

What needs measuring in Developing Asia

**Workshop on ICT Indicators for Benchmarking
Performance in Network and Services Development:
New Delhi, 1-3 March, 2006**

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Core Objectives

- Long-term: Establish a sustainable system for measuring and benchmarking ICT sector input and output indicators for South Asia that can be extended to developing Asia
- Short term (6-9mths): Prepare a comprehensive manual similar to EU manual defining standardized indicators and methodologies across South Asia.



Specific Objectives

- Standardized definitions of indicators with relevant, standardized methodologies and collection periods (especially supply-side)
- Establish data sources for South Asia (i.e. produce a data source network map)
- Incorporate measures to gauge ICT value-chains (eg. ITES, Employment, Taxes)
- Creation of a centralized database for access for all.



Context

- Plethora of Indicators being used without proper standardization
- Pervasive and significant utilization and impact of ICTs emphasizes need to have accurate and reliable indicators.
- For developing Asia, data collection needs to occur in a prioritized manner.



Previous Work

- Partnership on Measuring ICT for Development (UNCTAD, OECD, EU, UN,...)
- Core ICT Indicators document
- ITU, OECD, EU, UN



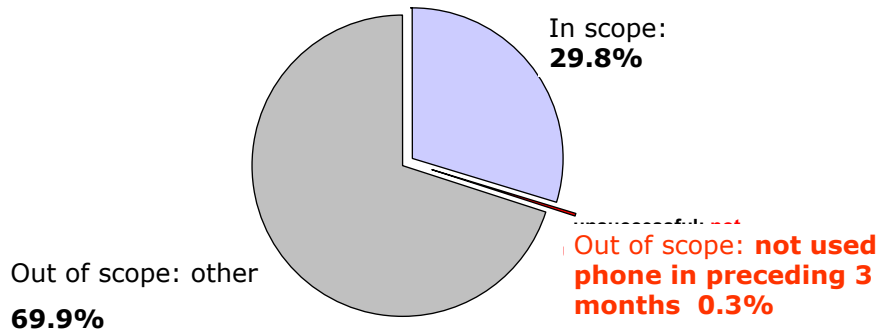
Demand side indicators



Recent research: Nearly everyone in uses phones, even the poorest



Sri Lanka



Total number approached: 3690



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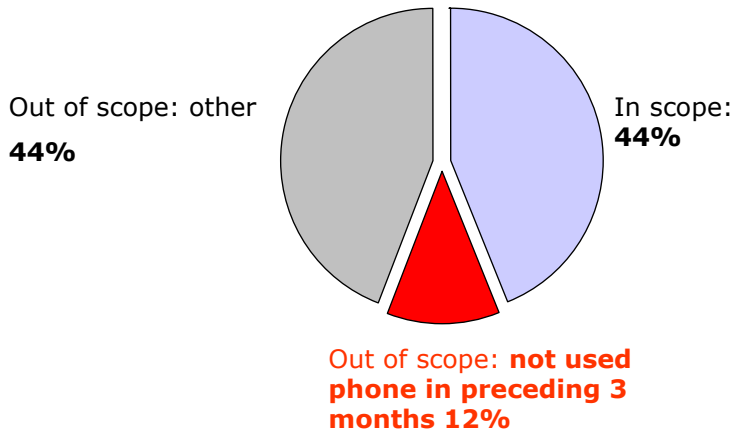
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some higher than income bracket we required, not speaking the language, refused to be interviewed, no body at home, not a household, no adult in the house, not in the age group, someone in the household works in a ad agency/ research/ media, participated in a survey in the last 6 months, SEC higher, no number for the house, couldn't find the household with the number, no one at home.

All these entries what field team came across when following the KISH grid.



