in subscriber base precedes the entry of WLL(M) in any major way, and the growth in subscriber base continues at high rate.

Chart 1

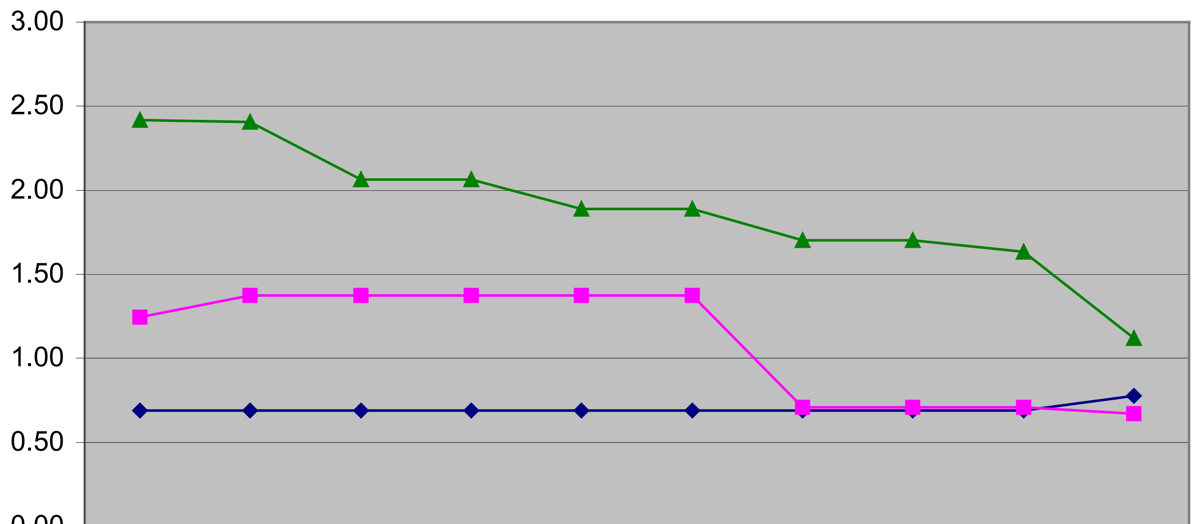


Growth of Subscribers Base for Fixed, WLL (M) & Cellular Services- (2001-2003)
(in Million)
Subscribers base (in million)
Quarter
Fixed including WLL (F)
Cellular
WLL(M)
45
40
35
30
25
20
15
10
5
0
Mar-01
Jun-01
Sep-01
Dec-01
Mar-02
Jun-02
Sep-02
Dec-02
Mar-03
Jun-03
Sep-03
32.65
33.14
34.02
35.16
38.33
38.51
39.31
39.72
41.48
41.38
41.75
3.58
4.08
4.80
5.48
6.43
7.40
8.53
10.53
12.69
15.15
18.30
0.05
0.06
0.08
0.09
0.10
0.12
0.15
0.23
0.31
2.17
4.76

12. The Chart above shows that as TRAI had expected, cellular mobile had consolidated its position for the period before the entry of effective competition from the third cellular operator and the WLL(M) operators. Further the addition to subscriber base has been larger in the period after the entry of the third operator, and subsequently of WLL(M) operator. The competition in the market is leading to a decrease in the difference between the average effective tariffs for the three access services, namely fixed line, WLL(M) and cellular mobile (Chart 2). The large fall in tariff for cellular mobile in June 2003 reflects the introduction of calling party pays regime.

Chart 2

Tariff Convergence
Comparison of effective charge per minute for 400 MOU/month (Rs.)
(Local)



	Mar-01	Jun-01	Sep-01	Dec-01	Mar-02	Jun-02	Sep-02	Dec-02	Mar-03	Jun-03
Fixed	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.78
WLL(M)	1.25	1.37	1.37	1.37	1.37	1.37	0.71	0.71	0.71	0.67
Cellular	2.42	2.41	2.06	2.06	1.89	1.89	1.70	1.70	1.63	1.12

13. The substantial tariff decline for cellular mobile has been accompanied by a growth in subscriber base and usage; for example while the average minutes of use for cellular mobile in 2002 was about 220 minutes (including both outgoing and incoming calls), the corresponding estimate for recent months is 326 minutes. The combined effect of these developments has been to limit the decline in ARPU. Table 1 shows the development with respect to ARPUs. BSNL entered the cellular mobile service in a general way in October 2002, and the current main WLL(M) operator launched service in December 2002 with its subscriber base increasing strongly in 2003.

Table 1
Monthly ARPU of Cellular Service Providers

	Oct-02	Nov-02	Dec-02	Jan-03	Mar-03	Apr-03	May-03	Jun-03
Circle "A"	677	641	659	651	546	517	545	528
Circle "B"	501	499	497	481	419	424	467	429
Circle "C"	592	561	587	562	512	481	474	478
Metro	642	628	648	640	609	620	580	553
All India	619	599	613	603	539	534	537	511

Note: Based on quarterly reports submitted by the CMSPs. It excludes data from BSNL, MTNL and some other service providers who defaulted in submitting the quarterly report

14. While recognizing the nature of these developments, the TRAI in its Recommendations of 8th January 2001 had also noted that the cellular operators needed to be compensated for the loss in market that would arise due to WLL(M). In the Recommendation, it stated for example,

"*But, the above mitigating factors notwithstanding, it should be acknowledged that WLL mobile service will provide to the BSOs entry into an area which till now the CMSOs consider to be exclusively theirs. As a result of this development they may have to recast their business projections and some of their financial plans. It may, therefore, be necessary to give them some relief in the terms and conditions of their* *license. By doing so it should be possible to ensure for them a level playing field vis-à-vis the BSO operator, if they are to be allowed to offer WLL services with mobility*."

15. A major way in which relief was provided to the cellular operators was to suggest that instead of their prevailing revenue share license fee, they should be subjected to a much lower fee, of 12% revenue share. The Government actually gave benefits even larger than those recommended by TRAI, and the revenue share License Fee of cellular mobile was made 12%, 10% and 8% for circle "A", "B" and "C", respectively, i.e. the same as that for basic service providers. According to the data provided by DOT, this reduction in the two years 2001-2003 alone has been about Rs. 390 crores (Table 2 below)

Table 2

Circle Category	Prevailing License Fee before the introduction of WLL (M)	License Fee after the introduction of WLL (M)	Savings in license fee (%)	License fee paid by CMSPs during FY 2001-02 (excluding BSNL/MTNL) (IN Rs. Crore)	License fee paid by CMSPs during FY 2002-03 (excluding BSNL/MTNL) (in Rs. Crore)	Benefits to the cellular industry during the year 2001-02 (in Rs. Crore)	Benefits to the cellular industry during the year 2002-03 (in Rs. Crore)
Category A Circle	15%	12%	3%	497.74	502.39	124.44	125.60
Category B Circle	15%	10%	5%	93.58	141.81	46.79	70.91
Category C Circle	15%	8%	7%	10.54	17.58	9.22	15.38
				601.86	661.78	180.45	211.89

TOTAL in Rs. Crores for 2001-2003 (2 years)	**392.33**

16. If we take reasonable growth rates for the duration of the License period as a whole, the savings on account of the reduction in revenue share License Fee in present value terms would be about Rs. 15,000 crore (see illustrative Table 3 below). The total entry fee paid by the fourth cellular operator is only about Rs. 1,650 crore (see Table 4). The entry fee paid by the fourth operator can be seen as a surrogate for valuation of the surplus available in the market for

cellular operators during the license period. The relevant amount of benefits or concessions that have been provided through a reduction in revenue share License Fee is comparatively large, even if we consider a substantially reduced amount of the overall value of concessions the value of the concessions provided to cellular operators is large. In this background, it can be argued that there may not be a case for an additional entry fee for WLL(M) so as to have a level playing field.

Table 3

ESTIMATED SAVINGS IN LICENSE FEES TO CELLULAR INDUSTRY from 1.4.2003 onwards till end of Licence Period

Circle Category	Subscriber base in lakhs 31.3.2003	Projected subscriber base over the licence period (in lakhs)													
		2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Metro	44.40	77.69	132.08	224.53	287.51	350.5	413.5	476.5	539.4	602.4	665.4	728.4	791.4	854.4	917.3
Circle 'A'	43.65	76.39	129.86	220.76	282.68	344.6	406.5	468.5	530.4	592.3	654.2	716.2	778.1	840.0	901.9
Circle 'B'	33.75	59.05	100.39	170.67	218.54	266.4	314.3	362.2	410.0	457.9	505.8	553.7	601.5	649.4	697.3
Circle 'C'	5.09	8.90	15.13	25.72	32.94	40.2	47.4	54.6	61.8	69.0	76.2	83.5	90.7	97.9	105.1
	127	**222**	**377**	**642**	**822**	**1002**	**1182**	**1362**	**1542**	**1722**	**1902**	**2082**	**2262**	**2442**	**2622**
Projected Annual Growth Rate		75	70	70	28.1	21.9	18.0	15.2	13.2	11.7	10.5	9.5	8.6	8.0	7.4

Circle Category	LF Saving per subs	Savings in license fee during the year (in Rs. Crores)														Total Saving in Rs. Crores
		2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	
Metro	180	109.9	188.8	320.9	460.8	574.2	687.6	800.9	914.3	1027.7	1141.1	1254.4	1367.8	1481.2	1594.5	
Circle 'A'	180	108.0	185.6	315.6	453.1	564.6	676.0	787.5	899.0	1010.4	1121.9	1233.4	1344.8	1456.3	1567.8	
Circle 'B'	300	139.2	239.2	406.6	583.8	727.4	871.1	1014.7	1158.3	1301.9	1445.6	1589.2	1732.8	1876.4	2020.1	
Circle 'C'	420	29.4	50.5	85.8	123.2	153.5	183.8	214.1	244.4	274.7	305.0	335.3	365.7	396.0	426.3	
		386	**664**	**1129**	**1621**	**2020**	**2418**	**2817**	**3216**	**3615**	**4014**	**4412**	**4811**	**5210**	**5609**	**41942**
Years			1	2	3	4	5	6	7	8	9	10	11	12	13	PVAC of saving in Rs. Crores
PVAC		**386**	**583**	**871**	**1098**	**1202**	**1264**	**1293**	**1296**	**1280**	**1248**	**1205**	**1154**	**1097**	**1038**	**15015**
Cost of Capital	**13.86**															

Table 4

Entry fees for Cellular Mobile Service Providers and Basic Service Operators									
Cellular						BSOs			
S. No.	Circle (A)	Licensee (Old) (B)	From Licensees of Pre-Migration(Amt. in Crores) (C)	New Licensee (D)	From 4th Cellular Operators (Amt. in Crores) (E)	Name of the operator (F)	Entry fee from Licensees migrated (Amt. in Crores) (G)	Name of new operator (H)	Entry fee from new operators(Amt. in Crores) (I)
1	Rajasthan	ADIL	108.99	Escorts	32.25	Shyam Telelink	29.29		
	Rajasthan	Hexacom	108.34						
	Rajasthan							Reliance Telecom	20
2	UP(East)	ADIL	138.25	Escorts	45.25			Reliance Telecom	15
3	Gujarat	Birla AT & T	511.95	Bharti	109.01	Reliance Telecom	179.09	TTSL	40
		Fascel	508.78						
4	Maharashtra	Birla AT & T	473.03	Bharti	189	Hughes	532.55	Reliance Telecom(Inc. Mumbai	115
		BPL	470.1						
5	North East	Reliance	1.21						
		Hexacom	1.21						
6	Karnataka	Spice	395.04	Barakamba	206.83			TTSL	35
		Bharti Mobile	375.7					Reliance Telecom	35
								Bharti Telenet	35
7	Punjab	Spice	359.02	Escorts	151.75	HFCL	177.59	Reliance Telecom	20
		Bharati Mobile	488.49						
8	AP	Bharti Mobile	285.64	Barakamba	103.01	TTSL	161.47	Reliance Telecom	35
		Tata	283.87						
9	Haryana	ADIL	68.49	Bharti	21.46			Reliance Telecom	10
		Escotel	68.49					Bharti Telenet	10
10	Kerala	Escotel	147.53	Bharti	40.54			Reliance Telecom	20
		BPL	147.53						

