Telecom & Information Services for the Poor: Towards a Strategy for Universal Access

Focus: The Two Gaps - Market and Access

Universal Access & Rural Connectivity

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Presentation components

⭐ Introduction to universal access two gap model

🌟 Consideration of implications for Universal Access funding / subsidy requirements

⚠️ International experience to date and projections for future rural telecom development
Insights based on

- Projects in rural telecommunications in many developing countries
  - Uganda, Tanzania, Malawi, S. Africa, Botswana, Morocco
  - India, Nepal, Thailand, Malaysia, Philippines
  - Peru, Brazil, Paraguay, Ecuador, Mexico, Venezuela, Argentina

- Study of strategies pursued by other countries
  - Two major World Bank published reports

- Recent technical assistance with UCC Uganda on the establishment of the RCDF and with CCK Kenya on UA policy & funding development
Issues today

- US / UA is achieved through a combination of market/regulatory measures and a funding mechanism

- Regarding markets & regulation
  - What is the theoretical limit of the market place?
  - How to get there and enable operators to service poor and rural areas successfully and viably?

- Regarding subsidies
  - How to minimise the subsidies & use resources efficiently
  - How to leverage private investment
  - How to simplify the process
  - How to make them ‘smart’ - i.e. to kick-start and kick-off, not create subsidy dependency.
Universal access is ..... 

- a strategic policy to meet minimum needs and demand for private and public access
- offering people the right to spend a proportion of their income on communicating, saving them costs elsewhere and improving their productivity
- enabling operators who wish to serve challenging areas and people groups to do so commercially, so that service will be good quality & market responsive
  - economic benefits only come from services that work and sustain themselves
- blending incentive with obligations in regional and rural license formulation
In 2002, how much do people spend?

- Traditionally, economic value translates into a telecom market of 1-3% of total community income
  - fixed network 1990’s model
  - mobile is offering us a new 2002 model

- There’s evidence from Uganda, Kenya and elsewhere that people value mobile communications even more highly
  - telecom services are essential to social and economic life in low income areas
  - this is sometimes evident in high expenditures - “we can afford”
  - …. and financed by the beer and soft drinks industry!
Universal access in practice

- Institutions & businesses who can afford to pay have access to private service
- Public telephone services available to the general population, *in their vicinity*, for the price of a call
- Choice of fixed and mobile payphones, phone shops and kiosks to offer populations choice within geographical range
- New tele-access businesses (phone & ICT) encouraged to emerge to serve demands
  - Maximise role of the private sector in public service provision
  - Leverage the policy to meet private demand and social targets
Dimensions of the UA issue
Both targets and policies have two dimensions

- Two Digital divides, between
  - rich vs. poor
  - urban vs. rural

- Or …. Two dimensions of the same divide
  - relative poverty (both urban and rural)
  - relative isolation (rural only)

- Two gaps & two types of policy solution
  - the market efficiency gap
  - the access gap
Dimensions applied to the network

- Poverty
- Geographic isolation

- Access today
- Customer household penetration
- Access targets
- Market efficiency gap
- Real access gap
- Needs intervention
- Commercially feasible

Poverty - Geographic isolation
Market efficiency gap

- The gap between what an imperfect market achieves in terms of reach and what a perfectly liberalised market would achieve.

- Features of an efficient market operating under liberalised conditions, with ‘barriers to entry’ removed:
  - Privatised incumbent plus private sector competition
  - Level playing field for all participants
  - Fair interconnection & cost-cased tariffs

- Actual market reach different for each country:
  - ‘Country challenge’ factor
The real access gap

- People, communities and areas that cannot be reached by the market without intervention by government/regulator
- Services that cannot be supplied without a ‘smart’ intervention
- Needs special strategy, finance and incentive
  - universal access fund or rural telecom development fund
  - other forms of subsidy or incentive
Addressing the market efficiency gap

*Interconnection* is one key

- Open and fair
- Directed by regulator, not left to incumbent
- Cost-based network access charges (call termination fees) for rural operators
- [Already exists in fixed-mobile interconnection]
- Two methods of payment
  - Organised revenue pool *(too complex)*
  - Caller pays higher tariff to call rural areas
Advantages of asymmetric interconnection

