

# Regulatory Policy to promote Rural Connectivity

**Cape Town, August, 2004**

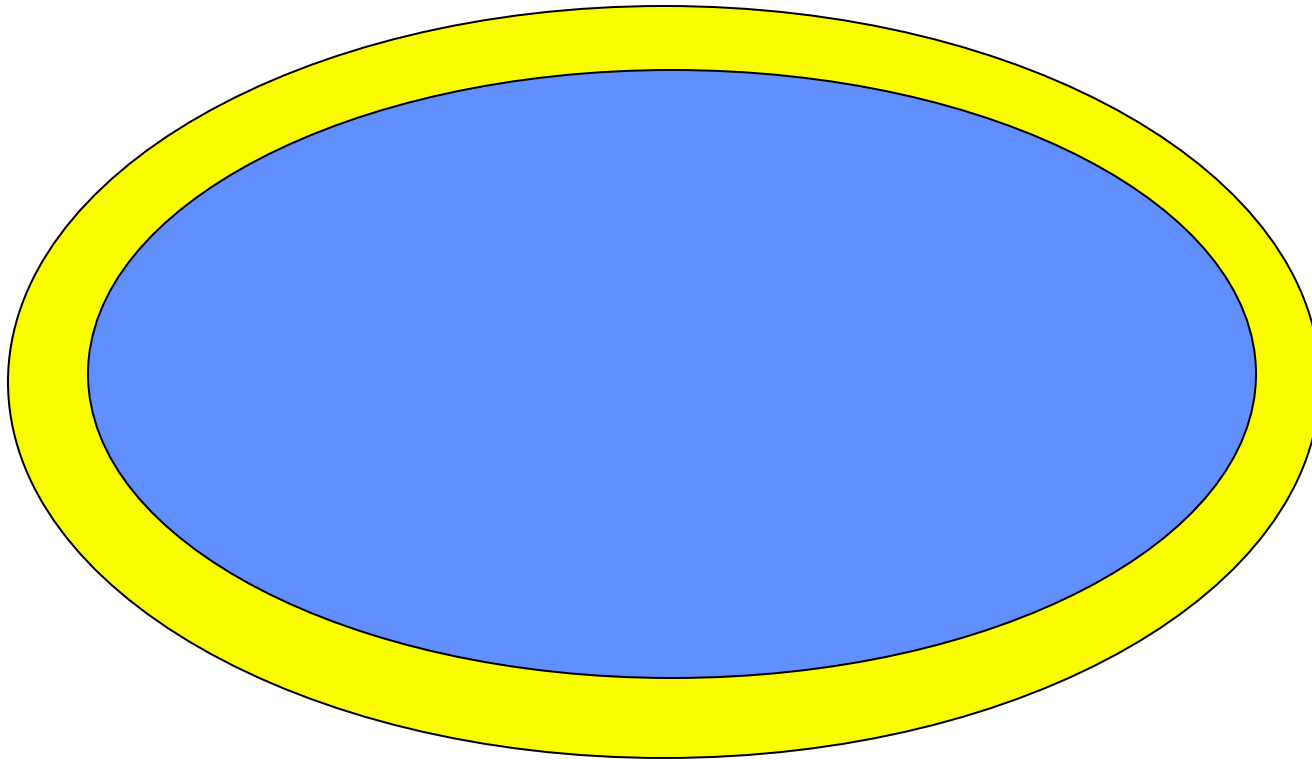
**Paul NOUMBA UM  
PPPI / WBI  
World Bank**

# Overview

- An overview of the rural access problem
- Affordability and urban rural disparities
- The case of Chile

