Stimulating Broadband in Asia -Pacific

Cross Regional Seminar on
Broadband Access
October 4 2011, Moldova

Eun-Ju Kim, Ph.D
(eun-ju.kim@itu.int)
Regional Director, ITU Regional Office for Asia and the Pacific

---

Agenda

- ITU Asia-Pacific : Overview

- ITU : Vision & Report - Broadband

- ITU Asia-Pacific : Broadband Initiatives

- ITU Asia-Pacific : Lessons Learned

- References on Broadband Activities

  in Asia-Pacific

2

ITU Asia-Pacific : Overview

ITU Asia-Pacific

- **Regional Office** for Asia-Pacific: Bangkok, Thailand
- **Area Office** for South East Asia: Jakarta, Indonesia
- ❖ 38 Member States &
- ❖ 72 Sector & Associate Members

LDCs (14)			Low-Income States (9)	The Rest (10)
Afghanistan			*D.P.R. Korea*	*Australia*
Bangladesh			*India*	*Brunei*
Bhutan	*Kiribati*	Fiji	*PNG*	*Indonesia*	*China/Hong Kong*
Cambodia	*Samoa*	Marshall Islands	*Iran*
Lao, PDR	*Solomon Is.*	Micronesia	*Mongolia*	*Japan*
Maldives	*Tuvalu*	Nauru	*Pakistan*	*Malaysia*
Nepal	*Vanuatu*	Tonga	*Philippines*	*New Zealand*
Myanmar		*SIDS (11)*	*Sri Lanka*	*R.O. Korea*
Timor Leste			*Vietnam*	*Singapore*
				Thailand

ITU-D : Asia-Pacific Sector & Associate Members

International Telecommunication Union
Committed to connecting the world

1. Afghanistan Information Management Services (AIMS) - Afghanistan
2. Afghan Wireless Communication Co.- Afghanistan
3. Asia Pacific Network Information Centre – Australia
4. Robi Axiata Limited - Bangladesh
5. Grameenphone (GP) Limited - Bangladesh
6. Orascom Telecom Bangladesh Limited (Banglalink)
7. Bhutan Telecom – Bhutan
8. Telekom Brunei Berhad (TelBru) – Brunei Darussalam
9. CHUAN WEI (Cambodia) Co., Ltd. - Cambodia
10. China Telecommunications Corporation - China
11. China Unicom (Hong Kong) Ltd. - China
12. Huawei Technologies Co. Ltd.- China
13. ZTE Corporation – China
14. Secretariat of the Pacific Community (SPC) - Fiji
15. Bharat Sanchar Nigam Ltd. - India
16. Bharti Airtel Limited - India
17. Cellular Operators Association of India
18. ITU-APT Foundation of India
19. Luna Ergonomics Pvt. Ltd - India
20. Mahanagar Telephone Nigam Ltd. – India
21. RailTel Corporation of India Limited, India
22. Shyam Telecom Limited, India
23. Telecom Disputes Settlement & Appellate Tribunal - India
24. Telecom Regulatory Authority of India
25. Vihaan Networks Limited (VNL), India
26. PT. INDOSAT Tbk. – Indonesia
27. PT. Telekomunikasi Indonesia Tbk - Indonesia
28. Telecommunication Company of Iran
29. Fujitsu Limited – Japan
30. Hitachi, Ltd. - Japan
31. KDDI Corporation – Japan
32. National Institute of Information and Communications Technology - Japan
33. NEC Corporation – Japan
34. Nippon Telegraph and Telephone East Corporation – Japan
35. Nippon Telegraph and Telephone West Corporation – Japan
36. Nomura Research Institute Ltd.- Japan
37. The ITU Association of Japan
38. Tokai University – Japan
39. Korea Information Society Development Institute (KISDI) – R.O.Korea
40. Korea Internet & Security Agency (KISA) – R.O. Korea
41. KT Corporation _ R.O. Korea
42. National Information Society Agency (NIA) - R.O. Korea
43. Samsung SDS Co.Ltd, R.O. Korea
44. SK Telecom, R.O. Korea
45. Asia-Pacific Broadcasting Union – Malaysia
46. Asia-Pacific Institute for Broadcasting Development – Malaysia
47. Astronautic Technology (M) Sdn.Bhd., Malaysia
48. Axiata Group Berhad, Malaysia
49. CyberSecurity, Malaysia
50. Global Knowledge Partnership, Malaysia
51. Green Packet Berhad – Malaysia
52. Maxis Mobile Sdn Bhd. – Malaysia
53. MEASAT Satellite Systems Sdn. Bhd. - Malaysia
54. Telekom Malaysia Berhad – Malaysia
55. Communications Regulatory Commission of Mongolia
56. Information Communication Network Company – Mongolia
57. MobiCom Corporation - Mongolia
58. Nepal Telecom Company Limited- Nepal
59. Nepal Telecommunications Authority – Nepal
60. e Worldwide Group - Pakistan
61. National Telecommunication Corporation - Pakistan
62. Pakistan Mobile Communications Limited - Pakistan
63. Pakistan Telecommunication Company Limited - Pakistan
64. Smart Communications, Inc. - Philippines
65. Dialog Axiata PCL - Sri Lanka
66. Sri Lanka Telecom Ltd. - Sri Lanka
67. ROHDE & SCHWARZ Regional Headquarters Singapore Pte. Ltd.
68. Asia-Pacific Telecommunity - Thailand
69. Advanced Info Service Public Company Ltd. – Thailand
70. Total Access Communication PLC – Thailand
71. True Corporation Public Co., Ltd. - Thailand
72. Viettel Corporation, VietNam

