



Telecom Regulatory  
Authority of India

**Study Paper No. 2/2005**

**Study Paper on**

**‘Indicators for Telecom Growth’**

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Part I : Past performance and targets

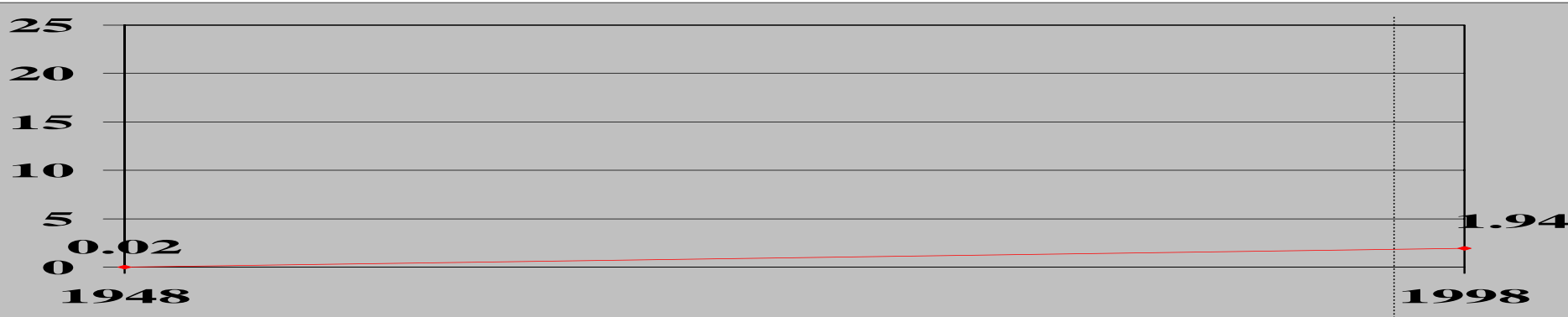
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# Part I

