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Great
Job!





- Total China PHS users: 9.02 million
- UTStarcom PAS users: 55-60% market share
- UTS Handset sales: 1.7M in 2001, 2.2M in H1 2002
- Total PAS cities: 269
- Largest Cities:
 - Hangzhou, Zhejiang Province: 328K users,
 - Wenzhou, Zhejiang Province: 372K users,
 - Xian, Shanxi Province: 320K users
- Total Installed capacity in China: 8.1M Lines





1

Indian Telecommunications Industry Overview



2

The India Imperative



3

PHS Opportunity in India



4

PHS Market Progress

5

PHS MoU India Chapter



- License / Service areas in most cases coincide with the geographical area of the various states in the country
- Basic Services - 22 circles
- Cellular Services - 21 circles and 4 metro cities
- Circles graded based on revenue potential
- Service provision opened to private participation in 1994

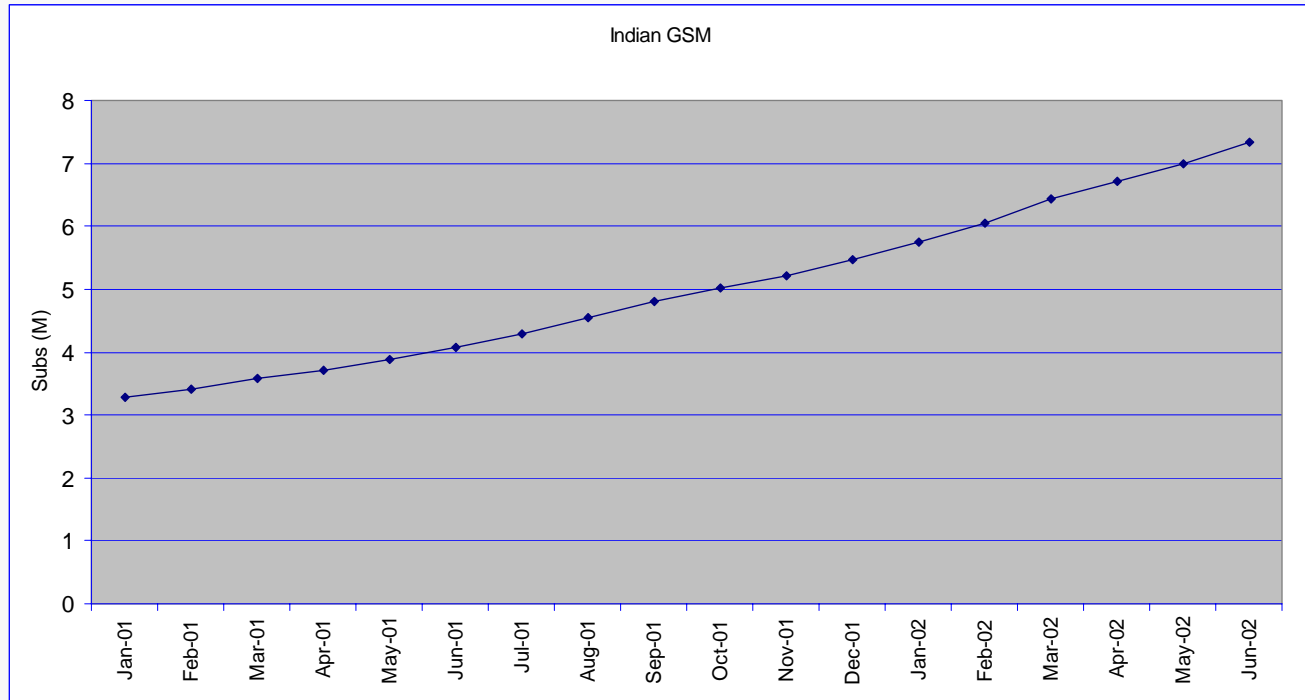


- **One of the fastest growing telecommunications markets globally and in Asia**
- **Low Teledensity**
 - ~ 3.3% now = 35M Subs
 - 7% by 2005 = 70M Subs (32% CAGR)
 - 15% by 2010 = 150M Subs (8% CAGR) (*Too Low – prb*)
- **Current telecom services spend at \$8B [vs China : \$40B]**





