(To be circulated on June 6, 2008)

DATE - 6th June 2008
VENUE - International CONFERENCE, ATHENS, GREECE

REGULATORY CHALLENGES FOR BROADBAND INNOVATIONS
LESSONS FROM INDIAN CASE STUDY

- Nripendra Misra, Chairman,
Telecom Regulatory Authority of India (TRAI)

1. The Telecommunications sector in India has registered remarkable growth during last few years. As we all know the growth in telecom is not just the growth of a sector but it has MULTIPLIER-EFFECT on the entire economy. In the world of telecommunications, the Asian region is driving the global expansion, significant contribution coming from mobile subscribers. This region has lower fixed line penetration and strong mobile take up. The research analysts feel that mobile voice is predominantly the engine of growth followed by data communication, Broadband and Next-Generation Networks.

2. The key to the growth of telecom in India has been liberalization, regulatory reforms and competition. The positive regulatory framework has played a major role. Three years back, a target of 250 million telephone subscribers by 2007 was considered too ambitious. We could achieve this target few months ahead of the schedule. Mobile telephony has been growing at an annual rate of over 90%. The overall tele-density of the country is now over 26%. Today we have over 300 million telephone subscribers of

which around 40 million are wire-line subscribers. On an average over 8 million subscribers are being added every month. Ours is the 2nd largest network after China. There are 10.36 million internet subscribers and 4 million broadband subscribers. We have optical fiber backbone of about 77 million route kms in the country. The developments in telecom sector have resulted in massive investment. The capital investment in telecom service sector in year 2006-2007 has been Rs 340.20 billion. Government of India got revenues to the tune of Rs. 250 billion during 2006-2007. This explosion in telecom services is a sign of vigorous, competitive and fast growing sector.

3. There are plenty of evidences to show that telephony, internet and broadband penetration have a high correlation with GDP per capita. Comparative data shows that 1% increase in higher mobile subscriber rate in country results in US $ 200 increase in its GDP per capita. Similarly, for broadband this increase is approx. US$1500. In a recently released report on “The increasingly important Impact of wireless broadband Technology and services in US Economy” by CTIA- the Wireless Association 2008, the trend have been reconfirmed. As per report the broadband services generated productivity gains in U.S.A. worth US$ 28 billion/ year in 2005. It is estimated that by 2016, the productivity gains of mobile wireless and Broadband will be US$ 427 billion per year, higher than combined business of motor vehicle manufacturing and pharmaceutical industry. Surveys and analysis have repeatedly shown that access to Information and

Communication Technologies (ICT) allows the benefit of information availability, business opportunities, social connections which translate into brighter education and economic opportunities.

4. The power of Internet has brought greater awareness of skills and resources, helping Indian markets reach to a diverse global audience. It has played major role in opening up the untapped market of the country and bestowed the benefit of globalization to countries. Broadband provides the opportunity to do the things differently, to achieve better outcome for our people and our country and to ensure continuous success of our economy. The exploitation of the broadband enables ICT, content, applications and services which helped India to become a truly competitive knowledge based economy and leverage citizen to become healthier, better educated and more engaged in their community and society.

5. Faster technological developments in IP Sector are laying greater importance to growth of broadband as IP backbone has emerged as a powerful robust and resilient service delivery platform to provide broadband services. Traditionally Copper cable networks have been utilized to provide broadband in developing countries. The penetration of such cable networks especially in these countries is low due to limited fixed line penetration. Hence situation of broadband penetration is not very encouraging in these developing countries. In such places wireless broadband is a natural choice as penetration of neither copper cable networks

nor optical fibre is high. Therefore, wireless broadband will facilitate the growth as it will require low roll out time and cover large area by utilizing the existing mobile towers. The efficient provisioning for broadband services will require allocation of spectrum to facilitate roll-out of the services. There are more than one claimant for same spectrum band and allocation and efficient spectrum management is a challenge. The cost of the end device is very high today and therefore the popularity of the broadband especially in rural and remote areas will highly depend on affordability of such services. The cost of customer end devices for broadband services highly depends on the volume of such devices as broadband usage using advance wireless technology is picking up. At present the number of such devices in use is low. Harmonization of spectrum will help in reducing the cost of such devices to make it more affordable to common masses. We as a regulator have great challenge in this regard.

6. The very corner stone of any enabling future regulatory environment should be dynamic and should encourage competition. Licensing regime in any country can play crucial role in development of the mobile industry as well as economy in more general terms. Getting licensing regime right and ensuring that it remains appropriate as technologies and markets develop is therefore an important concern for regulators. Traditionally regulatory approaches depend on the clear division between the different services and one to one mapping of these services to different licenses. The increasing popularity of different services on

broadband platform such as internet telephony and enhanced network capabilities to support value added services and applications are posing serious regulatory challenges. The fruits of technological advancements should reach to the common masses and permitting these services under different licenses have level playing field issues. Technology neutrality must be hallmark of any regulatory framework for the progress of convergence. Globally telecommunications are being established by rapid spread of broadband and wireless options. Most policies still reflect the pre-convergence era in which all the intelligence resides inside the network contrary to the internet architecture in which the intelligence is at the edge of the network. The challenge of the regulatory policy is to encourage delivery of contents and applications across the network.