Membership Application at http://www.itu.int/members/sectmem/Form.pdf

---

ITU Asia-Pacific (ASP)
Regional Initiatives & Projects (2011-2014)

ASP RI 1 — Unique ICT Needs LDCs, SIDSs and Landlocked Developing Countries

ASP RI 2 — Emergency Telecommunications
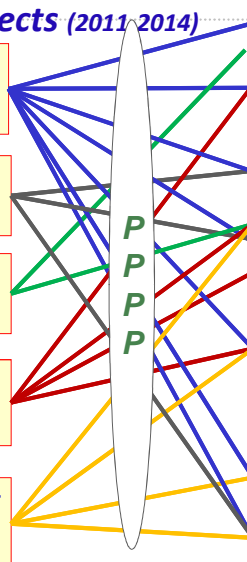
ASP RI 3 — Digital Broadcasting

ASP RI 4 — Broadband Access and Uptake in Urban and Rural Areas

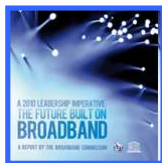**ASP RI 5** — Telecommunications/ICT Policy and Regulation in the Asia-Pacific Region

P P P P

- ITU PacCERT Project
- ITU-KCC Projects
  a) Wireless Broadband
  b) Digital Broadcasting
- ITU-ESCAP Project on Cooperation Platform for Disaster Communications
- ITU ASP COE Project
- ITU Project Connecting Schools
- ITU-NBTC Projects on
  a) Telecentres Applications
  b) License Monitoring
  c) Human Capacity Building
- ITU-CJK activities on IMT Advanced
- ITU-EC Project - ICB4PAC
- ITU –DBCDE (Australia) Projects on multiple ASP RIs

Australian Government
Department of Broadband, Communications and the Digital Economy

UNITED NATIONS ESCAP
Economic and Social Commission for Asia and the Pacific

KOREA COMMUNICATIONS COMMISSION

STA
ABU
AIBD

ITU : Vision & Report
- Broadband -

7

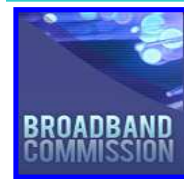## Build on broadband and the rest will follow

" Broadband needs to be considered
as basic national infrastructure,
as it will fundamentally
reshape the world in the 21st century and
change the way services are delivered
from e-health, e-education,
e-commerce to e-government."

