

COMMENTS BY LIRNEASIA ON THE CONSULTATION PAPER ON DELIVERING BROADBAND QUICKLY: WHAT HAS TO BE DONE?

Submitted to the Telecom Regulatory Authority of India on the 13th October 2014.

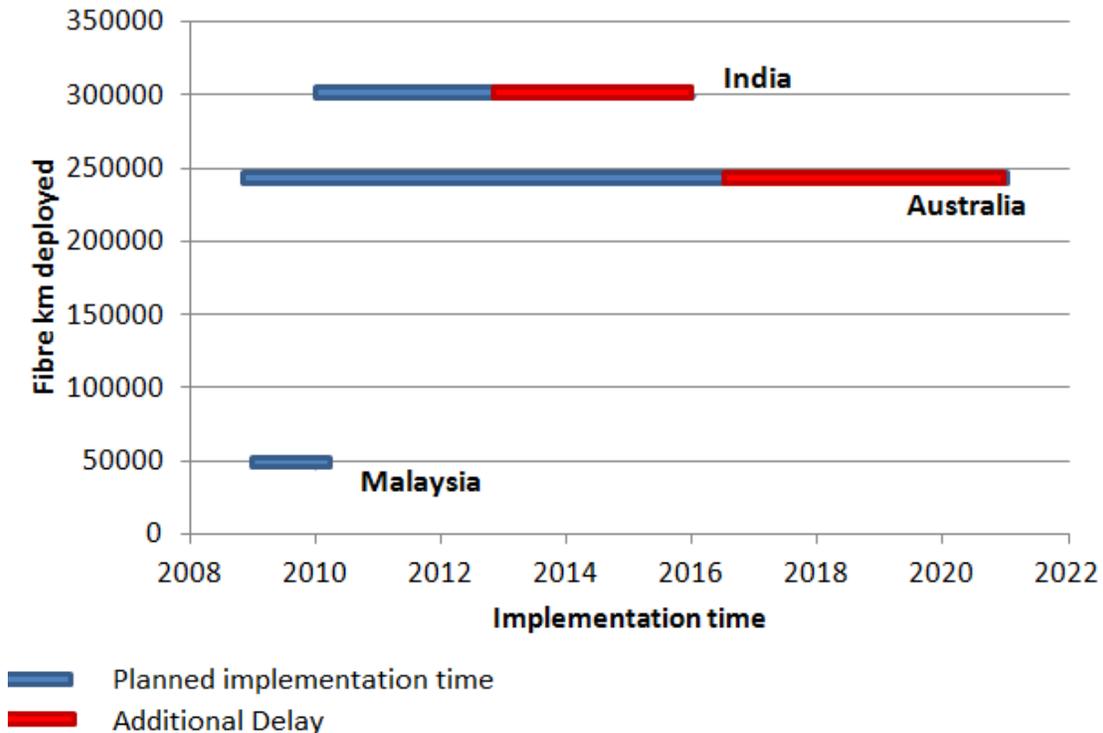
LIRNEasia appreciates the opportunity to offer comments on the delivery of broadband services, and trusts that its research based comments will contribute to the delivery of broadband in India. We have limited our comments to Q7, Q14 and Q21 as these are the areas where we have conducted the most research.

LIRNEasia is a regional information and communication technology (ICT) policy and regulation think tank active across the Asia Pacific. It has commented on numerous TRAI consultations and its Chair, Rohan Samarajiva, PhD, is a regular participant in telecom policy and regulatory events in New Delhi. LIRNEasia also organized an Expert Forum on Broadband Policy on 14th March 2014 in New Delhi (<http://lirneasia.net/2014/04/expert-forum-on-broadband-policy-2014/>). Annex 1 contains the organizational profile.

Q7. Are PSUs ideal choices for implementing the National Optical Fibre Network (NOFN) project?

According to LIRNEasia’s recent research on national broadband initiatives in India, Malaysia, Australia and Indonesia, we found that implementation of broadband networks by government agencies increases delays (Gunaratne, Illavarasan, Rohman, & Fernando, 2014). Figure 1 is a graphical representation of fiber km deployed and implementation time of each of these networks highlighting the additional delay compared to planned implementation time.

