



TCOE CC/TRAI/2011-01

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**The Telecom Regulatory Authority of India**

Mahanagar Doorsanchar Bhawan,  
Jawahar Lal Nehru Marg (Old Minto Road),  
Next to Zakir Hussain College,  
New Delhi - 110 002.

**Kind Attention:** Mr. Lav Gupta, Principal Advisor (TD)

Re: **TRAI Consultation Paper on Encouraging Telecom Equipment  
Manufacturing in India**

Dear Sir,

This is with reference to the TRAI Consultation Paper on "Encouraging Telecom Equipment Manufacturing in India". Our comments on the same are placed at enclosure I.

We hope our response will merit your kind consideration and support.

Thanking you,

Yours truly

A handwritten signature in blue ink, appearing to be "J. Jena", with a long horizontal line extending to the right.

Cmde J. Jena  
Director,  
Coordination Centre  
TCOE India

Encl: as above

Copy to:  
Dr. J. S. Sarma, Chairman, TRAI

# **TRAI Consultation Paper on “Encouraging Telecom Equipment Manufacturing In India”**

## **Comments from Telecom Centres of Excellence (TCOE) India**

### **Research & Development**

#### **3.1 What should be the objective and focus of the R&D effort for 2020?**

- We should aim to generate 25% of global IPR in 5G technology space by 2020
- We should endeavour to have at least 20 Indian universities amongst the top 100 institutes globally in terms of ICT R&D.
- We should develop cognitive radio techniques and the associated revenue sharing methodology to ease the extreme spectrum constraint we face.
- We need to develop indigenous routers and switches that are critical from the security point of view along with full control over the network management software
- We need to have an organisation that is able to leverage the knowledge of a substantial number of expat Indians working on cutting edge ICT.
- We should have at least one Indian handset with a minimum of 70% value addition done in India by 2020

#### **3.2 Flowing from the above, what should be the objective and focus of the R&D effort for 2015?**

- We should aim at developing at least one Indian CPE (handset) with complete firmware, software and architecture developed indigenously based on open source platforms. The hardware manufacturing capabilities of other countries may be leveraged.
- We should have dedicated groups of domain experts working on cognitive radio and soft switch technologies
- We need a highly functional and buoyant Telecom Standards Development Organisation by 2015 to ensure that Indian Telecom R&D is aligned to international standards and India specific requirements are reflected therein.
- We should establish a Telecom Entrepreneurship Development Centre to provide a conducive environment comprising of necessary technical, financial, infrastructure and mentoring support for early stage telecom start-ups aimed at creating solutions for rural India and democratizing telecom.
- In order to address the security concerns faced by the Telecom industry, we should set up a Telecom Security Council of India as a Self Regulatory body in PPP mode. It should be a single window set up to provide security certification.
- We should have at least 5 universities/institutes feature amongst the top 100 institutes globally in terms of telecom R&D.
- C-DOT should create an off-shoot organisation to provide a congenial platform for expat Indian experts to pursue their R&D activities to support Indian telecom manufacturing

### **3.3 What is the level of 'Indian Products' that we should attempt to achieve at the end of 2015 and 2020?**

The value addition done to all telecom equipment manufactured in India, whether of indigenous or foreign design, should be increased to 40% by 2015 and 70% by 2020.

### **3.4 What is the broad level of investment required for this effort?**

The broad level of investment required would be roughly 3% of the telecom revenue by 2015 and 4% by 2020 in telecom R&D.

### **3.5 Which Institutions, whether in the Public or private sector, are best suited to carry out this effort? And why?**

- Telecom Centres of Excellence (TCOEs) – TCOE India is a Public Private Partnership initiative to carry out telecom R&D and support capacity building
- Centre for Development of Telematics (C-DOT) – A Govt. of India initiative for telecom R&D, C-DOT has years of experience in technology development
- All Indian Institutes of Technology (IITs) and Indian Institute of Science (IISc) – The premier technical institutes of the country with immense intellectual capital that can be tapped for telecom R&D
- BITS Pilani, National Institutes of Technology (NITs), Indian Institutes of Information Technology (IIITs) along with some select premier private institutes.
- Individual resident researchers engaged in telecom research under the aegis of an University or R&D centre based on merit of their proposal

### **3.6 What can be the linkages established with Institutions or Indians abroad? Will this reduce time delays?**

- All international universities setting up remote campuses in India should have telecom R&D specific programs
- Each TCOE can take up more collaborations with reputed institutes/universities both within and outside India
- C-DOT can create a platform to attract individual expats to strengthen the telecom R&D efforts

Time delays will be reduced as Indian researchers will be able to draw on the knowledge and expertise of the foreign institutions and Indian expats.

### **3.7 What should be the role of the Government and the Industry in regard to the R&D effort? In particular, what should be the investment, if any, by the Government?**

- The Govt. should encourage 20% reservation in deployment of products developed in India and put tariff incentives in place.
- The Govt. can also upgrade the existing telecom R&D/educational institutes in terms of infrastructure and facilities
- Career progression of faculty at Govt. funded institutes should be linked to IPRs & projects undertaken in collaboration with the industry. The faculty should get a share in the revenue generated through projects.

- The Industry should participate in educational institutes by sharing their knowledge and operational experience.
- The industry can also run sandwich programs with the institutes and there should be promised intake of the trained manpower.
- Educational training at the post graduate level should be tailored to the needs of the Industry and R&D organisations.
- The Govt. and the Industry should ensure the establishment of the three organisations vital to the creation of an ecosystem conducive for telecom equipment manufacturing in India, i.e., the Telecom Standards Development Organisation, the Telecom Entrepreneurship Development Centre and the Telecom Security Council of India in PPP mode.

