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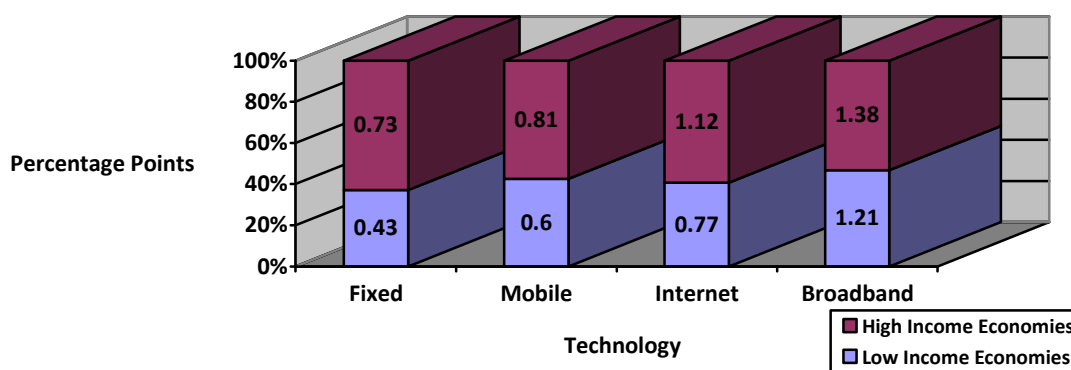**SOURCE:**   Ministry of Communications and Information Technology, India

TITLE: Broadband Capacity, Quality and Speed - India Position Paper 2011

Broadband Capacity, Quality and Speed - India Position Paper 2011

Overview

Internet and broadband are widely recognized as a catalyst for the socio-economic development of the country. The available studies suggest that income of business entities and households increases by the use of ICT. Thus it contributes to the growth in GDP. The World Bank report on economic impact of broadband shows – growth of GDP by 1.38 percent point for each 10 percent increase in broadband penetration – for the developing countries. The broadband has a higher growth impact relative to the all other telecommunication technologies.

Fig. 1. Impact of Broadband on GDP

Technology	Low Income Economies	High Income Economies
Fixed	0.43	0.73
Mobile	0.6	0.81
Internet	0.77	1.12
Broadband	1.21	1.38

Percentage Points vs Technology

Telecom Sector - India

Telecommunications is one of the few sectors in India, which has witnessed the most fundamental structural and institutional reforms since 1991. Indian telecom network has become the second largest telephone network in the world only after China. In recent times, country has emerged as one of the fastest growing telecom markets in the world. Indian telecom network has about 900 million telephone connections as on 31st August 2011 out of which about 866 million are mobile telephone connections.

The target of 500 million telephone connections by 2010 has been achieved in September 2009 itself. Also, the eleventh plan target of 600 million telephone connections by March 2012 has already been achieved in February 2010. However, the growth of internet and broadband has been comparatively slow. There are about 19.7 million internet and 11.8 million broadband subscribers in the country at the end of March 2011. Although the teledensity of 74.96% has been achieved, there exists a wide gap between urban teledensity (164.48%) and rural teledensity (36.23%). Taking into consideration the fact that 70% of the population lives in rural areas, in India, the real challenge will be to connect rural India.

Internet and Broadband Growth in India

The current demand for Internet bandwidth within the country is driven primarily by software exporters, information technology enterprise solutions (ITES), banking, software service providers, and the finance sector. Most of these industry segments are classified under the umbrella of business process outsourcing (BPO), thereby making broadband a key to the back-offices in India.

Home users constitute only a small share (typically in the single digits in terms of usage) of this demand. Applications of broadband in the Western world such as healthcare, telemedicine and video-on-demand are either missing or exist in negligible numbers. Historically, across the globe these segments have implied the emergence of access users that lead to voluminous growth and Internet proliferation, thereby achieving an e-lifestyle.

