Broadband Access and Uptake in Urban and Rural areas

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> *"It is vital that every country prioritizes broadband policy into account to shape its future social and economic development and prosperity"*
>
> *- Broadband Commission (2014)*

- As of 2014, **11 countries** out of the 38 ITU member states in the Asia-Pacific region **did not have a broadband policy/plan** while some countries need to **improve or update their policy**

- **Under the ASP RI 4**, ITU (in collaboration with the Republic of Korea) assisted the 16 Member States establishing :
    - **Wireless Broadband Master Plans (Myanmar, Nepal, Samoa, Vietnam)**
    - **National Broadband Policy/Plan (12 LDCs /developing countries)**

Current Status of National Broadband Policy

- **7 countries fully approved** the NBP at the highest level while **the rest are close** to finalizing

- All these policies set out **clear vision, key objectives** and **principles** as well as **short/mid-term goals**

- Provided with thorough **BB Implementation Action Plans** with responsible organizations and targets) including:

  - ✓ Broadband availability targets
  - ✓ Plans for reducing regulatory burdens
  - ✓ Review of licensing/spectrum management
  - ✓ Improving adoption, affordability
  - ✓ Universal Service Obligations
  - ✓ Sector-specific application (e-gov, e-health, e-education, etc.)
  - ✓ Fostering innovation and local service/contents

Approved

Bhutan, Brunei
Fiji, Indonesia
PNG, Nepal
, Samoa

Under Review

Bangladesh
Cambodia, Lao PDR
Pakistan

In Draft

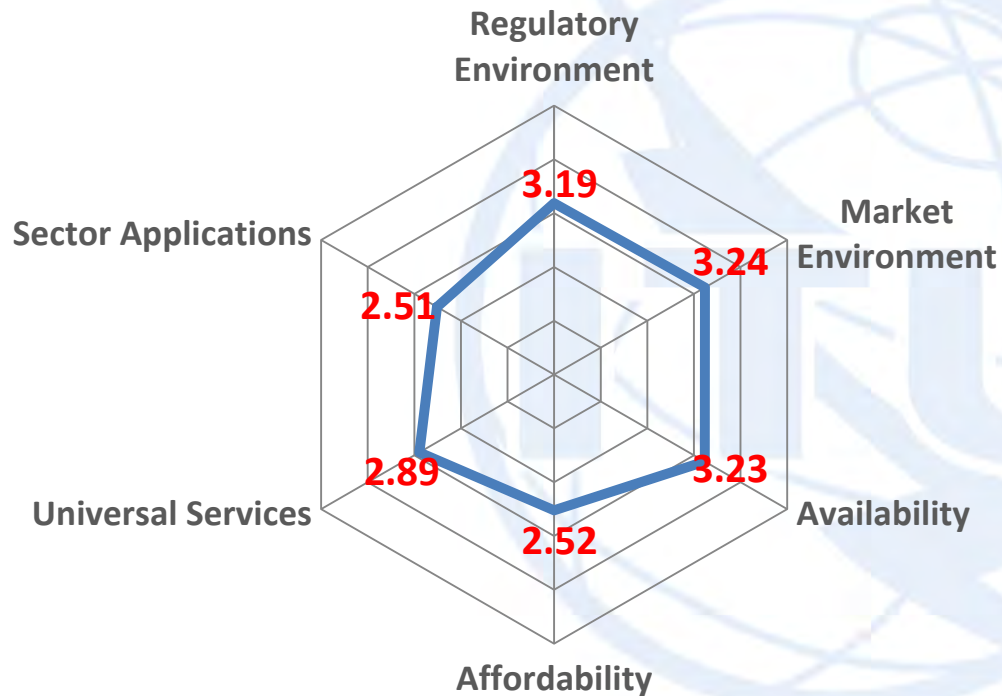Philippines, Myanmar
Marshall Islands
Vanuatu

Feedback from Members

- In June 2015, ITU carried out **a survey to assess the progress on implementing the national broadband policy** for the countries assisted for establishment of the policy/plans

- **14 countries** responded to the survey questionnaire:

  Bangladesh, Bhutan, Brunei Darussalam, Cambodia, Fiji, Indonesia, Lao PRD, Myanmar, Nepal, Pakistan, Papua New Guineas, Philippines, Samoa, Vanuatu

- The survey was directed to the Member States / regulator or agency responsible for implementing national broadband policy/plan

- Assessed the progress on regulatory/market environment, availability, affordability, universal services, sector-specific broadband applications, etc.

