

**TELECOM REGULATORY AUTHORITY OF INDIA**

**Summary of Comments  
On  
The Consultation Paper (No. 99/1)  
On  
Introduction of Competition in  
Domestic Long Distance Communications**

**September 7, 1999**

**TELECOM REGULATORY AUTHORITY OF INDIA**  
A 2/14, Safdarjung Enclave, New Delhi-110 029 Tele-fax: 91-11-610 3294  
E-Mail: [traid@del2.vsnl.net.in](mailto:traid@del2.vsnl.net.in);

**Price: Rs. 100**

**CONTENTS**

1. **introduction**..... I

2. **COMMENTS RECEIVED ON THE CONSULTATION** ..... **1-49**

PAPER ON INTRODUCTION OF COMPETITION IN

DLD COMMUNICATIONS

1. **SCOPE OF SERVICES** ..... **1 - 4**

2. **FACILITIES REGULATION**..... **5 - 11**

3. **TYPE OF COMPETITION**..... **12 -15**

4. **AREAS OF OPERATION**..... **16-18**

5. **DEGREE OF COMPETITION**..... **19 -23**

6. **TIME FRAME**..... **24**

<b>7. IMPLEMENTATION ISSUES.....</b>	<b>25 - 40</b>
1. ACCESS ARRANGEMENTS.....	25 - 28
2. INTERCONNECTIVITY AT BORDERS.....	29 - 30
3. INTERCONNECTIVITY WITH VSNL.....	31 - 32
4. BUNDLING.....	33 - 34
5. BYPASS .....	35
6. UNIVERSAL SERVICE OBLIGATION .....	36 - 37
7. Customer BILLING .....	38 - 39
8. BUSINESS SERVICE NETWORKS .....	40

## **2.8 SELECTION CRITERIA AND LICENSING ..... 41 – 49**

### **3. ABBREVIATIONS OF THE NAMES OF AGENCIES/PERSONS**

WHO SENT THEIR COMMENTS ON THE PAPER ..... 50

## **CHAPTER – I**

### **INTRODUCTION**

1. The TRAI had issued a Consultation Paper (No. 99/1) on "Introduction of Competition in Domestic Long Distance Communications" on 16<sup>th</sup> July 1999. The Paper was based on a study undertaken by the TRAI, which identified issues relevant to liberalisation of the DLD telecommunications market.

2. The Consultation Paper presented policy options for developing the competition policy in DLD communications categorising the relevant issues for the purposes of the consultative process as under:

- i. Scope of Services
- ii. Facilities Regulation
- iii. Type of Competition
- iv. Areas of Operation
- v. Degree of Competition
- vi. Time Frame
- vii. Implementation Issues

- Access Arrangements
- Interconnectivity at Borders
- Interconnectivity with VSNL
- Bundling
- Bypass
- Universal Service Obligation
- Customer Billing
- Business Service Networks

#### viii. Selection Criteria and Licensing

3. Comments from all concerned on the forty seven issues posed in the Consultation Paper were requested by 13<sup>th</sup> August, 1999. The last date for receiving the comments was extended to 20<sup>th</sup> August 1999 on various requests. Valuable comments from service providers, individuals, consumer organisations and other agencies have been received. A summary of these comments is contained in this Paper in a **bulleted gist** form under the broad categories enumerated above.

4. In line with its transparent process of decision making, the TRAI proposes to hold Open House Sessions at different places to publicly debate these comments before formulating its recommendations in the matter. The date, place and venue of Open House Sessions to be held at different places would be notified separately.

## CHAPTER - 2

### Comments received on the Consultation Paper on Introduction of DLD Communications (in Bulleted gist form)

#### 2.1 Scope of services

1. Should the scope of DLD services include intra-circle DLD services?
2. In case intra-circle is included in the scope of DLD service, what impact would it have on the viability of existing operators?
3. If intra-circle is excluded will it be only for the existing six licensed circles?

#### Comments Received

- The scope of DLD services should include intra-circle DLD services, as otherwise, there would be practical difficulties in distinguishing intra-circles and inter-circle calls. Dialling may be more complex causing overloading of processors and difficult to Monitor. The subscribers would find it difficult to comprehend. The viability of the DLDO would also be affected because 54% of the calls are intra-circle. (DOT, PGCIL, TCIL, IRCON, RITES, TransCapital, Next Age)
- Intra-circle should be included in the scope of DLD services. (IDFC) There will be no impact as per the new Revenue Sharing policy already implemented on the viability of the existing operators. (Railways)
- Intra-circle DLD service should be included in the scope of DLDO. However, on account of its impact on existing FSPs/CMSPs, they should also be allowed to offer DLD services in area covered by their community of interest (BPL Broadband).
- If intra-circle is excluded, it should be applicable to all the Circles and need not be confined to the existing 6 licenses (DOT, Shri D.N. Nanda, Shri P.K. Roy choudhary).
- Intra-Circle be excluded only for the existing six licensed Circles (RITES).
- Excluding intra-circle traffic for the existing six licensed Circles would not allow the introduction of a national approach to telecom policy. There is no basis for applying such a constraint to the 6 Circles while adopting a different approach in those Circles where only Cellular Licenses have been issued (BT).
- As envisaged in NTP 1999, the scope of service of Domestic Long Distance Communications should be opened for competition beyond service area. In case intra-circle is included, it would have

- considerable impact on the existing operators. (ABTO) One of the members of ABTO, however, was of the opinion that scope of DLD services should include both inter-circle and intra-circle. (ABTO)
- The scope should not include intra-circle as the existing licensed service providers, CMSPs and FSPs have considerable infrastructure already in place and are providing intra-circle DLD services. All private operators have already built up backbone network initially on microwave and have plans for additional of networks in their areas. (COAI)
  - Inclusion of Intra-circle would affect the viability of CMSPs as the business plans heavily depend on intra-circle long distance calls. (COAI)
  - Inclusion of intra-circle would adversely affect the viability of the existing licensees, but with an effective interconnection regime the new provider will extend rather than duplicate the reach of the existing licensee. It will increase competition for DOT in the intra-circle DLD market and increase the demand for access provision by adding a new client. (IDFC)
  - If intra-circle were included, it would affect the revenues of the national level long distance operator. (DOT, BPL Mobile, Shri D.K. Sangal) This will call for reconsidering the revenue sharing arrangements between operators themselves and between licensees and licensor. (Shri D.K. Sangal)
  - Intra-circle market should be seen as part of the DLD market. Long distance should encompass all calls, which are not purely local. (British Telecom)
  - The scope of DLD services should include inter-circle only. (Shri D.N. Nanda) In case intra-circle is included, the basic service provider will not be viable. Intra-circle should be excluded for all the Circles including the existing six licensed Circles. (MTNL, Essar)
  - The impact of including intra-circle traffic in DLD services should be linked to the new licenses for the fixed service. This question should be addressed at the time the TRAI chooses to recommend additional operators for the basic services. (Shri D.N. Nanda )
  - Intra-circle remains the exclusive right of the APs as licensed in the circle. No other interpretation is acceptable and valid. Any violation of exclusivity of the service area would invite litigation from the stakeholders. (Essar)
  - Initially the competition in DLD services should be restricted to inter-circle traffic only, in line with the license conditions of existing AP's. Provision should however be made for opening up inter-secondary area traffic within a circle also for competition at a later date. Reservation to this effect should be included in the AP licenses that may be issued for circles at present vacant as also in the licenses of existing AP licensees switching over to revenue sharing regime. Position should be reviewed in this regard 5 years after the DLD service by the new DLD licensee becomes operative and further traffic and viability data become available. Such reviews may be undertaken every three years thereafter. (Shri D.K. Sangal)
  - The NTP 1999 has, among others, permitted provision of infrastructure i.e. inter-city, nation-wide or regional, electronic/ photonic transmission capacity for voice carriage to be provided by either the Railways, the Power Grid, the State Electricity Boards, and Oil and Gas companies. Therefore, together with the permission already given to them according to the ISP policy to have their capacity leased for data i.e. Internet, now we can expect an abundance of transmission capacity or information carriage infrastructure to emerge within the next two years. This opens a grand possibility. It is suggested that the ISP policy may be applied *mutatis mutandis* for the DLD market also. That means, companies may be asked to take licenses for a State or for a group of States or for the entire country. The private telecom operators should be free to interconnect their networks and arrive at an infrastructure, which they may share and also lease to others. This is quite possible because we are making a distinction between infrastructure and services that the infrastructure can support. (TUGI)
  - The NTP stipulates opening up of the national long distance service beyond service area to private operators for competition. Meaning of service area is not defined but may possibly mean a circle. Even if that be not the case, by opening up the intra-circle long distance service to more place may result into wastage of valuable resources as each firm may have too much idle plant and labour and consequent losses. Resellers and Type-II carriers who draw upon the network resources of the DOT or that of the other FSP/CMSP could, however, be allowed and even be encouraged. From the National policy angle also, it would be less prudent to consider licensing on the basis of certain inter city routes or regions. Licensing of DLDO should be on the basis of nation wide coverage. This would give the customer an opportunity to choose the DLDO of his choice. (Dr. S. K. Hajela)
  - The FSP tariff is designed to have inherent cross-subsidisation on rentals and call charges. A DLDO operating in the intra-circle would be able to wean away the effect of cross-subsidisation by charging lower DLD call charges. This will lead to pressure on operators and TRAI to increase the local call charges and rentals. This would affect growth of the sector and the teledensity. (Essar)
  - It is important that right signals are sent to the investors. The exclusivity be retained or the existing

players be provided an option to move out on no loss basis. (TERI)

