

# Addressing the Needs of Rural, Semi urban, Low Ability to Pay Customer

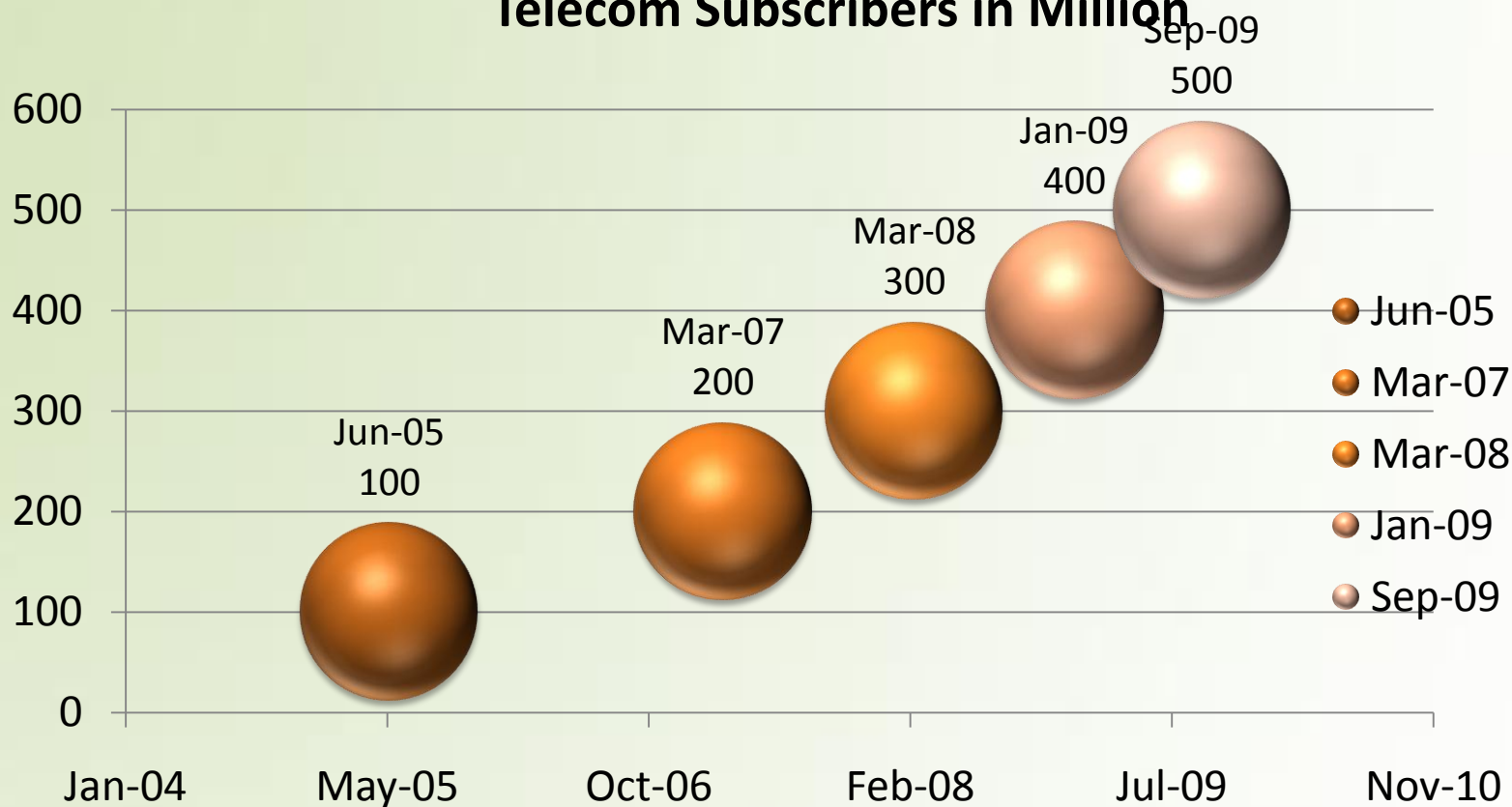
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## Agenda

- Telecom Growth pattern
- Indian Internet & Broadband Demography
- Need of rural sector
- Issues with Rural Broadband
- Way Forward

# Telecom Growth

## Telecom Subscribers in Million



| Subscribers      | Time                        |
|------------------|-----------------------------|
| 100 Million      | June 2005                   |
| Next 100 Million | March 2007 (1 year 9 Month) |
| Next 100 Million | March 2008 (1 Year)         |
| Next 100 Million | January 2009 (10 Months)    |
| Next 100 Million | September 2009 (08 Months)  |

