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D.O.No.CP/4-61 /416-1/2001-FN

12<sup>th</sup> November, 2001.

Dear Shri Ghosh,

Subject: TRAI recommendations on the issue of opening up of International Long Distance Telephone Service for private participation.

This refers to the Department of Telecommunication's letter No. 10-19/2001-BS-I dated 12<sup>th</sup> March, 2001, requesting the TRAI, for recommendations on issues relating to licensing of International Long Distance Telephone Service including terms and conditions of the license, number of players in this field, selection criteria and license fee structure.

2. 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 the various issues connected with the opening of International Long Distance Telephone Service for private participation. Inputs from various stakeholders were solicited. Open House discussions were held at four metropolitan cities Mumbai, Kolkata, Chennai and Delhi to obtain view of the general public. TRAI received very useful inputs from the different stakeholders viz. consumers, consumer's organizations, service providers, organization of service providers and financial institutions. All these inputs have been duly considered by TRAI, before finalising its recommendations on the subject. A synopsis of the different views expressed/suggestions made to the TRAI has been prepared which appears as annexure "C" to this letter.

3. We are forwarding with this letter the recommendations which cover different aspects of the ILD services such as degree and mode of competition, scope of ILD services, selection criteria for the prospective licensees, license fee structure, license period, roll out obligations, inter-connection of the ILD networks with the other networks, access to bottleneck facilities, network engineering options and quality of service.

4. Notably TRAI is recommending two types of ILD service, one for toll quality service and the other for less than toll quality service. The lower than toll quality service is to be provided at a lower tariff rate, and on a different dialling code. TRAI while adopting a technology neutral approach has recommended that the ILD operators be

permitted to deploy VOIP and other data communication protocols to engineer their network. In making its recommendations TRAI's main concerns have been availability of service to the consumers at affordable prices, introduction of open competition and innovation in the market, keeping the entry barriers for the operators low, and creation of conditions for greater investment in the sector. It has also been our endeavour to ensure that the present licensing regime for the ILDOs now being suggested by us is in line with the regime followed for the BSOs and the NLDOs licenses.

5. We do hope that the recommendations made will be accepted by the Government and will result in introduction of effective competition in the ILD market leading to improved services and lower prices for the consumers. The Authority believes that the recommendations are consumer friendly and in public interest. It also expects that its various recommendations will be fully incorporated in the license agreement, in order that the objectives with which these have been made are achieved.

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

With regards,

Yours sincerely,

( M.S.Verma )

Shri Shyamal Ghosh,  
Secretary,  
Department of Telecommunications,  
Sanchar Bhavan,  
New Delhi.

Encl: a) Recommendations Document (12 pages)  
b) Explanatory Memorandum (42 pages)  
c) TRAI's Consultation Paper as Annexure "B" to Explanatory Memorandum  
d) Proceedings of the Consultation Process as Annexure "C" to Explanatory Memorandum

TELECOM REGULATORY AUTHORITY OF INDIA

# **RECOMMENDATIONS**

**on**

**opening of the**

**INTERNATIONAL LONG DISTANCE**

**Service Market**

12<sup>th</sup> November 2001

TELECOM REGULATORY AUTHORITY OF INDIA  
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# **TELECOM REGULATORY AUTHORITY OF INDIA**

## **RECOMMENDATIONS**

### **ON**

#### **Opening of the**

## **INTERNATIONAL LONG DISTANCE**

## **SERVICE MARKET**

1. Based on extensive deliberations by the Authority and for the reasons detailed in the Explanatory Memorandum, TRAI makes the following Recommendations to the Government on the modalities of opening of International Long Distance Services for participation of the private sector.

### **A. COMPETITION IN THE ILD MARKET**

#### **Degree of Competition - whether Limited or Unlimited**

2. After due consideration of all pros and cons, the Authority recommends Open Competition in the International Long Distance Service sector, i.e. there need be no ceiling on the number of operators. License may be issued to all operators who meet prequalification criteria in terms of financial parameters and commitment to Network Roll Out and other Licensing conditions including QOS.

## **B. MODE OF COMPETITION**

3. Considering the present state of the telecom market in the country and also taking note of the paucity of international gateway facilities, Facility-based competition is considered desirable at the time of opening of the ILD sector. The Authority therefore recommends that Licensing policy should mandate prospective ILDOs to build their own 'Gateway Facilities'<sup>1</sup> to provide bearer or carriage Services to other operators such as NLDOs and Access Providers.

