

Assessing the Telecom Regulatory & Policy Environment in Bangladesh and 6 other Emerging Asian Economies

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Helani Galpaya (helani@lirneasia.net)

Faheem Hussain (faheem.hussain@gmail.com)



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

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How to assess the regulatory & policy environment

Helani Galpaya

Factors impacting performance of the ICT sector in a country

- Global factors
 - E.g. Global recession
- Country-level macro factors
 - political (in) stability, exchange rates etc.
- Market factors
 - actions of competitors, availability of substitutable products, cost of capital to firm
- Regulatory factors: **risks emanating from government, including but not limited to actions (or inactions) of the regulator**
- All these impact investment
 - Investment → sector performance
- Need to understand, quantify and lower

Measuring/Quantifying Risks imposed by each of these factors

- Macro Level/Country Risks
 - Not easily quantified
 - But comparative measures possible – e.g. Investment climate survey (WEF), Corruption Index (WB), Doing Business Survey etc.
- Market Risk
 - Easier to quantify (credit ratings, cost of capital calculations)
- Regulatory Risk
 - Not easily quantified
 - But comparative measures necessary : one investor in multiple countries becoming common
 - Subjective, but intuitively “known” to stakeholders

TRE (Telecom Regulatory Environment) survey: a tool to measure/compare perceived risk due to policy maker/regulator's actions

- Short questionnaire, takes 5-7 minutes to complete
 - Makes minimal demands on senior level respondents
 - Do not want it filled by assistant
- Asks respondents to evaluate TRE on 7 dimensions
 - Market Entry
 - Allocation of Scarce Resources
 - Interconnection,
 - Regulation of Anti-Competitive Practices
 - Universal Service Obligations
 - Tariff Regulation ——— central to regulator's activities
 - Quality of Service ——— important as markets mature

Directly from
GATS
regulatory
reference
paper

- Each dimension evaluated on Likert Scale of 1 to 5
 - Minimum 1 = highly ineffective
 - Maximum 5 = highly effective
- Average/acceptable performance = score of 3 (mid-point between 1 and 5)
- 3 (sub) sectors evaluated separately
 - Fixed
 - Mobile
 - Broadband
- List of “significant regulatory and policy events” in relevant period sent to each respondent, to refresh memory

3 Respondent categories. Weights to ensure even contribution to final score

- Respondents fall into 3 categories:
 - Category 1: those directly involved in the sector such as operators, equipment vendors
 - Category 2: those indirectly impacted by the sector or those studying/observing the sector with broader interest such as consultants and lawyers
 - Category 3: those who represent the broader public interest such as media personnel, other government officials, retired regulators, civil society organizations
- Each category equally important.
 - But hard to predict number of completed survey responses
 - Use weights to equalize each category's contribution to final score

7 countries studied in 2011 (to evaluate sector performance in 2010)

- South Asia:
 - Bangladesh
 - India
 - Pakistan
 - Sri Lanka
- South East Asia
 - Philippines
 - Thailand
 - Indonesia

Plan for the rest of the afternoon

- Bangladesh ICT Sector Performance and TRE survey results
 - Faheem Hussain
- Benchmarking BD against other countries
 - Helani Galpaya
- Question and Answers, Discussion
 - Faheem Hussain
 - Helani Galpaya
 - Rohan Samarajiva

ICT Sector Performance Review of Bangladesh

Faheem Hussain

ICT Sector Performance Review of Bangladesh

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faheem.hussain@gmail.com



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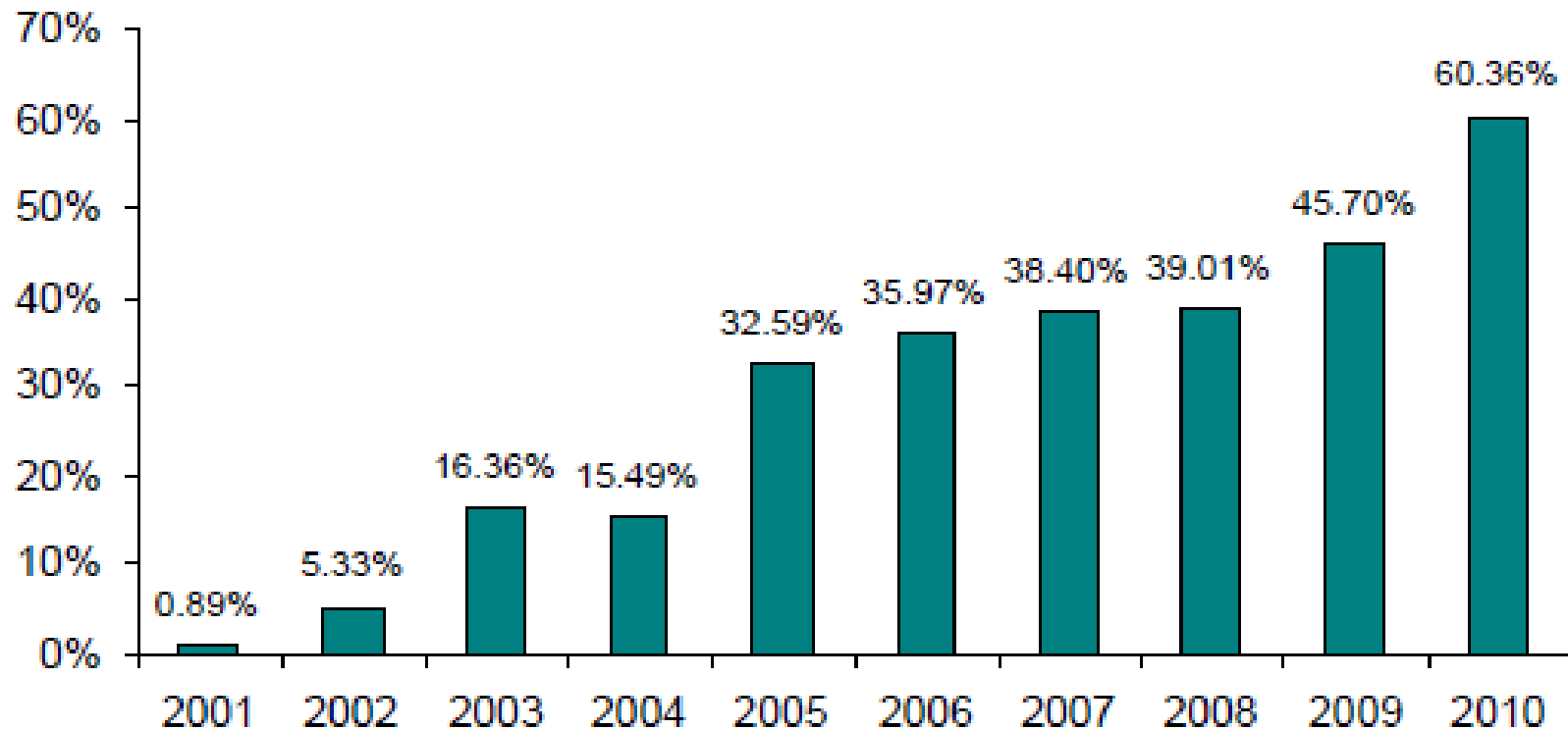
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Country Overview

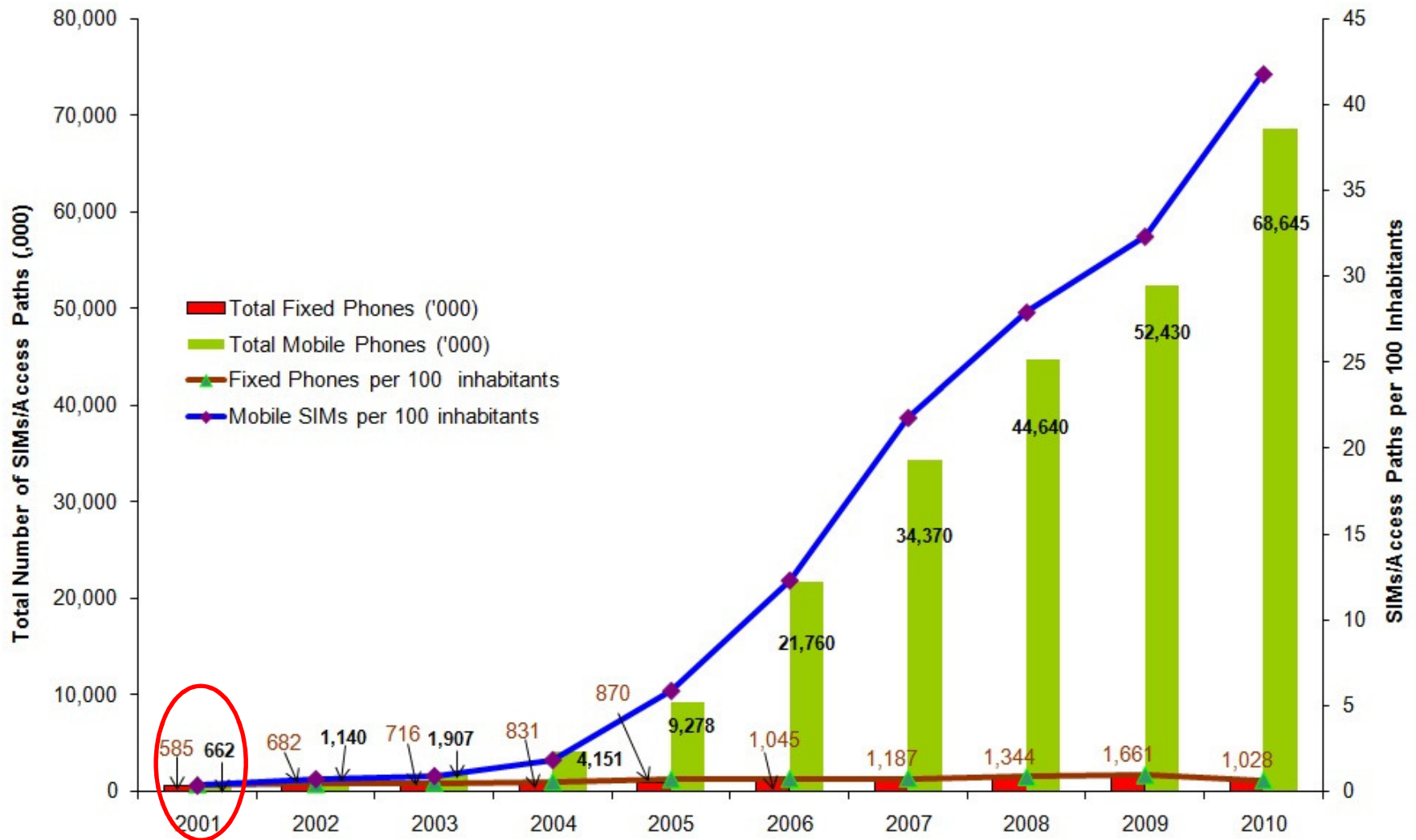
- Bangladesh's functional literacy rate is approximately 48% (BANBEIS, 2011)
- It is the 47th largest economy in the world with a per capita income of US\$ 1,700 (IMF, 2010)
- Population: 158,570,535 (estimated)
- There are around 70 million active access paths of telecommunications
 - Mobile SIM and PSTN penetration of 43% and 1% respectively
- Around 6 million Internet subscriber (4% penetration)