# Telecom Growth

1997

Telecom Subscribers  
16.5 Million

Teledensity  
1.94%

2010

Subscribers  
581.81 Million

Teledensity  
49.50%

2005

- Broadband Subscribers  
0.18 Million

2010

- Broadband Subscribers  
8.03 Million

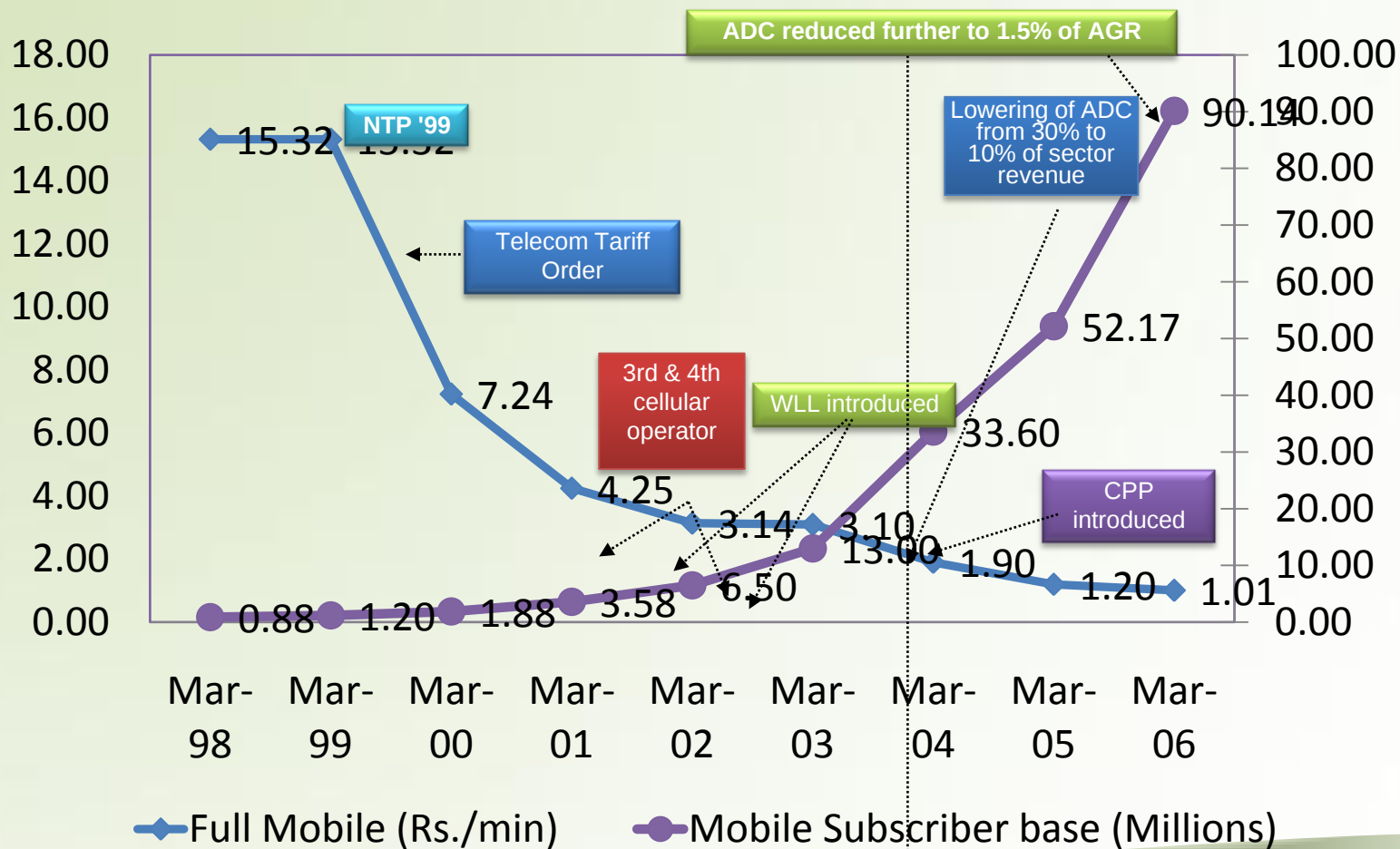
In last 12 year about 25 fold increase in teledensity.

In last 5 year about 45 fold increase in broadband subs.

