

Budget Telecom Network Model and its extension to wireless broadband

*Mobile Broadband Workshop organized by IITCOE, IIM
Ahmedabad , New Delhi*

Rohan Samarajiva
26 November 2010

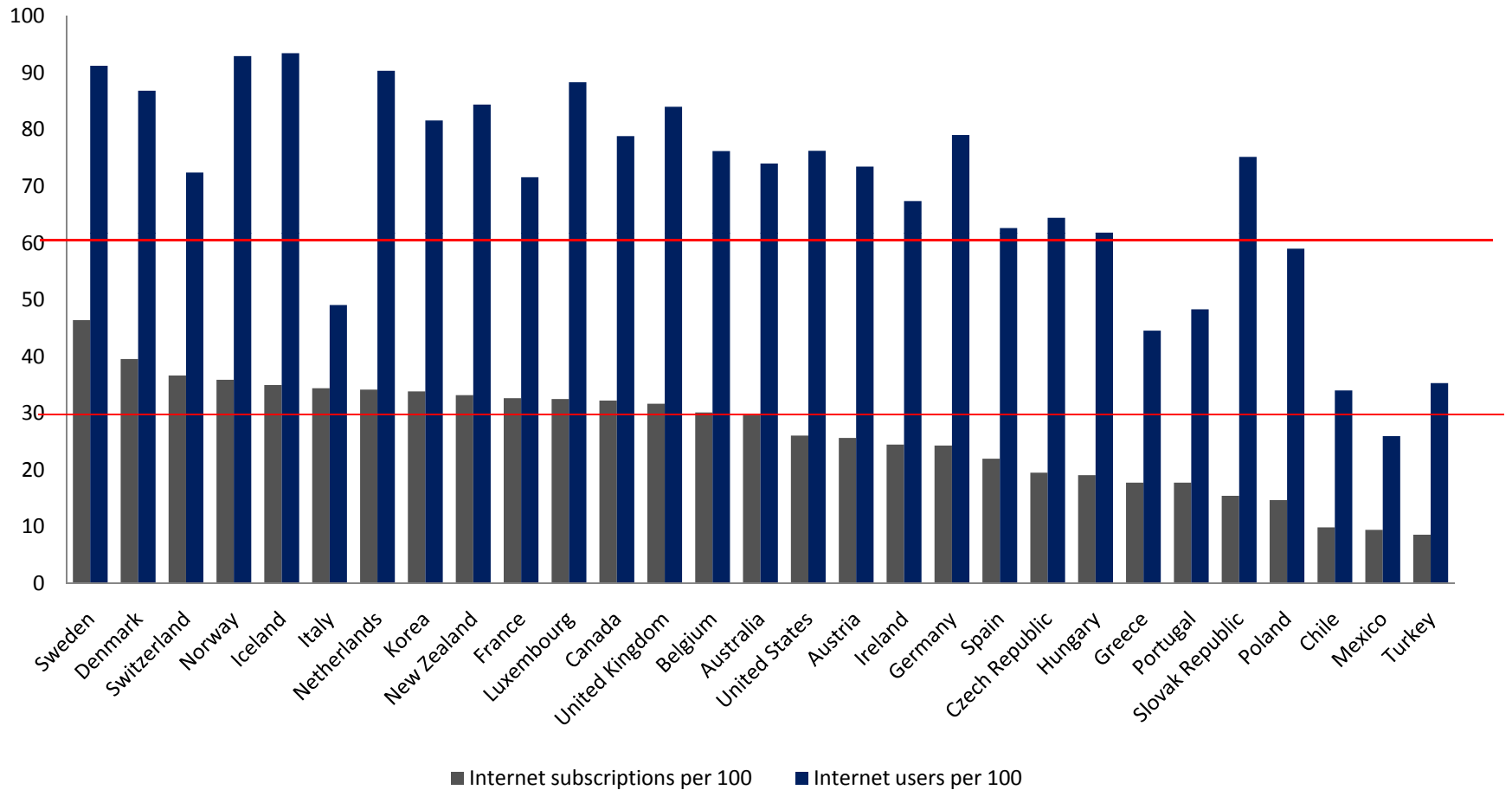


This work was carried out with the aid of a grant from the International Development Research Centre, Canada and UKaid from the Department for International Development, UK.