Table 4 continued on next page

Table 4 continued

Entry fees for Cellular Mobile Service Providers and Basic Service Operators									
Cellular						BSOs			
S.No.	Circle (A)	Licensee (Old) (B)	From Licensees of Pre-Migration(Amt. in Crores) (C)	New Licensee (D)	From 4th Cellular Operators (Amt. in Crores) (E)	Name of the operator (F)	Entry fee from Licensees migrated (Amt. in Crores) (G)	Name of new operator (H)	Entry fee from new operators(Amt. in Crores) (I)
11	UP(West)	Escotel	115.92	Bharti	30.55			Reliance Telecom	15
12	West Bengal	Reliance	12.24					Reliance Telecom(Inc. Kolkata)	25
13	MP	Reliance	14.56	Bharti	17.45	Bharti Telenet	35.33	Reliance Telecom	20
		RPG	14.56						
14	Assam	Reliance	0.38						
15	Bihar	Reliance	89.5					Reliance Telecom	10
16	Himachal	Reliance	4.27	Escorts	1.1			Reliance Telecom	2
		Bharti Telenet	4.27						
17	Orissa	Reliance	58.49					Reliance Telecom	5
18	Tamil Nadu	BPL	238.56	Bharti	79			TTSL(Inc. Chennai)	50
		Srinivas	44.35					Reliance Telecom(Inc. Chennai	50
								Bharti Telenet(Inc. Chennai)	50
19	Delhi	Bharti	98.15	Birla At & T	170.7			TTSL	50
		Sterling	70.94					Reliance Telecom	50
								Bharti Telenet	50
20	Mumbai	BPL	88.86	Bharti	203.66				
		Hutchison Max	83.33						
21	Chennai	RPG	21.59	Barakamba	154				
		Skycell	20.95						
22	Kolkata	Modi Tels	31.5	Reliance	78.01				
		Usha	25.8						
23	A&N							Reliance Telecom	1
	Total		**5979.88**		**1633.57**		**1115.32**		**768**

17. Nonetheless, the Authority has re-examined the issue of an additional entry fee for Basic Service operator for obtaining the permission to give WLL(M) service following the decision of the TDSAT. The methodology is as follows. We begin by using as a benchmark an amount of entry fee on which information is available in the market: this is the entry fee paid by the fourth cellular operator. The fourth operator's entry fee amount, which it expressed through a multi stage bid process, is at a maximum the present value of the surplus available to the operator after accounting for the costs, revenue share license fee, and a reasonable return to investment. This gives us a basis to estimate an entry fee

amount that would be relevant for the situation regarding surplus faced by a WLL(M) operator in comparison to a fourth cellular operator. In this calculation, it must be borne in mind that the calculations are based on the condition that WLL(M) subscribers are not allowed mobility beyond the SDCA in which they are registered. This, i.e. the extent of mobility, was a matter which the Authority had also taken up with the Government, through a communication dated 14th August, 2003. If the appropriate calculations require any altered basis, then much more data and information would be required to make the appropriate estimations.

IV. Calculation of the additional entry fee for WLL(M)

18. The amount of this entry fee is adjusted downwards taking into account the various factors which would convert this benchmark into a valid entry fee amount for WLL(M), i.e. by making adjustments in the revenue and cost streams as appropriate so that we can obtain a ratio of the surplus available for WLL(M) in comparison to that available for the fourth cellular operator. This ratio can be multiplied into the entry fee of the fourth cellular operator to obtain the entry fee that a WLL(M) operator should have paid in the year of entry. This amount has to be adjusted by the discount rate so that the amount is converted in terms of present value for this year.

19. To estimate the amount of entry fee to be paid by the WLL(M) operators, we need to keep the following points in mind.

i) WLL (M) has introduced competition in a portion of the market served by the cellular mobile operator.

ii) This market is likely to be of those subscribers who do not move out of an SDCA, i.e. an area which is served by WLL(M) mobility.

iii) We have as a benchmark, the entry fee paid by the fourth cellular operator, for obtaining the permission to give all the services which are allowed on cellular mobile.

iv) The entry fee that must be paid by the WLL(M) service provider should be a portion of the entry fee paid by the cellular mobile service provider.

v) The entry fee paid by any operator is from a surplus derived after paying all the costs items and retaining a reasonable return on investment. Through bidding, the highest amount that a service provider would be willing to pay as entry fee would be this surplus.

vi) In the multi-stage bidding process that was held for the fourth cellular mobile operator, the entry fee would be close to the surplus that remains after covering costs and reasonable returns, i.e. the present value of the surplus can be taken as the present value of the amount of entry fee paid.

viii) The entry fee as paid by the BSOs is the same amount that was fixed for their entry into the fixed line business.

ix) Any entry fee to be paid by WLL(M) may be taken as over and above the amount paid by the BSOs, with the entry fee of the fourth cellular operator being an upper limit of the relevant additional entry fee for WLL(M).

x) Since at the time of entry, the BSOs knew that they would be allowed to give WLL(M) service, it is possible that a portion of the entry fee was paid bearing in mind the surplus to be generated from WLL(M) services -- i.e., it is possible that if the BSOs were allowed only fixed service, then they may have found the entry fee too high and they would not have entered the service at all. There is no way of estimating the portion of the entry fee that could be allocated with respect to fixed line (i.e. the amount of entry fee which would have made the service attractive enough to enter) and the portion of entry fee that is beyond the amount and was paid only due to the expected surplus from the WLL(M) service. In our framework of analysis, we are taking the entry fee due to WLL(M), as the upper limit of the relevant amount of entry fee for fixed line.

xi) In this regard, it should also be borne in mind that **in certain circles, there was no bid by the fourth cellular operator. For these circles, the effective entry fee for the fourth cellular operator would be negative or zero, and the existing WLL(M) service providers in these circles should not be charged any additional entry fee.**

xii) If a new BSO has paid an entry fee which is higher than that paid by the fourth cellular operator, that BSO should not be charged any additional entry fee for WLL(M). This situation arises in two circles, where the estimate of additional entry fee for WLL(M) has been calculated using the general methodology also.

xiii) The same situation is valid also for the **old BSOs. For them too, the appropriate additional entry fee would be zero.**

xiv) On the basis of the last three points above, it is clear that **for all the "C" circles, (i.e. North East, Assam, Bihar, Himachal Pradesh, Orissa, Jammu and Kashmir and Andamans & Nicobar) and for Madhya Pradesh, the new BSOs do not have to pay any additional entry fee for WLL(M). Likewise, the old BSOs do not have to pay any additional entry fee for WLL(M).**

20. Based on the above, we will calculate the amount of entry fee to be paid by WLL (M) as follows. We first begin with a consideration of types of subscribers which are likely to be the group for which WLL(M) and cellular mobile will be competing. We then start the analysis by taking the fourth cellular operator as a starting point, and examine the factors determining the surplus that would determine the entry fee for such an operator. We then make the adjustments which would give us an estimate of the additional entry fee that would be applicable to WLL(M). In the alternative, one can consider the level playing field matter as being reflected by a lower bid amount having been paid by the fourth cellular operator, in a situation where they knew that WLL(M) entry was without payment of an additional entry fee. However, following the TDSAT Order, an additional entry fee is being estimated for WLL(M), using the following steps.

(a) <u>Three different sets of subscribers:</u>

21. For the purpose of this analysis, we can consider the following categories of subscribers.

S_1 =	Those subscribers who stay only within the SDCA, and do not go out of the SDCA
S_2 =	Those subscribers who go out of the SDCA, but do not go out of the License Area of Cellular Mobile
S_3 =	Those subscribers who roam outside the License Area of Cellular Mobile

22. There is likely to be direct competition between WLL(M) and cellular mobile for subscribers S_1. Subscribers S_2 and S_3 are not likely to be a group subject to competition amongst WLL(M) and cellular mobile.

23. Before we begin our analysis, it would be appropriate to consider the entry fee paid by new BSOs in comparison to the entry fee paid by the fourth operator and calculate the former as a percentage of the latter (Table 5 below). The BSOs in Himachal Pradesh and Madhya Pradesh have actually paid an entry fee which is higher than that paid by the fourth cellular operator in those circles.

Table 5

Comparison of entry fees paid by CMSPs and BSOs

Cellular Mobile Service Providers						Basic Service Operators				
S.No.	Circle (A)	Licensee (Old) (B)	From Licensees of Pre-Migration(Amt. in Crores) (C)	New Licensee (D)	From 4th Cellular Operators (Amt. in Crores) (E)	Name of the operator (F)	Entry fee from Licensees migrated (Amt. in Crores) (G)	Name of new operator (H)	Entry fee from new operators(Amt. in Crores) (I)	Ratio of new BSO entry fees to fourth cellular operator
1	Rajasthan	ADIL	108.99	Escorts	32.25	Shyam Telelink	29.29			
	Rajasthan	Hexacom	108.34							
	Rajasthan							Reliance Telecom	20	62%
2	UP(East)	ADIL	138.25	Escorts	45.25			Reliance Telecom	15	33%
3	Gujarat	Birla AT & T	511.95	Bharti	109.01	Reliance Telecom	179.09	TTSL	40	37%
		Fascel	508.78							
4	Maharashtra	Birla AT & T	473.03	Bharti	189	Hughes	532.55	Reliance Telecom(Inc. Mumbai)	115	29%
		BPL	470.1							
5	North East	Reliance	1.21							
		Hexacom	1.21							
6	Karnataka	Spice	395.04	Barakamba	206.83			TTSL	35	17%
		Bharti Mobile	375.7					Reliance Telecom	35	
								Bharti Telenet	35	
7	Punjab	Spice	359.02	Escorts	151.75	HFCL	177.59	Reliance Telecom	20	13%
		Bharati Mobile	488.49							
8	AP	Bharti Mobile	285.64	Barakamba	103.01	TTSL	161.47	Reliance Telecom	35	34%
		Tata	283.87							
9	Haryana	ADIL	68.49	Bharti	21.46			Reliance Telecom	10	47%
		Escotel	68.49					Bharti Telenet	10	
10	Kerala	Escotel	147.53	Bharti	40.54			Reliance Telecom	20	49%
		BPL	147.53							
11	UP(West)	Escotel	115.92	Bharti	30.55			Reliance Telecom	15	49%
12	West Bengal	Reliance	12.24					Reliance Telecom(Inc. Kolkata)	25	
13	MP	Reliance	14.56	Bharti	17.45	Bharti Telenet	35.33	Reliance Telecom	20	115%
		RPG	14.56							
14	Assam	Reliance	0.38							
15	Bihar	Reliance	89.5					Reliance Telecom	10	
16	Himachal	Reliance	4.27	Escorts	1.1			Reliance Telecom	2	182%
		Bharti Telenet	4.27							
17	Orissa	Reliance	58.49					Reliance Telecom	5	
18	Tamil Nadu	BPL	238.56	Bharti	79			TTSL(Inc. Chennai)	50	21%
		Srinivas	44.35					Reliance Telecom(Inc. Chennai	50	
								Bharti Telenet(Inc. Chennai)	50	
19	Delhi	Bharti	98.15	Birla At & T	170.7			TTSL	50	29%
		Sterling	70.94					Reliance Telecom	50	
								Bharti Telenet	50	
20	Mumbai	BPL	88.86	Bharti	203.66					
		Hutchison Max	83.33							
21	Chennai	RPG	21.59	Barakamba	154					
		Skycell	20.95							
22	Kolkata	Modi Tels	31.5	Reliance	78.01					
		Usha	25.8							
23	A&N							Reliance Telecom	1	
	Total		**5979.88**		**1633.57**		**1115.32**		**768**	

<u>Present value of revenues and costs applicable to the three different sets of subscribers:</u>

24. For each of the three sets of subscribers mentioned above, the corresponding revenue and cost streams applicable to them are as follows:

    (i) The present value of revenues are R_1 from subscribers S_1; R_2 from subscribers S_2; and R_3 from subscribers S_3. The present value of total revenues is $\mathbf{R} = R_1 + R_2 + R_3$. The revenues do not include pass through revenues which are passed on to other service providers and on which there is no revenue share License Fee.