Telecommunication as % of Total FDI*

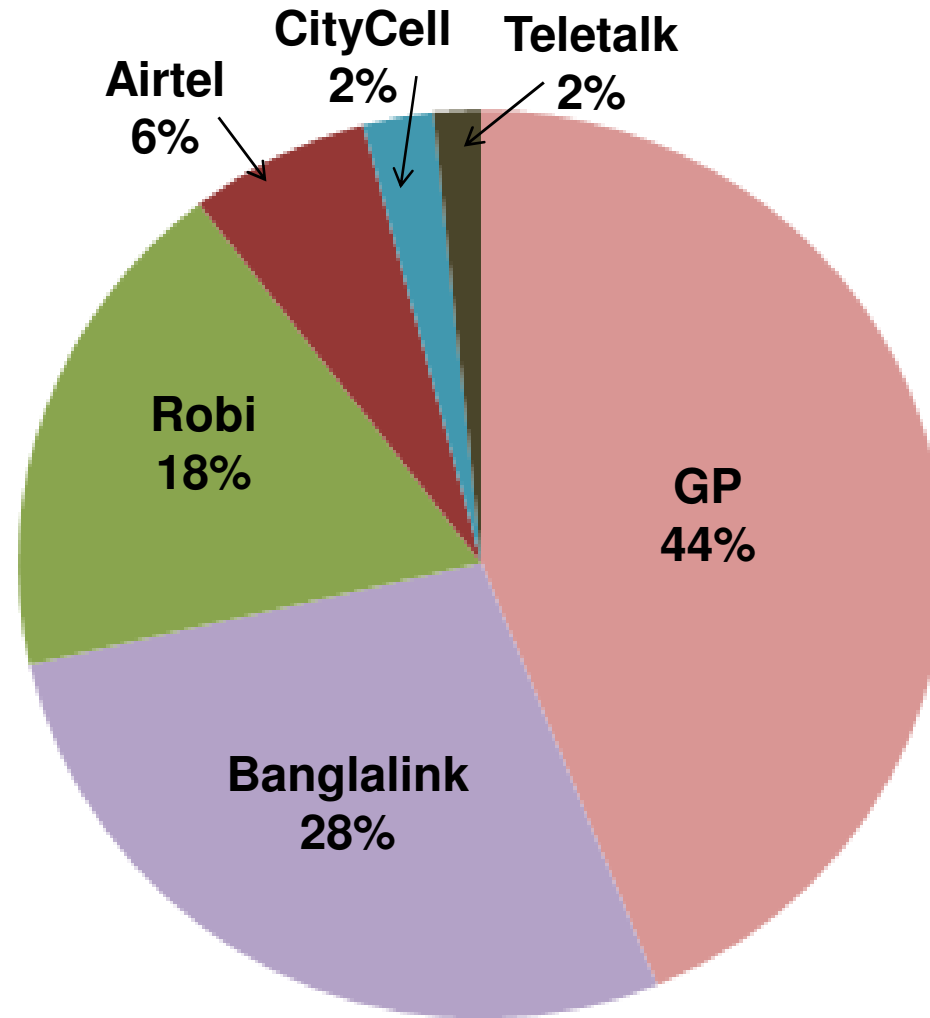


* Data from Bangladesh Bank, D.Net

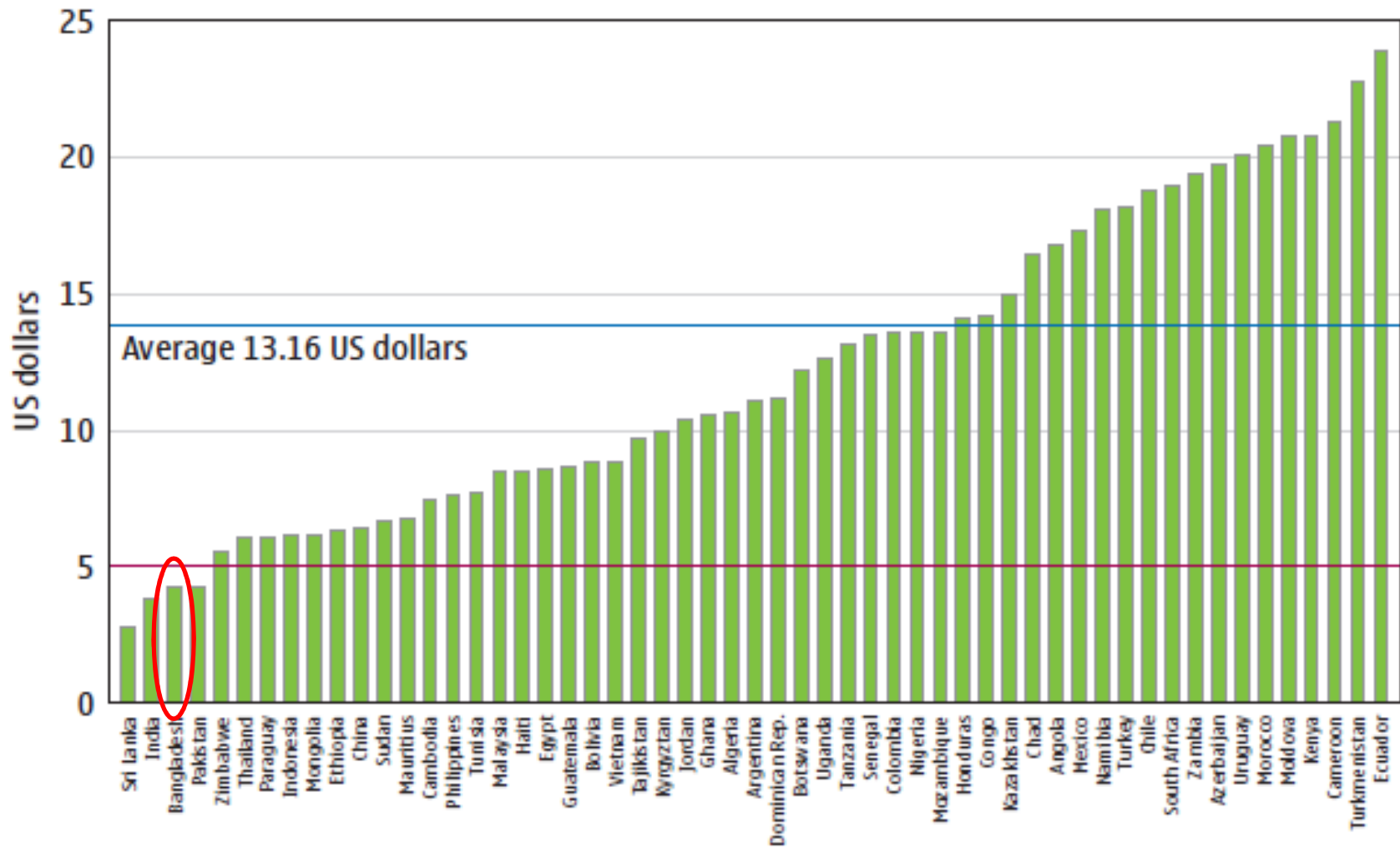
Growth of SIMs/Access Paths



Market Share (no. of Active SIMs)*

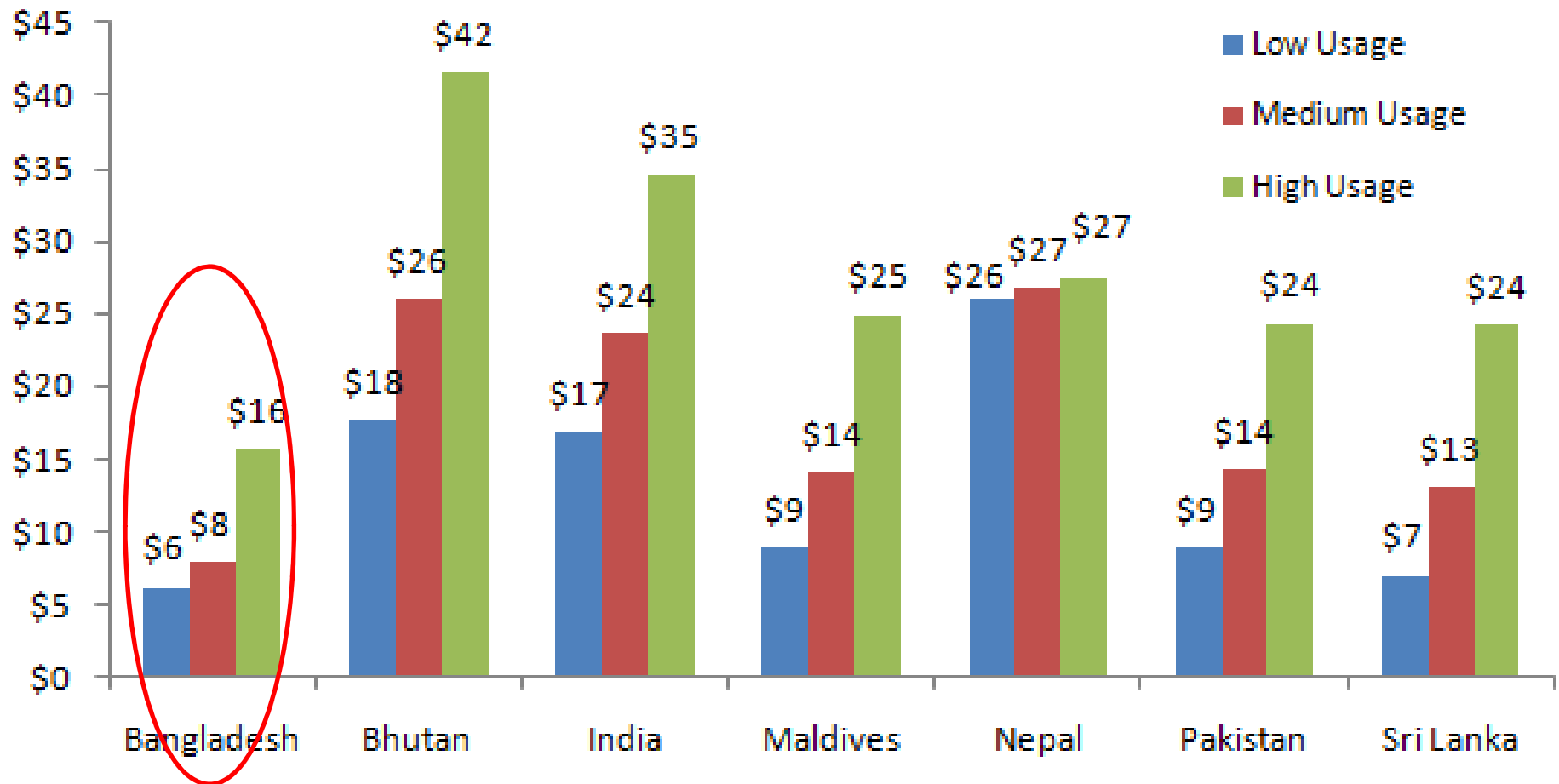


Comparative TCO/Month

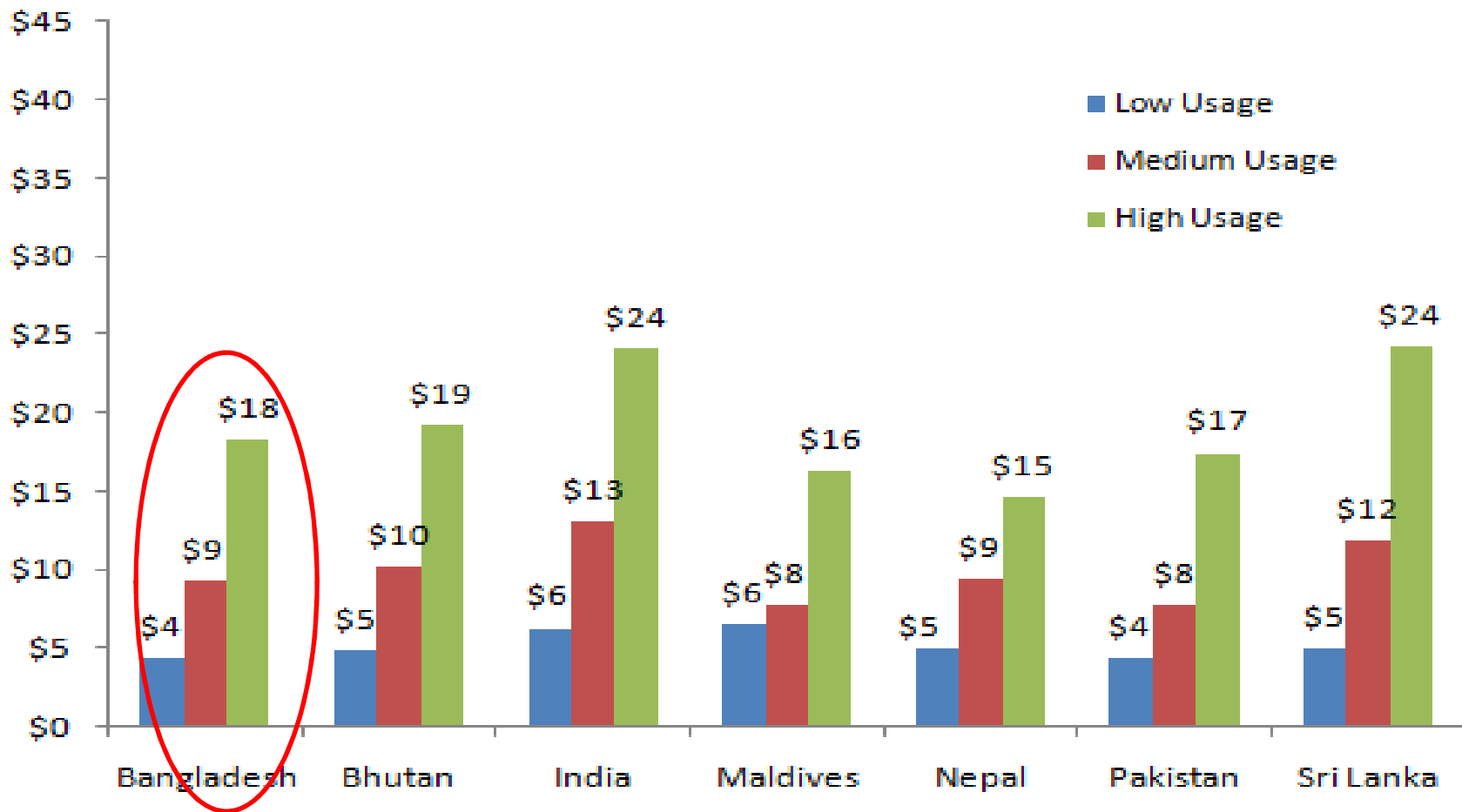


Source: Nokia, November 2007

Monthly Post-Paid Mobile Cost (US\$ PPP)*

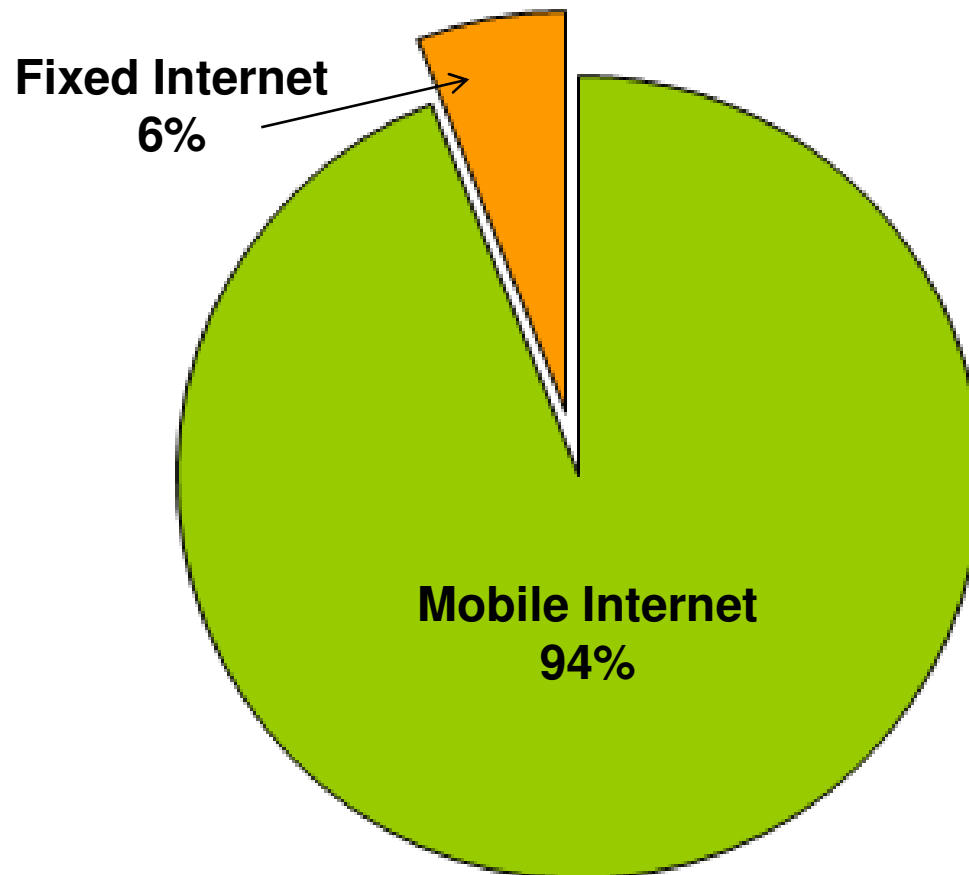


Monthly Pre-Paid Mobile Cost (US\$ PPP)*

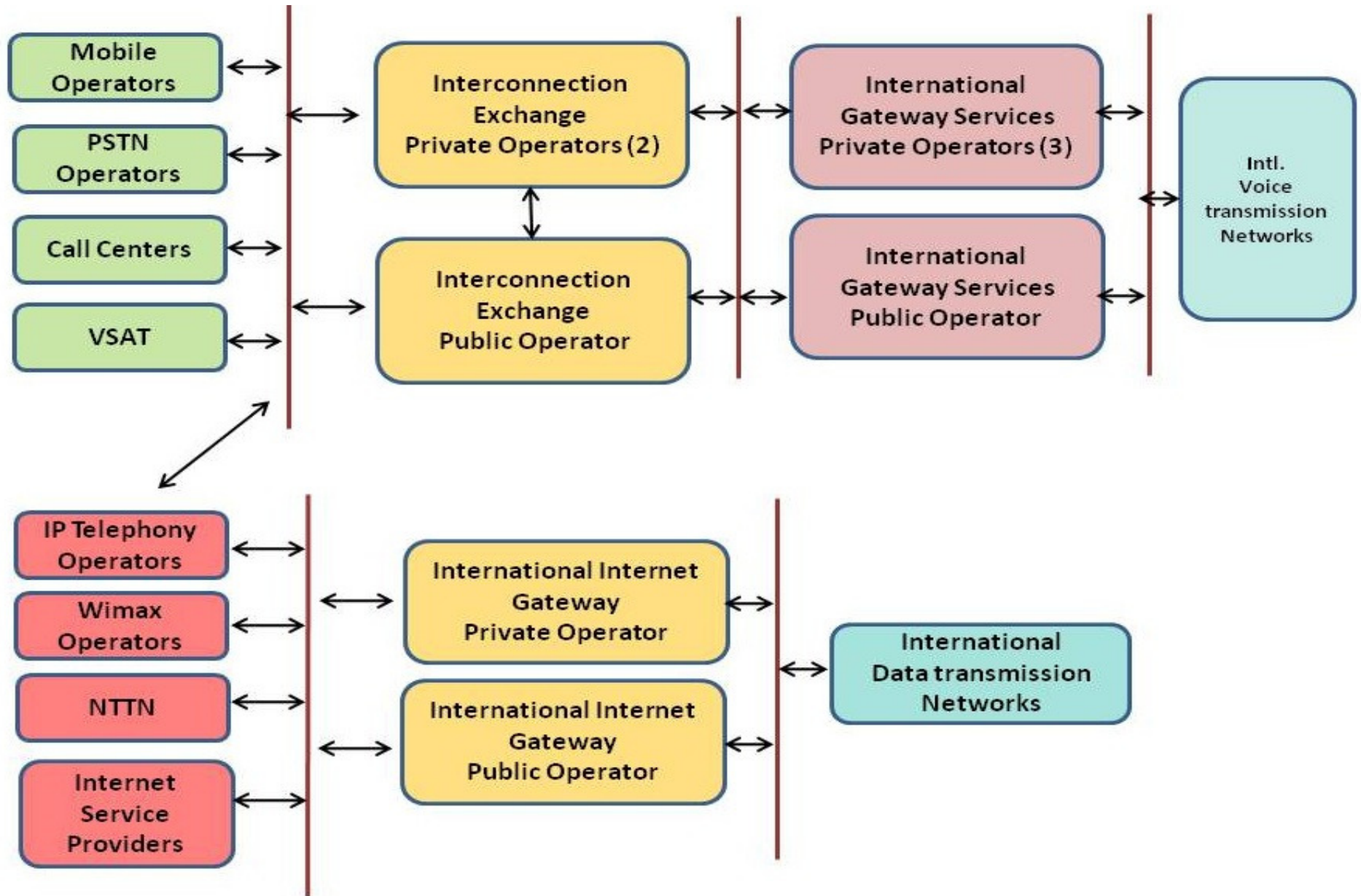


Internet Subscribers in Bangladesh

(based on access mode)



