

What regulators can do to facilitate universal service

Universal service funds and least-cost subsidy auctions

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Singapore. 27 February 2007

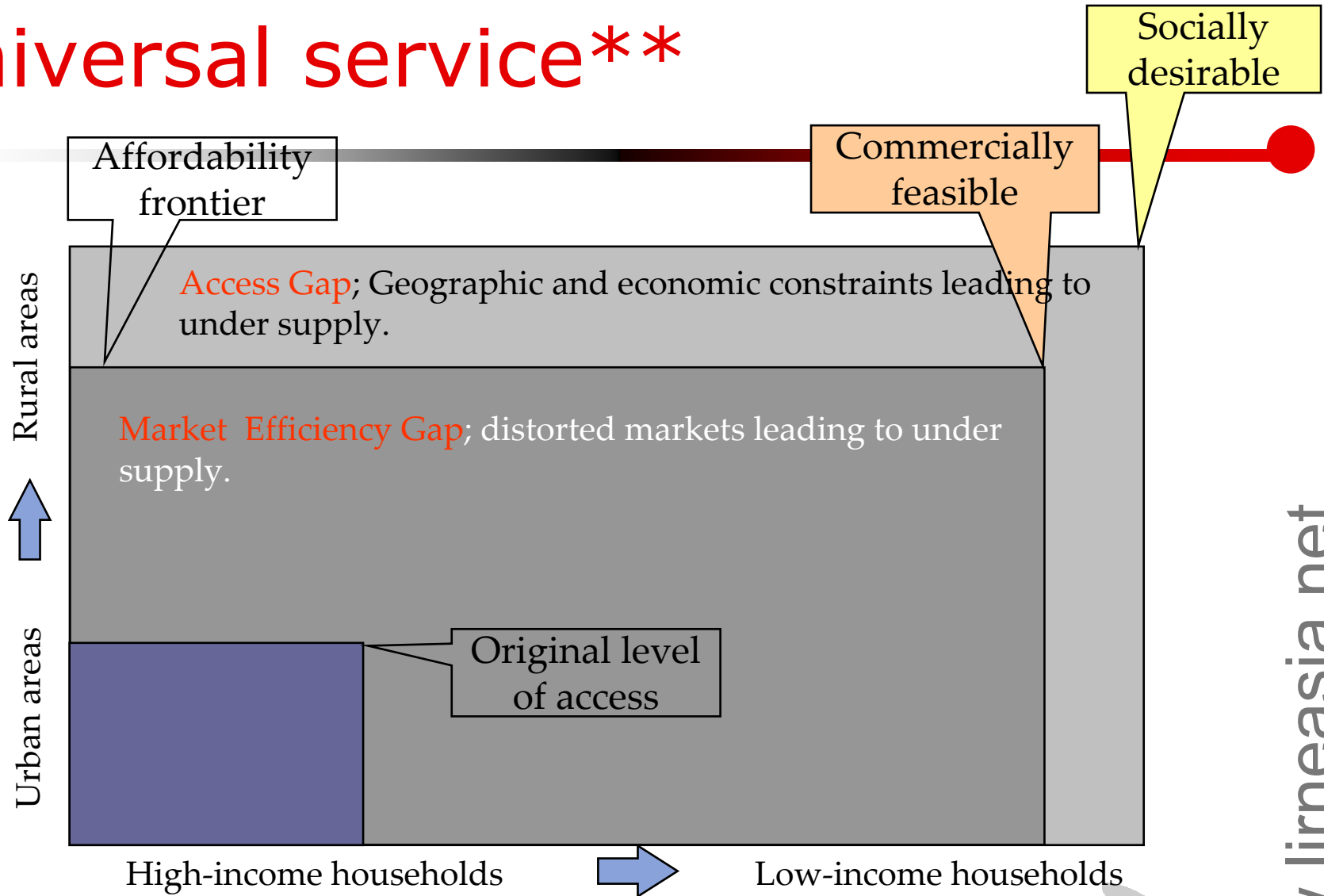


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Universal service**



Agenda

- Theoretically possible to expand to rural and low income areas using **Universal Service Funds via Least Cost Subsidy auctions**
- But, can they be sustained without a proper regulatory framework?
 - Some critical success factors
 - Nepal example
- Brief thoughts on future of universal service



Theory

- To close the market efficiency gap
 - Effective competition
 - Private provision of services
 - Market oriented policies and regulations that create a level playing field, particularly for new entrants.