# Urban Rural Divide

|                            | Urban  | Rural    |
|----------------------------|--------|----------|
| Population                 | 30%    | 70%      |
| Teledensity                | 105%   | 18.5%    |
| Mobile Subs                | 68.66% | 31.34%   |
| Quarterly Telecom Growth   | 9%     | 16%      |
| Broadband Subs             | 95%    | 5%.      |
| Quarterly Broadband Grwoth | 8.46%  | Neglible |

## Impact of Steps taken for increasing growth (Mobile growth and effective charge per minute)



| DoT Target |                     |               |
|------------|---------------------|---------------|
| Year       | Target of Broadband | Status        |
| 2007       | 09 Million          | 2.34 Million  |
| 2010       | 20 Million          | 8.03* Million |

\*status as on 31<sup>st</sup> Jan 2010

| Desirable Target |                  |                                             |                                 |
|------------------|------------------|---------------------------------------------|---------------------------------|
| Year             | No of Households | % of Households to be covered for broadband | Number of Broadband Subscribers |
| 2010             | 236 Millions     | 10%                                         | 23 Million                      |
| 2012             | 241 Millions     | 20%                                         | 48 Million                      |
| 2014             | 250 Million      | 40%                                         | 100 Million                     |

# India: Internet Demography

1 out of 3 computer user **still not using** internet

Most new broadband connections are **'replacement'**

Only **13%** of existing internet users prefer to **read in English**

4 out of 5 online Indian are in the 'prime' age of their life (19-35 years)

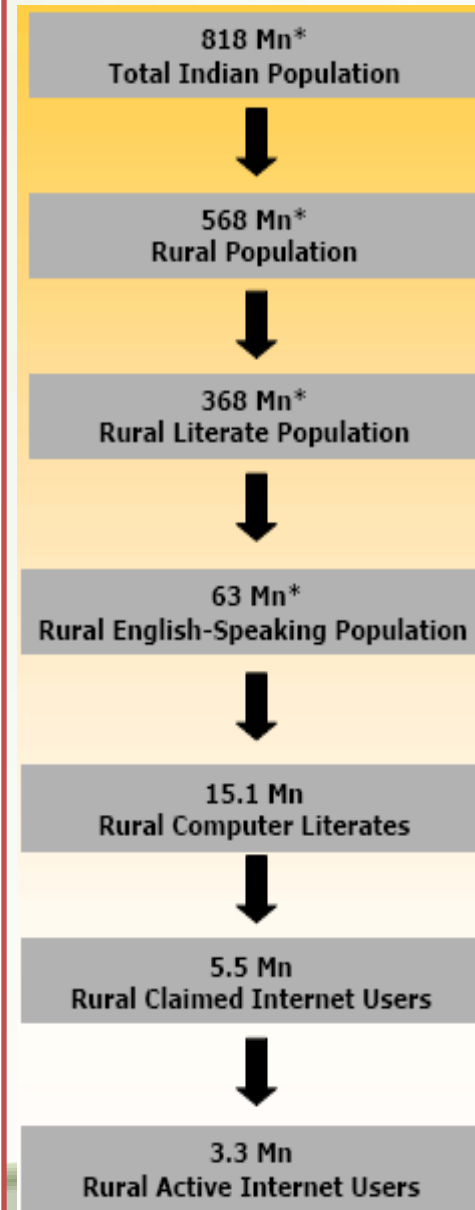
3 out of 4 belong to the 'consuming' and 'aspiring' class

Half of all Internet users are employed

Their average monthly family income is **3.2 times the national average**

- Customers in almost all major Asia Pacific regions consume internet content in their local languages with the exception of India
- 77% of Indian web audience is under the age of 35 and 41% is below the age of 24
- Indian internet users spend on an average **1.3 hours in a month on entertainment** which is half of APAC average.
- Indian users spend the lowest amount of time online in Asia Pacific at **11 hours in a month** which is half of that of global average of 22.4 hours
- News /information sites are accessed by 41.8 % of users in India
- Average searches per searcher is also the **lowest in India.**
- A search in Hindi (हिंदी) on Google will lead you at least **5-10 times lower number** of results compared to that in English.