Approaching 8M





- **Basic Service Operators (BSOs)**
 - **BSNL** - Incumbent operator in all circles excluding Delhi & Mumbai
 - **MTNL** - Incumbent operator in Delhi & Mumbai
 - **Six private operators** [Reliance, Bharti, Tata, Hughes, Shyam and HFCL]
 - **Reliance, Tata and Bharti rolling out services in all lucrative circles – *Tata just ate Hughes***
 - **Shyam, Hughes and HFCL single state operators**

- **Cellular Mobile Service Operators (CMSOs)**
 - **Two private operators in most of the 22 circles and 4 metros**
 - **BSNL** - Rolling out services in all its circles as the 3rd operator
 - **MTNL** - Launched services in Delhi & Mumbai as the 3rd operator
 - **Fourth cellular operators expected to commence services by mid-2002**



- License does not specify technology - PHS is allowed
- No cap on the number of operators in each circle
- Basic Service Operators (BSOs) can provision wireline or WLL services including 'limited mobility' (LM) services
- Mobility allowed within SDCA (local area with radius upto 50 kms) with no handover to adjacent SDCAs
- Spectrum allocation of 5+5 Mhz in 850 or 5 MHz in 1800 MHz band [Macro-cellular : 824-844 & 869-889 MHz ; Micro-cellular : 1880 – 1900 MHz] - Spectrum allocations allows for CDMA in the macro-cellular and DECT (& variants)/PHS in the micro-cellular bands
- Usage tariff and Rentals for WLL services including LM services equal to or less than wireline services



PTT

- **BSNL** - Incumbent operator in all circles excluding Delhi & Mumbai [Wireline + CDMA + corDECT]
- **MTNL** - Incumbent operator in Delhi & Mumbai [Wireline + CDMA + PHS]

Private Operators

- Five private operators
- **Bharti** rolling out services in all lucrative circles [Wireline in large cities]
- **Tata** rolling out services in all lucrative circles [Wireline + CDMA in large cities]
- **Reliance** planning an all-India roll-out [Wireline + CDMA in large and medium cities & towns]
- **Shyam** and **HFCL** single state operators [Wireline + CDMA + corDECT in large cities]



Basic Services

- Revenues [FY2002] : USD 5.5 billion [Local+Long Distance]
- All-India penetration : 3.3% [31/3/02] (35 mn subscribers)
- Sub-urban & Rural penetration ~ 1% ; Urban penetration ~ 10%

Operator	(million)	% of total
BSNL	30.50	86.2%
MTNL	4.40	12.4%
Shyam Telelink	0.03	0.1%
Hughes Tele.com	0.16	0.5%
Tata Teleservices	0.15	0.4%
HFCL Infotel	0.04	0.1%
Bharti Telenet	0.10	0.3%
Total	35.37	100%

- BSNL & MTNL account for 99% of the subscriber base
- BSNL & MTNL add 5 to 6 million lines every year



Basic Services

- Waiting list ~ 3 million lines
- Target : 75 mn lines by 2005 and 150 mn lines by 2010
- All-India ARPU (monthly) : INR 600 (~USD 13)
- Services : Wireline and WLL including 'limited mobility'
- Tariff :

Item	Wireline Services		Limited Mobility	
	INR	USD	INR	USD
Outgoing (per Minute)	0.4	0.01	0.4	0.01
Incoming (per Minute)	Free		Free	
Rental (Monthly)	250	5.10	200	4.08
Free Calls (Monthly) [Nos.]	75		Nil	
Security Deposit *	3,000	61.22	#	#
Subscriber Terminal Deposit *	-	-	6,000	122.45
Connection Fee	840	17.14	#	#

*(# left to the discretion of the operator ; * Refundable ; In case of limited mobility services subscribers also have the discretion of paying INR 50 per month for the subscriber terminal instead of the terminal deposit)*



- 1** Indian Telecommunications Industry Overview
- 2** The India Imperative
- 3** PHS Opportunity in India
- 4** PHS Market Progress
- 5** PHS MoU India Chapter





