Dear Sir,

Please find enclosed the note from ISA to TRAI. Please revert to us in case any clarifications are needed.

With regards,

Poornima Shenoy

President

**India Semiconductor Association**

*ISA is the premier trade body committed towards building global awareness for the Indian Electronic System Design & Manufacturing (ESDM) industry and supporting its growth through focused initiatives in developing the ecosystem. For more information please visit www.isaonline.org*

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**India Semiconductor Association's Response to TRAI Consultation paper on Domestic Telecom Product Development and Manufacturing**

ISA is the premier trade body representing the Indian Electronic System Design and Manufacturing ESDM industry and has represented it since 2005. It has around 150 members –both domestic and multinational enterprises. ISA is committed towards building global awareness for the Indian ESDM industry and supporting its growth through focused initiatives in developing the ecosystem. ISA works closely with the Government as a knowledge partner on the sector, both at the centre and at the state levels. For more info, please visit, www.isaonline.org

ISA complements TRAI for publishing this consultation paper. We strongly support the view that there are two distinct problems to be tackled, each of which has a different solution:

1) Creating "Indian Products"- that are R&D and IPR-driven and capture the highest value for the country, since the IPR is created and resident in India. Such products should not only be created for India, but also for the world.

2) Manufacturing products in India (whether foreign or Indian)- this is required to create an eco-system for electronic manufacturing services (captive or outsourced) as well as a strong domestic component industry.

The distinction between "Indian Products" and "Manufactured in India" products is very important, so that we can create a policy that would be used for the intended purpose.

Research & Development (R&D)

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

We should create a favorable technical and entrepreneurial environment in India, so as to build globally competitive Indian telecom products, which can address the domestic needs plus generate exports to have a net-trade surplus. We should have least 3 Indian telecom product companies with over $1bn in revenues and ranked amongst Top-3 globally in their category.

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

By 2015, we should have created world-class Indian Products in a majority of the core areas of telecom technologies, which should have established a proven success record in India. The core areas of today's telecom technology are enumerated below:

Packet processing (e.g., routers and switches), optical & microwave radio transmission (e.g., packet transport, SDH, DWDM, carrier ethernet, cross-connects, xPON, IP/SDH/hybrid radios), cellular/mobile base stations and switches (GSM/3G/WiMAX/LTE/Femtocells), next-gen VoIP softswitches, media gateways, security products (e.g., encryptors/decryptors, secrecy devices, deep packet inspection devices and authentication servers), customer premise equipment (e.g. for DSL, Cable, Wi-Fi/WiMAX, FTTx, ONU/ONT, home gateways, L2 & L3 switches),

We should have developed state-of-the-art facilities for testing, standardization and certification in order to support the development of indigenous telecom equipments as well as screening of imported equipment.

We should have participated and made significant contribution to international standards, especially in the area of broadband, since we will represent the largest growth globally for this segment.

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

By 2015 we should be able to meet at least 50% of our total domestic requirement and 75% of our strategic telecom requirements through Indian Products.

By 2020, we should be able to meet at least 75% of our total domestic requirements and over 90% of our strategic telecom requirements with Indian Products.

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

Telecom R&D and product development requires a lot of up-front investment and to achieve the above, a minimum of Rs 5000 Cr of investment will be needed. As a fraction of India's GDP, this amount is miniscule, compared to the spend of other nations.

Today there are many Government organizations like CSIR/DST/DIT which provide R&D funding. We need to synergize such efforts, and provide a focused corpus for funding telecom R&D and products.

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

This must be done through a public-private partnership model. Strong linkages must be established, including a model for joint funding between Government as well as private enterprises. More seminal and basic research on algorithms and designs may be done in academic/reserach institutions while the productization and commercialization should be done by private enterprises. Globally, it has been proven that startups and entreprenerus are more adept at creating successful new technologies companies and we should encourage this.

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

Such linkages will be useful for basic research and standardization efforts. We should also tap the expertise and investments of Indians abroad to setup Indian enterprises for telecom products.

However, the classical model of transfer-of-technology from overseas companies would not work in high-tech products like telecom, since the rate of obsoloscence is high and hence we will need both *know-how* and *know-why* in India.

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?