# *An overview of the access problem*

**...and on whom we should now focus...**



**“Three billion people live on less than \$2 per day”**

James D. Wolfensohn  
President, World Bank

**“Four billion people have never made a telephone call”**

Pekka Tarjanne  
Former Secretary General, ITU

**Most of these live in rural areas**

# ...because communications affects all areas of rural life

Education

Less isolation in remote and poor areas

Health

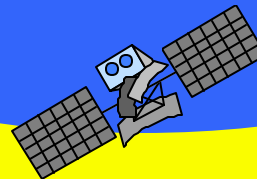
Telecommunications Infrastructure

Financial sector

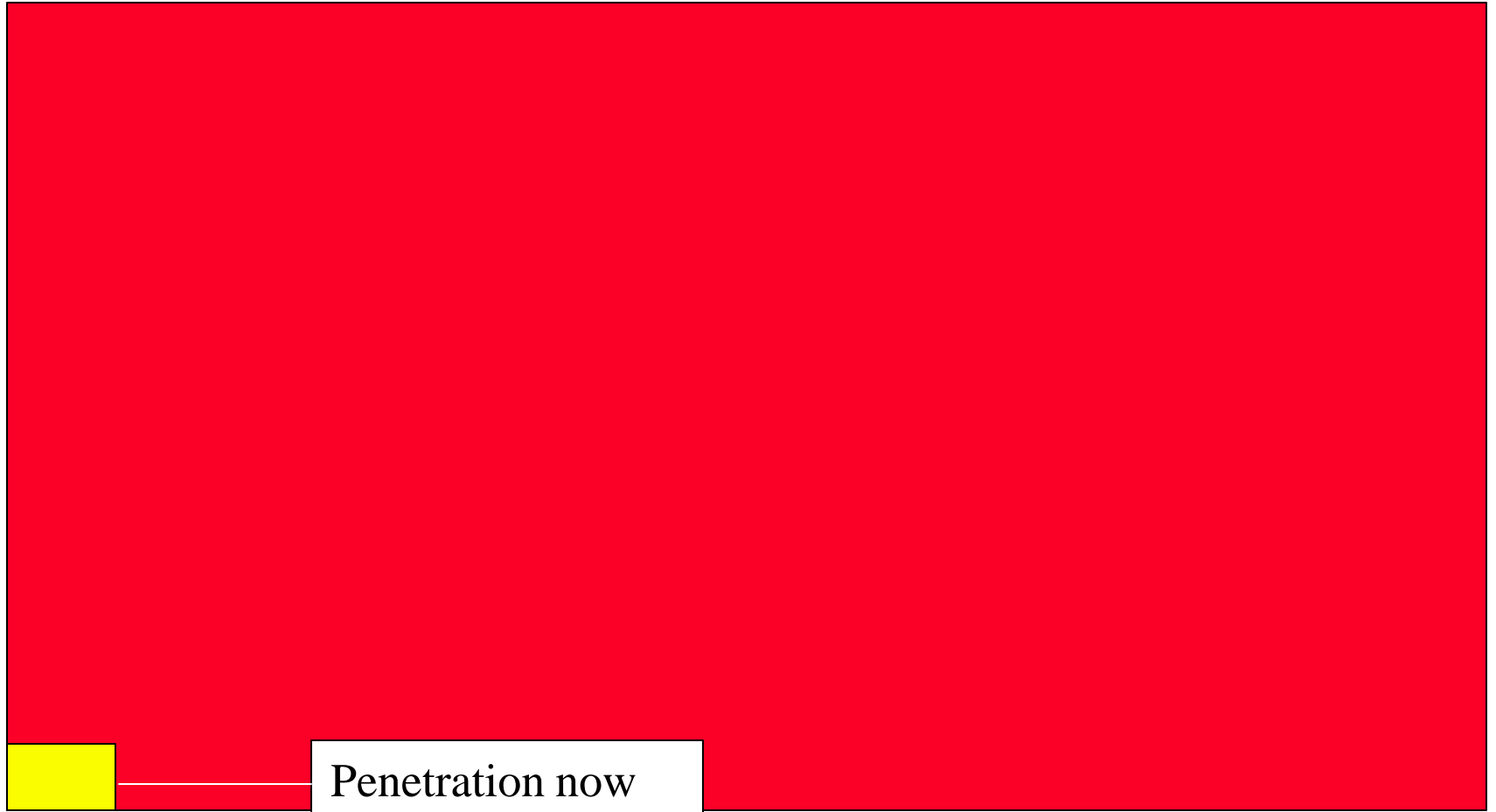
Government services

Environmental and natural resource management

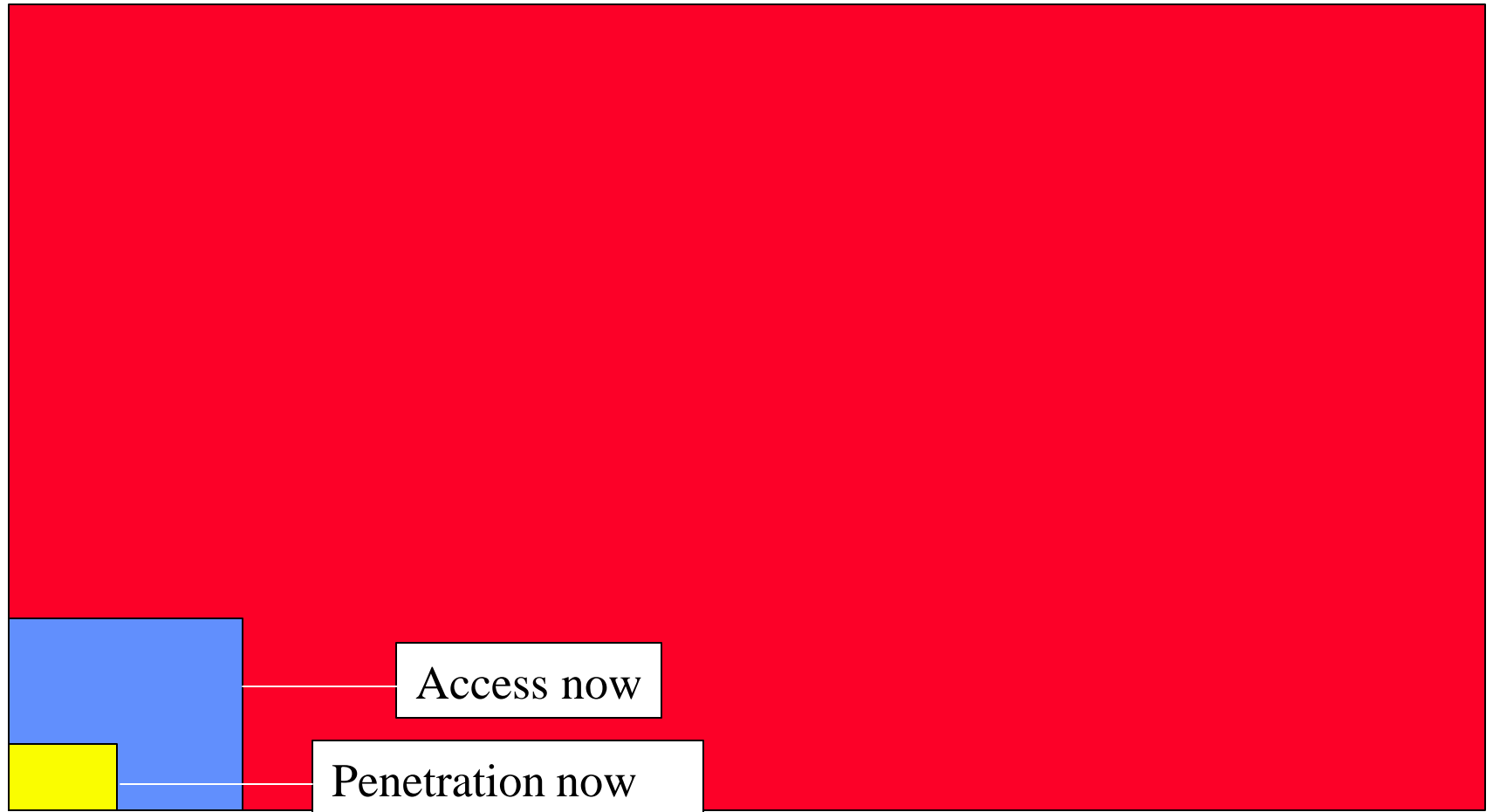
Business connectivity