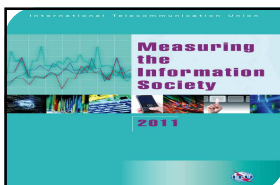## *Broadband Commission Reports*

- Promoting economic and social development

- Enhancing productivity and competitiveness

- Helping job creation and opportunities

- Raising rural income in developing countries

- Raising gender equality and empowerment of women

- Bringing economies out of economic crisis

- Creating knowledge based society

Broadband facilitates innovation and entrepreneurship; &
Countries with a higher penetration see greater innovation

9

ICT Development Index (2010)
progress in all Economies

IDI Top Ten (2008 rank)

1. Korea (Rep.) (1)
2. Sweden (2)
3. Iceland (7)
4. Denmark (3)
5. Finland (12)
6. Hong Kong (China) (6)
7. Luxembourg (4)
8. Switzerland (9)
9. Netherlands (5)
10. United Kingdom (10)

Source: ITU

Key Findings

- Most countries increased their IDI scores (2008-10)
- European countries dominate the top IDI rankings
- Income plays a key role, but policies matter (e.g. R.O. Korea)
- Information Society is maturing: e.g., *USE* sub-index grows more than *ACCESS* sub-index

10

Top Five IDI Economies
(By Regions)

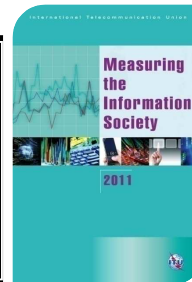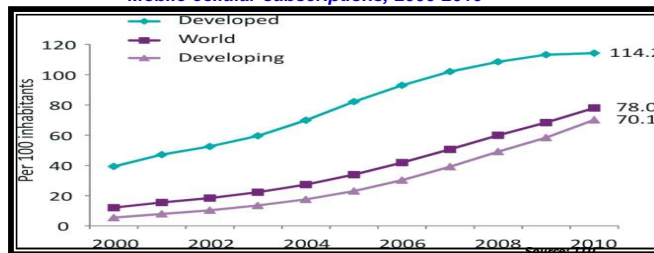| Regional IDI rank	Europe	Global IDI rank	Asia & Pacific	Global IDI rank	Americas	Global IDI rank	Arab States	Global IDI rank	CIS	Global IDI rank	Africa	Global IDI rank
1	Sweden	2	Korea (Rep.)	1	United States	17	UAE	32	Russia	47	Mauritius	69
2	Iceland	3	HK, China	6	Canada	26	Qatar	44	Belarus	52	Seychelles	71
3	Denmark	4	New Zealand	12	Barbados	41	Bahrain	45	Moldova	57	South Africa	97
4	Finland	5	Japan	13	Uruguay	54	Saudi Arabia	46	Ukraine	62	Cape Verde	104
5	Luxembourg	7	Australia	14	Chile	55	Oman	60	Kazakhstan	68	Botswana	109

Source: ITU

- Differences within regions are large and growing, while those in the Asia-Pacific are the widest.
- Developing countries dominate list of most dynamic countries
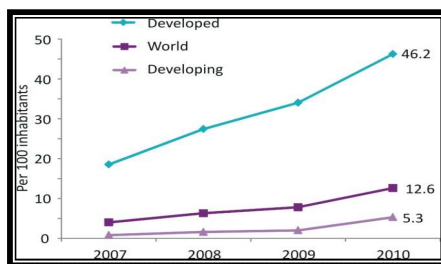
11
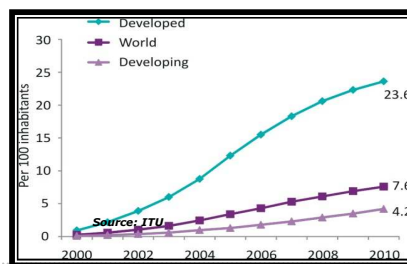