India



Total number approached: 4769

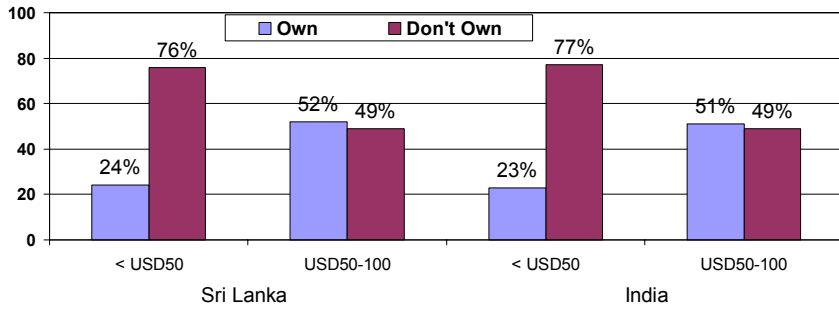


How do people access ICT services?

- Majority through some form of **shared access**
- **Teledensity is not sufficient**



58% did not own the phone that they used



What people own

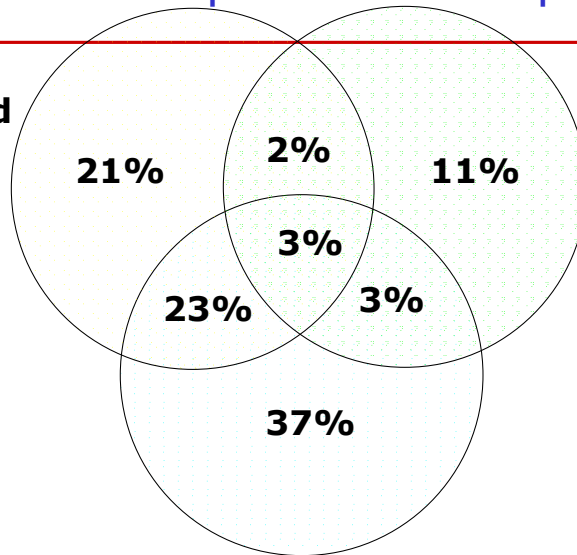
	Sri Lanka	India	< USD 50	USD50-100	<
USD 50					
Landline Only	19	2	21	20	
Mobile Only		37	8		28
Landline + Mobile	1	1		4	
		6			

66% relied on public access phones



Fixed
(49%)

Mobile
(19%)



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'Public' access (66%)

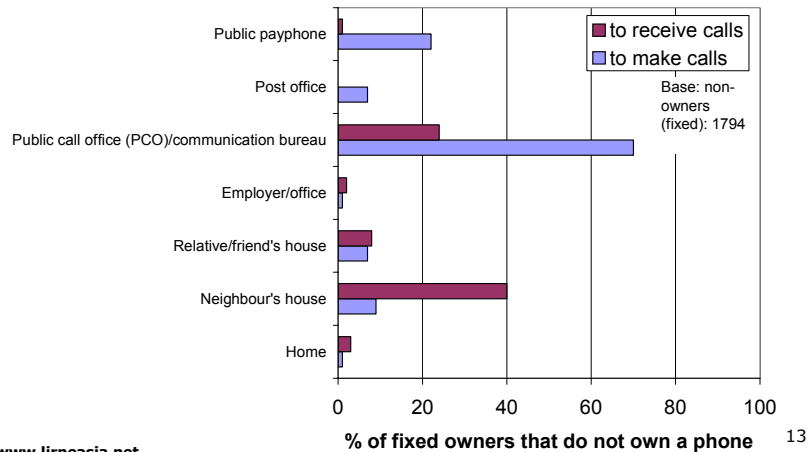
Base: 3199

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People rarely used the phone at home



the place where fixed users who do not own a phone most often use the phone



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Payphones still significant in developing world, as found in RIA! Research, but some statistical reports (ITU) have stopped reporting payphone numbers



-
- Demand exists even at the 'low-end'
 - Cannot consider 5% penetration as 5% of population having access
 - Many people using one phone → look at access on household basis rather than individual basis