- If entry to DLD market is confined to existing licensees (and those eligible under the terms of NTP), there would not be any general disadvantage in terms of validity of existing operators (BT)
- DLDO should have non exclusive right to carry following types of traffic:
  - All inter-circle traffic
  - All traffic to and from International Gateways.
  - Intra-Circle traffic between two service providers
  - Intra-network traffic within the service area of an operator, if requested.
  - All permitted types of non-PSTN traffic, which includes data, non-voice Internet CUG private networks etc. (Shri P.K. Roy choudhary).
- TRAI should ensure that the exclusivity of the incumbent should not be such that SDCAs are also made at 180 seconds as it was done in LDCA, affecting LD intrastate remuneration for the existing private operators. (Essar)
- Authorities to ensure that unlicensed circles are expeditiously licensed with exclusivity to intrastate calling so that enough infrastructure is built and is made available to DLDO by leasing, if required. (Essar)

## **2.2 Facilities Regulation**

4. Is the usage of backbone network for national long distance data and voice communication limited to entities specifically mentioned in NTP'99?
5. Can any entity (including service providers) build a network and offer it for voice and data communications? Should these entities be allowed to build and manage networks for closed user groups or for private networks?
6. Should infrastructure owners be permitted to become service providers?
7. Should pure infrastructure owners be regulated? If yes, then what should the regulatory mechanism be, as the TRAI Act only regulates service providers?
8. Should pure infrastructure owners be licensed? If yes, what should be the terms and conditions of their license?
9. If they are not under regulation, will the commercial agreement between pure infrastructure owner and service provider be governed by TRAI? For example, will the lease charges be subject to TRAI-notified ceilings or be governed by forces of demand and supply?
10. What steps are required to be taken so that there are adequate facilities in future? Should the policy facilitate development of capacities by a few entities, considering economies of scale and scope?

### Comments Received

- Competition at network level is fundamental to effective competition at services level and needs to be given priority. (OFTEL)
- The usage of backbone network for NLDOs should not be limited to the entities mentioned in NTP 1999. It should be open for competition (MTNL, TERI, ABTO, idfc)
- To provide a choice of DLDO to every subscriber, DLDOs be allowed to access the subscribers of FSPs and CMSPs (BPL Broadband)
- The NTP envisages use of existing network of private and public transmission companies, Railways, GAIL and ONGC etc. for long distance communications. The policy currently mentions only the existing backbone. But both existing and planned backbone infrastructures be included in the consideration of the final policy on DLD. (PGCIL, BT)
- To optimise the utilisation of the scarce resources of infrastructure, the backbone network of specifically mentioned entities in NTP'99 be allowed to offer the network for long distance data and voice communication. In addition to IRCON and RITES, which are the PSUs of Ministry of Railways, any other entity/entities engaged by the Railways to set up the communication infrastructure using their right of way for providing communication facilities to the Railways, be also authorised to provide its

backbone network for long distance voice and data communication. (Railways)

- A DLDO should be free to incorporate facilities available with any entity and not limit itself to only those specially mentioned in NTP'99. To effectively augment the network bandwidth, the new DLDO should build up independent facilities of its own using whatever infrastructure is available with such entities, to economise on costs. It should however not be overly dependent on these entities. Thus generally the infrastructure lease should be restricted to use of right of way, supporting towers, or fibres. Leasing of merely circuits or bandwidth derived from facilities under the control of infrastructure owners should not be permitted. (Shri D.K. Sangal)
- Any entity may be allowed to build a network and offer it for voice and data communications. (BPL Mobile, ABTO, COAI, IDFC). Servicing CUGs and managing private networks be allowed both to the service providers and infrastructure providers. (PGCIL, Shri D.N. Nanda, BT, RITES, BPL Broad Band, IRCON, Next Age, TransCapital)
- Only the entities named in NTP 99 and licensed national level long distance operators (NLDOs) may be allowed to build infrastructure and offer to the licensed NLDOs for voice and data communications. (DOT)
- Additional networks should be encouraged. There should be no objection to the use of network established by another entity. (Shri D.N. Nanda, BT, TCIL, MTNL, IRCON, RITES, TransCapital, Next Age, Shri P.K. Roy choudhary)
- All FSPs and CMSPs and all new DLDOs and all those entities that have ROW should be permitted to build a backbone network and lease it for voice & data communication. (COAI)
- Only licensed NLDOs be permitted to build and manage CUG and private networks involving different licensed service areas. (DOT)
- Any entity may be allowed to build a network for voice and data communication. The DLD entities should not be allowed to manage networks for CUGs or private network. This should be with basic service operators. (MTNL)
- As far as the new DLDO/s are concerned they should certainly be allowed to build and manage networks for closed user groups spanning more than one circle in the same way as DOT. As far as the entities mentioned in NTP'99 and similar others are concerned, telecommunications is not their core business. Most of them are Government owned entities providing important infrastructure services. Their telecommunication networks are in the nature of essential captive support for their core activities. They must concentrate on their own core business and achieve excellence there. While they may lease out their infrastructure to DLDOs including DOT so long as it does not interfere with their own basic service, it would be prudent that they do not branch into an unrelated business. (Shri D.K. Sangal)
- Countries in the initial stages of liberalisation permit entities to provide CUGs and private networks. This transitional phase has passed for India. With the opening up of DLD Competition, there is no longer any need for provisions relating specifically to CUGs. (BT)
- Existing VSAT service providers should be authorised and encouraged to make available infrastructure facilities to any DLDO and also to permit carriage of voice and interconnection to PSTN and other VANS services. (BT)
- Infrastructure owners be permitted to become service providers only if they have a valid license for operating the DLD service. (COAI) Public utilities like Railways, PGCIL, etc, who have the secure right of way, should not be permitted to provide DLD services for at least 5 years so as to provide level playing field for other players. (ABTO)
- Infrastructure owners should be allowed the flexibility of becoming DLD service provider if they wish to do so at par with others. (PGCIL, Next Age, TCIL, RITES, MTNL, IRCON, BPL Mobile, Shri D.N Nanda, BT, Shri P.K. Roy choudhary, TERI, idfc)
- The infrastructure owners, as mentioned in the NTP 1999, should not be permitted to become service providers. They may use their telecom infrastructure only for their captive use. (DOT)
- The infrastructure providers should lease to others but should not by themselves become DLDOs. They should concentrate on their ongoing activities that they know and can do best. (Dr. S.K. Hajela)
- Only licensed DLDOs should be allowed to build a network and offer voice and data communication and these entities only be allowed to build and manage networks for closed user groups or for private networks. However, this should further be liberalised in due course. Infrastructure owners be permitted to become service providers as well, if they so decide purely on commercial considerations. This incentive is to encourage utilities to further invest in consolidating, expanding, undertaking technology upgradation of the infrastructure. (Railways)
- Only service providers be subjected to regulatory mechanism. The service providers shall in turn control infrastructure providers. Pure infrastructure provider need not be licensed. (MTNL)
- There is no need to regulate infrastructure owners directly. The DLDO using their infrastructure would be regulated and would be responsible for any matters between it and infrastructure owners to the

extent they impinge on the DLD operations. (Shri D.K. Sangal)

- The regulation of the infrastructure owners be done by the Government. The need for their licensing be left to the Government for a decision. (DOT)
- Infrastructure providers be regulated (TCIL, Shri P.K Roy Choudhary, idfc)
- Like Telecom. Services, the telecom infrastructure should also be regulated by TRAI. In the meantime, a commercial agreement entered into between an infrastructure owner and the service provider would cater to the relevant applications on back to back basis in respect of quality of service, interconnection etc. If, however, infrastructure owner is also a service provider, he as service provider naturally gets regulated as per the regulations of TRAI. (Railways)
- The TRAI should regulate infrastructure owners in the area of quality of service, tariff and interconnection. (ABTO, COAI) The distinction between infrastructure provider and service provider be removed, as infrastructure providers are a key link in the value chain and are providing service to the customers. (PGCIL, Shri D. N. Nanda, BT, IRCON, RITES, TransCapital, Next Age, BPL Mobile)
- The infrastructure providers can also be licensed. (PGCIL, Shri D. N. Nanda, BT, Next Age, Shri P. K Roy Choudhary)
- It should not be necessary to license various enterprises building telecom infrastructure for their own captive use. On the other hand if at some stage it is envisaged that certain entities may build infrastructure only to lease to DLDO/s and DLDO/s are licensed to provide non-facility based DLD service using this infrastructure, it will be become necessary to bring both under TRAI jurisdiction. (Shri D.K. Sangal)
- Infrastructure providers should get registered with appropriate authorities, and be regulated by the TRAI. (ABTO, COAI)
- No license for infrastructure providers (IRCON, RITES, BPL Broadband)
- Licensing conditions for infrastructure providers should not be a restrictive license but an enabling license. (idfc)
- The leased line charges etc. between infrastructure owners and licensed NLDOs should be based on Commercial terms and governed by the principles of market forces. (DOT, RITES, MTNL, BPL, Broadband, Shri P. K Roy Choudhary, COAI, Dr. S. K. Hajela)
- The tariff and interconnection charges be regulated (idfc) and the commercial negotiations be made only within the upper limits set by the TRAI. (PGCIL, BT, IRCON, Next Age, Shri D.N. Nanda, ABTO)
- Since the primary objective is to develop infrastructure facilities, the national level long distance operators should be required to set up their own infrastructure. Provisioning of facilities shall be a basic requirement for granting license to NLDOs. (DOT)
- Infrastructure providers be encouraged to build infrastructure capacities and there should not be any limit on the number of the infrastructure providers. Entities such as National/ State High ways Authorities, Railways, PGCIL, State Electricity Boards having control over ROWs should be made to extend ROWs to all infrastructure providers on nominal charges within the specified time limit. (ABTO)
- The TRAI should in the short term (three years) adopt a policy of managed competition for a limited number of infrastructure providers as listed in the NTP 1999. (PGCIL, Shri D. N. Nanda)
- NTP 1999 envisages the existence of Re-sellers in the DLD Voice Market. This should be encouraged, as it would support development of infrastructure by the listed entities (PGCIL).
- In transitory phase, entry shall be limited and progressively DLD sector be opened up. (MTNL)
- TRAI should seek to have the gap in its mandate rectified by legislative amendment for regulating infrastructure providers. (BT, TERI)
- Basic & cellular networks should be permitted to interconnect creating a facility to transmit inter-circle traffic, which will provide an incentive to lay additional backbone. Utilities be allowed to sell RoWs to other parties who could be licensed as infrastructure providers. VSAT operators be also licensed as infrastructure providers. (BT)
- Non-facility based competition at the DLDO level and introduction of competition in facilities at AP level. First right of refusal for providing the DLDO with facilities lies with the AP. This will give the option for the DLDO to build its own facilities. (Essar)
- Utilities that are mentioned in the NTP should not be allowed to use their spare capacity for DLD communications, instead use their expertise in their area of operations. (Essar)
- Differential tariff for leased lines be made for retail and wholesale commercial purposes. (Essar)
- Since their own respective regulatory bodies regulate the infrastructure providers, should it also be regulated by the TRAI for their telecom business? (TERI)
- Considering the viability, and economics of scale and scope, it will be desirable to license only one nation-wide, inter-circle, facility-based DLDO initially. This licensee should be required to build a comprehensive nation-wide DLDO network with its own facilities totally independent of DOT. The DLDO may incorporate in its network any existing or planned facilities of existing or new entities than DOT but

