



ITU Asia-Pacific Regional Development Forum

Asia-Pacific: *Smartly DIGITAL*



-Digital Intelligent Greener Innovative Transparent Accessible Living-

29 April 2013
Phnom Penh, Cambodia

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BACKGROUND PAPER

Session 1: Harnessing Digital Opportunity through Broadband

Session objective: This Session aims to discuss these challenges, which also offer unique opportunities for all stakeholders in harnessing the potential of broadband through investments in infrastructure, encouraging competition and development of innovative and creative applications/services for the citizens and proposing key connectivity priorities for the Asia-Pacific region.

1. Connectivity and ICT Infrastructure: Still a Priority for Asia-Pacific Countries?

According to latest ICT Facts and Figures¹ report of ITU there will soon be as many mobile-cellular subscriptions as people inhabiting the planet, with the figure set to nudge past the seven billion mark early in 2014. More than half of all mobile subscriptions are now in Asia, which remains the powerhouse of market growth, and by the end of 2013 overall mobile penetration rates will have reached 96% globally, 128% in the developed world, and 89% in developing countries. While 2.7 billion people (39%) of the world's population will be using the Internet by end 2013 access will remain limited in the developing world, with only 31% of the population forecast to be online at the end of 2013, compared with 77% in the developed world. While the good news is that for the first time 1.3 billion women are using the Internet representing 37% of all women, compared with 41% of all men – the gender gap is more pronounced in the developing world, where 16% fewer women than men use the Internet, compared with only 2% fewer women than men in the developed world.

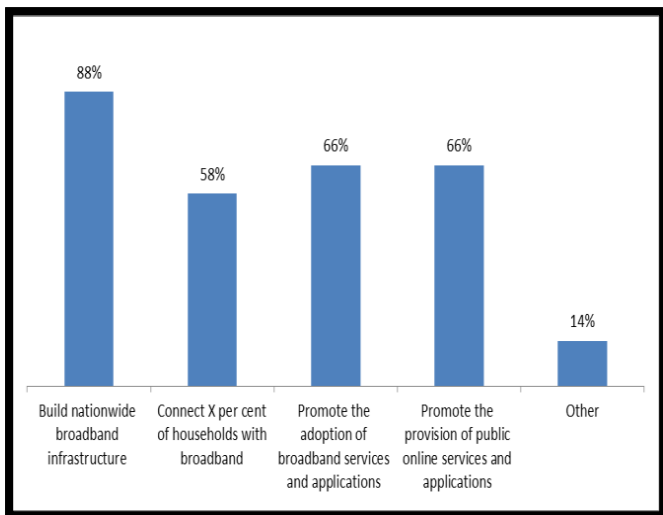
The uptake of both fixed broadband and mobile-broadband services has continued to grow worldwide. In 2013, fixed-broadband services are commercially available in over 206 economies while subscriptions have climbed to almost 700 million, corresponding to a global penetration rate of 9.8 per cent. At the same time, mobile broadband is now

¹ <http://www.itu.int/ITU-D/ict/statistics/>

commercially available in over 160 economies and the number of active mobile-broadband subscriptions has grown by over 30 per cent annually over the last two years, to almost 2.1 billion by 2013.

Data traffic is one of the fastest growth areas² with overall mobile data traffic expected to grow to 10.8 Exabytes (1 Exabyte= 1 Million Terabytes) per month by 2016. About 850 million Facebook users post over 1 billion messages per day through User Generated Contents. At the same time, two billion videos are watched every day on YouTube. One of the fascinating trends is the convergence of desktop, tablets, and smartphones at the OS/Apps layer with Apple, Microsoft, and Google being the three major pillars, although there are issues related to the interoperability of apps platforms.

The advent of next-generation mobile-cellular technologies and the wider adoption of increasingly sophisticated broadband-enabled mobile devices have made access to the digital society more ubiquitous and universal. Smartphones and tablets are fast becoming primary mobile access devices, as they marry functionality with convenience. Some analysts predict that the total number of smartphones reached 1.1 billion by end of 2012, and that this number will triple to reach a total of 3.3 billion in 2018. Smartphones can also create new usage patterns for users out of reach of fixed connectivity. From the developing countries' perspective, smartphones provide a great opportunity for industry to make significant investments in next generation broadband infrastructure while developing applications that can potentially transform the socio-economic development of nations and improve the quality of life.



Mindful of this critical role broadband/ ICTs play, over 145 governments have today adopted or are planning to adopt a national policy, strategy or plan to promote broadband. Many of these broadband policies and plans focus on building nationwide broadband infrastructure, stimulating demand through the adoption of online services and applications such as e-education, e-health/telemedicine, e-government, e-business, and extending connectivity to provide universal access.