The need to understand demand



- for demand forecasting, investment decisions, benchmarking, policy making, assessment of policy & regulation etc.
- Together with supply-side indicators, demand side indicators complete the 'equation'

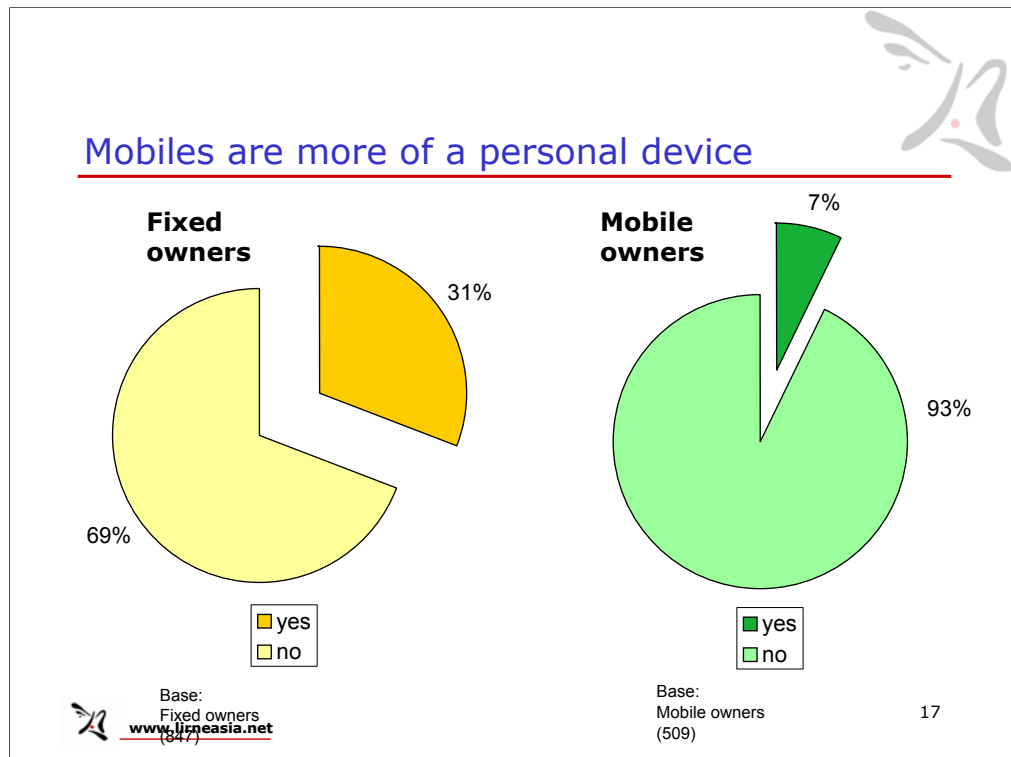


Demand Indicators: Household & individual

- Access:
 - Proportion of households with a
 - Fixed phone
 - mobile phone
 - computer
 - internet connection
- Use:
 - Frequency of use
 - Location of individual use
 - Expenditure on ICT services

Collect on household basis to find out about availability of facilities; individual basis for actual use of those facilities.

Mobiles are more of a personal device



Mobiles increasingly being seen as a personal device – less people use it as a ‘shared’ phone.

{25.0} {25.1}

FIXED: India – 32%* Sri Lanka – 25%

Mostly **1-4 people per month**, making/receiving **calls 1-4 times per week**

Most often, the **problems faced** relate to the inconvenience of having to go out and pass messages or go and call the person when a call is received

Charging for calls – only outgoing: 23% [India – 19% **Sri Lanka – 42%***]

Usually to cover the cost of the call (56%), sometimes below cost (31%)

Why? Most often as a ‘public service’ or for the sake of ‘friendship’

MOBILE: India – 10% Sri Lanka – 6%

Most often **1-4 people per month**, making/receiving **calls 1-2 times per week** (v.low bases)

Most often, the **problems faced** relate to the inconvenience of having to go out and call the person when a call is received