ICT Divide = Broadband Divide

Mobile-cellular subscriptions, 2000-2010

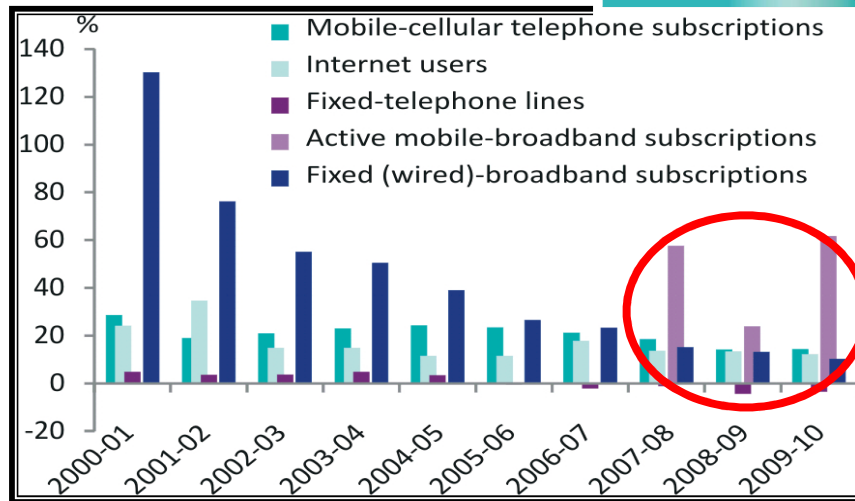Mobile-broadband subscriptions, 2007-2010

Fixed-broadband subscriptions, 2000-2010

Source: ITU

6

Mobile Broadband
Leads the Growth Race
Global ICT developments: 2000-2010 (annual growth)

Legend:
- Mobile-cellular telephone subscriptions
- Internet users
- Fixed-telephone lines
- Active mobile-broadband subscriptions
- Fixed (wired)-broadband subscriptions

- **3G services commercially available in 154 economies**

Source: ITU

13

Broadband Prices
drop by over 50 %

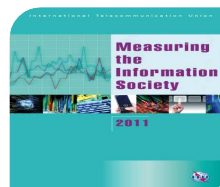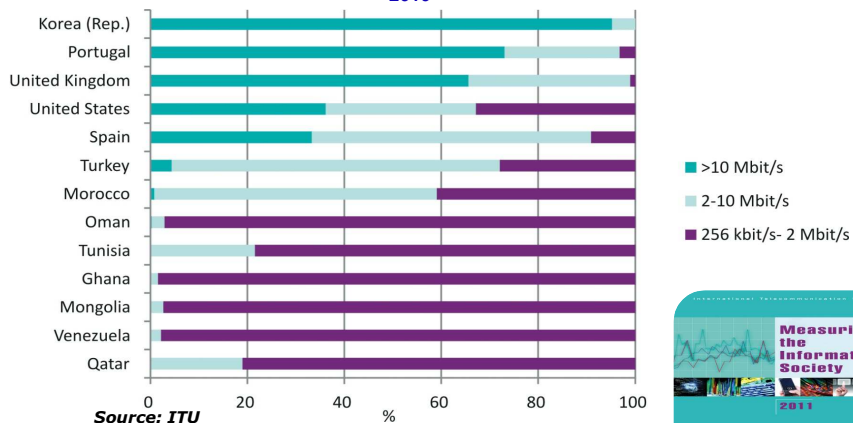|	2008	2010	Average 2008/2010 value decrease	
			Absolute	Percentage
ICT Price Basket	15.2	12.4	2.8	18.3
Fixed-telephone sub-basket	6.2	5.8	0.4	6.8
Mobile-cellular sub-basket	11.0	8.6	2.4	21.8
Fixed-broadband sub-basket	165.0	78.9	86.1	52.2