Exhibit 1: Goals of the National Broadband Plan, 2012¹

² Cisco Visual Networking Index Global Mobile Data Traffic Forecast

2. Challenges for uptake of Broadband in Asia-Pacific

In Asia-Pacific region, the growth in mobile cellular subscriptions has been lower³ than in the developing world despite the impressive number of new mobile subscriptions that have been added in the region during the past decade. With over 60% (4.3 billion) of the world's population, the Asia-Pacific region is one of the most challenging and diverse geographies in the world, which has great disparity in access and affordability especially for broadband. It therefore, is creating significant broadband divide causing socio-economic disparity, according to the IDI 2012. Similarly, there are huge divides between the few high-income economies and the rest of the economies of the region, in terms of household access and individual use of computers and – particularly – Internet. These are areas that need to be addressed urgently by ICT policymakers, regulators and industry in those economies.

Some of the key issues and challenges that are faced by countries in Asia-Pacific include lack of access to International connectivity (for Landlocked Developing Countries), high international mobile roaming rates and very high international data roaming rates, high cost of access in rural / remote areas especially in countries with difficult terrains and Island nations, unavailability of suitable frameworks for infrastructure sharing, lack of local content, lack of availability of interconnected regional / national Internet Exchange Points, regulatory barriers to flexible and efficient rights for usage of spectrum for broadband services and finally the need to build skill sets to adapt to the fast changing technological innovations.

3. Digital Opportunity through Broadband

Considering the importance of Broadband for socio-economic development and enhancing the national competitiveness in global economy, access and usage of broadband supported by strong national backbones, are increasingly considered as essential services that need to be universally available to all citizens in order to develop networked economies and information societies.

Broadband Leaders Summit in 2011 indicated clear targets for achieving universal access to broadband which countries can use in their national broadband plans while planning for broadband. Earlier, the World Telecommunication Development Conference (WTDC-2010) held in Hyderabad (India) from 24 May to 4 June 2010 adopted, among others, Programme 1: "Information and Communication Infrastructure and Technology Development" as well as Regional Initiatives for Asia-Pacific on Broadband access and uptake in urban and rural areas and Digital Broadcasting. Following are examples of opportunities that broadband offers for countries in Asia-Pacific region.

Box 2: Broadband Targets for 2015

Target 1: Making broadband policy universal. By 2015, all countries should have a national broadband plan or strategy or include broadband in their Universal Access / Service Definitions.

Target 2: Making broadband affordable. By 2015, entry-level broadband services should be made affordable in developing countries through adequate regulation and market forces (amounting to less than 5% of average monthly income).

Target 3: Connecting homes to broadband. By 2015, 40% of households in developing countries should have Internet access.

Target 4: Getting people online. By 2015, Internet user penetration should reach 60% worldwide, 50% in developing countries and 15% in LDCs.

- ITU provided technical assistance to eleven countries for the development of wireless broadband master plans⁴ & national broadband plans as well as roadmaps for thirteen countries for migration from analog to digital broadcasting⁵. ITU has also prepared Guidelines⁶ for several countries for preparing for the migration from legacy networks to Next Generation Networks. These initiatives provide policy certainty which offers clear opportunities for investments in digital infrastructure by the industry.
- The ITU m-Powering Development and Smart Sustainable⁷ Development initiatives seek to act as a catalyst to achieve sustainability by harnessing the power of state-of-the-art ICTs and smart solutions to meet sustainable development goals. They offer a unique opportunity for the development of mobile applications which are seen both as “empowering” users as well as “powering” development and economic activity.
- E-Health: Use of ICT in the health sector promises to transform the way health care services are delivered to citizens and in particular mobile health offers exceptional opportunities for countries to achieve the MDGs relating to Health. ITU and WHO have jointly agreed to fight against debilitating Non-Communicable Diseases⁸ that can be controlled through the intervention of m-Health solutions in particular text messaging and apps. In addition, the ITU –WHO joint initiative for a “National e-Health Strategy Toolkit”⁹ offers an opportunity and resources for developing or revitalizing a country’s e-Health strategy. Further, ITU through its standardization efforts, is working with SDOs as well as WHO in creating interoperable standards for the health sector, which offers a unique opportunity for developing affordable health solutions which are scalable, efficient and interoperable.
- E-education / School Connectivity: ICT offers new opportunities for education via distance learning and online teaching, and ICT skills are increasingly important to students looking at future job opportunities. ICT-connected schools can also play a critical role as community hubs, helping others in towns and villages get online

⁴ http://www.itu.int/ITU-D/tech/broadband_networks/index.html

⁵ http://www.itu.int/ITU-D/tech/digital_broadcasting/project-dbasiapacific/Digital-Migration-Guidelines_EV7.pdf

⁶ http://www.itu.int/ITU-D/tech/NGN/CaseStudies/NGN_CaseStudy_IND_PHIL_SLKA_V2.pdf