4. The Authority has deliberated on the various options of resale, and has come to the conclusion, that switchless Re-sellers could be permitted after sometime i.e, when the markets mature and facility based operators are ready to enter the wholesale market. A review of the policy on resale of ILD Services would be taken up by the Regulator after three years of the opening up of the ILD Service market.

## **C. SCOPE OF ILD SERVICES**

5. The Authority would like to define the scope of ILD Service as a Network Carriage (also called Bearer) Service, providing the NLD Operators in the country, International connectivity to Network facilities operated by foreign carriers in other countries. The Authority would like to allow full flexibility to the ILDO in regard to type of bearer services offered and transport protocols employed. The ILDO should be permitted to offer all types of bearer services from an integrated platform. ILDOs will provide bearer services so that end-to-end tele-services such as voice, data, fax, video and multi-media etc., can be provided by Access Providers to the customers. However, in the interest of maintaining a level playing field, any public tele service which is presently

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<sup>1</sup> Gateway Facilities in this context stand for Gateway Switches and Multiplexing Equipment

permitted to VSNL should also be permitted to the new entrants. ILD Operators should be permitted to offer bandwidth on lease to other operators.

#### **D. SELECTION CRITERIA**

##### **Eligibility Criteria**

6. The Authority has recognized development of Switching and Transmission Infrastructure in the National Long Distance Network and Intra-Circle Network as very important for the achievement of country's tele-density objectives over the next 10 years. As such, these sectors call for high levels of investment. In the case of International Long Distance Services, however, the level of investment required is comparatively lower and Spectrum is not a critical issue. ILD Licensing policy should, therefore, facilitate easy entry of operators so that they offer competitive Quality of Service and prices to the consumers. The Authority also feels that an ILDO can easily recruit or hire experts and professionals with adequate telecom experience to operate its networks. As such, to encourage entry of more operators in the ILD sector, past experience in the telecom sector need not be stipulated as one of the conditions of eligibility for the grant of ILD license. The net-worth requirement also need not be very high and a prospective ILDO with a net-worth of Rs. 25.00 crores may be considered as eligible for ILD license.

7. Licenses shall be made available to all applicants subject to, inter-alia, fulfilling the following Eligibility criteria and payment of the prescribed Entry Fee:

i) Submission of a detailed Network Roll Out Plan for the first three years. The plan should give details of interconnection arrangement with NLDO/ International carriers to meet the stipulated roll out obligation. ILDOs should also give details of the proposed interconnections abroad so that their ability to carry

traffic originating in the Indian Network to all destinations abroad can be established.

ii) Written commitment to provide Interoperability in a multi-operator environment, and to meet Quality of Service standards, as may be prescribed by the Regulator from time to time. Commitments should also be in respect of compliance with the National Fundamental Plans, deployment of equipment meeting the current National & International standards, and full adherence to any requirement from the Government relating to National security, including monitoring of Gateway facilities.

## **E. LICENSE FEE STRUCTURE.**

### **Entry Fees.**

8. The Authority Recommends that the License Fee for ILD license should consist of two elements i.e., an Entry Fee and a share in the annual Revenue.

9. The Authority recommends a one time entry fee as indicated below :

- i) A down payment of Rs. 25.00 crores
- ii) An unconditional bank guarantee for Rs. 25.00 crores favouring the licensor guaranteeing due fulfillment of the stipulated roll out conditions.

While the sum of Rs. 25.00 crores will be non-refundable, the guarantee will be released as soon as the roll out obligations are met. Non-fulfillment of the roll out conditions will result in encashment of the bank guarantee by the licensor. This will be without any prejudice to any other action which the licensor may consider appropriate for the failure of the ILDO to fulfill License conditions.

## **F. REVENUE SHARING.**

10. In addition to the one time Entry Fee, ILD service providers will be required to pay an annual license fee as a percentage of their gross revenue. The Authority after taking into consideration various inputs it has received during the public consultation process as well as its own deliberations, recommends that the annual license fee including USO levy shall be 15 % of the Adjusted Gross Revenue (AGR).