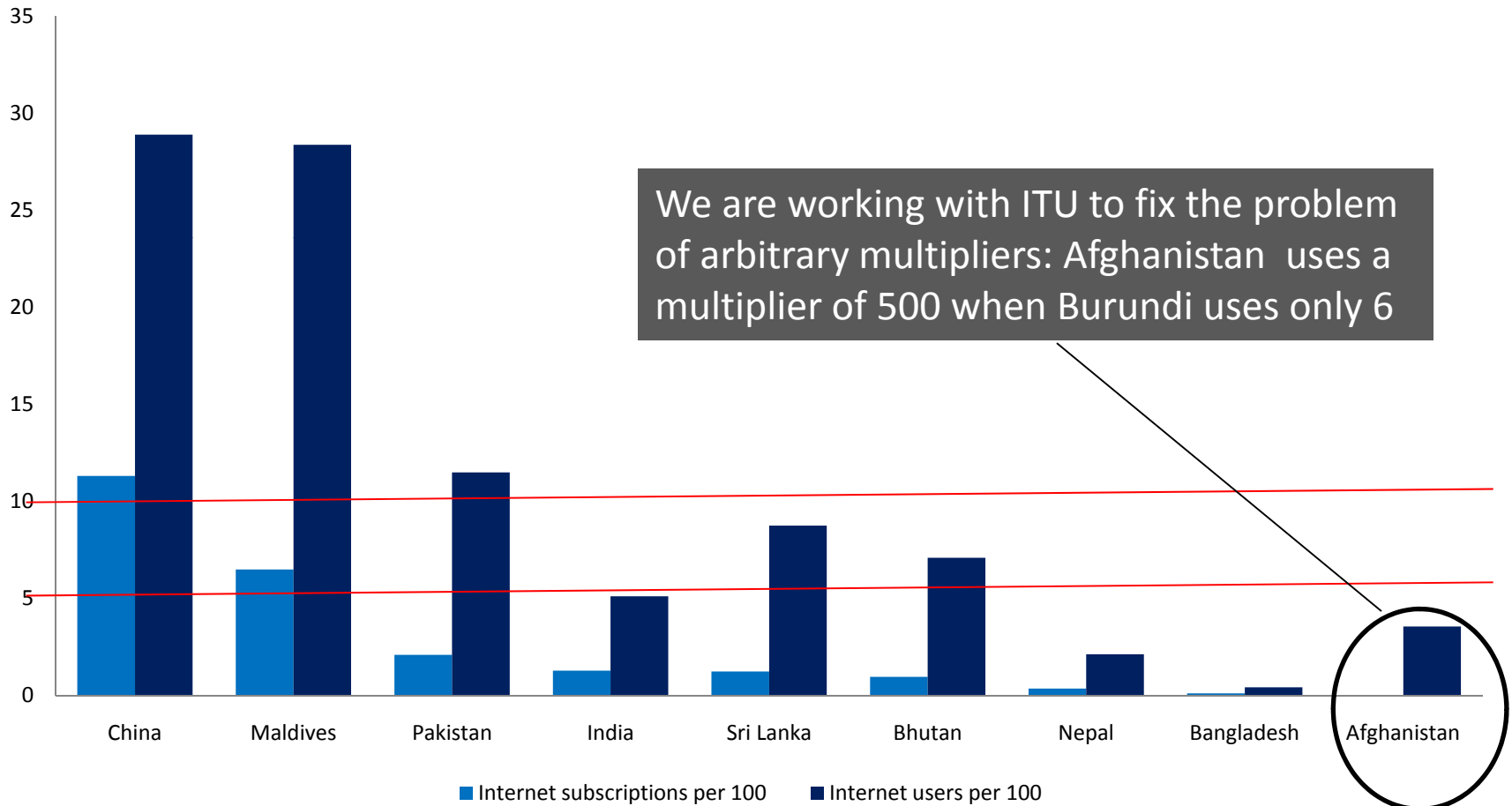
Agenda

- The challenge of catching up, if the problem is defined conventionally
- The opportunities, if defined otherwise
- What conditions must be satisfied?
 - Handsets
 - Networks
 - Services
 - Literacy
 - Affordability
- Policy and regulatory priorities

Internet subscriptions per 100 & Internet users per 100 (OECD)

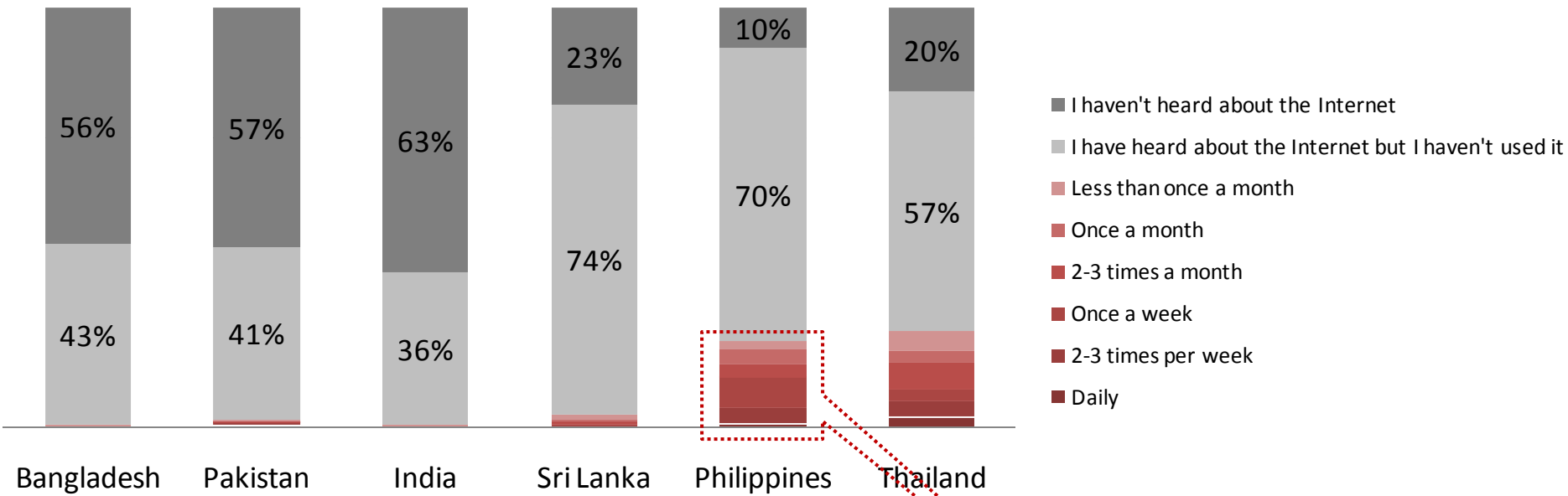


Internet subscriptions per 100 vs. Internet users per 100 (SAARC + China)



Internet use & awareness at the Bottom of the Pyramid (BOP) in 6 Asian countries in 2008, acc. to 10,000-sample representative survey

Internet use (% of BOP teleusers)



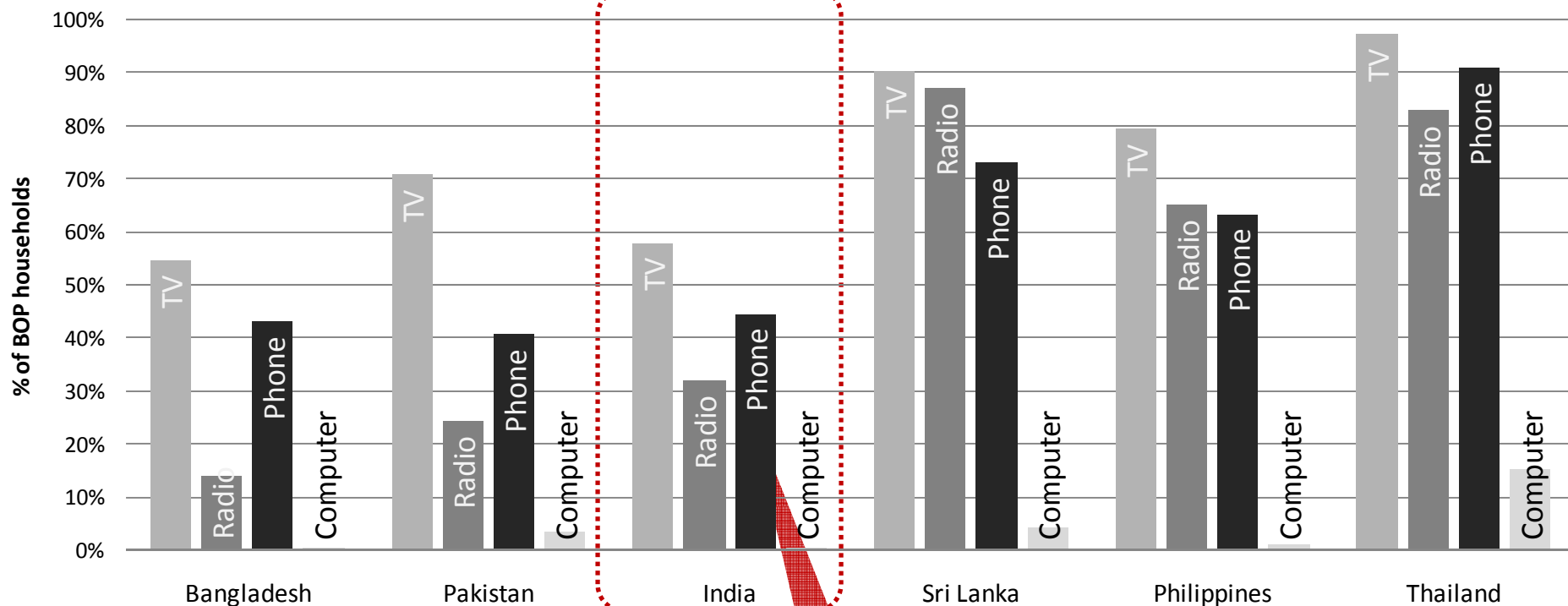
	Bangladesh	Pakistan	India	Sri Lanka	Philippines	Thailand
Use the Internet	0.6%	2.2%	0.8%	3.2%	20.7%	23.0%