    (ii) The present values of costs are C_1 for the network serving subscribers S_1; C_2 for the network serving subscribers S_2; and C_3 for the network serving subscribers S_3. The present value of total costs are $\mathbf{C} = C_1 + C_2 + C_3$

(b) <u>Revenue share License Fee and Spectrum Charge</u>

25. The present value of revenue share license fee is $\alpha\mathbf{R}$ where $\alpha = 0.08$ for circle "C", 0.10 for circle "B", and 0.12 for circle "A" and metros. Since the same license fee in any circle would apply to all the revenue sources, we also have αR_1, αR_2 , and αR_3 as the revenue share license fee for the revenues from the three sets of subscribers.

26. We also consider the spectrum charge as revenue share, which we take as 2 % of the revenues. Taking this into account, the relevant value of α in each case would increase by 0.02.

27. To obtain the amount of surplus available to bid for entry fee, α**R** , (or αR_1, αR_2 and αR_3) needs to be deducted from the surplus of revenue over cost. Thus, if we start with a surplus, **R** – **C**, the relevant surplus taking account of the revenue share License Fee and spectrum charge would be (1 - α) **R** – **C.**

28. In addition we need to deduct certain other items from the surplus, which are mentioned below, in order to obtain the relevant surplus from which the entry fee is paid.

(c) <u>Reasonable return to investment</u>

29. The amount of surplus that is the basis of a bid as entry fee, has to be calculated after taking out a reasonable return on investment for the service provider. If we consider the level of the present value of Investment as "**I**", the return to investment can be considered as β**I**. Taking a debt equity ratio of 1:1, the value of Equity (**E**) is half the value of investment (**I**). We work with a return to equity of 15% to 20% post tax. The cost of tax is being considered in the coverage of costs **C** itself. Similarly, the costs of debt is taken as part of the costs **C.**

30. Thus, the return is 0.15**E** to 0.2**E.** Since Investment is twice the amount of Equity, this is equivalent to 0.08**I** to 0.10**I**. The value of β as applied to total investment thus will be about 0.08 to 0.10.

31. The present value of reasonable return can also be represented in terms of revenues, such that we obtain it as θ**R**, where θ = β**I / R**, i.e. the present value of reasonable return on investment divided by the present value of revenues**.** Since θ applies equally to all parts of the revenue **R**, it will equally apply to its components R_1 , R_2 and R_3. Taking this into account, the relevant surplus for the purpose of determining the entry fee

becomes (1 - α - θ) **R** – **C**. This surplus can be specified as λ**R** – **C,** where λ = (1 - α - θ).

32. Since we have the value of β, to obtain the value of θ we need to determine the value of **I / R.** Bearing in mind that the values of **I** and **R** are in present value terms, we consider the amount of Revenues in terms of Investment on the basis of the data for BSNL and cellular mobile service, using a discount rate of 15%, and an overall average lifetime of assets of ten years. For individual years, we consider a range of annual revenues as being between 25% to 30% of the Investment level; this is based on a weighted average for ten cellular mobile companies covering most of the cellular subscribers. Based on this, we have **I / R** ranging between about 0.55 to 0.7 and thus we can take the value of θ to be about 55 % to 70 % of β. With this range, the value of θ would become about 0.04 to 0.07.

33. Before we address some of the other cost items that become relevant for WLL(M), such as differential performance bank guarantees and roll out obligations, we will try and obtain a clearer picture of the range of the λ**R** – **C** which is relevant for determining the entry fee for WLL(M), even without these additional cost items. The value of λ, based on the above ranges for α and θ would be as follows:

- For Circle "A" and metros, 0.82 to 0.79, i.e. ranging between (1 – 0.14 – 0.04) and (1 – 0.14 – 0.07)
- For Circle "B", 0.84 to 0.81, i.e. ranging between (1 – 0.12 – 0.04) and
(1 – 0.12 – 0.07)
- For Circle "C", 0.86 to 0.83, i.e. ranging between (1 – 0.10 – 0.04) and
(1 – 0.10 – 0.07)

34. If we do not take the other costs such as bank guarantee and roll out into account, then λ**R – C** gives us the present value of the amount that would be the maximum bid for entry fee. In the limit, therefore, we can denote the entry fee of the fourth cellular operator as **E =** λ**R – C.** We now need to make adjustments in the entry fee amounts to determine the entry fee that would be valid for the market available to the WLL(M) service provider.

(d) Reasonable range of λR – C relevant for WLL(M)

35. As mentioned above, the market available to WLL(M) would be the subscribers S_1. For this purpose, the revenues R_1 from subscribers S_1 are the relevant revenue and C_1 the relevant cost in the estimate of λ**R – C.** This means that if we are focusing only on subscribers S_1, then the entry fee has to be $\lambda \mathbf{R_1} - \mathbf{C_1}$. To obtain this estimate, we need to determine the ratios $\delta = \mathbf{R_1} / \mathbf{R}$ and $\eta = \mathbf{C_1} / \mathbf{C}$.

36. Further, we define:

$$a = (\mathbf{R} - \mathbf{C}) / \mathbf{C} = (\mathbf{R} / \mathbf{C}) - 1$$

Therefore, $1 + a = \mathbf{R} / \mathbf{C}$ **and,**

$$\mathbf{R} = (1 + a)\,\mathbf{C}$$

Therefore, $\mathbf{E} = \lambda(1 + a)\,\mathbf{C} - \mathbf{C} = [\lambda(1 + a) - 1]\mathbf{C}$.

From above we get $\mathbf{C} = \mathbf{E} / [\lambda(1 + a) - 1]$, and

$$R = [(1 + a)\,\mathbf{E}] / [\lambda(1 + a) - 1] .$$

Thus, $\mathbf{E_1} = \lambda\mathbf{R_1} - \mathbf{C_1}$ can be represented as being equal to

$\delta\lambda\ [(1 + a)\ \mathbf{E}] / [\lambda(1 + a) - 1] - \{\eta\mathbf{E} / [\lambda(1 + a) - 1]\}$, or

$\{\delta\lambda(1 + a) - \eta\}\ \mathbf{E} / [\lambda(1 + a) - 1]$, or

$\mathbf{E}\ [\delta\ (1 + x) - (\eta)] / x$,

where the value of "x" = $\lambda(1 + a) - 1$

37. Thus, $\mathbf{E_1} = \mathbf{E}\ [\delta\ (1 + x) - (\eta)] / x$ and if the entry fee for WLL(M) has to be more than zero, then $[\delta\ (1 + x) - (\eta)]$ has to be more than zero, or $\delta\ (1 + x) > (\eta)$. To assess this, we need to know the values of x, δ and η.

38. <u>The value of "x"</u>

38.1 The value of x, or $(\lambda\mathbf{R} - \mathbf{C}) / \mathbf{C}$, can be derived from a combination of λ and of $(\mathbf{R} - \mathbf{C}) / \mathbf{C}$.

38.2 The value of λ has been taken as a range above for different circles.

38.3 For $(\mathbf{R} - \mathbf{C}) / \mathbf{C}$, we first considered the annual estimate for cellular companies. These estimates are generally low, in some cases even being negative. Since the WLL(M) service is considered to be a profitable service, we considered the corresponding figure for VSNL, one of the highly profitable companies in the industry. For VSNL, we consider (R – C) / C for three years, 2000-2001, 2001-2002 and 2002-2003. The year 2000-2001 is chosen because this was the year before competition was introduced, but the tariffs had started declining. This would give us a high upper limit for the type of estimates that would be expected for a service provider who enters a more competitive environment such as that being experienced with cellular mobile and WLL(M).

38.4 The estimate of (R – C) / C for three years, respectively, is 0.77, 0.75 and 0.55. To obtain an upper limit of the additional License Fee, we work with the highest of these estimates. Therefore, we take (R – C) / C as 0.77. With these values for the ratio, R / C is 1.77.

This would imply that for circle "A" the value of x would range as follows (based on the value of x being more than zero because the value of entry fee of fourth cellular operator is more than zero):

(Estimate with λ = 0.82, and [(**R – C) / C**)] = 0.77)

$x = 0.82(1.77) - 1 = 1.4514 - 1 = 0.4514$

(Estimate with λ = 0.79, and [(**R – C) / C**)] = 0.77)

$x = 0.79(1.77) - 1 = 1.3983 - 1 = 0.3983$

38.5 The estimate for "x" for metros will be the same as for circle "A". The range for the value of "x" for circle "B" is 0.4337 to 0.4868. As mentioned earlier, the additional entry fee for Circle "C" is zero for the reasons given above. We will work with these ranges for the value of "x" for Circles "A" and "B", and metros.

39. <u>The value of "δ"</u>

39.1 The cellular operators have mentioned on a number of occasions that the revenues from within the SDCA use of cellular mobile ranges around 80 %

to 86 %. This revenue includes the revenues within the SDCA derived from the use of cellular service within SDCA both by subscribers which are mobile outside the SDCA and by the roaming subscribers. The share in revenues of subscribers that do not go outside the SDCA is therefore less than the 80% to 86% mentioned above. It is not possible to get an accurate estimate of the share in overall cellular revenue contributed by subscribers which stay within an SDCA. However, for our calculations we can consider that each subscriber contributes on average the same proportion of SDCA revenue as any other. It has been stated in discussions by cellular operators that about 80% of the subscribers do not go outside the SDCA. Thus, of the total revenues derived within the SDCA, we may take revenues from the subscribers which do not travel outside the SDCA as comprising about 80% of the revenues. This implies that the contribution of subscribers who stay within the SDCA is 80% of 86% of the revenues, i.e. 0.688, or an upper limit of 0.7 as the share in revenue in total revenues for the subscribers which stay within the SDCA. With this situation, we have the upper limit of $\delta = 0.7$. It must be borne in mind that the subscribers who are more mobile are likely to be larger spenders, and thus the relevant value of δ is likely to be the lower than 0.7.

39.2 One exception to this would be the metro SDCAs. In metros SDCAs, the proportion of subscribers whom we should take into account are both S_1 and S_2. Available data shows that the roaming subscribers in Delhi account for 8% to 14% of the subscriber base, and for Mumbai account for 6 % of the subscriber base. Based on this, we consider an upper limit for the sum of S_1 and S_2 in total subscribers as 95%. From the data on revenues, we know that about 9% to 11% of the revenues are earned from roaming. The roaming subscribers would be contributing to the revenues through their calls and SMS etc. even in the SDCA where they are registered. Taking an equal proportion of the SDCA expenses by each subscriber, this gives us an estimate of 5 per cent of the SDCA revenue due to the roaming subscribers. We therefore take a total of 15% for the contribution of roaming subscribers to overall revenue. Since the roaming subscribers are likely to be high revenue contributors even in the SDCA, this is likely to be an underestimate of their contribution, which in turn will imply that our estimate of additional entry fee would be an upper limit. Based on this we get a value of δ for metros to be (0.95 x 0.85) as 0.81.

40. <u>The value of "η"</u>

The value of η has to be derived by taking a WLL(M) operator who will have his network in the entire circle, but will not incur any costs for roaming because that is not allowed. The operator's subscribers will not be mobile outside the SDCA where they are registered, but the network operations will have to cover all the SDCAs in the circle. Thus, the share of the costs of such a network compared to the total costs of a network which allows full mobility including roaming, would be very similar. We consider an estimate of η = 0.95 which would appear to be an under-estimate. These costs are without the costs relating to roaming, including the joint and common costs pertaining to roaming.

