

Consultation Paper No. 2002/2

TELECOM REGULATORY AUTHORITY OF INDIA

Consultation Paper

On

Tariffs for Cellular Mobile Telephone Service

8th July, 2002, New Delhi

PREFACE

The Cellular Mobile Telephone Service (CMTS) has shown remarkable growth since its commencement in the country. The growth witnessed in the cellular industry have been a result of diverse tariffs and service options made available by services providers. Together with a decline in the cost of network and the scenario that allows for additional service providers, the market for cellular services is at a point where consumers have many more options for both service quality and prices. The objective of the present review is to bring in line tariffs with the changes in costs and to ensure a larger subscriber base & increased usage of the service. Consumer friendly changes in tariffs would promote the coverage and ensure proliferation of service through out the country. The service is no more to be seen as a premium service, but an important means to increase teledensity in the country.

This Consultation Paper has as its frame of reference, the objective to present before the various stakeholders the framework and the possibilities and proposals in respect of changes in tariffs for Cellular Mobile Telephone Services. There are quite a few aspects of tariff and tariff regulation which require inputs from various stakeholders in the light of the trends witnessed both in the past and likely to emerge in the future. In the exercise, the Authority has obtained data on costs and roll out of network in order to conduct the present analysis. The Consultation Paper (in Chapter 2) shows selected features of the Cellular Sector in India and highlights trends in subscriber base, tariff and other key parameters. Chapter 3 of the Consultation Paper focuses on the methodology used for calculation and derivation of cost based tariffs. In this, the objective is to present the results on the basis of data reported by service providers as well as on the basis of normated parameters. Chapter 4 provides a range of estimates on the basis of the data on costs and prevailing tariffs in the market.

The Authority invites written responses from all stakeholders latest by closing hours of 22nd July 2002. It would be appreciated if the response is accompanied by a Floppy Diskette or EMAIL having the contents of the submission. For further clarifications, Dr. (Mrs.) Roopa R. Joshi, Advisor (Economic) - Tel. No.6160752, Email address : traio1@bol.net.in or Shri Rajendra Singh, Advisor (Mobile Network) - Tel. No.6106118, Email address : jsengg@bol.net.in may be contacted. The Fax No. of TRAI is 6103294.

New Delhi
8th July, 2002

M.S. Verma
Chairman

CONSULTATION PAPER ON TARIFFS FOR CELLULAR MOBILE TELEPHONE SERVICE

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1. INTRODUCTION

1.1 The objective of this Consultation Paper is to provide a framework and set of proposals on tariffs for the Cellular Mobile Telephone Service (CMTS). This consultation exercise is the first major attempt to determine cost based tariffs for CMTS after the publication of TRAI's Telecommunication Tariff Order (henceforth "TTO") 1999. Chapter 2 of this paper provides a summary of certain important developments in the CMTS market, and raises the issue whether tariff regulation should take place for CMTS and if so, the basis of such regulation.

1.2 Compared to its previous exercise, the Authority now has substantially more data, both on costs and roll out of networks, as well as on the tariffs actually prevailing in the market. The various items for which the Authority has collected and analysed data include the costs for different elements of the network, the operating costs, prevailing airtime usage, fixed monthly charge, number of subscribers (pre-paid and post paid), revenues from supplementary services, etc. In this paper, based on its analysis, the Authority has provided an estimate of the range within which revised monthly rentals and airtime charges for cellular mobile may be considered. Chapter 3 of this paper explains the methodology used for obtaining these estimates. The actual estimates are provided in Chapter 4 of the paper. Comments are invited on all the issues raised in the paper, especially the specific questions that have been raised for public response.

2. SELECTED FEATURES OF THE CELLULAR INDUSTRY IN INDIA

(a) Subscriber Profile

2.1 In the period since 1999, i.e. since the notification of the TTO 1999, the CMTS (or "cellular") industry has witnessed changes in terms of both its size and competitive characteristics. From 1.14 million subscribers in 1999, the cellular industry now has almost 6.4 million subscribers. To a large extent, the changes witnessed by the cellular industry have been a result of the diverse price and service options made available by service providers, decline in the costs of the network, the policy to allow entry of additional service providers in the market, and the availability of pre-paid options to subscribers which combined flexibility of use with a possibility to maintain an upper limit on the overall expenditure by the subscriber.

2.2 The market for cellular subscribers is segmented between pre-paid and post-paid subscribers. As on March, 2002, out of a total of 6.0 million subscribers about 59% i.e. 2.4 million subscribers were post-paid subscribers. Pre-paid customers were about 3.5 million. Very few, i.e. only 2260 subscribers, were on the prevailing standard tariff package. The number of post-paid and pre-paid subscribers from September 2001 to March 2002 compared to the previous two quarters are given in Tables 2.1 and 2.2 below. Table 2.3 shows the small subscriber base for those on the standard tariff package in the same period.