Figure 1 – Implementation time vs Fibre deployed



From the figure it can be seen that the countries where the implementation was done by government agencies, i.e., India and Australia have had major delays compared to Malaysia, where the implementation was done by Telecom Malaysia and they met all their targets. The setting-up of Special Purpose Vehicle (SPV) increased the delays, but in addition, in the case of the Indian NOFN the procurement procedures and government ways of doing things added considerable delays. But in Malaysia's case one of the major issues was that it was not carried out competitively since there was no transparent tender process before selecting the implementer.

India should involve private players in the deployment of infrastructure. The last mile connectivity needs to be enabled by the private players who have not shown much interest in the pilot stages. This could have two causes. The private operators may not be convinced about the business case in the target areas. They may also not place adequate trust in the terms and conditions of access to the NOFN capacity. Without certainty on the vital backhaul component, it may not even be possible to develop worthwhile business cases. The deterioration in the overall business climate that has been caused by retroactive taxation changes may also have contributed to the hesitancy of private operators to make additional investments to ensure connectivity reaches the end user. One way to remove these barriers would be to integrate private operators into the governance and operation of NOFN.

It is important to follow transparent technology neutral approach where only performance parameters such as speed, quality of service levels etc. are defined for different stages of the network such as Access, Transmission and all interested service providers are asked to bid for the project, to ensure a more efficient, effective and less costly NBN. Publicly funded NBNs should commit to open access to all operators with public documentation of the terms and conditions of access as well as transparent pricing to ensure non-discrimination.

Under the European State Aid rules, provision of public funding for broadband infrastructure projects requires a commitment to open access. The related guidelines consider open access to mean effective, transparent and non-discriminatory wholesale access to the subsidized network. In addition to open access obligations, the conditions for receiving aid include detailed mapping of private infrastructure, open tender processes, technological neutrality and claw-back mechanisms (OECD, 2013). These safeguards seek to promote competition while fostering rapid roll-out of broadband networks.

Australia's delayed and costly NBN initiative had introduced a number of provisions including the NBN Companies act and the NBN Access act. Essentially, these arrangements establish NBN Co to operate as a wholesale only company, providing retail level telecommunications service providers with access to the NBN on an open and non-discriminatory basis. The Australian effort may be distinguished from the Indian approach because its focus is the last-mile access network and not the backhaul segment as in NOFN. Its original fixation on fiber to the home is likely to be relaxed by the new government. This type of legislation would be useful for India if the Broadband Network is to be implemented by an SPV. More details about the Australian NBN legislation can be accessed <http://lirneasia.net/wp-content/uploads/2014/04/NBN-Australia-Legislative-Framework-governance-and-access-arrangements .pdf>.

Q14. What measures are required to reduce the cost and create a proper eco system for deployment of FTTH in the access network?

We recommend the Indian government de-emphasize the importance of FTTH as the current trend in most developing countries is to access the Internet on mobile devices. This is consistent with the principle of technology neutrality. The government's focus should be on backhaul. If one operator chooses to use fiber to traverse the last mile, it would be good. If another chooses to use wireless, that too is good. The Australian experience well illustrates the negative effects of technology fixation.

While many countries are currently working on FTTH networks, there are a number of studies that question the need for super-fast broadband vs basic connectivity (Kenny & Kenney, 2011), (Marcus & Elixmann, 2014). It is clear that access to Broadband is beneficial (Qiang, Rossotto, & Kimura, 2009), but none of these studies have shown the benefits of having super-fast FTTH broadband vs "basic" broadband.

According to a study on FTTH in Europe one of the major problems is low take up of FTTH services (which is often below 50%), for example Denmark - 32.8%; Finland - 41.7%; Hungary - 38.7%; Slovakia 30.9%; and Sweden - 48.4% (Marcus & Elixmann, 2014). These are some of the highest-income countries in the world. The same study mentions that while consumers may want high speed broadband, they are only willing to pay a very small incremental amount to move from fast to super-fast broadband. For example, a survey in US showed that while people were prepared to pay USD 45.10 to upgrade their connection from slow to fast, they were only prepared to pay USD 3 more to upgrade further to super-fast (i.e., FTTH speeds) (Marcus & Elixmann, 2014). In the case of Malaysia, they are only providing speeds of 20Mbps through FTTH, due to lack of demand (willingness to pay) for higher speeds. It should also be noted that the Australian National Broadband Network which initially was to be FTTH, is now going to follow a multi technology approach after a review, in order to reduce costs and implementation time (Gunaratne, Illavarasan, Rohman, & Fernando, 2014).