19% charge for outgoing calls, Usually to cover the cost of the call or sometimes



Usage patterns

- Questionnaire based surveys are not enough
- Information from operators is ideal, but in a world where:
 - Majority are prepaid users
 - One phone is used by many people
- Observation methods may be optimal

- Accurate information on usage patterns gives useful indications for e.g to compute tariff baskets

% of income spent on ICT services

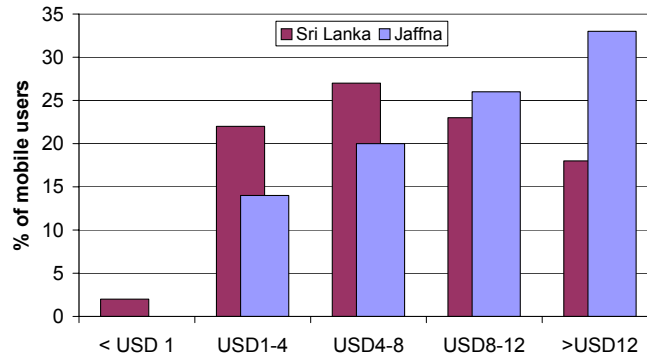


■ How much are people willing to spend on ICT services?

□ Needs to be as a % of income from **all** sources

■ Jaffna case – numbers distorted by remittances

Average monthly expenditure on mobiles



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To ascertain the value that people place on ICTs & estimations of consumer surplus and price and income elasticities – important for forecasting demand.

Demand Indicators: Businesses



- Access:
 - Proportion of
 - businesses & employees using computers
 - businesses & employees using the internet
 - businesses receiving orders via the internet
 - business placing orders over the Internet
 - businesses with a Web presence
 - **businesses with an intranet**
 - businesses using phones
- Use:
 - Frequency of use of Internet
 - Purpose of use:
 - **what does e-commerce mean then for Asia?**



Within defined timeframe (e.g. used Internet in the last 12 months)

Most of all...

- Indicators must be seen in context
 - reason for low use of Internet in business may be a result of high Internet costs

Compare 40% with Philippines for e.g –
OR: Low



Supply side indicators





Investment

- Telecommunication Infrastructure investment data
- As a percentage of GDP



Operators Market Share

- Fixed, mobile, internet
 - Need to be applied to specialized providers of services such as domestic leased lines, IPLCs





Access indicators

- Tele-densities (mobile, fixed, urban rural, household)
- Internet penetration
 - Per 100 inhabitants, by household
- Percentage of population covered by mobile cellular telephone



Tele-Density (Fixed & Mobile)



- Need to measure rural & urban
- How do we measure rural and urban?
 - Mobile: through use of estimates of average base station load
- Issue: Definition required for “mobile subscriber”





Public Access Points

- Number of public access points for ICT access:
 - Public Call Offices (PCOs)
 - Pay-phones
 - Internet cafes
- Relevance: Recent study indicates 60% of low income telecom users in India and Sri Lanka use some form of public access
- Differentiate b/w urban and rural





Internet Penetration

- # of internet subscribers
 - Issue: dialup users using prepaid cards?
- # of broadband subscribers



National PSTN Tariffs

- Utilization of OECD basket methodology (2000)
 - Residential basket (1200 calls per year)
 - Business (3600 calls per year)
- Depreciate connection charge
- Weighted over 14 distances (3km to 500km)
- Weighted over 6 day & time points (different for residential and business)
- Call time of 2mins
- Asian context: same issues as Mobile tariffs



International PSTN Tariffs

- OECD: International PSTN basket
 - Incl. calls to all member countries
 - Weighted b/w peak and off-peak

Basket	Pk. Wt.	Off-Pk. Wt.
Bus.	75%	25%
Res.	25%	75%

- Call durations:

Basket	Pk.	Off-Pk..
Bus.	3mins	5mins
Res.	3mins	5mins

- Composite Nat. – Int. Basket
 - OECD: National Basket + 6% more calls which are International