## Past Performance and Targets

### Tele-density Growth – Pre-reform

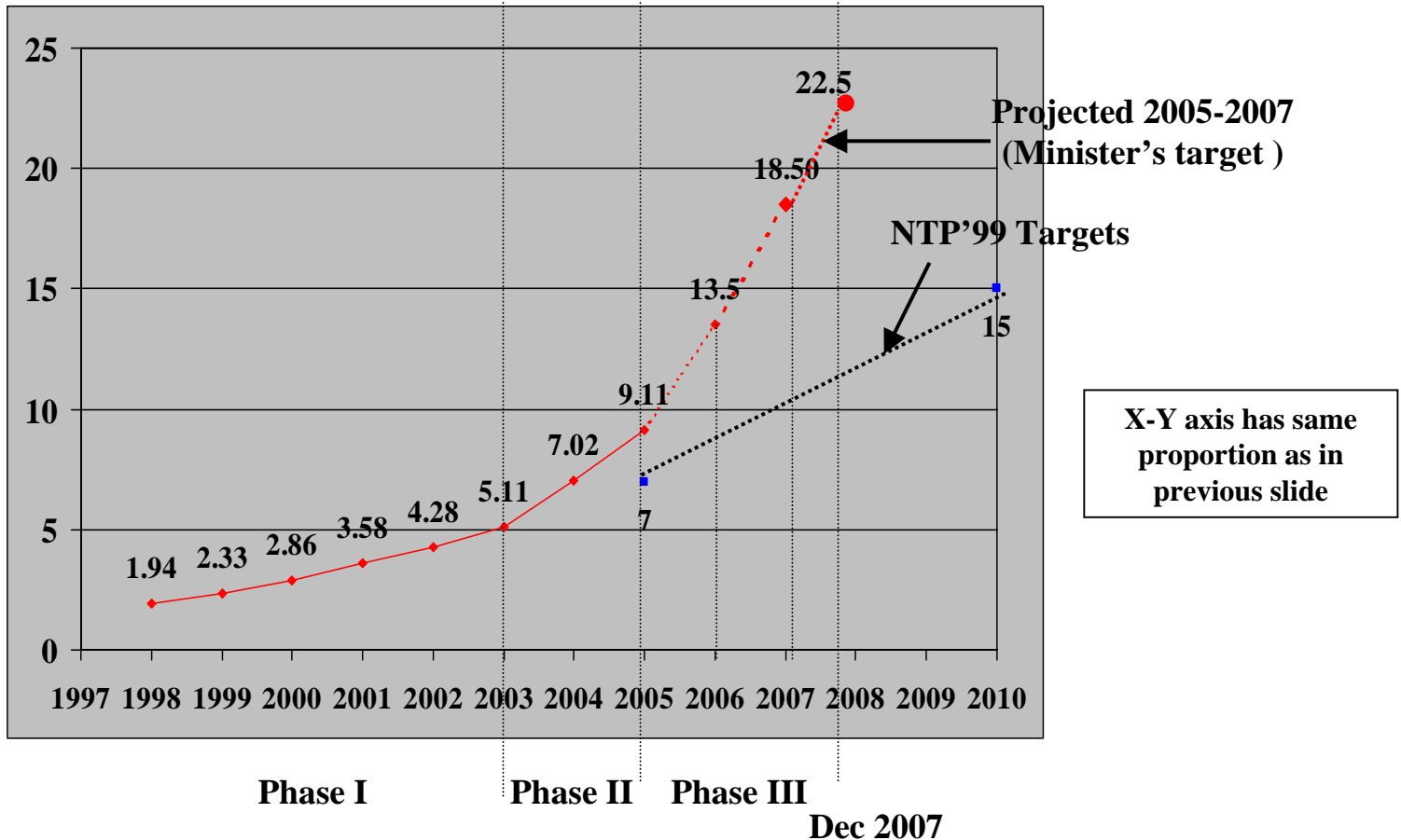


50 years: Total growth 1.92%

1994

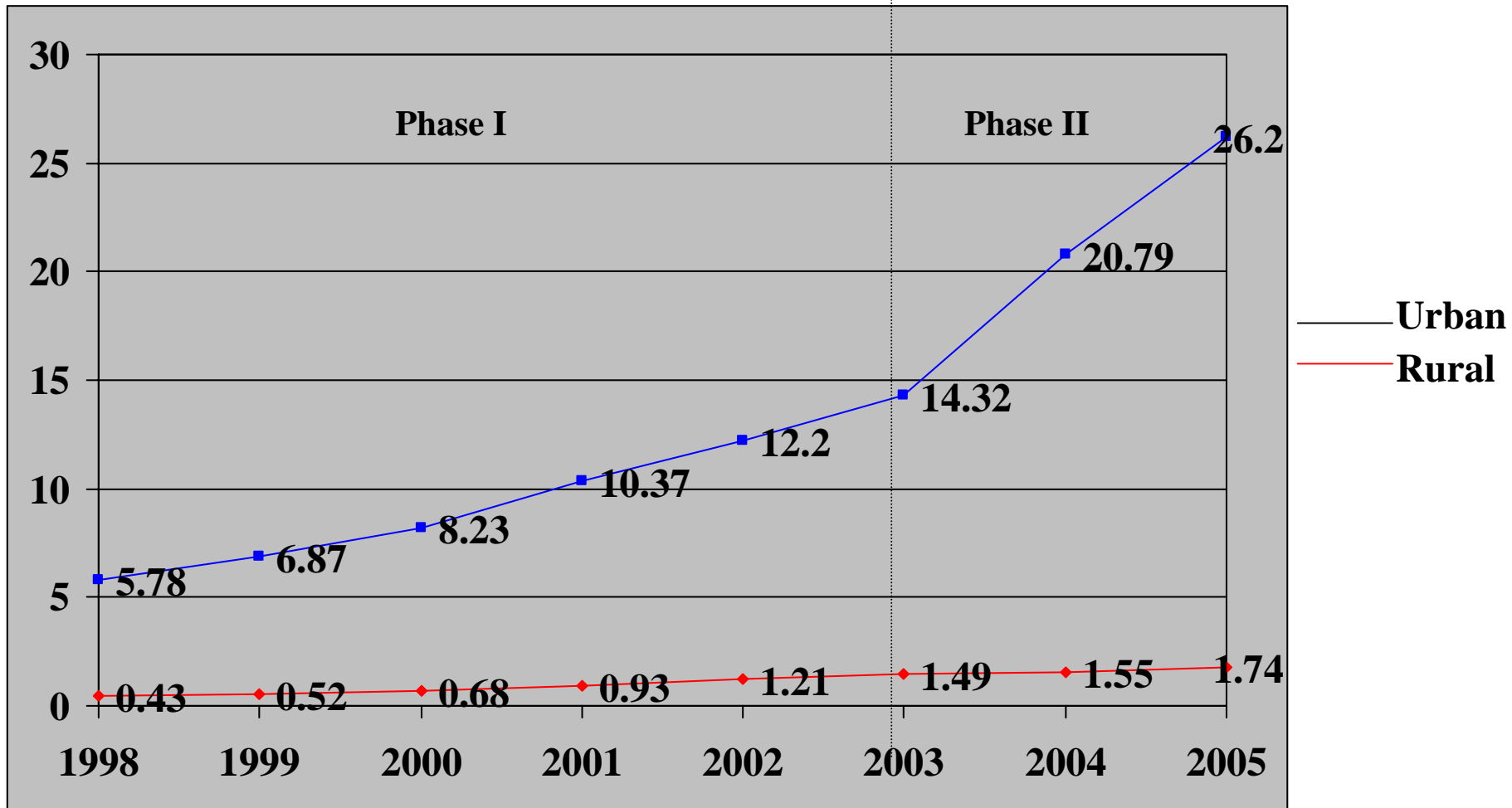
- In the pre-reform period, growth was primarily driven by public sector monopoly, showing very marginal growth
- Reform process started with NTP'94
- TRAI was set up in 1997
- First tariff order issued in 1998 – thus reforms effective from 1998
- NTP'99 pushed reforms further

# Tele-density Growth – Post-reform – Different Phases



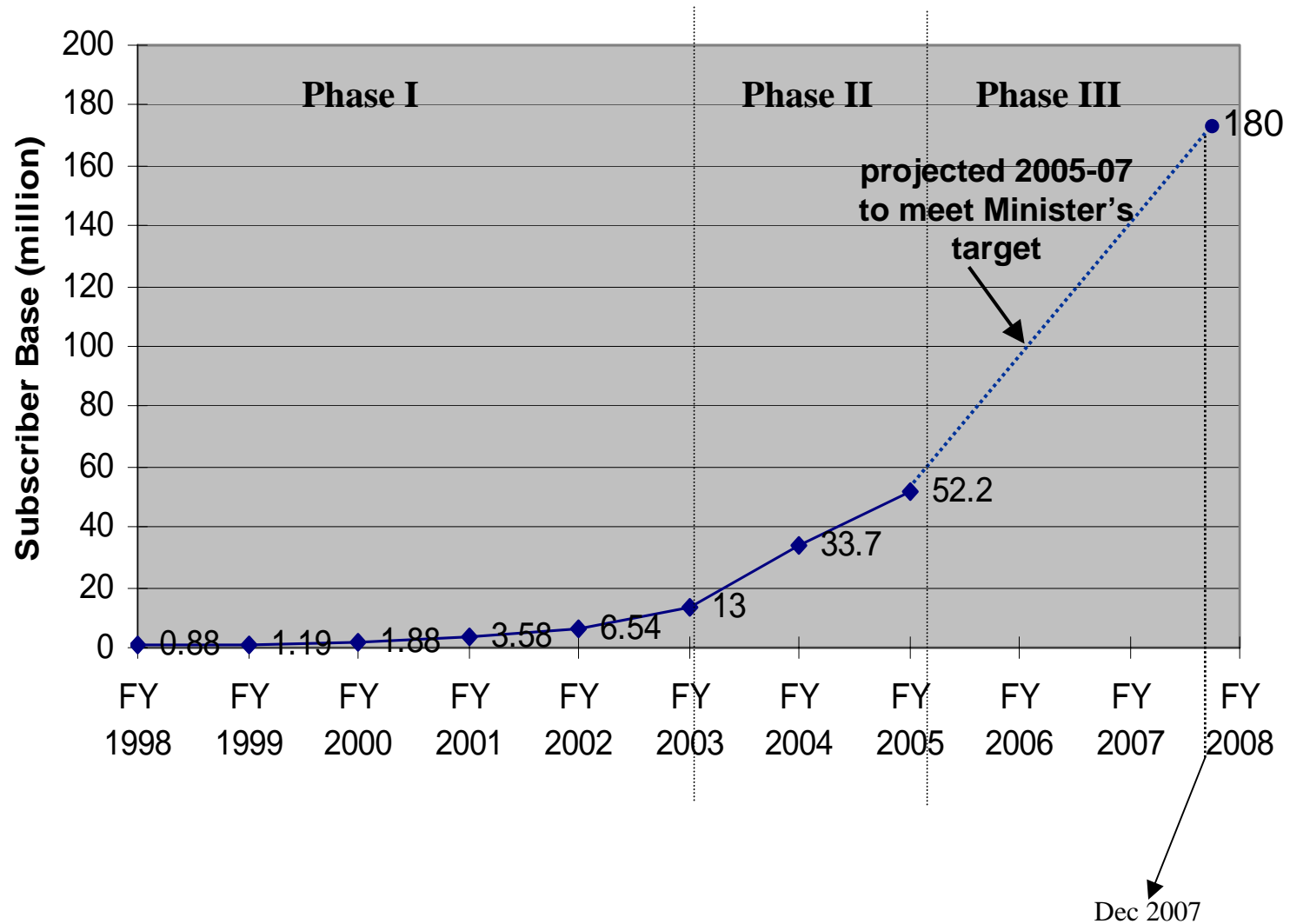
- The growth in tele-density each year 2003-04 (~2%) & 2004-05 (~2%) > 50 years growth 1948-1998 (~1.92%)
- For phase III - each year growth must > 4.5 % in tele-density
- Growth started in phase I of reform 1998-2003
- Phase II 2003-05 – it picked up further
- Phase II growth was mobile driven and was consequent to certain decisions taken by Govt./ TRAI (Slides at P 6 & P 10)