The conventional path to the Internet is too long



But, phones have overtaken radios in BOP households in the Indo-Gangetic Plain

Access to communication technologies within the household (% of BOP teleusers)



Mobile or fixed phone

And computers are nowhere

Use of phones to make/receive calls (not only owners; those using phones of others too)

Used a phone in the last 3 months

	Bangladesh	Pakistan	India	Sri Lanka	Philippines	Thailand
% of BOP (outer sample)	95%	96%	86%	88%	79%	77%

Used a phone in the last week

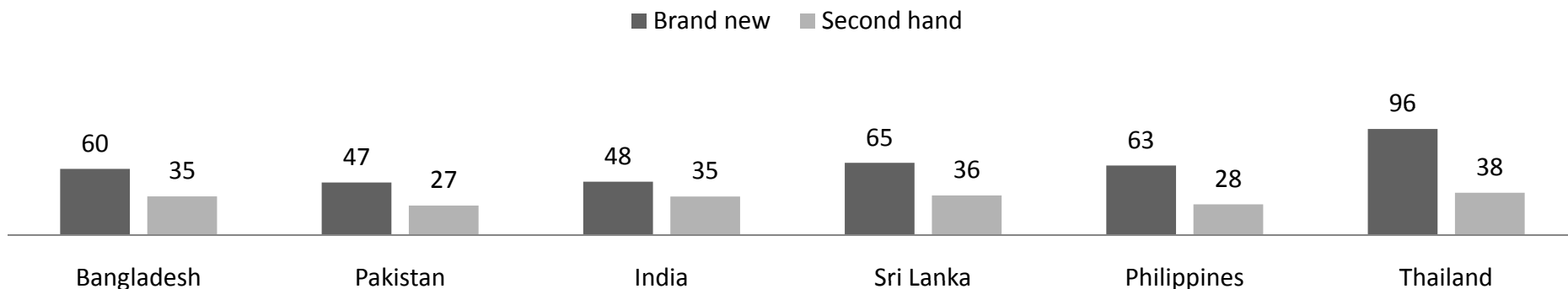
	Bangladesh	Pakistan	India	Sri Lanka	Philippines	Thailand
% of BOP (outer sample)	82%	66%	65%	77%	38%	72%

Mobile-dominated mediascape in the developing world?

- Can mobiles play the role played by computers in the developed world?
 - Are screen and input limitations critical?
 - Is 3G enough?
 - Some developing countries yet to release 3G frequencies
 - Are services that people want available?
 - Will there be demand?

Second hand handsets bought for almost half the price of brand new handsets

Mean price paid by mobile owners for their handset (USD)



2008 figures were lower than those for 2006, now even lower
Netbooks converging with smartphones in functions and price

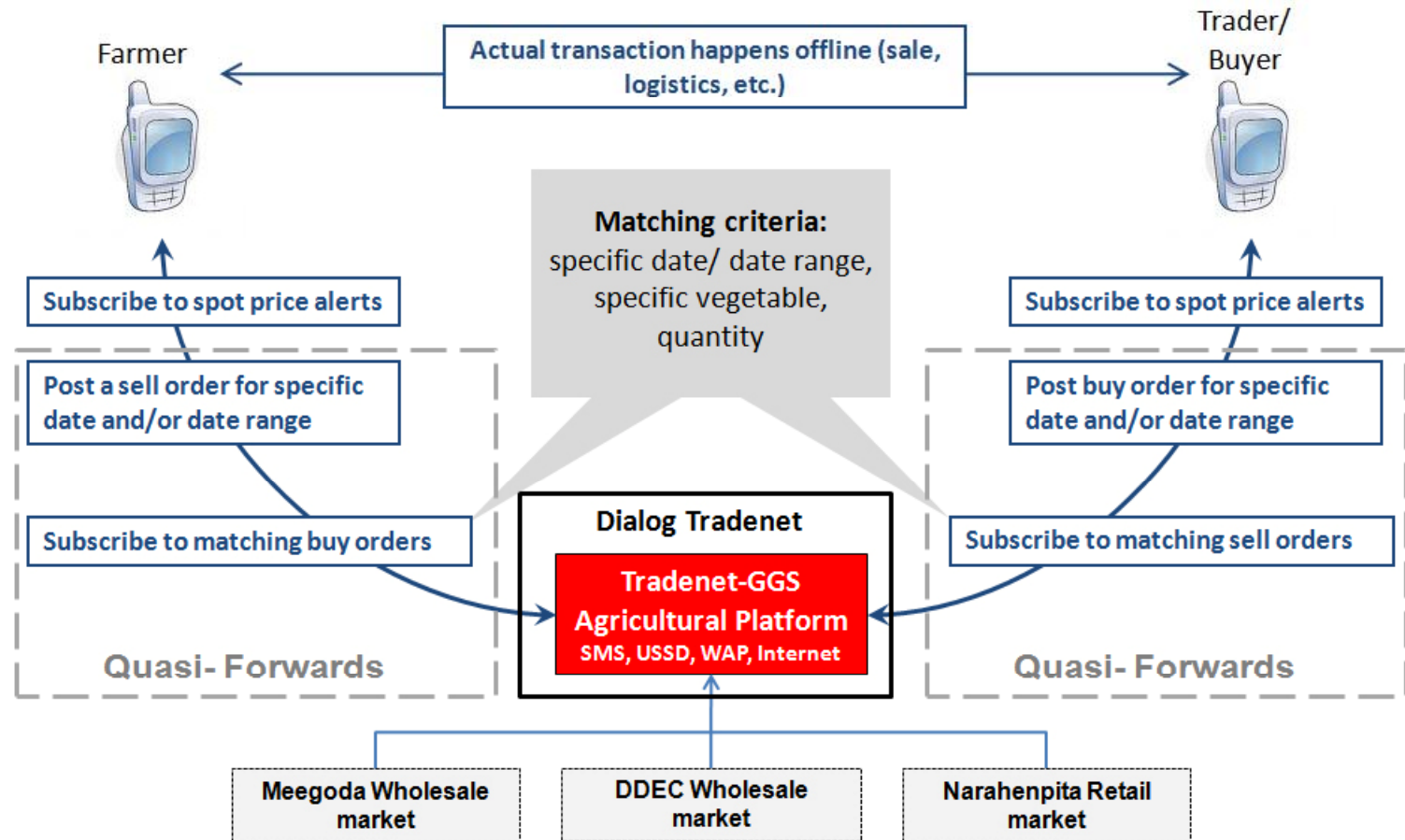
What use are handsets without data-capable networks?