Source: ITU

- **ICT services prices dropped by 18% from 2008 to 2010.**
- **Biggest price decrease is in developing countries, but broadband is still too expensive.**

14

7

Qualitative Broadband Divide
- Capacity, Speed, QoS -

Fixed (wired)-broadband subscriptions by speed, selected economies, 2010

Legend:
- >10 Mbit/s
- 2-10 Mbit/s
- 256 kbit/s- 2 Mbit/s

Economies (top to bottom): Korea (Rep.), Portugal, United Kingdom, United States, Spain, Turkey, Morocco, Oman, Tunisia, Ghana, Mongolia, Venezuela, Qatar

Source: ITU

ITU Asia-Pacific:
Broadband Initiatives

Broadband in ITU Asia-Pacific

- World Telecommunication Development Conference 2010 (WTDC-2010) adopted **"Broadband access and uptake in urban and rural areas "** as Regional Initiative for Asia-Pacific for the following expected results:

  - *National broadband policies to meet the requirements of developing countries Improved broadband infrastructure and access to affordable ICT services in urban and rural areas, including remote and hilly terrains as well as remote islands ;*

  - *Development of ICT applications that can support multilingualism and address local needs ;*

  - *Enhanced skills in the area of broadband communication networks for the relevant human resources ; &*

  - *Implementation of solutions providing cost-effective broadband infrastructure, addressing the deployment and operational challenges in rural and remote areas, including remote islands.*

- ITU Asia-Pacific Regional Office has taken multiple actions with various partners to implement the Regional Initiative on Broadband

17

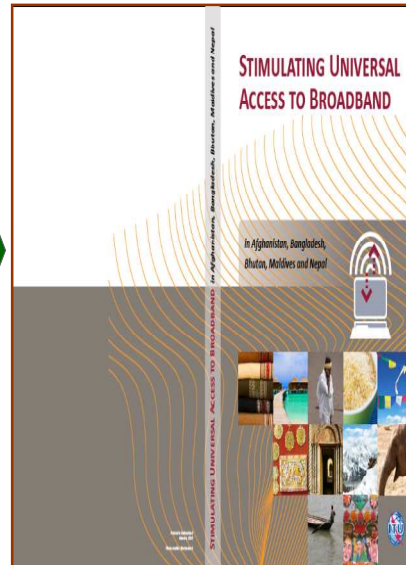## *Stimulating Universal Access to Broadband* in ABBMN Countries – 1 (January - August 2010)

- The first South-Asian Countries including Afghanistan, Bhutan Bangladesh Maldives and Nepal (ABBMN) Ministerial Forum was organized in 2010, Maldives.

- The Forum attracted not only Ministers from the ABBMN countries but also **partners** such as the World Bank, UNESCAP, UNEP, UNODC, Motorola, IMPACT, STA Andorra, and VNL.

- **Survey** on stimulating broadband in ABBMN Countries were carried out by appointing five National Experts and an international experts.

- *Ministerial Declaration* was adopted for: e.g.,

  - ✓ Establish National Broadband Policy and enabling regulatory environment to stimulate investment of infrastructures.

  - ✓ Establish or Strengthen National Advanced ICT training capabilities

  - ✓ Encourage service providers to expand broadband access using full potential of wireless broadband to deliver innovative solutions in rural and remote areas while encouraging establishment of Broadband Community Centers.

Stimulating Universal Access to Broadband
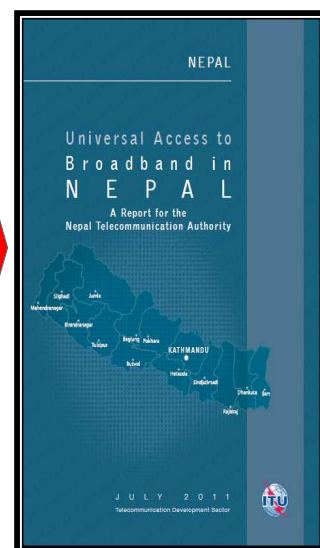in ABBMN Countries - 2
(November 2010)