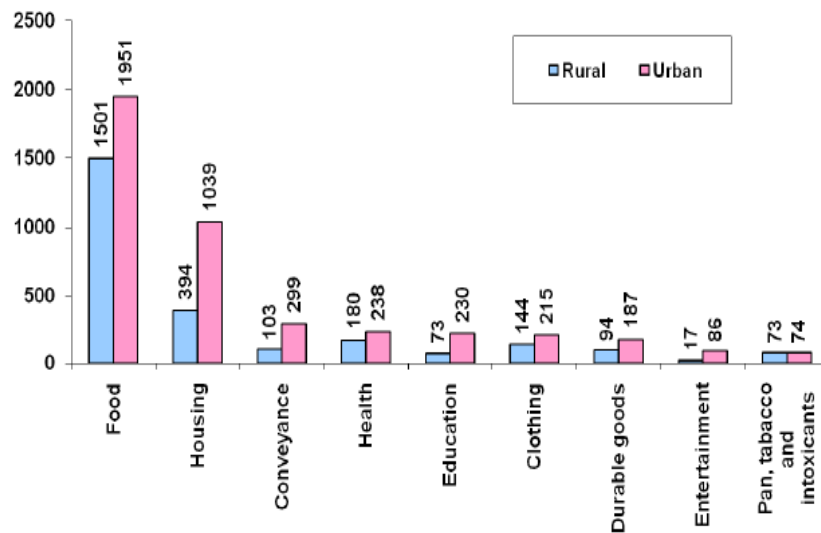
Source: Comsource



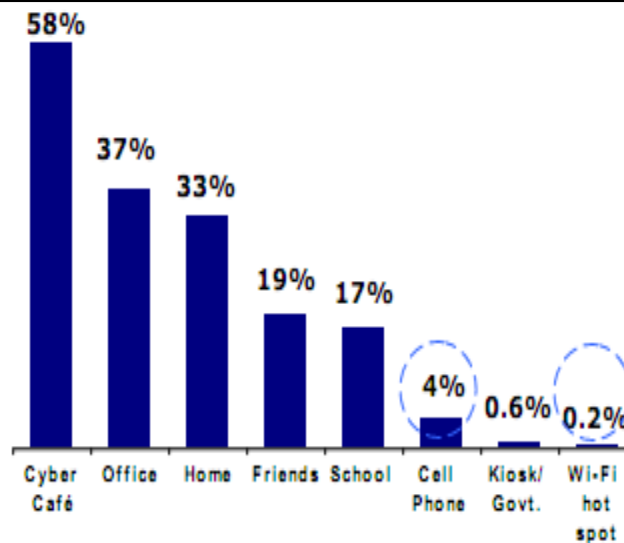
Source: NRS 2006

# Expenditure & Usage Pattern

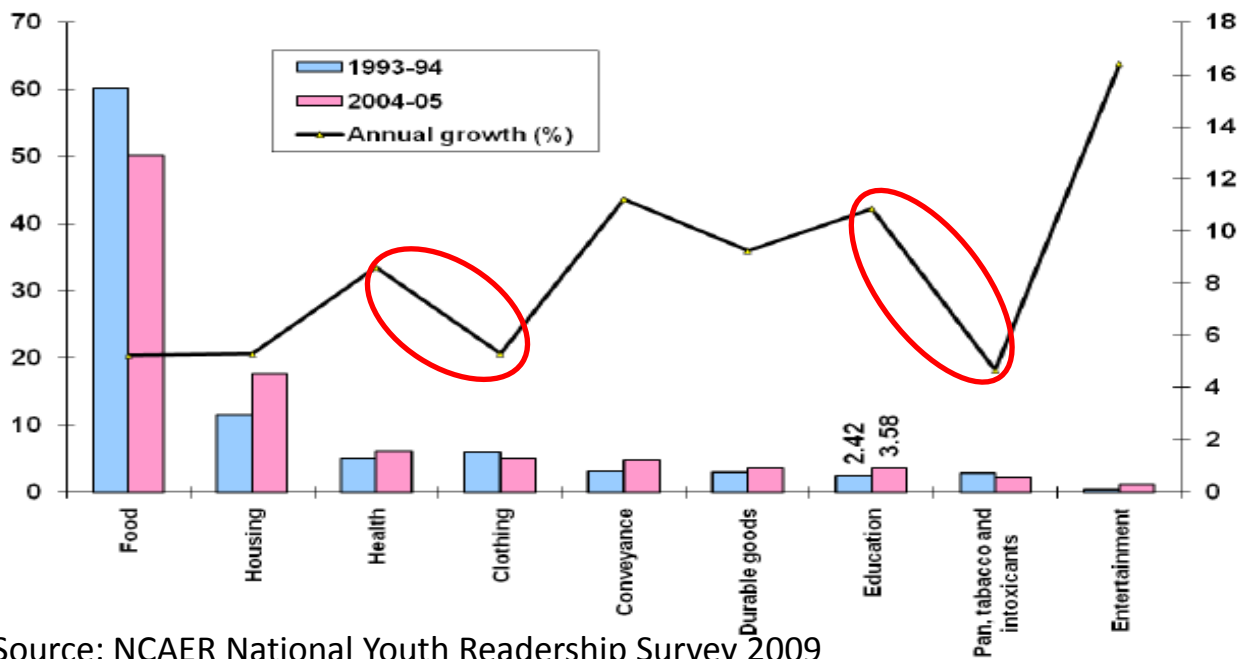
Monthly household expenditure  
(Rs. 2004-05)