In India, broadband has been defined as an "always-on" connection with download speeds of 256 Kbps which under the draft New Telecom Policy 2011, is proposed to be revised to 512 kbps and further to 2 Mbps by 2015 & 100 Mbps by 2020. Penetration of broadband in India remains low. There were 0.18 million broadband connections at the end of March 2005. These broadband connections have grown to 10.30 million by the end of September 2010 and 11.8 million at the end of March 2011.

The broadband growth is still largely dependent on urban usage and demand. More than 60% broadband subscribers are in the top ten metros and tier-I cities and more than 75% connections are in top 30 cities. Just 5% of the broadband connections are in rural areas which are meager compared to about 31% of total mobile telephone connections in rural areas.

There are 19.7 million Internet subscribers at the end of Mar-11. Apart from this, 381.40 million wireless subscribers have subscribed to Data services. Share of Broadband subscriptions in total Internet subscriptions was about 60% in Mar-11. Number of Narrowband subscribers was 7.79 million in Mar-11. The total Internet leased line customers stood at 45,275 at the end of Mar-11.

The bandwidth owned by various ISPs for their ISP operations and Internet Leased lines is reported to be 610 GB for International and 403 GB for National at the end of Mar-11.

Fig.2 Growth of Internet / Broadband / Mobile Phones in India
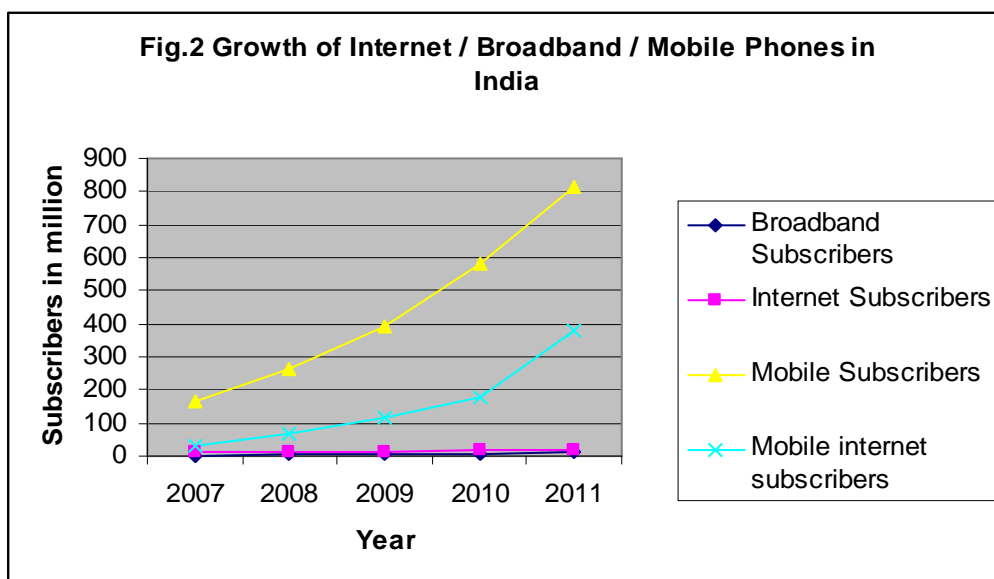
Technology Preferences in India

While broadband has been deployed using Cable Modems, DSL technologies, fiber and wireless, in India DSL has been predominantly used. DSL can be easily deployed on existing copper pairs going to subscriber's premises. The technology

wise breakup of broadband connections is given below which shows that 86.89% of total broadband connections are on DSL. The most common DSL technology deployed is ADSL2 and ADSL 2+. These technologies typically support download speed upto 2 Mbps for copper loop length of less than 3 Kms from the exchange. Higher speeds are possible on shorter loop lengths and pre-qualified copper pairs.