- Based on the survey, Forum, and Declaration, ***ITU Stimulating Universal Access to Broadband*** was released in 2010

Universal Access to Broadband in Nepal
(July 2011)

- Nepal is a least developed and landlocked country with multiple challenges.
- ITU implemented an action and released the Report including: e.g.
  - Universal Access to Broadband;
  - Regulatory Guidelines;
  - Disbursement mechanism of Rural Telecoms Development Fund;
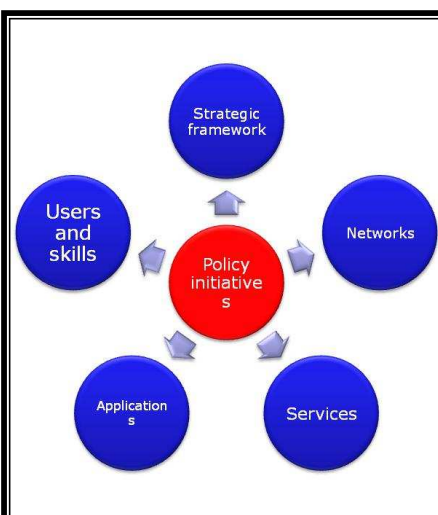 - Recommendations on customized Broadband Policy etc.

Broadband Applications in Nepal
Telemedicine and m-Health- (2008-2011)

- Connecting 13 remote village clinics with hospital
- Pilot project with connecting 4 hospitals with clinics in rural / remote areas
- Another pilot project using m- health under implementation

Broadband Policy in Fiji
(August - October 2011)

- Fiji is a Small Island Developing State with unique connectivity challenges;
- Current broadband penetration is less than 3%;
- ITU implemented an action and submitted a Report including: e.g.,
  - Broadband Policy;
  - Implementation Guidelines
  - And more !
  - Consultation Paper issued by the Ministry on 23 Sept. 2011

Broadband Infrastructure in Sri Lanka (2011 + Extended)

"CONNECT A SCHOOL, CONNECT A COMMUNITY"
Connecting Rural Schools in Southern Sri Lanka

"CONNECT ALL PRIMARY, SECONDARY, AND TERTIARY SCHOOLS TO ICTs by 2015"
(WSIS, 2003)

'Connect a School, Connect a Community' is a public-private partnership launched by ITU to promote broadband school connectivity to serve as community ICT centers for people in rural, marginal urban and isolated areas.

- **Changing Schools:** Over 80% of the students saw computers for the first time in their life through the ITU initiative. IT class has been created in most schools, and curious students are eager to learn how to use computers.

- **Enhancing awareness:** The ITU project has increased awareness of the importance of ICTs in schools. After the project, the Ministry of Education in Sri Lanka announced to quadruple its investment in connecting schools.

- **Fostering Future Partnerships:** Based on successful implementation of 4P collaboration model that was demonstrated by this pilot project, ITU and TRC jointly call for partners/ donor agencies who would could contribute to replicate the success on larger scale in other provinces of Sri Lanka

---

Wireless Broadband Master Plan in ITU Asia-Pacific (2011-2012)

- Under the joint partnership of ITU and KCC (R.O.Korea), the project on *Wireless Broadband Master Plan* has been under the implementation (2011-2012).

- The **objective** is to assist ITU Asia-Pacific countries for their affordable and sustainable wireless broadband.

- The scope includes survey of all Asia-Pacific, master plan for 4 selected countries (Samoa, Vietnam, Myanmar & Nepal) and capacity building through national and regional Workshop.

24

Broadband Policy in Samoa
(September - November 2011)

International Telecommunication Union — Committed to connecting the world

- Samoa is a Small Island Developing State with 180,000 population & challenging demography;
- Dependent upon only one submarine cable system;
- Only two 2G operators are providing mobile service with one WiMax operator;
- Cost of broadband Internet access is very high, which lead to lack of demands;
- No Broadband Policy as yet and Universal access to broadband still a distant dream; &
- Samoa is spectrum rich country.