THE INDIA IMPERATIVE

- One of the fastest growing telecommunications markets globally
- One of the fastest growing economies in Asia [GDP growth rate of over 6% per annum]
- 4th largest economy in the world on PPP basis [USD 1.7 trillion]
- Population of over 1 bn (50% < 25) growing @ 2.5% p.a.
- Low Teledensity ~ 3.3% [Target 7% by 2005 and 15% by 2010]
- 70% of population resides in sub-urban and rural India where teledensity stands at around 1%
- Current telecom services spend at USD 8 bn [China : USD 45 bn] or 2% of GDP. Forecast to rise to USD 18 bn by FY2010
- Per capita telecom services spend USD 8 p.a. [China : USD 35]
- PHS ideally suited to address a low affordability market as evident from its success in China



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Basic Services – Private Operators

- BSO license requires operators to rollout services in a competitive scenario
- Existing and proposed roll-outs by private BSOs on wireline and CDMA platforms limited and confined to large cities. Unviable to roll-out services on these platforms in other areas
- License requires BSOs to establish points-of-presence (switching node) in all SDCAs (upto 400) in a state
- License stipulates stringent roll-out obligations requiring equal coverage of all areas (urban, semi-urban and rural)
- 70% of India's population resides outside urban areas where teledensity < 1%



Basic Services – Private Operators

- High proportion of sub-urban and rural population coupled with low affordability makes PHS an ideal solution for these areas
- Sub-urban and rural areas in India are typically characterised by scattered high density population clusters
- PHS also an ideal complementary solution for private BSOs with a pure wireline roll-out as it extensively leverages existing infrastructure
- PHS also emerging as complementary solution to CDMA for (i) highly dense areas of large cities and (ii) for broader suite of cost effective data services



Basic Services – MTNL/BSNL

- MTNL/BSNL late entrant in mobility services and struggling against private operators. PHS enables them to competitively offer a wider basket of services by optimally leveraging their existing nationwide wireline infrastructure
- PHS also a solution for the large proportion of areas where copper is exhausted and where it is not feasible to lay additional copper. It is also emerging as a solution for highly dense areas in cities
- Urban areas virtually saturated. Very low teledensity particularly in sub-urban and rural areas. Future roll-outs by PTT will largely be in these areas requiring a cost effective and modular solution like PHS



Competition

- Stiff competition from multiple well entrenched technologies
- CDMA has established footprint for WLL services in large cities
- CDMA being pushed by larger vendors [Lucent, Nortel]
- Sharp drop in CDMA pricelines over the last six months with prevailing prices lowest amongst all CDMA markets
- corDECT, an indigenous micro-cellular technology and DECT variant, being aggressively promoted by domestic manufacturers for provision of WLL services
- Strong CDMA and corDECT lobbies



The PHS Advantage

- Widely deployed and highly successful technology platform for provision of WLL services – The China success story
- Highly flexible, modular and scalable
- Cost effective solution – Lower capex and opex. Viable right from a small number of low paying subscribers to high density deployments
- Economical handsets (35% cheaper than CDMA)
- Leverages existing infrastructure and is complementary to operator's wireline roll-out
- Broader suite of services available today particularly advanced data services at nominal incremental capex
- Most effective frequency utilisation - Micro-cellular technology



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UTStarcom Initiatives

- UTStarcom South Asia Office headquartered in New Delhi (Includes R&D Center)
- MTNL PAS Trial
- PAS Trials with two large private basic service operators
- Visibility to PHS in all key media and at all key forums
- Market initiation to Mitsubishi, Sanyo and Winstar [Acer]
- Key stakeholder visits to PHS networks in Taiwan and China



- Capacity - 5,000 line system
- Coverage area – Two areas in South and One in Old Delhi.
Total area around 4.0 sq. kms
- Extended Cordless Service (ECS) – Basic services with community cordless offering. Voice and CLIP with mobility in coverage area
- Traffic – 100 mE / sub @ 1% GoS.
- Subscriber Terminals – 1,000 Fixed and 4,000 Cordless
- Tariffs pegged to existing wireline tariff with an additional rental of INR 75 per month for the service
- Refundable security deposit of INR 2,000 for the subscriber terminal
- ECS commercialised on June 24, 2002
- 900 subscribers on the network [8/24/2002]



MTNL ECS Trial Area





Grab A New Cordless To Strike The Right Chord

Asmita Aggarwal

NOW YOU don't need to carry a swanky mobile phone when you go out for walk or venture to the market nearby. Simply take your cordless phone with you. MTNL's new Extended Cordless Service (ECS) gives you a neighbourhood covering range of approximately 3 kms, with an additional Caller Identity Service (CIS) facility.