Internet Usage location



Source: I cube, 2008, IMRB Syndication



Source: NCAER National Youth Readership Survey 2009

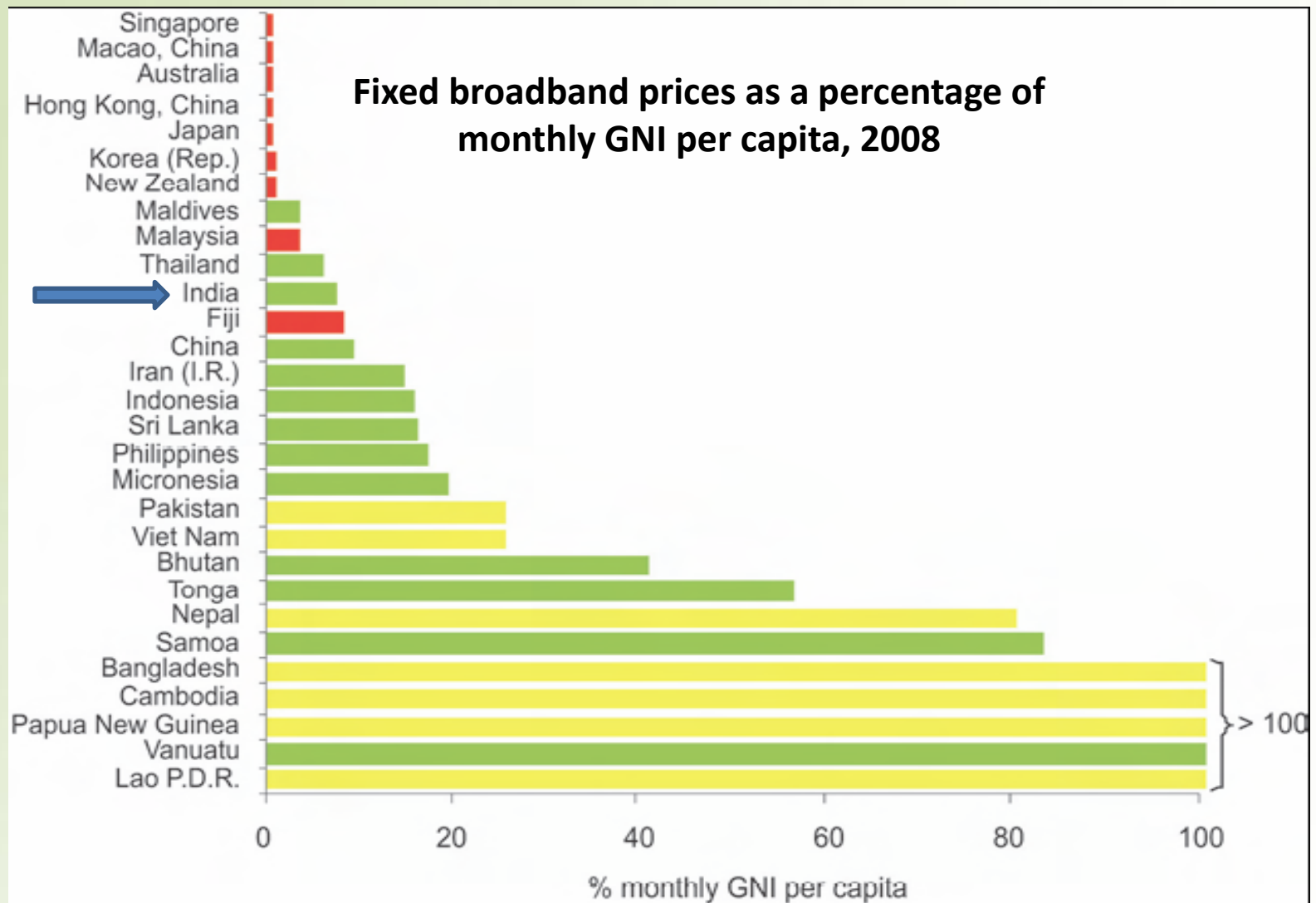
# Rural Demography

| Population           | No of villages | % of total villages |
|----------------------|----------------|---------------------|
| Less than 200        | 92,541         | 15.6                |
| 200-500              | 127,054        | 21.4                |
| 501-1000             | 144,817        | 24.4                |
| 1001-2000            | 129,662        | 21.9                |
| 2001-5000            | 80,313         | 13.5                |
