# Challenges and Choices: Universal Service in Australia and China

**Thomas Jones and Sarah Godden examine the similar challenges faced by Australia and China in the provision of universal telecommunications services to remote areas and the opportunities for knowledge sharing and co-operation between the two countries.**

Much has been written about the differences between China and Australia but far less about the similarities. Yet the two countries face similar challenges in the provision of universal telecommunications services - challenges which provide an opportunity for co-operation and knowledge sharing.

While China's population density of 143 people per square kilometre significantly exceeds Australia's, much of its population, like our own, is concentrated along the densely populated east coast with significant tracts of sparsely populated inland areas. It is these areas which pose the greatest challenge in providing cost effective telecommunications services.

## Why provide universal service?

There are cogent social, political and economic arguments made in support of the provision of universal service.[1] Increasingly, these arguments are being advanced to the stage where access to telecommunications services is recognised as a virtual human right. For example, the May 2011 report from the Human Rights Council of the United Nations General Assembly declared access to the Internet a basic human right which enables individuals to 'exercise their right to freedom of opinion and expression.'[2] Several European nations, including Estonia, Finland, France, Greece and Spain, have passed domestic legislation recognising citizen's right to access the internet. Some of these countries have even codified minimum speeds (Finland, Spain).

There is a corresponding rise in the view that internet services (and in developed countries, even broadband services) should be considered part of any universal service obligation.[3] If so, what level of service is required? How do these investment decisions interact with the investment required to provide universal telephony services in regions which do not yet have access to either service? Could both services be provided using wireless technology? If these services can be provided comparatively quickly and efficiently using wireless, do these considerations outweigh quality of service concerns?[4]

## Universal service in Australia

In Australia, the Government has recently changed its approach to this challenge by establishing NBN Co and moving to a contractual model for universal service delivery. China is rolling out universal services to its population, focussing on voice and broadband services. The common question for both is: what is the most equitable and efficient way to deliver these services?

## Delivery of broadband services in Australia

NBN Co was established to build the $36 billion National Broadband Network, a key plank of the Australian Government's commitment to "…provide Australians with access to high quality broadband services, no matter where they live or work".[5] Construction of the network has commenced in discrete modules across Australia.[6] The Australian Government has committed to a uniform national wholesale price for the entry level wholesale broadband service designed for 12/1Mbps at the layer 2 level to be provided from 121 points of interconnect across Australia. Inevitably this means that some degree of subsidisation of high cost regional and rural services by lower cost metropolitan services will occur.

## Changing the delivery of universal service in Australia

As the NBN has entered into agreements with Telstra for the provision of wholesale access to the NBN, the approach to universal service provision at the retail layer has also had to change. Currently Telstra, the fixed-line incumbent, is required to make voice services available to all on request. It generally fulfils these obligations by provision of services over its ubiquitous copper network.

However, once Telstra's copper network is decommissioned as part of its agreement with NBN Co (assuming the Australian Competition and Consumer Commission approves those arrangements[7]), it will no longer be appropriate to regulate Telstra as the 'carrier of last resort'. Instead the Australian Government has decided to move to a contractual model, which recognises that service providers will ultimately be able to provide voice and broadband services over the NBN.

As part of the reforms, a new Commonwealth agency, the Telecommunications Universal Service Management Agency (***TUSMA***) is being established to contract with retail service providers to provide universal service over the NBN. TUSMA will periodically tender for the provision of these services, enabling competition to emerge. However, given the complex issues with the transition to the NBN and the inter-relationship with the arrangements between NBN Co and Telstra, the initial contract will be with Telstra. This structure also reflects the com-

1 Clarke GRG and Wallsten SJ, *Universal(ly Bad) Service: Providing Infrastructure Services to Rural and Poor Urban Consumers*, World Bank Policy Research Working Paper 2868, July 2002, pp5-10; Manner JA, *Achieving the Goal of Universal Access to Telecommunications Services Globally*, (2004) 13 Commlaw Conspectus 85 at 87; Cremer H, Gasmi F, Grimaud A and Laffont JJ, *Universal Service: An Economic Perspective*, (2001) 72 Annals of Public and Cooperative Economics 5 at 12-13, 18.

2 Report of the Special Rapporteur on the promotion and protection of the right to freedom of opinion and expression, 17th session of the Human Rights Council of the United Nations General Assembly, 16 May 2011 http://www2.ohchr.org/english/bodies/hrcouncil/docs/17session/A.HRC.17.27_en.pdf (accessed 6 September 2011).

3 Shi J, *Telecommunications Universal Service in China: Making the Grade on a Harmonious Information Society*, (2008) 13 Journal of Technology Law & Policy, 115 at 128.

4 Particularly in regional areas where the distance from an exchange is likely to severely affect speeds of broadband services provided over copper line infrastructure.

5 Senator Conroy, *Australian Broadband Guarantee funding until 2012*, press release dated 13 May 2008, available: http://www.minister.dbcde.gov.au/media/media_releases/2008/032 (accessed 6 September 2011).

6 http://www.nbnco.com.au/our-network/rollout-plan.html (accessed 7 November 2011).

plex economic issues which arise in the provision of a fundamentally unprofitable service with significant positive externalities, such as universal service. Where the forces of normal market competition cannot be harnessed, economic literature suggests that periodic competition for the market (e.g. by way of periodic tender for a monopoly contract) could be a 'second best' option.[8]

Increasing competition may be one way of increasing penetration (where universal coverage has not been achieved) and service.[9]

## Universal service in China

In China, the Government is aiming to ensure that all parts of the country benefit from development and technological change. The provision of universal telecommunication services is one way to achieve better outcomes in rural and remote areas. It also dovetails with the increasing tendency world wide to see access to telecommunication services as a virtual human right, discussed above.