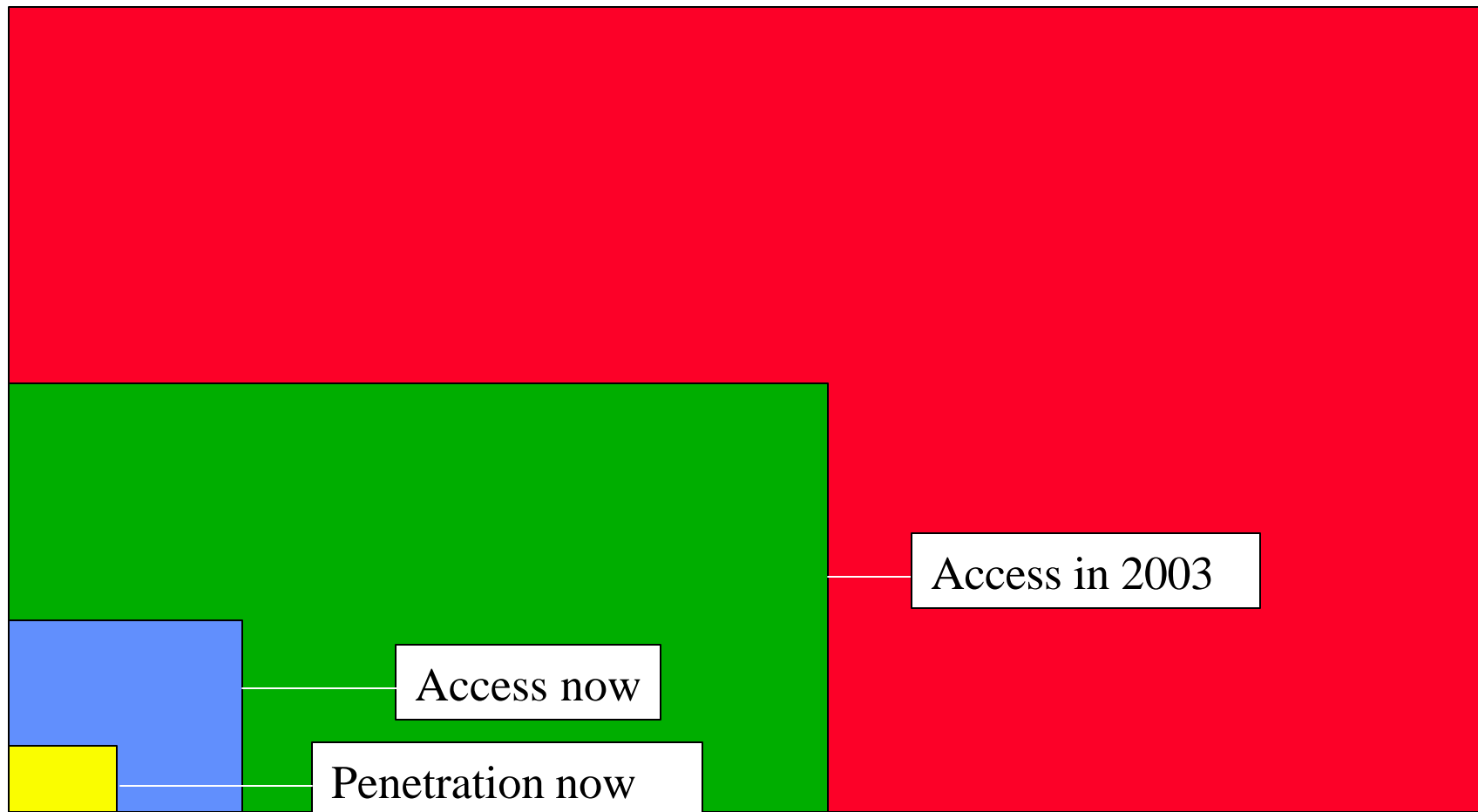
# Closing the Access Gap in SSA



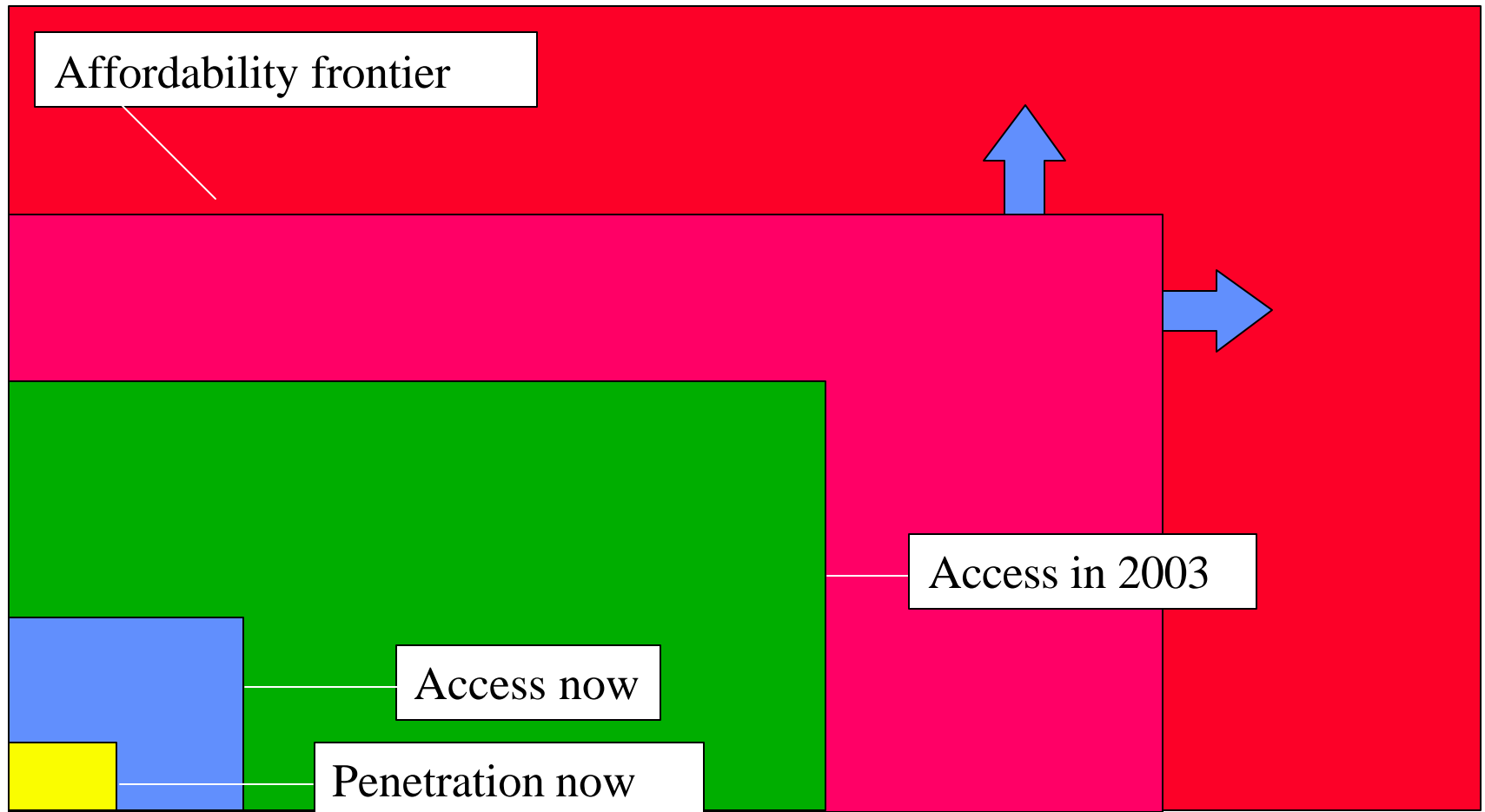
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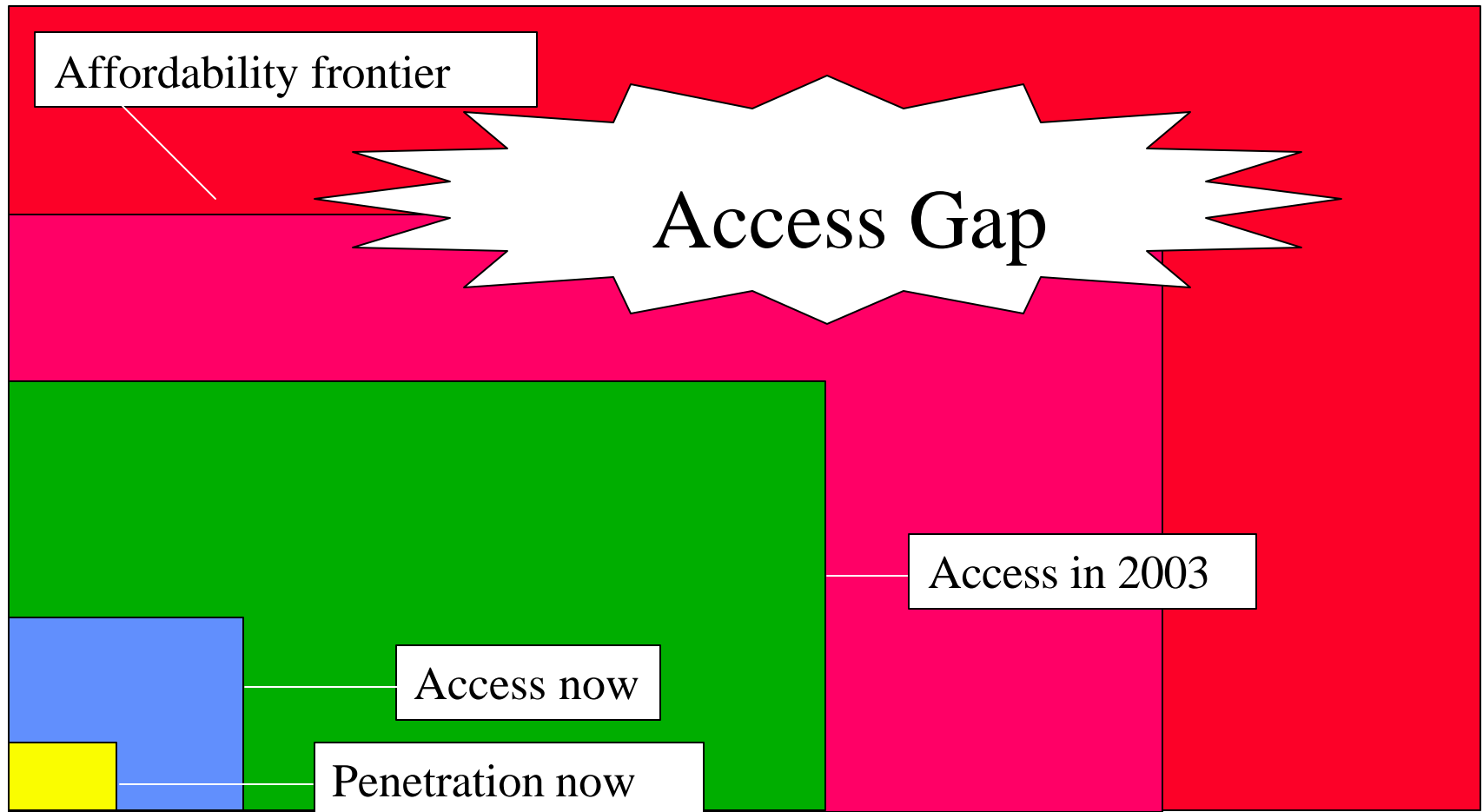
# Closing the Access Gap in SSA