- To close the access gap
 - Universal service funds: intervention in the form of subsidies to encourage services providers to enter these areas



Theory 2

- Implementation sequence
 - Close market access gap before attempting to close the access gap
 - Level of liberalization; how long should policy makers wait?
- Geographic and socio-economic considerations
 - Size and terrain of country (region)
 - Population densities of the settlements
 - Income level and its distribution



Universal Service Funds

- Number of sources
 - Government budgets
 - Development agencies such as The World Bank (typically seed funding)
 - License fees and spectrum auctions
 - Operator revenue contributions



Fund disbursement

- Beauty contests
 - Determined on a merit-based assessment of the applicant's ability to fulfil a given set of requirements
- Least Cost Subsidy auctions: **Smart Subsidies**
 - *(Usually)* one-time investment subsidy for operators willing to provide service via a competitive bidding process
 - Bidders forced to consider the most cost effective technology and other cost-saving options to bid for the lowest required subsidy



Fund disbursement 2

- Countries with poor governance frameworks
 - “Safer” to use the smart subsidy approach where only one number is evaluated than one that gives significant degree of discretion to the tender board that evaluates the beauty of contestants
 - *“Islands of good governance in an ocean of poor governance” RS*



What have we learnt?



Pioneering efforts in Latin America
and from India

LCS Auctions; Latin American pioneers

Country	Period	Funding	Subsidy/location, USD
Chile	1995-97	Government Budget	2,256
	1998-99		6,919
	2000		12,727
Peru	1998	1% Operator Levy	18,800
	1999		5,700
	2000		12,100
Colombia	1999	GB, OL	4,600
Guatamala	1998	Spectrum Auction	7,587
Dom Rep	2001	2% OL	6,800

LCS Auctions: Success Factors from Latin American pioneers

- Sound regulatory framework; particularly in tariffs and interconnection
- Chile (USD 2,256 per location)
 - Free to set tariffs as long as below ceiling
 - Cost-based asymmetric interconnection regime.
Regulator able to get incumbent to abide by access charge that reflected the higher cost of operating a network in the rural and sparsely populated license territories
 - On average costs 18.7 times more to terminate a call on a rural network than on an urban network (in Chile)
- Peru (USD 18,800 per location)
 - No asymmetric interconnection



LCS Auctions: Success Factors 2

- Identification of license areas and multiple licenses
 - Market research by the regulator to assess demand and provided to all bidders
 - Small license areas and ability to bid for multiple areas to streamline with corporate strategy



LCS Auctions: Success Factors 3

- Competition for market; reduced the subsidy structure
 - Incumbents, whenever permitted, fought to defend their territories from possible new entrants
 - New entrants fought to gain a foothold in the demarcated license territories



LCS Auctions: Success Factors 4

□ Attractive licenses

- Winning bidders could provide additional unregulated services to strengthen their business case
- In addition to the obligated number of public payphones or call offices, most (Regional Telecom Service) providers started provision of services to homes and businesses very early on



LCS Auctions: Success Factors 5

- Technology neutrality (Scope)
 - Freedom to use any technology of choice as long as the quality and service parameters were met
 - A salient feature in almost all LCS auctions in Latin America was the association of the winning bidder with suppliers of specialized rural telecom technology; particularly VSAT
 - While this was a success from the point of implementation, whether it is possible to sustain high cost VSAT networks is a question which is now being raised, several years down the road