| 5001-1000            | 18,758         | 3.2                 |
| Total no of villages | 593,154*       | 100.0               |

Remote villages

17% of villages account for 50% of rural population & 60% rural wealth

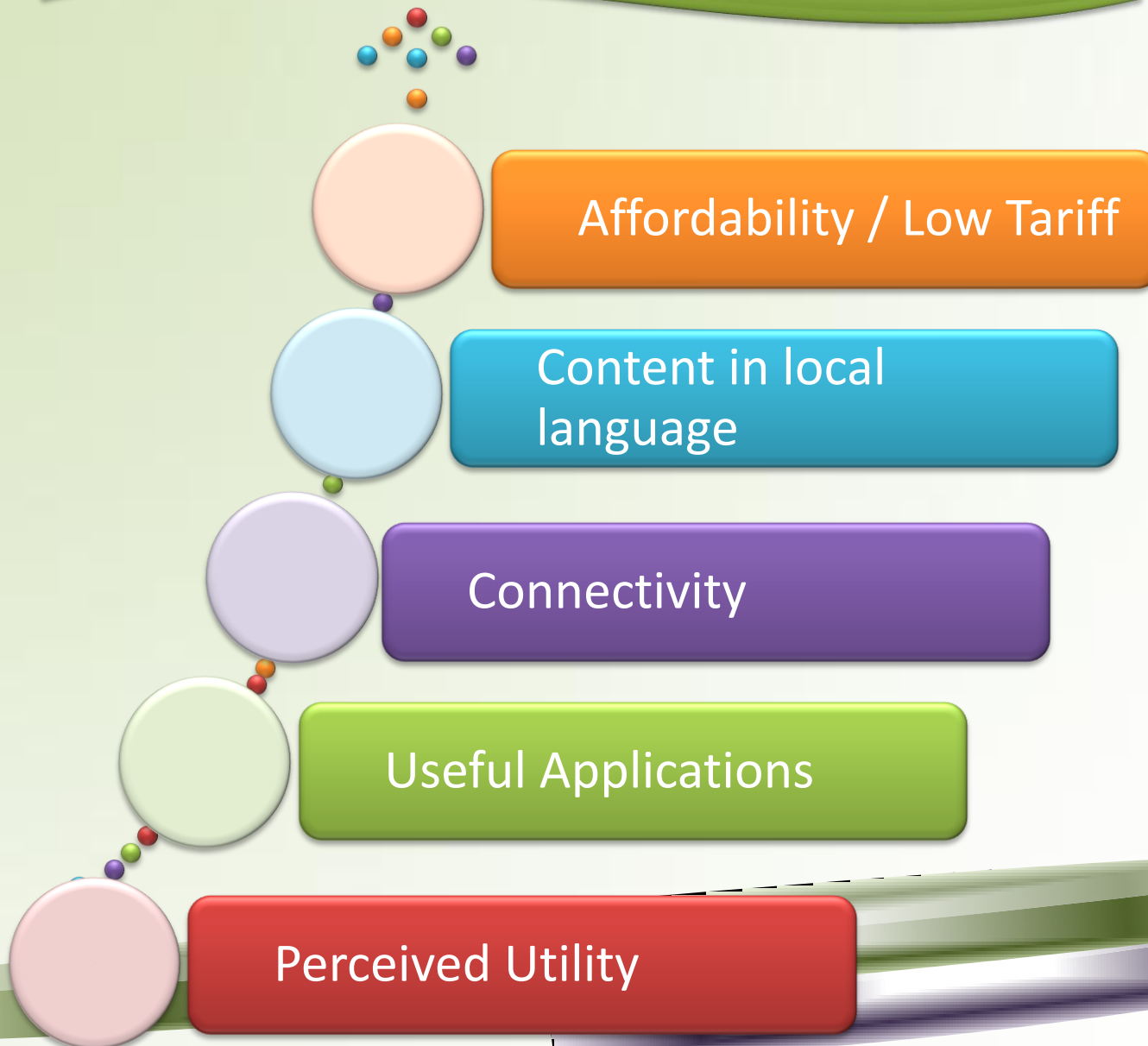
Source: NCAER National Youth Readership Survey 2009



Source: ITU Information Society Statistical Profiles 2009 - Asia and the Pacific

- Broadband entry level price in India seems to be affordable but download cost is high. Low penetration indicate limited BB availability and low utility of Internet at present. More useful contents are required to increase service utilization in masses.