New Layers of Gateways/Exchanges



Policies, Regulations, Acts

- The Telegraphy Act of 1885
- The Wireless Telegraphy Act of 1933
- The National Telecommunication Policy of 1998
- Bangladesh Telecommunications Act of 2001 (and the amendment in 2010)
- The National ICT Policy of 2002
- International long Distance Telecommunication Services (ILDTS) Policy 2007 and 2010

Policies, Regulations, Acts

- International Long Distance Telecommunication Services (ILDTS) Policy, 2007/2010:
 - Changed the course of full liberalization
 - Government controlling the market entry
 - Inefficient layers of gateways/exchanges

Policies, Regulations, Acts

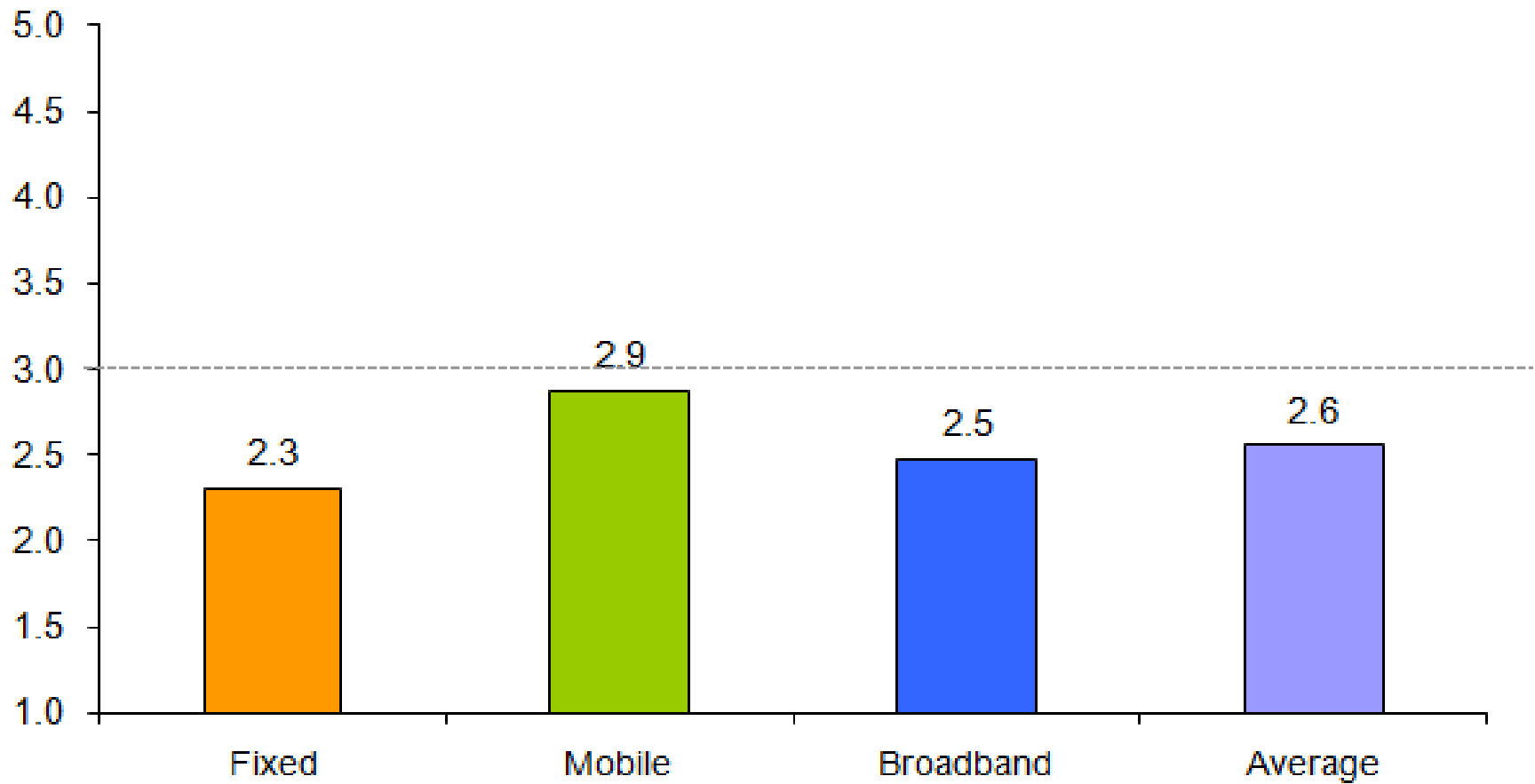
- Telecommunication Act (amended), 2010
 - Ministry now has full control
 - Delay in the “time sensitive” decision making process
 - Provisions for heavy fines and punishment
 - BTRC now just recommends (no independence)

Survey

| Response Category | No. of Respondents | Weight assigned |
|---|---------------------------|------------------------|
| 1 – operators, equipment makers etc. | 17 | 0.76 |
| 2 – observers, lawyers, consultants etc. | 7 | 1.85 |
| 3 – stakeholders representing consumer interest | 15 | 0.87 |
| Total | 39 | |

25 (or 64%) of the respondents participated in the survey online, 18% through email and 18% via face-to-face interview.

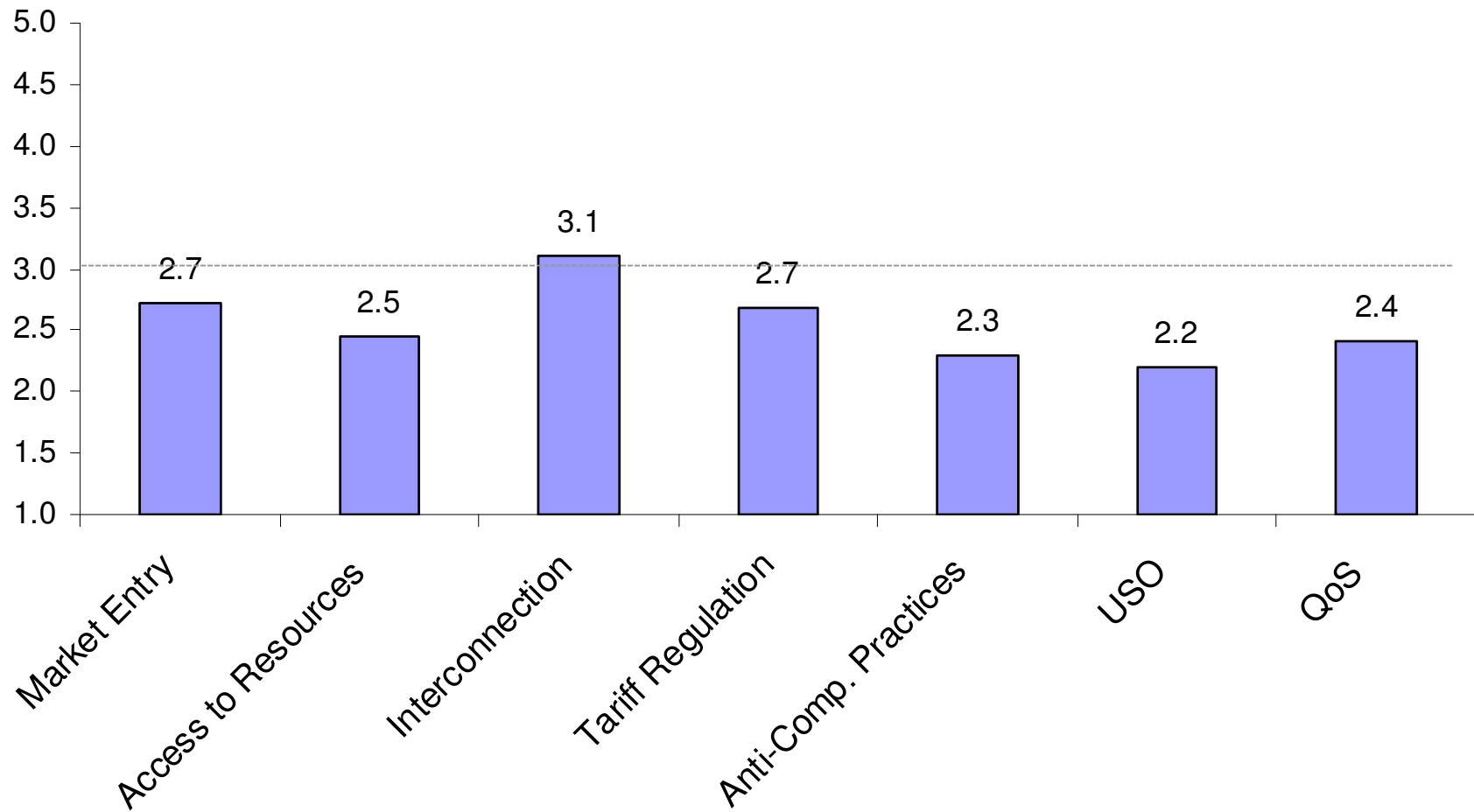
Overall Results



Results

- The license cancellation of five PSTN operators and nationwide decline in fixed line usage contributed to lowest scores for fixed sector
- Regulator's facilitation for competition, low access price for the users, nationwide coverage and interconnection, usage flexibility, and better QoS are some of the key reasons for mobile industry to top the list
- Mobile's score to be just below 3 can be from the sense of uncertainty created by the amended Telecommunication Act, 2010 and for the proposed 2G license renewal guidelines

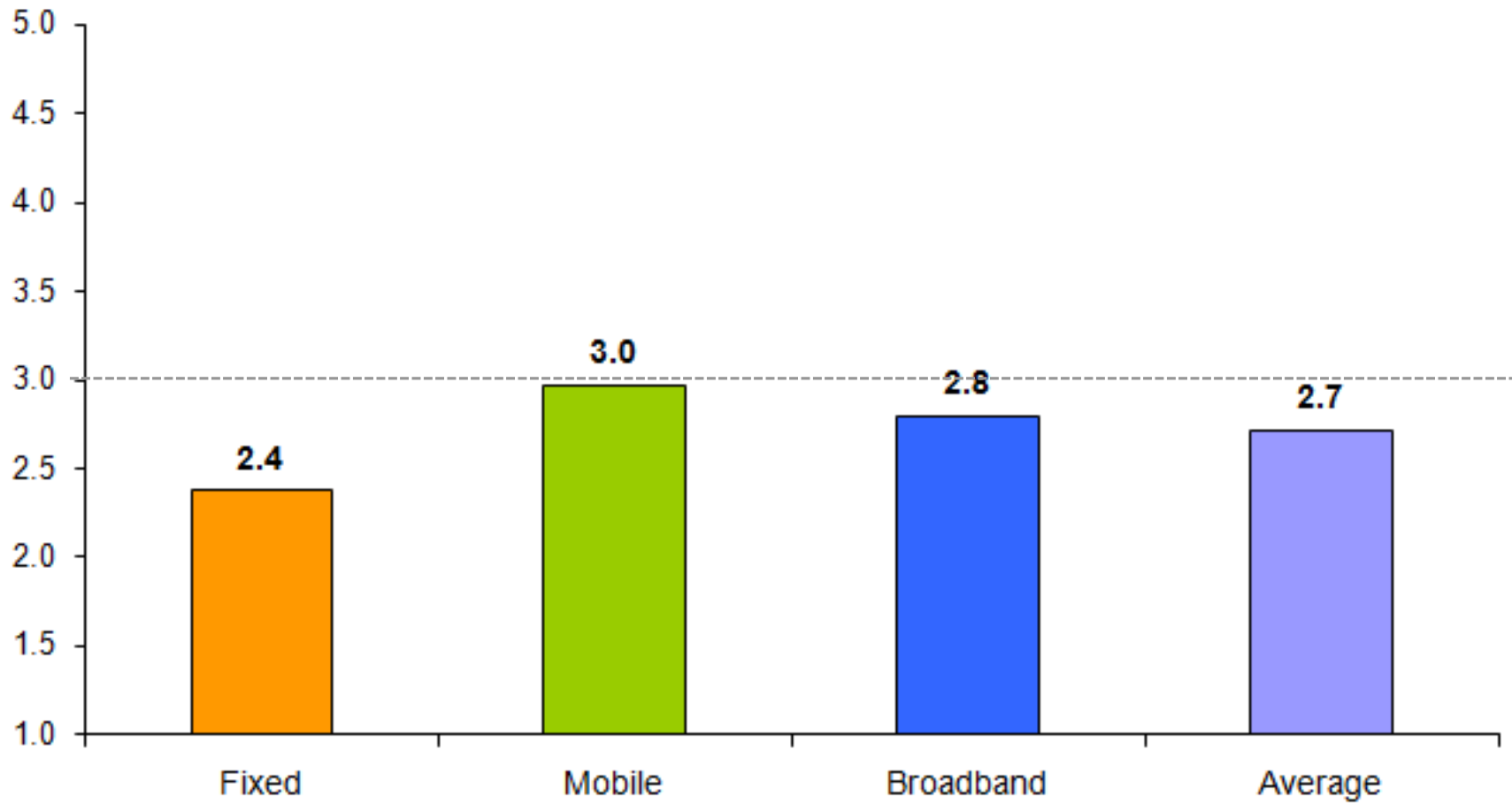
Scores by Regulatory Dimension



Results

- Interconnection received the highest average score of 3.1. It is a positive shift from the time when it was very costly, time consuming, and sometime impossible
- USO received the lowest average score (2.2). As the mobile phone service is available all over the country, many experts and stakeholders feel that the creation of USF is not required
- There is no clear roadmap from the regulators on how the USO will function or how the money from the SOF will be disbursed among the service providers

