



7. ICT Infrastructure and Access - IV: Case Studies -

**UNESCAP/ITU Regional Training Workshop on
Enabling Policies and Regulatory Frameworks
for Information and Communication
Technology (ICT) Development in the Asia-
Pacific Region**

**May 5, 2004
Bangkok, Thailand**

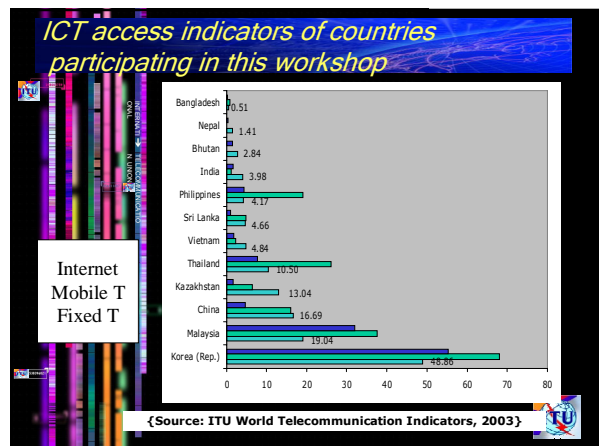
Dr. Eun-Ju Kim
ITU
eun-ju.kim@itu.int

What are the critical policy & regulatory factors to attribute to development of ICT infrastructure and access?

➤ Survey Results from case studies:

1. 'Who is who' in the converged ICT sector
2. Competition status
3. Interconnection agreement & charge
4. Licensing issues: fees, conditions etc.
5. Spectrum issues: license, fees etc.
6. Universal Service & Funds
7. Pricing methods and decision-makers
8. Quality of Service: criteria
9. Monitoring and enforcement mechanisms

➤ Evaluation & Recommendations



Policies

Country	Telecom	IT/ICT
Bangladesh	National Telecommunications Policy (March 1998)	National ICT Policy (2002)
Nepal	Telecom Policy (1999 & 2004)	National IT Policy (2000)
Bhutan	-	ICT Policy (Draft)
India	New Telecom Policy (1999)	National IT Task Force (1999): SW, HW, industry policies
Philippine	Various Telecoms Policies	National IT Plan (2001)
Sri Lanka	National Telecom Policy (2000)	ICT Policy & Action Plan (2002)
Vietnam	Telecom Policy (2005)	ICT Policy (2000 & 5)
Thailand	n.a.	- IT 2010 (2001) - National ICT Master Plan (2002)
China	10 th 5 year Development Plan	Inc. Information Industry (2000)
Malaysia	-	Vision 2020
Korea (Rep)	Telecom Policy with a vision for information society started from 1980s	IC White Paper (2001), Internet Policy(2002), Korea's IT Policy(2002), e-Korea Vision 2006

Laws

Country	Telecom	Radiocommunication	IT/ICT
Bangladesh	Telecom Law 2001	Radio Broadcasting Act (1992)	IT (E-transaction) Act (Draft)
Nepal	Telecom Act 1997	Radio Act (1957)	Digital Signature Act (Draft)
Bhutan	Telecom Act 1999	-	ICT & Media Act (Draft) 2004
India	Telegraph Act 1885 & 2004	Wireless Telegraphy Act 1933	- IT Act 2000 -Draft Communication Convergence Bill 2000
Philippine	Telecom Policy Act 1995	Radio Control Law	-E-commerce Act -CIC Act -Draft Convergence Bill
Sri Lanka	Telecom Act 1991	Telecom Act 1991 SLBC Act 1979	-ICT Act (2003) -Draft Computer Crimes Bill -E-Transaction Bill
Vietnam	Ordinance on Posts & Telecommunications	-	Ordinance on Posts & Telecommunications
Thailand	Telecom Act (2002)	Radiocommunication Act	E-Transaction Act (2002)
China	Regulations on Telecom	Regulation on Radio Admi	-
Malaysia	Communications & Multimedia Act 1988	Communications & Multimedia Act 1988	-Computer Crimes Act -Digital Signature Act
Korea (Rep)	Telecom Basic Act	Telecom Basic Act (Tech)	Informationization Promotion Act

