

**M.S. VERMA**

Chairman

TELECOM REGULATORY AUTHORITY OF INDIA



DO No.38 /CP/TRAI-2000

18th December, 2000

Dear Shri Ghosh,

Subject: **TRAI recommendations on the issue of Fresh Licences for Public Mobile Radio Trunking Service (PMRTS).**

This refers to the Department of Telecommunication's letter No.311-79/99-VAS dated 28.4.1999 requesting the TRAI, for recommendations on (a) the basis of selection of additional operators; (b) the basis for determining the entry fee; (c) percentage of Revenue to be shared with the licensor and defining revenue for the purpose; (d) the appropriate level of Licence Fee for the extended period of the licence in respect of existing licences; (e) any other issue considered relevant.

Following DOT's request for recommendations, TRAI prepared a detailed paper for public consultation. Consultations have indicated that under the existing licensing regime, PMRT Service is unlikely to achieve the kind of growth that it should, and its role in the development of telecommunications in the country will remain quite limited. The licence conditions appear to be restrictive and not conducive to stimulate the desired growth of the PMRTS for CUG Network. Most PMRTS networks have so far failed to realize their full potential. We are therefore of the view that to improve the situation, radical steps will have to be taken to increase the utility of PMRT Service. This can be achieved by enhancing the scope of the PMRT Service by enlarging the Service Area, reducing licence fees to a level which can be easily borne by the service, permitting limited interconnect

with PSTN & enabling the usage of spectrum-efficient digital technology to achieve the benefit of value added features and smaller size & lower costs of subscriber handsets.

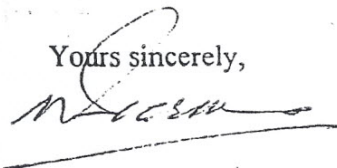
In a vast country like ours, where there is a large number of Closed User Groups consisting of people and vehicles on-the-move requiring to be contacted for operational efficiency, the role and importance of PMRTS can not be overemphasised. The urgent need to encourage growth of PMRTS has, therefore, been the basis for the recommendations which are placed at Annexure-A. It is expected that the enhanced utility of the service will lead to higher usage and revenue generation, thus, giving much needed fillip to the growth of this versatile and cost-effective means of communication for the people on-the-move.

I am also forwarding with this letter the discussion paper which was prepared for public consultation and a summary of responses/suggestions received by us in the course of our public consultation. These are placed at Annexes 'B' and 'C' respectively. Should the DOT need any details or further clarifications, TRAI will be happy to provide them.

The recommendations along with the text of this letter have been placed today on the TRAI's website ([www.trai.gov.in](http://www.trai.gov.in)) for public information.

With kind regards,

Yours sincerely,



(M.S. Verma)

Shri Shyamal Ghosh,  
Secretary,  
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**Telecom Regulatory Authority of India**

**Subject: Recommendations of TRAI on licencing  
issues relating to Public Mobile Radio  
Trunking Service Providers (PMRTSPs)**

**A. CONTEXT OF RECOMMENDATIONS:**

The Department of Telecommunications made a reference to TRAI in April, 1999 seeking recommendations from the Telecom Regulatory Authority of India regarding the entry of additional Public Mobile Radio Trunking service providers (PMRTSPs) in the country and for the extended period of licence in respect of the existing licencees. The recommendations have been sought on the following specific issues:

- a) The basis of selection of additional operators.
- b) The basis for determining the entry fee.
- c) Percentage of Revenue to be shared with the licensor and defining revenue for the purpose.
- d) The appropriate level of Licence Fee for the extended period of the licence in respect of existing licences.
- e) Any other issue considered relevant.

2. While processing the case for making recommendations, TRAI noted that the present customer base is much below the requirements of financial viability for most of the PMRTS operating networks. It was also observed that a large number of licensees have not commenced services at all and the operations of most PMRTSPs who have commenced services do not seem to be commercially viable. This naturally raises serious questions regarding the present content and mode of delivery of this service. In a diverse and growing economy like ours, this service which has established a niche market globally, should normally, be able to do the same in our country also. There is obviously a deeper reason for its failure to attract customers apart from the

failure of the existing service providers to effectively market this service. This background has been kept in view while framing these recommendations.

3. A study of the operations of the PMRT service providers and the discussions at the open houses conducted for eliciting public opinion on this service have revealed some problems related to it. Briefly stated these are the following:-

1. The service falls short of customer's expectations in scope. This is largely because interconnection between different operators and with the PSTN is not permitted, as per existing terms and conditions of license.
2. High price of subscriber units, as well as bulky handsets.
3. Too restrictive a definition of service areas. Service areas of PMRT service operators are not even co-terminus with that of local call charge area of PSTN, whereas for CMTS, which is an analogous service, it is much wider.
4. The existing PMRT networks employ analogue technology, offering lesser features and facilities to the customers especially in regard to tele-services relating to data communication.