Progress Assessment

Average Progress Score in the last 3 years

- **Regulatory Environment** — 3.19
- **Market Environment** — 3.24
- **Availability** — 3.23
- **Affordability** — 2.52
- **Universal Services** — 2.89
- **Sector Applications** — 2.51

- Assessment on **the degree of progress in the last 3 years** were measured using 32 questions under six categories of the broadband ecosystem

- Overall, the studied countries showed relatively good progress on *availability, market and regulatory environment*.

Entry Level Broadband Definition

Entry broadband definition in practice		
No Definition	Lao, Myanmar, Philippines	
Has Broadband Definition (up/down)	**256 kbps**	Fiji, Pakistan
	512 kbps	Bhutan, Cambodia, Indonesia, Nepal, PNG
	1 Mbps	Bangladesh, Samoa
	2Mbp	Brunei
	Others	Vanuatu (download 21 Mbps / Upload 12 Mbps)

- **The definition of entry-level broadband for policy, law or regulation** is not specified in three countries while countries have **different definitions** for basic/entry broadband speed
- Clarity on how to define broadband (minimum speed, type of network) is needed for NBP implementation (esp. USO or progress monitoring)

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Availability

- Most countries have specified in their NBP an ambitious target to increase broadband availability across the nation within a specified timeframe

Country	Broadband Availability Target
Bangladesh	Not specified
Bhutan	80% of the population
Brunei D.	80% of the households by 2017
Cambodia	90% of the population by 2018
Fiji	50% of the population by 2018
Indonesia	75% of the population by 2017
Lao PDR	60% of the post offices as community access points by 2016
Marshall I.	Not specified
Myanmar	Not specified
Nepal	45% of the households by 2018
Pakistan	50% of the population by 2017
Papua N.G.	50% of the population by 2018
Philippines	Not specified
Vanuatu	98% of the population by 2018

Affordability

- Cost of broadband vary considerably between the studied countries. Average monthly price for an **entry-level service may cost between 5 to 45 USD while high speed between 17.6 to 500 USD**

- The majority of the respondents estimated that these prices can be appropriate for high-income or urban middle-income households but **expensive for rural middle-income or low-income households**

	BGD	BTN	BRN	FJI	IDN	LAO	MMR	NPL	PAK	PNG	PHL	WSM	VUT
Entry BB Price (Monthly, USD)	5	7	30	15	NA	15	15	40	5	NA	22	45	30
High S BB Price (Monthly, USD)	20	41	75	100	NA	40	500	100	18	NA	44	75	200

	Very inexpensive	A little Inexpensive	Appropriate	A Little expensive	Very expensive
High-income	1	4	7	2	0
Urban Middle	0	1	8	4	1
Rural Middle	0	0	3	6	5
Low Income	0	0	1	3	10

Licensing & Spectrum Regime

	BGD	BTN	BRN	KHM	FJI	IDN	LAO	MMR	NPL	PAK	PNG	PHL	SM	VUT
Unified Licensing					✓			✓	✓	✓	✓			✓
Spectrum Allocation by Auction	✓		✓		✓	✓			✓	✓		✓		
Spectrum Allocation by Beauty Contest	✓		✓			✓	✓	✓		✓		✓		
Spectrum sharing		✓	✓					✓		✓		✓	✓	
Secondary Trading of Spectrum			✓	✓				✓						✓
In-band Migration			✓			✓		✓		✓		✓	✓	

- Currently, variations exist in licensing practices between different countries

  - **Brunei, Myanmar, Pakistan and Philippines** have taken a more **flexible and dynamic approach** to spectrum/licensing management that can easily accommodate convergence
  - **Bhutan, Cambodia, Lao PRD and PNG** still maintain a relatively **less flexible spectrum/licensing** regime

Degree of Competition

Number of Market Players

	One	Two	Three	More than 3 players
Fixed	Bhutan, Brunei, Fiji, Myanmar, PNG, Samoa	Nepal, Vanuatu	Bangladesh	Cambodia (5), Lao (4), Pakistan (5), Philippines (5+)
Mobile		Bhutan, Brunei, Fiji, Nepal, Samoa, Vanuatu	Myanmar, PNG	Bangladesh (5), Cambodia (5), Indonesia (7), Lao (4), Pakistan (5), Philippines (4)
Broadband		PNG, Samoa	Bhutan, Brunei	Bangladesh (5), Cambodia (5), Fiji (4), Lao (4), Myanmar (3), Pakistan (5), Philippines (5+), Vanuatu (4)

- Mobile and broadband services have **multiple market players** in most countries

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Effort to Improve Market Dynamics