### **3.8 Should an R&D fund be set up? If so, how can the fund be managed effectively to meet its objectives?**

- Yes, an R&D fund should be created and used for funding telecom research & innovation.
- The Fund managers should be accountable for meeting objectives.
- The Fund should be created and managed in PPP mode with 51% investment from the private sector ( by divesting 50% of USO fund contribution from operators) and 49% from the Govt. The Govt. should also provide the set up grant.

### **3.9 What could be the fiscal incentives to be offered by the Government? Should such incentives be linked to any outcome?**

- 200% tax breaks should be given to the industry investing in universities and R&D houses.
- Operators should be given incentives for facilitating testing/field trials of indigenously developed telecom products.

## **Sourcing of Inputs**

### **3.10 What are the components that can be manufactured in the country with due consideration to commercial viability?**

With China in the neighbourhood which has built a robust manufacturing set up with political patronage, it may not be commercially viable to duplicate similar efforts in India. As the cost of hardware is going down every day and the devices are becoming firmware intensive, India can manage with outsourced model of manufacturing with full control over the firmware and software.

### **3.11 What should be the degree of indigenous manufacture of components that we can reasonably achieve a period of 5/10 years?**

The indigenous manufacturing model of components should be to the extent of chip design and getting it fabricated through multiple sources in different country blocks. Some of the strategic components may however necessitate an Indian fab.

**3.12 What, do you think, is the feasibility of setting up of**

**commercially visible fabricating units to manufacture chips, ICs?**

The country should have at least one fab with up-to-date technology for manufacturing ICs. Semi Conductor India Ltd (SCL), Mohali may be augmented to sub micron technology with controlling stake with private investors so that it can swiftly cope up with global technology advances.

**3.13 Is the Duty on components currently being levied high? If so, on what components can the duty be reduced? What are the financial implications and the corresponding benefits?**

No comments.

**3.14 Should electronic Manufacturing service companies be incentivised? If so, how?**

The electronic manufacturing companies should be incentivised depending on the extent of value addition being done by the industry. The value addition should be the sole parameter and needs to be computed with due diligence.

**Manufacturing of equipment**

**3.15 Should the concept of mandatory use Indian products/Indian manufactured products be introduced in the Indian context? If so, can this be introduced immediately or should it be introduced at a later date? If so, by what date?**

The mandatory use of Indian products/Indian manufacturing products may not be practical in the absence of global quality products at competitive price point and should therefore be deferred till a sound manufacturing capability is developed within the country.

**3.16 What could be the percentage to be stipulated for both these categories?**

The sole measure for Indian products and Indian manufacturing products should be the extent of value addition done within the country. Any other method of distinguishing the product may not provide a level playing field to the Indian & Foreign investors and may be counterproductive.

**3.17 What should be, if any, the incentives to be given to individual service providers for use of Indian equipment?**

Incentives may be given to the service providers based on a value addition categorisation of the equipment used. The products may be classified into three categories with value addition index: 30-50%; 50-70%; and above 70%. The incentives thus can be of three categories with maximum being given for higher value addition index.

**3.18 Likewise, what could be the disincentives, if any, for use of imported equipment? This is compatible with international agreements?**

No comments.

**3.19 What could be the duty structure to be imposed on imported goods?**

No comments.

**Promoting Domestic Manufacture**

**3.20 Should a percentage of the Indian market be reserved for the Indian manufacturers? If so, what should be the percentage?**

Any type of reservation may go against network expansion and quality of service to the customers. Instead, the use of Indian manufactured or Indian products should be incentivised with value addition criteria.

**3.21 What, if any, could be the implications of such a step?**

No comments.

**Setting up of Special Zones or Telecom Clusters**

**3.22 What, if any, are the advantages of setting up of clusters for manufacture of Telecom equipment within the country?**

Setting up of Special zones for telecom cluster to manufacture telecom equipment is the right step to go forward and the experiences of STPI can well be utilised in the telecom sector.

**3.23 What is the investment required for setting up of such clusters?**

No comments.

**3.24 How can the financing of such clusters be best done, based on international experience?**

No comments.

**3.25 What would be the lead time required for setting up of such clusters?**

No comments.

**3.26 What are the considerations for the location of such clusters?**

At least 5 clusters in different regions of the country (East, West, South, North and Centre) can be set up on immediate basis to give country wide facility for telecom manufacturing.

**Testing, Standardisation and Accreditation**

**3.27 What, in your opinion, would be the best agency to set up and manage such a common facility/ies?**

While the testing and accreditation agency can be combined to be one, the standardisation agency should be separate. Both these agencies should be set up in Public Private Partnership (PPP) with initial bulk grant from the Government. The agencies should be autonomous, self-sustaining and not for profit organisations maintaining a global standard.

**3.28 What would be the facilities and the level of investment required in such a facility?**

A Government grant of 100 crores (50 crores for standardisation organisation and 50 crores for testing & accreditation lab) over a period of 3 years may be adequate with similar funding coming from the private investors.

**3.29 How will such an investment pay for itself?**

The facilities will be extended on a chargeable basis to offset the OPEX and expansion plans.

**Funding/FDI**

**3.30 What, in your opinion is the likely requirement of Capital for companies that could take up the manufacture of telecom equipment?**

No comments.

**3.31 What could be the best manner of facilitating availability of capital to such firms?**

No comments.

**3.32 Would setting up of Institutions like ITRI be desirable and feasible?**

No comments.

**Duties and Levies**

**3.33 What would you suggest should be the tax structure in respect of imported and indigenous manufacture of telecom equipment, keeping in view the international agreements?**

No comments.