Table 2.1: Subscribers on post-paid packages, September 2001 to March 2002

	Sep-01	Dec-01	Mar-02
Circle "A"	8,15,315	8,67,194	9,26,513
Circle "B"	3,97,057	4,19,674	4,63,265
Circle "C"	20,931	19,034	18,801
Metro	8,90,795	9,53,840	10,09,100
All India	21,24,098	22,59,741	24,17,678

Table 2.2: Subscribers on pre-paid packages, September 2001 to March 2002

	Sep-01	Dec-01	Mar-02
Circle "A"	7,46,552	9,21,283	11,36,217
Circle "B"	6,49,182	7,62,333	9,18,795
Circle "C"	1,39,732	1,77,325	2,04,212
Metro	8,88,156	10,48,534	12,87,920
All India	24,23,621	29,09,475	35,47,143

Table 2.3: Subscribers on standard tariff package, September 2001 to March 2002

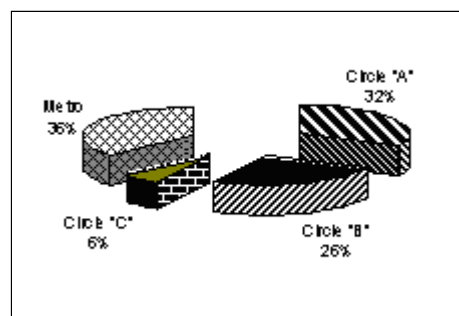
	Sep-01	Dec-01	Mar-02
Circle "A"	250	218	195
Circle "B"	66	52	51
Circle "C"	266	49	25
Metro	3,627	2,488	1,989
All India	4,208	2,806	2,260

Table 2.4: Proportion of Pre-paid subscribers in Total Subscribers, September 2001 to March 2002

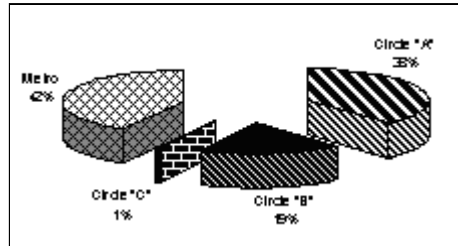
	Sep-01	Dec-01	Mar-02
Circle "A"	48 %	52 %	55 %
Circle "B"	62 %	64 %	66 %
Circle "C"	87 %	90 %	92 %
Metro	50 %	52 %	56 %
All India	53 %	56 %	59 %

2.3 The above Tables also show that Metros and Circle A have an overwhelming share in the overall CMTS market for both post paid and pre-paid subscribers. Another noteworthy feature is that in Circle C, the share of pre-paid subscribers is more pronounced (Table 2.4).

Graph 2.1: Market Share of Prepaid Subscribers as on 31st March 2002



Graph 2.2: Market Share of Postpaid Subscribers as on 31st March 2002



(b) Tariffs

2.4 This section shows the average tariffs based on the tariff plans reported to TRAI. Given the competitive nature of the market, it has been observed that a number of plans are reported to the Authority, but only a subset of these are targeted to the consumer i.e. actually are on offer in the market. Table 2.5 below gives the average monthly charges (i.e. equivalent of monthly rentals) and airtime charges for all subscribers, i.e. the estimate covers both the pre-paid and post-paid subscribers, as of March, 2002. The levels have been derived based on rental revenues and call charge revenues which in turn have been divided by subscriber base and total Minutes of Use (henceforth "MOU") for pre-paid and post-paid subscribers.

Table 2.5: Present Levels of Average Tariffs, March, 2002

	Monthly charges (Rs.)	Charge per minute (Rs.)
Metro	195	2.02
Circle A	253	1.43
Circle B	139	2.55
Circle C*	200	1.40
All India*	202	1.89

* Does not include one service provider, whose more than 90% subscribers are on pre-paid tariff package. If this service provider is included, the All India average becomes Rs. 196 for monthly rental and Rs. 1.94 per minute for airtime charge.

2.5 The previous analysis of the Authority was based on a consideration of the median values for metros, since adequate data was not available at that time. If we consider the median values for the prevailing tariffs, the estimates are as follows.