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

Since India is already well behind other countries in telecom product development, despite having the requisite technical talent, the Government has to take aggressive proactive steps. The Government should aim to match the R&D:GDP ratio of other emerging economies which is 2-3%. The key role that the Government should play is:

- Provide market access to the Indian Products that are developed in the core areas especially for strategic networks. This does not contravene the provisions of WTO.
- Provide the initial corpus for R&D funding and provide grants/soft-loans in the form of matching investments to Indian companies who are developing core products. This corpus should be increased to Rs 5000 Cr over time.
- Make it easy for telecom product companies to access the R&D funding that are already available under various DST, CSIR and DIT funding schemes. These

organizations should have a focused telecom cell. The current limits are too small (they should be raised to upto Rs 100 Cr for any specific product) and the approval should happen in a timebound manner (currently it can take upto 12 months to get approvals). A "go or no-go" should be communicated to the applicant within 60 days.

- Influence global standards so that they address and protect India-specific interests. Set aside at least Rs 25 Cr of annual funding (available to both to academia as well as private companies) to participate in global standardization efforts.
- Provide long-term working capital (upto 7 years) to Indian Product companie, at globally competitive interest rates, so that they can compete with vendors from other countries who have such facilities from their country's banks.
- Create a marketing fund of dedicated fund of Rs 25 Cr per year, to promote the "brand India" for Indian telecom product exports. This fund should be available to all companies developing "Indian Products". Also, existing schemes of export incentives and market development offered by Ministry of Commerce (MDA etc) should be more practical to avail, given the specialized nature of telecom industry.

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

Since Indian telecom product needs to be kickstarted, Governmentshould provide following fiscal incentives:

- Deemed Export status for Indian Products that are sold in India
- Income tax holiday for a period of 10 years, for companies that develop Indian Products (same as what was done for software services industry)
- Provide 300% R&D credit for income tax purposes. Indian Product companies should be exempt from paying MAT.
- Government should develop differential incentive structures depending on the stage of the company. Thus early stage companies with promising ideas should be offered grant money to develop prototypes. Once a commercial prototype is ready, Government should provide loans to help the company take the product to market. Subsequently export credits may be offered when the company starts selling the product(s) in global markets.

<u>Sourcing of Inputs</u>

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

To be globally competitive on costs, we will need high-volumes to make them commercially viable. Hence the components which can be manufactured in country should also have applicability in other electronic industries. These include:

- Bare Printed Circuit Boards (PCBs)
- Passive electronic components like resistors & capacitors (specially those that are specialized)
- Transformers, relays and other power supply components
- Crystals & oscillators
- Mechanical enclosures, plastics, connectors etc.

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

For the above component categories, we should be able to meet 75% of our total domestic requirement by 2015 and over 90% by 2020.

3.12 What, do you think, is the feasibility of setting up of commercially viable fabricating units to manufacture chips, ICs?

The semiconductor fab is highly capital intensive. Besides the initial investment required setting up the fab, it requires injection of capital at regular intervals to upgrade technology and capital equipment. It is also critical to have a plan to ensure capacity utilization of the fab.The world over, the semiconductor fab in many countries has grown with the funding support from their Governments. As we understand, the DIT, GoI has been working proactively to structure suitable incentive package to attract investments to make the project. ISA has been lending prominent support to the GoI in its initiatives. We do hope that as a result of the collective efforts of the GoI and the industry, this important segment (wafer fab) attracts serious technology investors to set up chip manufacturing facility in the country

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?

Firstly, it has to be ensured that duties on components imported for telecom manufacturing should be 0, since the duties on finished products that are being imported is already 0. This is particularly true for components having dual-use, for which duties must be made 0, based on the declaration of end-use. To encourage domestic manufacturing of components, there should be incentives for local manufacturing, as compared to imports.

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

Yes, EMS companies should be incentived so that they do not have any handicap for manufacturing in India, as compared to other countries.

Manufacturing of equipment

3.15 Should the concept of mandatory use of 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?

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

In telecom equipment, since the volumes drive the price down, it is an absolute necessity for the Government the mandate the use of Indian Products to provide the market pull, without which the Indian Product industry will never come out of this vicious circle and become globally competitive.

It should be mandated that all procurement by all Government/Government Licensees/telecom service providers, should at least procure 30% of their annual capex in the form of "Indian Products", beginning immediately. This threshold should be increased by 5% every year, reaching 50% after 4 years. In case, adequate amount of "Indian Products" are not available, then at least "Indian Manufactured Products" must be procured (this will ensure that existing supplier base, who have manufacturing operations in India, is encouraged to scale up). This recommendation is expected to be in compliance to India's WTO commitment. So as to ensure that quality/price to the buyer is not compromised, the price paid should be the same paid for the balance procurement and the quality/technical specs should be the same that is set for imported equipment, based on globally accepted parameters.