## **B. Recommendations:**

### **B.1 Service area and its categories:**

The present service area of the PMRT service operators in all metros as well as the cities has been found to be rather small and, therefore, too restrictive to meet the needs of customers subscribing to the PMRTS. The licensed service areas of the PMRT operators do not even cover the local charging area i.e. upto 50 km. of PSTN. Such a restrictive definition is one of the most important reasons put forth for the service not proving attractive to the target customer group. We would therefore like to examine this issue i.e., area of coverage of PMRTS in some depth in the following paragraphs:



Considering that it is natural for the satellite towns of a metro city to have community of interest amongst themselves as well as with the Central Business Districts of the metro cities, we would like to enlarge the scope of this service to cover the metro and its satellite towns. A Closed Users Group (CUG) would have a strong community of interest in this entire area. On similar basis the service area of CMTS for metro cities have the satellite towns included as part of a homogenous area. Therefore, we find no reason to adopt a different basis for PMRTS which provides similar service as CMTS to a Closed User Group. TRAI is, therefore, of the opinion that redefinition and some enlargement of the service area of the PMRT Service providers will render the service more useful to customers and thereby promote its growth in the country. Accordingly, it is recommended that the service areas for PMRT service providers be redefined as under:-

- i) **Metropolitan Cities:** The service areas in the Metropolitan cities namely Delhi, Mumbai, Calcutta and Chennai should be enlarged to include urban agglomeration of these cities or 50 Kms. radius from the main base station site, whichever is greater. The respective licenses may specify the area suitably on the basis of the principle enunciated above.
- ii) **Other areas:** For all other cities the service area of PMRT service providers should extend to the municipal limits of the city plus a distance of 10 Kms. beyond the municipal limits.

A definition as above would keep the delineation of the service areas simple and make these broadly co-terminus with the areas covered in metros by a CMTS. We believe that by enlarging the service area, more customers would be attracted to the PMRTS market, which in turn will improve its financial viability.

## **B.2 Entry of additional operators:**

### **B.2.1 Basis of selection:**

Going by the principle that competition is in the best interests of the consumer, the TRAI would prefer to let the market forces determine the number of PMRT service providers in any service area subject to the limitation imposed by the quantum of frequency spectrum available for this service. The TRAI is also of the view that the market is self-limiting and will determine the number of players. As such, it would not like to limit competition artificially.

### **B.2.2 Exclusion of non-serious players from the Market:**

Although, in the interest of promoting competition, the TRAI would not like to prescribe any entry fee in this area, it strongly believes that steps are required to be taken to eliminate non-serious players. This can be done by stipulating suitable Roll Out Obligations for the service providers and ensuring that failure to meet these Obligations leads to penalties ending in the cancellation of the licence and withdrawal of permission to use frequency spectrum. Therefore, to eliminate non-serious players, the TRAI recommends that the license should contain strict conditions obliging the service provider to cover the entire service area within one year of the issue of licence. The performance of the Roll Out Obligation will have to be backed by a Bank guarantee of Rs. 10 lakh for licenses covering Metros and Rs. 5 lakhs covering Other Areas, which will be invoked in the event of the service provider failing to fulfil his obligations. Non-fulfilment of the Roll Out Obligation will initially result in a penalty of Rs. 1,000/- per week of delay or part thereof upto a maximum of Rs. 25,000. Non-fulfilment of Roll Out Obligation after 25 weeks of delay will lead to cancellation of the licence and forfeiture of the Bank guarantee.



### **B.3 Entry Fee:**

In terms of the existing licence conditions, there is at present, no requirement of Entry Fee. Having made a provision in these recommendations for a Bank guarantee to eliminate non-serious players, TRAI is of the view that no separate Entry Fee need be stipulated for the new entrants.

### **B.4 Rollout obligation and release of Bank Guarantee:**

The Bank guarantee for fulfilment of the Roll Out Obligation provided by a PMRT Service provider will be released on successful completion of the Roll Out in accordance with the terms of the license. As stated earlier, for delays in commissioning of service, penalty is to be prescribed. Non-fulfilment of Roll Out Obligation even after the maximum margin of delay permissible i.e. 25 weeks, will lead to forfeiture of the entire bank guarantee and may result in cancellation of the licence. The already existing PMRT service providers also will be subject to similar Roll Out Obligations, which they will be required to fulfil. The Obligation of the existing service providers in respect of Roll Out will cover the extended part of the service area resulting from its redefinition as per these recommendations. It is clarified in this context that for the existing operators acceptance of the enlarged service area will be optional. However, once they exercise the option in favour of the enlarged service area their obligations for Roll Out in the entire area will be the same as that of a new service provider whose license itself would entitle him to operate in the enlarged service area.