# Urban and Rural Tele-density



- Urban Rural divide is increasing very fast primarily due to negligible mobile coverage in rural areas and policies must ensure rural tele-density increase
- Would only be possible when rural growth is mobile and competition driven, like in urban areas
- At present, there is negligible rural mobile coverage and the growth is PSU/ USO driven. Unless it is competition driven, growth will continue to be stagnant

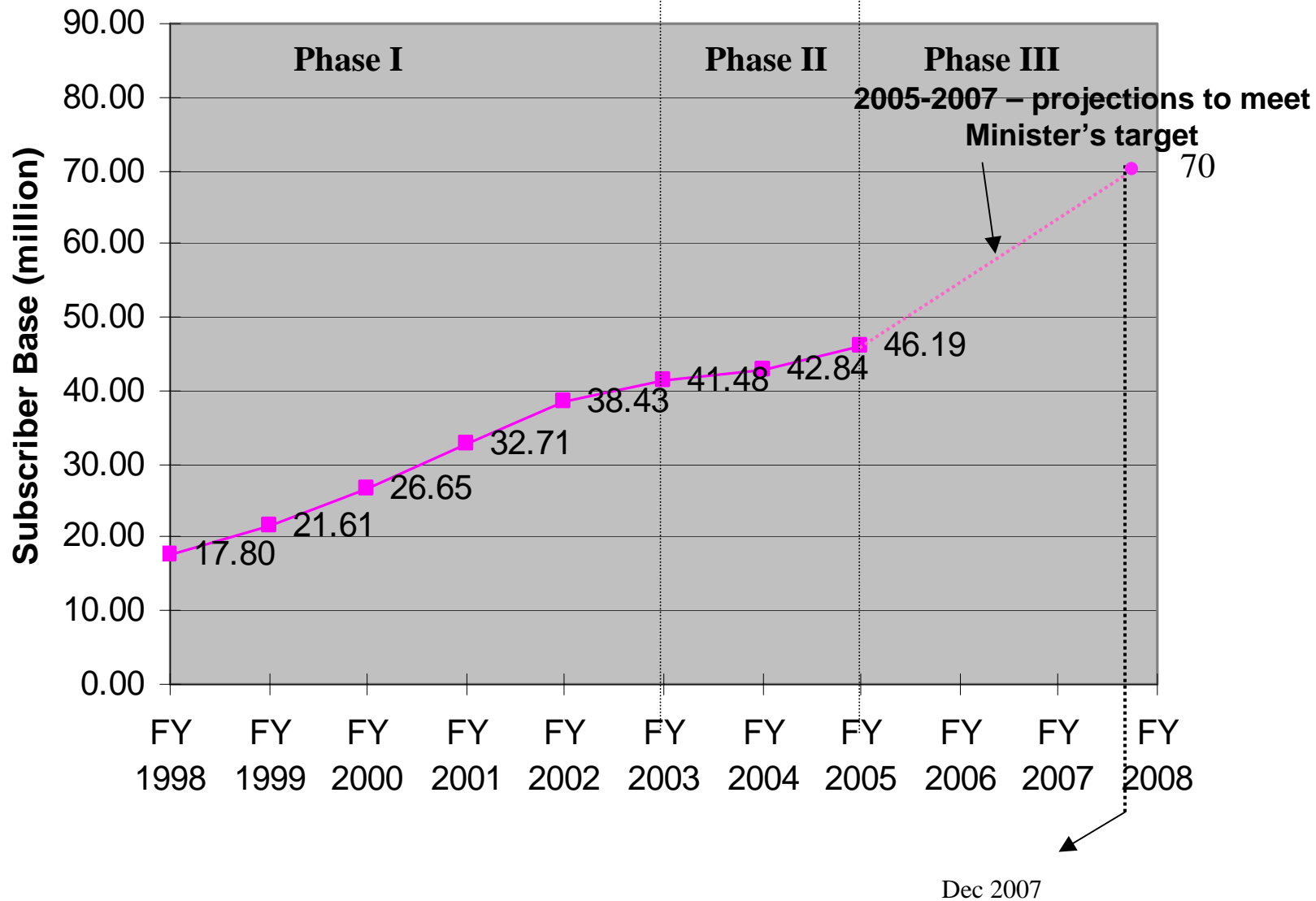
# Mobile Subscriber base



Dec 2007

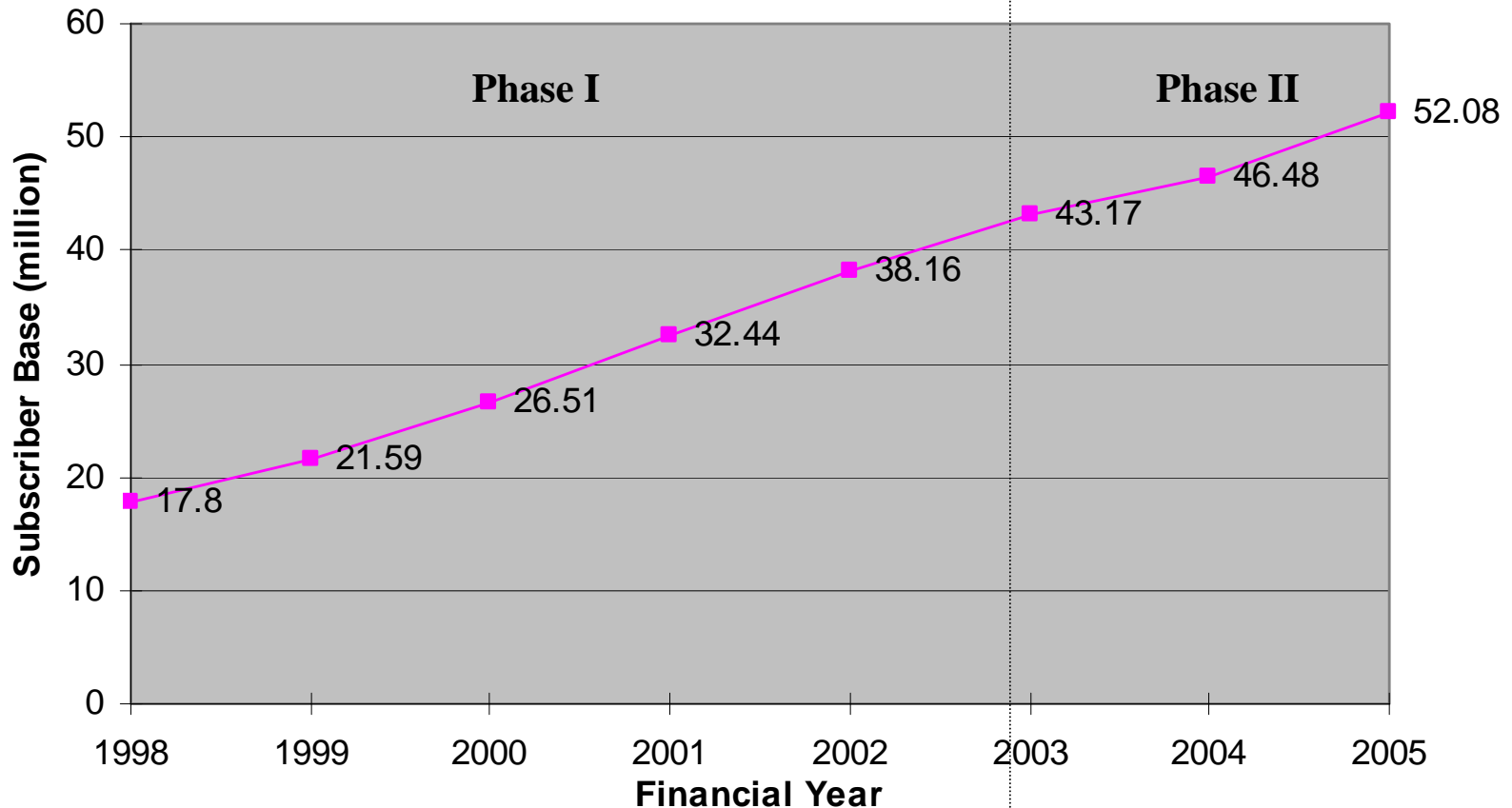
- Phase II of growth was primarily mobile driven, like in other countries