41. Estimating the entry fee for WLL(M)

41.1 As mentioned above, the entry fee for WLL(M) depends upon the relationship between δ, (1 +x) and η. The entry fee is likely to be positive if $\delta(1 + x) > \eta$, otherwise it would be zero. With the above-mentioned estimates of the parameters, we get the following estimates of $\delta(1 + x)$. For the reasons given above, these estimates for additional entry fee would give us an over-estimate of the relevant figures because of the relatively high figures of δ and η that we have taken, and also the fact that some of the entry fee paid by BSOs may actually be an amount which should be allocated for the WLL(M) service.

Table 6. Estimates for additional entry fee for WLL(M), taking reasonable range of parameters.

Value of "x" as under	Value of $\delta(1 + x)$ δ = 0.7 for circles, and 0.81 for metros	Ratio of Additional Entry Fee for WLL(M) to Entry Fee of Fourth Cellular Operator with η = 0.95
0.3983 (Circle "A")	0.97881	0.07233
0.4514 (Circle "A")	1.01598	0.14616
0.4337 (Circle "B")	1.00359	0.12356
0.4868 (Circle "B")	1.04076	0.18644
0.3983 (Metro)	1.132623	0.45850
0.4514 (Metro)	1.175634	0.49985

41.2 Estimates for Circle "C" are not given because of the reasons mentioned earlier. When considering this situation, it must be borne in mind that this entry fee is calculated after deducting a reasonable return on investment for the service provider. Therefore, even if we get an entry fee of about zero, he will begin operations because of the returns that are to be obtained by him.

41.3 Before using these estimates further for estimating the additional entry fee for WLL(M), we have to address some other points mentioned below.

42. The value of a Fixed Service License in comparison to WLL(M)

42.1 We mentioned earlier that when the BSOs entered the various circles they did so knowing that they would be allowed to give WLL(M) service also. Therefore, in their assessment of the entry fee that they should be paying, they would have taken into account the fact that their market would include both fixed and WLL (M) service, and a portion of the entry fee would have been for WLL(M) also. It is not possible to estimate how much of the entry fee would have been for fixed line and how much for WLL(M), but from the experience in the market and the reaction of the entrants it appears reasonable to consider that the value of the surplus from WLL(M) would be more than expected from fixed line service.

42.2 We have used this as a basis to estimate the additional entry fee that should be levied for WLL(M). Thus, we have used the upper limit of the entry fee for WLL(M), i.e. $E_{W,}$ as the entry fee that would have been paid for fixed line also. If the entry fee paid by the BSO (E_B) is more than the additional entry fee estimated for WLL(M)(i.e. E_W), then we consider the entry fee for fixed line as being equal to E_W and from the total fee to be paid by BSOs for WLL(M), we take the amount E_B minus E_W as an amount that has already been paid toward the entry fee of WLL(M). This amount should therefore be deducted from the entry fee for WLL(M) to obtain the additional amount of entry fee that should be paid for WLL(M).

42.3 If the entry fee E_B paid by BSOs is less than the entry fee estimated for WLL(M), then the entry fee paid by the BSOs is taken to be only the entry fee for Fixed Service. In this case, the entire estimate of the entry fee for WLL(M) is to be taken as the relevant additional entry fee to be paid by BSOs for WLL(M).

42.4 In a number of cases the estimates of entry fee, even with the upper limit of the multiplier in Table 6, show that the entry fee paid by the BSO for individual circle is more than the entree fee of fixed service and WLL(M) combined. This could be for two reasons.

42.5 One, it is possible that the entry fee of the cellular mobile operator is less than the full surplus that was available to pay the entry fee. In this case, the entry fee for WLL(M) also would not reflect the full amount of surplus. However, we can consider that the extent to which the entry fee shows an underestimate of the surplus available for cellular mobile, the same would also be valid for WLL(M).

42.6 Two, the new BSOs that have entered for providing WLL(M) service have entered a number of circles (including metros) together. While the estimates here are separately being considered for the entry fee as applicable in each circle/metro, the service providers would have considered the overall situation regarding entry fee. They would have thus compared the additional entry fee that they may have to pay in certain circles with the extent to which they may have been willing to pay additional entry fee in other circles/metros. Using our estimates, it is clear that the extra entry fee paid in some circles is more than compensated by what the service providers would have been willing to pay in metros/circles.

42.7 An important point to bear in mind is that the additional entry fee for WLL(M) should be paid only if the basic Service operator provides the WLL(M) service. If the WLL(M) service is not provided by the BSO, no additional entry fee for WLL(M) should be charged.

43. Addressing the different coverage for License areas of BSO and cellular mobile

In our estimation of the additional entry fee, we need to deal also with the different coverage of license areas for cellular mobile and BSOs. This arises mainly with respect to the four metro licenses that are with cellular mobile. For these license areas, we have the following situations:

- For Delhi, we take the upper limit of entry fee for WLL(M) as being the entry fee that would have been paid for fixed line. This amount is more than the entry fee paid by the BSO. Therefore the entry fee for WLL(M) estimated for Delhi should be paid as additional entry fee by each BSO in Delhi. We will not address in this context the slightly larger License area for cellular, which gives us again an upper limit of the additional license entry fee.

- For West Bengal minus Kolkata, there is no fourth cellular operator. Thus, for this region, there is no additional entry fee for WLL(M). For West Bengal other than Kolkata, we will consider the entire entry fee paid by BSO as the entry fee paid for WLL(M); if the fourth cellular operator would not have found West Bengal other than Kolkata as commercially attractive, the presumption is that neither would have a fixed service provider found it attractive and the entry fee for West Bengal minus Kolkata would be zero for the BSO. Since the value of the fixed license is seen as being below that for the license for WLL(M), the entry fee for fixed line in West Bengal minus Kolkata would also be zero. With these parameters, the estimate for additional entry fee for West Bengal (including Kolkata) for WLL(M) is calculated by first estimating the entry fee for fixed line for Kolkata (equal to the estimate of entry fee for WLL(M)), and comparing it with the entry fee paid by BSO for West Bengal as a whole. Since the entry fee for fixed line for Kolkata is more than the entry fee paid by the BSO for West Bengal, the whole amount of the BSO entry fee is treated as being paid for fixed line. Thus, the whole of the estimated entry fee for WLL(M) is the additional entry fee to be paid for WLL(M) in West Bengal.
- For Maharashtra other than Mumbai, the combined fixed line and WLL(M) entry fee is determined as being equal to twice the amount of estimated $E_{W.}$ This amount is deducted from the entry fee paid by the BSO for Maharashtra as a whole, and the residual amount has to be considered for payment towards the entry fee for fixed and WLL(M) in Mumbai region of the circle by the BSO. This residual is compared with the estimated entry fee for WLL(M) for Mumbai, which is being treated as a surrogate entry fee for the fixed line portion in Mumbai. The residual amount is below the entry fee for WLL(M) for Mumbai. Thus, as per the principle enunciated above, the whole of the estimated entry fee for WLL(M)

for Mumbai is treated as the amount of additional entry fee that should be paid by the BSO for operating WLL(M) in Maharashtra as a whole.

- The same methodology as Maharashtra/ Mumbai is applied for Tamil Nadu/ Chennai.

Based on this methodology, the additional entry fee for WLL(M) has been estimated as in the following Table 7.

TABLE 7

Additional Entry Fee for BSOs before any corrections

S. No.	Circle	Number of new BSOs	Name of BSO [1]	Name of BSO [2]	Name of BSO [3]	Entry Fee already Paid in Rs. Crore	Additional Entry Fee before correction in Rs. Crores for each licencee
1	Delhi	3	Reliance Infocomm	Tata Teleservices	Bharti Telenet	50	85.33
2	Tamil Nadu including Chennai	3	Reliance Infocomm	Tata Teleservices	Bharti Telenet	50	76.98
3	Karnataka	3	Reliance Infocomm	Tata Teleservices	Bharti Telenet	35	25.46
4	Andhra Pradesh	1	Reliance Infocomm			35	0.00
5	Gujarat	1		Tata Teleservices		40	0.00
6	Maharashtra including Mumbai	1	Reliance Infocomm			115	101.80
7	West Bengal including Kolkata	1	Reliance Infocomm			25	38.99
8	Kerala	1	Reliance Infocomm			20	0.00
9	UP(East)	1	Reliance Infocomm			15	1.87
10	UP(West)	1	Reliance Infocomm			15	0.00
11	Haryana	2	Reliance Infocomm		Bharti Telenet	10	0.00
12	Madhya Pradesh	1	Reliance Infocomm			20	0.00
13	Punjab	1	Reliance Infocomm			20	28.29
14	Rajasthan	1	Reliance Infocomm			20	0.00
15	Bihar	1	Reliance Infocomm			10	0.00
16	Orissa	1	Reliance Infocomm			5	0.00
17	Assam	0				5	0.00
18	Himachal Pradesh	1	Reliance Infocomm			2	0.00
19	Jammu & Kashmir	0				2	0.00
20	North East	0				2	0.00
21	A&N	1	Reliance Infocomm			1	0.00
		25	17	4	4	497.00	358.72

44 <u>Adjusting for differences in Performance Bank Guarantee and Roll Out Requirements</u>

44.1. An important point to consider is that till now, we have not taken account of certain other factors such as differences in performance bank guarantee and roll out obligation, which may alter the estimate that we obtain for WLL(M)'s entry fee based on the above analysis. We consider these factors below.

44.2 The performance requirements for the BSOs differ depending on whether they have the older license or the newer one, and both of these differ with respect to the obligations under the license for cellular mobile. The older BSOs have much more onerous requirements, and their entry fee is also higher than the estimated entry fee for the WLL(M). Moreover, these service providers were earlier supposed to get more spectrum, but after the introduction of WLL(M), the spectrum set aside for them has been decreased. For these reasons too the conclusions that old BSOs should not be charged any additional entry fee remains valid.

44.3 The new BSOs have somewhat higher obligations compared to the cellular mobile service providers, both in terms of roll out as well as performance bank guarantee. Table 8, Table 9 and Table 10 illustrate the cost of Performance Bank Guarantee based on a set of assumptions covering old basic service licensees, new basic service licensees, and Cellular Mobile service providers respectively. For Performance Bank Guarantee, a commission fee of 1.5% has been assumed. Cash Margin has been assumed as 10% for the PBG. Fixed weighted cost of capital is taken as 15% and fixed deposit interest as 5%. Based on the above assumptions, for each year 2.5% is the PBG cost component and NPV for all subsequent years can be taken. The tables show that due to Performance Bank Guarantee additional cost to the extent of 8.86% of total amount of PBG in case of post NTP'99 BSOs(Old BSOs), 7.97% of total amount of PBG in case of pre NTP'99 BSOs (New BSOs) and 10.678% of total amount of PBG in case of Cellular Mobile service providers are applicable.

44.4 Based on the NPV cost of PBG to be 10.678 %, the range of PBG stipulated in case of the Cellular Licences, Table 11 provides the estimated NPV of the Cellular PBG in Rs. Crores.

44.5 It is very difficult to accurately assess the impact of Roll Out requirements. In case of BSOs, Roll out requirements call for coverage of all SDCAs including Urban, Semi Urban and Rural SDCAs. However in case of Cellular licenses 50% of the District Headquarters, or any town in lieu, are to be covered. This roughly equates with Urban SDCAs of BSOs. For the Roll out requirements, an assumption is made that for Semi-Urban and Rural Areas, BSOs are providing the roll out on the basis of licensing requirement only and for token presence, for example a CDOT 256 standalone switch with 184 lines would be just adequate. TRAI's studies on Bottom Up Costing Models had indicated that for Semi-Urban and Rural areas, costs were about 20 to 30% higher than urban areas. Based on these estimates and taking a range for the costs relevant for the urban areas, if the costs for Urban Areas are taken as Rs X per line, it would be reasonable to have Rs. X + 4000 per line as the cost for Semi-Urban and Rural Areas. Though BSOs may like to add higher capacities based on their cost economies and technology options, for the purpose of additional cost for Roll out, lines are restricted to a relatively low costs applicable to 184 lines (CDOT256), which is the smallest capacity switch in the BSNL's network. Based on these assumptions, Table 12 gives the additional cost in Rs. Crores for Roll out differences between BSOs and CMSPs.