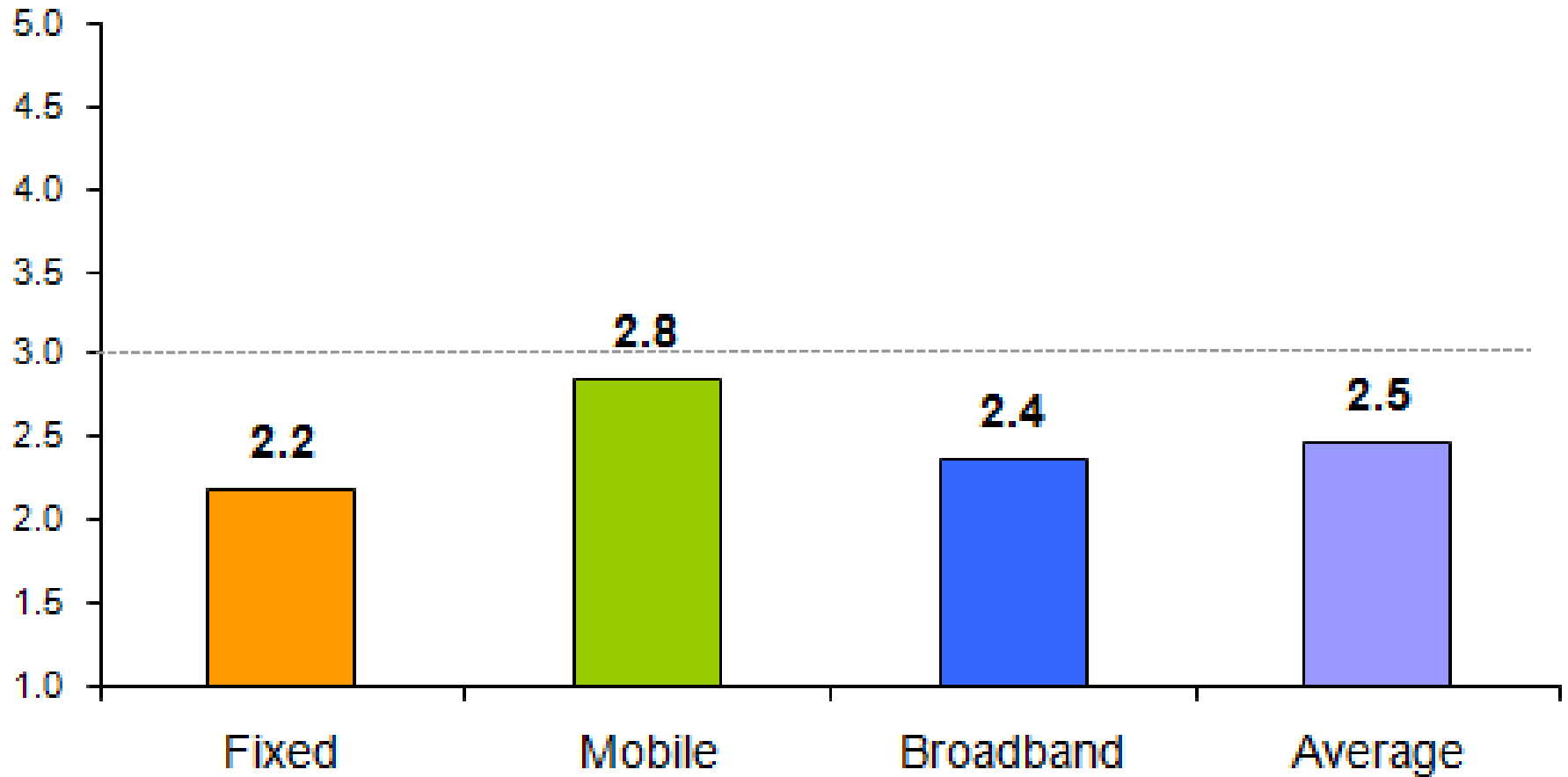
Market Entry



Market Entry

- PSTN: Failure to grow, cancellation of 5 PSTN licenses
- Broadband: Restricted WiMax Licensing
- Mobile: Uncertainties with 2G License Renewal process
 - License and spectrum renewal fees are tied up
 - Exorbitant price of spectrum
 - Investors are doubtful

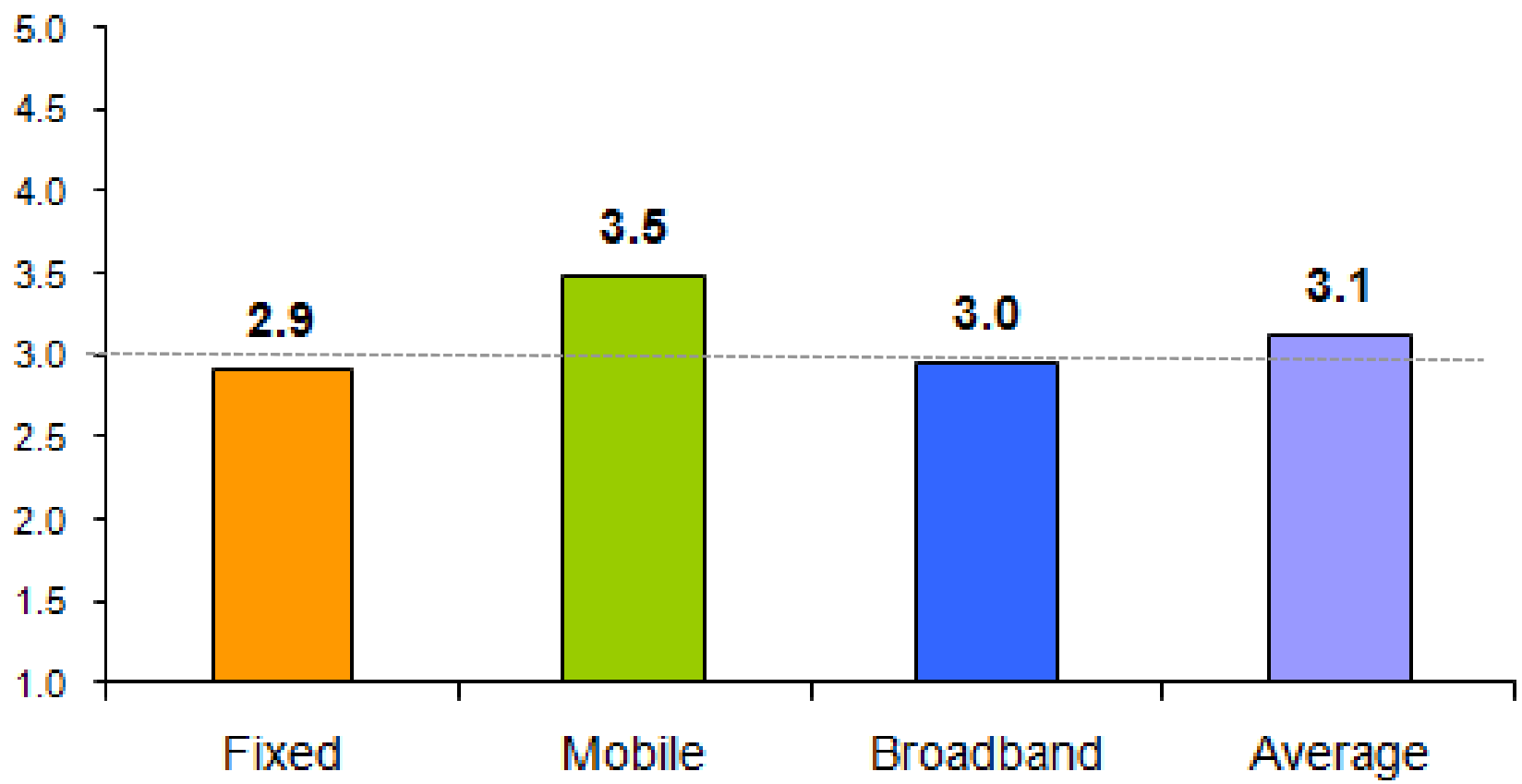
Access to Scarce Resources



Access to Scarce Resources

- PSTN:
 - No recent allocation for WLL spectrum
- Broadband:
 - BTCL is controlling the access to fiber
 - High cost of transitioning to NTFN infrastructure
- Mobile:
 - Putting towers, base stations, resource sharing are relatively easy
 - Spill over from the issues related to Market Entry

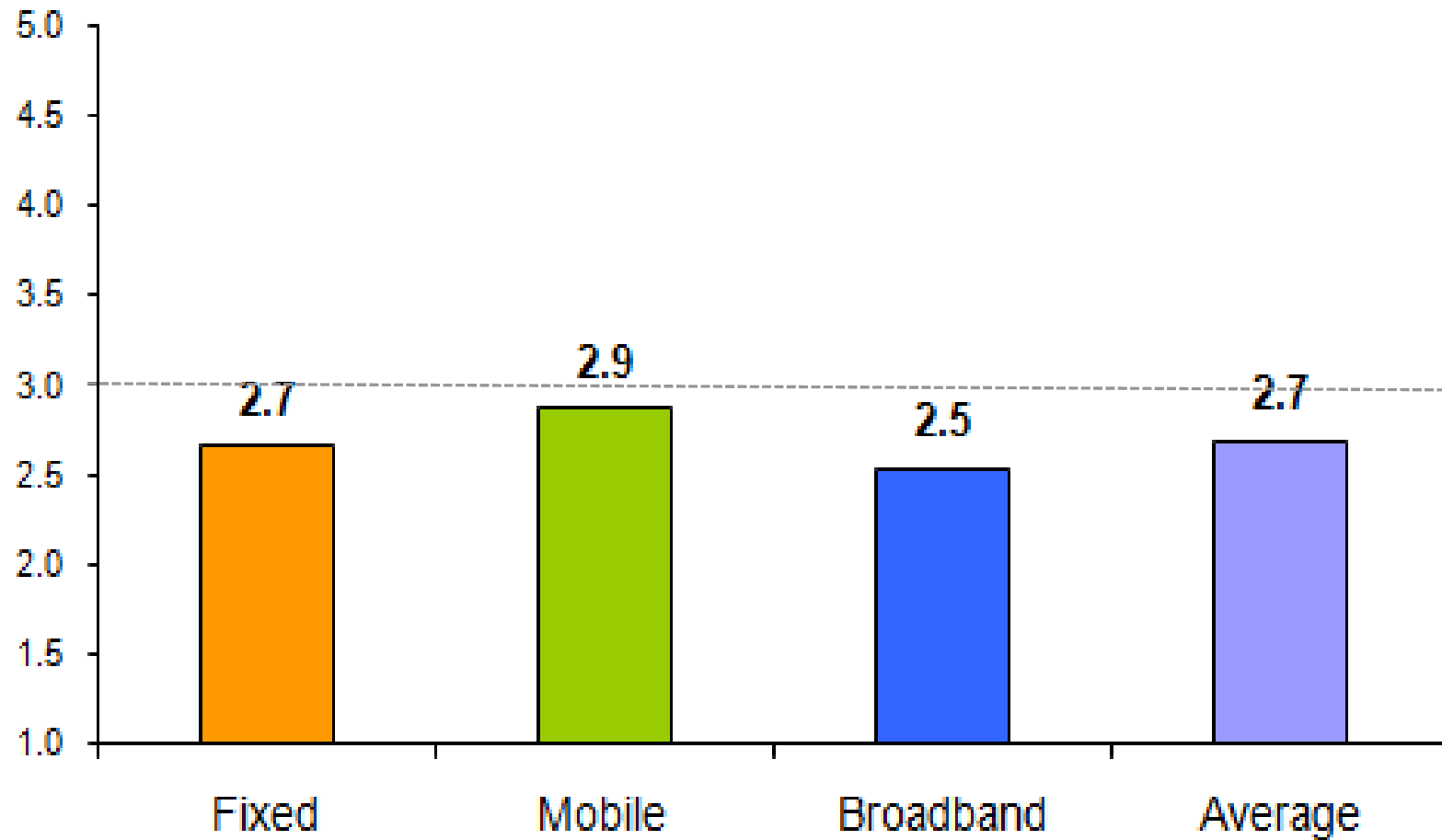
Interconnection



Interconnection

- Voice Service:
 - The ability for any subscriber to call anywhere without any significant connection or cost issue at present is a great improvement
 - BTRC explicitly introduced the definitions and provisions on interconnection
- Internet Service Providers:
 - The presence of national internet exchange (NIX) meant higher internal traffic in lower cost, which was not the case before

Tariff Regulation



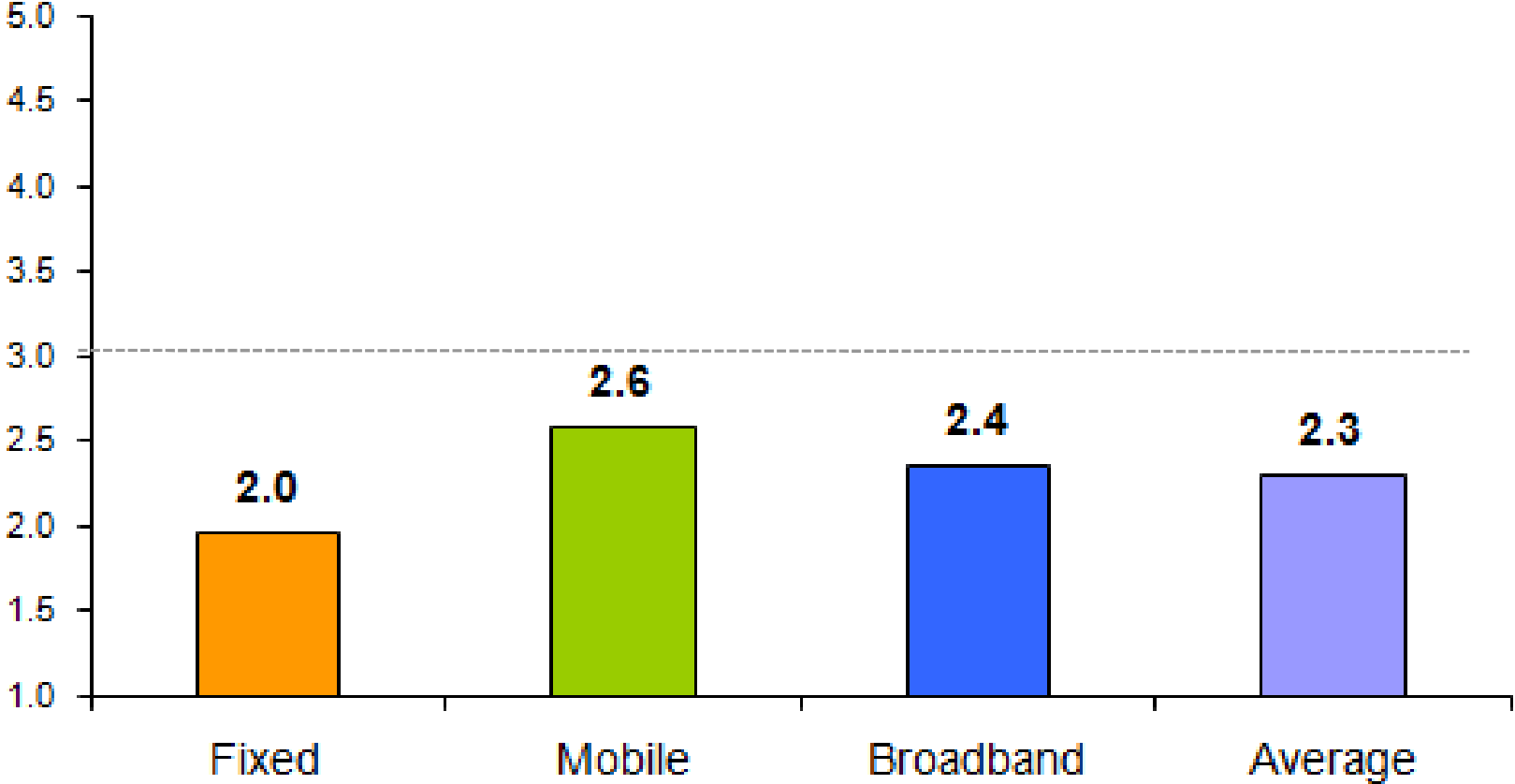
Tariff Regulation

- Mobile:
 - As retail prices are low, it's good for the consumers and people from academia, research organizations, journalists, civil society organizations gave high scores
 - But high competition and low profit margin in the service industry caused low scores from the other categories' respondents
 - The Ministry is now in charge of tariff regulation, it is a time consuming process and can cause unexpected delays in a competitive market where one needs to act quickly to ensure a market edge

Tariff Regulation

- Broadband:
 - The absence of any active intervention to regulate the tariff
 - Many community-based “broadband” entrepreneurs offer packages at very low price, but cannot maintain the minimum level of service
 - People have also complained about not getting the desired broadband speed even after paying the premium