- Higher growth required in phase III – additional subscribers should go up to > 4 million per month as against present trend of 1.5 – 2 million per month.

# Fixed Subscriber base



➤ Fixed line growth, like in other countries, is marginal

# PSU's Operators Subscriber base



➤ **Growth 1998-2005 = 34.28 million subscribers**

**Fixed 23.28 million**

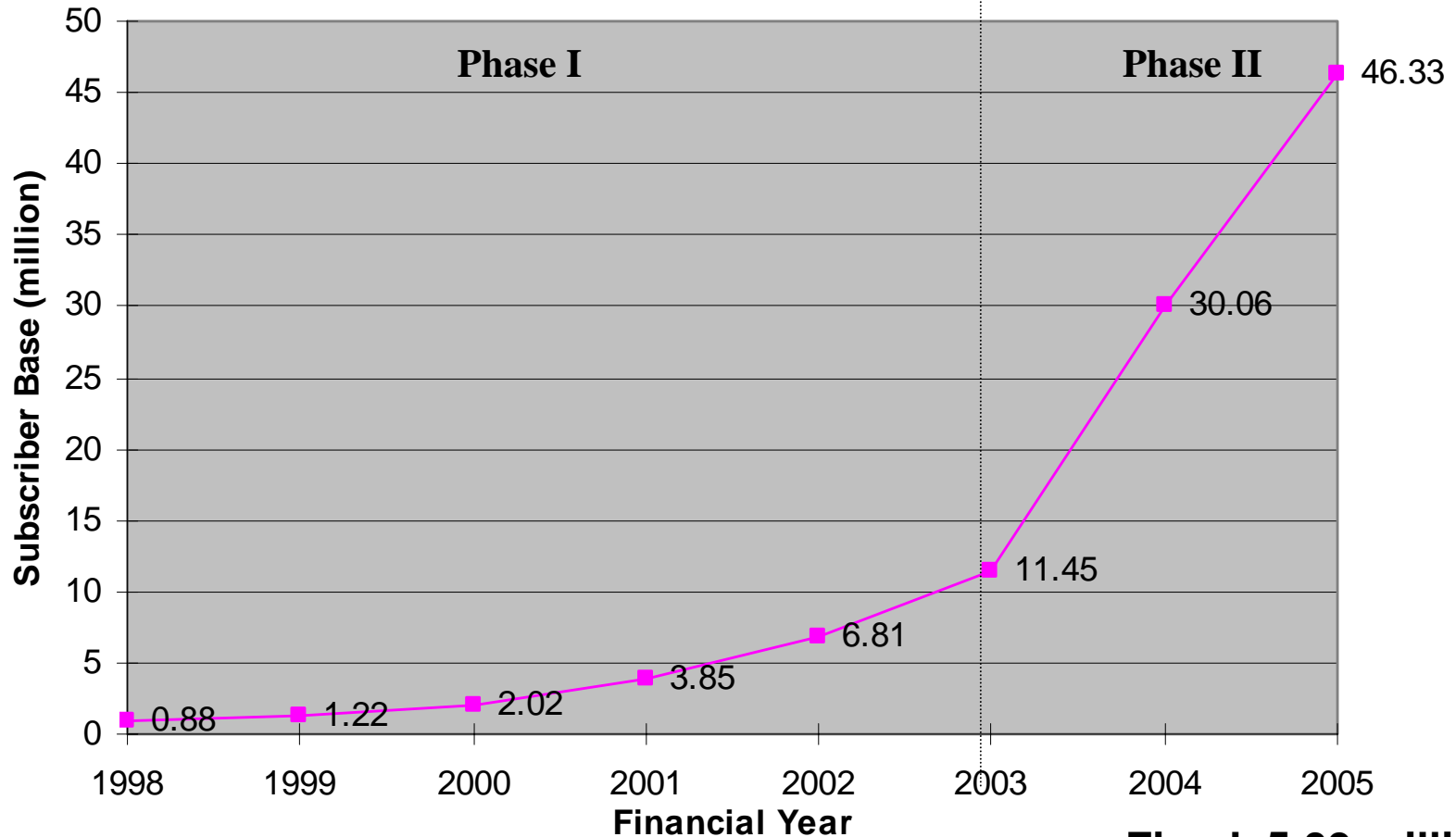
**Mobile 11.00 million**

➤ **PSU operators have shown remarkable growth in competitive environment.**

➤ **Their growth in pre-reform non-competitive environment was very slow (Slide at P 3)**