(In Percentage- September 2010)
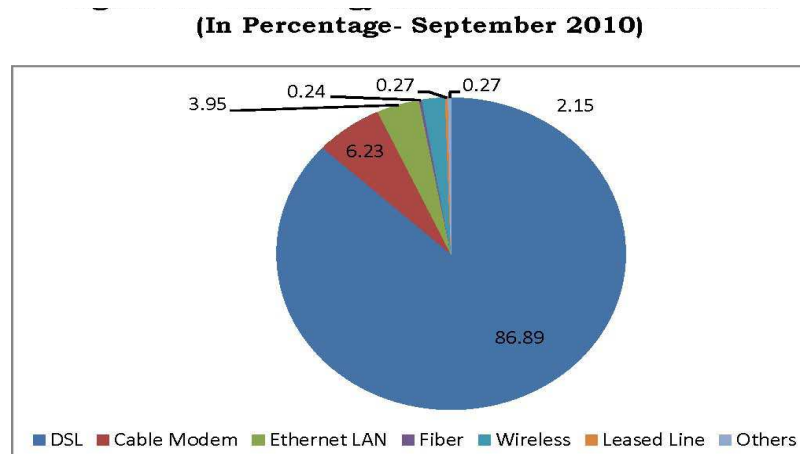
Broadband Penetration Problem in India

Internet usage in India has grown at a modest rate in the past few years. This subscriber growth has been significantly lesser than what was expected. Particularly worrisome is the sluggish growth in the broadband sector of both retail customers and small enterprises. Internet usage in India has grown at a modest rate in the past few years quite in contrast to the demand for cellular lines. The number of Internet subscribers in India has been growing at about 25 percent the actual consumption of bandwidth has been low at 87 Gbps. This subscriber growth is significantly less than what was expected and is about 6 percent of that of People's Republic of China, and 4 percentage of the United States.

Penetration of broadband in India remains low and the targets set in the national broadband policy remain unachieved. High cost of bandwidth is a major reason for the sluggish growth of Internet in India. The problem is on the following fronts:

- Expensive international connectivity through submarine cables.
- The low PC penetration and affordability issue due to high cost
- Poor network operations by ISPs.
- An underdeveloped last mile infrastructure.

To accelerate broadband connectivity, equipments need to be made available at an affordable price. In addition, local content in local languages need to be developed.

RF spectrum being a limited resource, with competing and increasing demands, there is a need to have optimal and efficient use with greater sharing of this resource by all stakeholders. Therefore, effective RF spectrum planning has to be

carried out for short term, medium term, and long term, taking into account the emerging new technologies. In order to achieve the objective of high growth in telephone connections, availability of more spectrum is essential.

Government of India Initiatives for Broadband Proliferation in the Country

The Government of India recognizes that provision of world class telecommunications infrastructure and information is a key to rapid economic and social development of the country. To address this issue, Government of India is working on a National Broadband Plan.

National Broadband Plan

The National Broadband Plan envisages provision of 75 million broadband connections (17 million DSL, 30 Million cable and 28 million wireless broadband) by the year 2012 and 160 million broadband connections (22 million DSL, 78 million cable and 60 million wireless broadband) by the year 2014.

A National Optical Fibre Network (NOFN) is being created which will provide broadband connectivity to 2.5 lakh Gram Panchayats for various applications like e-health, e-education and e-governance etc. The project will be funded by Universal Service Obligation Fund (USoF).

Wireless Broadband deployment

Apart from the above, the wireless broadband is likely to be the preferred route that many operators adopt in delivering broadband services to the masses of the country. Wireless technologies have capabilities to provide widespread broadband access and could drive inclusive growth by way of mobile banking, tele-education, E-governance, tele-medicine etc. One of the key frontiers which would make journey in coming years exciting is the launch of 3G technology. With the introduction of 3G services, wireless broadband will facilitate the growth of broadband even in rural and remote areas.

To achieve the stipulated target, the Government has issued guidelines for Broadband Wireless Access (BWA) Services and auctioned 3G as well as BWA spectrum. Introduction of BWA services will enhance the penetration as well as growth of broadband subscribers. Wi-Max has also been making headway for penetration of wireless broadband connectivity across all the sectors.