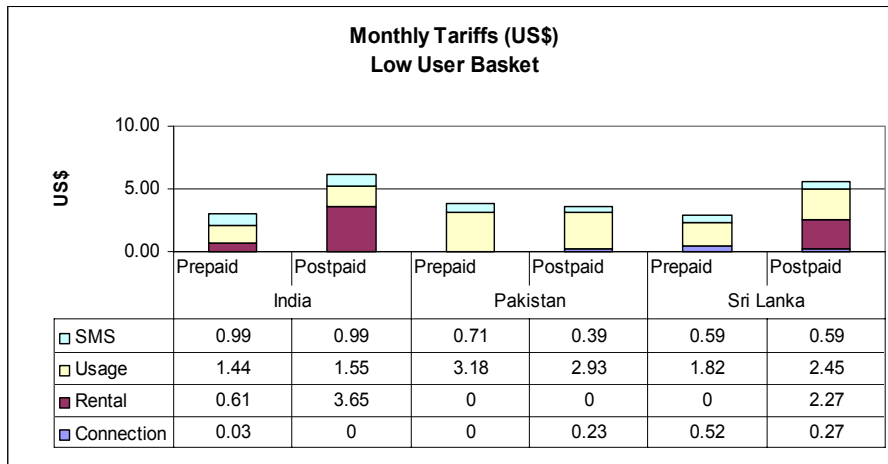


Mobile Tariffs

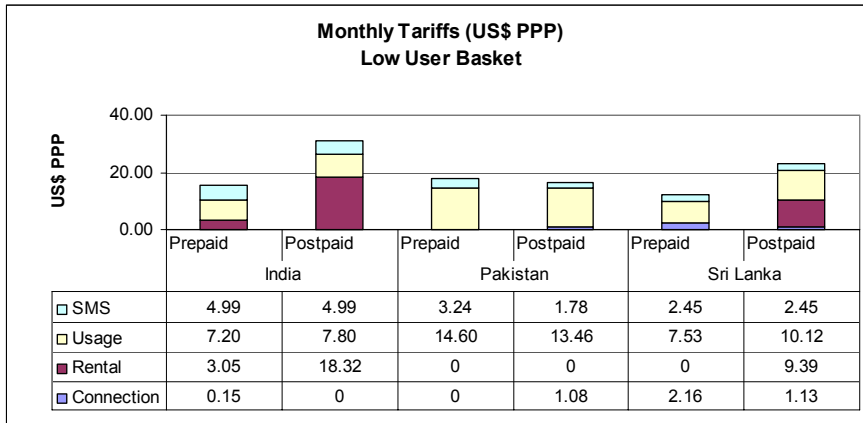
- **Utilize OECD basket methodology (2000 & revision of 2001)**
 - Low user (25 MOU/mth + 30 SMS)
 - Medium user (75 MOU/mth + 35 SMS)
 - High user (150 MOU/mth + 42 SMS)
- **Basket components**
 - Connection (deprec. over 3 yrs) + Rental + Usage + SMS
- **Additions**
 - Account for prepaid & postpaid
 - Account for RPP + CPP