TABLE 8

NPV of PBG Cost as % of PBG for Old BSOs

NPV as % of PBG Given for old BSOs

Pre NTP'99 BSO
(All Amounts in Rs crore)

Inputs	Assumed
Commission Fee	1.50%
Cash Margin	10%
Fixed Deposit Interest	5%
Wtd. Avg. Cost of Capital	15%

	Amt	Year	
PBG at beginning	25	0	Rs 100 cr before NTP'99; 4 times Entry Fee after NTP'99
PBG Enhancement	25	2	On reaching 50,000 Capacity
Addl . PBG	50	4	
Total PBG	100		
Addl. PBG Return	50	6	Based on Roll-Out Completion Date extended to Dec 2003

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
BG Outstanding for the year	25	25	50	50	100	100	50	50	50	50	50	50	50	50	50	50	50	50	50	50
Cash Margin Given	3	3	5	5	10	10	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Annual Commission	0.4	0.4	0.8	0.8	1.5	1.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Cost of Cash	0.3	0.3	0.5	0.5	1.0	1.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total Cost	0.63	0.6	1.3	1.3	2.5	2.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3

NPV	7.970
NPV as % of PBG Given	7.97%

TABLE 9

NPV of PBG Cost as % of PBG for New BSOs

NPV as % of PBG Given for new BSOs

Post NTP'99 BSO	
(All Amounts in Rs crore)	

Inputs		-

Commission Fee	1.50%
Cash Margin	10%
Fixed Deposit Interest	5%
Wtd. Avg. Cost of Capital	15%

PBG at beginning	100

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
BG Returned %			20%		30%		50%													
BG Returned Value			20		30		50													
BG Outstanding	100	100	100	80	80	50	50	-	-	-	-	-	-	-	-	-	-	-	-	-
Cash Margin Given	10	10	10	8	8	5	5	-	-	-	-	-	-	-	-	-	-	-	-	-
Annual Commission	1.5	1.5	1.5	1.2	1.2	0.8	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-
Cost of Cash	1.0	1.0	1.0	0.8	0.8	0.5	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Cost	2.5	2.5	2.5	2.0	2.0	1.3	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-

NPV	8.856
NPV as % of PBG Given	8.86%

TABLE 10

NPV of PBG Cost as % of PBG for Cellular

NPV as % of PBG Given for CMSPs

Cellular	
(All Amounts in Rs crore)	

Inputs	Assumed	-

Commission Fee	1.5%
Cash Margin	10%
Fixed Deposit Interest	5%
Wtd. Avg. Cost of Capital	15%

	Amt	Year	
PBG at beginning	10	0	
PBG Enhancement	0		
Addl . PBG	0		
Total PBG	10		
Addl. PBG Return	5	3	Based on Roll-Out Completion: 2003-04

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
BG Outstanding for the year	10	10	10	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Cash Margin Given	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Annual Commission	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Cost of Cash	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total Cost	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

NPV	1.07
NPV as % of PBG Given	10.678%

Table 11

NPV Cost of Cellular PBG for all Circles

S. No.	Service Area of Operation (Circle)	Cellular PBG in Rs. Crores	% of PBG for Cellular (NPV) (From Table 10)	NPV Cost of Cellular PBG in Rs. Crores
		A	B	C=(A*B)
1	Delhi	20	10.678	2.14
2	Tamil Nadu including Chennai	40	10.678	4.27
3	Karnataka	20	10.678	2.14
4	Andhra Pradesh	20	10.678	2.14
5	Gujarat	20	10.678	2.14
6	Maharashtra including Mumbai	40	10.678	4.27
7	West Bengal including Kolkata	20	10.678	2.14
8	Kerala	10	10.678	1.07
9	UP(East)	10	10.678	1.07
10	UP(West)	10	10.678	1.07
11	Haryana	10	10.678	1.07
12	Madhya Pradesh	10	10.678	1.07
13	Punjab	10	10.678	1.07
14	Rajasthan	10	10.678	1.07
15	Bihar	2	10.678	0.21
16	Orissa	2	10.678	0.21
17	Assam	2	10.678	0.21
18	Himachal Pradesh	2	10.678	0.21
19	Jammu & Kashmir		10.678	0.00
20	North East	2	10.678	0.21
21	A&N	2	10.678	0.21
				27.98

TABLE 12

Additional Cost in Rs. Crores for Roll Out differences for BSOs

S. No.	Service Area of Operation (Circle)	Category	Semi Urban SDCAs	Rural SDCAs	Additional Stations to be covered by BSOs	Minimum installed capacity [CDOT 256]	Additional Cost per line in Rs as compared to Urban Areas	Minimum additional Cost in Rs. Crores for Roll out differences
			A	B	C=(A+B)	D	E	=(C*D*E) /10000000
1	Delhi	A	0	0	0	184	4000	0.00
2	Tamil Nadu including Chennai	A	104	1	105	184	4000	7.73
3	Karnataka	A	136	22	158	184	4000	11.63
4	Andhra Pradesh	A	141	70	211	184	4000	15.53
5	Gujarat	A	126	14	140	184	4000	10.30
6	Maharashtra including Mumbai	A	202	77	279	184	4000	20.53
7	West Bengal including Calcutta	B	41	16	57	184	4000	4.20
8	Kerala	B	29	17	46	184	4000	3.39
9	UP(East)	B	127	19	146	184	4000	10.75
10	UP(West)	B	76	6	82	184	4000	6.04
11	Haryana	B	34	11	45	184	4000	3.31
12	Madhya Pradesh	B	283	55	338	184	4000	24.88
13	Punjab	B	42	2	44	184	4000	3.24
14	Rajasthan	B	168	76	244	184	4000	17.96
15	Bihar	C	135	29	164	184	4000	12.07
16	Orissa	C	89	24	113	184	4000	8.32
17	Assam (No Pvt BSO)	C						
18	Himachal Pradesh	C	25	7	32	184	4000	2.36
19	Jammu & Kashmir (No Pvt. BSO)	C						
20	North East (No Pvt BSO)	C						
21	A&N	C	2	0	2	184	4000	0.15
			1760	446		184	4000	162.36

Table 13

Entry Fee, Cost Of Performance Bank Guarantee And Roll Out For BSOs For All Circles Based On New Licensing Regime

	ENTRY FEE and PERFORMANCE BANK GUARANTEE FOR NEW BSOs									
S. No.	Service Area of Operation (Circle)	Category	Entry Fee in Rs. Crore	Bank Guarantee Rs. Crore	BG1	BG2	BG3	Cost of PBG in Rs. Crores	Additional Cost of Roll Out differences (Rs. Crores)	Adjustment for PBG & Roll out in Rs. Crores
					0.2	0.3	0.5	8.856% From Table 9	From Table 12	
			A	B	C=20% of B	D=30% of B	E=50% of B	F= 8.856% of B	G	H=(F+G)
1	Delhi	A	50	200	40	60	100	17.7	0.0	17.7
2	Tamil Nadu including Chennai	A	50	200	40	60	100	17.7	7.7	25.4
3	Karnataka	A	35	140	28	42	70	12.4	11.6	24.0
4	Andhra Pradesh	A	35	140	28	42	70	12.4	15.5	27.9
5	Gujarat	A	40	160	32	48	80	14.2	10.3	24.5
6	Maharashtra including Mumbai	A	115	460	92	138	230	40.7	20.5	61.3
7	West Bengal including Kolkata	B	25	100	20	30	50	8.9	4.2	13.1
8	Kerala	B	20	80	16	24	40	7.1	3.4	10.5
9	UP(East)	B	15	60	12	18	30	5.3	10.7	16.1
10	UP(West)	B	15	60	12	18	30	5.3	6.0	11.3
11	Haryana	B	10	40	8	12	20	3.5	3.3	6.9
12	Madhya Pradesh	B	20	80	16	24	40	7.1	24.9	32.0
13	Punjab	B	20	80	16	24	40	7.1	3.2	10.3
14	Rajasthan	B	20	80	16	24	40	7.1	18.0	25.0
15	Bihar	C	10	40	8	12	20	3.5	12.1	15.6
16	Orissa	C	5	20	4	6	10	1.8	8.3	10.1
17	Assam	C	5	20	4	6	10	1.8	0.0	1.8
18	Himachal Pradesh	C	2	8	1.6	2.4	4	0.7	2.4	3.1
19	Jammu & Kashmir	C	2	8	1.6	2.4	4	0.7	0.0	0.7
20	North East	C	2	8	1.6	2.4	4	0.7	0.0	0.7
21	A&N	C	1	4	0.8	1.2	2	0.4	0.1	0.5
			497					176	162	338.4
		Years for BG1, BG2, BG3			3	5	7			

45. Estimating the additional Entry Fee for WLL(M)

45.1 The additional Entry Fee for WLL(M) is estimated based on the above set of conditions and estimates.

45.2 Table 14 provides the full details on the additional Entry Fees as applicable for all Circles. The Table indicates that all BSOs will be required to pay additional Rs. 454.30 Crores, if all of them provide WLL(M) services. Subject to this conditions:

a) The contribution from Reliance Infocomm would be Rs. 196.04 Crores as per details given in Table 15.

b) The contribution from Tata Teleservices would be Rs. 129.13 Crores as per details given in Table 16.

c) The contribution from Bharti Telenet would be Rs. 129.13 Crores as per details given in Table 17.

d) Table 18 gives a summary of all the additional Entry Fee payable by Basic Service Operators.

46. Interest on Additional Entry Fee

The Authority has not included any interest on the amounts estimated, for two reasons. One, we have used the upper limits of the relevant parameters to calculate the additional entry fee. Second, in the period from 2001 onwards till the time WLL(M) has become a substantive market competitor, the reduction in revenue share License Fee for cellular mobile consequent to the entry of WLL(M) has given cellular mobile benefits much larger than the interest costs.

Table 14

Additional Entry Fee Calculations

S. No.	Circle	New BSO Licencees				For One BSO only							
		Number of new BSOs	Name of BSO [1]	Name of BSO [2]	Name of BSO [3]	Entry Fee already Paid in Rs. Crore	Additional Entry Fee before correction in Rs. Crores for each licencee	NPV Cost of BSO PBG in Rs. Crores	NPV Cost of Cellular PBG in Rs. Crores	Additional Cost of PBG in Rs. Crores	Additional Cost of Roll Out differences (Rs. Crores)	Effective Additional Entry Fee in Rs. Cr. = Additional Entry Fee - Cost of PBG Roll Out Cost	Additional Entry Fee before correction for All BSOs (Rs. Crore)
		A					B	C	D	E = (C-D)	F	G=(B-E-F)	H=(B*A)
							(From Table 7)	(From Table 13)	(From Table 11)		(From Table 12)		
1	Delhi	3	Reliance Infocomm	Tata Teleservices	Bharti Telenet	50	85.33	17.7	2.1	15.6	0.0	69.75	255.99
2	Tamil Nadu including Chennai	3	Reliance Infocomm	Tata Teleservices	Bharti Telenet	50	76.98	17.7	4.3	13.4	7.7	55.81	230.94
3	Karnataka	3	Reliance Infocomm	Tata Teleservices	Bharti Telenet	35	25.46	12.4	2.1	10.3	11.6	3.57	76.38
4	Andhra Pradesh	1	Reliance Infocomm			35	0.00	12.4	2.1	10.3	15.5	0.00	0
5	Gujarat	1		Tata Teleservices		40	0.00	14.2	2.1	12.0	10.3	0.00	0
6	Maharashtra including Mumbai	1	Reliance Infocomm			115	101.80	40.7	4.3	36.5	20.5	44.80	101.8
7	West Bengal including Kolkata	1	Reliance Infocomm			25	38.99	8.9	2.1	6.7	4.2	28.07	38.99
8	Kerala	1	Reliance Infocomm			20	0.00	7.1	1.1	6.0	3.4	0.00	0
9	UP(East)	1	Reliance Infocomm			15	1.87	5.3	1.1	4.2	10.7	0.00	1.87
10	UP(West)	1	Reliance Infocomm			15	0.00	5.3	1.1	4.2	6.0	0.00	0
11	Haryana	2	Reliance Infocomm		Bharti Telenet	10	0.00	3.5	1.1	2.5	3.3	0.00	0
12	Madhya Pradesh	1	Reliance Infocomm			20	0.00	7.1	1.1	6.0	24.9	0.00	0
13	Punjab	1	Reliance Infocomm			20	28.29	7.1	1.1	6.0	3.2	19.03	28.29
14	Rajasthan	1	Reliance Infocomm			20	0.00	7.1	1.1	6.0	18.0	0.00	0
15	Bihar	1	Reliance Infocomm			10	0.00	3.5	0.2	3.3	12.1	0.00	0
16	Orissa	1	Reliance Infocomm			5	0.00	1.8	0.2	1.6	8.3	0.00	0
17	Assam	0				5	0.00	1.8	0.2	1.6	0.0	0.00	0
18	Himachal Pradesh	1	Reliance Infocomm			2	0.00	0.7	0.2	0.5	2.4	0.00	0
19	Jammu & Kashmir	0				2	0.00	0.7	0.0	0.7	0.0	0.00	0
20	North East	0				2	0.00	0.7	0.2	0.5	0.0	0.00	0
21	A&N	1	Reliance Infocomm			1	0.00	0.4	0.2	0.1	0.1	0.00	0
		25	17	4	4	497.00	358.72	176.1	162.4	148.09	162.36	221.04	734.26