Table 2.6: Present Levels of Median Tariffs, March, 2002

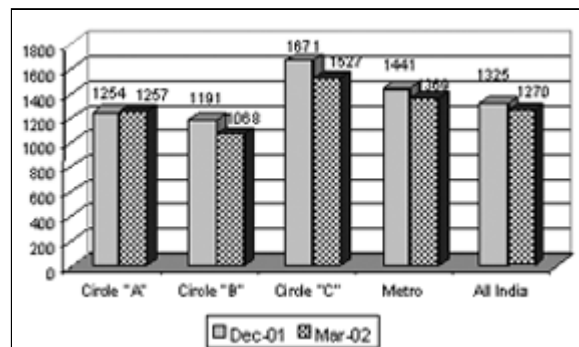
	Monthly charges (Rs.)	Charge per minute (Rs.)
Metro	241	2.01
Circle A	226	2.00
Circle B	145	2.75
Circle C*	200	1.40
All India*	195	2.03

* Does not include one service provider for whom, more than 90% subscribers are on pre-paid tariff package. If this service provider is included, the All India median becomes Rs. 177 for monthly rental and Rs. 2.19 for airtime charge.

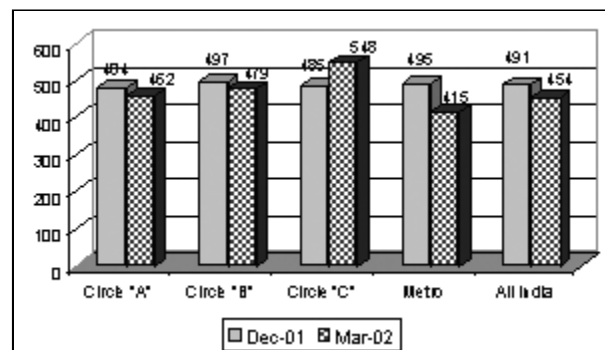
(c) Average revenue Per User (ARPU)

2.6 Given the fast changing nature of the cellular market, one of the key parameters for any market analysis is the ARPU. Graphs 2.3 and 2.4 below show the ARPU for pre-paid and post-paid subscribers in December 2001 and March 2002. It is noteworthy that there is a large difference between post-paid and pre-paid subscribers, with the ARPU for the former being almost three times that of the latter. This revenue estimate is net of the pass-through amount that is paid as toll charge to the PSTN service providers.

Graph 2.3 : Average Revenue Per User (ARPU) - Postpaid (Rs/month)



Graph 2.4: Average Revenue Per User (ARPU) - Prepaid (Rs/month)



2.7 The average revenue includes not only the revenues from rental and airtime charge but also from roaming and supplementary services, as well as installation/activation charges. For the country as a whole, this revenue other than rental and airtime charge amounted to an average of Rs. 155/- per subscriber, in March 2002. The average amounts for different Circles and for post-paid and pre-paid subscribers, are shown in Table 2.7 below. This average amount is about 20% per cent of the ARPU.

Table 2.7: Additional Revenue per subscriber (Revenue other than from monthly charges and airtime), March 2002

	Post-paid (Rs.)	Pre-paid (Rs.)	Total (Rs.)
Circle A	203	71	131
Circle B	218	75	123
Circle C	558	65	106
Metro	381	58	200
All India	283	67	155

2.8 Of these amounts, about one third is accounted for by roaming revenues. In March 2002, revenue from roaming service was about 6.65% of the overall revenue for CMTS, excluding pass through to PSTN. This varies from a low of 2.8% for Circle "C", between 5% to 6% for Circles "A" and "B", and about 8.5 % for Metros. For the nation as a whole, the average revenue stood at about Rs.52/- per user in March 2002.

(d) Implications for Regulatory Policy

2.9 The above trends point to three major issues which would need to be addressed in a tariff review:-

- a) The total number of cellular subscribers has witnessed phenomenal expansion, and there has been a considerable decrease in tariffs for CMTS service over time. The third operator has entered in some markets and is likely to enter in the near future in a number of other License areas. In several areas, there will also be a fourth CMTS operator, thus adding considerably to the competition in the market. In view of these developments, and the fact that regulatory intervention tends to decrease as the competitive pressure in the market increases, a relevant question is to examine the nature of tariff regulation that should be put in place for the CMTS.
- b) To the extent that regulation of tariffs does take place for CMTS, it would be worthwhile to consider whether there should be some clearly specified stages of regulation marked by different degrees of regulatory intervention. Or should tariff regulation from the beginning itself do away with specifying tariff levels and prescribe only price caps, by following CPI - X methodology, allowing major flexibility in tariffs offered by the service providers. Under the CPI - X methodology, the overall increase/decrease for a tariff basket is circumscribed by the percentage change in the consumer price index (CPI) minus X which is a specified percentage figure representing the effect of productivity gains.
- c) Another significant feature is that the Metros and Circles differ in terms of the subscriber profile and the market structure. There is also a difference in this regard within the Circle categories. A question would therefore arise whether to apply different types of tariff regulation and/or different tariff packages for metros and circles, or even between circles.

These aspects raise a number of questions for consultation, which are given below. Replies to these questions are sought, together with substantiated reasoning, as inputs in this Consultation Process.