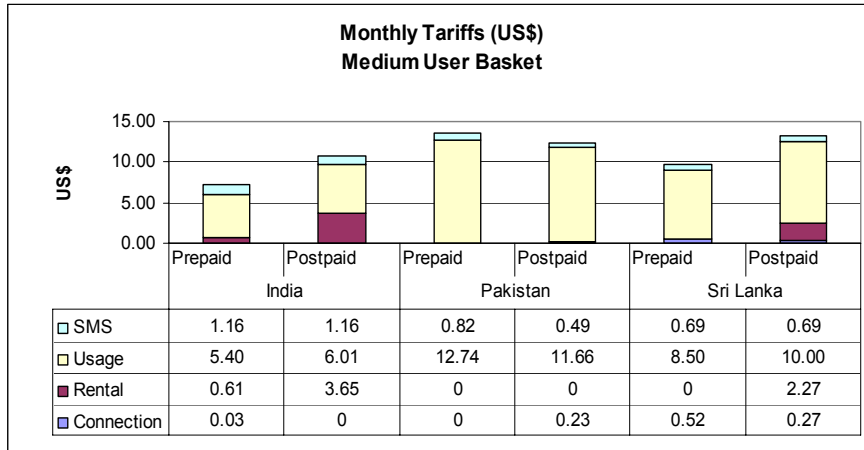
Preliminary Case Study



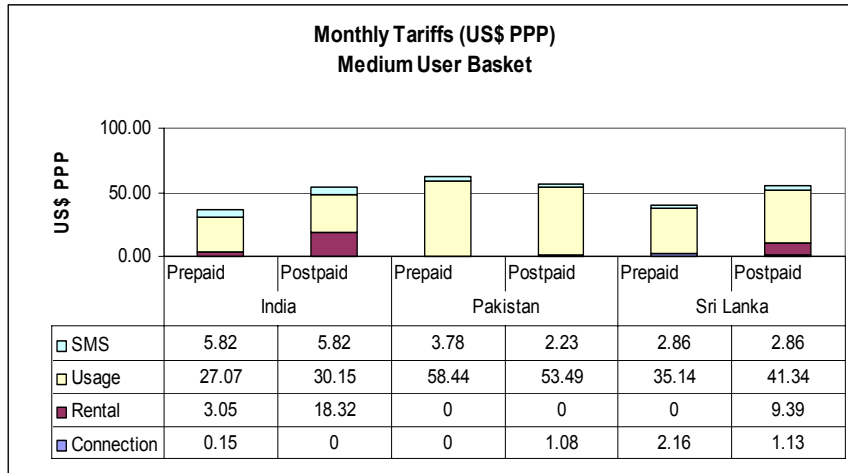
Preliminary Case Study



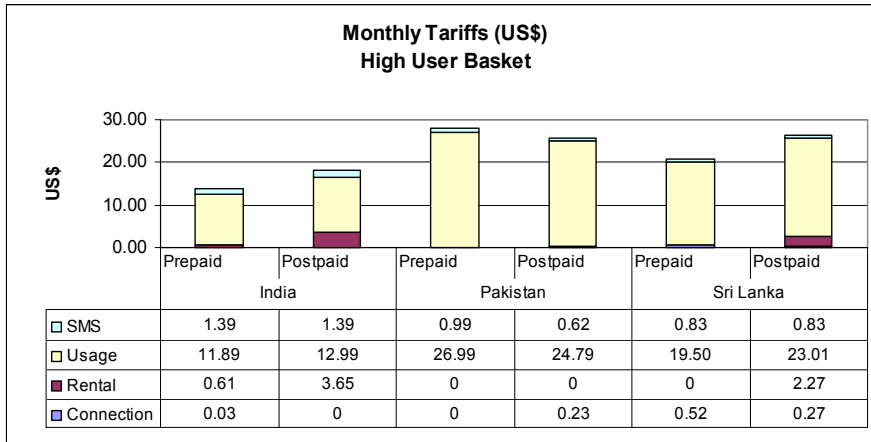
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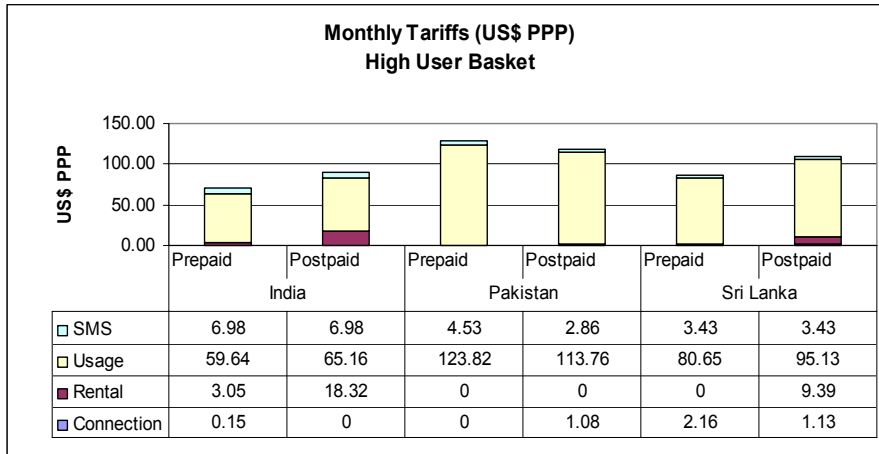
Preliminary Case Study