- Thailand has the most advanced handsets, among poor as well as rich
 - But no 3G networks, all they have are EDGE networks
- Governments must release frequencies so operators can enable data communication
 - And in ways conducive to investment
 - Not simply to extract money for government
 - Where is the equivalent of President Obama's 10-year roadmap to release 500 MHz for broadband?
 - This, in addition to Digital Dividend earned by releasing frequencies wasted on analog TV on 700 MHz Band

What use are handsets and networks without services?

- Services of interest to people are emerging
- More encouragement needed through app store model

Example: Tradenet in Sri Lanka



Tradenet price alerts have improved farmer livelihoods



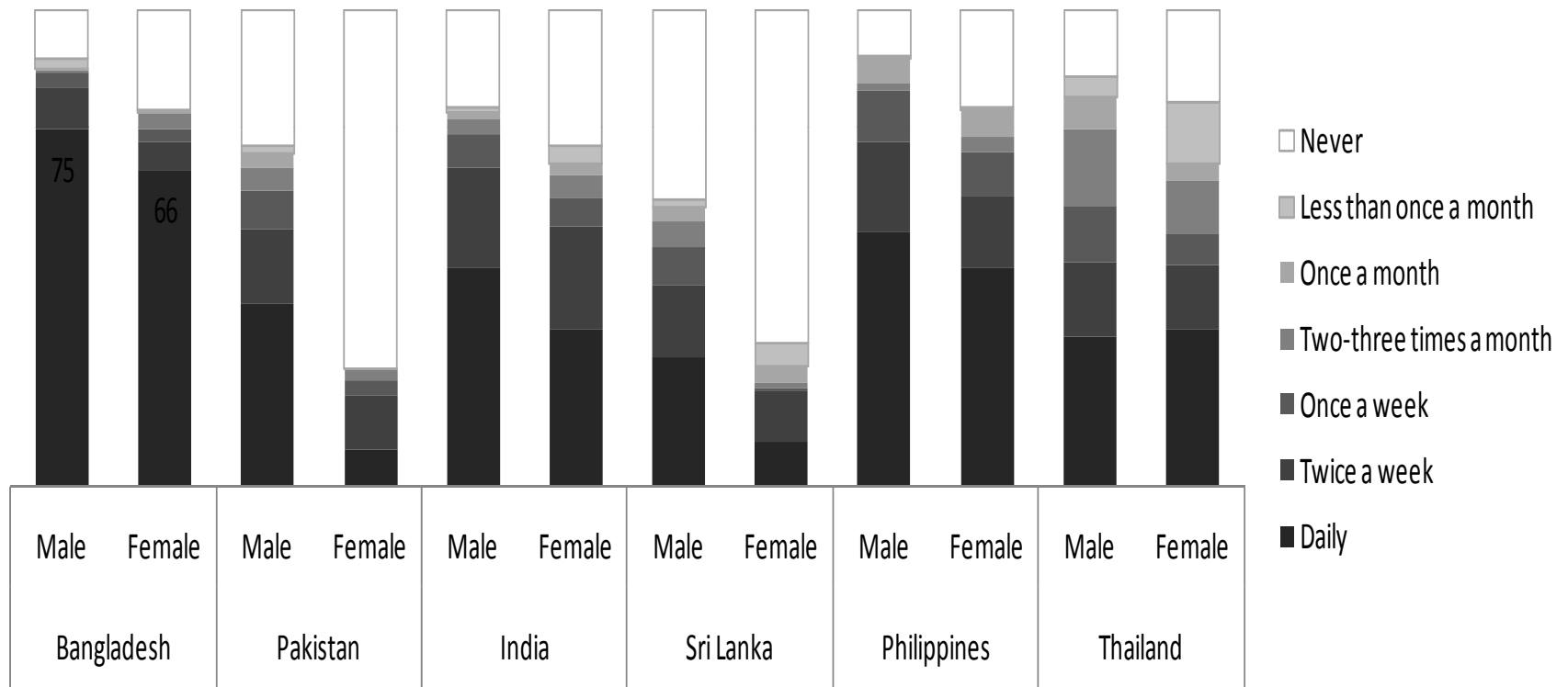
- Farmers less vulnerable to price fluctuations
 - A non-representative but large sample of farmers (300) in the catchment area of largest wholesale market in Sri Lanka, earned a premium 23.4% on average daily market price using Tradenet
- Farmers show strategic depth in their livelihood decisions, using Tradenet alerts to decide when to harvest and sell
- Farmers now aware of fetching better prices; has created demand for crop advisory and extension services
 - Now possible using voice
 - But is this not optimally done using data as well?

Will there be demand?