## Growth Factors for Broadband



# Broadband Growth Growing Bandwidth Requirement

## Twitter

1.1 billion tweets (March' 08)

3 million tweets per day

## YouTube

70 million videos on YouTube

100 million views per day

1.2 billion streams per day

## Picking Applications

Cloud Computing

Grid Computing

## Total Bandwidth

|               |          |
|---------------|----------|
| March 2007    | 37 Gbps  |
| December 2009 | 505 Gbps |

## Present Scenario

| Application         | BW       |
|---------------------|----------|
| E-mail              | 64 kbps  |
| Chatting with video | 256 kbps |
| Video Clips         | 256 kbps |
| Video Streaming     | 2 Mbps   |

## Scenario 2012

| Application     | BW               |
|-----------------|------------------|
| Video on Demand | <b>3-4 Mbps*</b> |
| Online Gaming   |                  |
| Video streaming |                  |
| IPTV            |                  |

## Bandwidth Requirement Forecast

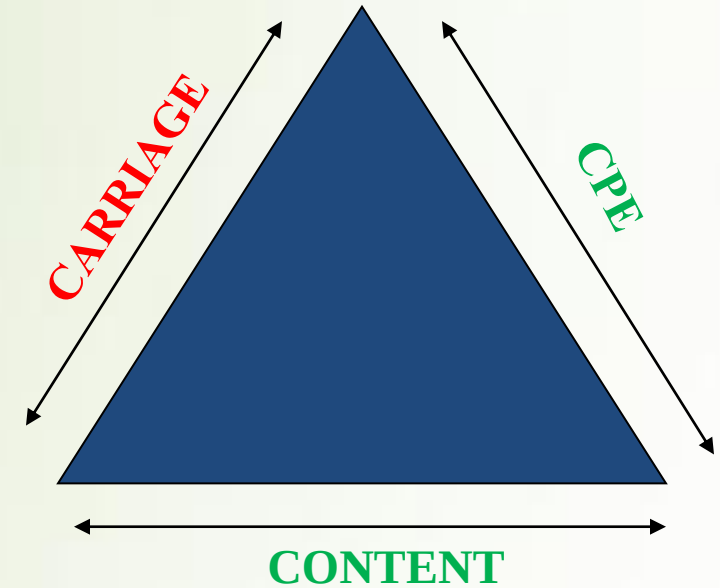
| Year | No of Households | Forecast    | Contention Ratio (1:50) | Core Bandwidth Requirement (@3mbps per user) |
|------|------------------|-------------|-------------------------|----------------------------------------------|
| 2010 | 236 Millions     | 23 Million  | ~0.5 Million            | 1500 Gb                                      |
| 2012 | 241 Millions     | 48 Million  | ~1.0 Million            | 3000 Gb                                      |
| 2014 | 250 Million      | 100 Million | ~2.0 Million            | 6000 Gb                                      |

Within 3 years time from March 2007 to December 2009 bandwidth utilization has increased more than 13 times.

By 2012 bandwidth requirement will increase by about six-fold to 3000 Gbps as compared to present domestic and international requirement of 274 Gbps & 231Gbps (31<sup>st</sup> Dec 2009).

## • 3C Diagram: The growth of Internet & Broadband depends on 3Cs

- Appropriate network to **carry** broadband.
- Suitable **content** development and availability.
- Availability and affordability of **Customer premises Equipment (CPEs)**.



low Income and geographical variance  
lack of customized applications and content

Higher Cost of Access  
Higher Cost of end equipment / PCs

Non availability of suitable content in local language  
Non Availability of useful / need based application