Recommendations

- **Technology neutral regime would facilitate innovation;**
- **Converged licensing would lower the entry barriers;**
- **Wireless broadband can serve effectively in rural and remote areas ;**
- **Migration to 3G can potentially enhance usage of data services; &**
- **Focus on e-education, e-health and e-government to stimulate usage of broadband.**

Regional Workshop on Wireless Broadband

International Telecommunication Union — Committed to connecting the world

Objectives

- Enhance awareness on new wireless broadband technologies and options for affordable wireless broadband access;
- Understand the need and deployment status of wireless broadband in Asia-Pacific;
- Share best practices and procedures for spectrum management; and
- Strengthening capacity and skill development to design WBMP

21st – 23rd December 2011
New Delhi
India

KOREA COMMUNICATIONS COMMISSION

Event Webpage: http://www.itu.int/ITU-D/asp/CMS/Events/2011/WirelessBroadband/index.asp

ITU Asia -Pacific : Capacity Building
On Broadband & Related (On-going)

- **ITU-R Working Party 5D (WP5D) Workshop , "IMT for the Next Decade", March 2011, Bangkok, Thailand;**
- **ITU-NTC Training Workshop, "NGN Policy and Regulation ", April 2011, Bangkok, Thailand;**
- **ITU Asia-Pacific Centre of Excellence Training, "IMT Advanced", April 2011, Republic of Korea;**
- **ITU-NTC Asia Pacific Centre of Excellence Training, "Broadband Policy and Regulation: Emerging Practice and Lessons", August 2011, Bangkok, Thailand;**
- **ITU Asia Pacific Centre of Excellence Training, "NGN Business Planning", October 2011, Bangkok, Thailand**
- **ITU Asia-Pacific Centre of Excellence Training, Fibre to the Home, December 2011, Busan, Republic of Korea**
- **And many more !**

27

ITU Asia-Pacific:
Lessons Learned

28

Lessons Learned for Ways Forward-I

- Stipulate clear vision and strategy in the national agenda for the development of broadband;
- Create pro-competitive enabling environment that encourage investment in broadband infrastructure;
- Build the capacities and skills to harness the full potential of broadband;
- Customize specific countries', sub-regions' and/or regions' technical assistance or actions to promote broadband in different phases of development;
- Adopt Broadband Policy with clear achievable targets ;
- Access to affordable broadband services, which is a key component as part of universal access policy;

29

Lessons Learned for Ways Forward-II

- Wireless broadband technologies can play an important role especially in connecting rural and remote areas;
- Suitable spectrum for wireless broadband services can be allocated with consideration to Digital Dividend ;
- No one single model or solution will fit all situations, but important lessons can be learned and adopted for unique situation to each country by sharing experiences / learning from the past mistakes; and thus,
- This first cross-regional seminar on broadband in the ITU can provide countries in CIS, Asia-Pacific & Europe with a platform to achieve the interdependent information society through sharing the experiences on broadband !
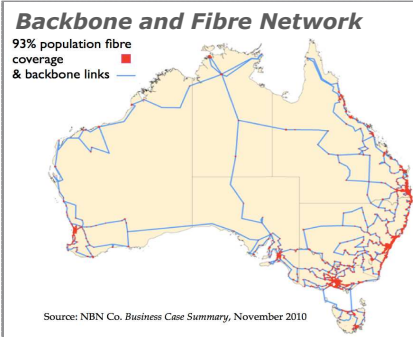
30