- Do the poor have money to pay for services?
 - The answer is in new business models
 - And in services provided over the Internet putting money in people's pockets, instead of taking from their pockets

Attitudes re phone for making/saving money: Strong in some countries, not in others

Use of the phone for business, financial or work puposes (% of BOP mobile phone owners)



Policy and regulatory priorities

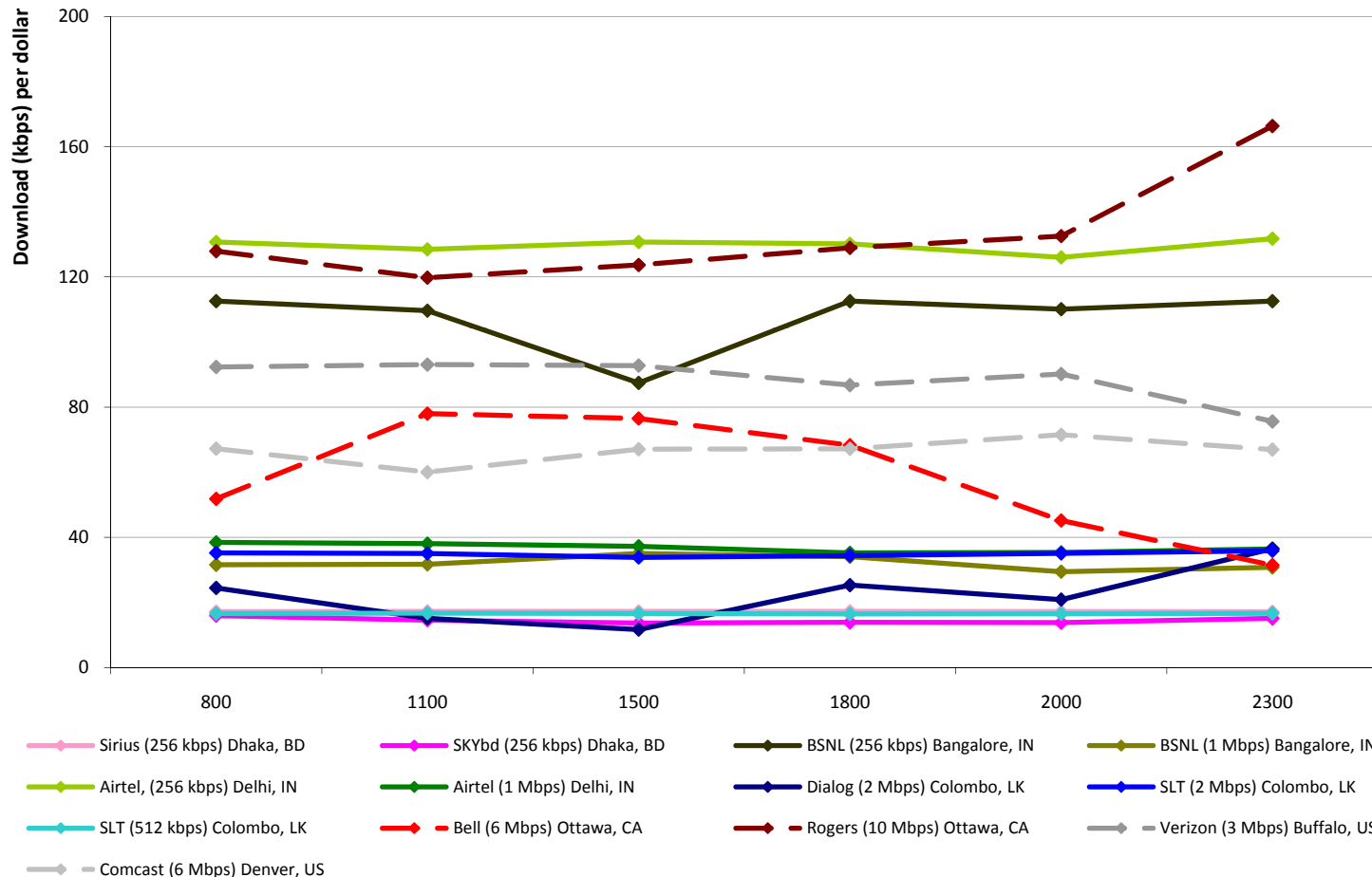
Objective must be investment, above all

- Mobile voice success was achieved because the necessary conditions were created for massive investment in network buildout
- Building wireless networks capable of broadband is not just incremental; it is the building of an overlay network that requires massive investment, but
 - Not enough cashflow from commodity voice business
 - Governments are extracting lots of taxes
 - Great Recession (tempered by Arab & other funds seeking non-US locations)
 - Regulation has become politicized with higher profile
 - In many countries, license renewal uncertainties are affecting investment

What policymakers & regulators can do: Leverage business model that worked for voice for data