- greater viability for rural operators
- rural development supported by urban to rural calls and affordability of urban ‘relatives’ is higher
- potential to develop incoming call termination market
  - operators will be able to make majority of revenues from incoming calls
  - payphone retailer share to incentivise use of phone for incoming calls
  - increase the manned payphone market and increase competition on retail mark-up
  - [for insight, look at the mobile incoming call market]
- reduction of both the market efficiency and access gaps
The special interconnect applied to payphone kiosk retailers in Uganda

- Originating operator pays the terminating (rural operator) a higher termination fee
- Terminating operator in turn pays the kiosk operator, say one third of its share
- If the originating and terminating operator are the same, it still pays the kiosk the full share
- For technical & customer service reasons, rural area operators may need their own area code
### Assymetric interconnection in play

Chile access charge rates (US cents per minute)

<table>
<thead>
<tr>
<th>Company</th>
<th>Localities</th>
<th>Peak</th>
<th>Off-peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTC-national</td>
<td>All</td>
<td>1.0</td>
<td>0.2</td>
</tr>
<tr>
<td>CNT-regional</td>
<td>Cities</td>
<td>1.5-2.4</td>
<td>0.3-0.4</td>
</tr>
<tr>
<td></td>
<td>Towns</td>
<td>3.1</td>
<td>0.4</td>
</tr>
<tr>
<td></td>
<td>Rural areas</td>
<td>7.2</td>
<td>1.2</td>
</tr>
<tr>
<td>Rural operator</td>
<td>All</td>
<td>18.7</td>
<td>9.3</td>
</tr>
<tr>
<td>Mobile operators</td>
<td>All</td>
<td>21.1</td>
<td>14.8</td>
</tr>
</tbody>
</table>

*Source:* Tariff decree of 1999 and CTR data for July 2001

Colombia and Peru coming onstream
Where does the market gap end?
Technology only one aspect

- Low density area:
  - Wireless & cellular
  - Normal wire

- High density area:
  - Multi-access radio
  - Wireless add-on to multi-access radio and satellite

Distance from centres
The country challenges
The “geo-economic” factors

- GDP & income distribution
  - per capita income only one barrier
  - Gini index - economic disparity - higher index yields a higher divide
  - income disparity often reflects largely the urban/rural divide (not always)

- Geographic size & population density
  - larger area usually means more challenge for rural telecoms
  - lower population density

- Land type - ratio of total arable & crop land to total
  - lower ratio means more mountains and hostile features
  - less even population distribution is a greater challenge
Geo-economic factors
MTN’s recent network reach (Uganda)

- MTN present with mobile service in approx. 290 sub-counties (330 by mid 2001)
- MTN has the potential to serve about 600-700 sub-counties (Out of 800+) with fixed payphone service by Mid 2002
- Of these, 200+ served with ‘rural fixed package’ solutions
- 150 sub-counties have little chance of being covered by 2003 These are the real access gap.
The poorest served areas are defined by population density.
Geographic challenge

Remote & challenging areas

Significant regional variations

Uniform & small country

Degree of liberalization in basic service

National monopoly
Partial liberalisation
Full competition
## Financing options for the access gap

<table>
<thead>
<tr>
<th>Country challenge</th>
<th>Remote &amp; challenging areas</th>
<th>Significant regional variations</th>
<th>Uniform &amp; small country</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Monopoly</strong></td>
<td>Monopoly cross-subsidises costly rural areas &amp; low income users</td>
<td>Cross-subsidies and/or Special US/UA fund if some license areas (e.g. of smaller operators) are higher cost</td>
<td>Market meets most needs US/UA fund to address access gap for challenging areas</td>
</tr>
<tr>
<td><strong>As above</strong></td>
<td>As above for for low income users</td>
<td>As above</td>
<td>As above US/UA fund to address access gap for low income users</td>
</tr>
</tbody>
</table>

### Degree of liberalisation in basic service

- **National monopoly**
- **Partial liberalisation**
- **Full competition**
Extending market, reducing subsidy
most significant incentives for rural areas

- Special finance/rural development fund
  - well proven to attract bidders - e.g. in Chile, Peru, Colombia, Guatemala, Dominican Republic
  - most successful if the licenses offer attractive incentives, e.g. long term access to radio frequencies