LCS Auctions: Success Factors 6

- One-stop process
 - The opportunity provided for the winning bidder to obtain the capital subsidy, the operating license and the radio frequency spectrum from one place at one time
- Competence and leadership
 - Competence, impartiality and leadership of the respective Government officials and consultants who drive the process



Challenges, again from Latin American pioneers

- Low bidding
 - Bid lower than actually required to just get a foothold in a particular territory
 - In some cases in Peru unrealistic bidding (20 percent of available and announced maximum subsidy) identified as the reason for failure to meet roll-out obligations, leave alone sustainability



Challenges 2

- Sustaining competition
 - Either after ensuring a foothold in to a license territory in the case of a new entrant,
 - Or after ensuring new entrants is kept away and the incumbent has defended a territory, the incentive to bid low for further RTS licenses becomes less



Challenges 3

- Operating experience of bidders
 - Most LCS auctions in Latin America were won by newly formed operators with links to rural telecommunication technology (VSAT) providers, as opposed to established large international operators or even incumbents
 - Motivated by creating a new market for their principals' equipment
 - Many lacked adequate knowledge in the business of supplying telecommunications services and the required marketing and support structure



India LCS Auctions

- Massive program
 - 5% of (adjusted) operator revenue
 - Targeting approximately 75% of population
- But
 - Incumbent won 75% of the auctions
 - Slow disbursement
- Regulated rural tariffs
- No asymmetric interconnection
 - But, incumbent won most auctions



Incumbent won 75% of auctions

- Benchmark subsidy rates down to 65 to 70%
- But, why the incumbent heavy result?
 - Discriminatory backbone access regime, incumbent leveraged its vertically integrated status
 - Restricted technology: until recently wire-line and Fixed WLL (mobile only end 2006)
 - Restricted participation to already existing phone companies



Slow disbursement

- USO Levy credited to the 'Consolidated Fund' and then made available after due appropriation from Parliament

In INR billion

Year	Opening	Collected	Disbursed	Ending
2002-03	0	17	3	14
2003-04	14	21	2	33
2004-05	33	35	13	54
2005-06	54	35	18	72
Total		108	36	72



Nepal Example



Why a LCA in Nepal?

- Very low penetration in rural Nepal
 - In 2000, 56% of 3,914 VDC had no telecom services (travel up to 4 days)
 - Incumbent (NTC) unable to address RT issue
- Economy and business climate not conducive for investors to come in unsupported
- Introduce smart subsidy scheme to create a business case for private participation
 - Eastern Development Region; 534 VDC



Design *expectations*

- Affordable telecom services to rural Nepal through private investment
 - EDR: 2 public access lines in each 534 VDC
 - Mandatory Local, NLD and ILD; optional Internet
 - Low license fees (NPR 100,000 for 10 years)
- Technology neutral
 - Wireless or VSAT (or hybrid)
- International competitive bidding
 - Eligibility (operations, finance, local participation)
 - Required subsidy (Maximum available not specified)
- *NTA to regulate NTC*
 - *No discrimination against RTS*



Implementation *expectations*

Milestone	Timeline (from license date)	Rollout obligation	Subsidy payment (percentage of total)
1	6 months	Activation of VSAT network hub station	20
2	6 months	Activation of access lines in 20% of VDCs ^a	20
3	9 months	Activation of access lines in 50% of VDCs ^a	30
4	18 months	Activation of access lines in 100% of VDCs ^a	20
5	24 months	Certification that quality of service standards have been maintained	10

Note: The schedule assumes that the rural service provider uses VSAT technology (as is the case), logical choice for most of the 534 VDCs given the mountainous terrain. If the provider had not used VSAT technology, it would have received subsidy payments according to a different schedule.

^a *Activation* means that the mandatory services are available at the public call offices, as certified by an independent technical consultant.