1. In the light of the trends witnessed in the cellular sector relating to changing technologies, falling costs, consolidation and increasing competition, the last particularly due to the entry of the third and in some service areas the fourth operator, should the present mode of tariff regulation for cellular services be retained?

2. Should different methods of tariff regulation be adopted in different stages of cellular market development as it transitions to the stage of effective competition? If so, what should be the modalities of such stage wise tariff regulation?
3. Has the market reached a stage in which only a price cap regulation, say CPI - X methodology, will meet the regulatory requirements of monitoring and sustaining the development of markets?
4. Since there is significant difference in the market and operating conditions of various types of circles, such as A, B and C and also between circles and metros, should there be different tariffs for these circles?

3. Methodology for Tariff Determination

3.1 The estimates for monthly rental and airtime charge have been calculated based on the cost information provided by the service providers, the cost estimates that have been determined by TRAI on the basis of a normated approach, and taking account of the actually prevailing tariffs in the market.

3.2 Cost details were obtained from the service providers, which were verified and further modified on the basis of discussions with them. The endeavour has been to use a bottom up approach of using dis-aggregated or unbundled network costs, and to derive tariffs based on identifying the costs of network elements attributable to rentals and other costs such as operational costs that would be attributable to airtime charge. The information reported by the service providers was examined both in terms of deployment strategies as well as the expansion plans of cellular service providers. Based on the cost data, the Authority calculated the benchmark estimates for monthly rental and airtime charges

3.3 The capital costs taken into account are those given in the Annex as Tables 3.1 and 3.2, with its sub-tables. This information from service providers showed that the costs per subscriber vary considerably. Following detailed meetings with the service providers to get the needed clarifications, adjustments to the data were made on the basis of these discussions, including through revised and corrected data submitted by the service providers.

3.4 The operational costs were sought under the heads given in the Annex as Table 3.3. These costs were attributed to airtime charge. A consideration of the operational costs reported by the service providers also showed significant variation. These estimates were examined in the context of each Circle/Metro to obtain a reasonable benchmark figure for operational costs. The estimate taken for this purpose corresponded to the average value for operational costs as a proportion of capital costs. This was taken as a range of 20 to 35 per cent for the purpose of our calculations.

3.5 The estimate of monthly rental has been calculated by applying a factor of 22 % for the annual recurring expense (ARE), to convert the capital costs to annual costs. This figure is divided by the number of subscribers, to obtain a value for monthly rental. To this amount, the relevant License fee (revenues share) is added, i.e. 8 % for Circle "C", 10% for Circle "B", and 12 % for Circle "A" and Metros. A further amount equivalent to 2 % of the revenues is added to account for the spectrum charges, and this final figure is the estimated monthly rental amount shown in the next Chapter.

3.6 The estimate for airtime charge is calculated in per minute terms. The relevant costs, i.e. operational costs, are divided by the total number of minutes used, in order to obtain the airtime charge. For the purpose of this exercise same charge is applied to both incoming and outgoing calls. The airtime charge also includes the revenue share License fee and spectrum fee.

3.7 For both monthly rental and airtime charges, the cost base used is for the year 2001-2002. However, while considering incremental capacity that may be required for catering to additional subscribers in the next two years, the costs estimates for 2002-2003 are also taken into account, based on the reports from the service providers for their expansion plans. In this regard, it is noteworthy that the costs for cellular mobile have been declining over time, as is also shown by a normation exercise that has been conducted by TRAI to ascertain the cost based monthly rental with current costs and some moderation of the network to take account of efficiency consideration.

The following questions arise in the above context:

1. In the tariff exercise for the Telecommunication Tariff Order 1999, fully allocated current costs normated for optimal capacity utilisation was used. Should the same methodology be continued in the present exercise also? If not, what alternative costing methodology should be considered for adoption? For instance should incremental costs be used in view of the rapid growth that has taken place in the CMTS industry in the last few years?
2. In order to encourage subscriber growth it would be desirable to keep the rentals as low as possible. For this purpose, would it be appropriate to account for the entire license fee and spectrum charges in the airtime charge?
3. There are a number of joint and common costs, such as power plant, building, etc. which may be used for providing more than one service. This possibility could increase in the future, affecting costs and sources of revenues. At present, is there any need to take this into consideration, and if so how?

4. The Estimates for Monthly Rentals and Airtime Charge

4.1 Before embarking on an examination of the cost based estimates for monthly rental and airtime charge, it is worth recalling that the average estimates for the tariffs prevailing in the market (shown in Chapter 2) are about Rs. 200/- per month for monthly rental, and Rs. 2/- per minute for airtime charge. These estimates are calculated by taking post-paid and pre-paid subscribers together.

4.2 The cost based monthly rental and airtime charge have been calculated for a number of different situations. These estimates are in general based on costs for the year 2001-2002.