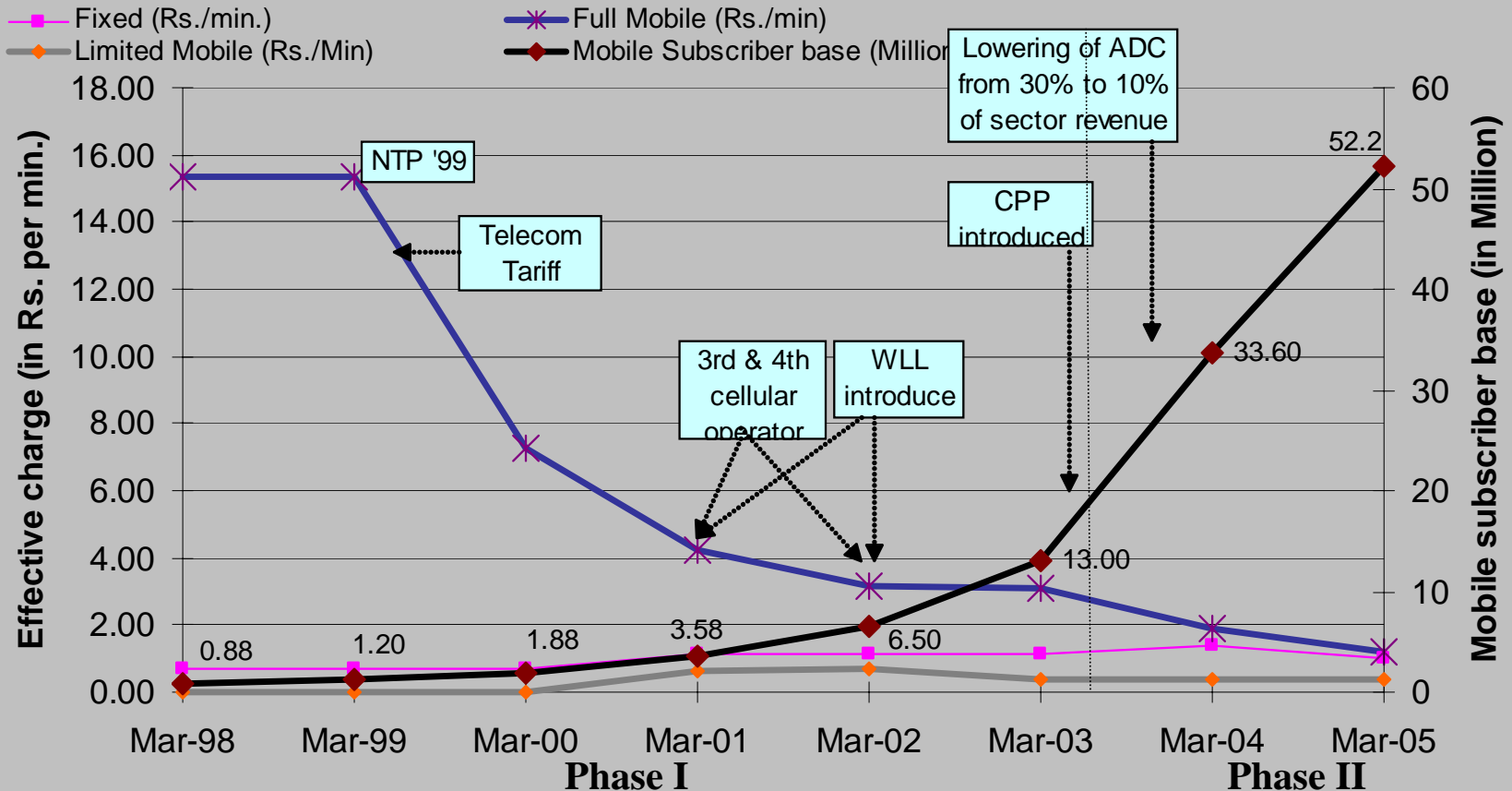
# Private Operators Subscriber base



- **Growth 1998-2005 = 45.45 million subscribers**
  - Fixed 5.09 million**
  - Mobile 40.36 million**
- **Private operators have contributed very largely to post 1998 growth**
- **Private operators have contributed primarily in mobile growth due to lower costs**

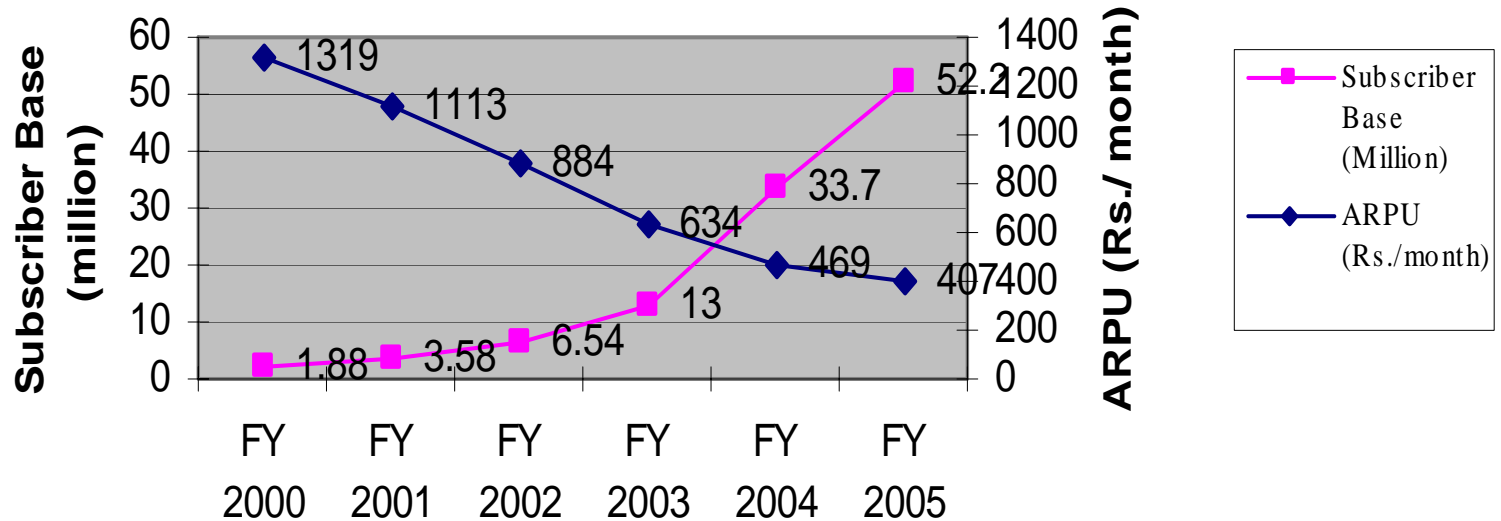
## Mobile growth and effective charge per minute