Sustainability *expectations*

- Will be sustainable over the long term
 - Assumed bidding party had a viable plan
- No limit on expansion
 - First install the specified 534 VDC to collect subsidy; then follow internal business plan
 - Demand will be generated; value added services
- Low fees, levies and taxes
 - Minimum RTS license fee, notional frequency fees, exempt from levies on value added services
- *Conducive political, policy and regulatory environment*
 - *NTA will ensure fair competition*
 - *Maoists wont disrupt operation*



LCA outcome: December 2003

- 1st round Sept 2000 LCA failed; winning bidder pulled out due to deteriorating security situation
 - Issue was not in EDR, but generally across Nepal
- Consultants made the offer more attractive
 - Revised tariffs, speeded up payment, alternate sites if security situation worsened
- 2nd round February 2003 successful
 - VSAT Solution by STM Telecom Sanchar; USD 11.9 m

Indicator	Chile	Colombia	Dominican Republic	Peru	Nepal
Projects	200	6	1	7	1
Average subsidy per locality (thousands of U.S. dollars)	3.6	4.6	6.8	9.5	11.2
Localities served	6,059	7,415	500	4,420	1,068
Population served (millions)	2.2	3.7	1.0	1.6	4.0

Source: World Bank and other sources.

Design; *regulatory issues*

- Were sufficient safeguards taken to counter poor regulatory framework?
 - 5 year exclusivity
 - Exclusivity of 100+ VDC of STM **violated** by NTC in year 1
 - No room for 2 operators in rural VDC
 - Unrealistic retail tariff (original)
 - No local tariffs; only “VSAT tariff”
 - Interconnection (IUC) of 55% of “NTC VSAT tariff” applied on STM (STM agreed, why?)
 - STM: NPR 9/min. vs. Incumbent: NPR 1/for 2 mins.