4.3 To begin with, we consider the estimates based on the data reported by the service providers. This cost basis provides us with the following figures as weighted averages for the various circles/metros as well as for the country as a whole.

Table 4.1: Average Monthly Rental and Airtime Charge Estimated for the Costs as Reported

	Monthly Rental (Rs.)	Airtime per minute (Rs.)
Metro	217	2.68
Circle A	381	2.96
Circle B	331	2.88
Circle C	410	3.98
All India	335	3.12

4.4 For an illustrative purpose, we also consider the median estimate based on the submitted costs. These are shown in Table 4.2 below.

Table 4.2: Median Monthly Rental and Airtime Charge Estimated for the Costs as Reported

	Monthly Rental (Rs.)	Airtime per minute (Rs.)
Metro	238	2.53
Circle A	393	2.42
Circle B	264	2.93
Circle C	357	3.32
All India	292	2.91

4.5 The average national estimate given above for airtime charge is close to another variant of cost based tariffs that were calculated for obtaining better insight into the cost allocation for monthly rental and airtime charge, namely:

- Monthly rentals based on costs attributable to capital and a portion of common costs allocated to the cost base for deriving rentals;
- Airtime charge based on the rest of the costs;
- The operational cost estimates are the moderated amounts that are taken as being representative for the circle/metro areas .

In this situation, the average monthly rentals for the country as a whole are Rs. 212 and airtime charge is Rs. 2.95 per minute.

4.6 If we compare the cost based estimates with those calculated on the basis of the actual tariffs prevailing in the market (shown in Chapter 2), we can see that the cost based estimates are higher. In this situation, another methodology for considering cost based tariffs is to take into account those service providers which have the lowest capital costs in each category, i.e. Circle A, B or C, and Metro. This is shown in Table 4.3 below. The estimate for All India is a weighted average of the relevant estimates.

Table 4.3: Average Monthly Rental and Airtime Charge Estimated for the Service Providers With The Lowest Capital Costs Per Subscriber As Reported

	Monthly Rental (Rs.)	Airtime per minute (Rs.)
Metro	202	2.53
Circle A	223	2.46
Circle B	207	1.81
Circle C	404	3.32
All India	218	2.40

4.7 The average monthly rental for the service providers with the lowest capital cost per subscriber is similar to that prevailing in the market in March 2002. The airtime charge, however, is somewhat higher. To some extent, this can be attributed to the fact that the cost based tariffs have been estimated to cover all the costs. In the market place, the service provider has greater flexibility because he can obtain revenues from sources in addition to monthly rentals and airtime charge. For example, as shown in Chapter 2, the average revenues from supplementary services (including roaming) were Rs. 155 per subscriber, for the country as a whole. This implies that in the standard tariff package, there is a possibility of having rentals and airtime charge estimates lower than those calculated to cover all the costs.

4.8 We have also considered another cost based estimate with two amendments. One is to reflect additional capacity installation, and another to consider moderated operational costs. The costs of additional capacity installation were taken for those service providers which had a high level of capacity utilization and would require additional capacity in view of their expected increased subscriber base. These revised costs give us estimates for rental and airtime charge closer to those shown by the market, i.e. for the country as a whole, the estimates are Rs. 220/- for monthly rental and Rs. 2.25 per minute for airtime charge.

4.9 In view of the additional revenues earned from supplementary services, there is a rationale to determine the standard monthly rental and call charge per minute taking into account the prevailing tariffs in the market.

4.10 Based on the data for prevailing tariffs, an illustrative exercise simulating three different situations was carried out. These are outlined below:

- (a) Zero monthly rentals. In this situation, the airtime charge has been calculated in a manner so that it alone accounts for the revenues otherwise earned from rental and airtime (i.e., a monthly rental of zero is presumed). This national average airtime charge is Rs. 3.11 per minute.
- (b) Monthly rentals of Rs. 200. In this situation, the national average airtime charge for the country is Rs. 2.15 per minute.
- (c) Airtime charge of Rs. 2 per minute. In this situation, the corresponding national average monthly rental amounts to Rs. 220.

These estimates are based on prevailing minutes of use per subscriber per month. Changes therein would result in changes in the above estimates.

4.11 The different estimates discussed in this Chapter are based either on the costs for the year 2001-2002, or on the prevailing tariffs in March 2002. The Authority is of the opinion that costs are likely to reduce over time, due to both a decline in equipment costs and an increase in the subscriber base.