### Steps taken for increasing growth



- **TRAI facilitated huge reduction in forbore tariffs in 2003-05**
- **Measures indicated in boxes – and by increasing competition**
- **Also, by allowing handsets sales in instalments.**
- **Mobile growth stepped up significantly – once mobile and fixed line tariffs became equal**
- **Mobile then became the telephone of the working class**
- **Mobile growth in 2003-04 and 2004-05 > average mobile growth in earlier years X 12**

## Fast growth of Mobile Subscriber base even with declining ARPU (Average Revenue Per User) is to much higher turnover



Mobile revenues in FY 2000 =  $1319 \times 1.88 \times 10^6 \times 12 \sim \text{Rs. } 2975 \text{ crores}$

FY 2003 =  $634 \times 13 \times 10^6 \times 12 \sim \text{Rs. } 9890 \text{ crores}$

FY 2005 =  $407 \times 52.2 \times 10^6 \times 12 \sim \text{Rs. } 25500 \text{ crores}$

- Turnover growth in 5 years ~ 9 times despite ARPU falling by more than 3 times
- Prior to 2003, all the mobile operators were incurring losses, leading to no fresh investment in the sector
- Growth induced profits & heavy investments in the sector after 2003
- Future strategies should primarily look at growth potential – and reducing costs/fee

## Government gains through reduced fees

Statement of Revenues to be received by Central Government - mobiles							
All circle and Metro License				(Rs.in Crore)			
		1	2	3	4	5	6
	YEAR	Licence fee old regime auctioned high entry fee paid	Licence fee new regime ( post NTP 99) 15%	License Fee as per 2001 Regime 8-12%	License Fee as per 2003 Regime 6-8%	service tax(Estima ted)* % share define	License Fee+Service Tax
1	1999-00	1603	275	209		110	319
2	2000-01	2270	619	468		248	716
3	2001-02	2734	793	602		317	919
4	2002-03	2455	872	657		349	1006
5	2003-04	2470	1727	1296		1105	2402
6	2004-05	2511	2698		1666	2158	3824
7	2005-06	2591	4586		2831	3669	6500
8	2006-07	2680	7796		4813	6237	11050
		<b>19314</b>	<b>19366</b>	<b>3234</b>	<b>9309</b>	<b>14193</b>	<b>26736</b>
				<b>12543</b>			

➤ Rate of Service Tax taken as 5% up to 13.5.2003, 8% up to 31<sup>st</sup> March 2004 and thereafter 10%

➤ **Estimated Service Tax( based on estimated Gross Revenue)**

## Statement of Estimate of Government Levies from License Fee, Spectrum Fee and Service Tax on all Telecom Services

(Rs in Crores)

1	2	3	4	5	6	7
Year	Gross Revenue	Adjusted Gross Revenue	License Fee	Service Tax 5-10%	Spectrum Charge 2-4%	Total Govt. Levies
2002-03	48000	40800	4080	2040	206	<b>6326</b>
2003-04	61000	51850	4770	4148	434	<b>9353</b>
2004-05	80000	68000	6256	6800	856	<b>13912</b>
2005-06	100000	85000	7820	8500	1530	<b>17850</b>
2006-07	139000	118150	10869.8	11815	2458	<b>25142</b>
2007-08	169000	143650	13215.8	14365	3275	<b>30856</b>

➤ **Telecom sector contributes about 30% of country's service tax**

➤ Despite very heavy taxation vis-à-vis other countries (slide at P 14), our tariffs are lowest in the world, a tribute to competition (slide at P 17) and our operators

# SECTOR LEVIES

	<b>Pakistan</b>	<b>Sri Lanka</b>	<b>China</b>	<b>India</b>
<b>Sector charges</b>	<b>%age of revenue</b>	<b>%age</b>	<b>%age of revenue</b>	<b>%age of revenue</b>
Service Tax, GST	GST	VAT	3%	10%+GST
License Fee	0.5% + 0.5% R&D	0.3% turnover (t.o.) + 1% of capital invested (inv)	Nil	5 – 10%
Spectrum Charge	Cost recovery	~ 1.1% of t.o.	~ 0.5%* (China Mobile)	2~6%**
USO	1.5%	Nil (only on ISD calls)	Nil	Incl in license fees
<b>Total Sector charges</b>	<b>2.5% + GST + cost recovery</b>	<b>1.3% t.o. + 1% inv + VAT</b>	<b>0.5 % + 3% (Tax)</b>	<b>17% ~ 26% + GST</b>

– The Regulatory levies are not so high in other developing countries

– Reducing levies is essential to drop cost to customer and hence increase penetration in new markets. The ideal policy would be to charge license fee & spectrum charges only for USO and covering administrative costs

\* Backbone spectrum charges extra

\*\* Estimated from spectrum fees & revenue of China Mobile

## Part II

# Can we achieve 250 million by December, 2007

## INDICATORS

International comparison:

India's per capita holds higher Teledensity potential

Country	GNI Per Capita PPP 2002, USD**	Teledensity* 2003
Bolivia	2300	23.81
Georgia	2210	23.98
Moldova	1560	23.76
Ecuador	3130	30.32
India	2570	6.7

Source: \* ITU database

\*\* World Development Indicators data, World Bank July 2003

➤ ***If they can do it, we can also***

# MANY OTHER DEVELOPING COUNTRIES ALREADY HAVE MORE ADVANCED COVERAGE

**Mobile coverage in selected countries, by region, 2002**

Region	Country	Pop. Covered by mobile signal
Africa	<b>Cape Verde</b>	90%
	<b>South Africa</b>	93%
	<b>Togo</b>	90%
	<b>Zambia</b>	50%
Americas	<b>El Salvador</b>	85%
	<b>Ecuador</b>	86%
	<b>Gautemala</b>	68%
	<b>Mexico</b>	90%
Arab States	<b>Jordan</b>	90%
	<b>Morrocco</b>	95%
Asia-Pacific	<b>Korea-Rep.</b>	99%
	<b>Malaysia</b>	95%
	<b>Philippines</b>	70%
Europe	<b>Azerbaijan</b>	94%
	<b>Belarus</b>	72%
	<b>Czech Republic</b>	99%
	<b>Slovak Rep.</b>	98%
	<b>India</b>	20%

