Slide 1

WIRELESS BROADBAND MASTER PLAN
WORKSHOP

Nepal

Stimulating Wireless Broadband

Scott W Minehane

2 February 2012

2 February 2012 · 1

Slide 2

Agenda - Today's presentation

1. Introduction
2. Why Wireless Broadband?
3. Global Broadband Developments
4. Policy / Regulatory Framework
5. Conclusions

2 February 2012 · 2

Slide 3

1. Introduction
2. Why Wireless Broadband?
3. Global Broadband Developments
4. Policy / Regulatory Framework
5. Conclusions

2 February 2012 · 3

Slide 4

INRTRODUCTION

It is necessary to first explain why wireless broadband represents an ideal telecommunications solution for Nepal. It will then be shown that there are a multitude of means for Nepal to facilitate the uptake of mobile broadband services:

- **Global precedent** provides useful case studies on 'best practice' implementation;

- **Geographical considerations** in Nepal;

- An **enabling policy / regulatory framework** will provide impetus for improved WBB uptake; and

- Appropriate **funding mechanisms** will help mitigate bottlenecks that may arise as a result of market failure

2 February 2012 · 4

Slide 5

1. Introduction
2. Why Wireless Broadband?
3. Global Broadband Developments
4. Policy / Regulatory Framework
5. Conclusions

2 February 2012 · 5

Slide 6

WHY WIRELESS BROADBAND?

Broadband has become a key component of national infrastructure. According to the World Bank, every 10 percent increase in broadband penetration corresponds to a 1.38 percent in GDP. Wireless broadband is essential for Nepal because:

- Nepal has underdeveloped fixed-line infrastructure;

- Nepal's terrain and topology is not conducive for the rolling-out of nationwide fixed-line networks; and

- Figures indicate that there is a substantial, and growing, demand for wireless services in Nepal both cellular mobile and satellite services. A focused effort on improving wireless broadband penetration would be consistent and logical next step for the Government to pursue.

2 February 2012 · 6

Slide 7

2 February 2012

7

Slide 8

GLOBAL BROADBAND DEVELOPMENTS

Numerous national broadband policies are presently being pursued by Governments. While there is little precedent on specifically wireless broadband, Nepal should be able to harness and utilise best practice policies

The development of broadband markets has reached major tipping point in many economies – both developed and emerging:

- All telecommunications services will increasingly be subsumed into broadband services

- Broadband is moving from being an early adopter discretionary product to being mass-market, near ubiquitous and 'must have'

- **Broadband has become a key component of national economic infrastructure and enabler of competitiveness and economic growth**

- **Globally governments are working with telcos – especially incumbent operators to facilitate high speed broadband investments** that are commensurate with national economic development objective. Governments have also support broadband infrastructure as part of their response to the GFC

2 February 2012

8

Slide 9

GLOBAL BROADBAND DEVELOPMENTS (continued)

- The quality and performance of broadband is improving with 100Mb/s FTTH rapidly becoming the new benchmark target – this is high speed broadband (HSBB). Wireless Broadband speeds are also moving to 21 Mbps and beyond (and will do so more with LTE).

2 February 2012

9

Slide 10

GLOBALLY PROJECTS SUPPORTED BY GOVERNMENTS ARE BEING ROLLED OUT TO SUPPORT HIGH SPEED BROADBAND ROLLOUT

Those national broadband network plans and initiatives are transforming the global telecommunications landscape!

2 February 2012

10

Slide 11

EXAMPLES OF SPECIFIC COUNTRY NBN PROJECTS

- Australia
- India
- Japan
- Korea
- Malaysia
- New Zealand
- Singapore

2 February 2012

11

Slide 12

AUSTRALIA

Australia's NBN is the largest NBN project globally. It involves:

- Creation of a AUD 43 bn FTTH fibre optic network;

- 93% of Australian premises will have access to fixed services, the other 7% a combination of satellite and fixed wireless;

- NBNCo has acquired 2.3 GHz spectrum for TD-LTE;

- Deployment is being undertaken by Govt owned NBN Co;

- Structural separation of incumbent Telstra into retail & wholesale arms;

2 February 2012

12

AUSTRALIA (continued)

- USO Co established to manage new USO broadband and voice obligations from Telstra; and

- Moves to free up spectrum so 1,000 MHz of spectrum available for WBB. Auction of 700 MHz digital dividend in 2012

2 February 2012   13

INDIA

Draft Indian IT and Telecom, Information and Communications Technology and Electronics (ICTE)/National Telecom Policy was released by Department of Telecommunications on 10 Oct 2011. Final policies are expected by December 2011

- Objective is to maximise public good by making available affordable, reliable and secure telecoms and broadband services ie "Broadband on Demand". Main thrust is on the multiplier effect & transformational impacts on the Indian economy.