11. The Authority has taken note of the fact that in the International Long Distance operation, a significant source of revenue is the amount of settlement which an ILDO receives from his corresponding foreign partner carrying his traffic abroad. The settlements are generally arrived at by mutual commercial negotiations. The Authority would not like to intervene in the existing accounting rate / settlement rate system. With multiple ILD operators expected to enter the ILD market, there is no need for any regulatory intervention in this regard. However, the Authority recommends that full details of the settlement regime through accounting rate mechanisms shall be required to be filed by the ILDO with the licensor on regular basis so that reliable figures of total revenues are available to compute the revenue share payable as License Fee. All bilateral settlements between the ILDO and his foreign partner (carrier) should be through normal Banking channels in a transparent manner.

## **G. LICENSE PERIOD FOR ILD OPERATIONS :**

12. The Authority has noted that the duration of BSO and NLDO Licenses is 20 years, with a provision for extension of the License period. The Authority finds no particular reason for changing this period. It therefore recommends a period of 20 years for ILD License also. It also recommends automatic extension of the License by a period of five years, subject to satisfactory performance in

accordance with terms and conditions of the License, particularly, in regard to QOS parameters.

**H. ROLL OUT OBLIGATION**

13. The Authority recommends the following minimum Network Roll Out obligations for International Long distance Operators, in terms of POPs & direct connectivity to international hubs.

<b>Time period (From the date of License Agreement)</b>	<b>Establishment of International Gateway Facility (also called POP)</b>	<b>Direct connectivity to International traffic hubs abroad</b>
3 years	Receipt and Delivery of traffic from/ to all the exchanges in the country is required to be ensured through one or more Gateway Switches having appropriate interconnections with the NLDOs and meeting the TRAI's QOS Regulations and Network to Network Interface requirements. For this purpose a minimum of four POPs i.e. one in each Region of the country i.e. Eastern, Western, Northern & Southern will need to be established. If ILDO so desires, he could establish a POP in the remaining Primary Switching centers. Preferably, these POPs should conform to Open Network Architecture (ONA) i.e. they should be based on Internationally accepted standards to ensure seamless working with other Carrier's Network.	Delivery of traffic to all the countries in the World to be ensured through at least four Direct Routes i.e one each to North America, Gulf Region, Europe and any one location in South East Asia, Far East and Oceania. It should be ensured that traffic to remaining countries is transited through one of these hubs abroad. It should be possible to terminate traffic to any global destination.

## **I. INTERCONNECTION OF ILD NETWORK**

14. Based on its extensive deliberations, inputs received during the Public Consultations and also taking into account the existing Licensing regime, the Authority recommends that International Long Distance traffic should be routed through NLDOs, to the ILDOs gateways for onward transmission to international networks. However, an exception be made and the access provider may be allowed to interconnect with the ILDO directly in situations where ILD Gateway Switches, and that of Access Provider's (GMSC/ Transit Switch) are located at the same station, i.e. at the Primary Switching Centres.

## **J. Access to Bottleneck Facilities of International Bandwidth Providers**

15. One of the important prerequisite for high quality real time voice/ video transmission, is their carriage on undersea optical fibre based International transmission links. Only a few global submarine optical fibre cable operators have been able to secure landing rights on the shores of the country. These bottleneck facilities should be available equally to the new entrants so that there is no discrimination between them and the incumbent in this regard. In order to provide level playing field for all competitors, the ILDO Licenses should contain provisions enabling equal access to these bottleneck facilities owned by the National and International bandwidth providers.

## **K. Sharing of Facilities**

16. The Authority in its recommendations has provided for Facility-based competition by installation of required Gateway facilities (also called POPs) within the country and has permitted the ILDOs, the flexibility of leasing bandwidth from Infrastructure Providers. Where the ILDO is also operating as an NLDO, in order to provide further flexibility, and to optimise utilisation of network resources, the Authority recommends that the ILDOs may be permitted to have

only one switch at a primary switching center to perform both the functions of an ILDO and the NLDO. There need not be a separate TAX and Gateway switch. They will however be required to maintain separate accounts of both the operations and the switch cost will have to be duly apportioned between the two services.