The Twelfth Five Year Plan (2011-2015) outlines the Chinese Government's investment priorities: including in the areas of broadband networks, internet security infrastructure and network convergence.[10] Investment in broadband networks is planned to include promoting fibre to the home networks (FTTH) in urban areas, speeding up the construction of broadband networks in rural areas, improving broadband penetration and increasing bandwidth.[11] On the ground, China Telecom has announced plans to replace its copper network with fibre optic cable over this period.[12]

## Considerations for investment

Both countries face challenges in identifying appropriate areas to target for their infrastructure investment, which must balance equity and efficiency concerns. Australia's NBN Co is treating rural and regional areas as a key focus in terms of timing of the rollout,[13] although metropolitan areas also feature in some of the first and second release sites. The Chinese Government's significant investment will benefit both urban and regional areas. In China, the focus in urban areas is on upgrading service quality, while in regional areas the challenge is still to improve household penetration rates.

Historically the Chinese Government's emphasis has been on providing universal access, rather than universal service (i.e. access to telephony services in each administrative village). With this objective now achieved, the focus naturally shifts to connecting natural or actual villages,[14] followed by households.[15] Due to the sheer size and scope of the task,[16] the Government of China faces enormous challenges in providing telephony services to its entire population. While 100% of administrative villages have voice telephony services as at 2010, taken on a household level fixed line services achieve only 22% penetration, clearly lagging mobile (voice) penetration of 64%.[17] Although these numbers are steadily increasing,[18] they indicate the massive investment which will be required to provide universal service to 1.3 billion citizens across 9.3 million square kilometres.

Under the twelfth five year plan, the total spend on broadband construction is planned to approximate RMB1.6 trillion (approximately $US251 billion) over the five years. This is reported to be an attempt by the Chinese Government to reverse a decline in take up of fixed line services, in favour of mobile services, in recent years.[19] This trend appears to be due as much to the higher levels of customer service available from mobile operators as to more favourable pricing.

This trend is indicative of another of the major challenges facing providers of universal service, choice of technology. Must universal service be provided by fixed line infrastructure? What level of service is required by a population? Is there sufficient value in the incremental service gains from fixed over wireless to justify the additional expenditure? Does the equation change once broadband services are considered in this mix? In Australia at least, the answer to this final question is yes.[20]

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## Choices and challenges

In China, as in Australia, there are challenges in providing universal service to citizens in rural and remote areas, irrespective of the model adopted. A key question for both countries is how to reach these areas efficiently. There are choices around selecting the right mix of technologies – fibre, copper, fixed and mobile wireless and satellite. There are also choices to be made about funding. For example, should high cost areas be explicitly subsidised by government or should the universal service provider subsidise these services with revenue obtained in lower cost areas? How can the forces of competition best be harnessed to promote efficiency in the provision of a fundamentally unprofitable service? Should both supply (investment) and demand (price) be supported or can the latter be left to market forces if there is competition on the supply side?

These questions can be contentious as they involve balancing economic efficiency and equity considerations. However, the prize for both nations, in terms of enhanced social welfare (in the total economic sense), is considerable. Arguably, the enormous productive capacity of China and its ability to shape events on the world stage will be significantly enhanced by universal access to telecommunications services. Similarly , universal access to telecommunications services is a key element of Australian social policy and, for many years, has been a critical means by which the 'tyranny of distance' has been overcome.

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7 The migration of services from the Telstra network to the NBN form part of a structural separation undertaking currently being considered by the ACCC.

8 *Re Sydney Airports Corporation Ltd* (2000) 156 FLR 10 at [113] – [115]; *Stirling Harbour Services Pty Ltd v Bunbury Port Authority* [2000] FCA 1381 at [21], [24].

9 Clarke GRG and Wallsten SJ, above n. 1 , pp 32-35.

10 BuddeComm, *China – Key Statistics, Telecom Market, Regulatory Overview and Forecasts.*

11 Ibid.

12 http://www.china.org.cn/business/2011-02/17/content_21943188.htm (accessed 27 October 2011).

13 A partial reason for this is the deal struck between the minority Government and two key independents. See clause 3.1, Annexure B, '*Agreement between The Australian Labour Part & the Independent Members (Mr Tony Windsor and Mr Rob Oakeshott)*', 7 September 2010. Available: http://www.alp.org.au/federal-government/government-agreements/ (accessed 27 October 2011). This is largely reflected in NBN Co's current 12 month roll out plan: http://www.nbnco.com.au/news-and-events/news/nbn-co-releases-12-month-national-rollout-plan.html

14 As distinct from the administrative village, which is a government designation similar in concept to an Australian municipal council.

15 Above n. 3 at 122-123.

16 For example, Shi states that in 2005, there were 732,700 administrative villages containing 5 million physical villages and 210 million households: Above n. 3 at 122.

17 Above n.10.

18 Above n.3 at 117.

19 Above n. 10, http://www.businesswire.com/news/home/20110706005057/en/Research-Markets-China---Key-Statistics-Telecom (accessed 27 October 2011).

20 The NBN fibre optic network will cover 93% of addressable premises, with the remaining 7% being covered by either fixed wireless or satellite technology. In this final 7%, premises will not be disconnected from the copper network and telephone services will continue to be available.