Source: ITU World Telecommunication Indicators Database

- **If mobiles can cover high population % in other developing countries, in India also they can**
- **Once higher population coverage is achieved, growth will be further accelerated**



## Call charges per Minutes of Use, ARPU and Termination Rates per minute for mobile service in different countries (June 04)

Name of the country	Call charge per minute	Minutes of Use per subscriber per month	ARPU (Average Revenue Per User)	Termination rates per minute	
				Fixed	Mobile
				US\$	US\$
<b>Australia</b>	0.24	159	43	0.016	0.152
<b>Brazil</b>	0.11	92	11	0.020	0.080
<b>China</b>	0.04	261	10	0.010	0.025
<b>Switzerland</b>	0.45	119	59	0.017	0.163
<b>Japan</b>	0.33	156	63	0.022	0.130
<b>India</b>	0.04*	309	11	0.007	0.007

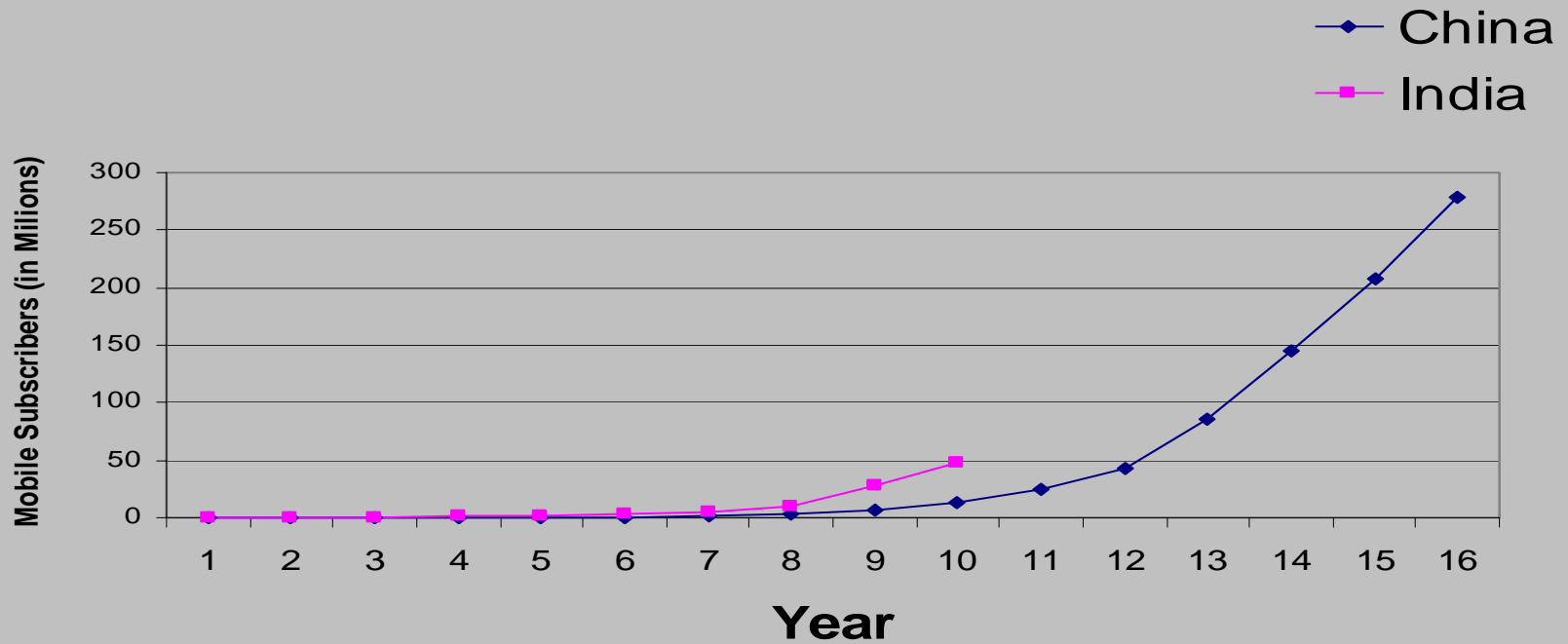
- **\* Has come down to 0.03 in 2005 – lowest in the world**
- **Since the tariffs are low – there is huge unmet mobile demand in rural areas – only mobile towers have to reach**
- **Some low end ARPUs being offered by operators are \$ 4 per month and entry cost (handset price) \$35**
- **At these rates, huge market is waiting to be tapped**
- **Our lowest termination rates encourage aggressive competition at origination of calls**

# Number of cable homes and number of fixed line telephone subscribers

Figures in million – (Year 2003)			
S. No.	Name of the country	No. of cable TV + DTH subscribers	No. of fixed line connections
1	Australia	1.55	10.82
2	China	105.00	263.00
3	United Kingdom	10.50	34.90
4	Japan	8.10	71.15
5	Korea	11.94	22.88
6	Taiwan	5.30	13.36
7	Thailand	0.43	6.60
8	Unites States	94.97	181.6
9	India	47.73	42.09

- There is no country other than India where cable TV connections exceed fixed line phones
- This indicates a huge demand in India for entertainment and multi-sourced news and information
- Hence triple play networks in India will be hugely successful

# Mobile - India - China Performance



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<b>China</b>	<b>0.003</b>	<b>0.01</b>	<b>0.02</b>	<b>0.1</b>	<b>0.2</b>	<b>0.6</b>	<b>1.6</b>	<b>3.6</b>	<b>6.8</b>	<b>13.2</b>	<b>24</b>	<b>43</b>	<b>85</b>	<b>145</b>	<b>207</b>	<b>279</b>
<b>India</b>	<b>0.03</b>	<b>0.22</b>	<b>0.8</b>	<b>1.1</b>	<b>1.6</b>	<b>3.1</b>	<b>5.5</b>	<b>10.5</b>	<b>28</b>	<b>48</b>						