Table 15

Additional Entry Fee in Rs. Crores Payable by Reliance Infocomm

S. No.	Circle	1 for Licensee	Entry Fee already Paid in Rs. Crores	Additional Entry Fee before correction in Rs. Crores	Additional NPV Cost of PBG in Rs. Crores by BSOs	Min.Additional Cost for BSO Roll Out (Rs. Crores)	Effective Additional Entry Fee Payable = Additional Entry Fee - Cost of PBG - Roll Out Cost in Rs. Crores
	A	B	C	D (From Table 14)	E (From Table 14)	F (From Table 12, 14)	G=(D-E-F)
1	Delhi	1	50	85.33	15.58	0.00	69.75
2	Tamil Nadu including Chennai	1	50	76.98	13.44	7.73	55.81
3	Karnataka	1	35	25.46	10.26	11.63	3.57
4	Andhra Pradesh	1	35	0	10.26	15.53	0.00
5	Gujarat	0					
6	Maharashtra including Mumbai	1	115	101.8	36.47	20.53	44.80
7	West Bengal including Kolkata	1	25	38.99	6.72	4.20	28.07
8	Kerala	1	20	0.00	6.02	3.39	0.00
9	UP(East)	1	15	1.87	4.25	10.75	0.00
10	UP(West)	1	15	0.00	4.25	6.04	0.00
11	Haryana	1	10	0.00	2.47	3.31	0.00
12	Madhya Pradesh	1	20	0.00	6.02	24.88	0.00
13	Punjab	1	20	28.29	6.02	3.24	19.03
14	Rajasthan	1	20	0.00	6.02	17.96	0.00
15	Bihar	1	10	0.00	3.33	12.07	0.00
16	Orissa	1	5	0.00	1.56	8.32	0.00
17	Assam	0					
18	Himachal Pradesh	1	2	0.00	0.49	2.36	0.00
19	Jammu & Kashmir	0					
20	North East	0					
21	A&N	1	1	0.00	0.14	0.15	0.00
		17	448.00	358.72	133.29		221.04

Table 16
Additional Entry Fee in Rs. Crores Payable by Tata Teleservices

S.No.	Circle	1 for Licensee	Entry Fee already Paid in Rs. Crores	Additional Entry Fee before correction in Rs. Crores	Additional NPV Cost of PBG in Rs. Crores by BSOs	Min.Additional Cost for BSO Roll Out (Rs. Crores)	Effective Additional Entry Fee Payable = Additional Entry Fee - Cost of PBG - Roll Out Cost in Rs. Crores
	A	B	C	D (From Table 14)	E (From Table 14)	F (From Table 12,14)	G=(D-E-F)
1	Delhi	1	50	85.33	15.58	0.00	69.75
2	Tamil Nadu including Chennai	1	50	76.98	13.44	7.73	55.81
3	Karnataka	1	35	25.46	10.26	11.63	3.57
4	Andhra Pradesh	0					
5	Gujarat	1	40	0.00	12.03	10.30	0.00
6	Maharashtra including Mumbai	0					
7	West Bengal including Kolkata	0					
8	Kerala	0					
9	UP(East)	0					
10	UP(West)	0					
11	Haryana	0					
12	Madhya Pradesh	0					
13	Punjab	0					
14	Rajasthan	0					
15	Bihar	0					
16	Orissa	0					
17	Assam	0					
18	Himachal Pradesh	0					
19	Jammu & Kashmir	0					
20	North East	0					
21	A&N	0					
		4.00	175.00	187.77	51.32	29.66	129.13

Table 17
Additional Entry Fee in Rs. Crores payable by Bharti Telenet

S.No.	Circle	1 for Licensee	Entry Fee already Paid in Rs. Crores	Additional Entry Fee before correction in Rs. Crores	Additional NPV Cost of PBG in Rs. Crores by BSOs	Min.Additional Cost for BSO Roll Out (Rs. Crores)	Effective Additional Entry Fee Payable = Additional Entry Fee - Cost of PBG - Roll Out Cost in Rs. Crores
	A	B	C	D (From Table 14)	E (From Table 14)	F (From Table 12,14)	G=(D-E-F)
1	Delhi	1	50	85.33	15.58	0.00	69.75
2	Tamil Nadu including Chennai	1	50	76.98	13.44	7.73	55.81
3	Karnataka	1	35	25.46	10.26	11.63	3.57
4	Andhra Pradesh	0					
5	Gujarat	0					
6	Maharashtra including Mumbai	0					
7	West Bengal including Kolkata	0					
8	Kerala	0					
9	UP(East)	0					
10	UP(West)	0					
11	Haryana	1	10	0	2.47	3.31	0.00
12	Madhya Pradesh	0					
13	Punjab	0					
14	Rajasthan	0					
15	Bihar	0					
16	Orissa	0					
17	Assam	0					
18	Himachal Pradesh	0					
19	Jammu & Kashmir	0					
20	North East	0					
21	A&N	0					
		4	145.00	187.77	41.76	22.67	129.13

Table 18
Summary of Additional Entry Fee in Rs. Crores Payable by BSOs

S. No.	Circle	1 for new BSO Licensee Reliance Infocomm	Effective Additional Entry Fee Payable in Rs. Crores	1 for new BSO Licensee Tata Teleservices	Effective Additional Entry Fee Payable in Rs. Crores	1 for new BSO Licensee Bharti Telenet	Effective Additional Entry Fee Payable in Rs. Crores	Total Additional Entry Fee Payable in Rs. Crores
	A	B	C (From Table 15)	D	E (From Table 16)	F	G (From Table 17)	H=(C+E+G)
1	Delhi	1	69.75	1	69.75	1	69.75	209.26
2	Tamil Nadu including Chennai	1	55.81	1	55.81	1	55.81	167.43
3	Karnataka	1	3.57	1	3.57	1	3.57	10.70
4	Andhra Pradesh	1	0.00	0		0		
5	Gujarat	0		1	0.00	0		0.00
6	Maharashtra including Mumbai	1	44.80	0		0		44.80
7	West Bengal including Kolkata	1	28.07	0		0		28.07
8	Kerala	1	0.00	0		0		0.00
9	UP(East)	1	0.00	0		0		0.00
10	UP(West)	1	0.00	0		0		0.00
11	Haryana	1	0.00	0		1	0.00	0.00
12	Madhya Pradesh	1	0.00	0		0		0.00
13	Punjab	1	19.03	0		0		19.03
14	Rajasthan	1	0.00	0		0		0.00
15	Bihar	1	0.00	0		0		0.00
16	Orissa	1	0.00	0		0		0.00
17	Assam	0		0		0		
18	Himachal Pradesh	1	0.00	0		0		0.00
19	Jammu & Kashmir	0		0		0		
20	North East	0		0		0		
21	A&N	1	0.00	0		0		0.00
		17	221.04	4	129.13	4	129.13	479.30

46. Based on the discussion and reasoning given above, following principles for the recommendations emerge:

a) In circles, where there was no bid by the fourth cellular operator the effective entry fee for the fourth cellular operator is taken as zero, and the existing WLL (M) service providers in these circles should not be charged any additional entry fee for providing WLL(M).

b) In the case of old BSOs, the entry fee paid by them fully covers the estimated additional entry fee that has to be paid for WLL(M). Therefore, the appropriate additional entry fee paid by the old BSOs would be zero.

c) In two cases, Himachal Pradesh and Madhya Pradesh, the new BSOs have paid entry fee higher than that paid by the fourth cellular operator. In both these cases, the entry fee paid by these BSOs fully covers the estimated additional entry fee to be paid for WLL(M). Therefore, these BSOs should not be charged any additional entry fee for WLL (M).

d) Keeping in view the above points, all the old BSOs, the new BSOs in all the category 'C' circles and in Madhya Pradesh, will not be required to pay any additional entry fee for providing WLL (M) services.

e) Additional Entry Fee for new BSOs being recommended for WLL(M) service has been estimated as Rs.69.75 crores in Delhi, Rs. 55.81 Crores in Tamil Nadu including Chennai, Rs. 44.80 crores in Maharashtra including Mumbai, Rs. 19.03 crores in Punjab, Rs. 3.6 Crores in Karnataka and Rs. 28.07 crores for West Bengal including Kolkatta, No additional entry fee is proposed for other Circles.

f) The additional entry fee for WLL(M) should only be levied on such basic service operators who provide WLL (M) service.

g) For the new BSOs, the estimated total additional entry fee payable for all the circles, if WLL(M) service is provided by all BSOs, is estimated to be Rs. 479.30 crores. This estimated additional entry fee amounts for WLL(M) should be charged from the BSOs only for those circles where they provide WLL(M) service. If they provide such service in all circles, the estimated total additional entry fee from these companies would be as follows: Reliance Infocomm, operating in 17 circles, is estimated to be Rs. 221.04 crores; Tata Teleservices and Bharti Telenet, each operating in four circles, are estimated to be Rs. 129.13 crores for each (subject to WLL(M) service being provided).

Section B

Additional spectrum fee chargeable for the additional spectrum beyond 5 MHz for WLL (M) service

1. Presently, BSOs and CMSPs have been allocated spectrum based on their requirements. At present BSO license stipulates spectrum provisioning requirements as upto 5+5 MHz. In the duo-poly situation, old licencees, the spectrum was 8+8 MHz for WLL fixed services.

2. Spectrum charges are 2% of Adjusted Gross Revenue (AGR) for upto 5+5 MHZ spectrum for WLL Services. Spectrum charges are 2% of Adjusted Gross Revenue (AGR) for upto 4.4 + 4.4 MHZ for cellular services. For cellular services additional 1% of AGR is charged for spectrum beyond 4.4 + 4.4 MHZ and upto 6.2 + 6.2 MHZ spectrum and 1% more is charged upto 10 + 10 MHZ.