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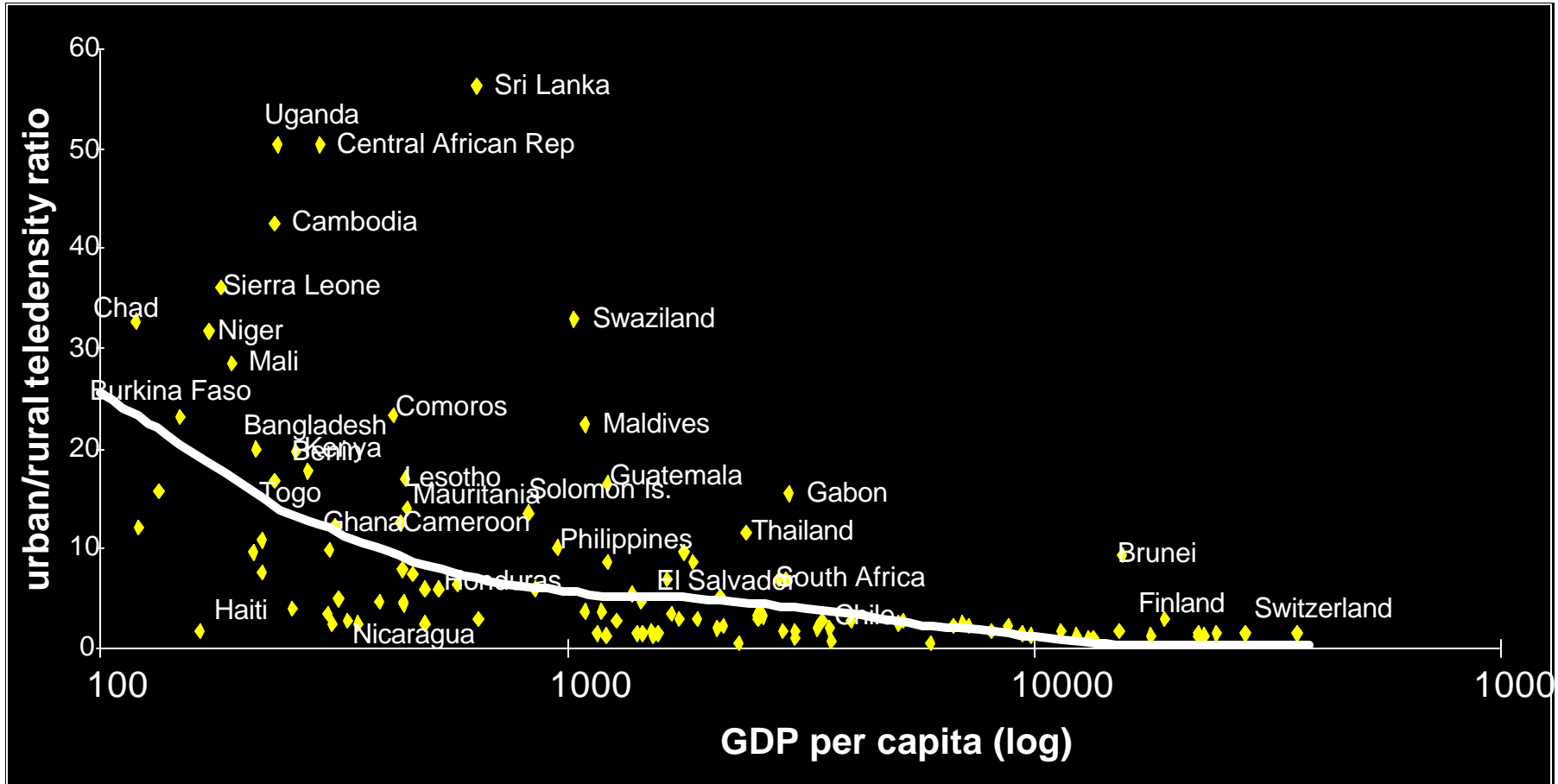
# Affordability and urban rural disparities



**...including in rural areas...**

	<b>% GDP</b>	
	<b>Whole country</b>	<b>Rural</b>
<b>Malaysia</b>	<b>2.3</b>	<b>1.3</b>
<b>Tanzania</b>	<b>2.1</b>	<b>1.9</b>
<b>Botswana</b>	<b>1.6</b>	<b>1.3</b>
<b>Peru</b>	<b>1.2</b>	<b>1.5</b>

# ...but wide urban/rural disparities remain



# The case of Chile

Source : Bjorn Wellenius (2002), Closing the gap in access to rural communications, World Bank Discussion Paper No. 430, 66 pages.