The first wave of Broadband access was through desktop computers. Currently, most people from developing countries get connected to the Internet through mobile phones. For example in China 74.5 percent of Internet users accessed the Internet through their mobiles in 2013 (China Internet Network Information Center, 2013). In Uganda and Ethiopia almost 70% of users, first accessed the Internet on a mobile phone in 2012. In Tanzania, Namibia and Nigeria about half of the population accessed the Internet first on a mobile (Research ICT Africa, 2012).

Currently LTE services have already been introduced in many countries with average speeds of 10-30 Mbps. It is also expected that with newer technologies such as cognitive radio, the release of the digital dividend etc., mobile broadband will be able to provide higher speeds and better quality of service in the future.

Q21. Do you agree with the demand side issues discussed in Chapter 5 and Chapter 6? How these issues can be addressed? Please also indicate any other demand side issues which are not covered in the CP.

Based on the research LIRNEasia has done, we are in agreement with most of the demand-side issues mentioned in the consultation document. The main components of the Internet eco-system, include infrastructure, user friendly, inexpensive devices, affordable service, skilled users and attractive, useful content.

One issue mentioned in the consultation which we do not agree with is that regarding increasing computer penetration. As discussed under Q14, the current trend in most countries, developing as well as developed, is to access the Internet on mobile devices. In China, the ratio of Internet users using desktops/ laptops dropped by nearly three percent in 2013 compared to the previous year, while the ratio of Internet users using mobile phones rose by over five percent (China Internet Network Information Center, 2013). According to a survey done in Africa, over 70 percent of Internet users in South Africa, Kenya, Nigeria, Tanzania, Rwanda, Namibia, Uganda and Ethiopia accessed the Internet via a mobile phone in the last 12 months (Research ICT Africa, 2012).

Malaysia is one country where the government, through the Malaysian Communication and Multimedia Commission (MCMC), has taken concrete steps to create demand-side stimulation using the Universal Service Provision (USP) fund. In order to increase awareness, broadband carnivals, broadband and ICT training and promotional campaigns through mass media have been organized. In order to make broadband more attractive to the public, e-government, e-health, e-education and e-commerce initiatives have been introduced. My1Content portal has been implemented to encourage content development and commercialization of creative content by the Multimedia Development Corporation of Malaysia (MDeC). The Government has also tried to ensure device affordability by the distribution of 1Malaysia Netbooks to secondary school children and through the introduction of affordable Broadband packages. These initiatives could be one reason why the take up of the Malaysian High Speed Broadband (HSBB) was high (43 percent in three years). More details on the demand side measures taken by Malaysia can be accessed on <http://lirneasia.net/wp-content/uploads/2014/04/High-Speed-Broadband-Network-Malaysia-1.pdf>.

According to LIRNEasia's research on the Indian app economy, app developers, content aggregating media, Original Equipment Manufacturers (OEM) and telecom operators will have to work together to create, support and disseminate locally relevant content in vernacular languages (Kathuria & Srivastav, 2014).

The growth of locally relevant apps in India has been sluggish due to weak network infrastructure and the limited availability of domestic app distribution platforms that offer reasonable revenue shares to independent developers. As a result, a significant proportion of Indian app developers focus on catering to the International and Indian metropolitan app markets rather than creating localized apps that meet the needs of semi-urban and rural India.

Until recently, Indian telecom operators played only a minor role in the Indian app ecosystem. In 2010 Indian telecom operators such as Reliance and Idea had started app stores, but their revenue sharing model only gave 30 percent of the total revenue generated by the app to developers, while international app stores such as Apple's App Store and Google's PlayStore gave 70 percent of the revenue to developers. Therefore, majority of the Indian app developers started to develop for the international market and the local app stores, consequently, failed. In Sri Lanka, telecom operators implemented a revenue sharing model wherein they give 70 percent of the total revenue to the app developers. Since this was internationally competitive, it led to the creation of much more locally

relevant content. In 2014, Vodafone has launched a new app store in India giving 70 percent revenue to the developer, and it looks like other telecom operators may follow suit. Telecom operators could play a potentially pivotal role in facilitating the billing of apps which will offer a way to circumvent the currently unfavorable mobile-payment regulation. (Kathuria & Srivastav, 2014).