### **B.5 Licence fee and the Basis for its determination:**

At present the licence fee for the PMRT service is as under:

An annual licence fee @ Rs. 600/- per mobile/fixed terminal subject to a minimum of Rs. 50,000/-

A separate Royalty is required to be paid to the Wireless Planning and Coordination Wing of the Ministry of Communications for utilization of appropriate Radio frequencies at prescribed rates as revised from time to time.

The current licence fee has been found to be heavy and in the opinion of the service providers as well as the users, is impeding the growth of the service. We, therefore, would like to recommend a reduction in this fee to facilitate the growth of this service.

Considering the present rather weak economic viability of this service, the TRAI recommends that the licence fee has to be very low so that it does not add in any significant manner to the cost of the service and thereby impedes its growth. A revised licence fee is, therefore, to be prescribed for both the handsets as well as for the radio channels. The licence fee payable is proposed to be not more than 5% of the gross revenue from the service, which will be utilised for contributions towards USO. It is also recommended that the level of licence fee now being recommended may be left unchanged for the next five years even if within this period the estimate of USO requirements is revised upwards. The position may, however, be reviewed after five years by when it is expected that the viability of the PMRT Service would improve substantially with the proposed changes in the licence conditions.

While, it would be simpler to prescribe the licence fee for PMRT service as a percentage of revenue, TRAI is of the view that administration of such a licence fee regime, may pose problems to the licensor. Licence fee on per subscriber basis is likely to make it easier for the licensor to levy the fee due from the licensee. It would also make realisation of the fee from users of captive licences easier. It is, therefore, recommended that the present license fee structure which is on per subscriber basis be continued subject to the following modifications:



- Rs. 300 per annum per terminal with a minimum of Rs. 25,000- per annum.
- The Royalty payable for the radio spectrum should also be substantially reduced. It is understood that the Government is already considering reduction in the financial burden on the PMRTS operators caused by the Royalty for the spectrum, TRAI would recommend that the revision be expedited so that the problem is addressed urgently. The licence fee and the Royalty for spectrum together should work out to not more than 5% of the revenue assuming a loading of about 90 subscribers per radio channel and a monthly average airtime revenue of Rs. 800/--900/-.
- The definition of revenue will be the same as already given in TRAI's recent recommendations in respect of other service providers viz. N.L.D operators, fixed service providers and VSAT service providers. TRAI considers that to be a common definition for all service providers unless it states otherwise in any specific case.
- While the new service providers will pay this licence fee during the entire period of their licence, for the existing service providers this will be for the extended period of the licence.

#### **B.6 Other issues considered relevant:**

**B.6.1 Technology:** The TRAI has observed that all present licensees are using analogue technologies which are not spectrum-efficient and do not provide for tele-services relating to data communication. Efforts, therefore, need to be made to ensure transition of the current licensees to spectrally efficient digital technologies based on open protocol. Such state of the art technologies will enable the service providers to offer a large number of tele and supplementary services to the customers to improve their financial viability. It will also permit standardisation of the handsets resulting in cost

reduction. Therefore, the new licencees should be asked to deploy technologies with open protocol.

**B.6.2 Incentives to the existing service providers for transiting to new technology :** TRAI is of the view that use of analogue technology is coming in the way of the growth of the service. It would, therefore, like to recommend that effective steps be taken to facilitate and incentivise transition of the services offered by the existing service providers from their analogue technology to standard digital technologies. Accordingly, it recommends that for the existing PMRT service providers who have already rolled out their networks using analogue technologies, incentives should be provided in the form of reservation of a minimum number of additional radio channels, say 20 for each licensee so that they transit to standard digital technologies within a period not exceeding two years from their acceptance of new licence conditions.

### **B.6.3 Interconnectivity**

Lack of interconnectivity with PSTN and inter-site connectivity is yet another reason which has limited the value of the service for the users and has been a restricting factor in its growth. TRAI, therefore, considers it desirable to remove these restrictions to improve the utility and acceptability of this service. NTP 99 also provides that direct interconnectivity between the licenced PMRT service providers and other types of service providers in their area of operation may be permitted after examining the legal implications. At that time exclusivity contained in the licence conditions of the mobile services operators needed to be kept in view in taking any such decision. Since then however, CMSPs have migrated to revenue sharing regime and therefore a review of this policy is called for.