# Telecom sector development in Chile

**Table 1. Telecommunications Sector Development in Chile, 1988–2000**

	<i>1988</i> <i>Privatization</i>	<i>1994</i> <i>Full Competition</i>	<i>2000</i> <i>Maturing Market</i>
Telephone main lines (million)	0.6	1.6	3.2
Mobile customers (million)	0.0	0.1	2.8
Total connections (million)	0.6	1.7	6.0
Per 100 inhabitants	5	11	39
Outstanding applications (years)	7	0.7	<0.1
Telephone digitalization (% lines)	38	100	100
Telephone main lines per employee	74	208	223 <sup>a</sup>
Households with telephone (%)	16	40	74

<sup>a</sup> ITU figure for 1999. Actual for 2000 is likely to be higher.

*Sources:* Compiled by the author from data provided by CTC, ITU, and Alfa Centauro. Figures for 2000 are provisional. Figures for households with telephone are estimates.

## ...but subsidies needed to serve all...

- Provide first public telephone in each rural locality
- One-time subsidy to catalyze private investment
- Small fund, limited duration
- Funded by central government
- Survey identifies needs
- Analysis: project boundaries, priorities
- Competition: license awarded to lowest subsidy bid

## ...through a carefully designed fund...

- 10 year service, 24 hour access
- Tariff is free, subject to fixed maximum: \$0.07/min
- Non-exclusive license
- Additional services included in license
- Project design left to licensee
- Firm implementation deadlines: 6-20 months
- Standard interconnection, technical rules

## ...which achieved spectacular results

- Competition reduces State funding dramatically
  - US\$ 1,600 vs US\$ 20,000 per payphone
- Subsidies give tremendous leverage
  - US\$ 2.1m subsidies mobilized US\$40 m private investment
- Small subsidies suffice to narrow development gap
  - Less than 0.5 % of total telecommunications revenues
- Market forces determine subsidy needed
  - Value of clear, transparent processes

# Smart Subsidy Auctions

**Table 2. Seven Rounds of Tenders  
for Rural Telecommunications Projects, 1995–2000**

	1995	1996	1997 <sup>a</sup>	1998	1999	2000	Total
Localities							
Tendered	1,286	2,463	2,176	1,023	725	177	—
Bid	1,106	1,632	2,146	858	554	143	6,439
Awarded	726 <sup>b</sup>	1,632	2,146	858	554	143	6,059
Population of localities awarded (million)	0.24	0.76	0.77	0.23	0.15	0.04	2.2
Total subsidies awarded (US\$ million)	2.01	0.87	7.28	5.19	4.58	1.82	21.8

<sup>a</sup> Figures are for two tenders carried out in 1997.

<sup>b</sup> Bids for eight projects comprising 380 localities with 0.22m inhabitants were not awarded for lack of a rule to resolve ties at zero subsidy. These localities were subsequently connected by one of the bidders (CTC) as extension of its main operating license.

Sources: SUBTEL, *Fondo de Desarrollo de las Telecomunicaciones: Memoria 1999* and results announced for 2000.

# Financing of Rural Investment

**Table 3. Financing of Rural Investment, 1995–2000 (US\$ million)**

<i>Service</i>	<i>Source</i>		<i>Total</i>
	<i>Private</i>	<i>Subsidy</i>	
Payphones	30	22	52
Additional services	109	0	109
Total	139	22	161

*Source:* See Table 7.

# Subsidies Awarded

**Table 4. Subsidy Awarded per Locality and per Inhabitant**

<i>Licensing Round</i>	<i>Population without Payphones (%)</i>		<i>Subsidy per Locality (US\$)</i>	<i>Subsidy per Inhabitant (US\$)</i>
	<i>Before</i>	<i>After</i>		
1995 and 1996	15	9	1,220	3
1997 (two rounds)	9	4	3,390	10
1998	4	2	6,320	23
1999	2	1.3	8,270	31
2000	1.3	1	12,730	45
Total 1995–2000	15	1	3,600	10

*Source:* SUBTEL, *Fondo de Desarrollo de las Telecomunicaciones: Memoria 1999* and results announced for 2000.

# Scope of rural projects

**Table 5. Outgoing Payphone Calls per Month, per Inhabitant**

<i>Population of Locality</i>	<i>Number of Calls</i>
<150	2.2
200	1.7
300	1.2
400	1.0
500	0.8
700	0.6
1,000	0.5

Source: Universidad de Chile, 1998.

**Table 6. Companies Providing Rural Services Supported by the Fund, 2001**

<i>Company</i>	<i>Percentage of Rural<sup>a</sup></i>	
	<i>Payphones</i>	<i>All Phone Lines</i>
CTR	32	73
CTC	31	20
GVT	29	6
Megacom	5	1
Geneva	3	<1

<sup>a</sup> Payphones committed with the Fund to be installed until 2002. Other lines as estimated by the companies by end 2000.