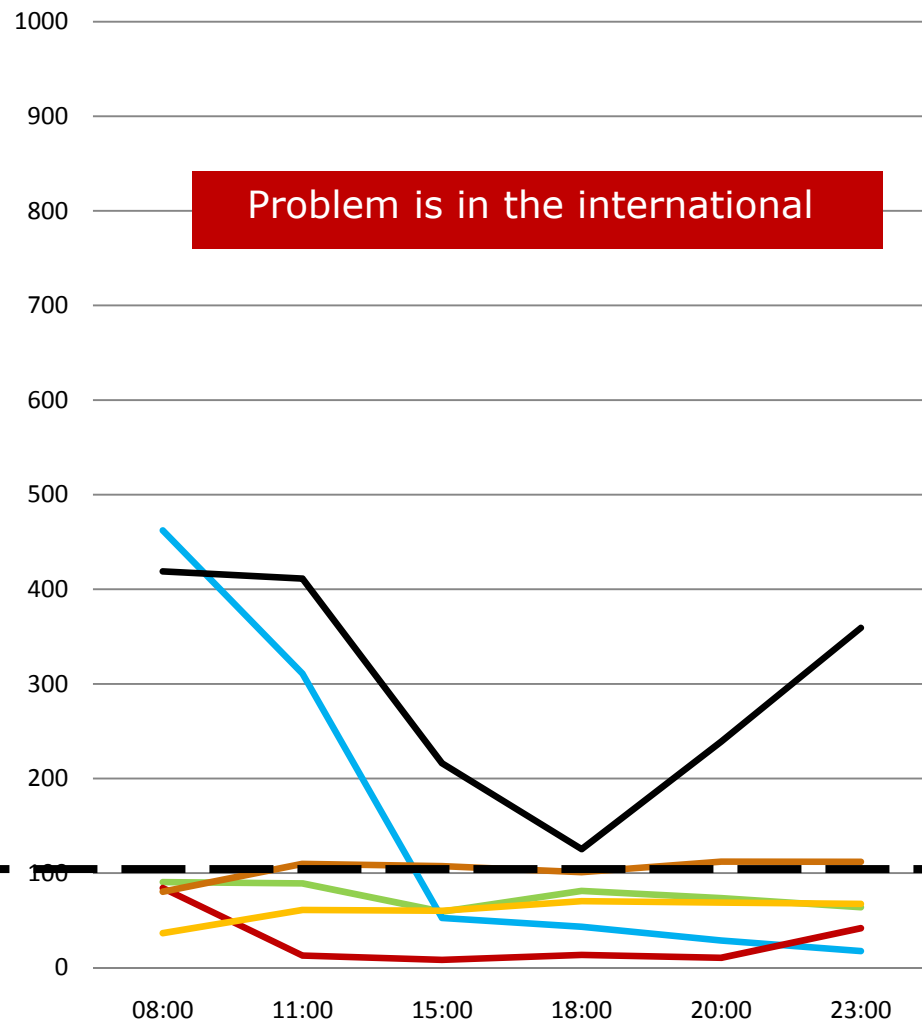
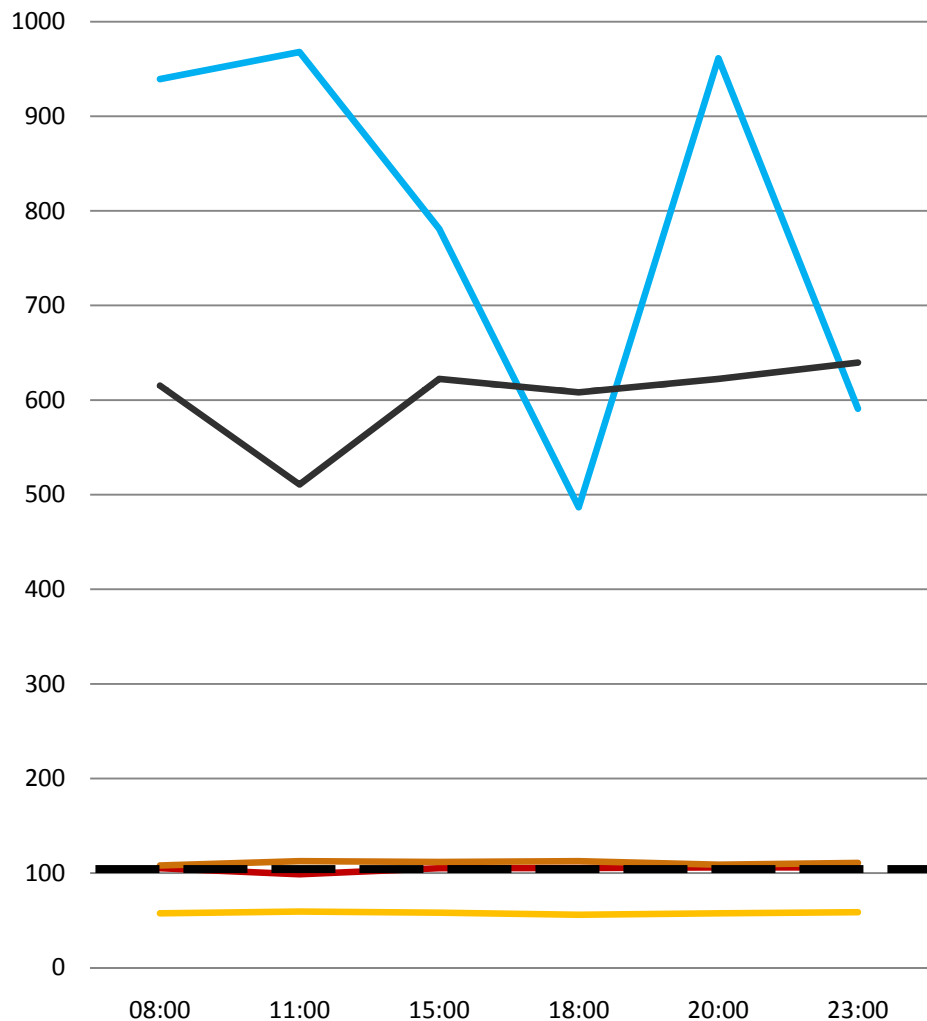
- Market entry and spectrum management, including refarming, have to be given highest priority
 - There is a need for a refarming and roadmaps so operators and manufacturers can plan
- Uncertainty caused by license terms ending needs to be reduced
- More emphasis on availability of, and wholesale access to, backhaul or “fat pipes” than termination rates per se
 - Backhaul costs will become more important as data traffic increases
 - Diagnostic tools developed by LIRNEasia and IIT Madras shows that international segment is still a bottleneck

Value for money lower in Asia according to LIRNEasia research (2009 Q3)



Except for 2 Indian low-speed (256 Kbps) products (unbroken lines are Asian), all good performers were from N American cities