Policy-makers

Country	Telecom	Broadcasting	IT:ICT
Bangladesh	MPT	MOI	MSICT:PM's O
Nepal	MOIC	MOIC	MOST
Bhutan	MIC	MIC	MIC
India	MCIT	MIB	MCIT
Philippine	CICT	CICT	CICT
Sri Lanka	MPT	-	PM's office
Vietnam	MPT	MCI: Culture & I	MST
Thailand	MICT	Office of PM	MICT
China	MII	State Admin of Radio, Film, TV	MII
Malaysia	MEWC	MEWC	MEWC/MST
Korea (Rep)	MIC	MOI	MIC

Regulators

Country	Telecom	Broadcasting	IT
Bangladesh	BTRC	MOI	BTRC
Nepal	NTA	MOIC	MOST
Bhutan	BCA	BCA	BCA
India	TRAI	TRAI	no
Philippine	NTC	Optical Media Board, NTC	CICT
Sri Lanka	TRC	-	ICTA
Vietnam	MPT	-	MPT
Thailand	NTC (TBF)	NBC	MICT
China	MII	State Admin of Radio, Film, TV	MII
Malaysia	MCMC	MCMC	MCMC
Korea (Rep)	KCC	KBC	KCC

Competitions

Country	Fixed	Mobile	ISP
Bangladesh	Yes (limited)	Yes	Yes
Nepal	Yes (limited)	-	Yes
Bhutan	No	No	No
India	Yes	Yes	Yes
Philippine	Yes	Yes	Yes
Sri Lanka	Yes	Yes	Yes
Vietnam	Yes	Yes	Yes
Thailand	Yes	Yes	Yes
China	Yes	Yes	Yes
Malaysia	Yes	Yes	Yes
Korea (Rep)	Yes	Yes	Yes

Interconnection

Country	Agreement	Method of Charges
Bangladesh	Yes	'Bill & Keep' and Revenue sharing
Nepal	Interim	Revenue sharing
Bhutan	No need (monopoly)	-
India	Yes, among operators first	Cost & Usage-Based, and ADC
Philippine	Yes, among operators	Cost-Based
Sri Lanka	Yes	Cost-Based
Vietnam	Yes, between public networks	Cost-Based & 'Bill & Keep'
Thailand	n.a.	n.a.
China	Yes	Cost-Based
Malaysia	Yes	Cost-Based
Korea (Rep)	Yes	Cost-Based

Licensing categories & fees

Country	Categories	Fees
Bangladesh	Facility & Service-Based	- Application, Entry & Annual fees - Spectrum usage fees
Nepal	Service-Based	- Fees for fixed, WLL & ISP; USO; Spectrum usage
Bhutan	Facility/Non-Facility	- 'x' percentage of annual income
India	Service-Based	- Entry + Annual: revenue sharing (5-10% inc. USO) - Spectrum usage fees
Philippine	Service-Based	- Entry: import/posses/construct & radio station - Annual: supervision & spectrum usages fees
Sri Lanka	Service-Based	-
Vietnam	Facility & Service-Based	- Entry fees to cover admin cost
Thailand	Service-Based	n.a.
China	Service-Based (Basic & VA)	No license fees
Malaysia	Tech/Service-Neutral	- Entry: RM50,000 (Registration); RM2,500 (Class) - Annual: 0.5% or 0.15% of GAT, Spectrum usage
Korea (Rep)	Facility & Service-Based	- Entry & annual fees of 0.5% revenue + spectrum - Social costs (e.g., R&D, ICT development)

Licensing conditions

Country	Licensing conditions
Bangladesh	ITU-T & R Recommendations for fixed & mobile services respectively.
Nepal	ITU-T & R Recommendations for fixed & mobile services respectively.
Bhutan	No
India	- USO (a maximum of 5% of adjusted gross revenue) - ITU-T Recommendations
Philippine	- NTC & ITU-T Recommendations for signaling, transmission, routing, numbering etc. - USO for IGO & cellular operators: provide 300,000 & 400,000 local exchange line respectively.
Vietnam	- Fixed/Mobile: State-ownership & PM's decision - ISP: Vietnamese enterprise
Thailand	n.a.
China	Telecomm Administrative Rules for service operation licenses
Malaysia	USP Contributions for all fixed, mobile and ISP
Korea (Rep)	Telecom facilities, financial and technical capabilities.