⁷ http://www.itu.int/net/pressoffice/press_releases/2012/75.aspx#.UVfmzKJTCSO

⁸ http://www.itu.int/net/pressoffice/press_releases/2012/77.aspx#.UVfm76JTCSO

⁹ http://www.itu.int/dms_pub/itu-d/opb/str/D-STR-E_HEALTH.05-2012-PDF-E.pdf

through shared access to equipment and ICT-trained staff. The ITU Telecommunication Development Bureau (BDT) Connect a School, Connect a Community initiative is a pioneering programme designed to promote broadband Internet connectivity for schools around the world. Based on the Public Private Peoples Partnership model, ITU is connecting schools in Sri Lanka¹⁰ which offers opportunity for industry to reach out to remote communities which otherwise had been untapped markets.

- **Attract new players with Incentives:** Unsatisfied demand for an affordable high speed access service represents a major opportunity for business development and the emergence of new players, who could bring investment thus making available new technologies and services. While active participation of the private sector is essential to ensuring effective and viable broadband supply, governments have a key role to play in the introduction, expansion and provision of services over the broadband. This may include a variety of incentives and the construction of public-owned networks. Some governments have provided direct subsidies for the construction of broadband networks while taking care of maintaining competitive supply. Other investment incentives may take the form of direct subsidies, low-rate loans and tax holidays, amongst others. Whichever strategy is adopted, open access is the key to success. Open access means that all suppliers, whether in horizontal or vertical markets, are able to obtain access to the new network facilities on fair and equivalent terms.
- **Role of Governments:** Government can act as a catalyst to private sector broadband network deployment by becoming a major user of broadband networks deployed by the private sector. Government institutions such as schools, hospitals and community centers can provide an assured customer base for broadband services. This effectively provides a guarantee to private sector providers, creating an incentive for entry into un-served markets. A major challenge that remains is how best to reconcile the business-oriented incentives of operators and investors with the sometimes conflicting socio-economic priorities of governments for the welfare of the citizens – a value which has been emphasized in WSIS goals and MDGs. Governments can also play their part in expanding access with regulatory reforms to help align the profit-oriented incentives of investors with principles of extending access through, for example, market reforms, licensing roll-out requirements, USF levies and by moderating their approach to the taxation of communication services. Governments could also reform their approach to the taxation of telecommunications. Consumers in developing countries often end up paying more far more for equipment(e.g., mobile handsets and laptop computers) than in industrialized economies throughthe imposition of heavy import duties and taxes on luxury purchases. There is substantial evidence that governments stand to

¹⁰ http://www.itu.int/net/newsroom/GSR/2012/reports/connect_school.aspx

gain far more in tax revenues by reducing one-off import duties and sales taxes on the purchase of equipment.

- Governments around the world are focused on encouraging the creation of local content / ICT applications, and the first step involves providing greater access to broadband services. With a greater proportion of the population connected online, there is a greater demand for content and a bigger market to develop. As access grows, countries can continue to develop a base of key online services, such as electronic funds transfer, online government services, e-health, and a range of cultural and educational content.
- Investment in National Infrastructure: Countries from the Asia-Pacific region are making high level commitment for investment in broadband infrastructure. Countries such as R.O. Korea, Japan and Singapore where Broadband deployment is at an advanced stage, clearly demonstrate the results of successful initial investment that broadband infrastructure has attracted. On the other hand, countries such as China, Indonesia, India, Mongolia, Myanmar and Vietnam have substantial commitments for prospective investments in broadband infrastructure deployments.

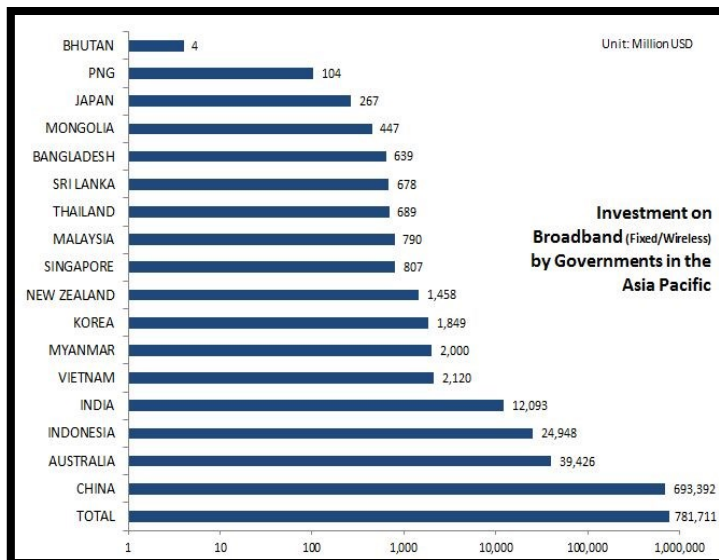


Table 3 shows investment commitments announced by 17 countries from the region that amount to more than 780 billion USD. This presents an unprecedented opportunity for the industry to harness the governments' commitments into profitable investment in ICT infrastructure as well as applications.