4.12 This is also indicated, for example, from the Authority's calculation of normated estimates of monthly rentals based on efficient configuration for the network, and taking the present prices for the network elements into account. For normation, the subscriber base available for different cities in certain circles was taken on an actual basis, as was the BTS and roll out of the network. In the case of BTS, while the actual numbers were left unchanged, normation was carried out by applying current prices for the equipment, for different configurations. Further, normated network design was attempted for other elements including the MSC, BSC and the transmission system, so that the consumer does not pay for idle capacity available due to inefficient network designing. In a way, this becomes an efficient network design for the different circles that are covered in the exercise, for the given subscriber base and the extent of roll out of the network in that circle. To this normated physical configuration, current prices were applied to obtain present, efficient cost estimates. Detailed analysis was conducted regarding technical and cost estimates, to arrive at the normated figures for monthly rental.

4.13 The monthly rental that emerges from the normation exercise is about Rs. 140. The prices used for this purpose have been validated from another data source, namely the prices at which a new service provider has recently ordered its equipment for CMTS. Thus, in the next few years, the cost based rentals are likely to move through the competition process towards the normated estimates.

4.14 This rental estimate, however, does not give an indication of the other costs borne by service providers, including for example, the costs of entry fee. To the extent that the standard tariffs are set at a level which reflects the prevailing tariffs in the market, this aspect would therefore need to be addressed. Thus, as standard monthly rentals and airtime charge, it is possible to consider estimates of Rs. 200 and Rs. 2 per minute, respectively.

4.15 However, some further analysis would be needed to reach a conclusion on this point. Take for instance, the data on average minutes of use that prevails in different circles/metro areas (Table 4.4 below).

Table 4.4: Average Minutes of Use Per Subscriber Per Month, March 2002

	Post-paid	Pre-paid	Total
Metro	387	85	218
Circle A	457	97	282
Circle B	287	100	163
Circle C	290	85	103
All India	394	93	220

4.16 These estimates show that with an average monthly rental of Rs.200, and an airtime charge of Rs. 2 per minute, the overall ARPU levels for metro and Circle "A" may be close to the present ARPU. However, the situation for Circles "B" and "C" would not be similar, and may therefore require a consideration of another level for standard tariff.

Questions for Consultation

1. What should be the basis for arriving at cost based rentals i.e. should all capital costs incurred in rolling out the network be attributed to rental or should a part of both capital costs (capex) and operational costs (opex) be attributed to rentals? If the latter, then on what basis should the network elements be apportioned to the two heads?

- 2 A monthly rental of Rs. 200/- and airtime charge of Rs. 2/- per minute appears feasible taking into account the revenues coming from roaming and other supplementary services. In view of this and considering that this source of revenue is likely to grow quite fast, is there room for further reduction in monthly rentals and/or airtime charges, i.e. below Rs. 200/- per month for rental and Rs. 2/- per minute for airtime which may form part of the standard tariff package?
- 3 The situation with respect to Metro and "A" Circles on the one hand and "B" and "C" Circles on the other differ substantially. Should there be different tariff approaches in the two situations?
- 4 Many CMTS operators are sharing infrastructure such as backhaul facility with each other. This certainly has a bearing on costs. What would be the best way to estimate and incorporate it in the analysis for determining standard tariffs?
- 5 CMTS operators are to be allotted additional spectrum depending upon their subscriber base. This will have effect on future roll out of the network, and on the cost viability. How should this be factored into the tariff analysis?
- 7 Optimum capacity utilization for different network elements is affected by different factors. What factors should be taken into account to determine optimum capacity utilization? What should be the benchmarking for optimum capacity utilization for each of the network elements?

ANNEX

Table 3.1: SUMMARY OF VARIOUS COST ELEMENTS OF CELLULAR MOBILE NETWORK IN A CIRCLE
(Rs. Lakhs)

S.No	Cost elements	Unit	Existing network			Expansion Plans by March 2002			Expansion Plans by March 2003			Expansion Plans by March 2004		
			Qty.	Unit Rate	***Current Total cost	Qty.	Unit Rate	Forward looking Total cost	Qty.	Unit Rate	Forward looking Total cost	Qty.	Unit Rate	Forward looking Total cost
1	MSCs	Nos.												
2	*Transmission systems between MSCs and BSCs - Capacity - No. of subscribers - BHCA	Route kms.												
3	BSCs	Nos.												
4	*Transmission systems between BSCs and BTSs	Route kms.												
5	BTSs**	Nos.												

6	*Transmission systems between MSCs and NLDO TAXs	Route kms.												
7	*Transmission systems between MSCs and PSTN	Route kms.												
8	*Transmission systems between Intra-operator MSC to MSC	Route kms.												
9	*Transmission systems between Inter-operators' MSCs to MSCs	Route kms.												

*Please specify breakup of the Quantity and Total cost as per the media utilised for Transmission system like OFC/MW

** City wise break up of No. of BTSs may be included.

*** Current cost is to be taken as if this cost element is to be installed as on date

Note: The Service Provider should give a coverage map indicating existing MSCs, BSCs and BTSs. They should also include the details of future planned network upto year 2004 . The details of future planned network may be indicated in different colours.