In addition to telecom operators, OEMs must ensure that they create devices that are affordable and which can support localized apps. The government could create a favorable policy environment and fund innovation in the mobile for development space such that apps that address issues of public concern get the requisite support, and can also re-evaluate the mobile payment policies together with the Reserve Bank of India. To ensure that content reaches its target audience, distribution platforms must be innovative and may even need to have physical presence as AppsDaily has demonstrated. At the user-end, consumers in the rural and semi-urban areas must be educated about the utility of apps. This would require aggressive and innovative marketing by the market as well as digital awareness and literacy schemes led by the government (Kathuria & Srivastav, 2014). More details about this study can be accessed on http://broadbandasia.info/wp-content/uploads/2013/03/The-Indian-App-Ecosystem-Final-Report_afterEF2014.pdf

REFERENCES

- China Internet Network Information Center. (2013). *Statistical Report on Internet Development in China*. Retrieved from <http://www1.cnnic.cn/IDR/ReportDownloads/201302/P020130221391269963814.pdf>
- Gunaratne, R. L., Illavarasan, V., Rohman, I., & Fernando, S. (2014). *National Broadband Networks: What works and what doesn't*. Retrieved from <http://lirneasia.net/wp-content/uploads/2014/06/National-Broadband-Networks-What-works-and-what-doesnt.pdf>
- Kathuria, R., & Srivastav, S. (2014). *The Indian App Ecosystem*. Retrieved from http://broadbandasia.info/wp-content/uploads/2013/03/The-Indian-App-Ecosystem-Final-Report_afterEF2014.pdf
- Kenny, R., & Kenney, C. (2011). Superfast broadband: is it really worth a subsidy? *Info*, 13(4), 3-29.
- Marcus, J. S., & Elixmann, D. (2014). Build it!... but what if they don't come? *Info*, 16(1), 62-75.
- OECD. (2013). *Broadband Networks and Open Access*. OECD Publishing. Retrieved from <http://www.oecd-ilibrary.org/docserver/download/5k49ggz7crmr.pdf?expires=1388751929&id=id&accname=guest&checksum=11D30B127D543727070877D3F2993207>
- Qiang, C. Z.-W., Rossotto, C. M., & Kimura, K. (2009). *Economic Impacts of Broadband*. World Bank. Retrieved from http://siteresources.worldbank.org/EXTIC4D/Resources/IC4D_Broadband_35_50.pdf
- Research ICT Africa. (2012). *Internet going Mobile: Internet access and usage in 11 African countries*. Retrieved from http://www.researchictafrica.net/publications/Country_Specific_Policy_Briefs/Internet_going_mobile_-_Internet_access_and_usage_in_11_African_countries.pdf

Annex 1: Organizational profile

LIRNEasia is a regional information and communication technology (ICT) policy and regulation think tank active across the Asia Pacific. Its mission is “Catalyzing policy change through research to improve people’s lives in the emerging Asia Pacific by facilitating their use of hard and soft infrastructures through the use of knowledge, information and technology”. The core focus is on conducting in-depth research and analysis of key policy issues, disseminating that research and analysis to policymakers, regulators, other stakeholders and the media. Capacity building is a core element of our mission. We have a strong record of accomplishment in conducting policy relevant and successful training programs for a range of stakeholders, not limited to government, in several countries. LIRNEasia is incorporated as a company limited by guarantee under the Sri Lanka Companies Act. It has been in operation since September 2004, with an annual budget in the range of USD one million for the past four years, of which about a quarter is spent on India. It has established a reputation as an independent and effective think tank with several significant achievements, such as contributing through timely and targeted dissemination of evidence towards the lowering of leased line prices in Indonesia in 2007, the removal of regressive elements of a mobile-only tax in Sri Lanka also in that year, the reform of universal service policies in India and the improvement of quality-of-service regulation in India and Bangladesh.

In partnership with Ford Foundation, LIRNEasia has been working on a project on ‘Facilitating and enriching policy discourse on improving broadband access by the poor in India’ since June 2012. The objective of the study is to inform and engage decision makers and stakeholders in India (Telecom Regulatory Authority of India, the Department of Telecommunications, Ministry of Information and Broadcasting, senior executives from operators, senior academics and civil-society leaders) about good practices on licensing policy, spectrum management, as well as other regulatory aspects affecting broadband access by the poor. As part of the project the online telecom regulatory repository <http://broadbandasia.info/> was launched.

LIRNEasia has a network of researchers spread across South and Southeast Asia. We are also formally connected to research networks in Africa (Research ICT Africa), Latin America (DIRSI) and Europe (European universities of LIRNE.NET), and as such provide geographically comprehensive research coverage on ICT and telecom policies. More information on the organization including fully downloadable annual reports is available at <http://lirneasia.net/about/>.

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