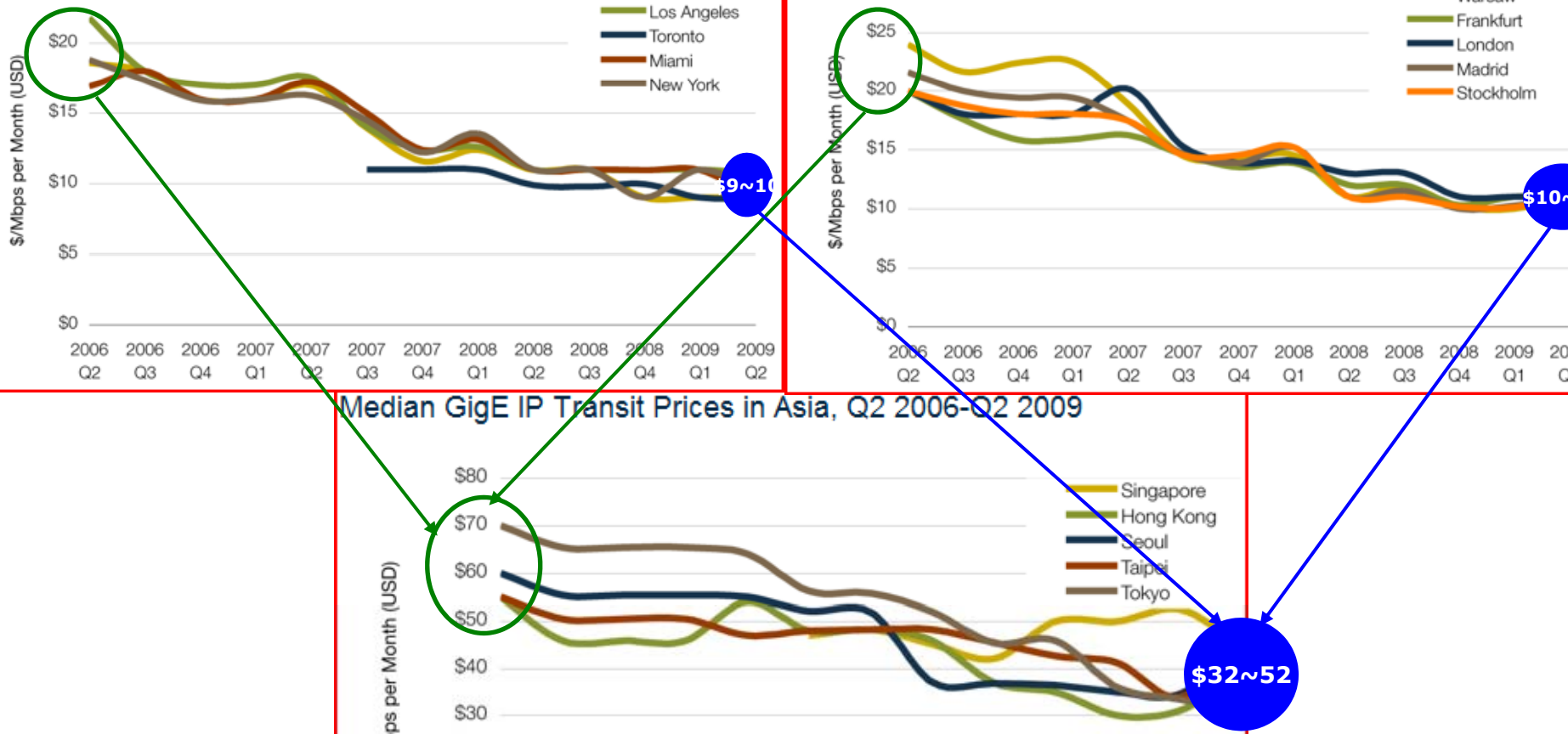
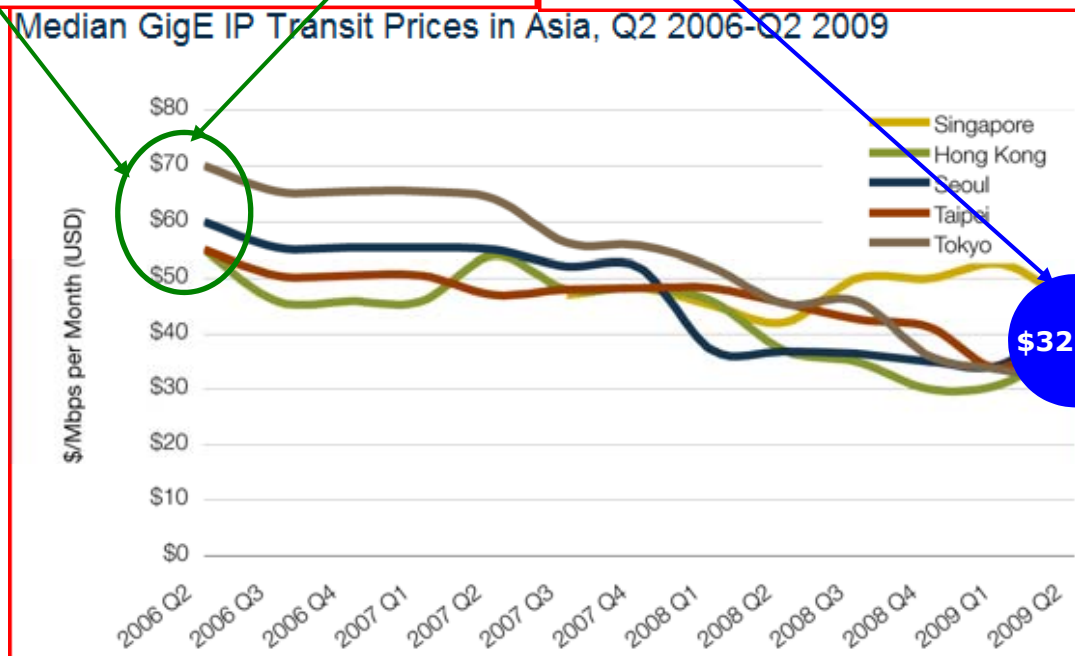
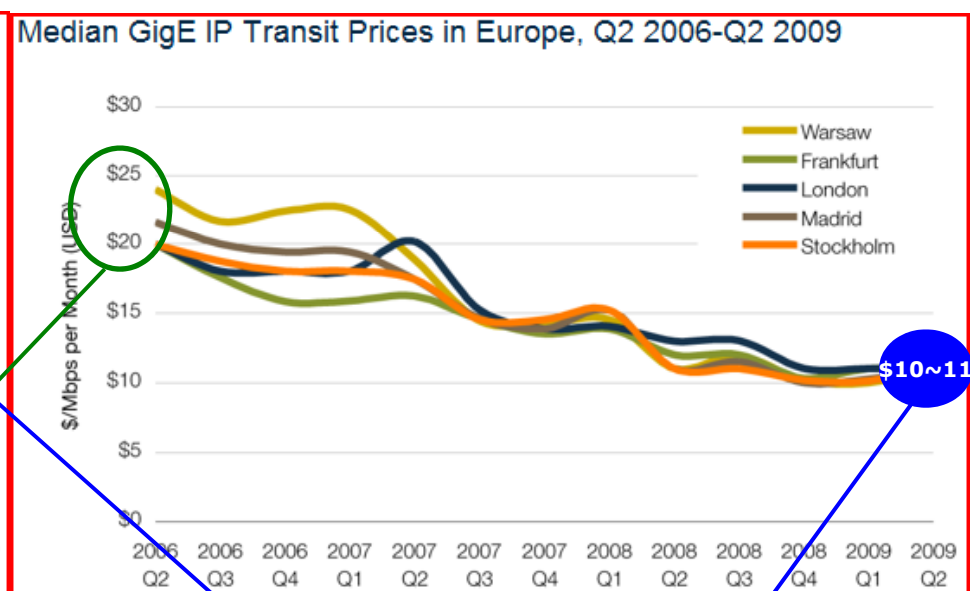
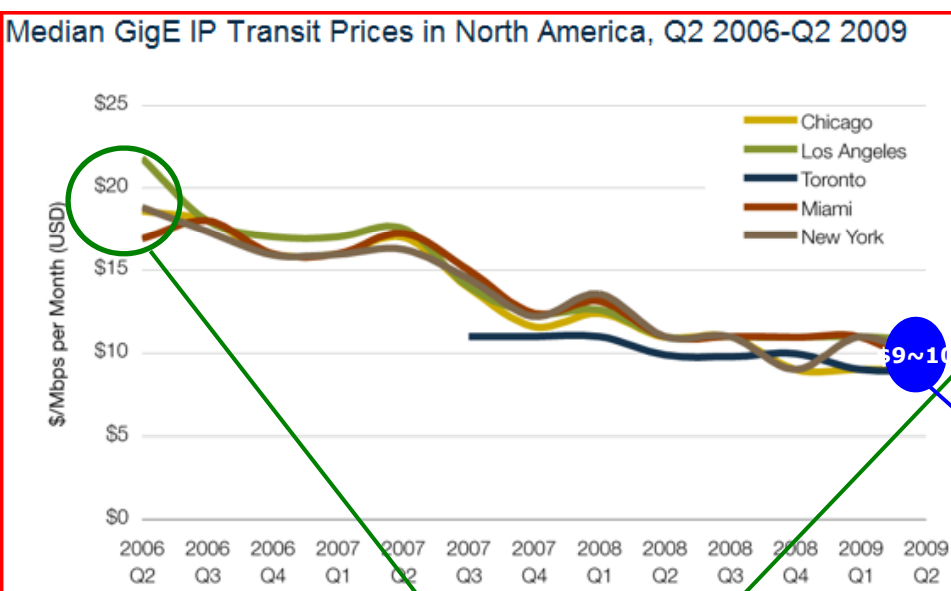
Delivered vs. Advertised Download Speeds (2010 3Q)