Anti-Competitive Practices



Anti-Competitive Practices

- Till now, there are no concrete guidelines to prevent monopolistic or anti-competitive practices
- The regulator also did not mention or clarify how any service provider can be classified as a monopoly in any given market under its jurisdiction, and in which ways consumers and other market players can be protected if such practices occur

Anti-Competitive Practices

- The mobile service stakeholders are dissatisfied with the amount of money GoB is proposing for the 2G license renewal and spectrum allocation, as the other operators (who are not scheduled to renew their licenses anytime soon) got access to similar resources at much cheaper rates
- Service providers' access to the nationwide fiber network of certain incumbents are still facing non-tariff barriers, such as long waiting queue and unregulated sharing price for infrastructure usage

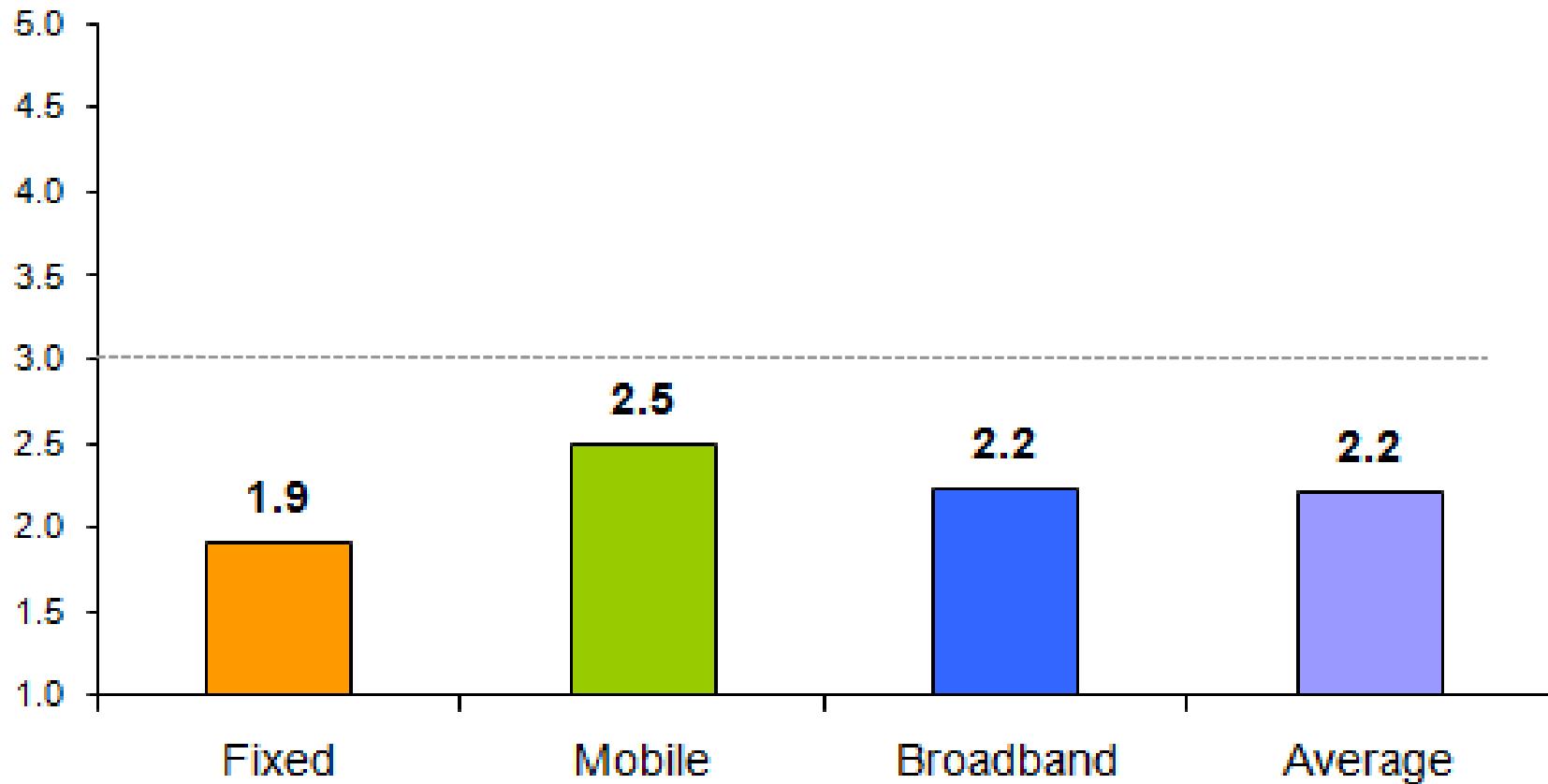
Anti-Competitive Practices

- There is no specific guideline from the regulators on how the mobile operators (client and developers of VAS) and independent VAS providers should cooperate and function
- License cancellation of five PSTN operators was on the ground of illegal VoIP. The leading mobile service providers got hefty fines for the same offence but their licenses were not revoked

Anti-Competitive Practices

- Broadband service providers are not allowed to directly deal with the competitive international carriers
 - This provision is hindering the possibilities of direct and efficient negotiation with the international entities, which could be converted into cheaper broadband services

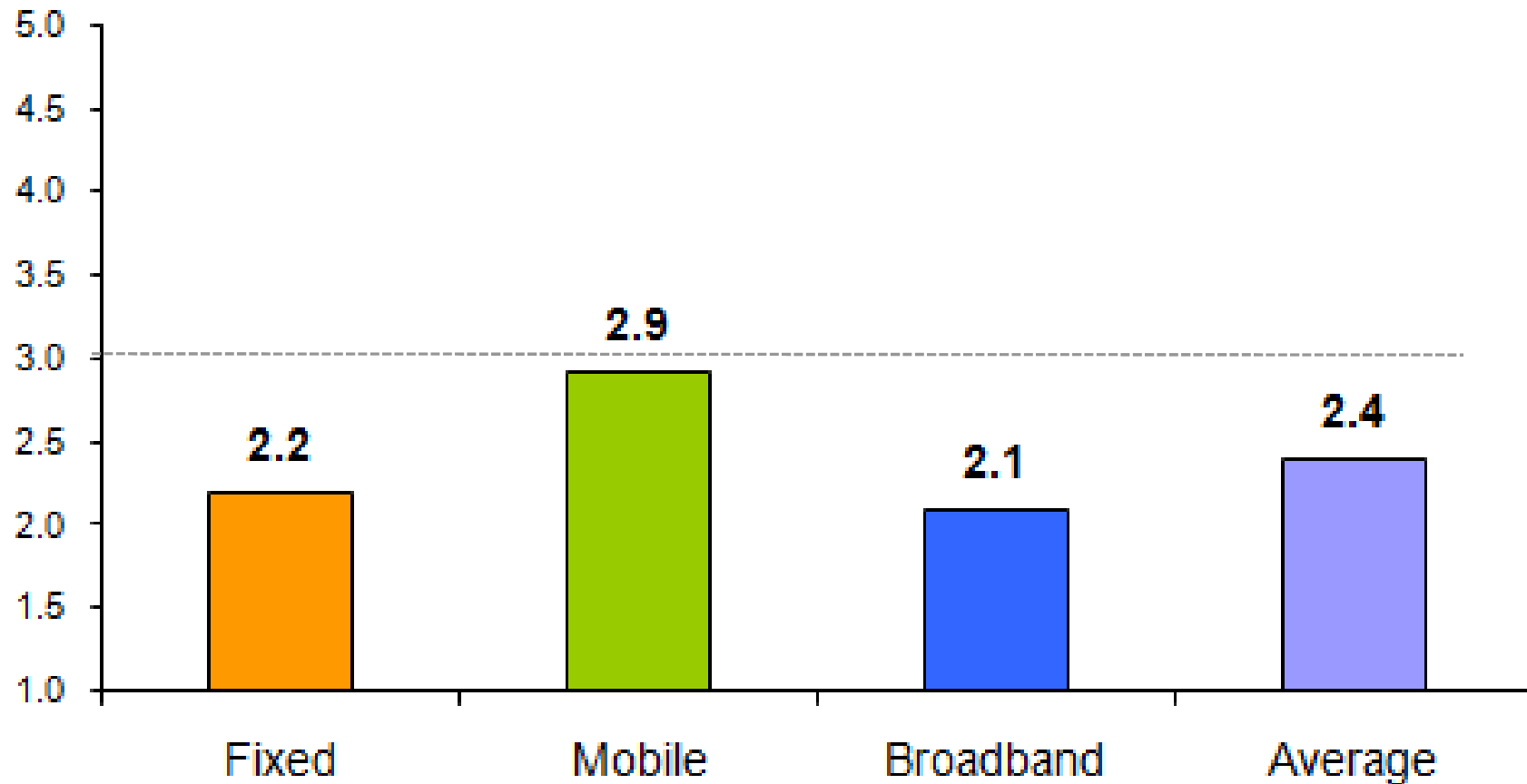
Universal Service Obligation



Universal Service Obligation

- BTRC is yet to clarify how it's planning to disburse and use the USF/SOF
- GoB or the regulator has also not decided on how to define “urban” and “rural” areas for voice and internet services
- The absence of guidelines and the question towards its relevance resulted in the lowest scores from every sector analyzed

Quality of Service



Quality of Service

- The absence of clear directives to ensure quality voice and data services for the mass
- The mobile providers are proactive to make sure a good level of services, mostly because of the extreme competition
- In PSTN, the QoS situation became worse after the 5 private licenses were revoked, without any buffer time for customer transition
 - There were no directives issued on providing alternative telecommunication service for the affected users

Quality of Service

- Lowest in Broadband
- The small service providers usually get small amount of leased or sub-leased bandwidth and tend to serve beyond capacity
 - There is a considerable dissatisfaction about the broadband service as a whole
- Due to the nationwide power shortage, even the key broadband service providers are unable to maintain uninterrupted and high speed internet connection for their users

Quality of Service

- ISPs can comfortably expand their user base during summer time without increasing their bandwidth capacity
 - Lack of electricity means hardly many people can access the broadband internet
- The low quality overhead cable, vulnerable to the adverse weather and frequent disconnections, pose major hindrances towards ensuring good QoS for broadband

Recommendations

- Rethinking 2G License Renewal Process (& beyond)
 - Should be determined through active consultation, and can be either:
 - market determined (based on auction) or
 - a hybrid of auction and reserved price set by BTRC
- GoB should initiate the 3G licensing and spectrum allocation in Bangladesh as soon as possible

Recommendations

- Need of an “Independent” regulator
 - Clear demarcation of responsibilities, effective coordination between MoPT and BTRC
- Making the present Tariff Regulations process faster
- Acting against the Anti-Competitive Practices
 - Clear directives to define and prevent monopolistic practices
 - Active implementations of guidelines to prevent non-tariff barriers for the market entrants in voice, internet, and VAS sectors

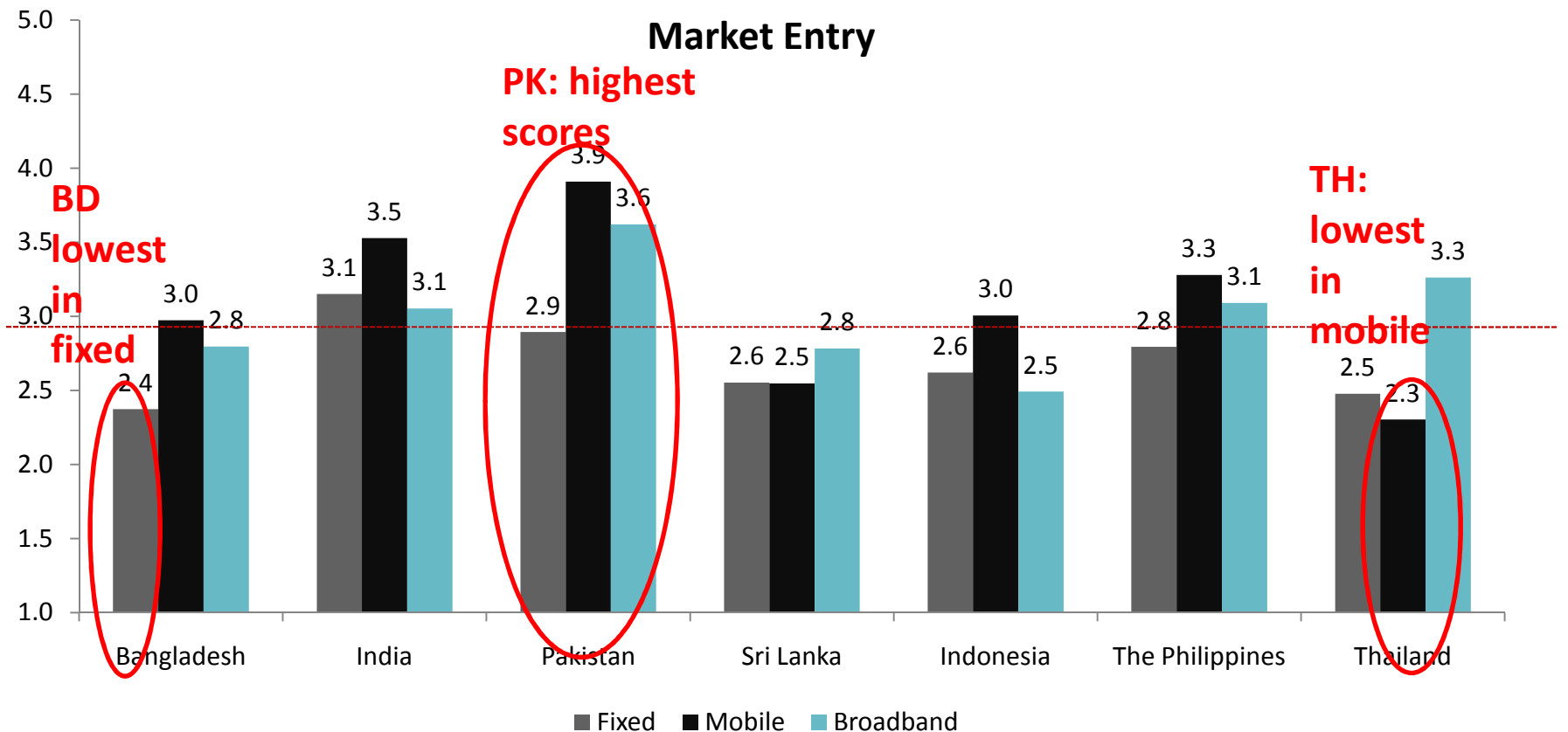
Recommendations

- QoS guidelines need to be introduced alongside addressing the major structural bottlenecks
- Streamlining the Pro-People Provisions to policy documents instead of regulatory ones
 - Spectrum Trading, Number Portability, QoS Obligations, Common platform for VAS providers, Emergency Toll free numbers, Green Telecom practices

**Putting things in perspective:
Benchmarking against other
countries, and identifying best/worst
practices**

Helani Galpaya

1. Market Entry: PK leads with clear (yet expensive) licensing conditions. TH low scores in mobile due to confusions in new policy