Explains KH Khan, General Manager, MTNL (Delhi): "For homemakers, who can't afford expensive cellphone connections but want to avail the same facilities at less than half the cost, this new facility is surely a boon."

MTNL has launched these services in Kailash Hills, East of Kailash and Okhla Sabzi Mandi already. ECS offers the facility of storing 20 numbers and the handset, weighing 95 grams, comes in three colours (yellow, green and grey) and with a charger.

Says Yogesh Bijlani, Vice President Marketing UTStarcom (the company that provided the infrastructure for the project): "It's a wireless phone and if there's a

SALIENT FEATURES

- Weighs only 95 grams
- Facility to store upto 20 numbers
- Four ring tones to choose from
- Screen has a 32-digit numeric display
- The phone has a seven-digit number
- Battery life of 500 hours talk time

MTNL's Extended Cordless Service gives a covering range of about three kms

PHOTO: RAJ K. RAJ; LOCATION: THE GRAND INTER-CONTINENTAL



power cut it has a stand-by talk time of 500 hours. So now you don't have to worry about being disconnected in the middle of a conversation."

The Japanese technology imported by MTNL is all yours for 80 paise for three minutes (for the first 500 calls). Till 1,000 calls the rate is Re 1 for three minutes. And for more than 1,000 calls it's Re 1.30 for three minutes (the regular MTNL rate).

"If you want to get a regular handset changed to ECS, just pick up an application form at the

Okhla Exchange and fill it out. You'll get a new phone and connection within a week for Rs 2,000 (for the first 1,000 subscribers this amount has been waived off). The monthly rental is the standard Rs 250 plus Rs 75 extra for the ECS," says Khan.

MTNL has set up a helpline for the purpose. For further information, call 6391511 or 6392311.

Soon MTNL will also provide SMS, e-mail and download, music and games facilities on the ECS. So, the next time you want to go out shopping in the neighbourhood, simply carry a spunky ESC handset. ■





> MTNL'S NEW CORDLESS SERVICE PROVIDES A CHEAPER ALTERNATIVE TO CELLULAR

Go mobile: Extend the landline

Upasana Pande

NEW DELHI: Mahanagar Telephone Nigam Limited launched its Extended Cordless Service on July 1. This offers wireless mobility within a two-km range. The service is based on a technology called the Personal Access System. The new look gadget resembles a mobile phone, yet one has to pay only local charges.

MTNL will be charging an additional Rs 75 for the service over and above the monthly rental for a fixed-line connection. MTNL has received around 400 applications for the service.

The instrument resembles a mobile phone, has a 20-number memory and weighs just 95 gm.

The Extended Cordless Service has initially been launched in East of Kailash, Kailash Hills, Chandni Chowk and Okhla Phase II as a pilot project. The service eliminates the need to pull out copper cables from the user's house as the last part of the link is wireless.

"They spoke to few customers



K.H. Khan,
Chief General
Manager,
MTNL

"As our network expands we can extend the cordless range beyond the present one-two kilometres."

who have recently created this service. Kamal Arora, marketing director of Span Communications, was one of the first ones to receive Extended Cordless Service. This service has been highly beneficial for him as his office and residence are in the same building. He says, "While constantly shuttling between my office and home and also to nearby markets, I no longer need to carry my cellphone."

Arora has converted both his existing fixed connections into Extended Cordless Services. He plans to do the same for his office

CORDLESS & MORE

- > Range of about 2 km
- > No cable problems
- > Light handset, weighs 95 g
- > Memory of 20 numbers
- > Battery life 600 hours
- > Works in power failure
- > Voice transmission same as conventional systems
- > Offers voice and supplementary services like mobility, STD, ISD, voice mail, caller ID
- > Can carry data
- > Prevents cable congestion
- > Cost-effective



PHOTO: ANAND KUMAR

As the last part of this connection is not through cables, the problem of water seepage and theft does not arise.

phones. "The best thing is that the service does away with wires, which create unnecessary hassles during monsoons."