Spectrum issues

Country	License	Licensor	Fees
Bangladesh	Yes	BTRC	-US\$0.5/KHz for cellular & WLL
Nepal	Yes	MOIC	Yes
Bhutan	No separate license	BCA	-
India	Yes	MCIT	- Revenue sharing (2-4% of AGR)
Philippine	No license for terminals/ retail CPE	NTC	-US\$0.1/KHz for cellular -US\$0.15/KHz for WLL -US\$0.008/KHz for WiFi
Vietnam	Yes	MPT	
China	Yes	MII	- 15 RMB yuan (radio station) - Spectrum usage fees (varies: e.g., 15 million RMB yuan/MHz (from operators) from July 2002 - Radio equipment inspection & test
Malaysia	Yes	MCMC	-RM50M (35 MHz - 15 years) + -RM1680 Per Channel
Korea (Rep)	No separate license	MIC	-

Universal service

Country	Scope	Who - funds	How much - funds
Bangladesh	Telecom services to villages by 2005	No particular funds	5% of network capacity in rural areas by operators
Nepal	Only basic telephony	Service providers	2% of revenue
Bhutan	'x' number of connections different from urban & rural	-	-
India	-Basic telephony in village; -2 nd phone in village of 2,000 -PTIC (teleinfo), HPTIC	Telecom service providers	5% of AGR included in license fee
Philippine	A minimum set of affordable & quality coms services accessible to all residents in communities	Under study	Under study
Vietnam	-Basic telephony in rural -Internet at every school	MPT	-
China	No definition yet	No funds yet	-
Malaysia	Under-served areas	NFP, NSP, ASP, & not CASP	6% of weighted net revenue
Korea (Rep)	All end-users anytime, anywhere at an affordable price	MIC	-

Pricing

Country	Decision-maker	Methods
Bangladesh	Operators propose; BTRC approves	Retail rates
Nepal	NTA	Retail index - x
Bhutan	BCA	Perceived affordability, near-costs, and revenue requirements
India	-Operators for their tariffs; -TRAI for rural fixed line (rentals, domestic mobile roaming)	Cost-based
Philippine	NTC	Rate based regulation
Vietnam	MPT inputs from operators	Cost-based pricing for Significant Market Power (SMP) only (with FDC methods)
Thailand	-	-
China	MII inputs from operators	Cost based considering affordability socio-economic development
Malaysia	MCMC	Long Run Incremental Cost (LRIC)
Korea (Rep)	MIC inputs from operators	-

Quality of Service

Country	Criteria
Bangladesh	Service blockage, call completion ratio, faults per 100 lines etc.
Nepal	Number of all-drops, any echo in voice telephony, speed of access to and use of Internet.
Bhutan	'x' % call completion ratio on any given routes and the speed of access for Internet.
India	Many parameters specified in the regulations issued by TRAI
Philippine	A set of standards set by NTC: poor service, erroneous billings, lost/stolen equipment, fraud etc.
Vietnam	Compatibility for equipment; testing network quality
Thailand	-
China	A set of rules/standards specified in the telecom regulation
Malaysia	Billing performance, end-point service availability etc.
Korea (Rep)	-

Monitoring and Enforcement

Country	Monitoring	Enforcement, when violating
Bangladesh	According to complaints	Fine, suspend and cancellation of license
Nepal	Complaints and public hearings	Revoke license but no penalties
Bhutan	Complaints & regular check-up	Penalties
India	- Operators: periodical report - TRAI: periodic surveys for QoS	Penalties & revoke
Philippine	Regular monitoring spectrum & complaints	Fines, suspension & cancellation of licenses, exclusion from applying for new licenses, forfeiture of bonds etc.
Vietnam	Monitor telecom, frequency, & Internet	Revoke
Thailand	n.a.	n.a.
China	Regular monitoring	Legal penalties differing from each services
Malaysia	Timely visit licensees	Revoke and suspend
Korea (Rep)	Regular monitoring	Fines, revoke license with penalties