However, considering the nature of the PMRT services such an interconnectivity can neither be unlimited nor unconditional. This is so mainly because PMRT service is primarily a Closed User Group (CUG) service and is meant primarily for exclusive intra-network communication. Quality



considerations are also important and one has to keep in view that unrestricted interconnectivity with PSTN will seriously degrade the service within the Closed User Group. TRAI, therefore, recommends that interconnectivity may be permitted to the PSTN subject to the following restrictions:

**Interconnectivity with PSTN :**

- PMRT service providers both existing and new should be allowed interconnection with PSTN mainly to meet the requirements in situations of emergency faced by the subscribers.
- Such interconnection will be optional for the PMRT service providers.
- Total permitted usage of such interconnection in a month should not exceed 15% of total airtime usage of the network during the previous month. The technical details of the mechanism to implement this and the mechanism for checking the same should be examined and standardised by the Telecom Engineering Centre and stipulated in the Licence Agreement.
- It will be the responsibility of the PMRT service providers to ensure the quality of service within the PMRT network for intra-network calls. Failure in this regard including that on account of connectivity with the PSTN will make them subject to penal provisions including cancellation of the licence. Such a provision should be incorporated in the Licence Agreement.

**Inter-site connectivity:**

Inter-site connectivity will make the entire service area a single system and provide increased coverage and thus an enhanced market. In case of digital technology for PMRT Service, which is more spectrally efficient and provides greater range of tele and supplementary services, inter-site connectivity is an inherent requirement for optimal engineering of the network. TRAI, therefore, recommends that inter-site

connectivity should be permitted to PMRT service providers between their own sites within the licensed area.

**B.6.4 Redefinition of service area:** As has been recommended in earlier sections, redefinition of service area and its enlargement both in metros as well as in other cities is considered very desirable in the interest of increased utility and acceptability of this service. In this context yet another area in which this service can prove its worth is the area of highway communications. Radio Trunking is ideally suited for transport companies and those who own or operate fleet of transport vehicles and depend upon the use of highways. The existing system is, however, of limited usage for this segment without highway connectivity as the present method of defining this service area is based on Base Station Location and city limits. In its present form, therefore, PMRT services cannot serve this potentially lucrative segment of customers effectively and thereby are forced to lose it. As a result an important market need for communication in a crucial commercial sector remains unfulfilled. In view of this, TRAI is of the view that in addition to redefining the existing service areas as per para B.1 above, new types of service areas may also be defined for PMRT services along the highways.

**B.6.5 Captive Licences:** Users of Captive Licences are at present not paying any licence fee. In order to encourage efficient spectrum utilization, TRAI is of the view that all PMRT licencees including those using Captive Mobile Radio Trunking Service should pay a licence fee. Such licence fee would need to be based on spectrum allocations and area served. TRAI is of the view that the same fee as paid by PMRT service providers should be payable by the Captive licencees of Mobile Radio Trunking Service as well. This condition, however, should not be applicable to captive licences where such captive service is considered necessary in public interest such as Police and Government security. TRAI is of the view that licences without licence fee not only have a negative effect on the economic viability of service provider's operations but also result in inefficient utilization of the available radio spectrum.



#### **B.6.6. Frequency Spectrum Requirement:**

As per the present licence conditions, frequency allotment is done keeping in view the analogue network wherein five frequency pairs (including the control channel) of 25 KHz each are allotted to each operator initially and additional channels are considered for allotment in case per channel usage reaches 90% of the stipulated capacity of 90 mobiles per radio channel. This procedure of frequency allocation permits availability of a total of 240 frequency pairs in 800 MHz and 160 more in a 300 MHz band, a capacity to serve about 36,000 mobile subscribers in a given service area.

There is a global trend towards shift to spectrum-efficient digital system operating in 800 MHz band for PMRTS, which also provides more value added features in addition to a substantial reduction in the weight and cost of the subscriber unit. The shift to digital technology will require larger number of channels per operator. For an initial network rollout, about 40 channels are required to make the investment in digital technology attractive. For this purpose, as per NFAP 2000, additional 3 MHz spectrum has been allocated for digital PMRTS systems in 811-814 MHz band, which can initially permit 3 new operators to enter with digital technology. In addition, at least some of the existing operators using analogue technology in 800 MHz band will also be able to migrate to the digital technology and require extra channels for the migration, out of a total of 6 MHz available for analogue PMRTS.

In the above scenario, it would be possible initially to add 3 new operators with digital technology and permit migration of 4-5 of the existing service providers with analogue technology to digital technology. With the increased spectrum efficiency of digital systems, it would be possible for each operator to service around 11,000-12,000 subscribers each given an initial allotment of 40 channels. These service providers amongst themselves should be able to

service up to about 1,00,000 subscribers using digital technology in a single service area.

The allocation of bands between the PMRT service providers and the captive licencees will also have to be monitored and where necessary coordinated carefully so that most efficient utilization of the available spectrum is ensured in all service areas.

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