it should be its responsibility that the network as a whole is comprehensive and independent of the concerned entities whose infrastructure they use. This would immediately and effectively double up the available and potential transmission bandwidth in the country and the long distance switching. (Shri D.K. Sangal)

- As per recent policy initiatives of Government of India, build up of infrastructure including telecom infrastructure has been encouraged by way of concessions and tax benefits. The infrastructure provider should, therefore, be encouraged to invest his capital and entrepreneurship to create backbone infrastructure. Accordingly, a nominal licence fee, to be fixed by TRAI, may be charged from infrastructure provider. (Railways)
- In order for new entrants to be able to compete successfully with the incumbent operator (or an operator with significant power in a particular geographic area), it is crucial that the entrant has access to be incumbent's network on terms and conditions (including charges technical standards and specifications, quality of service which that are non-discriminatory and on the same basis as the incumbent provides to itself. (OFTEL)

### **2.3 Type of competition**

11. Should the entities compete on facilities based operations, services or both?
12. Can there be effective competition in services when there is no effective competition in underlying facilities?
13. Should non-facility based competition be introduced? If yes, should terms and conditions for non-facility based service providers be similar to those for facility based service providers?
14. In case of non-facilities based competition should both switch-based and switch-less resale be allowed? If switch-less resale is not allowed then should it be reviewed after a certain time period? What should this time period be?
15. Should the policy facilitate emergence of entities with consolidated operations?

#### **Comments Received**

- For initial 3-4 years till satisfactory growth of infrastructure is achieved, only facility-based competition be permitted. For an effective competition, NLDOs have to be facility based. (DOT, MTNL, BPL Broadband, Shri P.K Roy Choudhary, Shri D.K. Sangal) The position can be reviewed after 5 years when an independent nation-wide facility-based network in addition to the one of DOT is in position and fully operational and proven viable with a healthy growth. (Shri D.K. Sangal)
- Competition should be allowed on both - facilities based and services based. (PGCIL, TCIL, MTNL, IRCON, RITES, Next Age, BT, ABTO, Railways, Shri D. N. Nanda, Dr. S. K. Hajela, idfc)
- No non-facility based competition in the initial years (BPL Broadband, Shri D. N. Nanda)
- Effective competition in services without facilities competition can be possible with the safeguards that all service providers should have equivalent access to the common network and the network should not be congested. (idfc)
- Non-facility based competition should not be introduced until about 7-10 years when availability of facilities would remain limited. Resale can also be considered for introduction after 7-10 years. (Railways)
- Resale of telecom network facilities and services is an important feature of an open entry policy and can play a vital role in the development of long distance communications. Resale can be an effective vehicle for new entrants that may initially lack the necessary capital to build a national network. Resale market experience has shown that resale can spur competition. The success of competition in the US long distance market resulted from a combination of the facilities-based and resale competition models. (US Government)
- Switch-less Re-sale should be allowed for 10 years. (RITES)
- Switch-based and Switchless Resellers be allowed and encouraged to expand the market and ensure that the infrastructure providers are able to invest in expanding the network. (PGCIL, BT, TCIL, MTNL, IRCON, idfc)
- Switch-based and Switchless Resellers be allowed. Timing for introduction of Switchless Resale be decided keeping in view the experience of other countries where DLD services have opened for competition. (ABTO)
- To avoid duplication of resources only switchless resale be allowed. The DLDO leases out capacities in



- the existing APs switches at the same terms and conditions as the incumbent TAX operator. (Essar)
- Introduction of switch based re-sellers only may be reviewed after 3 to 4 years. (DOT)
  - The market is not ripe for introducing pure trading in services. The resellers must own at least a switch as part of the delivery chain. (Shri D. N. Nanda, Next Age)
  - Non facility based competition should be introduced. Only switch-based resale be allowed. (Next Age, idfc).
  - Market forces should be allowed to determine the number of players. Both the facilities and non-facilities based competition should be introduced. Public utilities like Railways, PGCIL etc having secured ROW should not be permitted to provide services so as to avoid conflict of interest with other service providers, to whom they may be leasing long distance infrastructure, for an initial period of 5 years. This would provide a level playing field for all the service providers as availability of secure ROW places the utilities like Railways, PGCIL in considerable advantageous position *vis-a-vis* others. (ABTO)
  - Entities who will be " carriers' carriers" should compete on facilities based operation and not in service. Licensed service providers (CMSPs, FSPs, & DLDOs) may compete on both facilities and services. This will provide effective competition. (COAI)
  - Non facility based competition provides innovative growth in the market. Appropriate terms and conditions for its growth are essential but such terms need not be extensive. (BT)
  - There can be competition in the provision of services even without competition in provision of facilities (Shri P.K. Roy Choudhary). However, likelihood of competition is much greater where facility providers are themselves competing to sell capacity to service providers. (BT)
  - Terms & conditions should be such that Re-sellers do not enjoy an undue advantage on account of their limited investment in infrastructure. (PGCIL)
  - Non-facility based competition should be introduced. Since non-facility based service tantamount to reselling, they need not be licensed but permitted to operate as franchisees of other DLDOs. (ABTO)
  - Initially till the market matures and stabilises non-facility based competition may not be introduced and may be deferred for review in future. All resales be allowed after a review after 5 years. (COAI)
  - In the long run, the policy needs to facilitate the emergence of entities with consolidated operations that are able to exploit economies of scale for efficient service. (PGCIL, RITES, IRCON, BPL Broadband, Next Age)
  - The present policy framework facilitates and encourages competition in access provisioning and in cellular mobile services. Opening up of NLD will facilitate the emergence of entities with consolidated operations. Existing policy does not debar it. (DOT, MTNL)
  - There should be no limit on the number of DLD companies just like in the case of ISPs. (TUGI)
  - Policy should be neutral, enabling open entry (TCIL).
  - The policy should encourage and facilitate emergence of entities with consolidated operations. (Railways)
  - The TRAI should give clear signals at this stage that the market will be gradually opened up to full competition as the availability of facilities improves. (TERI)
  - Since the DOT is a dominant player, providing integrated services, there is a need for private operator (s) to effectively compete with the DOT for providing consolidated /integrated services. (ABTO)
  - In Australia, resale competition and limited facilities based competition was introduced in 1990. In 1997, full competition was permitted. These policy changes have resulted in significant benefits for Australian consumers, both businesses and residential. (Telstra)
  - India should adopt an open competition model, whereby the following decisions are left to the market and should not be pre-determined as part of a licensing regime:
    - The most efficient geographical boundaries within which services are provided;
    - How many operators are appropriate for a particular region;
    - The competence of potential operators;
    - Whether each of these operators engages in an entry strategy based upon use of their own facilities or the resale of existing facilities (either those of the incumbent PTO or other utilities with suitable facilities). (Telstra)

## **2.4 Areas of operation**

16. What should be the unit area of operation for licensing DLDOs?
17. Should a combination of different areas of operations, such as national level with circle/regional level, be introduced?
18. If a regional approach is adopted how should regions be defined? How should the issue of the relative unattractiveness of the eastern region be addressed?
19. Should
20. Should regional operators be allowed to interconnect over borders or should there be an inter-regional operator?

#### Comments Received

- To ensure adequate penetration and roll out in all parts of the country so as to facilitate balance growth, only national level long distance operators be permitted to achieve the above objective. (DOT, PGCIL, TCIL, MTNL, RITES, Next Age, BPL Mobile, IRCON, Trans Capital, Shri P.K. Roy Choudhary, COAI)
- Area of operation of DLDO licensee should be nation-wide inter-circle traffic. (Shri D.K. Sangal)
- Unit area should be regional / national. Combination of regional and national can also be considered. There should be separate licenses for National and Regional Operators. Regions may be defined as per the existing definition of the DOT.(ABTO)
- A combination of regional and national level be introduced. In the interim phase, we may have unit area of operation as Region, which would consist of more than one circle. The country may be segmented into four regions as below :-

(i) East: States of Bihar, West Bengal, Orissa, Assam and other North Eastern states and Union Territories (UTs), if any, in the region.

(ii) North: States of J&K, Delhi, Punjab, Haryana, UP and UTs, if any, in the region.

(iii) South: States of A.P., Tamil Nadu, Karnataka, Kerala and UTs, if any, in the region.