7. While broadband penetration may pick up in urban areas the availability, acceptability and awareness of such services in rural and remote areas are low. As a knowledge bank and development tool we have to ensure broadband availability even to the farthest corner within our jurisdiction. In this regard the large rural urban divide in connectivity is important. If I consider example of India, the tele-density in urban areas is over 50% whereas it is 8% in rural areas. Better telecom services in rural areas will bring economic opportunities to our rural people through better education, improved market access for their products, improved employment prospects and greater purchasing power. The old picture of subscriber in rural area is changing very fast. Now rural

subscribers have the capacity to pay if we can provide him good telecom services with sufficient perceived utility. This can be gauged from the penetration of other domestic goods like refrigerators, motor bikes, cable TV etc. The rural subscribers are willing to avail various advance telecom services. The problem is that telecom operators are not able to provide affordable, reliable and useful value added services perceived to be useful by rural population. We as a regulator have a challenge to look into these issues which will ultimately help to boost broadband penetration in rural and remote areas as well. Once the barrier is broken there shall be enormous growth in telecom field which will have positive impact increasing the paying capacity of villagers resulting in further boost to telecom growth. The challenge of the day is to search for new and cost effective ways to roll- out telecom services in rural areas. It means that one has to choose proper and efficient technology for deployment of telecom services in rural areas and leverage on use of available infrastructure to reduce cost and time of roll-out of services.

8. TRAI has recently taken number of initiatives to boost broadband penetration in India. Few of them are as follows:

    8.1. Allocation of spectrum to provide broadband wireless access

    8.2. Reduce international internet bandwidth cost by facilitating sharing of cable landing station facilities.

    8.3. Sharing of Infrastructure both passive and active

    8.4. Providing broadband at subsidized rate using USO fund in rural, hilly and inaccessible areas.

8.5. Streamlining Right of Way (RoW) procedures to encourage optical fibre laying in Access Network

9. The utility of the broadband not only depends on the access of broadband facilities but also on customer end devices used to access broadband and useful contents and applications. Unless all the three are made available simultaneously, the fruits of broadband will not reach to the common masses. We may note that next generation PCs and laptop may not be in traditional form but will most likely be hand held devices. The acceptability of such converged devices is increasing day by day. We as a regulator has to ensure that convergence is boosted to reduce cost of such devices and any issues coming in the way of convergence is addressed at the earliest.

10. Availability of local applications and content is another area of concern. Most of the content available on the website as of today is in English. The content in local and regional languages will increase interest of the local population in broadband utilization. Broadband can support different platforms and therefore considering specific regional requirements, content development has to be encouraged. The growth of content industry largely depends on regulatory framework to provide such contents to telecom users using existing telecom infrastructure. Instances have been notified in different countries where restrictive access to telecom infrastructure has impacted growth of content industry. While mandating access of telecom network to content providers may not be desirable, efforts have to be made to strike a balance

between requirement of content providers and telecom network operators for benefit of end users. The role of regulator in this regard will be of prime importance.

11. In India number of initiatives to increase the penetration of Broadband such as State Wide Area Network, and Community Information Centre has been undertaken. State Wide Area Networks are being setup to provide 2 Mbps connectivity with provision for wireless connectivity to the village level. The entire scheme involves an outlay of Rs. 334 billion. Government has also decided to provide Community Information Centres to provide community access to Internet. Various planned services include Web Access, E-mail, Market Access, E-commerce, Access to Socio-Economic Databases, E-learning (Computer Aided Learning Processes), E-education, E-medicine, E-consulting, E-governance etc. The State-owned incumbent Bharat Sanchar Nigam Limited (BSNL) has planned to connect 20,000 blocks serving 100,000 Community Service Centers through Asymmetric Digital Subscriber Loop (ADSL) & wireless broadband by end of Sep. 2008.

12. The new technological developments in broadband sector are very fast and encouraging. The migration from traditional Time Division Multiplexing (TDM) networks to next generation networks (NGN) is around the corner. The popularity of IP Multimedia Subsystem (IMS) platforms are increasing day by day. Many countries have already taken lead and facilitated migration to NGN. Governments and Regulators need to play active role to

ensure migration to NGN. This is also an area of challenge for regulators. General consensus is emerging that regulators must provide an environment where migration to NGN is facilitated if not actively driving NGN migration. A very clear regulatory framework has to be in place to ensure appropriate QoS to end users across different networks. This becomes more important in case of broadband as customers, service experience depends on bandwidth availability, package loss, time delay and similar other parameters across the networks. Net neutrality is of prime importance in this regard so that no service or services be discriminated by network operators while such packets pass through their networks. Here again regulatory intervention may be desirable. Also IP networks are prone to attacks and there are issues of security concern. The fast innovations in broadband are going to make IP backbones the critical infrastructure on which different telecom services shall be provided. The vulnerability to such network needs to be judged and suitable remedial actions have to be initiated to protect the network.

13. The future telecom scenario is likely to change very fast if new technological developments as reported are to be believed. It is argued that computing power of PC will be 10,000 times more by 2020 as compared to today. The sizes of devices are going to be reduced drastically encouraging convergence of many devices into one. The concept of grid Internet is going to accelerate Internet access speed by 1000 times giving people a very different environment to live, conduct business and society will undergo

rapid changes. The availability of optical fiber in strong backbone and access to subscriber premises will be important.

14. In fast changing technological environment better mutual cooperation and understanding will be important and advantageous. There is enhanced need for mutual cooperation and forums to share our experience for mutual benefits. Exchange of skilled manpower for short duration will be desirable and may bring new dimensions for fast development. With mutual cooperation, common standardization process and harmonization of the spectrum, we can ensure inter-operability and mass production of devices to reduce the cost. A definite plan of coordination and mutual interaction will ensure fast growth, reduced digital divide and better telecom world tomorrow.

****