## **L. ISSUES RELATING TO NETWORK ENGINEERING**

### **Network Engineering Options (PSTN/ Managed VOIP)**

17. The Authority has taken note of the fact that in order to ensure Quality of Service, majority of the International carriers including VSNL continue to engineer their network based on circuit switching techniques (PSTN). However some International carriers have started deploying IP protocol for transmission of voice on a Managed VOIP network. The Authority is of the view that the ILD operators be permitted to deploy VOIP and other data communication protocols to engineer their ILD network. It would also like to stress that in the interest of consumers, the operators should be mandated as per Licence Agreement to engineer their networks to guarantee a specified quality of service as indicated in the following paras.

### **M. Quality Of Service**

18. While the Authority recommends that the ILD operators be permitted to employ VOIP and other data communication protocols to engineer their ILD networks, it would also like to state that they be mandated to engineer their VOIP network to be equivalent to PSTN network in respect of quality of service. Normally, the quality of service for voice is measured in terms of Mean Opinion Score (M.O.S.) on a scale of 1 to 5. For achieving a PSTN equivalent, a M.O.S. of four & above is desirable. For this purpose the following performance parameters must be met.

- i) Maximum end to end delay not to exceed 150 milliseconds (I.T.U. G114)
- ii) Packet loss not to exceed 1%
- iii) Jitter not to exceed 5 milliseconds.

The VOIP network (equivalent to PSTN) should be transparent to Fax and calls made from a Voice band Modem.

19. To give greater flexibility to the operators, the Authority recommends that they be permitted to engineer a lower than toll quality network for customers who do not mind some degradation in the voice quality. For the second VOIP network, whose quality of service will be less than toll quality, the M.O.S. in subjective tests should not be lower than three. To ensure a M.O.S. of three and above, the following network performance parameters would require to be met.

- i) Maximum end to end delay not to exceed 400 milliseconds (I.T.U. G114)
- ii) Packet loss not to exceed 2%
- iii) Jitter not to exceed 10 milliseconds

20. As far as lower than toll quality network is concerned, the subscriber should be made fully aware of its lower quality & lower tariff. The operator will have to offer this service through a separate dialing code. Details in regard to dialing codes, as well as other engineering guidelines for both VOIP networks will be worked out by the high level Technical Committee functioning under the aegis of TRAI.

21. Although the Authority has recommended a technology neutral approach, the voice quality of alternative networks (M.O.S. 4) based on VOIP platform should be comparable with the toll quality given by a PSTN network,

which the subscriber is used to. Therefore, the Authority would like to recommend that voice quality, on VOIP network should be comparable to the PSTN voice quality both in respect of subjective and objective measurement criteria as far as the toll quality VOIP network is concerned. The second VOIP network (lower than toll quality), should also conform to the stipulated norms in respect of performance (delay, packet loss and jitter) QOS. For objective measurement of voice quality PSQM (Perceptual Speech Quality Measure) is one of the techniques for measuring Voice Quality defined by ITU-T Recommendation P.861. For subjective measurement of MOS ITU-T Recommendation P 800 is applicable. The Authority recommends that the Telecom Engineering Centre (TEC) issue detailed guidelines for measurement of Voice Quality both by objective as well as subjective methods so that VOIP networks are engineered to meet the customers' expectations of voice quality on the two separate networks, i.e. one for toll quality and the other lower than toll quality.

**M. Carrier Access Code/ Preselection.**

22. A High Level Technical Committee under the aegis of TRAI is already working on technical issues relating to selection of long distance carriers by subscribers either by dialing an allotted Carrier Access Code (CAC) or at a later date by pre-selection or by a combination of both. However, for ensuring a level playing field, in due course both for NLD/ ILD operations, pre-selection will have to be introduced, so that the customer is not burdened by having to dial extra digits to select his chosen carrier. For proper inter-carrier settlement and reconciliation, ILD network should provide for an Inter-Carrier Charge Billing System based on generation of call data records, so that the payments due from one operator to another could be verified/ reconciled.

## **O. Customer Billing Services**

23. Normally, Access Providers should provide Billing Services to ILD Operators on reasonable terms which may be mutually negotiated. This will provide convenience to consumers by way of a consolidated bill for their local/ long distance calls. However, where technically feasible, ILDO may also be permitted the option to bill the customers directly, by arriving at a suitable technical/ commercial arrangements with the Access Providers.