Definitions:

Current Cost: costs are calculated on the basis of current prices for current estimates of the various cost-components.

Forward Looking Cost: costs are prospective costs a firms would incur in producing a service using the most efficient

technology and production practices. Costs are valued at current prices.

Table 3.2.1 : BREAK UP OF MSC Cost*

Location _____

S.No.	Cost Elements	Unit cost	Qty.	Total cost (in lakhs)			
1	Capacity						
2	Transcoder equipment (TRAU)						
3	MSC including OMC-R, OMC-S, HLR, Voice Mail server, DDF, EIR and Echo cancellerIN Platform / VAS						
4	Billing Server including X.25 Billing						
5	SMS Server						

6	Power Plant including Rectifier, Charge over equipment, Voltage Stabiliser and Battery sets, Earthing						
7	Land & Building #						
8	Airconditioning, Electric Cables and D.G. set						
9	Test Equipments, Tools & Plants						

* Separate sheet may be provided for each of the MSC location. Separate sheets may also be provided for planned MSCs in future for the year 2001-02, 2002-03, 2003-04.

Please provide the apportioned cost to MSC in case other facilities are using the same Land & Building

3.2.2: BREAK UP OF BTSs Cost

S.No.	Name of City	No. of BTSs	Unit cost	Total Equipment Cost (Rs. in lakhs)	Land & Building Cost # (Rs. in lakhs)	Power plant including Rectifier, Equipment, Voltage Stabiliser and Battery sets including earthing Cost (Rs. in lakhs)	Electric cables, D.G. set and Airconditioning Cost (Rs. in lakhs)	Total Cost (Rs. in lakhs)

* Separate sheets may also be provided for planned BTSs in future for the year 2001-02, 2002-03, 2003-04.

Please provide the apportioned cost to MSC in case other facilities are using the same Land & Building

3.2.3: BREAK UP OF BSCs Cost*

Location	Capacity in terms of E1s		Capacity in terms of No. of BTSs		Nos. of BSCs	Equipment Cost (Rs. in lakhs)	Land & Building Cost # (Rs. in lakhs)	Power plant including Rectifier, Equipment, Voltage Stabiliser and Battery sets including earthing Cost (Rs. in lakhs)	Electric cables, D.G. set and Airconditioning Cost (Rs. in lakhs)	Total Cost (Rs. in lakhs)
	Max. Capacity	Capacity Utilised	Max. Capacity	Capacity Utilised						

*Separate sheets may also be provided for planned BSCs in future for the year 2001-02, 2002-03, 2003-04

Please provide the apportioned cost to MSC in case other facilities are using the same Land & Building

3.2.4: BREAK UP OF MSC-BSC/BSC-BTS/MSC-NLDO TAX/MSC-PSTN/INTRA OPERATOR MSC-MSC/INTER OPERATOR MSC-MSC TRANSMISSION SYSTEM COST*

Route kms	Microwave Equipment including wave guide, feeder cable and dish (Rs. in lakhs)	Tower installation including foundation and accessories (Rs. in lakhs)	Land and Building # (Rs. in lakhs)	Power plant including Rectifier, Equipment, Voltage Stabliser and Battery sets including earthing Cost (Rs. in lakhs)	Electric cables, D.G. set and Airconditioning Cost (Rs. in lakhs)	Total Cost (Rs. in lakhs)

Route kms	Unit Cost	OF cable including cable accessories, installation materials, cost of trenching and back filling, right of way, route survey, regenerator, network manager (Rs. in lakhs)	Terminal equipment including line control terminal, DDF and installation (Rs. in lakhs)	Land and Building # (Rs. in lakhs)	Power plant including Rectifier, Equipment, Voltage Stabliser and Battery sets including earthing Cost (Rs. in lakhs)	Electric cables, D.G. set and Airconditioning Cost (Rs. in lakhs)	Total Cost (Rs. in lakhs)

* Separate sheets may also be provided for planned Transmission systems in future for the year 2001-02, 2002-03, 2003-04. Separate sheet may be provided for break up of MSC-BSC/BSC-BTS/MSC-NLDO TAX/MSC-PSTN/INTRA OPERATOR MSC-MSC/INTER OPERATOR MSC-MSC TRANSMISSION SYSTEM Cost*

Please provide the apportioned cost to MSC in case other facilities are using the same Land & Building

3.2.5: DOMESTIC LONG DISTANCE TRAFFIC DATA REQUIREMENT FROM CMTS FOR THEIR LICENSED SERVICE AREA (SAMPLE FOR ONE MONTH)