(iv) West: States of Maharashtra, Gujarat, M.P., Rajasthan, Goa and UTs, if any, in the region.

The unattractiveness of the eastern region would get addressed by market forces. The fixed license fee and percentage of revenue sharing would naturally, perhaps, be much less than those for other regions. (Railways)

- ISP policy may be applied *mutatis mutandis* for the DLD market also. This means, companies may be asked to take license for a State or for a group of States or for the entire country. (TUGI)
- Routes between categories of Towns and not areas should be the units of operation. Cities/Towns may be categorised in terms of category A, B, C or D to enable wider and uniform coverage. (TCIL)
- No Regional level licenses (DOT, PGCIL, MTNL, RITES, Shri P. K Roy Choudhary)
- Interconnection amongst the regional operators should not be allowed. Inter-Regional traffic to be handled by NLDOs. (Railways)
- Two areas of operation can be made – circle and national. This should be with a proviso that the national operator will sell his services through the basic service operators. (Shri D. N. Nanda)
- Unit area of operation could be National, Regional or Circle level with combination of different areas permitted. (Next Age)
- Provision of national network be authorised but DLD operators be allowed to confine their network to a restricted regional area they see as appropriate and expand. It is difficult to see if there is any advantage in prescribing the area of operation (BT).
- Inter Circle interconnection of existing operators should be permitted and encouraged. Such authorisations should, however, not preclude opportunities for operators to provide DLD service using existing VSAT or utility networks. No case to provide specifically for an inter-regional operators. (BT)
- Existing entities should not be allowed to interconnect at borders. Connectivity across the service area be permitted only through NLDO. (DOT, PGCIL, RITES, Next Age).
- Regional operators may be permitted to interconnect only with the national operators. (ABTO)
- There is no requirement of regional DLD licenses. The existing license service providers, CMSPs & FSPs, should be permitted to interconnect across boundaries. They will potentially become regional DLDOs. Regional approach as such is not required. (COAI)
- Recent ISP policy allows operators to choose the "level" at which they wish to operate.

- Incentives can be given to the operators by fixing nominal entry fee and nominal revenue sharing for unattractive regions such as the eastern region. (ABTO)
- Special concessions to infrastructure providers/ DLDOs for the eastern region (Next Age)
- In order to address eastern region problem, DLDO be mandated to install a minimum route kilometre / defined links of backbone network. (BPL Broadband). However, it should not act as a barrier in commercial terms (Trans Capital).
- All licensed FSPs/CMSPs be permitted to interconnect across borders to become regional DLDOs. Regions be based on Community of Interest. Artificial barriers in terms of Circle wise jurisdictions based on DOT's management set up should be demolished (BPL Mobile).
- The area of operation in the transition period be a combination of regional based DLDOs with interconnectivity between them and the national operators. (Essar)
- Unlicensed circles be licensed on a priority basis and strict network expansion be obligated. (Essar)
- During transitional period limited competition be introduced. Limited competition may be - one national operator, one regional operator, besides DOT. (TERI)
- In the initial stages there should only be a single national license with no restriction on the number of DLD operators and no obligations imposed on points of presence and freedom to connect with any operator. (idfc)

## 2.5 Degree of competition

20. What should the competition policy be? Should full, restricted, or limited competition be introduced?
21. What should be the optimum number of players in a DLD segment?
22. If limited competition policy is adopted, then should it be duopoly or multipoly?
23. In case duopoly is adopted then should it be national or regional duopoly?
24. In case regional duopoly is adopted, should there be interconnection at borders or should a separate entity be licensed as an inter-regional operator?
25. In case of national duopoly should it be implemented by licensing one of the public sector operators? Alternatively, should it be implemented by application of the Canadian Stentor model by licensing an association of existing operators such as FSPs and CMSPs?
26. In case multipoly is adopted, should it be two national operators, two regional/circles operators or one national and one regional/circles operator?
27. In case of restricted competition policy, what should be the mechanism to restrict entries? Should there be a monetary entry barrier and/or performance obligations? What would be the optimum level of such barriers? Should there be restriction on the number of entrants? Should there be any time frame for licensing? Should licenses be available on demand or should it be one-time?

## Comments Received

- **For the first five years (six years – MTNL) only limited competition at national level be permitted. The suggested number of operators could be three, including DOT. (DOT, MTNL, Next Age, BPL Mobile, BPL Broadband, Trans Capital, ABTO, COAI)**
- Two DLD plus cross-border basic operators (Shri P.K Roy Choudhary).
- To begin with duopoly i.e. DOT + one, to be operated at the national level. (Shri D.K. Sangal)
- Duopoly (4 operators- Next Age) is suggested only at the national level. (Shri D. N. Nanda)
- Unlimited players (RITES, IRCON, Hughes Escort)
- There should no restriction on the number of DLDOs based on technical and financial capabilities. A model similar to one adopted for deciding Category-A ISPs be adopted. (RITES, IRCON, idfc)
- Full competition in long term. Limited competition for the first 3 years. All parties listed in NTP 1999 be given automatic license and allowed entry as a service provider after three years time frame. (PGCIL)
- Full competition would ensure allocative efficiency and minimum costs to consumers. (TCIL)
- An open entry of multiple operators benefits users of telecom services. Restricting entry can create price structures that are not optimal for a fully competitive market and can cause investment distortions and higher prices. Open entry in the long distance telecom market is now the policy in many countries, large and small, developing and developed, including all but three of the 15 member states of the

European Union, Australia, Canada, Chile, Dominican Republic, El Salvador, Japan, Korea, Mexico, New Zealand, Peru, the Philippines, and Switzerland. Next year the DLD markets of Argentina, Portugal, and Venezuela will be fully opened. (US Government)

- Limited competition in the initial period of 3-5 years, minimum of 2 national level and 2 regional level operators for each region (other than the DOT) should be licensed. (ABTO)
- A limited competition should be adopted for the time being with full competition coming about after the consolidation as well as development of the market. (Railways)
- The competition should be restricted initially. It is desirable to adopt an evolutionary approach, starting with a duopoly initially to full competition over a period of upto 25 years depending on the growth of traffic, and induction of new technologies and products to ensure a healthy growth of affordable service to the ultimate users. (Shri D.K. Sangal)
- The viability studies carried out by TRAI seem to indicate that initially the number of new players in addition to DOT should be restricted to one. That is the only way to ensure viability of the new entrant and effective competition. It can be extended to two or more later in the light of experience. The license agreement should unambiguously reserve the right to licensor to license additional DLDOs at appropriate time or even to permit unrestricted entry and competition. It will be of interest to note that even in the most affluent western countries the number of effective players including the earlier incumbent is either two or three. There are no doubt many more but they are all marginal players. (Shri D.K. Sangal)
- Licenses to be issued on national basis, with incentives to set up services in non-profitable areas. The licensees can use any medium, including satellites, or any frequency band. The guiding principle be quality of service. (Hughes Escort)
- No preference for public sector operators (MTNL, VSNL) as competition between DOT & public sector operators alone will not be effective. As DOT is already a public sector operator other operators should be private sector operators for effective competition. (COAI)
- One of the members of the ABTO was of the opinion that full competition should be introduced right from the beginning. (ABTO)
- Given that DOT will continue to provide long distance service in each Circle besides a minimum of 2 Basic Service Operators, to license any more domestic long distance operators only for intra circle long distance service would not result in optimum utilisation of the financial and the network resources of the existing operators. According to some estimates, the intra-circle traffic is close to 60% of the total traffic originating from within the circle. This would be another reason to limit the number of DLDO within a circle to DOT and the respective Basic Service operators. (Dr. S. K. Hajela)
- It should be multipoly competition. There should not be only two national operators but so designed as to have a multipoly competition of five operators at the national level – DoT and four other national operators who should be entitled to access intra-circle, intra-regional and inter-regional traffic. Likewise the competition within the region should also of four operators who will have access to intra-circle and inter-circle traffic within the region. The optimum number of players under limited competition should be :
  - i. DoT
  - ii. Licensees of FSP, Cellular Mobile Service Operators, ISPs etc.
  - iii. Regional operators
  - iv. National operators. (Railways)
- Permit basic and cellular operators to arrange Inter-Circle interconnection for offering DLD service. This would mean restricted competition, which would not need policy decisions like number of parties to be licensed, selection of parties etc. There would no limit on their numbers. They could form a national consortium or a number of regional consortia. Operators concerned would decide whether to roll out network on a regional or national basis. Utilities and existing VSAT licensees be allowed to offer direct services. The policy could be reviewed after 4 to 5 years (BT)
- Entry criteria should be based on open transparent competitive bidding process as may be determined by the Government. (DOT)
- Full competition in services, limited competition in networks. (Shri P.K. Roy Choudhary)
- The validity period for the license should be 20 years as in any other service. (DOT, BT)