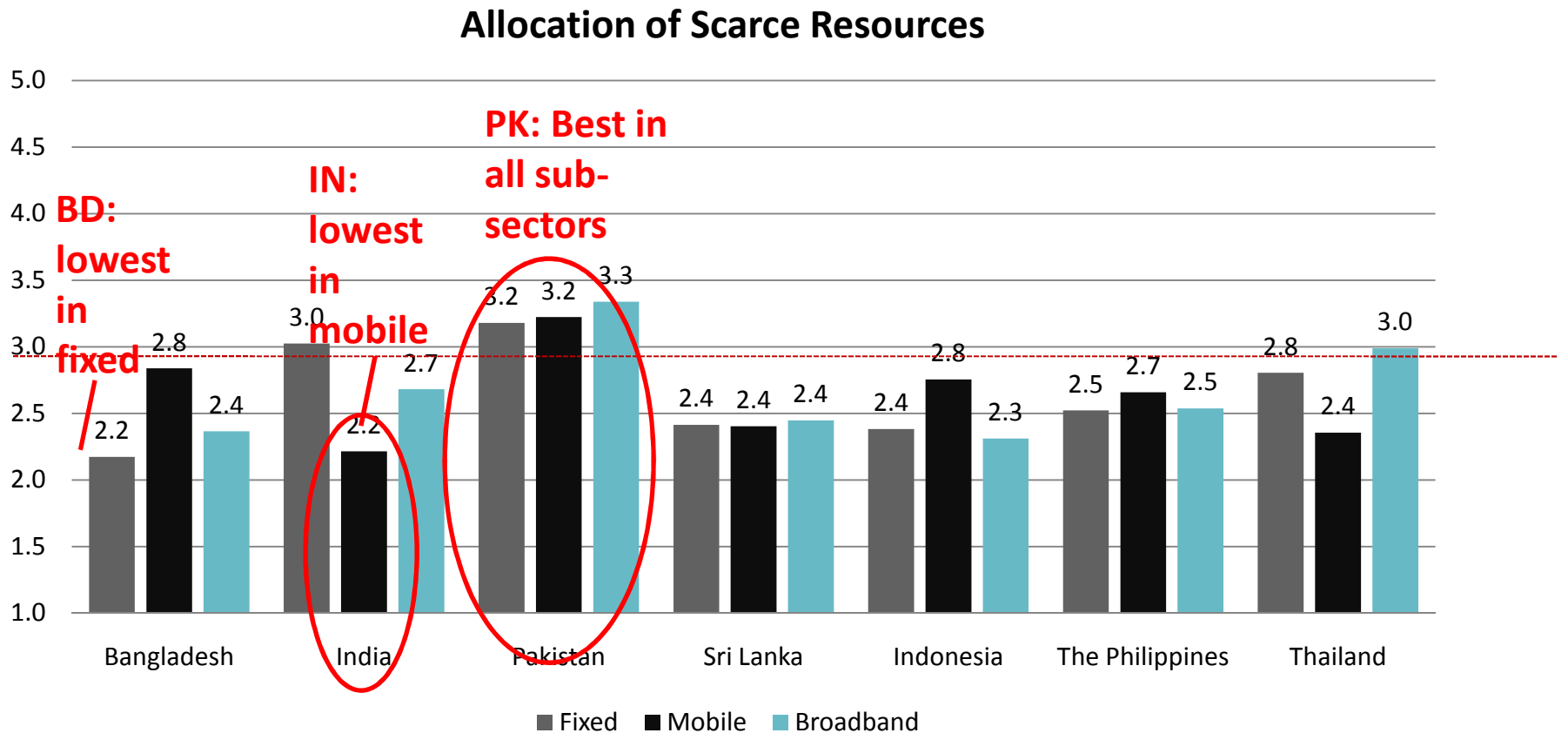
PK (top performer): Expensive but transparent licensing conditions give certainty; no restrictions on foreign ownership

- Clear rules: payment of fee guarantees license renewal
 - Even though very expensive @ USD 291 MM, price at least based on auction value
 - No uncertainty for operator
- Unbundled licensing for fixed
 - investors can enter, offer services in area of their choice
- MNP since 2007
 - even smaller (new entrants) have a fighting chance at capturing market share
- No limitations to foreign ownership, M&A activity
 - USD 374 million FDI in 2009-2010; accounts for 17% of Pakistan's FDI
- Anti-competitive behavior checked/regulated (more later)
- Result: 64% SIM penetration

TH (lowest mobile sector scores): confusion caused by new policy

- New Telecom and Broadcasting Act of 2010
 - Merge National Telecommunications Commission and National Broadcasting Commission
 - Article 46 prohibits licensee from renting out all or parts of its spectrum to others to provide mobile services
 - Consequence: TOT delaying signing bids with winners of 3G expansion project
 - E.g. Worried its MVNO operation not in compliance
- Type 2 (network based services for corporate customers) licensees
 - Providing commercial services to the public
 - Abusing license fees and lower USO fee enjoyed by Type 2 licensees

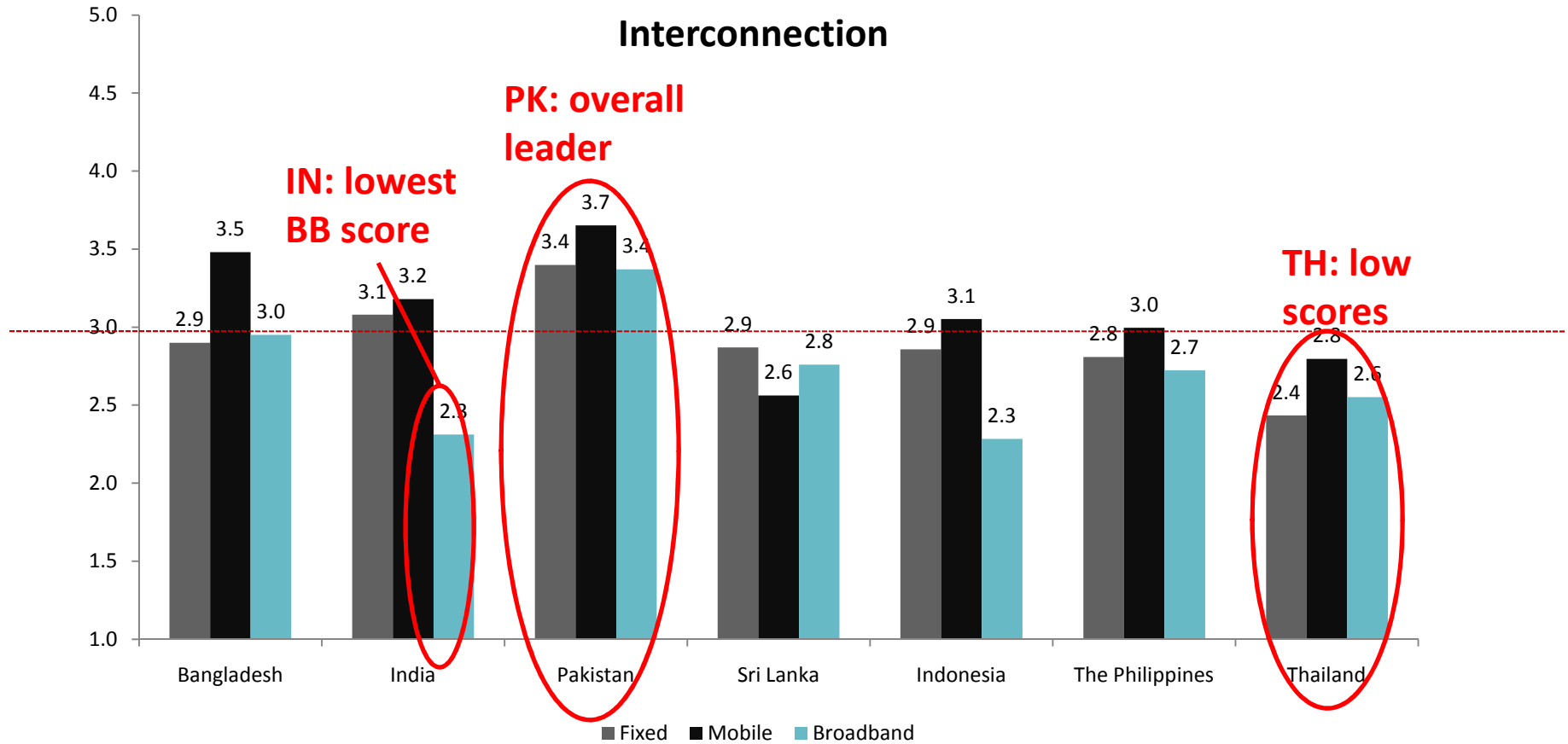
2. Allocation of Scarce Resources: PK fast response gives certainty. IN mobile scores due to 3G and 2G spectrum issues. BD lowest in fixed



IN (lowest score in mobile): scandals of 2G spectrum allocation. LK (low overall scores): infrastructure bottlenecks

- India:
 - controversies over 2G renewals
 - no auction
 - arbitrary pricing of 1651 crores
 - corruption scandal
 - Delayed 3G spectrum allocation (first ever auction)
 - Spectrum overloading by GSM operators
 - Average amount of frequency per operator low: World average 17.18 MHz; India 6.2MHz
- Sri Lanka
 - International landing station a major bottleneck
 - Incumbent fiber not shared on regulated (cost-based) basis
- PK acts fast. New I-ME-WE cable in 2010

3. Interconnection: Thai concessionaires subject to distortionary IC rules by state operators



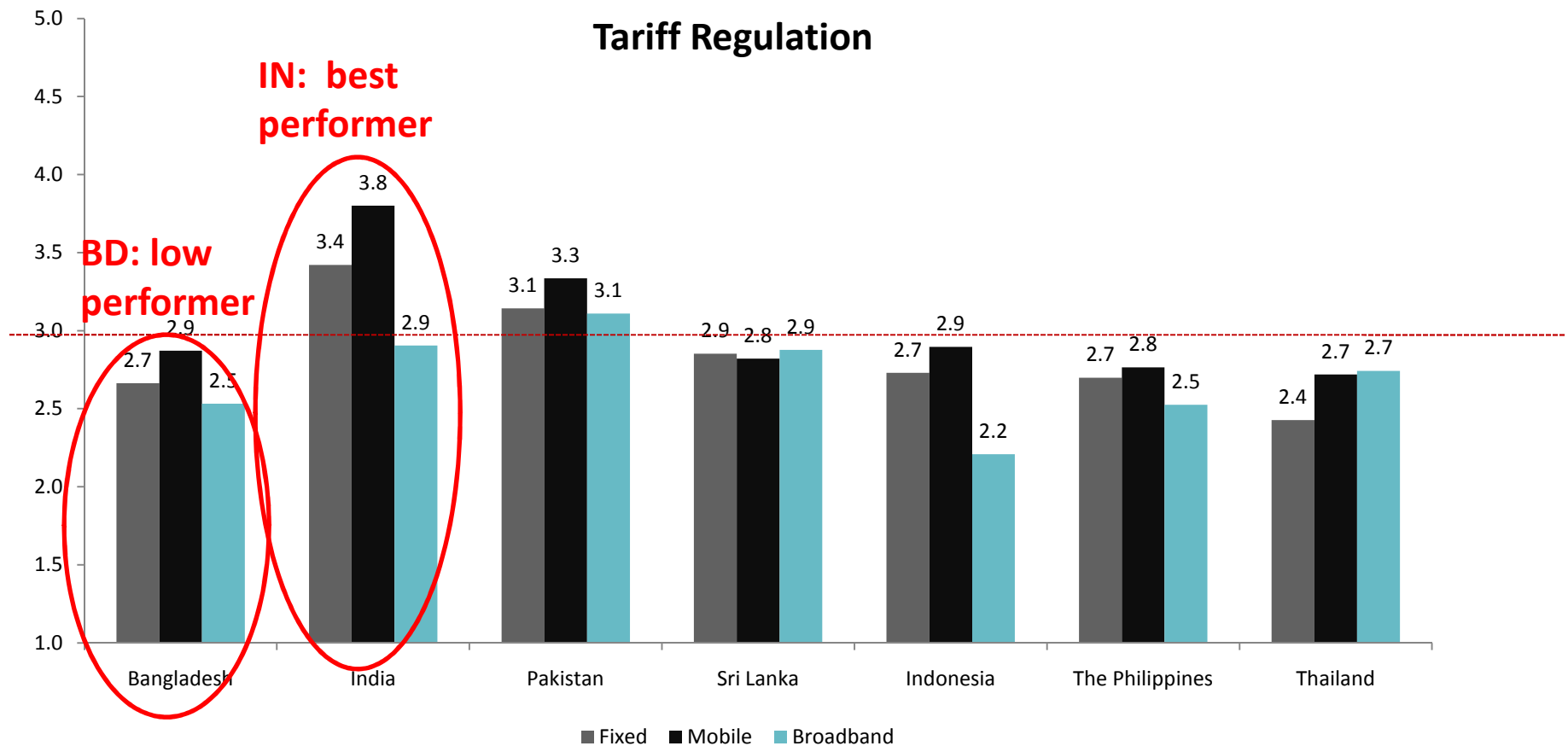
Thailand (poor performer): concession regime stacks the cards against non-state-sector operators

- Only two license holders (TOT & CAT)
 - Private operators mere contractors
 - Private concessionaires legally owned by two state operators
- All interconnection negotiated via TOT/CAT
- E.g. CATs concessionaires (DTAC, True Move) pay TOT...
 - flat fee of THB 200 (USD 6.6)/month per post-paid SIM
 - 18% of revenue per pre-paid SIM
 - But TOTs concessionaire (AIS) doesn't have to pay TOT
- Concessionaires refuse to pay TOT since 2006
 - Settled in 2007 at rate deemed too high (1 baht per min)
 - Only in 2010 regulated to be at 50 satang for all parties

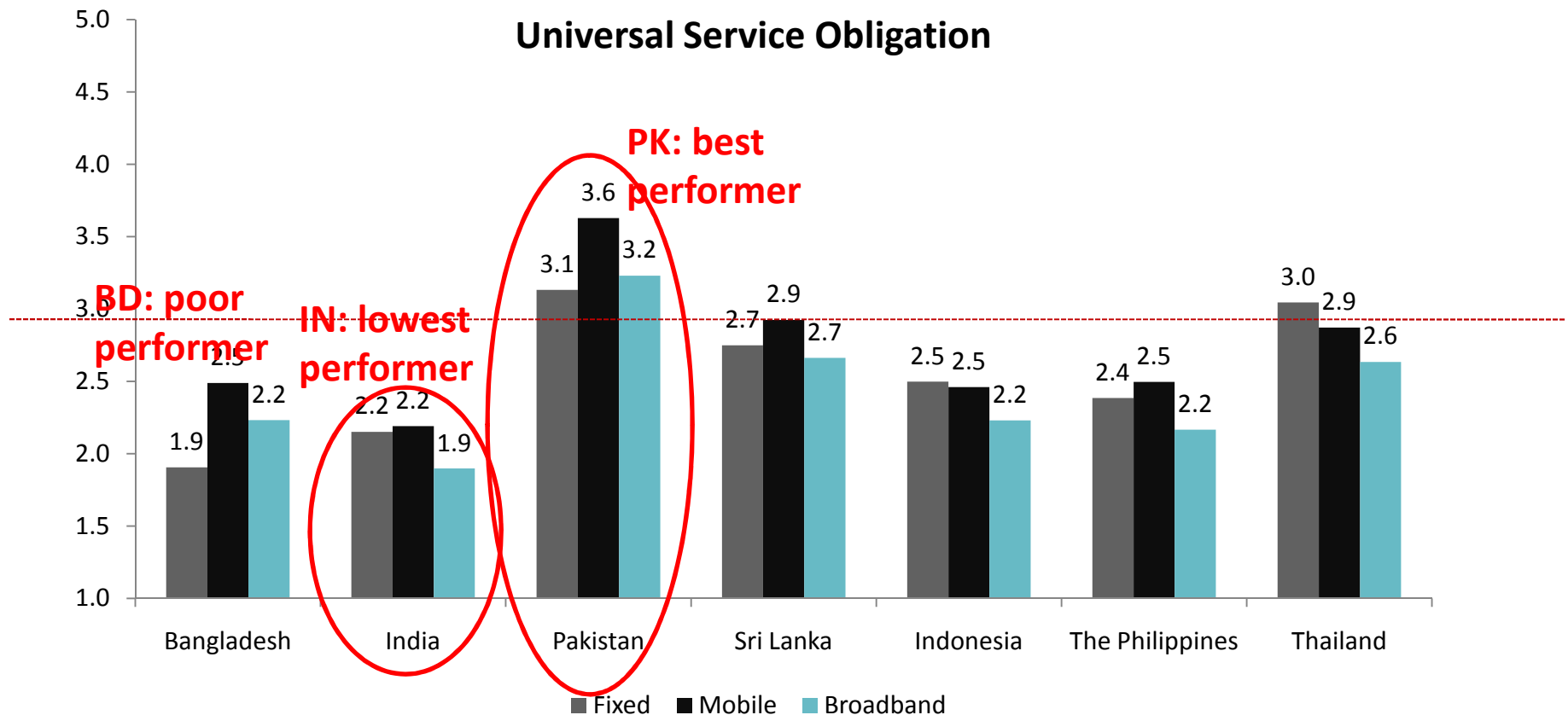
India (lowest BB score): ineffective use of internet exchanges