References on
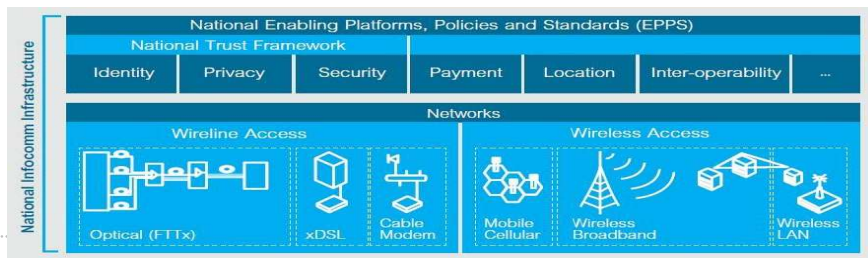## Broadband Activities
In Asia-Pacific

Australia : NBN

- **In April 2009, Australian Government announced the investment of up to $43 billion over the next eight years on National Broadband Network and established the NBN Co Limited in the same year.**
- **NBN Co., a Government Business Enterprises, builds and operates a wholesale-only access for service providers using FTTP connections**
- **NBN rollout began in 2009 in Tasmania covering 4,000 premises.**
- **Speed can go up to 100Mbps.**
- **Financial estimates:**
  - ❖ **$35.9 billion for capital cost**
  - ❖ **$27.5 billion expected to be contributed by the Government**
  - ❖ **7% IRR from 2014-2015**

Backbone and Fibre Network

93% population fibre coverage ■
& backbone links ——

Source: NBN Co. *Business Case Summary*, November 2010

Singapore : Broadband Plan

- **Singapore Broadband Plan is an auspice of its sixth 10-year infocomm master plan aka. The Intelligent Nation 2015 (iN2015).**
- **A goal is to build the Next Generation National Infocomm Infrastructure comprising both wireless (Wireless@SG) and wired components (Next Generation Nationwide Broadband Network or Next Gen NBN).**
- **Next Gen NBN will offer broadband speeds of up to 1 Gbps and beyond while Wireless@SG, which is free Wi-Fi in public areas has offered 1Mbps since early 2010.**
- **By end of 2011, Next Gen NBN will cover 60% of households. It will achieve nationwide coverage by mid-2012.**

National Infocomm Infrastructure

National Enabling Platforms, Policies and Standards (EPPS)

National Trust Framework

| Identity | Privacy | Security | Payment | Location | Inter-operability | ... |

Networks

Wireline Access

Wireless Access

Optical (FTTx) | xDSL | Cable Modem | Mobile Cellular | Wireless Broadband | Wireless LAN

ITU : NGN Case Studies

NEXT GENERATION NETWORK
NGN-GSI
GLOBAL STANDARDS INITIATIVE ITU-T

WTDC 2006: A handbook with a number of parts on NGN network planning methodologies: a guideline for selecting NGN network planning software tools; and global network planning initiative.

Next Generation Networks

Terms of Reference

• *Compile Best Practices*
• *Prepare a manual consisting of various implementable action points for licensing, regulation, standardization, and deployment for facilitating smooth transition towards NGN;*
• *Conduct a two days interactive workshop*

OUTCOME

Handbook On NGN Migration and Regulation Strategies A Case Study of India, Philippines and Sri Lanka

Philippines

Project Document Prepared
Coordinated by CICT and Ministry, Philippines
Funds: By DBCDE (
Dates: 7-18 June
Expert: Oscar Soto
Working Group: Formed

RESOURCES

India

Project Document Prepared
Coordinated by IAFI, TRAI,DOT
Funds: RI Funds
Dates: 11-22 October
Expert: Oscar Soto
Working Group: Formed

ITU-T NGN FG Proceedings 2005

Sri Lanka

Project Document Prepared
Coordinated by TRCSL
Funds: RI Funds
Dates: 25 Oct-5 Nov
Expert: Oscar Soto
Working Group: Formed

Further References

- Toward universal broadband access in New Zealand
  - http://www.itu.int/ITU-D/asp/CMS/Docs/NZ_broadband_case.pdf
- Toward universal Broadband access in Australia
  - http://www.itu.int/ITU-D/asp/CMS/Docs/Australia_broadband_case.pdf

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