- India is too big to be left to only two DLDOs, who may cartelize (TCIL).
  - A review may be undertaken after five years for introducing more facility-based competition. (DOT)
  - Association of existing entities can be permitted, provided they create DLD infrastructure. (MTNL)
  - Full competition in the regions and for national operations, with monitoring by the TRAI. (Essar)
  - No Regional level licensing (Mr. D.N. Nanda). Interconnection through NLDO (DOT, PGCIL, BPL Broadband).
  - No preference to MTNL, VSNL for becoming DLDO. (BPL Mobile).
  - A consortium of FSPs and CMSPs may have problems of co-ordination. With the facility of customer access available to them, they may deter entry of DLDOs even in the long term, when full competition is introduced (PGCIL).
  - In view of restricted competition in the initial years, impose monetary barriers as well as performance obligations. Optimum level of such barriers will be measured by the market forces. (MTNL)
  - National operator should be any entity other than the incumbent. All DLDOs be given the option to have nation-wide operations. Network obligation, areas of service to be decided by the regulator. (Essar)
  - Licensing of joint venture companies formed by the circle operators should not be discouraged.(Essar)
- Regional operators be permitted to interconnect with the national DLDO for carrying traffic beyond regions. Interconnection between regional operators may not be permitted in view of there being a separate national DLDO. (ABTO)
  - In case of restricted competition, percentage of revenue sharing for regional DLDO and national DLDO be fixed to cover the regulatory costs, USO contribution, keeping in view the market size, likely infrastructure cost and anticipated ROCE. (ABTO)
- Entry should be in terms of the eligibility criteria of technical qualification and the bid bonds. If the number of eligible bidders is less than or equal to the total number of licenses proposed, each one of them should be given the license based on the reserve price in terms of one time entry fee without calling for any financial bids. For this the tender should specify the number of licenses that are proposed to be given in each category as also the reserve entry fee that would be applicable to each license. In case the number of eligible bidders is more than the number of licenses available, financial bids should be invited, but only in respect of one time entry fee. The proposed revenue sharing percentage must not be put to bid. The top bidders should be selected, but H2 or H3 should not be asked to match the bid of the H1, so long as H2 is above the reserve price. (ABTO)
  - Licensing should be based on an open competition in a transparent manner. The existing public-sector operators (other than DOT) singly or in a consortium and existing FSPs and CMPs again singly or in one or more consortia besides totally new entities should be all eligible to compete for the license. Joint ventures between Indian and Foreign entities should be permissible, with foreign equity limited to 25% as agreed to by Government at WTO. (Shri D.K. Sangal)
- In case of full competition, there should not be any time frame for issuing licenses. But if there is only limited competition, all the required number of licenses should be issued at one time. (ABTO)
  - The mechanism for implementing restricted competition policy should be to include in the bidding as one time entry fee, fixed percentage of Revenue and laid down performance obligations. The licenses should be given these operators for a period of 20 years. (Railways)
  - The initial entry should be based on open competitive bidding. Making licenses available freely on demand can be considered after 15 to 25 years in the light of the growth of traffic and actual experience of limited competition. The transition from duopoly to free competition should be by gradual evolution. (Shri D.K. Sangal)

## 2.6 Time frame

28. Limited competition has generally been adopted as a transitional arrangement. Should the time frame for limited competition be specified? If yes, what should be the appropriate time frame?

### Comments Received

- **Limited competition can be reviewed after five years. (DOT, BT, Next Age, BPL Broadband, Shri**

### **P. K. Roy Choudhary, ABTO, Railways)**

- Six Years' transition for three operators. (MTNL)
- Full competition in a time frame of three years after a period of limited competition. (PGCIL)
- Full competition without any transition period (IRCON, RITES, IDFC)
- May be reviewed by TRAI after 10 years. (COAI)
- Transition period be for 5 to 6 years. The regulator should try to compress the time period. A shorter time period would put pressure to improve efficiency and innovate. (TERI)
- It will no doubt be a transitional arrangement. It will however be premature to specify any fixed time frame at this stage. It should be stipulated that the issue will be kept under constant review and multipoly followed by free competition may be permitted at some stage in future. Provision shall be made that new entrants will not be extended terms and conditions more favourable than those permitted to those entering during the restricted competition phase. (Shri D.K. Sangal)

## **2.7 Implementation Issues**

### **2.7.1 Access Arrangements**

29. Should the modality of access be pre-selection or dial around? In case dial around is chosen initially then what should be the time period for introducing pre-selection?
30. In initial stages pre-selection will also require facilitation of carrier selection through a neutral selection process such as ballot. What should be the modality?
31. Should CACs with dialling parity be introduced for the APs also?
32. Should DLDO be allowed to set up STD PCOs (without bypassing the AP)? Should the policy make it mandatory for existing PCO operators to give their customer a choice of DLD operator?

### **Comments Received**

- Due to mix of old and new technology in switches, only dial around can be possible immediately for accessing. Implementation of pre-selection method involves different software, changes in various technologies presently available in the exchanges, and so requires detailed study. (DOT, MTNL, IRCON, RITES, BPL Mobile, BPL Broadband, Next Age, TER, idfc)
- It will be best to adopt code-based dial around access. This will give maximum choice to the subscribers. It will no doubt call for a certain level of sophistication from subscribers and educational and marketing effort by the competing DLDOs. The experience with STD and ISD shows that our subscribers, even at the rural level have been quick to learn. (Shri D.K. Sangal)
- Pre-selection or dialled access to a DLDO, who is not an AP, should be introduced on the basis of interconnect charge. (BT)
- Inter-connection arrangements should be in conformance with national telecom plan with Switching and Traffic Routing Plan. Over the years, the interconnection has been established in accordance with DoT network hierarchy, which more or less gives seamless operations and feasible interconnections. Developed from this, the charging plans have been drawn up and calls are switched at LDCAs (Long Distance Charging Centres) as unit, which should no be disturbed. The modality of access should be both dial-around and by pre-selection. (Railways)
- Initially it could be dial around till carrier selection becomes technically feasible. Carrier selection should be introduced latest by 3 years of opening of DLD services. (ABTO)
- The customer should be allowed to exercise choice through a neutral ballot process. All the customers, who do not exercise choice for DLDO, may be allocated amongst different operators in the same ratio as determined through the ballot of the participating customers. Alternatively, if the customer does not exercise the choice, the choice of DLDO can be left to the AP. (ABTO)
- Any balloting without the actual experience of the service by different DLDOs will be premature. It is best to consider the whole issue of changeover to pre-selection access, at some time in the future. It is a moot point whether it should at all be forced on the subscribers, for whom it means a limitation on their choice. (Shri D.K. Sangal)
- A mix of both modes of selection be given to the consumers. (Essar)

- Access should preferably be through pre-selection from the beginning. (COAI) CAC should have dialling parity and should be used to identify a long distance carrier by a customer of any AP in order to promote free choice and equal competition. (Shri D. N. Nanda, BT) Pre-selection is highly complicated, may be reviewed after 10 years. (COAI)
- It will be desirable that a technical group consisting of representatives of DOT and other AP's chaired by a representative from TRAI be assigned the task of devising a scheme for dialling access to different DLDOs and APs. The aim should be to devise a suitable scheme of access codes of uniform number of digits for the DLDO's and AP's with adequate provision for additional players at a later date. (Shri D.K. Sangal)
- Pre-set Carrier selection in the initial phase based on destination ABC Keying code. At a later stage when the new National Numbering Scheme is in place, a degree of dynamic selection may be possible. (Shri P.K. Roy Choudhary)
- The modality for pre-selection access provider should be competitiveness both for charges as well as quality of service and hence should be left to the customer. (Railways)
- Whenever pre-selection is implemented in the DOT network, ballot or any other natural selection process may be resorted to in choosing the desired DLDO. (DOT)
- Dialling parity should be introduced for AP also through CAC. (ABTO, COAI, idfc)
- If the subscriber does not dial Carrier Access Code (CAC), the call should be routed through the pre-determined long distance network of the Access Service Provider. (DOT)
- CACs with dialling parity be introduced subject to conformity with the national numbering plan requirement (MTNL, RITES, BPL Brand, BPL Mobile)
- DLDOs should not be permitted to set up STD PCOs. STD PCO is an act of access provisioning and for which separate licenses have been given. The licensed STD PCO franchisee should not have the choice of another DLDO because STD PCO operator is given commission on the revenue earned for usage of its long distance network. There are technical problems also in this regard. (DOT, MTNL)
- Setting up of PCOs by the DLDO will interfere with the functions of basic services. DLDO need not be permitted to provide last mile. PCO operator need not give choice to its subscriber for selecting a DLDO. (MTNL, Essar)
- As a rule the DLDOs should not be in retail business of providing STD PCO's particularly in areas where APs already have such PCOs operating. However if they are able to provide STD PCOs in remote and out of way locations not covered by APs they should certainly do so. A provision along these lines may be included in the license. If the code based dial around access is adopted, there should be no difficulty in users routing the call through the DLDO of their choice and it can be made obligatory for the PCO operators to permit such choice. On the other hand if pre-selection is adopted, choice will have to be entirely of the PCO operator, it will just not be feasible to give the users any choice in the matter. (Shri D.K. Sangal)
- DLDOs may be allowed to set up PCOs and provide direct access to customers only after obtaining FSP license and paying the requisite entry fee. The policy should make it mandatory for existing PCO to give their customers a choice of DLDOs subject to technical feasibility. (ABTO)
- DLDO be allowed to set up STD/PCOs without bypassing AP (Access Provider). The policy should make it mandatory for existing PCO operators to give the facility of choice of DLDO operator to a customer. (Railways)
- DLDOs should not operate PCOs unless they are Access Providers also. (TCIL)
- DLDOs should be allowed to set up STD PCOs (Shri D.N. Nanda, TERI, idfc) without bypassing the AP. It should be mandatory for existing PCO operators to give their customers a choice of DLD operators (BPL Broadband, Next Age, BPL Mobile)
- DLDOs may not be allowed to set up STD PCOs. They may, however, operator on franchise. (Shri P.K. Roy Choudhary)
- Existing PCO operators must give a choice to their customers for DLDO selection in line with the NTP 1999. (PGCIL, BPL Mobile, Essar, COAI)
- DLDOs may be prohibited from giving differential DLD rates to end -users of PCOs. (Essar)
- DLDOs should only be allowed to carry interstate calls and not allowed to enter local loops of the APs. (Essar)
- It is assumed that as the cellular pre-paid cash card is subject to forbearance on matters of tariff, so would basic services cash card be subject to forbearance. AP would be free to offer bundled access calling cards along with the DLDO. (Essar)

### 2.7.2 Interconnectivity at Borders

33. Should the entities be allowed to interconnect at borders, as envisaged in NTP'99? Will the entities need a license? Should the terms of license be preferential?