- Internet traffic experience bottleneck with local peering
- Despite neutral internet exchange (NIXI) in India
- Only 36 of 167 ISPs connected to NIXI

4. Tariff Regulation: India has some of the lowest tariffs in the world. Regulator does not regulate (most) prices



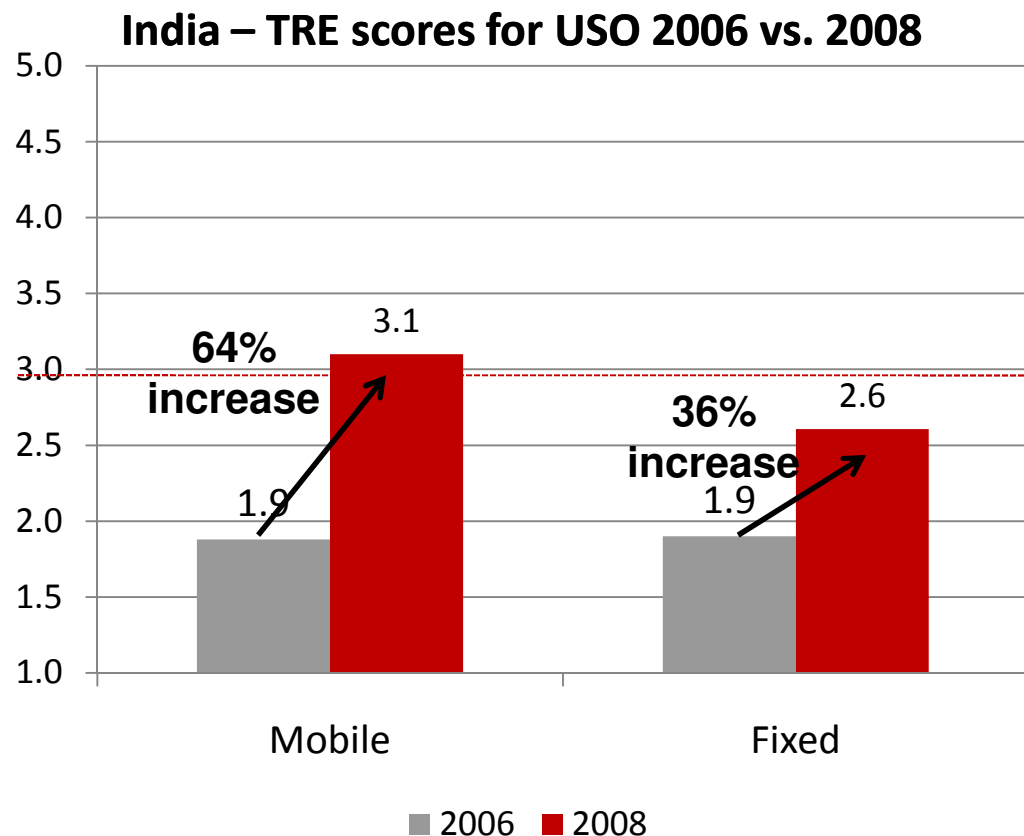
5. Universal Service Obligations: PK collects 1.75% but has already allocated and seeing results. IN still sits on large undisbursed USF (USD 4.2 billion +)



PK (best performer): USF decisions made by private sector and government, effective disbursement

- USF board consists of private sector operators as well as government
 - Practical decisions based on real market needs
- High disbursement rate
 - Compared to India which has nearly USD 5 Billion unspent
- Clear definition of which technologies included, and where funds can go
 - E.g. fiber backbone recently installed, PKR 4.5 billion

IN (lowest performer, with BD close): Still sitting on over USD 4 billion undisbursed USO funds, while collecting 5% from operators

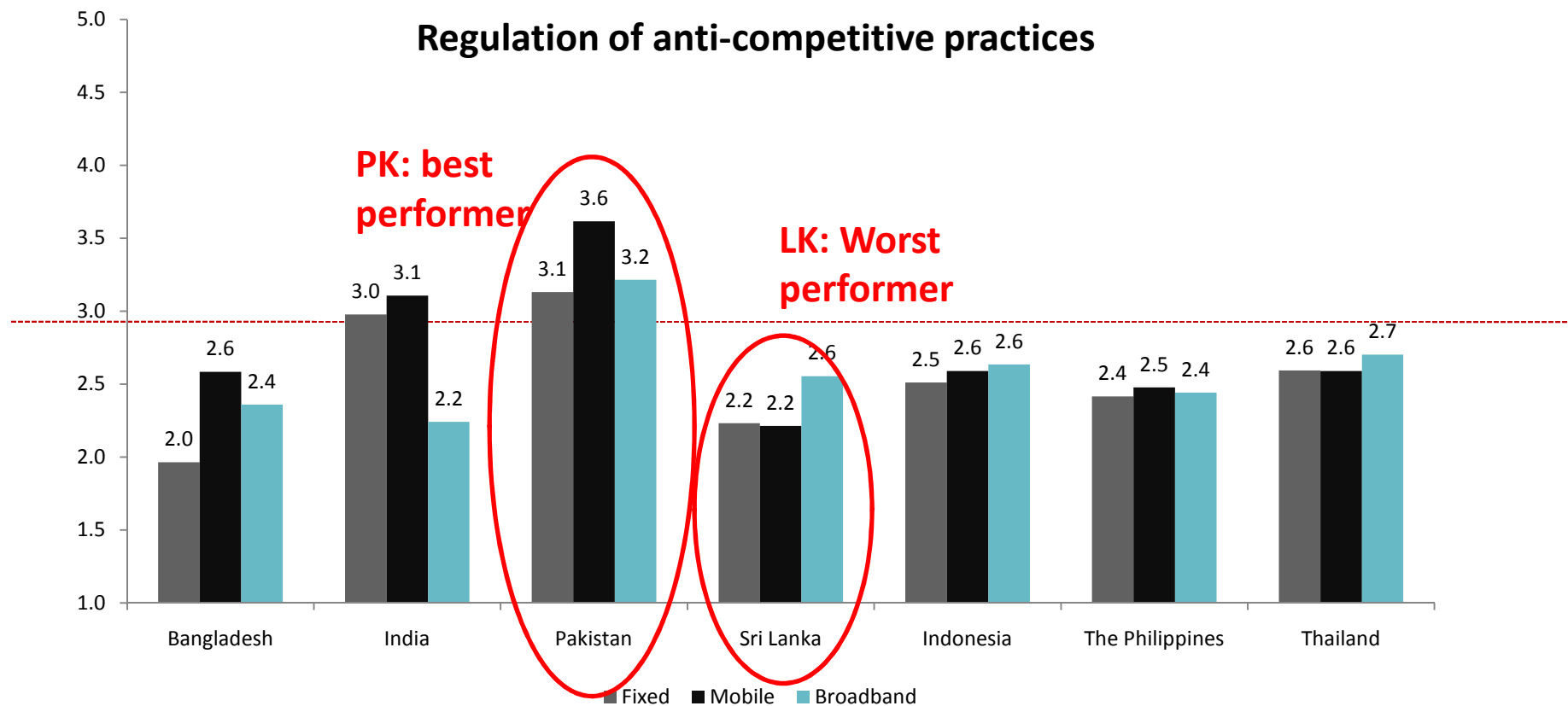


- Still rural-urban access gap
- Rural/poor access gap being filled by operators
 - WITHOUT USO funds
- We know USO scores can improve
 - 2006 vs. 2008 jump, when mobile was allowed to receive USF
- Next step: Get rid of USF to improve scores?
 - Operators requesting lowering 5% → 2.5% (Ministry rejecting)

ID (still low performer): Current USO scheme another step in a line of failed policies.

- Initially: Force incumbent to invest 20% of revenues in rural connectivity
 - Order not followed by incumbent
- Then: government funds to set up telephone units in ~ 3000 villages using satellite connectivity
 - Only contribute towards achieving 15% of universal service targets
- ...etc...
- Then: operators changed 0.75% of revenues
 - Collected funds undisbursed (cancelled and halted tenders)
 - Low penetration: 6.5 (fixed) and 35 (mobile) phones per 100 people.
- Now: rate increased from 0.75% → 1.25
- USD 1.254 million collected, mostly undisbursed
 - Despite new ICT Institute established

6. Anti-competitive Practices: PK actively monitoring and taking action to promote competition



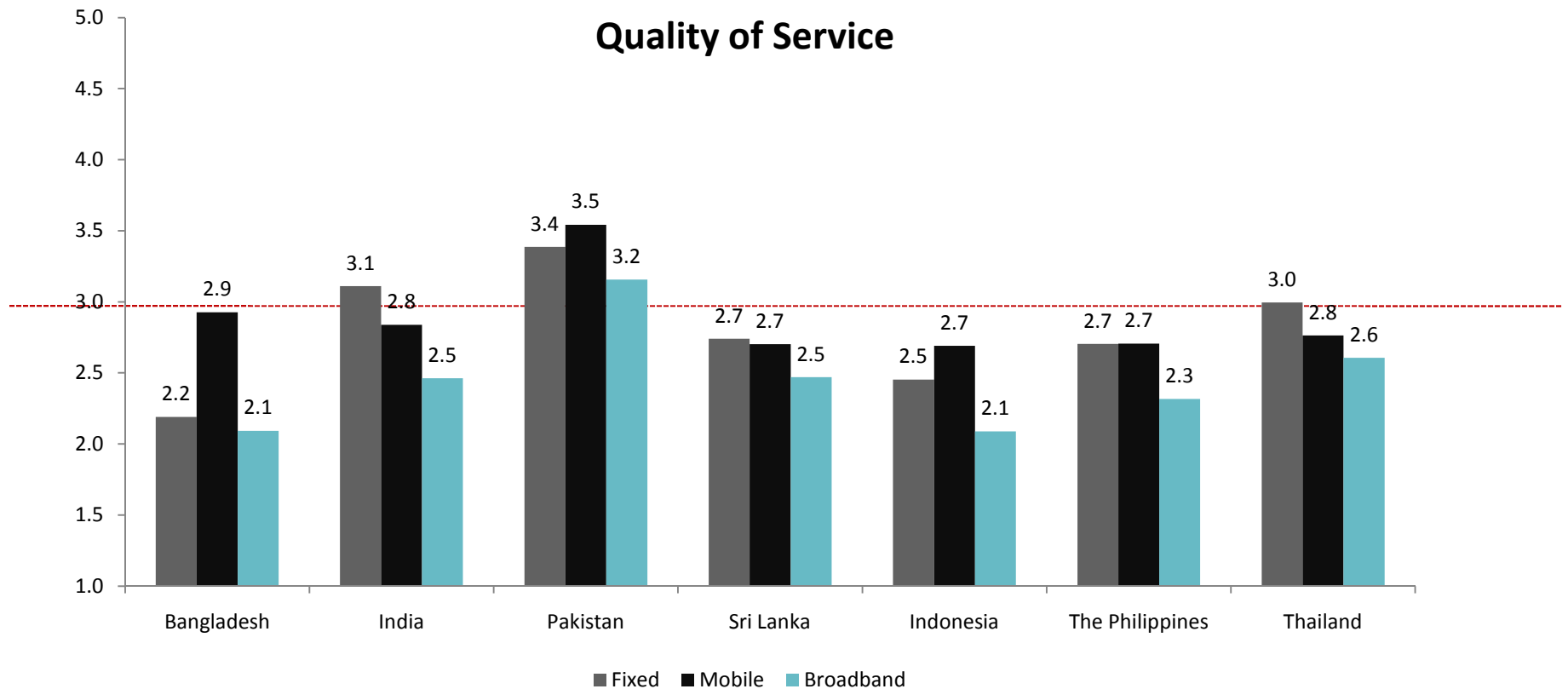
Pakistan (best performer): actively regulates market with the view of promoting competition

- Action against China Mobile PK Ltd
 - Advertising “World’s cheapest call”
 - Not mentioning rate is for 30 seconds, not 1 minute
- Approval of cross border mergers
 - Acquisition of Wind Telecom by Vimplecom Ltd
 - No Objection Certification issued
- Action against Wateen Telecom and Defense Housing Authority
 - Against entering into agreement that would have limited competition in relevant market.

Sri Lanka (worst performer): advantages of incumbent not investigated/stopped

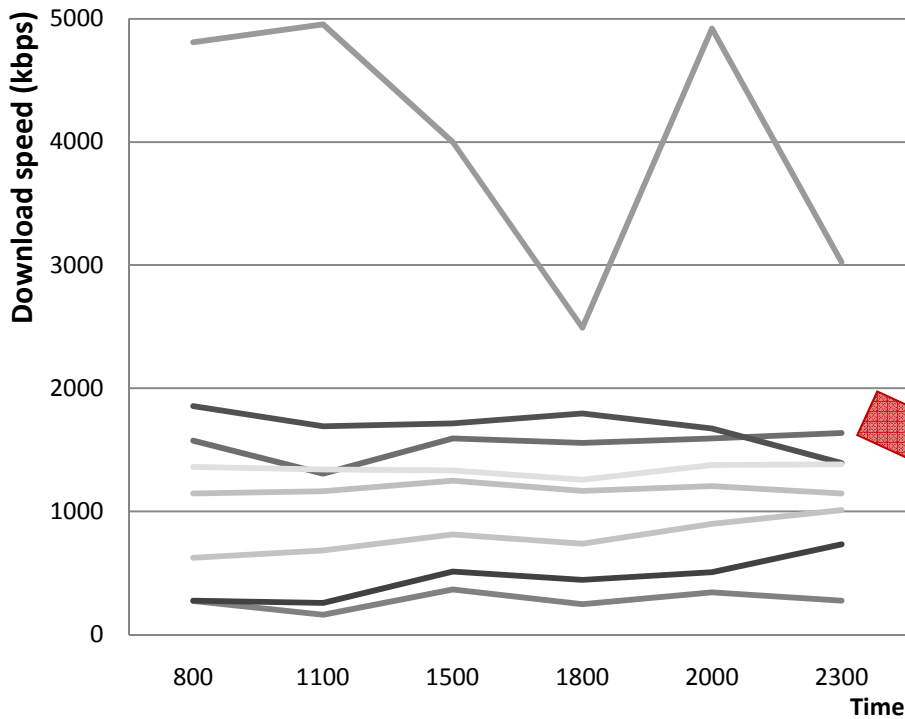
- Cable landing station: tariff and non-tariff barriers
 - Operators forced to use incumbents expensive fiber to connect to landing station
 - “delays” when operators want to increase/purchase more capacity
- Possible cross subsidization between fixed and mobile arms of incumbent
 - Mobile loosing money thanks to populist package “promoted” by government

6. QoS: Budget telecom networks give poor quality in the region and many choke points in in networks.

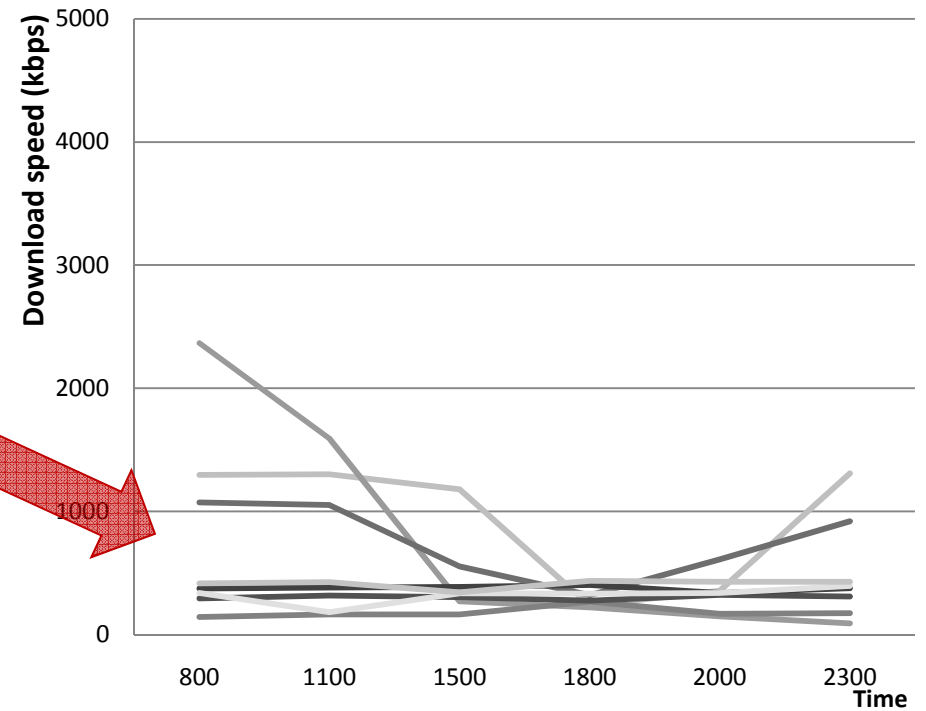


International Bandwidth: bottleneck in BB quality, specially with most access content lying overseas. Evidence in IN....