For those who have been victims of dead telephone lines and corrupt line-men, this is a god-sent opportunity. Deepa Gupta, all-India secretary of the RP Mahila

Morcha, says, "This is a good thing because with this system we won't be left at the mercy of line-men. Also, connectivity is very important these days and this service is affordable." However, she is apprehensive that when the service picks up and traffic increases it may affect the service.

Harpreet Kalia, who has recently filed the form for a new connection and is waiting for the set to be delivered, says, "I'll be able to carry this set with me and won't miss any important calls. It's by far the best initiative taken by MTNL."

Ranveek Arora, owner of Super Gallery, says the service has not his cellphone bill. Earlier, Arora was planning to apply for Khan's

Extended Cordless Service has been launched in East of Kailash, Kailash Hills, Chandni Chowk and Okhla Phase II.

TouchTel connection, but with the launch of this service, he changed his mind. He says, "Now I won't need to carry my mobile phone to nearby areas. It will save about Rs 500-600 every month on my mobile bill."

Says K.H. Khan, chief general manager of MTNL (Delhi), "We

have targeted these diverse localities — industrial area (Okhla Industrial area, residential area (East of Kailash) and commercial area (Chandni Chowk) and the response has been laudable."

The handset are being provided by a US-based multinational firm UTStarcom, with which MTNL has entered into an agreement. UTStarcom is now offering 5,000 activated lines — these will be increased on consumer demand.

Says Khan, "With our current network we are offering a mobility within an area of 200 to 250 sq ft. Some day as the network expands the range will be extended further."

Highlighting the advantages of the Extended Cordless Service, Yogesh S. Bhatia, vice-president, sales and marketing, UTStarcom says, "As the last part of this connection is not through cables, the problem of water seepage and theft does not arise. Another advantage is that this service works even in case of power failure as it has a longer battery life."



Ranveek Arora,
businessman

"With this service, I will save about Rs 500 to Rs 600 every month on my cellphone bills."

Bhatia adds, "Although the service has the potential to offer both voice and data services, as of now only basic voice service has been introduced. Soon MTNL will be introducing wireless data as well."

The forms for the Extended Cordless Service are available at the customer service centres located at Okhla Telephone Exchange, MTNL and UTStarcom are also doing a joint promotion on mobile rates to spread consumer awareness about this service. This is definitely a cheaper, more efficient alternative to the cellular.



Deepa Gupta,
RP Mahila
secretary

"With this system we won't be left at the mercy of line-men. The service is also affordable."



Harpreet Kalia,
homemaker

"I won't be missing any important calls any more. It's by far the best initiative taken by MTNL."



Kamal Arora,
marketing
executive

"While constantly shuttling between office and home, I no longer need to carry my cellphone."



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- Industry bodies of other wireless technologies have a strong presence in India – CDMA Development Group (CDG) and GSM Plenary
- Strong domestic corDECT lobby
- Industry association would be viewed as an unbiased body representing the entire industry
- Need to increase the visibility of PHS in India
- Work with key stakeholders in the sector apart [Department of Telecommunications, Operators, Regulator, Wireless Planning Commission, TEC, etc.] to open up the market to PHS
- Large opportunity as the sector is just opening up. India is one of the largest and fastest growing telecommunications markets globally



Proposed Action Items

- Represent the entire PHS community at all key fora
- Work towards a favourable frequency dispensation for PHS based systems :
 - Suitable allocation of frequencies in the micro-cellular band for PHS based systems
 - Expansion of the micro-cellular frequency band for basic service operators
- Expansion of the operating range of PHS equipment including handsets to match the allocated frequency [1880 – 1900 MHz]
- Work towards technology agnostic micro-cellular/WLL PTT tenders
- Work towards lowering of Customs Duty on basic services equipment and subscriber terminals
- Dissemination of information on global PHS related developments, both market and technology related



UTStarcom



Next Generation Network Technology. Now.

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