3. The Hon'ble TDSAT in its majority decision dated 8th August, 2003 has observed that

> "Basic service operators are presently entitled to allocation of frequency spectrum for WLL technologies for which they are required to pay under DoT letter dated 25th January, 2001 an additional revenue share of 2% of annual gross revenue earned from WLL subscribers as spectrum charge. Since, We have already noted that WLL (M) is a value addition to the WLL service for operation of which on a large scale there would be a need for additional spectrum we would suggest that the Government may allocate additional spectrum for WLL(M) service. The cell operators are also paying 2% as spectrum usage charge. Hence, we are not suggesting any revision on the higher side of the spectrum charge presently being paid by WLL(M) service operators. However, there would be a case for levying additional spectrum charge for WLL(M) service over and above what is being paid at present if allocation of additional spectrum becomes a

necessity for operation of this service on a large scale as also for improving the quality of service. The modality for determining additional entry fee may be examined and recommended by the Telecom Regulator (TRAI) by following a transparent process with due consultation with all the concerned stake-holders. The same method may be followed in case additional spectrum is made available."

4. While finalising its recommendations to the Government on the issue of WLL(M), TRAI had considered, in detail, the issue of spectrum allocation for WLL(M). TRAI had recommended that the charging for spectrum should be the same whether it is used by WLL(M) or by cellular mobile service providers. However TRAI had not recommended any additional provisioning of spectrum beyond 5+5 MHz for WLL(M) service.

5. M/s Reliance Infocom stated that the cellular operators are initially allotted a minimum frequency of 4.4 MHz and charged 2% of AGR as spectrum charges. On the other hand, the basic operators are allotted initial frequency of 2.5 MHz on establishment of POP in each SDCA and are still charged 2% of the AGR as spectrum charges. The additional allocation of third and fourth carriers is linked to rollout obligations. Therefore BSOs pay 2% of AGR as spectrum charges for 2.5 MHz of spectrum whereas the cellular operators pay 2% of AGR for 4.4 MHz. Reliance also mentioned that with 25 MHz of spectrum for cellular operators, the number of operators (competition) is limited, but with 20 MHz of spectrum for BSOs, the number of operators is unlimited as it is an open competition scenario. M/s Reliance requested that the initial allocation to the BSOs should be 5 MHz and the charges to be the same as at present.

6. As stated earlier, the old BSOs argue that 8 MHz spectrum was available to them under their license and this spectrum is a contractual right for them, which under the Spectrum Policy of March, 2003, is purported to be reduced to 5

MHz. They have claimed that no consent has been taken from them nor any compensation been offered/ paid.

7. TRAI is of the view that spectrum is a very scarce national resource and will have to be priced always keeping in view its demand and proper utilisation. TRAI at this stage does not want to give any recommendation on allotment of frequency to BSO for WLL operation beyond 5 MHz without going into detailed studies on effective utilization of the spectrum.

8. The Authority also wants to highlight that at present Spectrum is being used inefficiently by both Basic and Cellular Service Providers and is also priced in such a way that it encourages non efficient deployment by the Access Providers. The issue is being dealt in more detail separately. TRAI further makes it very clear that existing contractual obligations of 4.4/ 6.2 MHz in case of Cellular Mobile and 5 MHz in case of Basic Services will be relevant and any further allocation will be subject to scrutiny for efficient spectrum deployment and also subject to availability. TRAI will soon make a recommendation to the Government in this regard.

SECTION C

Relief to Cellular Mobile Operators with regard to Points of Interconnection between CMSPs and BSOs

1. The Hon'ble TDSAT in its majority judgment dated 8th August 2003 mentioned that

> " *Further, some relief should be given to the cell operators in regard to the points of interconnection and whether these points should go beyond Level I and level II TAX up to Tandem Exchange level may be considered by the TRAI*."

2. In this connection the issue of level of interconnection between Cellular Mobile Operators and Basic Service Operators has been discussed on several occasions in the past. CMSPs have been demanding interconnection at a level lower than LDCA or TAXs in the telecom circles, i.e., at the SDCA level, which means providing interconnection at the level of local networks. They had sought to justify such interconnection on the basis that the issue of multiple POIs at SDCA level was closely linked to lower tariffs for customers. The thrust of their argument has been that in the absence of multiple POIs, calls are required to be hauled to the SSA TAX, which may result in higher call charges for both PSTN and cellular subscribers.

3. In its Determination of 8th January, 2001 on six major issues in connection with signing of an Interconnection Agreement between CMSPs and DOT (now BSNL), the TRAI has stated in this regard that:

> "*Taking account of the views expressed by both the parties, the Authority is of the view that while there is respective merit in arguments put forward by both the sides, in the interest of customers, multiple points of interconnect should be provided between the two networks. TRAI, however, appreciates the point that, if POIs are to be provided at the*

SDCA level, the number of POIs will become very large, which will be difficult to manage. The cellular network in circles cover a large geographical area and should therefore normally, be interconnected at the level of long distance network.

Further, maintaining the integrity of the network and conformance to fundamental technical plans are important considerations, which need to be kept in view. The Authority also considers that providing POIs at the SDCA level may result in an increase in the requirement of USO funding due to the likely adverse effect of such interconnection regime on intra-circle STD revenue of Basic Service providers. Nonetheless, the over all approach has to be one that gives greater operational flexibility by permitting a larger number of POIs than as at present. TRAI is, therefore, of the opinion that whereas for metro cellular operators who provide service in the metro cities of Delhi, Mumbai, Chennai and Kolkatta and its adjoining areas, the lowest level where interconnection (at the request of interconnection seeker) should mandatorily be provided by the BSNL/ BSO is up to the level of tandem exchanges, for Cellular Telecom Circle operators covering a large geographical area, it should be with the long distance network of the circle i.e., at the TAX level. The normal routing hierarchy for all types of inter-circle and inter-network calls is to hand over the call to a Level I TAX, which in turn routes the incoming traffic lower down the hierarchy i.e. to Level II and then to the local network at the SDCA level. This normal hierarchy should be followed for calls originating in mobile network and terminating in a fixed network However, for traffic terminating in the LDCA, the Gateway MSCs may at the request of the interconnection seeker, be directly connected to Level II TAXs, i.e bypassing Level I TAX, in order to give the cellular operator greater flexibility and smoother flow of traffic. POIs below TAX and tandem level may also be provided with mutual agreement."

4. Subsequently, vide TRAI's letter dated 29th January 2002, it was clarified that the POI at Level-II TAXs can also be used for handing over of fixed to mobile traffic. It shall, however, not handle any transit traffic i.e., traffic originated or terminated in some other LDCA, i.e., other than in which the Level II TAX is situated.

5. TRAI had issued its Model Reference Interconnect Offer on 12th July 2003. Para 4.5 of the Reference Interconnect Offer guidelines are reproduced below for ready reference covering the Cellular to PSTN interconnection.

<u>Interconnection between PLMN (Mobile) and PSTN</u>

The following table indicates the handing over of traffic between these two types of networks.

Table 2.1 – Traffic from PLMN to PSTN

Licensed Area	POI	Remarks
A. Metros		
1. Local Call	Transit Exchange (Tandem) Local Exchange by mutual agreement	To BSO
2. Inter-circle call	Designated Level I TAX located in the Metro.	
3. International Call	Designated Level I TAX of NLDO (or) Gateway Switch of ILDO if ILDO Gateway Switch and GMSC are located at the same station of Level I TAX (Metro).	Designated by NLDO / ILDO
B. Circles		
1. Intra – Circle Call	Level I TAX for both transit to other LDCAs/ termination in the LDCA in which it is located. Level II TAX for traffic terminating in the destination LDCA, at the request of interconnection seeker. POI below TAX level may also be provided with mutual agreement for terminating traffic.	To BSO
2. Inter – circle Call	The traffic can be handed over at the designated Gateway Level I TAX of NLDO through any one of its Gateway MSC. CMTS provider can also handover traffic to NLDOs at the POP situated in the LDCA at the location of the Gateway MSC or MSC in a Circle. The NLDO shall handover terminating traffic in the destination LDCA at the SDCC or by mutual agreement as per license terms and conditions at LDCC POI.	To NLDO NLDO to BSO
3. International Call	The traffic can be handed over at the designated Gateway Level I TAX of NLDO through any one of its Gateway MSC. CMTS provider cans also handover traffic to NLDOs at the POP situated in the LDCA at the location of the Gateway MSC or MSC in a Circle. To the Gateway Switch of the ILDO if ILDO's Gateway Switch and the GMSC are located at the same station of level I TAX.	To NLDO To ILDO

Note 1 : New National Long Distance Operator(s) can make necessary interconnection arrangements with other NLDOs, to ensure delivery of calls at places where POP is yet to be established as per their network rollout obligations.

Table 2.2 Traffic From PSTN to PLMN

Licensed Area	POI	Remarks
A. Metros		
1. Local Call	Transit Exchange (Tandem) Local Exchange (by mutual agreement)	To CMTS provider
2. Inter-circle call	BSOs shall handover the call at the designated TAX of NLDO in the originating Metro. The traffic can be handed over at any one of the GMSC through a designated Level I TAX of NLDO. NLDO can also handover traffic to CMTS provider at the POP situated in the LDCA at the location of GMSC or MSC in the Metro / Circle.	BSO to NLDO NLDO to CMTS provider
3. International Call (Out-going) (In-coming)	BSOs shall handover the call at the designated TAX of NLDO in the originating Metro To the gateway switch of the ILDO in case the ILD Gateway Switch and the Access Provider's Tandem/Transit Switch are located at the same station of level I TAX (Metro). The ILDO to handover at the Gateway MSC of the Cellular Operator if this Gateway MSC and the Gateway Switch of the ILDO are located at the same location of Level I TAX (Metro). The traffic can be handed over at any one of the GMSC through a designated Level I TAX of NLDO. NLDO can also handover traffic to CMTS provider at the POP situated in the LDCA at the location of GMSC or MSC in the Metro / Circle.	BSO to NLDO BSO to ILDO (Near-end for traffic of same SDCA) ILDO to CMTS provider NLDO to CMTS provider
B. Circle		
1. Intra – Circle Call	Level I TAX or Level II TAX of the originating LDCA. If no POI is available at Level II TAX then at GMSC of the CMTS provider subject to mutual agreement.	BSO to CMTS provider
2. Inter-circle call	BSO to hand over originating traffic at the SDCC in the same SDCA in which it has originated or by mutual agreement as per license terms and conditions at the LDCC of originating LDCA. The traffic can be handed over at any one of the GMSC through a designated Level I TAX of NLDO. NLDO can also handover traffic to CMTS provider at the POP situated in the LDCA at the location of GMSC or MSC in the Metro / Circle.	BSO to NLDO NLDO to CMTS provider

6. For PSTN to PSTN intra-circle Long Distance traffic, BSOs are permitted to handover the traffic (Fixed / WLL(M)) at the terminating SDCC/LDCC (Far-end handover). In cases where the BSO have no POI at the terminating end, then the BSO shall handover the traffic at the originating SDCC/ LDCC (Near-end handover). However, in case of Intra-circle traffic from PSTN to PLMN i.e. from Fixed/ WLL(M) to mobile, the traffic has to be handed over at Level I TAX or Level II TAX of the originating LDCA. If no POI is available at level II TAX then at GMSC of the CMTS provider subject to mutual agreement. Similarly, the intra circle traffic from PLMN to PSTN i.e. from mobile to fixed/ WLL(M), has to be handed over at Level I TAX for both transit to other LDCAs/ termination in the LDCA in which it is located. The traffic can also be handed over at Level II TAX for traffic terminating in the destination LDCA, at the request of interconnection seeker.

7. The Model RIO of TRAI has been accepted by the Cellular Operators. BSNL has however challenged the same before TDSAT. The issue is presently being reconciled based on suggestions from TDSAT. The difference in call routing principles is being looked into in order to ensure level playing field conditions between BSOs and CMSPs. A noteworthy feature in analysing the demand made by cellular mobile is that if POIs are provided to them at SDCA level, this may result in capacity constraints on account of the low availability of ports in the small capacity of exchanges at most SDCAs.

8. Moreover, it should be noted that for calls from basic to basic networks, the handover principle is that the call may be given to the other network as a near-end handover or as a far-end handover. The demand of the cellular mobile service providers can be seen as seeking a near end handover for calls from basic to cellular mobile, and a far-end handover for calls from cellular mobile to basic service. Similar demand has been made by the Basic Service Operators for Basic to Cellular Mobile calls.