## Introduction of Mobiles:

China year 1 : 1988      Year 17 : 2004

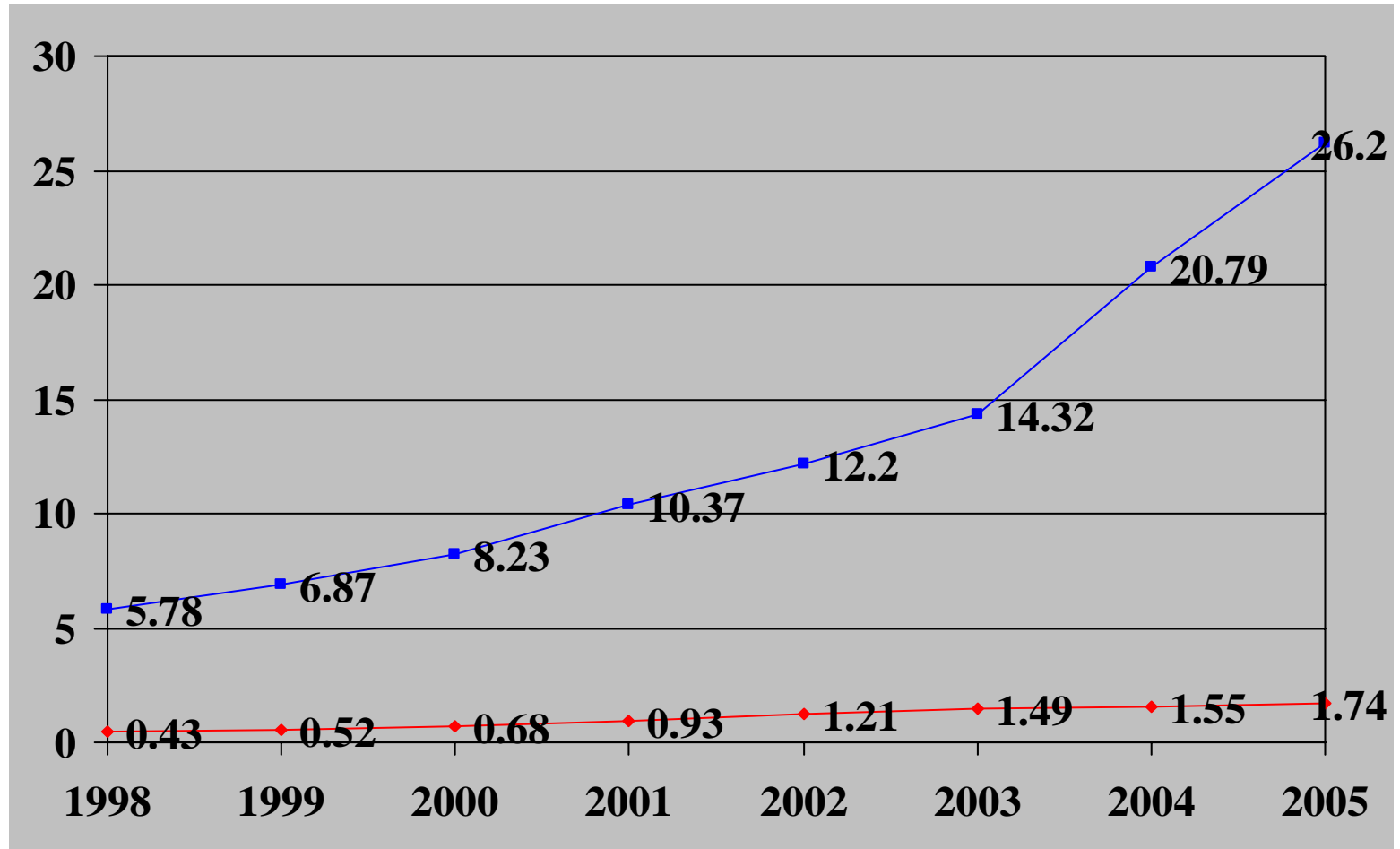
India year 1 : 1995      Year 10 : 2004

*Note: Values are for end of year (December)*

- So far, on any year to year basis, after late start of mobiles in India, we have done better than China
- We must continue – but corrective measures required for phase III (2005-07)

## Part III

# Can we increase rural telephony coverage



- Urban growth is entirely due to mobile coverage
- There is almost 'nil' mobile tower coverage in rural areas and the growth is PSU/ USO driven
- For increasing rural growth, competitive rural telecom market needs to be created
- It was only such a market that led to exponential urban growth

## Present Coverage of Mobile Networks (2003-04) (Population Coverage 20%)

	<i>By area</i>	<i>Population Coverage</i>
<b>Towns</b>	~1700 out of 5200	~200 Million
<b>Rural areas</b>	Negligible	Negligible

## Proposed Network Coverage by 2006; operators plan (Population Coverage 75%)

	<i>By area</i>	<i>Population Coverage</i>
<b>Towns</b>	~4900 out of 5200	~300 Million
<b>Rural areas</b>	~350,000 out of 607,000 villages	~450 Million

➤ Slides at P 14 & 15 show that if very under developed countries can reach mobile coverage of 50-95%, India can reach 75% and achieve teledensity > 22.5% (Minister's target) in the next two years

# Substantial Growth for all

## Excerpts from Morgan Stanley Report: Are present tariffs predatory?

- “Even at monthly ARPU of US\$5, Wireless Operators can make money”
- “ ... with telecom equipment cost having fallen globally, and most of the GSM operators being allotted higher spectrum, the incremental capex / sub in India has fallen.”
- “ We have performed a sensitivity to capex cost and ARPU. A consumer yielding a monthly ARPU of US\$5 provides incremental ROCE of 16% based on capex/capacity of US\$60.”

**The present ARPU is around \$9 per month, hence operators can profitably expand into non-covered and rural areas. In any case operators are already offering \$ 4 / month ARPU tariff packages.**

# The rural areas have demand

## Demographical Analysis (2001):

### Penetration of households with key consumer durable assets

S. No.		All India	Urban + semi-urban	Rural	No. of households with key durables (in million)	
					Urban + semi-urban	Rural
	<b>Total Households (Millions)</b>	<b>192</b>	<b>54</b>	<b>138</b>		
<b>1</b>	<b>Bicycle</b>	<b>44%</b>	<b>46%</b>	<b>43%</b>	<b>24.84</b>	<b>59.34</b>
<b>2</b>	<b>Radios</b>	<b>35%</b>	<b>44%</b>	<b>32%</b>	<b>23.76</b>	<b>44.16</b>
<b>3</b>	<b>Television</b>	<b>32%</b>	<b>64%</b>	<b>19%</b>	<b>34.56</b>	<b>26.22</b>
<b>4</b>	<b>Two wheelers (Scooters &amp; Motorcycles)</b>	<b>12%</b>	<b>25%</b>	<b>7%</b>	<b>13.5</b>	<b>9.66</b>

# Rural Market Significance

- **The rural market of India is very large as 70% of the population lives there.**
- **A number of key durables are quite higher in rural areas**
- **Hence there is no reason that similar phenomenon should not take place for mobiles**
- **We only have to create a competitive market**
- **Mobile operators will find a business case – in reaching there – particularly if some incentives are given**