- Access to LD & int’l & Interconnect: fair/favorable share of orig. & incoming revenues for local operator
  - single most important factor in liberalising markets

- Equity or non-recourse debt by large institution
  - E.g. IFC participation
  - common in cellular but no precedent yet for rural
## Fund experience to date

<table>
<thead>
<tr>
<th>Country</th>
<th>Source of Finance</th>
<th>Period</th>
<th>Localities served</th>
<th>Max subsidy available (US$M)</th>
<th>Subsidy given (US$M)</th>
<th>Subsidy per locality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chile</td>
<td>Government budget</td>
<td>1995-97</td>
<td>4,504</td>
<td>24.2</td>
<td>10.2</td>
<td>2,256</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1998-99</td>
<td>1,412</td>
<td>14.4</td>
<td>9.8</td>
<td>6,919</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2000</td>
<td>143</td>
<td>1.9</td>
<td>1.8</td>
<td>12,727</td>
</tr>
<tr>
<td>Peru</td>
<td>1% Operator levy</td>
<td>1998</td>
<td>213</td>
<td>4.0</td>
<td>1.7</td>
<td>18,800</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1999</td>
<td>1,937</td>
<td>50.0</td>
<td>11.0</td>
<td>5,700</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2000 (1)</td>
<td>2,290</td>
<td>59.5</td>
<td>27.8</td>
<td>12,100</td>
</tr>
<tr>
<td>Colombia</td>
<td>Operator levy &amp; Gov’t contribution</td>
<td>1999</td>
<td>6,865</td>
<td>70.6</td>
<td>31.8</td>
<td>4,600</td>
</tr>
<tr>
<td>Guatemala</td>
<td>Spectrum auctions</td>
<td>1998</td>
<td>202</td>
<td>N/A</td>
<td>1.5</td>
<td>7,587</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1999 (2)</td>
<td>1,051</td>
<td>N/A</td>
<td>4.5</td>
<td>4,282</td>
</tr>
<tr>
<td>Dom. Rep.</td>
<td>2% Operator levy</td>
<td>2001</td>
<td>500</td>
<td>3.8</td>
<td>3.4</td>
<td>6,800</td>
</tr>
</tbody>
</table>

**Notes:**
1. Implementation delay due to subsidy winner disqualified & subsidies awarded to second bidders.
2. Actual fund disbursements, excluding subsidies won but network not implemented due to operator failure.
Reasons for success
The Latin American experience

- Well-designed competitive mechanisms
  ➣ ‘competitive reverse auction’
- Multiple licensing, attractive licenses, one-stop shop for licensing & radio frequencies
- Supplier market interest to gain markets
  ➣ most successful bidders associated with suppliers
- Good market & demand data preparation
- Regulatory support
  ➣ tariff flexibility - “better at cost than no service at all”
  ➣ asymmetric interconnect - Chile, Colombia, Peru
Risks and Challenges

- Sustaining competition
  - first bids often the most strategic and competitive
  - less strategic & later bids were less competitive

- Problem of the least viable/ more marginal localities
  - often the most remote - VSAT sites

- Under-bidding
  - need more business planning & discipline

- Operational inexperience of the bidders
  - especially with marketing, optimisation & customer service

- The deteriorating financial markets
  - needs ‘senior institution’ commitment
Trends

Advance of mobile
- fewer geographic areas needing intervention or support
- US /UA features
- Funds can focus on the remaining ‘access gap’

New frontiers, advanced ICTs
- not necessarily served by mobile infrastructure, also needs support, but
- important not to distort an emerging market
- focus on enabling policy & access
- support e-Government & other applications to create demand for telecentres
In summary

- Reduce the market efficiency gap *as a first priority*
- Asymmetric interconnection and tariffs bridge the market efficiency gap and reduce subsidy needs in the access gap
- UA Funds should focus first on access to infrastructure services
- Mobile operators should contribute *and* be eligible for funds
- ICT advanced services can be added incrementally to working telecom retail outlets, *or* be started under various modalities, but few are at the take-off stage without prolonged support and subsidy - sustainability issue to be discussed.
Thank you

Q & A

Discussion
intelecon
opening telecommunications opportunities

thank you

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