- Reposition mobile phone as 'instrument of empowerment' which combines comms, proof of identity, financial services, multi-lingual services, access to government services.

- Making available considerable additional spectrum ie 300 MHz by 2017 and another 200 MHz by 2020 for mobile services.

2 February 2012   14

INDIA (continued)

- Increase current rural teledensity from 35 to 60 by 2017 and then to 100 by 2020.

- Provide affordable broadband on demand by 2015, with 175 million connections by 2017 and 600 million by 2020 @ minimum 2 Mbps with connections up to 100 Mbps

- High speed broadband access to village panchayats through fibre by 2014

- Focus on 450, 700, 1800 and 1910 MHz and 2.1, 2.3, 2.5 and 3.5 GHz + future ITU bands

- Spectrum pricing to be 'market related'

- Allow for spectrum sharing, pooling and moving towards trading and promote efficient spectrum use by regular audits

- Technology neutral (unified) regime with two categories – (i) for infrastructure & (ii) services

2 February 2012   15

JAPAN

Ubiquitous broadband access has long been a national priority. The MIC's 2006 'Next-Generation Broadband Strategy 2010' made the following commitments:

- 2010 deadline for completion - included elimination of broadband deficits in rural / remote areas;

- A stakeholder promotion scheme;

- Removal of many regulatory obstacles to enable greater market entry;

- 'u-Japan Broadband' strategy has seen Govt provide money to wire municipalities, community centres and schools with broadband as well as zero-interest loans and tax breaks for network equipment; and

- By 2010, 30 million households had broadband connectivity.

2 February 2012   16

KOREA

Having been a pioneer in broadband access, the Government sought to maintain momentum by launching the 2009 Korean Broadband Plan. Features include:

- Minimum wired access of 1 Gbps & wireless access of 10 Mbps by 2010;

- The project is expected to cost USD 25 bn (Govt contributions to amount to ~USD 1 bn;

- Landline phones will transition to VoIP & digital television coverage is to expand to 96% by 2012; and

- The KCC has reallocated 800 & 900 MHz spectrum with auctions for for such spectrum occurring recently.

2 February 2012   17

MALAYSIA

The High Speed Broadband ('HSBB') Project was established in 2007. Key features of the Project include:

- RM11.3 billion national HSBB project is aimed to develop next generation high speed broadband infrastructure and services for Malaysia. TM is investing RM8.9 billion into the project while the Government is contributing RM2.4 billion on an incurred claims basis based on project milestones reached by TM;

- Implementation of full access service, line sharing and sub-loop service (ie local loop unbundling) has been deferred until 2015 to facilitate rollout; and

- The 2010 National Broadband Initiative divides the nation into 3 economic zones, some of which require regulator intervention and USP funding.

2 February 2012   18

MALAYSIA (continued)

Unifi, the HSBB service provided by TM has reached 1.044 premises by October 2011. Target is for 1.3 million premises to be passed by end of 2012.

Unifi provides users with bundled services (internet, IPTV & voice)

2 February 2012   19

NEW ZEALAND

New Zealand announced the 'Ultra Fast Broadband Initiative' in 2009. Features include:

• Aim to deliver 100 Mbps downlink and 50 Mbps uplink to 75% of the population over the next decade;

• Committing NZD 1.5 billion (to be matched by private sector) to assist operators;

• New areas are to be covered by FFTP with decisions to terminate copper connections made on case-by-case basis;

• Remaining 25% of population will be covered by Rural Broadband Initiative; and

• In July 2011, NZ Telecom and 3 other operators submitted draft deeds of undertaking for open access on their fibre networks.

2 February 2012   20

SINGAPORE

Singapore is in the process of deploying the Next Generation National Broadband Network ('NGNBN'):

• Deployment to be performed by OpCo (active infrastructure) & NetCo (passive infrastructure) - both operated by OpenNet consortium;

• The NGNBN is up to USD 520 million Govt funded;

• 95% expected to be connected by 2012 - providing speeds of up to 1 Gbps; and

• The Govt's 'Intelligent Nation 2015' project intends to ensure that copper backhaul network will by 2015 be completely replaced by fibre; and

• As of Aug 2011, 75% of Singaporeans are connected. Residents can select plans from over 6 providers.

2 February 2012   21

GLOBAL BROADBAND DEVELOPMENTS - summary

Globally governments are currently concerned with accelerating broadband adoption. This is because various studies show the GDP positive impacts of broadband adoption (eg 1.3 % in a World Bank Study, 1.18 % in WPC's study for Malaysia)

Over the past few years, national broadband plans and initiatives have sprouted across the globe and are transforming the telecommunications landscape.