Source: Author

Exhibit 3: Commitment for Investment in Broadband in Asia-Pacific

- Investment in Sustainable ICT¹¹: While the ICT industry plays an important role in enabling organizations of other sectors to improve their sustainability performance, the sector's own negative environmental impact continues to rise. The industry needs innovative procedures and processes to deal with environmental data to improve its sustainability tracking, management and performance. New sustainable products are opening up major new markets and creating business opportunities which span from clean technologies, such as renewable energy generation, to sustainable sourcing in the food and agriculture sectors, to innovative design that makes businesses and homes more efficient. The ICT sector will play a key role in enabling other sectors to achieve superior sustainability performance including sustainable products, sustainable building and end-of-life management.
- Smart Sustainable Development Model (SSDM) ¹² : ITU initiative seeks to demonstrate that linking ICT for Development (ICT4D) with ICT for Disaster Management (ICT4DM) leads to increased sustainable development and optimal resource use without additional financial investment. Smart solutions envisage affordable models for ICT infrastructure development, network security and enhanced cybersecurity as well as the development and deployment of new applications, creation of an enabling environment through sound regulations, capacity building and mitigating the effects of climate change while strengthening emergency telecommunications.
- ICT for Persons with Disabilities: Advancements in ICT, especially mobile phones, have made it possible for persons with disabilities, numbering over a billion around the world, to communicate effectively and access information and services. For instance, blind persons are able to access text using voice based technology and deaf persons can use text messages to communicate by phone. In several countries including Afghanistan, Nepal and India, ITU has proposed enabling policy and legislative amendments that facilitate the use of universal service funds and policies for promoting accessible ICTs. Mobile operators in developed countries such as Japan have introduced various innovative voice / data package and services that suit the requirements for persons with disabilities hence creating significant opportunities for generating additional revenues for mobile operators as well as serving the objective of digital inclusion.
- E-Government Services: As telecommunication/ICT networks are deployed, governments are better able to provide e-government services to their citizens, which improve transparency, accountability, utilization of resources and access to governmental services, including health and education. Governments around the world have embraced ICTs and the internet in particular, as a means of

¹¹ http://www.itu.int/dms_pub/itu-t/oth/4B/01/T4B010000060001PDFE.pdf

¹² <http://www.itu.int/ITU-D/emergencytelecoms/initiatives/SSDM.pdf>

mainstreaming public policy decisions, practices and processes, while providing citizens with greater and easier access to government services. Increased information flows between the public and private sector and citizens have improved transparency and accountability and established an environment of trust and reliability between citizens and elected officials in many parts of the world. According to the 2012 United Nations e-government assessment¹³, an efficient use and deployment of suitable e-government services help improve efficiency and effectiveness of public service delivery and use available resources to their best advantage, thus contributing to economic sustainability. E-Government development efforts offer great opportunity for the industry to boost the demand side of broadband.

4. Conclusions and Way Forward

While the role of information and communication technology (ICT)/ broadband for socio-economic developments and improving standards of living for all citizens are well established, there are several challenges that several developing / least developed countries; due to differences in demography, level of development and different national/political priorities, policy and regulatory barriers, lack of access to sizable funds for investment in infrastructure, do not seem to harness the full potential of broadband for accelerated development.

Particular attention should be paid for mobilizing and pulling the resources for achieving accelerated investment in order to achieve the following:

- Complementing and extending the existing access networks to ensure connectivity in the rural and remote areas, through wired or wireless communication systems; and
- Fostering development of enabling environment aimed at attracting investment in the ICT infrastructure, harmonization of policies and regulatory frameworks, as well as human capacity building for maintaining and ensuring sustainability of the established backbone and access networks.

Despite the challenges, the fast pace of ICT development, commitment of leadership for ICT / broadband as engine for socio-economic development, resolve for removing regulatory barriers, surely offers unprecedented opportunity for industry for making sizable investment in backbone networks as well as developing mobile applications covering practically all aspects of human needs such as education, health, entertainment, emergency and finally achieving all Millennium Developments Goals and beyond.

This Session aims to discuss these challenges, which also offer unique opportunities for all stakeholders in harnessing the potential of broadband through investments in infrastructure, encouraging competition and development of innovative and creative

¹³ <http://unpan1.un.org/intradoc/groups/public/documents/un/unpan048065.pdf>

applications/services for the citizens and propose key connectivity priorities for the Asia-Pacific region for next four years cycle of WTDC 2014.

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