International bottleneck confirmed (2009 Q2)



Cause: Asian backhaul prices = 3x N. Am. & European prices



What regulators can do . .

- Attention to anti-competitive practices, especially vertical price squeeze
 - As retail prices come down, they press against input costs
- Old style price regulation to be replaced by forms of forbearance, if necessary bounded to address competition concerns
 - India has proved the value
 - Upper and lower bounds proposed for countries that have lower levels of competition
- Gentle on Quality of Service (QOS) regulation
 - Focus on informing consumers and ensuring that switching costs are minimized

Quality of service regulation

- Patchy QOS is an outcome of BTNM
 - Even more problematic with wireless platforms
- Hard regulation of QOS with high standards will stifle the model and deprive the poor of service
- But truth in advertising and naming and shaming for those who violate basics . . .
- Crowdsourcing of QOS
 - Asia 2 years ahead of USA

HOW BROAD IS YOUR BROADBAND?

FOUR facts you should know

1

Value for Money

Sri Lankan broadband users receive less value for their money than North American users.

(LIRNEasia's 2009 3rd Quarter test results)

2

Checking Advertised Speeds

When connecting to most international websites, the average Sri Lankan broadband user typically gets only 40-50% of the advertised broadband speed.

3

Bandwidth Bottlenecks

Although international bandwidth prices continue to fall, international bandwidth limitations continue to be a major bottleneck.

4

Contention Ratios

The Sri Lanka Telecommunication Regulatory Commission has still not specified contention ratios, which limit the number of simultaneous users on a shared link, thereby boosting overall bandwidth.

In January 2009, following LIRNEasia's recommendations to adopt contention ratio of **1:20 (Business)** and **1:50 (Residential)**, the Telecommunications Regulatory Authority of India (TRAI)

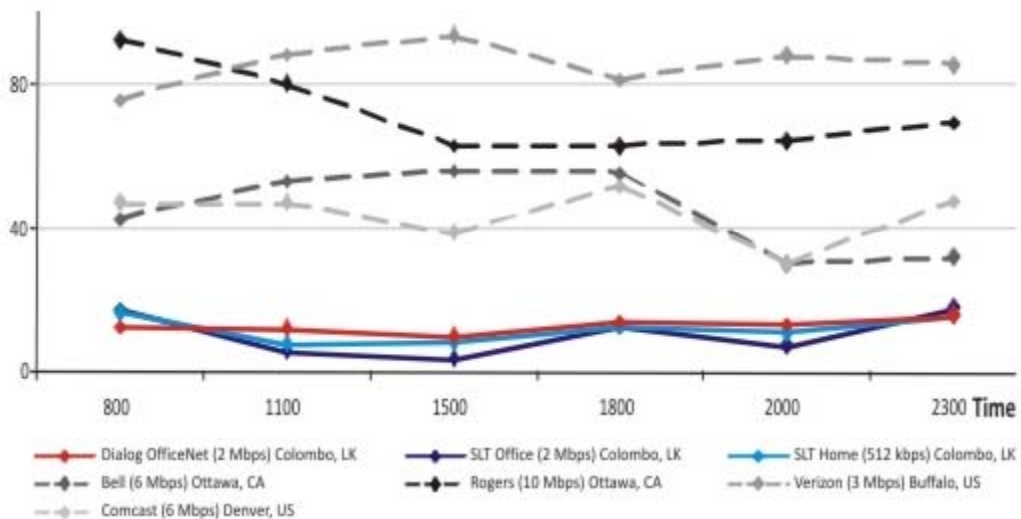
Ad published in Colombo in November 2009 on the occasion of the 11th Meeting of the South Asian Telecom Regulators Council

the telecommunications Regulatory Authority of India (TRAI) specified contention ratios of **1:30 (Business)** and **1:50 (Residential)**.

Models to emulate

PARAMETER	SINGAPORE	INDIA
Network Availability	> 99%	> 98%
Latency (Local)	< 85ms	< 120 ms
Latency (International)	< 300ms	< 350 ms (terrestrial) < 800 ms (satellite)
Bandwidth Utilization	90% during peak time	< 80% during peak time
Download Speed	Not Specified	> 80% of advertised from user to ISP
Service Activation	Not Specified	100% in 15 working days
Customer Support	Not Specified	60% calls in 60 seconds 80% calls in 90 seconds

Value for money Fixed Broadband Download from yahoo.com (kbps per dollar)



Broadband speed is the best known quality parameter. We measured how much you get for what you pay.

We measured download speed at different times, on multiple days to make readings accurate.

DOWNLOAD THE FREE SOFTWARE from www.broadbandasia.info to test the quality of your broadband link



LIRNEasia is a regional ICT policy and regulation think tank active across the Asia Pacific.

What policymakers can do . .

- Phase out universal service levies and funds

Lower the tax burden

- Recognize that long-tail customers are very sensitive to price & are buying “sachets” of services
 - No big usage-insensitive taxes
- Ideal if mobile/telecom specific taxes removed; even if not, keep them steady and reasonable
- Time to phase out universal service taxes; no point in taxing the poor to provide services also to the poor
 - Gradual reduction of percentages will continue to yield more or less the same revenue
 - If the Divide is being bridged, is it not reasonable to sunset the programs?

In sum

- Policy of market opening has created the conditions for emergence of disruptive competitors and discovery of new business model to bring costs down to the floor in voice markets
 - A new business model, not government action (regulation, universal service funds), has connected unimaginable numbers to networks at unimaginable prices
- Government will get better results by understanding and leveraging the business model to extend broadband access

For more information

- www.lirneasia.net
 - A blog, therefore use internal search function
- rohan@lirneasia.net