While securing high speed broadband services at affordable prices to promote national economic growth is a common Government policy objective, there is little commonality about the policy prescriptions.

Countries depend on long term and high level coordination and collaboration across government to implement their plans. WBB – given consumer and business demand – is playing a more important role in such plans.

2 February 2012   22

NATIONAL BROADBAND PLANS - COMMON THEMES

While the technical details and implementation schedules of the national broadband plans and initiatives differ, there are some common features and themes that emerge from these plans. These include:

● Emphasis on high-speed or ultra broadband;

● Open access requirements and non-discriminatory access;

● Transparency and openness;

● Embracing convergence and technology neutrality;

● Environmentally friendly;

● Promote connectivity and broadband deployment to public sectors;

● Emphasis on consumer protection and cyber security;

● Promote broadband content and applications; and

● Often linked to universal service funds.

2 February 2012   23

---

1. Introduction
2. Why Wireless Broadband?
3. Global Broadband Developments
4. Policy / Regulatory Framework
5. Conclusions

2 February 2012   24

POLICY / REGULATORY FRAMEWORK

Attracting investment requires providing attractive conditions which in turn depends on establishing a regulatory framework allowing investors to enter the market and compete on a fair basis.

Strong emphasis on infrastructure has proven to be key to the take-up and effective use of broadband.

Some of the ways that governments have encouraged investment in roll out of national broadband networks include:

- *Modernising Regulation;*
- *Spectrum Policies;*
- *Public / Private Sector Roles;*
- *Reducing Barriers to Entry; and*
- *Effective Funding Mechanisms.*

2 February 2012   25

POLICY / REGULATORY FRAMEWORK

*Spectrum Policies**

There is currently 239.3 MHz of spectrum allocated to mobile services (40 Mhz is used for 2G)

With no UHF TV, the entire 700 Mhz band is available for allocation.

Harmonised frequency plans should be adopted.

More radio-spectrum needs to be released in order to encourage the entry of wireless broadband operators into the Nepalese market.

Bands	
700-800 MHz	2100 MHz
900 MHz	2300 MHz
1800 MHz	2500 / 2600 MHz

A mechanism that achieves the most efficient allocation of scare spectrum needs to be utilised. This may take the form of an auction-based approach with maximum / minimum blocks

2 February 2012   26

POLICY / REGULATORY FRAMEWORK

Public / Private Sector Roles

In an ideal setting, the private sector should be viewed as the most appropriate means through which to stimulate the growth of wireless broadband.

The Government (i.e. public sector) should only intervene in circumstances where there is little to no incentive for private sector involvement (i.e. rural / isolated areas where returns are too low to justify private sector investment).

Reducing Barriers to Entry

A technology-neutral approach should be adopted by the Regulator.

The regulatory environment needs to increase the ease through which operators can share / access one another's active and passive infrastructure.

2 February 2012   27

POLICY / REGULATORY FRAMEWORK

Effective Funding Mechanisms

Growth of wireless broadband can be achieved via any one or combination of the following means:

- Tax incentives;
- Subsidies;
- License fees; and
- Expanding the scope of the Rural Telecommunications Development Fund ('RTDF')

2 February 2012   28

Agenda - Today's presentation

1. Introduction
2. Why Wireless Broadband?
3. Global Broadband Developments
4. Policy / Regulatory Framework
5. Conclusions

2 February 2012   29

CONCLUSIONS

Improved access to broadband services is crucial for Nepal's continued economic prosperity.

International precedent provides a relevant and useful context through which Nepal can stimulate the growth in wireless broadband services.

An enabling policy / regulatory environment is an essential component of the goal of improving wireless broadband penetration.

2 February 2012   30

SELECTED ITU RESOURCES

1. Broadband Commission Report and New Targets:
http://www.broadbandcommission.org/LeadershipSummit.aspx

2. ABBMN Broadband Report: http://www.itu.int/pub/D-HDB-UNIVERSA;-2010

3. Australia Broadband Report: http://www.itu.int/ITU-D/asp/CMS/Docs/Australia_broadband_case.pdf

4. New Zealand Broadband Case Study : http://www.itu.int/ITU-D/asp/CMS/index.asp

5. GSR Best Practices on Broadband: http://www.itu.int/ITU-D/treg/Events/Seminars/GSR/index.html

ITU : http://www.itu.int
ITU Asia Pacific : http://www.itu.int/ITU-D/asp/CMS/index.asp