#### Comments Received

- The mobile and fixed service operators can interconnect within their service areas. The border crossing by the fixed and the cellular operator be permitted only through DLDO operators. (DOT, Next Age)
- Existing entities should not be allowed to connect at borders. If allowed, the DLDO be compensated for revenue loss. (DOT, PGCIL, RITES)
- Allowing inter-circle connectivity to circle operators would give incentive for quick rollout of the network. (BT)
- The entities should be allowed to interconnect at the borders. (Essar) There should be no need to issue license for such interconnects. (MTNL, IRCON, BPL Mobile, BPL Broadband, BPL Mobile, COAI)
- NTP'99 no doubt envisages such interconnection. It is however premature and would work against the viability of DLDOs. It is best that this be reviewed say after five years when the question of further opening of DLD operations is considered. (Shri D.K. Sangal)
- Entities may be permitted to interconnect at borders, only if they have acquired appropriate DLD license. (ABTO)
- Regional networks may be allowed to grow by free interconnection between Circle Networks. No separate regional licenses are, however, favoured. (Shri P.K. Roy Choudhary)
- No Interconnection at borders. (Railways)
- A new DLDO should make a comprehensive plan for nation-wide coverage. The network rollout may be spread over reasonable period of 2-5 years, starting with level -1 tax and extending to level-2 Tax. With the emergence of WDM transmission technology and introduction of ATM and SDH in the national network, the cost of long distance circuits are declining resulting into convergence of long distance and local services. Development in technology has impact on the POIs. In the long run, it may worthwhile that the regulator determines the POIs between the various networks. (Dr. S. K. Hajela)
- The Indian Government should consider limiting regulation of interconnection arrangements to those instances where:
  - The service is necessary for competition in the market for domestic long distance services; and
  - The firm supplying that service has a natural monopoly or there is regulation that limits competition to a small number of competitors. In such circumstances, the access provider has an incentive to extract monopoly rents from the access provider to the detriment of end-users. (Telstra)
- There is considerable debate internationally as to the appropriate benchmark regulators should use when assessing interconnect prices. Suggestions have ranged from the long-run marginal cost of preserving the network as a lower bound through to the Efficient Component Pricing Rule (ECPR) as an upper bound. The ECPR is long-run marginal cost plus the opportunity cost to the incumbent in terms of foregone supra-normal profits and contributions to overhead. A variant of the ECPR has been applied in New Zealand. (Telstra)
- Appropriate payment in lieu of entry fee in those cases where the service provider has only a license for a specific circle but does not have a DLD license. (idfc)



### **2.7.3 Interconnectivity with VSNL**

34. What should be DLDOs' status vis-à-vis international calling services? Should DLDOs be allowed to provide this service to customers? In case DLDO is only a carrier then what should be the revenue sharing arrangement between FSP/CMSP and DLDO? Should it be in accordance with the TRAI Interconnection Regulation or based on commercial negotiation?

#### Comments Received

- Interconnectivity of FSPs and CMSPs with VSNL should, be through the DLDO. The access deficit of fixed service providers be covered by the DLDO. The DLDO should not be allowed to provide access service to the customers for international calling. The revenue sharing arrangement between VSNL, DLDO and access provider be based on commercial negotiations in line with TRAI's recommendations. (DOT, PGCIL, Shri D. N. Nanda, MTNL, IRCON, Next Age, BPL Mobile, ABTO)
- The consumer should have the right to choose his preferred DLD Carrier for the carriage of domestic portion of his international call. (BT)
- DLDO should be allowed to provide this service for Non-PSTN traffic. (Shri P.K. Roy Choudhary)
- APs should be allowed to directly connect with the VSNL. Revenue sharing arrangement between AP and DLDO be based on the TRAI's cost based principle. (Essar, IDFC)
- Licensed FSPs / CMSPs and DLDOs should be allowed direct interconnectivity with VSNL. (COAI)
- The new entrant DLDO should certainly be allowed to handle international traffic as a carrier between APs and VSNL in competition with DOT. While the revenue sharing should ideally be based on commercial negotiation, it may become necessary for TRAI to intervene and provide suitable guidelines/benchmarks. (Shri D.K. Sangal)
- DLDOs should be allowed to have direct connectivity with VSNL. (Dr. S. K. Hajela) As far as revenue sharing arrangements are concerned it should be in conformity with TRAI Interconnection Regulation. DLDO to own the charges for the domestic leg of the call, and for the foreign leg, it should be VSNL. (Railways)
- PCO operators should give choice of DLD operators to customers, if technically feasible to support different tariff packages offered by different DLDOs by a single charge indicator. The technical feasibility and costs involved will have to be examined before making it mandatory for the PCO operators to offer choice of DLDO to the customers. (ABTO)

### **2.7.4 Bundling**

35. What should be the regulatory mechanism to prevent anti-competitive behaviour through bundling?

#### Comments Received

- Mixed bundling may be permitted along with Tariff reporting requirement to the TRAI. (DOT, ABTO)
- Bundling should be left to the market forces in the interest of consumers. (MTNL)

- Bundling in general benefits public (TCIL, Shri D.K. Sangal)
- Less scope for bundling in case there is a sufficient competition (RITES)
- Unbundling of services is essential with the introduction of competition in DLD. (PGCIL )
- Unbundled for different services. Packaging of tariffs " local + DLD" should be allowed as it benefits customers. (COAI)
- Liberalisation seeks as a prerequisite an unbundling of services. The DLDO should be prohibited from entering into any discriminatory / bundled pricing with any one of the APs. (Essar)
- Interconnect arrangements must be transparent, reasonable and sufficiently unbundled so that the new entrant only pays for the network elements it uses and for a fair proportion of relevant overheads. This can only be fully achieved by SMP operators providing detailed cost apportionment methodologies linked to Regulatory accounts. Our view is that the appropriate basis for interconnect charges is Long Run incremental Cost (LRIC) as this is the effective charge that would apply in a competitive market. (OFTEL)
- To avoid bundling, set tariffs on the performance, which can be benchmarked, to the international standards. (TERI)
- All anti-competitive behaviour including bundling be regulated by TRAI. (BPL Mobile, Mr. D.N. Nanda, Shri. P.K. Roy choudhary, idfc)
- The competitive safeguards contained in the TRAI Act are inappropriate, inadequate and non-specific. They are non-specific and discretionary and there is no transparency in the rules and "how" they will be administered. In most other regimes, specific provisions relating to competitive safeguards are provided. The provisions should be comparable with those included in the legislation in Hong Kong, Singapore, Australia and U.K Acts. Industry specific authority in telecommunications legislation is preferred over corresponding provisions in anti-trust legislation. (BT)
- Certain regulatory safeguards would be necessary for introduction of competition in DLD through stand-alone DLDOs in view of the response of access arrangements both by dial-around and pre-selection responded to in item 9 above. Compulsory offer of unbundled services with separation of accounts pertaining to complimentary segments viz. Local and DLD along with bundling offer indicating TRAI approved tariff may be made to the customers. (Railways)

### **2.7.5 Bypass**

36. Since a bypass by a DLDO will result in avoidance of payment of access charge, what should be the appropriate policy on bypass of local access by the DLDO?

#### Comments Received

- DLDO be permitted to have connectivity to the access providers only, and not have last mile connectivity/direct access to the customers of the access providers. Therefore, there is no question of bypass of local access by the DLDO. (DOT, Shri D. N. Nanda, MTNL, BPL Mobile, TCIL, Essar)
- There should be some payment for bypassing local access providers. However, there should be no payment for setting up PCOs. (PGCIL)
- Bypass can be allowed if regulation permits so in view of USO fund contributed by the DLDO. (BPL Broadband, idfc)
- By-pass should not be permitted (RITES, Shri P.K. Roy Choudhary, COAI, Railways, Shri D.K. Sangal).
- DLDO should not be permitted direct access to customers without obtaining FSP license for the service area concerned. (ABTO)

## 2.7.6 Universal Service Obligation

37. What should be the contribution of the DLDO to the USO fund?

### Comments Received

- All operators, including the incumbent, should be obliged to pay a proportion of their revenue to finance the USO. This could be in the form of a specific USO levy or it could be as part of the revenue sharing arrangement. (BT, COAI)
- 5-7% of the revenue may be a suggestion for USO deficit. (BT)
- There should be contribution from the DLDO to the USO fund from the direct long distance revenue and also from the revenue of value added services. (DOT, MTNL, RITES, ABTO) The contribution to USO fund should depend on the revenue earnings of the DLDOs vis-a-vis other APs/ Sps. (ABTO)
  
- The extent of obligation on infrastructure owners should be low and not too onerous so that it helps in the development of infrastructure. (PGCIL)
  
- USO should be funded from the license fee. (BPL Mobile)
- The USO levy should not form part of license fee payable by operators but be in the nature of a surcharge levied on the subscribers' / users' bills and should be in addition to the cost of service payable under the appropriate tariffs. (Shri D.K. Sangal)
- No contribution as DLDOs themselves advance the spread of USO (TCIL)
- A mechanism for levy of Access Deficit Charge will be needed. (Shri D.N. Nanda, Shri P.K. Roy Choudhary)
- The revenue share / license fee should comprise of Government Revenue (levy/tax), USO fund, regulatory expenses. All license fee /revenue share determination be done by adjusting the existing 5% service tax upwards or downwards. (Essar)
- 1% and 2% of net revenue be contributed to the USO fund by the private operators and the incumbent, respectively. The new operators contribute 0.01% and the incumbent 0.05% towards the regulatory expenses. (Essar)
- DLDO should contribute to USO fund. However, the mechanism to arrive at the extent of contribution should be worked out by the TRAI and legislated.(Railways)
- Whilst access deficit contributions proposal may be economically justified sound, it has drawbacks in practice. The UK experience of access charges is that they constitute a barrier to entry (the UK actually waived payment of most access charges for new entrants before they were finally abolished) and that it limits incentive for incumbents to rebalance or to improve efficiently in the access network. We see no drawbacks in new entrants avoiding access charges by providing their own direct connections to customers. This is surely a positive step. (OFTEL)
- It is suggested that one time entrance fees and the shared revenue of 2% should be put in a pool called Universal Telecom Access Fund (UTAF). This fund should be under disposal of TRAI and it should cover the costs of licensing and regulation and oversight. Also the fund may be utilised for helping the placement of public telephones (PTS) in villages. (TUGI)
- The contribution should be uniform across different providers and types of service in order to prevent transfer pricing and limit the impact on relative prices. One most efficient cost method would be to specify service obligations in uneconomic areas and without the provision of the specified service in these areas on a minimum subsidy basis. A number of non-pecuniary benefits associated with the provision of service may also be taken into account. (idfc)

-  
-

## 2.7.7 Customer Billing

38. Should the regulator make it mandatory for the AP to provide customer-billing service to the DLDO at reasonable terms? Should the regulator specify the reference terms and conditions including cost-based charges for this service?