HW/SW Industry & Consumer Issues

Country	Industry	Consumers
Bangladesh	HW & SW: Week	Week
Nepal	HW & SW: Week	Week
Bhutan	HW & SW: Week	Week
India	HW: Medium & SW: Strong	Medium
Philippine	HW: Medium & SW: Medium	Medium
Sri Lanka	HW: Medium & SW: Week (?)	Medium
Vietnam	HW: Medium & SW: Strong	Medium
Thailand	HW: Medium & SW: Medium	Medium
China	HW: Strong & SW: Medium	Medium
Malaysia	HW: Medium & SW: Medium - Industry Forum	Strong
Korea (Rep)	HW: Strong & SW: Strong - Industry Forum	Strong

ICT status V. Econo-Politics

Countries with ICT development (H-L)	Economic Policy + GDP & size of economy (H-L)	Political Factor
Korea (H) Malaysia (M) Thailand (M)	Planned + early market economy; <i>progressive</i> liberalization; competition:	Authoritarian toward democratic regime over decades
China (M-L) Vietnam (L)	Planned + recent market economy; limited competition: (L-M)	Socialist regime combined with market economy
Philippine (M-L) India (L) Sri Lanka (L)	Liberal market economy; competition: (L)	Democratic regime
Bhutan (L) Nepal (L) Bangladesh (L)	State-owned teleco; limited or no competition: (L)	Political instability

- ### Evaluation (1)
1. Most of countries have already telecom and/or IT/ICT policies influenced by either their internal needs or external pushes;
 2. Difference between 'external' & 'internal' driven policy: ***I.e., countries with externally driven policy have not realized development & growth of ICT infrastructure & access;*** The needs, means & determination should come from each country itself;
 3. **Having policies, laws, & regulatory frameworks alone is neither the critical nor the only factor for their development of ICT:** I.e., most of countries have their own regulatory frameworks;
 4. ***Free/open market policy or full/sudden liberalization alone has not attributed to the development of ICT in the most economies of ASP region: I.e., the success is based on a combination of socio-economic wealth and size of economy, econo-political regime, and most of all efficient management by local manpower;***

Evaluation (2)

5. 'Econo-political will & stability' has contributed to the overall growth & policy implementation in the ICT sector;
6. 'Efficient implementation – I.e. management or governance - with streamlined and transparent PROCEDURES' are more critical to promote development of ICT industry and meet customers' expectation; and
7. Last but not least, 'Human Resource Development' for country's own expertise is the very critical factor for the development in a longer-term to be independent from external consultancies and experts eventually.

Recommendations

1. Ensure political vision, will, & stability for information society;
2. Develop policy and regulations appropriate for your own country's circumstances and needs;
3. **Ensure efficient implementation – i.e., management/governance - of the policy and regulations with streamlined PROCEDURES;**
4. Develop, maintain, & upgrade human resources & expertise constantly in the fast evolving and converging ICT sector; and
5. Learn lessons from other countries/

ACRONYMS & ABBREVIATIONS

ADC	Access Deficit Charges
DSL	Digital Subscriber Line
GDP	Gross Domestic Product
GSM	Global System for Mobile Communications
ICT	Information and Communication Technology
IP	Internet Protocol
ISP	Internet Service Provider
ITU	International Telecommunication Union
LRIC	Long Run Incremental Cost
MCMC	Malaysian Communications and Multimedia Commission
MEWC	Ministry of Energy, Water and Communications, Malaysia
MIC/MICT/MOIC	Ministry of Information & Communication/Technology
MOI	Ministry of Information
MPT	Ministry of Post & Telecommunication
MST	Ministry of Science & Technology
NTC	National Telecommunication Commission, Philippine
QoS	Quality of Service
SATRC	South Asian Telecommunications Regulators' Council
TRAI	Telecom Regulatory Authority of India
USA	Universal Service Access
USF	Universal Service Fund
USO	Universal Service Obligation
VoIP	Voice over Internet Protocol
WLL	Wireless Local Loop
WTO	World Trade Organization

The End

Thank you

Dr. Eun-Ju Kim
 ITU Regional Office
 89/2 Chaengwattana Road
 Laksi, Bangkok 10210
 Thailand
 Tel: +66 2574 8565
 Fax: +66 2 574 9328
 E-mail: eun-ju.kim@itu.int