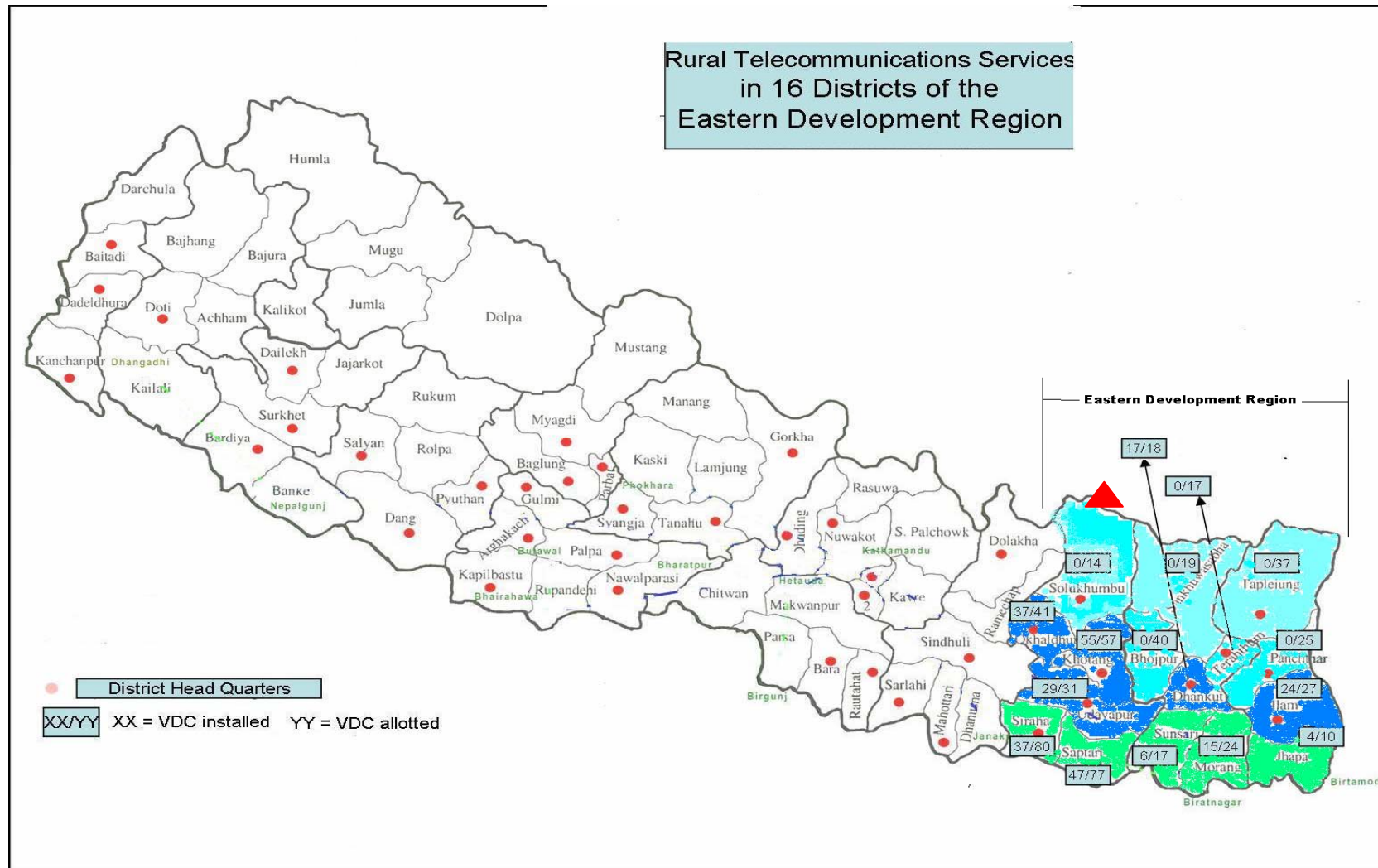


Design; *regulatory issues 2*

- Was keeping coverage to winning bidder's prerogative the right call?
 - STM took the easy route; no service in rugged mountains, less in hills. Basically in flat river plains and hills (least need for VSAT)



Project outcome as at end 2005



Design; *incentive issues*

- Did bidder make right technology choice (from a public perspective)?
 - Why not a hybrid solution including VSAT?
 - RFP details not comprehensive? Did bidder understand EDR Nepal?
 - Lack details on EDR terrain and economic activity
 - No demand forecasts or any other indication of revenue; but initial license envisages sustainability for 10 years
 - STM is a VSAT manufacture



An STM site area in EDR



Implementation; *regulatory issues*

- Overwhelming politico-regulatory problem
 - All 542 sites closed (Feb 05); 25 opened (May 05)
183 open (2006); rest → do not know
 - Allow within 1/2 km from Army post
 - New list from Army entirely different from original (except 16); overlapping with NTC areas



Implementation; *regulatory issues 2*

- Failure in enforcing service availability and quality
 - Licensee required to maintain service everyday at least 8 hours
 - But, no proper monitoring



Sustainability; *regulatory issues*

- Poor regulatory environment is grinding programme to a halt
 - Exclusivity condition continually violated
 - Interconnection issues not solved
 - Original IUC NPR 4.95 (call NPR 9.00); later brought down to NPR 2.75 (call NPR 3.00); 18 times vs. 6 times
 - July-Aug 05 for 174 sites, avg min. of use/day → 0.36
 - losses
 - ISD license not granted; due Jan 1 2004; STM not paying license fee? (*Granted late 2005*)



Justifiable?



Sustainability; *regulatory issues 2*

- NTC expansion
 - 1m CDMA phones in 5 years including EDR; signal will cover almost all VDC in Tarai, many areas of Hills at much lower tariff
- Restriction to expand services
 - Unless all VDC served; no value add services



Did the regulator do the right things?

Revisit Latin America

- Sound regulatory framework
 - Free to set tariffs below 'affordable' ceiling
 - Asymmetric interconnection
 - No unfair competition (exclusivity violations)
- License area identification
 - "Bottom up approach": Market research to identify demand
- Competition for market
- Attractive license
 - Provision of additional unregulated services
- Technology neutrality
 - VSAT



Did the regulator do the right things?