	Already has	Considering	Not Yet
Simplifying the process of FDI	Brunei, Cambodia, Fiji, Indonesia, Myanmar, Nepal, Pakistan, PNG, Vanuatu	Bangladesh, Bhutan, Lao, Philippines, Samoa	
Introduce new BB players	Bhutan, Cambodia, Fiji, Lao, Myanmar, Pakistan, PNG, Philippines, Samoa	Bangladesh, Nepal, Vanuatu	Brunei, Indonesia

- Most countries responded their governments **already tried to introduce new players to the broadband market** while Bangladesh, Nepal and Vanuatu are considering further steps
- Countries also **tried to simplify the process of foreign direct investment** while Bangladesh, Bhutan, Lao, Philippines and Samoa are considering further

Efforts to Improve Market Innovation

	Already have	Considering	Not Yet
Initiative to develop local contents	Bangladesh, Brunei, Cambodia, Indonesia, Pakistan, Vanuatu	Bhutan, Fiji, Lao, Nepal, PNG, Samoa	Myanmar, Philippines
Programs to encourage online service development	Brunei, Indonesia, Myanmar, Samoa, Vanuatu	Bhutan, Cambodia, Fiji, Lao, Nepal, Pakistan	Bangladesh, PNG, Philippines

- Countries except a few, already have or considering **initiatives or programs to develop local contents** or to **encourage** online service development or entrepreneurship

- For future innovation, these countries are interested in adopting (or have discussed to prepare): VoIP (11), IPv6 (11), Internet of Things (6), Start up incubation (6), Big Data (5), Green data center (5), e-waste management (5), Net neutrality (4)

USO and USOF

Has USO and USOF	Bangladesh*, Bhutan, Fiji, Indonesia, Myanmar, Nepal*, Pakistan, PNG, Samoa, Vanuatu	
Means to collect USOF	**Levy on operator revenues**	Bangladesh (1% from only mobile operators), Indonesia (0.75% from all operators), Myanmar (2% from all licensees), Nepal (2% from all licensees), Pakistan (1.5% from all operators), Fiji, PNG*, Vanuatu
	Fixed installment from licensees	Bhutan (currently reviewing 1% levy on gross revenue option)
Under Review	Brunei*, Cambodia, Lao*	
No USO	Philippines	

- 10 out 14 countries established Universal Service Obligations (USO) /USOF
- Levy on telecom operators' revenue is the most common means of collecting USOF although its scope and amount may vary between countries

Examples of USOF Spending

Not yet used	Bangladesh, Samoa
Bhutan	• Rural mobile connectivity • Internet Connectivity to Schools • To fund small stretch of fiber optic in the central part of Bhutan
Indonesia	Develop phone and internet access in rural/remote area
Pakistan	• Build nationwide broadband infrastructure • Promote broadband adoption • Introduction of e-services such as e-health, e-education, e-commerce
PNG	The initial funding was from the World Bank and beginning in 2013, it was used mainly for infrastructure development to extend 2G cellular services (Voice and SMS) to more than 50 USO designated sites around PNG.
Vanuatu	• Subsidy UAP project to establish a pilot telecentre in a rural school • Invest in ICT and Telecommunications project for schools and rural areas

Examples of Sector-specific Applications

Bangladesh	• Bangladesh Research and Education Network (BdREN)
Bhutan	• Established National Research and Education Network (DrukREN) • Developed three sector specific ICT Master Plans for Education, Health & Tourism • Development of e Procurement framework, ICT for land management and ICT industry development roadmap are currently under progress.
Brunei	• e-Hijrah initiative (e-Health) / BruHims (Brunei Darussalam Healthcare Information and Management System)
Lao PDR	• E-learning system prepared by the University of Lao
Nepal	• 'ICT in Education master plan 2013-2018' to connect the public schools • Telemedicine services are operational in many places
Pakistan	• e-agriculture project in Sindh province, • Virtual university provides online education to students across Pakistan • Punjab Anti Dengue App - an application to track the dengue activity • Sabaq.pk - a website that hosts free video lectures for the curriculum of 9th and 10th class
Philippines	• eHealth Philippines • TESDA Online Program (teaching online technical skills)