I. NUMBER OF METERED CALLS AND TRAFFIC IN THE INTRA CIRCLE NETWORK

SLAB DISTANCE	METERED CALLS	ERLANGS

II. NUMBER OF METERED CALLS AND TRAFFIC IN THE INTER CIRCLE NETWORK

SLAB DISTANCE	METERED CALLS	ERLANGS

3.2.6: TECHNICAL AUDIT OF GSM NETWORK DESIGN

Name of the Company:

Name of the Circle/Metro:

Circle category:

Year	City	Traffic during peak hours			Average Traffic per hour			System loading (Erlgs/Sub.)	
		Out Going	In Coming	Total	Out Going	In Coming	Total	Peak hour	Average
1999									
2000									
As on 30.6.2001									

3.2.7: Diagram - 1: Block Schematics and Trunking Diagram from MSC to PSTN

3.3: FORMAT FOR DATA REQUIRED FROM CELLULAR OPERATORS

	Actuals			Latest Projections		
	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
1. NETWORK CAPACITY (erlang)						
Opening Capacity						
Closing capacity						
2. NUMBER OF SUBSCRIBERS						
Opening Subscribers						
Closing Subscribers						
Average Subscribers						
3. CAPACITY UTILISATION (%)						
Subscriber						
Erlang						
4. SOURCES OF FUNDS						
Debt (Rs. Lakhs)						
Equity						
Others (Please specify)						

5. AIRTIME USAGE (MINUTES) (000')						
A) OUTGOING						
(a) Airtime-Mobile To Mobile						
-Mobile To PSTN (Local)						
-Mobile To NLDO (intra-circle)						
-Mobile To NLDO (inter-circle)						
(b) Pass through						
B) INCOMING						
(a) Airtime-Mobile To Mobile						
-PSTN (Local) To Mobile						
-NLDO (intracircle) To Mobile						
-NLDO (intercircle) To Mobile						
(b) Pass through						
6. REVENUE (Rs. Lakhs)						
Airtime Revenue						
- Incoming Calls						
- Outgoing Calls						
Rental Revenue						
Roaming Revenue						
Connection/Activation fee						
STD & ISD Revenue collected beyond airtime						
STD & ISD Revenue passed on to other operators out of above						
Revenue from supplementary and value added services						
Anyother Revenue (please specify)						
ARPU (Rs.)						
7. CAPITAL EXPENDITURE (Rs.lakhs)						
Network Setup Costs						
Network Expansion Costs						
Preoperative Expenses as Capitalised						
Shared assets if any(% of its utilisation attributable to this network)						
License fee capitalised						
Others (Please specify)						
8.REAL ESTATE COSTS (Rs. Lakhs)						
Company Owned Premises-Capital Expen.						
Leased Premises-Annual Lease Rent						
Shared assets if any(% of its utilisation attributable to this network)						
Others (Please specify)						
9. LICENCE FEE (Rs. Lakhs)						

Penalties paid (if any)						
Others (Please specify)						
10. PSTN PASS THROUGH CHARGES (Rs. Lakhs)						
11. OPERATING COST AS PER P&L ACCOUNT (Rs. Lakhs)						
Salary, wages and other allowances #						
Non salary expenses #						
Human Resources development - Recruitment, training etc.						
Network Management/Network Maintenance						
Directory and operator services						
Rent of buildings #						
Insurance #						
Service Tax						
Electricity and Fuel charges #						
- Office #						
- Network Equipment						
Repair and Maintenance						
- Plant and Machinery						
- Office premises #						
- Vehicles #						
- Others (please specify) #						
Spare inventory						
Telephone charges						
Printing and stationery #						
Postage #						
Travel Expenses #						
Freight #						
Billing and customer care						
Business promotion and marketing, exhibitions #						
Bad debts						
WPC charges						
- Licence fee						
- Microwave						
- CMTS royalty						
- CMTS licence fee						
Interconnection charges						
- Port charges						
- Leased line charges						
- other interconnection charges						
Meetings/Entertainment #						
Other operating Expenses (Please specify)						
12. PREPAID OVER THE COUNTER						
SALE OF SIM CARDS/CASH CARDS						
Number sold						
Value (Rs. Lakhs)						
Other Income (please specify sub heads)						

13. INTEREST # (Rs. Lakhs)						
14. DEPRECIATION # (Rs. Lakhs)						
15. PROFIT BEFORE TAX						
16. PROFIT AFTER TAX						
NET PROFIT(Rs. Lakhs)						
17. MARKET SHARE						
(% in area of operation)						

costs attributable to Mobile Operation only

Explanatory Notes:

1. Closing capacity refers to the capacity at the end of the accounting period
2. ARPU is the average revenue per user per year. Please specify the elements of revenue included in the calculation of ARPU.
3. Please provide information for postpaid and prepaid separately