The higher capital cost of providing telecom services in rural and remote areas and also low revenue generation due to lower population density, low income and lack of commercial activity in these areas, the penetration of telecom facilities has remained very low. To address this issue and to provide better connectivity to rural and remote areas of the country, Government of India has formulated a Universal Service Support Policy which came into effect from 01.04.2002.

USoF (Universal Service Obligation Fund)

A Universal Service Obligation Fund (USOF) was created and resources for the same are raised through a Universal Service Levy (USL) which has presently been fixed at 5% of the Adjusted Gross Revenue (AGR) of all Telecom Service Providers. The fund, so created is to be utilized exclusively for meeting the Universal Service Obligation.

Various schemes under USoF are helping in providing rural telecom infrastructure and achieving the objective of taking telecom facilities in rural and remote areas of the country. Mobile towers are being set up in rural and remote areas for spread of mobile services. Under USoF, schemes for increasing rural broadband connections are being initiated. Scheme for OFC augmentation between block and district head-quarters across the country are also being initiated. The rural wireless broadband scheme envisages providing broadband coverage to about 5 lakh villages at a speed of 512 kbps (upgradeable to 2 Mbps) across India.

Regulatory Mechanism

Government of India has formed the telecom regulator "Telecom Regulatory Authority of India" (TRAI) under the Telecom Regulatory Authority of India Act, 1997 enacted on March 28, 1997. The goals and objectives of TRAI is focused towards providing a regulatory framework that facilitates achievement of the objectives of Telecom Policy and to encourage greater cooperation in the telecom sector to facilitate better quality telecom services at affordable prices.

The TRAI monitors the performance of service providers in terms of Quality of Service benchmarks laid down by TRAI, through the quarterly Performance Monitoring Reports (PMRs) and monthly congestion reports submitted by the service providers. The TRAI also engages in regular survey on QoS through independent agencies and publish the results.

Policy Initiatives of Government of India - National Telecom Policy-2011

The Government of India is in process of formulating National Telecom Policy-2011. The draft of NTP-2011 has been published for Public Consultations in October 2011. The primary objective of NTP-2011 is maximizing public good by making available affordable, reliable and secure telecommunication and broadband services across the entire country. The Policy envisages recognizing telecom and broadband connectivity as a basic necessity for education, health and governance and work towards **'Right to Broadband'.** Provide affordable and reliable broadband on demand by the year 2015 and to achieve 175 million broadband connections by the year 2017 and 600 million by the year 2020 at minimum 2 Mbps download speed and making available higher speeds of atleast 100 Mbps on demand. Regulatory policies to promote competition by encouraging service providers, whether large or small, to provide value added services under equitable and non-discriminatory conditions. Given the continued predominant role of wireless technologies in delivery of services in ICT sector, NTP-2011 incorporates framework for increasing the availability of spectrum for telecom services including triple play services (voice, video and data) for which broadband is the key driver. This will be facilitated by deployment of services through appropriate instrumentalities, while safeguarding national interests.

Conclusion

The Government of India has a vision to maximize public good by making available affordable, reliable and secure telecommunication and broadband services across the country. The strategy and action plan for broadband penetration includes utilization of existing infrastructure, encouraging the use of alternative technologies, allocation of adequate Spectrum, ensuring adequate and low cost availability of

International and National bandwidth, etc. The thrust is on multiplier effect and transformational impact of broadband on the overall economy and to strike a balance between the interests of users/consumers, service providers and government revenue. It recognizes that availability of low cost computers (PC and laptop) and Smart Hand-held devices at affordable prices will further facilitate the growth of broadband services. It is envisaged that the initiatives to provide broadband on demand across the country will leverage on telecom infrastructure to enable all citizen and businesses, both in rural and urban landscape to participate in the Internet and Web economy thereby ensuring equitable and inclusive development across the nation.

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