Sources: SUBTEL, *Fondo de Desarrollo de las Telecomunicaciones: Memoria 1999*, results announced for 2000, and company information.

# Investments mobilized

**Table 7. Investments Mobilized by the Fund, 1995–2000**

<i>Investments</i>	<i>CTC</i>	<i>CTR</i>	<i>Geneva</i>	<i>GVT</i>	<i>Megucom</i>	<i>Total</i>
Total investment (US\$ million)	43	101	2	9.5	5	160.5
Of which in subsidized payphones (US\$ million) <sup>a</sup>	19.1	16.1	2	9.5	5	51.7
Of which Fund subsidy (US\$ million)	5.9	4.9	0.4	7.2	3.4	21.8
Total lines in operation <sup>b</sup>	6,000	22,500	156	1,737	303	30,696
Of which subsidized payphones <sup>c</sup>	1,892	1,971	156 <sup>d</sup>	1,737	303	6,059
Average investment per line (US\$)	7,200	4,500	12,800	5,500	16,500	5,300
Average investment per subsidized payphone (US\$)	10,100	8,200	12,800	5,500	16,500	8,200
Average private investment per US\$ of subsidy (US\$)	6.2	20	4.0	0.3	0.5	6.4

<sup>a</sup> CTC and CTR: Universidad de Chile estimates for 1995–98, plus additional payphones committed in 1999 and 2000 times each company's average investment per payphone in 1995–98. Total investment figures of other companies are fully attributed to payphones.

<sup>b</sup> Expected by the end of 2000, plus payphones committed to be installed in 2001 and 2002.

<sup>c</sup> One subsidized payphone per locality. Includes localities to be connected in 2001 and 2002

<sup>d</sup> Of which 120 have been sold to CTR and 19 transferred to NATRANS, a new local telephone entrant in La Serena, Quintero, and Peñaflores that did not bid for subsidized payphones.

*Note:* Investments and subsidies are in equivalent current US dollars of each year.

*Sources:* SUBTEL, *Fondo de Desarrollo de las Telecomunicaciones: Memoria 1999* and results announced for 2000. Universidad de Chile 1999. Information from companies and consultants.

# Subsidies disbursed

**Table 8. Subsidy Bid as Percentage of Available Subsidy**

<i>Licensing Round</i>	<i>Subsidy Available per Allocated Locality (US\$)</i>	<i>Subsidy Awarded per Locality (US\$)</i>	<i>Subsidy Awarded as % of Available</i>
1995 and 1996	3,000	1,220	41
1997 (two rounds)	8,520	3,390	40
1998	10,150	6,320	62
1999	10,340	8,270	80
2000	13,400	12,730	95

*Source:* SUBTEL, *Fondo de Desarrollo de las Telecomunicaciones: Memoria 1999* and results announced for 2000.

# Interconnection charges

**Table 9. Access Charges for Different Companies, 2001**

<i>Company</i>	<i>Localities</i>	<i>Charge</i> <i>(US cents/minute)</i>	
		<i>Peak</i>	<i>Off-Peak</i>
CTC – national	All	1.0	0.2
CNT - regional	Cities	1.5–2.4	0.3–0.4
	Towns	3.1	0.4
	Rural areas	7.2	1.2
Rural only	All	18.7	9.3
Mobile	All	21.1	14.8

*Note:* Pesos converted to U.S. dollars at the rate of US\$1=Ch\$600.

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

# Roll-out obligations

**Table 10. Committed and Installed Rural Payphones, 1997–2002**

	<i>Total Rural Payphones in Service by Year End</i>					
	<i>1997</i>	<i>1998</i>	<i>1999</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>
Committed	265	1,816	4,390	5,403	5,916	6,093
Installed	149	1,159	4,423 <sup>a</sup>	5,436		
Installed, as % of committed	56	64	101	99		

<sup>a</sup> Includes 241 payphones or 24 percent of the number committed for 2000 that were installed in 1999 ahead of time.

*Sources:* SUBTEL, *Fondo de Desarrollo de las Telecomunicaciones: Memoria 1999*, results from 2000 round, and online statistics as of January 2001.

# Success Factors (1)

- Reliance on Market forces
  - Bottom-up identification of demand – effective participatory approach
  - Competition for the market
  - Subsidies allocated through competitive and transparent bidding
- Minimal but effective Regulation
  - Freedom of business and technical choice
  - Attractive licenses (options to offer VAS)
  - Limited price control (Price cap)
  - Cost effective Access Charges

# Success Factors (2)

- Simple and Relatively Fast Processing
  - One stop process (Rural Fund..)
  - Recurrence and learning by doing (seven tenders organized)
- Competence and leadership
  - Effective and sustained leadership by Sr Govt Officials
  - Competent and dedicated staff to run the program

Figure 1: Spread of model of competition for subsidy