Preliminary Case Study



Preliminary Case Study



Mobile Tariffs: Asian context



- Requires following information for accurate analysis:
 - Average call times
 - Weightages between peak and off-peak
 - Weightages b/w on-net and off-net
 - Weightages b/w local and national
 - Need to standardize total monthly minutes for baskets (india is using 250 minutes)
- Core ICT Indicators document: Tariffs as a percentage of percentage of per-capita income (for 100 MOUs)





Internet Penetration

- # of internet subscribers
 - Issue: dialup users using prepaid cards?
- # of broadband subscribers





Interconnection Charges

- Collected by OECD already
- Fixed-Fixed (incumbent to others operators, other-operators to fixed)
- Fixed-mobile (incumbent to mobile operators, mobile operators to incumbent)
- Per minute charge
- Required for all operators in a country
- Leased line interconnection charges?



Quality of Service

- Mobile, Fixed, Internet
 - Mobile and fixed QoS already being implemented quarterly in pakistan and india
 - Internet QoS indicators used less frequently
- QoS related to network congestion at point of Interconnection



International Leased Lines

- Total international capacity
- # of IPLCs
- IPLC tariffs
 - Issue: do we consider half or full circuit?
 - Issue: to which countries?

Domestic Leased Lines (DLL)



- Importance for interconnection, ITES, ICT diffusion
- Indicators for :
 - Total Capacity
 - # of leased lines by capacity
 - Tariffs
 - Quality of Service (QoS):
 - Deliver time
 - Repair time
 - Service availability



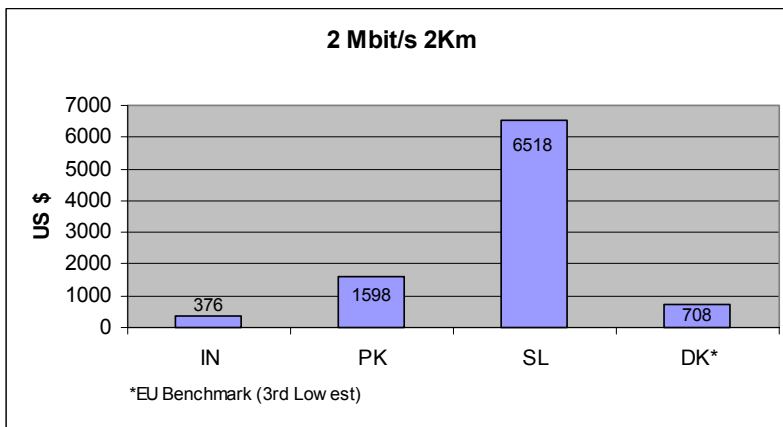
DLL : Tariffs

- Utilization of OECD methodology (2000)
- 64kbps, 2mbps, 8Mbps, 155Mbps
- 2km, 5km, 10km, 20km, 50km, 100km, 200km