### Comments Received

- Billing by DLDO requires 100% Caller Line Identification (CLI) which is presently not available. The access provider should be duly compensated for the administrative expenses to set this up. (DOT, BT)
- APs should provide customer-billing services to DLDOs based on incremental cost based charges. (PGCIL, BPL Mobile, Next Age, Shri D.N. Nanda, RITES, TCIL)
- Billing not to be a mandatory service to be provided by the AP to the DLDOs and be left to the market forces and be subject to commercial arrangements between APs and DLDOs. (MTNL, Shri P. K. Roy Choudhary, Essar, COAI, IDFC)
- The regulator should make it mandatory for the APs to provide customer-billing service to the DLDO at reasonable terms. Since AP only has the ability to deny telecom facilities to the defaulters, such a provision is necessary in order to reduce bad debts. The regulator should frame the model terms and conditions; the actual arrangements may be arrived at between the operators by bilateral negotiations. If mutually acceptable agreement can not be arrived at within a specified time frame (say 3 months), the regulator should have the mandate to intervene. (ABTO)
- Billing for DLDO/s by the APs appears to be the most practical and cost effective solution. Ideally the terms and conditions and charges for this service should be settled among the operators by commercial negotiations wherein two parties will have to consider the costs and savings and arrive at a reasonable arrangement. If this approach fails the TRAI may have to step in and provide certain benchmarks. (Shri D.K. Sangal)
- DLDO will give the customer bill to the AP, who will make collections through his regular customer bills as AP. Collection will be made by AP. Terms to be settled bi-laterally. (BPL Mobile)
- The reference terms and conditions should be laid down by the regulators so that the service is provided which is cost effective and uniform. A.P has to be compensated for administrative expenses. (Railways)

## **2.7.8 Business Service Networks**

39. Should business service networks be permitted in view of bypass of USO and access deficit?

### Comments Received

- **Business service network may be permitted only for private use of business with adequate safeguards to prevent bypass and adequate compensation to USO funds and access deficit. (DOT, Railways)**
- Business service networks may be permitted. (PGCIL, BT, Next Age, Shri D.N. Nanda, ABTO, idfc) But they should not connect to other public networks like PSTN, CMTS, DLDO etc. (ABTO)
- Operator providing business service networks would be obliged to make revenue-based USO contribution (BT, Shri P.K. Roy Choudhary)
- Business service networks not to be permitted. (MTNL, RITES, COAI)
- The DLDO/s should be permitted to provide closed user group networks. Third party connections through such closed user groups should not be permitted. These closed user group networks will no doubt result in bypassing the APs and escape any charges on account of access deficit, which TRAI may impose. However it should not necessarily mean bypassing the USO levy which can be imposed on all billing by the DLDO/s and APs. (Shri D.K. Sangal)

## **2.8 Selection Criteria and Licensing**

40. What eligibility criteria should be set?
41. What selection criteria should be set? What should be the weightage accorded to each technical parameter? Should the criteria favour existing service providers, planning to become a DLDO by interconnecting at borders?
42. What should be the evaluation criteria? In case the evaluation criteria require relative weightage for technical and financial proposals then what should be the appropriate weightage?
43. What should be the modality for estimating entry fees in case of full, restricted and limited competition that is not based on bidding?
44. How should license fee be estimated? Should it be related to perceived profitability of operations or for recovering regulatory expenses? What percentage of its revenue should an operator contribute?
45. Should network obligations be imposed on a DLDO? What should be the basis? What should be the target and timeframe?
46. What should be the license period for a DLDO?
47. What should be the terms and conditions for a DLDO license agreement?

### Comments Received

- The Government should decide the criteria for eligibility selection, evaluation, structure and modalities of license fee for DLDOs. (DOT)
- The potential bidder should be an Indian Public Limited company or a consortium of India Public Limited Companies. Both private and public sector companies and their consortia should be eligible on equal footing. If the Indian Company singly or in a consortium is a joint venture with a foreign company, the foreign equity shall not exceed 25% (figure committed by India at WTO). (Shri D.K. Sangal)
- Only serious player should bid. This can be done by fixing entry barriers such as right amount of entry fee and pre-fixing the minimum performance commitments. (ABTO)
- License should be available on demand without any entry fee. The purpose of entry fee of government revenue can be met through revenue share. (Essar)
- Eligibility criteria be based on techno-commercial capabilities of the bidders including suitable weightage to the Network roll out plan, experience in telecom sector, existing resources, technical capabilities, manpower availability and financial soundness. (MTNL, COAI, Railways)
- The companies participating in DLD service need not necessarily have any prior experience in operating DLD or AP service. (Shri D.K. Sangal)
- Technical proposals be evaluated first followed by evaluation of financial proposals of short listed bidders. The selection should be based on competitive financial bids. (MTNL, TERI, Railways)
- Entry should be in terms of the eligibility criteria of technical qualification and the bid bonds. If the number of eligible bidders is less than or equal to the total number of licenses proposed, each one of them should be given the license based on the reserve price in terms of one time entry fee without calling for any financial bids. For this the tender should specify the number of licenses that are proposed to be given in each category as also the reserve entry fee that would be applicable to each license. In case the number of eligible bidders is more than the number of licenses available, financial bids should be invited, but only in respect of one time entry fee. The proposed revenue sharing percentage must not be put to bid. The top bidders should be selected, but H2 or H3 should not be asked to match the bid of the H1, so long as H2 is above the reserve price. (ABTO, Railways)
- To be eligible the DLDO must submit a detailed roll-on plan with indicative details of the traffic forecasts, and plans for the construction of transmission and switching networks including the technologies and products proposed to be used. They must also submit a financing plan with sources of financing and letters of commitment from various financiers. (Shri D.K. Sangal)
- 50% weightage each for technical / operational experience and financial proposal (IRCON).
- More weightage to financial capability for infrastructure providers; and more weightage to technical capability for DLDOs. (Next Age)
- The highest license entry fee and a fixed percentage of revenue (which could be fixed say at 0.1 percent) should be the basis. (Railways)
- Prices of the services should be totally independent of the license fee as a rule so that they reflect the efficiency of an operator in providing a quality service product. Ideally the burden of license fee should be borne through his achievement of better operational efficiency rather than through a charge from the customer. (Dr. S. K. Hajela)

- 5% of the intra state and inter state revenue of a particular state may be the entry fee for every private telecom operator wanting to be a domestic DLD company in that state. (TUGI)
- One time entry fee may be spread out over a period of one year to be paid in 4 instalments. Revenue sharing should not be more than 2% and be payable at the end of every quarter after accounts are settled between the company and the Ministry of Communications. (TUGI)
- Only registration and no selection. (RITES)
- Selection criteria
  - One time entry fee – 25% weightage (MTNL) ; 40% weightage (Shri D.K. Sangal)
  - Contribution to USO fund in terms of percentage of gross revenue – 25% (MTNL)
  - Revenue sharing based on net revenue – 50% weightage (MTNL)
  - Total networth of the company should not be less than the anticipated investment in 5 years of the DLDO operations. (Shri D.K. Sangal)
  - In case of joint venture with a foreign company the networth of the Indian partners should not be less than 1.5 times the anticipated investment in first five years of the DLDO operations. That of foreign partners should not be less than 0.5 times of the anticipated investment in first five years of the DLDO operations. (Shri D.K. Sangal)
  - The quality of roll-out plan, time frame for coverage of all essential POP's particularly those in Eastern Region including North East, J&K, Himachal and Hills of Uttar Pradesh and the connecting transmission and switching network – 30% weightage. (Shri D.K. Sangal)
  - The quality of feasibility project report covering realistic costing and revenue studies and typing up of funds to finance the project and secure the necessary expertise – 30% weightage. (Shri D.K. Sangal)
- The selection criteria should be based on technological superiority, resulting into creation of most efficient network resource, operational efficiency and the lowest prices at which various service product offering to customers can be made meeting the corresponding quality of service standards prescribed by the TRAI. ((Dr. S. k. Hajela, idfc)
- Infrastructure providers listed in NTP 1999 should be given automatic license to provide DLD services at terms no less favourable than other operators. (PGCIL)
- Small entry fee as a percentage of revenue share of anticipated traffic of DLDO (IRCON).
- Entry fee should be based on annul business potential. It should be high enough to prevent non-serious players but should not be very high to impact tariffs. In view of the NTP 1999 objective, best international practices should be considered. (COAI)
- License fee should be based on viability, considering a minimum rate of return required for any worth while business proposition. License fee should be enough to fund gross of licensing, regulation and USO obligations. (COAI)
- The license fee should on the overage, not exceed another 5% of the gross revenue of operators. There is some justification of grading the license fee according to the potential for earning. Following graded scheme is suggested:
  - i. (i) Revenue generated in Metro Cities 10%
  - ii. (ii) Revenue generated from Ahmedabad, Bangalore, Hyderabad and Pune : 8%
  - (iii) Revenue generated from other cities of more than
    - iii. 2 lakhs population 6%
    - iv. (iv) Revenue generated from all other stations except those in
    - v. North East, J&K, Himachal Pradesh, Hills of Uttar Pradesh,
    - vi. tribal Districts of Madhya Pradesh, Rajasthan, Orissa and Bihar and Sikkim: 4%
  - vii. (v) Revenues generated in North East, J&K, HP, Hills of UP,
  - viii. Tribal districts of Madhya Pradesh, Rajasthan Orissa
  - ix. and Sikkim: 2%