India - Download from ISP server



India - Download from International server

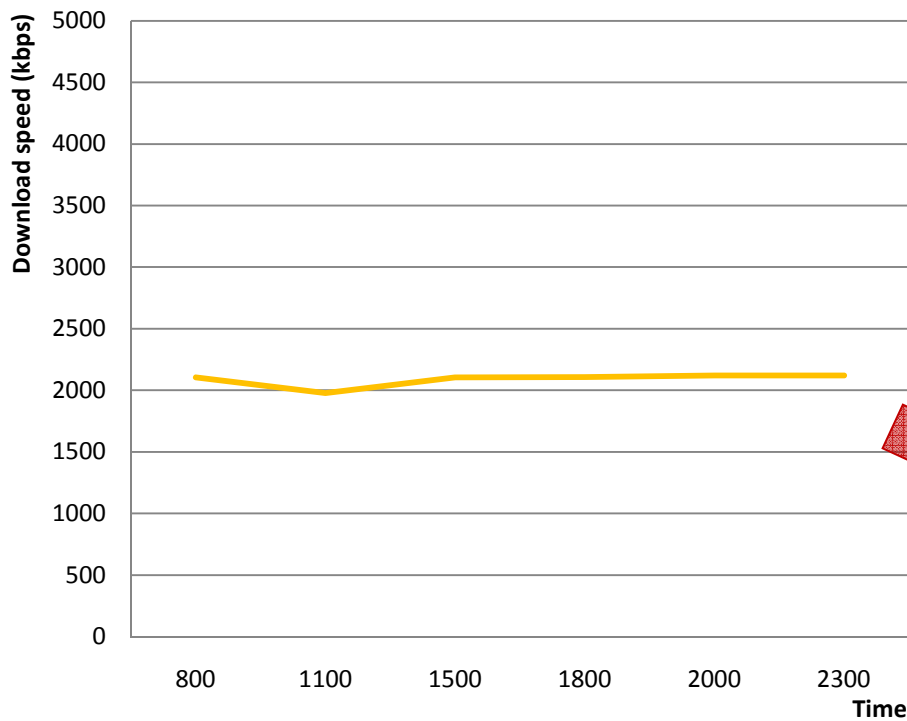


- Airtel (512 kbps) Bangalore, IN
- Airtel (512 kbps) Chennai, IN
- Airtel (2 Mbps) Mumbai, IN
- Airtel (512 kbps) New Delhi, IN
- BSNL (512 kbps) Bangalore, IN
- BSNL (256 kbps) Chennai, IN
- MTNL (512 kbps) Mumbai, IN
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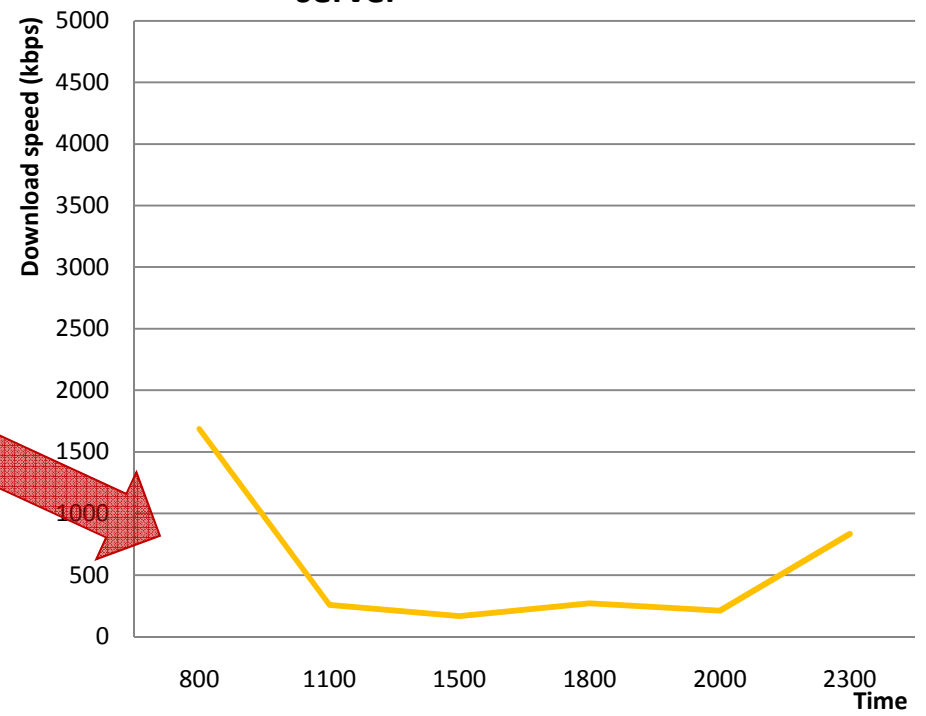
...and Sri Lanka

Sri Lanka - Download from ISP server



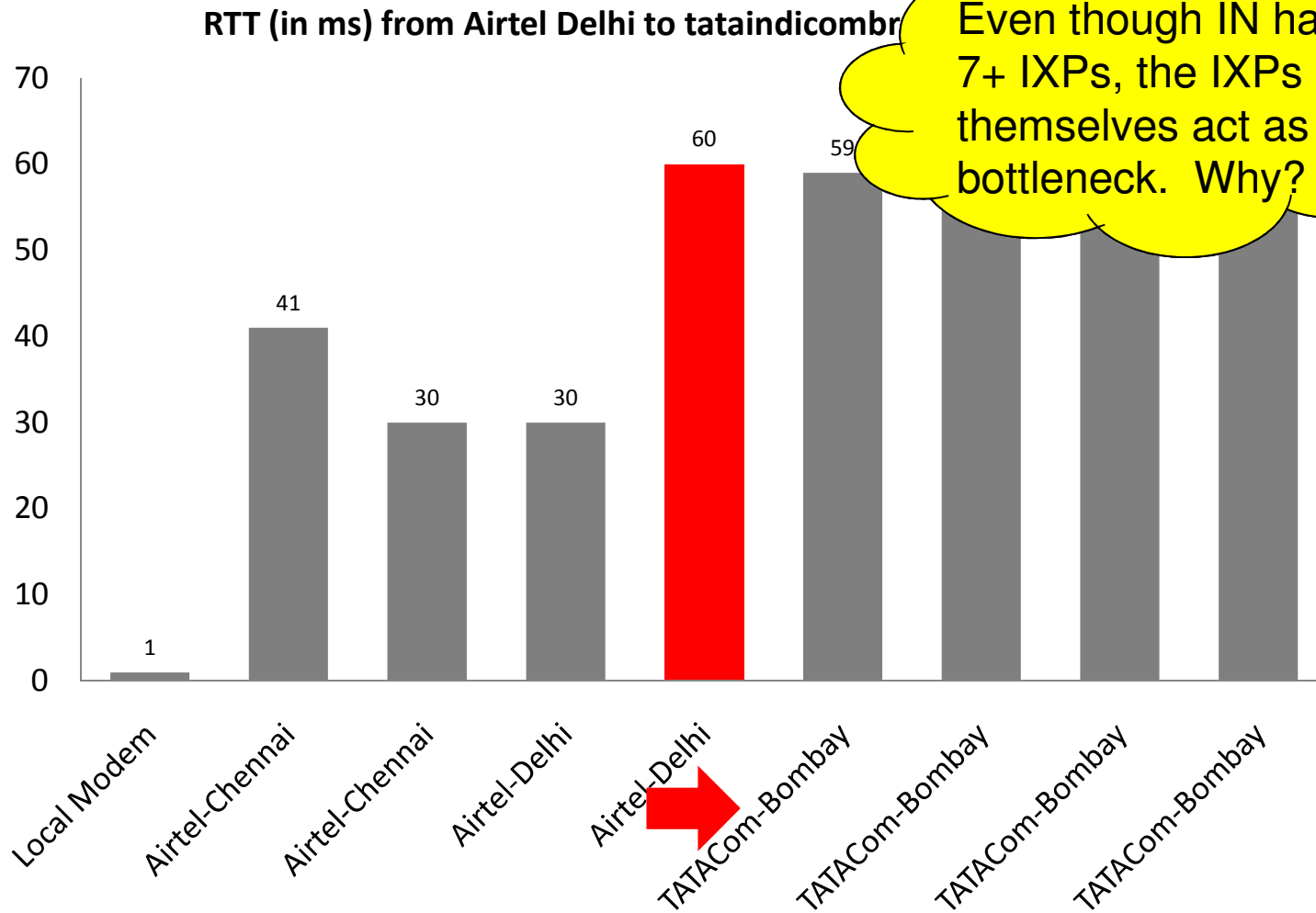
— SLT (2 Mbps) Colombo, LK

Sri Lanka - Download from International server



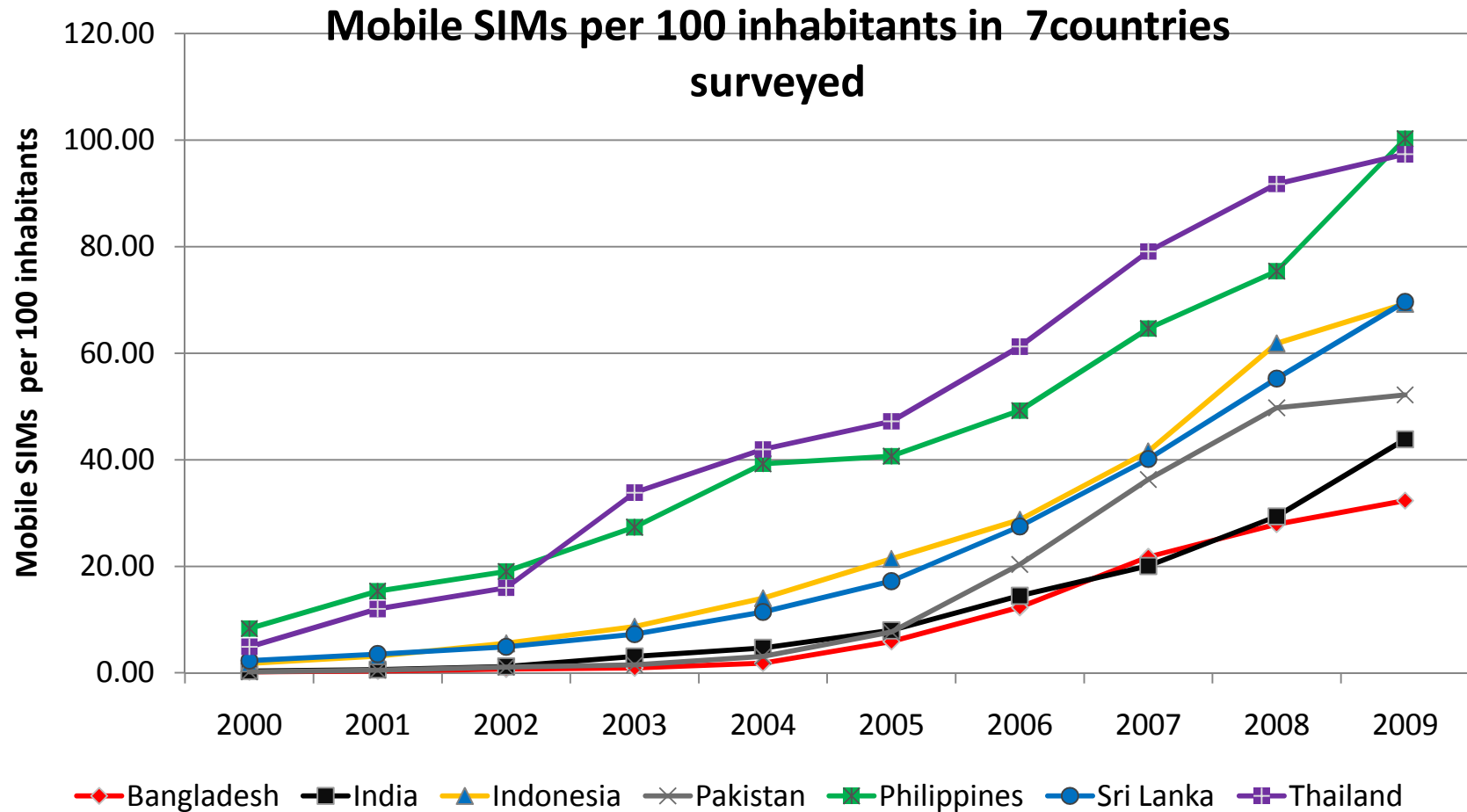
— SLT (2 Mbps) Colombo, LK

Local peering is also a problem. Network exchange points a bottleneck. E.g. India



Even though IN has 7+ IXPs, the IXPs themselves act as bottleneck. Why?

Finally: Regulation/Policy is not the only determinant of performance



Questions, Comments, Reactions

Audience

+ Faheem Hussain, Helani Galpaya, Rohan Samarajiva

Hidden slide: Number of completed survey responses received per country and per respondent category

| Country | Category 1 | Category 2 | Category 3 | Total Responses |
|-----------------|------------|------------|------------|-------------------|
| Bangladesh | 17 | 7 | 15 | 39 |
| Pakistan | 15 | 14 | 23 | 52 |
| India | 16 | 7 | 18 | 41 |
| Sri Lanka | 14 | 21 | 19 | 54 |
| The Philippines | 19 | 10 | 30 | 59 |
| Thailand | 16 | 17 | 17 | 50 |
| Indonesia | 15 | 15 | 17 | 47 |
| | | | | <u>342</u> |

Our mission

To improve the lives of the people of the emerging Asia-Pacific by facilitating their use of ICTs and related infrastructures; by catalyzing the reform of laws, policies and regulations to enable those uses through the conduct of policy-relevant research, training and advocacy with emphasis on building in-situ expertise