Preliminary South Asian Case Study



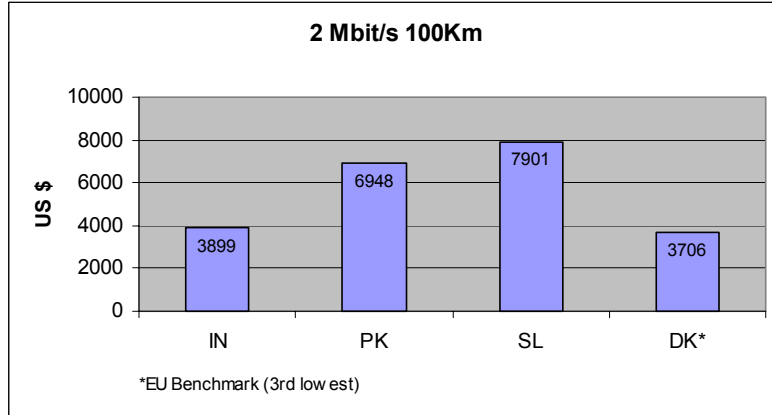
Annual Tariffs



Preliminary South Asian Case Study



Annual Tariffs





Regulatory Performance

- European Competitive Telecommunications Association (ECTA) Regulatory Scorecard
- Telecom Regulatory Environment (TRE) survey



ECTA Regulatory Scorecard



- Areas of assessment:
 - Effectives of regulator in relation to the exercise of its general power (130 pts)
 - Effectiveness of the dispute settlement body (60pts)
 - General market access conditions (80 pts)
 - Application of regulation and effectiveness of competition by area (130 pts)

ECTA Regulatory Scorecard (Contd.)



- Effectiveness of regulator (130 pts):
 - Speed of process (5%)
 - Transparency of activities (15%)
 - Powers and effectiveness of sanctions (10%)
 - Scale of resources (10%)
 - Effectiveness of appeal procedure (20%)
 - Degree of independence (15%)
 - Speed and accuracy of the market analysis process (25%)

ECTA Regulatory Scorecard (Contd.)



- Effectiveness of Dispute settlement body:
 - Speed of process (40%)
 - Respect for due process rules(10%)
 - Effectiveness of sanctions and scale of resources (20%)
 - Effectiveness of appeal structure (30%)

ECTA Regulatory Scorecard (Contd.)



- General Market Access Conditions:
 - ❑ Access obligations (20%)
 - ❑ Non-discrimination and price squeeze (20%)
 - ❑ Price-control (20%)
 - ❑ Cost accounting separation (20%)
 - ❑ Rights of way and facility sharing (10%)
 - ❑ Numbering (10%)

ECTA Regulatory Scorecard (Contd.)



- Application of regulation and effectiveness of competition by area :
 - Narrow Band Voice services (25%)
 - Mobile services (25%)
 - Access services relevant to business customer (25%)
 - Broadband services. (25%)



TRE Dimensions

- Based on the elements of regulation identified by the Reference Paper of the GATS Protocol 4
- 5 Dimensions:
 - Competitive safeguards
 - Market entry
 - Tariff Regulation
 - Allocation of scarce resources
 - Interconnection



Measuring Value Chain benefits



- Employment:
 - Direct: employment in operators
 - Indirect: SIM and prepaid card sellers, etc.
 - Definition required for services considered “indirect”
 - Methodology has to be very flexible (based on distribution network in a country)

Measuring Value Chain benefits (contd.)



- ITES
 - Employment:
 - Definition, standardization?
 - BPOs/KPOs.
 - Revenue & Investment
 - Revenue & Investment as a percentage of GDP

Measuring Value Chain benefits (contd.)



- Proportion of total business sector workforce involved in ICT sector
- Value added in the ICT sector as a percentage of total business sector value
- Issues: Definition of ICT sector (use of previous work by EU (NACE), OECD (WPIIS) or ISIC (UN))

Measuring Value Chain benefits (contd.)



- Taxes:
 - Taxed levied on the entire ICT sector, categorized according to type
 - Previous work: GSMA Tax Study

Data collection – next steps



- Centralized database.
- Multi-stakeholder: NRAs, NSOs, operators
- Issues: incentivising accurate reporting
- Issues: privacy/confidentiality of data