Areas of Good or Slow Progress

Areas of Good Progress

Areas of Slow Progress
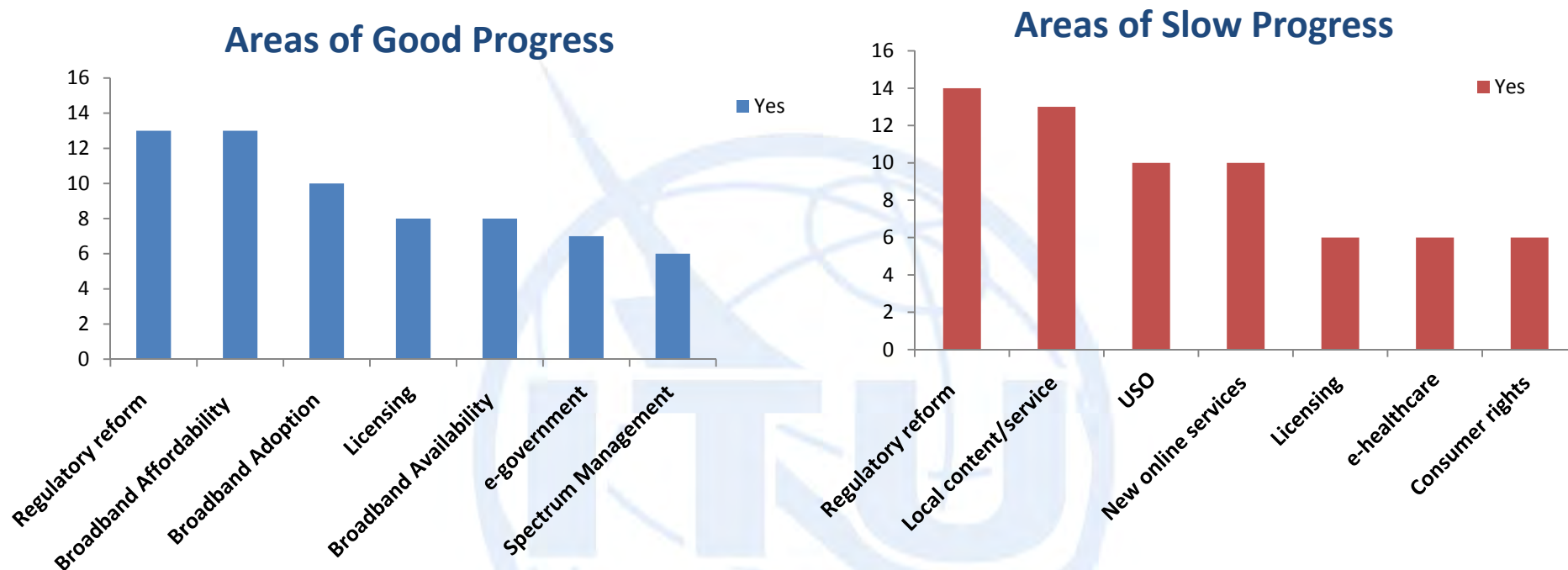
- Studied countries reported **good progress** in the last three years on *broadband affordability, user adoption, availability, e-government, spectrum management* etc.

- **Slow progress** was made regarding *local content development, USO, new service development, e-healthcare, consumer rights*

- *Regulatory reform and licensing* practices had a mixed responses (some countries reported good progress; others didn't progress much)

Priority Areas of NBP

Priority	This year	By 2017	By 2020
No. 1	**Availability**	**USO**	**e-education**
No. 2	**Regulatory Reform**	Availability	Local content
No. 3	**Spectrum mgmt**	e-government	User adoption
Other responses	USO e-government e-education Affordability	Licensing regime e-education Spectrum mgmt e-healthcare	Affordability Consumer right e-healthcare e-government

- **The government's top 3 priority areas of NBP this year** were reported as *broadband availability, regulatory reform and spectrum management*

- *USO, availability and e-government* were ranked as the priority areas in the **next three years** while *e-education, local content and user adoption* were important in the **next five years**

Challenges to NBP Implementation

Main Barriers to Implementing NBP (Responses)
• Lack of investment on infrastructure   (11) • Large rural areas with sparse population (11) • Affordability (11) • Lack of attractive online services (11) • Lack of awareness on broadband benefits (10) • Lack of skilled human resources in government (9) • Lack of sufficient funding (7) • Lack of consumer demand for broadband (7)

- Still, **multiple barriers exist in implementing NBPs** including *lack of investment, geography, affordability* as well as *limited user demand/attractive online services*

- Institutional issues or end-user terminals were ranked low

Outcomes of Implementation of ASP RI 4

- ITU assisted **16 Member States** in establishing Wireless Broadband Master Plans & National Broadband Policy/Plan

- Improved awareness, skills and capacity on Broadband Access and Uptake with **more than 500 participants** from the region and beyond

- National Broadband Policies cover entire **broadband eco-system** encompassing policy and regulatory environment, technology, competition, network/service availability, affordability, sector-specific applications

- Member States made good progress in the last three years in areas of **affordability and adoption** largely due to the uptake of mobile broadband

- Some Member States faced challenges such as **limited funding, huge rural areas with low user demand**, slow progress has made in the areas of broadband service development, USO and sector-specific applications

- Gradual shift from infra provision to **cross sectoral applications/ services provisioning** with initiative from private sector that can drive user demand!