Revisit Latin America 2

- Low bidding
 - Unsustainable bidding to get foothold
- Sustaining competition
- Operating experience of bidders
 - New markets for VSAT operators?



Where from here?



What can regulators do to facilitate
universal service in time to come?

some thoughts

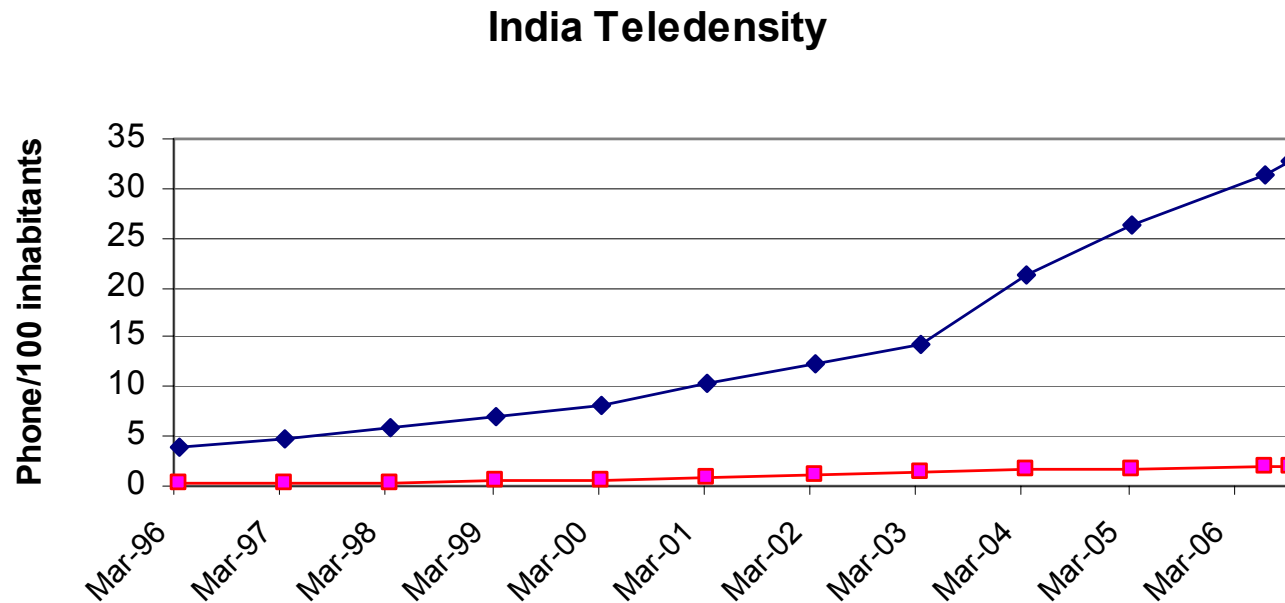
Future of USO?

- Scope?
 - Basic telephony or broadband?
 - Singapore: Wireless@SG programme
- Technology
 - New Generation Networks (NGN)
 - Wi-Fi in mesh networks coupled with VSAT
 - Wi-Max
 - Pilots from Peru to Sri Lanka
- Who gets subsidy?
 - NGOs? Niche Operators? Village entrepreneurs?



Future of USO 2?

- Sequencing and sector reform
 - Liberalization and competition has driven growth far more than USO
 - India



Future of USO 3?

- Regulatory specific issues
 - Spectrum for license-free use; Wi-Fi, WiMAX etc.
 - Rural spectrum licensing?
 - Regional licensing; Nepal EDR, Sri Lanka DS, NE
 - Asymmetric interconnection
 - Complex with move to mobile and NGN
 - Tariff regulation
 - Higher cost of rural connectivity to be reflected in tariffs, but affordability; continued 'smart subsidies'



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Thank you.

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