In addition, Government funded projects as well as defense/security projects should be built using "Indian Products" only, if they are available in the country and meet the technical specifications. This is in line with any other country, which always prefers to use their local products in defense/security networks.

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

Telecom service providers who use Indian Products can be incentivized in the form of reduction in their license fees, based on the value of the "Indian Products" that they procure annually. They should be allowed to reduce their license fees by an amount equal to 50% of the value of Indian products procured. In case they procure "Manufactured in India" Products, they should be allowed to reduce their license fees by an amount equal to 10% of the purchase value of such Products.

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

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

Certain countries (e.g., Brazil) levy a differential import duty based on the availiability of the same products in their country. India can follow the same model.

In order to procure imported equipment, local manufacturing should be made compulsory within a a period of 18 months. For such products, setting-up a repair centre to provide after-sales support, within 12 weeks of getting supply order, must also be mandated.

In case there are any cases of unfair trade practices under WTO (e.g, anti-dumping duties) then all users must be required to account for the same, to determine their fair price, before comparing it with the price offered by any domestic equipment manufacturer

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?

Please see the response to 3.15, 3.16 and 3.17 above.

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

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

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

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

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

Cluster as a concept is not that relevant for the telecom industry. This industry is though capital intensive, but does not require huge physical areas like other infrastructure industry needs. An EMS eco-system that can be leveraged across the entire electronics product industry (not just telecom) can be created. This will anyway happen wherever there are better infrastructure facilities and need not be tied to specific geographical areas.

Testing, Standarisation and Accreditation

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

These activities are best coordinated by a central Government agency such as the Telecom Engineering Center (TEC), especially since TEC was already doing this in the past. This is critical so that the R&D focus areas, strategic interests of the country and implementation goals are not compromised by pure commercial considerations alone.TEC should be a stakeholder in all Government R&D projects, and made accountable for the successful adaptation and

commercialization of technology. TEC should be strengthened further, and they should also be open to public-private partnership with organizations that have similar experiences.

3.28 What would be the facilities and the level of investment required in such a facility?
3.29 How will such an investment pay for itself?

All operators/users should be mandated to only buy equipment that is certified/tested by TEC. They can then in turn, avoid making investments for their own testing labs (especially for common standards) and pay appropriate testing/accredition fees to TEC. The Government should strengthen our representation and participation in international standards organizations like ITU and IEEE and enable development of locally relevant telecom standards similar to countries like China, Japan and USA.

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?

The manufacture of telecom equipment industry is capital intensive. Developing and testing of product before being available to market can take anywhere from few tens of crores Rupees to a thousands of croroes Rupees depending on the complexity of product being developed. The early stage of new companies would in aggregate would need perhaps 1000 crore Rupees set aside. This would in turn act to stimulate other sources of private funds for co-investing in this category.

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

For funding new start-ups with seed money, there is currently not much private capital available and thus setting up a fund specifically to target funding start-ups in this area is recommended. This fund could be administered by a private operator funded by the Government or in a semi-autonomous organization run jointly with a public-private partnership model. A "fund-of-funds" model may be established on the lines (e.g., KITVEN fund in Karnataka state). The investment board may include representatives from the government, PSUs, VCs, Academia as well as reputed telecom companies in the private sector. DST, DSIR should have specially staffed telecom cells, which are well funded and will dispense funds to promising startups on a fast track.

For investing in R&D to develop "Indian Products", soft loans may be given in the form of reimbursements, in the following manner- 30% of estimated product development cost at concept stage, 50% of cost incurred at the prototype stage and 100% when the product development is completed and commercialized. Such reimbursement should happen on a 1:1 basis, after the company has put in matching contribution from its side.

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

Larger projects requiring development of complex technologies and success in competing against large OEMs from abroad both require one to gather a critical mass of Intellectual Property and Experts in one place, to build organizational ability to provide customer support, and to have marketing and sale effort aimed at large customers. This can hardly be achieved by a start-up that typically has a shorter horizon for achieving profitability. Thus, an organization like ITRI is very much the way to go forward for some types of Industries.

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?

Please see response to 3.9, 3.18 and 3.19 above. Most importantly, if Government can provide the market pull to "Indian Products", funding and the rest of the eco-system will evolve by itself, based on meritocracy. Also, at any point, imports should not have any more incentives as compared to local industry.