9. In view of the TDSAT's judgement dated 8.8.03, TRAI again opened the issue for discussion vide its consultation paper dated 28.8.2003 and received the following comments from the stakeholders:

<u>Arguments and Counter arguments of the stakeholders on the issue</u>

10. Whereas ABTO proposed interconnectivity for all services at LDCA level and at tandem level with mutual agreement. BSNL was of the view that interconnection of Cellular Mobile Telephone Networks with Basic Network at the SDCA Level should not be considered due to reasons that

i) PSTN and cellular network are two dissimilar networks. SDCA is at the lowest level of hierarchy in PSTN and MSC is at the highest level of hierarchy in cellular network. Interconnection of the switch at highest level of one network with a switch at the lowest level of other network results into serious network complications, violation of National Fundamental Plans, inefficient use of network elements, managerial difficulties and bypass of the telephone traffic/revenues of PSTN by the cellular network,

ii) the switches at the SDCA level are not capable of performing desired gateway functions and hence are technically non-feasible,

iii) there are 2647 SDCAs and almost all of them are not capable of performing desired gateway function for providing interconnection. The up-gradation of such large number of switches, accounting systems and their management shall be extremely expensive and is a Herculean task,

iv) it will pose serious practical difficulties to operate and maintain a large number of Points of Interconnect because of many observations and large data acquisition required for proper operation, maintenance, billing, charging, revenue sharing and other regulatory purposes and

v) The clock stability in the local exchanges below level-II TAXs may not be as accurate as that of the TAX. The traffic from cellular networks, specifically data transmission, through such POIs may encounter disconnection and distortion.

11. BSNL further stated that if in spite of the reasons given above, the Authority feels that the interconnection should take place at the SDCA level, it may be permitted only subject to the fulfillment of the following conditions on the same lines as applicable for basic services :-

a) CMSPs will have interconnection with BSOs either at the level of Level-I TAX or at the SDCA level. No other interconnection point shall be permissible. The POI at Level-I TAX shall be used for all types of STD/ ISD calls in both directions and also for intra-circle calls.

b) Connectivity at SDCA level shall be only for the terminating traffic of that SDCA meaning thereby that the POI at SDCA level shall be a one-way POI.

c) The BSO shall handover the traffic originated from its network at the Level-I TAX by following the principle of far end handover.

d) The BSOs may be allowed to charge a flat tariff for intra-circle fixed to cell call depending upon their commercial policy.

e) Since the BSO will make a far end handover, utilization of CMSPs network for carriage of calls will be reduced. Therefore, the termination charge payable to the CMSPs should also be reduced.

f) Since the BSNL switches at the SDCA level are not designed to handle additional interconnection from cellular operators, these will be required to be upgraded/replaced. The cost of such up-gradation/ replacement shall have to be borne by the cellular operators only.

12. COAI put forward their comments on the issue stating that in the case of a FSP, interconnection with BSNL and other FSPs is available at the SDCA level. Since the FSPs are also now allowed to provide WLL (M) service and it allows interconnection for WLL(M) services at the SDCA level and the same should be available for them. To correct the imbalance between WLL (M) and cellular, CMSPs want to be entitled to interconnect at the SDCA level so that they can opt for the most optimal routing plan.

13. The view points of the another major player viz. Reliance Infocomm Ltd. points out that unless various existing anomalies between BSOs and CMSPs with respect to call routing, numbering, tariffs etc. get addressed, CMSPs should not be permitted to have POIs with BSOs at SDCA level. The reasons for this has been closely linked with the important commercial issue of 'bypass of intra-circle revenue' by Cellular operators as a result of near end handover. With present cellular PoIs at level II Tax locations, BSOs are at least able to recover revenue for traffic originating/ terminating in SDCC locations. If CMSPs are permitted to establish PoI at SDCC locations, this will further aggravate the present problem resulting into complete bypass of BSO's intra-circle revenue by CMSPs. Further as per license conditions, BSOs have SDCA based roll-out obligation whereas CMSPs are required to cover only 50% of total DHQs. Moreover unlike BSOs, CMSPs are allowed to establish POIs with just transmission equipment i.e. without establishing Point of Presence (POP). With such different licensing obligations, only BSOs can have POI connectivity at SDCA level. Thus the permission to CMSPs to establish POI with BSOs can be considered only when the difference in license conditions (i.e. establishment POI

by CMSP without establishing POP) get addressed and principle of far end handover is mandated at all POIs to avoid bypass of intra-circle long distance revenue.

14. TRAI has examined the various arguments and counter arguments given by the stakeholders. In so far as the COAI's contention that CMSPs are eligible for 322 POIs as compared to 2647 POIs for WLL (M) is concerned, it is not a valid point as POI at Level II TAX can also be used for handing over of fixed to mobile traffic. With 4 Cellular Operators in each Circle and if POIs are provided at the SDCC level, the number of POIs required to be created will be of the order of about 2650*4 = 10600. It will be extremely complex and unmanageable to operate and maintain such large number of POIs and provide inter-network accounting arrangements. There is already a demand to have less number of POIs even in the case of Basic Services i.e. Interconnection restricted to Level I and other major Level II TAXs only. COAI has tried to compare a call from fixed network to WLL network with a call from fixed network to cellular network. These two calls are different and are not comparable. The WLL network is SDCA centric and a clear distinction can be made between a local call (Intra SDCA) and a long distance call (Inter-SDCA). This is not applicable in case of cellular network. TRAI is of the firm view that WLL (M) and Mobile services are essentially of two different kind of services. Moreover, technical feasibility and expenditure involved in the exercise of allowing CMSPs to interconnect at SDCA level are the main considerations.

15. TRAI Interconnect determination of January 8th 2001, had restricted the interconnection only at Level I and Level II TAXs. TRAI's RIO which has been already accepted by Cellular Operators and has not been challenged by them in TDSAT, also does not call for SDCA level interconnection. If the reasoning of Cellular Operators is accepted, one way POIs and traffic handover at far end SDCA would also be required to be provided.

16. The Authority has taken a note of all the **arguments and counter arguments on the issue of allowing CMSPs to have interconnection at SDCC levels. The Authority is of the view that answer to the issue can be decided only after TDSAT decides on the case in regard to BSNL/ MTNL's Reference Interconnect Offer. The case is pending before TDSAT. It may be recalled that TDSAT has referred the matter to TRAI for finalisation after discussion with BSNL/ MTNL. The issue has not yet been finally resolved and is still under discussion.**

SECTION D

Increasing the retention of 5% Access Charge of CMSPs to a reasonable level

1. In the pre-IUC revenue sharing regime, the Cellular operators were allowed to retain 5% of the call charges and pass on the balance amount of 95% to the BSOs.

2. The relevant extracts of the TDSAT judgment dated 8th August, 2003 on the subject is reproduced below:

> *"In regard to retention of 5% access charges which has been allowed to cellular operators there is a case for increasing this percentage to a reasonable level. Higher percentage in this regard could be recommended by the Telecom Regulator after due and comprehensive consideration of the issue in transparent manner."*

3. However, even before the judgment of the Hon'ble TDSAT on this issue was made, TRAI subsequent to a detailed public consultation process on cost based interconnection usage charges for origination, transit and termination in a multi-operator environment had notified the Telecommunications Interconnection Usage Charges (IUC) Regulation, 2003 on 24.1.2003. The Regulations came into effect from 1st May, 2003. The Regulation had specified cost based interconnection usage charges for origination, transit and termination charges for inter operator settlement. Though WLL (M) forms part of the Basic Service License, separate charges were specified in the Regulation for WLL (M). Through this Regulation, the Authority had also introduced Calling Party Pays (CPP) regime for the cellular mobile services. The Authority is also in the process of fine-tuning the IUC regime based on the feedback of certain difficulties and need to have certain corrective steps. The same is nearing finalisation.

4. As per the TDSAT order, the balance share of pass through revenue,- i.e. the difference between 5% and the revised figure, should be provided to CMPSs for the complete period upto 30/4/2003. However, keeping in view the judgment dated 8.8.03 of the Hon'ble TDSDAT, TRAI again obtained the views of the stakeholders in writing as well as through Open House Sessions conducted by it on its consultation paper dated 28,8,03 on the subject.

Arguments and counter arguments of the stakeholders on the issue.

5. COAI vide their written submission and also during the Open House sessions contended that as per the TDSAT order, CMSPs are entitled to 5% of pass through revenues with effect from 25/1/2001. TDSAT has not issued any such orders as far as the date of effect is concerned. BSNL has provided the 5% retention of pass through only from February 2002. COAI has requested the Authority to direct BSNL to provide CMSPs 5% pass through from a period of 25/4/2001 to 31/1/2002.

6. BSNL vide its written submission has informed the Authority that the issue of 5% retention by CMSP's has lost its relevance especially after the implementation of IUC regulation 2003 of TRAI w.e.f. 1st May 2003. BSNL has further stated TRAI's Regulation TRAI has prescribed cost based interconnection usage charges for carriage and termination of various types of calls handed over by one operator to another and as per this Regulation, the cost based charges payable by cellular operators to BSNL are Rs.0.80 per minute or Rs. 1.60 for a call with 2 minutes holding time or Rs.2.40 for a call duration of 3-minutes. However, in contrast to this cost based charges, prior to implementation of this IUC regulation the cellular operators have been paying Rs.1.20 prior to 31st January 2002 and only Rs 1.14 up to 31st April 2003 for a Cellular originated call for a duration of 3 minutes. Thus ad per BSNL, the revenue share paid by cellular operators to BSNL was much less than the cost based charges, which have been now calculated by TRAI. Thus they have presented a case that the 5% revenue

permitted to cellular operators was not due to them and on the contrary they are denied cost based prices and there is no justification at all in increasing this retention from the 5%.

7. BSNL further informed that the contention given by COAI are not correct and the TRAI determination dated 8th January 2001 was never accepted by cellular operators. The cellular operator had in fact challenged this determination dated 8th January 2001 in the Hon'ble TDSAT and even after the withdrawal of their appeal in TDAST, the determination was not fully implemented. Still some of the inter-circle calls meant for termination in BSNL's network are being handed over to the BSNL at the level-II TAX at Pune instead of the Gateway TAX of Maharashtra which is at Nagpur. In fact, the 8th January 2001 determination of TRAI was meant to facilitate BSNL and cellular operator to come to mutual agreement and sign an interconnect agreement. This determination dated 8th January 2001 was a package and could not have been implemented on piecemeal basis. This determination dated 8th January 2001 was neither implemented fully nor the Interconnect Agreement based on determination-dated 08.01.2001 was signed by the private cellular operators prior to TRAI revenue sharing regulation dated 14.12.2001. Based on this determination dated 8th January 2001, the cellular operators are, therefore, also not entitled to get the 5% revenue share.

8. Keeping in view the above arguments and counter arguments and also the fact that the implementation of the IUC regime with effect from 1st May 2003 has already taken place, the situation has changed and the 5 % or any other specified revenue share regime is no longer in place. The Authority has also noted that implementation of CPP has resulted in a substantial increase in incoming traffic to cellular service providers and thereby termination charges are now payable to them from other Access Providers as compared to none earlier.

9. TRAI sought details of interconnection revenue for the period March-April 2003 i.e. Pre IUC scenario and May-June 2003 i.e. Post IUC scenario from all the service providers. Though full data covering all Access Providers and their all POIs was not available within the suggested time frames, based on available data, TRAI carried out an analysis of the difference between the interconnection revenue in pre and post IUC scenario. The available data clearly reflects that due to IUC regime, there is a substantial gain for the Cellular Mobile operators in terms of Inter-Operator settlements.

10. **In view of the above-mentioned facts, the Authority is of the view that after the implementation of IUC Regulation w.e.f. 1.5.2003, the issue of increasing the retention of 5% Access Charge by the CMSPs has lost its relevance.**