- x. This license fee would be distinct from any USO levy and would be payable by the Licensee/s. USO levy would on the other hand be levied on the subscribers'/users' bills and would be in addition to the cost of service payable by them under the appropriate tariffs. (Shri D.K. Sangal)
- No entry barrier/ high revenue share. Sri Lankan model of 1% of capital expenditure to be paid to the Government can be adopted. (Hughes Escort)
  - Entry fee may be linked to the investment proposal as a percentage of the same rather than a fixed amount. A reasonable figure should be 3% of the investment. (Dr. S. K. Hajela)
  - Selection criteria should include
    - Ownership parameter (BPL Mobile)
    - Experience in constructing/operating modern telecom backbone (BT, MTNL, BPL Mobile, IRCON, Trans Capital, Next Age)
    - Financial soundness backed by bank guarantee for sufficiently large amount as in the ISP Model; Capability in telecom business. Adequate Bank guarantee (say Rs.50 Crore) (RITES)
    - Commitment to provide a network of latest technology (BT)
    - Demonstration of capacity (BT, MTNL, BPL Mobile, TransCapital)
    - Financial strength, Investment Plan and Funding Mechanism (Next Age)
    - Existing resources (MTNL, IRCON, BPL Mobile)
    - Minimum net worth for facilities based operators should be in a range of Rs.500-800 Crore. No weightage be given to the net worth of foreign promoters. (PGCIL)
    - Extent of the rollout proposed (BT)
    - Speed of the rollout (BT, Next Age)
    - Reputation of the operator and its responsiveness to the needs of the end-user. (BT, Next Age)
    - Commitment towards USO (Next Age)
    - Due weightage to existing infrastructure owners (PGCIL, BPL Mobile)
    - Penalty provisions for failure to meet the terms in the licence fee (BT)
    - The Government should not prescribe or proscribe any technology. The only requirement should be that the network of the DLDOs should be able to interconnect with any other license system with whatever technology it has got. (TUGI)
    - No network obligation (IDFC)
  - The parameters suggested in the Consultation Paper for eligibility, selection and evaluation be adopted. Entry fee should cover regulatory and other fixed expenses incurred by the Government to finalise the suggested approach. Terms and conditions of license as listed in the Consultation Paper (Shri D.N. Nanda)
  - For selection criteria - higher weightage to financial resources than technical capacity to install and operate network. Appropriate attitudes to consumer benefit. Judgements will have regard to reputation of the members of applicant consortium. (BT)
  - The DLDO must undertake an unqualified commitment for providing Points of Presence (POP) at least in each state capital and circle headquarters and 80% of the LDCAs in each circle within a period of 5 years. (DOT)
  - In case of unlimited competition network obligation should be imposed to DLDOs in terms of creating a minimum capacity for backbone and TAX switching in a time bound manner. (ABTO)
  - Establish network within 5 years with assured annual progress. (RITES); cover all Circles within 3 years (BPL Mobile, COAI); Connect all the FSPs within two years of date of license (Shri D.N. Nanda)
  - Network obligations should be imposed on DLDO so as to ensure the implementation of a sector policy and a well-laid out network roll out plan. NLDOs must provide connectivity at least at each State Capital and each Circle HQ of the Region and least at 50% of LDCAs. (Railways)
  - The license period for the DLDO be 20 years (TCIL; MTNL; BPL Mobile, TERI, ABTO, Railways, Shri D.K. Sangal) ; 25 to 30 years – IRCON, RITES, Next Age, COAI) with a provision to extend it
    - for a period of 10 years at a time. (DOT, Shri D. N. Nanda, ABTO, COAI, Shri D.K. Sangal)
    - for a period of 20 years at a time. (PGCIL, BT,TCIL,)
  - License period be 15 years extendable by 10-year increments. (Shri P.K. Roy Choudhary)
  - The terms and conditions of the DLDO license agreement be decided by the Government. (DOT)
  - Entry fee be based on competitive bidding (MTNL).
  - Entry fee as a suitable percentage of Investment Plan and Revenue projected. (Next Age)

- Revenue sharing for license fee should not exceed 1%. (PGCIL)
- In open competition a fee of Rs.2 lakhs as entry fee, in limited competition an entry fee of Rs.1 Crore and in restricted competition appropriate fee in the vicinity of Rs.10 lakhs. (BT)
- License fee to support only cost of issuing and administering the license. (PGCIL, TCIL, Trans Capital, Next Age, RITES, ABTO)
- License fee should be estimated on the basis of perceived profitability of operations. The percentage of revenue sharing be determined by competitive bids. (MTNL)
- Licensing conditions should be kept to minimum checks of technical competence and sound finances. Decisions on the geographical scope of the market, the number of entrance, the services they provide and how they provide those services be best left to the market. (Telstra)
- Terms and Conditions should include
  - Committed technical parameters. (Railways)
  - Interconnection (PGCIL, Shri D. N. Nanda)
  - Numbering plan (PGCIL)
  - Anti-competitive conduct (PGCIL)
  - Abuse of dominant position (PGCIL)
  - Information to be furnished to the TRAI (PGCIL)
  - Tariff regulation (PGCIL)
  - Rights of way (PGCIL)
  - Sharing of facilities (PGCIL)
  - Quality of the network (Shri D. N. Nanda, Railways)
  - Network roll out obligation in terms of provision of nation wide services with 80% geographical coverage within 2 years. (MTNL)
  - Network availability of at least 95 %.(Railways)
  - Time frame for delivery of the network (Shri D. N. Nanda)
  - License fee (Shri D. N. Nanda)
  - Network Obligation (BPL Mobile)
  - Entry fee. (Railways)
  - Timely payment of the percentage of revenue. (Railways)
  - Penalty calls for non performance in respect of availability, quality of service, etc. (Railways)
  - An agreed list of PoPs for inclusion in the bid document. (Shri D. N. Sangal)
  - No network obligations on DLDOs (Next Age)
- Other Issues
  - Free Calls - A regulatory mechanism to compensate the APs for the free call units. (Essar)
  - Same Quality of Service standards be applied to DLDO as are applied to FSP. (Essar)
  - The proposals in this paper do not address measures to deal with anti-competitive behaviour by the incumbent, such as predation, denigration, unfair cross subsidy. It is assumed that these are covered by general competition law. (OFTEL)
- It is known that currently the quality of service on IP packet switched voice is not equal to the current toll quality but world-wide efforts, including those by the International Telecommunications Union, are on to bring up and IP telephony to the current circuit switched standards. Efforts are also on to make all the intelligent services that are available on the PSTN now, into the Internet telephony also. Government should not prohibit or prescribe a particular technology. It should only mention the end result, i.e., if a customer offers voice, it shall be delivered as voice, if he offers packets, they should be delivered as packets, if he offers text, it should be delivered as text but that the carriage and transmission could be in whatever form is most economically and technologically sustainable. (TUGI)
- DLDO should provide national directory maintenance services and enquiry to the customers for long distance. (Essar)
- TRAI may recommend a model license agreement to the licensor. (ABTO)

**ABBREVIATIONS OF THE NAMES OF AGENCIES/PERSONS WHO SENT THEIR COMMENTS ON THE PAPER**



**Sl.No. Name of the Agency / Individual Abbreviation**

1. ASC Enterprises Limited ASC
2. A. M. Joshi, Retd. Wireless Advisor A. M. Joshi
3. Association of Basic Telecom Operators ABTO
4. British Telecom BT
5. BPL Broadband Networks (P) Ltd. BPL Broadband
6. BPL Mobile Communications Ltd. BPL Mobile
7. Cellular Operators Association of India COAI
8. D.N. Nanda, Retd. Member, Telecom Commission D. N. Nanda
9. Department of Telecommunications DOT
10. Devendra Kumar Sangal, Former Secretary, DOT D. K. Sangal
11. Essar Commvision Ltd. Essar
12. ICICI Ltd. ICICI
13. Infrastructure Development Finance Co. Ltd. IDFC
14. Ircon International Ltd. IRCON
15. Mahanagar Telephone Nigam Ltd. MTNL
16. Ministry of Railways Railways
17. Next Age Networks Private Ltd. Next Age
18. Office of Telecommunications, Britain OFTEL
19. Power grid Corporation of India Ltd. PGCIL
20. P. K. Roy Choudhary, Sr.Consultant, TRAI p. k. Roy Chouwhdury
21. Rail India Technical & Economic Services Ltd. RITES
22. Dr. S. K. Hajela, Sr. Consultant, TRAI S. K. Hajela
23. Tata Energy Research Institute TERI
24. TransCapital A. p. Transcapital
25. Telstra India Pvt. Ltd. Telstra
26. Telecom Users Group of India TUGI
27. Telecommunications Consultants India Ltd. TCIL
28. United States of America Government US Government

[Back](#) [Home](#)