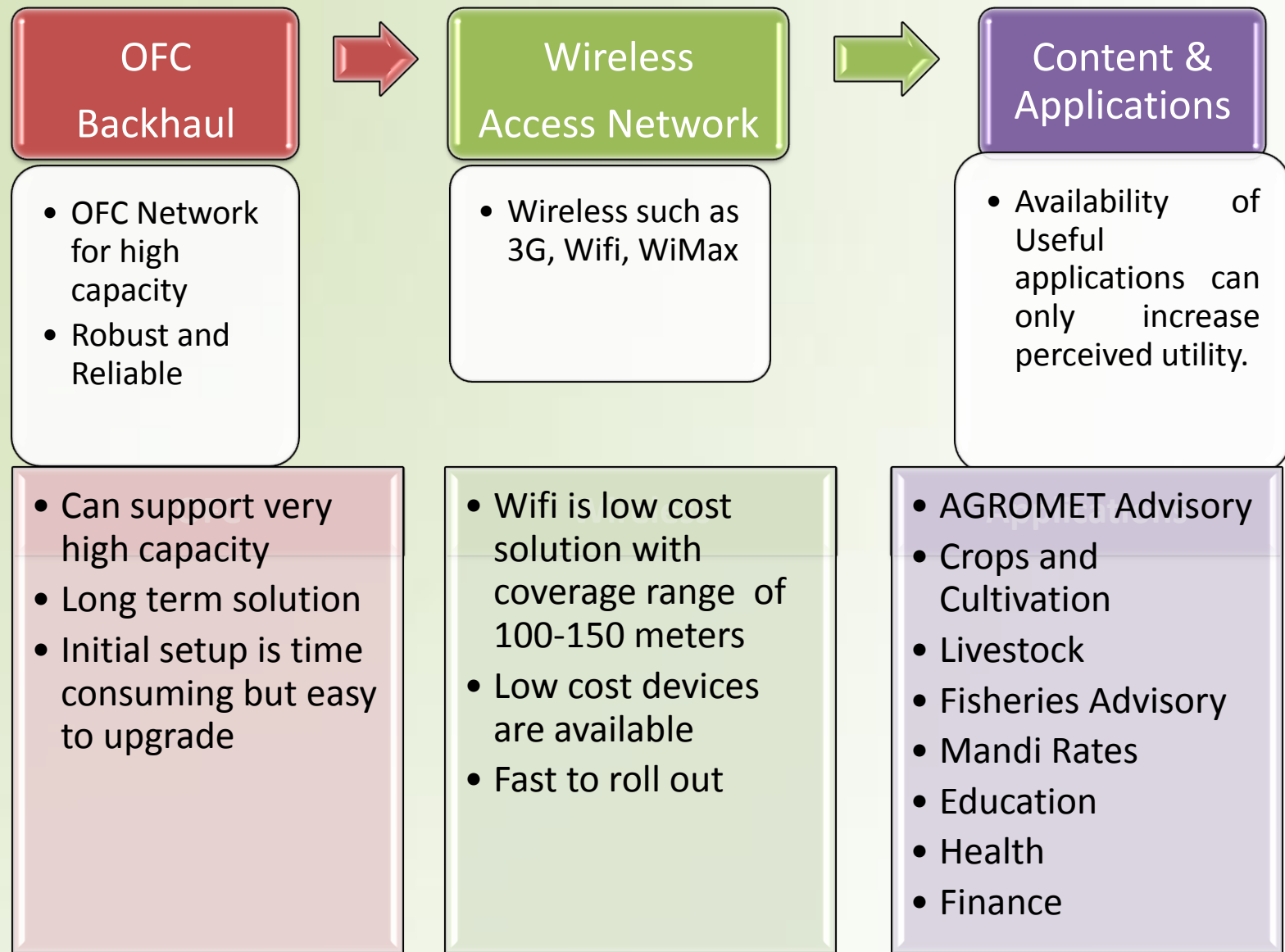
Low ARPU  
Non availability of sufficient back haul capacity  
Low literacy

## Optical fiber for Backhaul

- Can provide **enormous bandwidth** to support Broadband.
- Optical fiber is **reliable, stable and long term solution**.
- Capacity of the Optical fiber to carry information can be enormously enhanced by **just upgrading the end equipments**. It is easy and a standard practice.
- **A Hybrid network with wireless in access network and optical fiber in core network** shall be the desired solution at present. It will boost fixed mobile convergence reducing pressure on spectrum requirement.
- Optical fiber can also provide **high bandwidth connectivity from central Hub (Switch) to customer premises** in access network.
- Cost of fiber is not high. However, cost of **Right of Way (RoW)** is a major concern.

**National Optical fiber network shall be required not only to support broadband core network but also to meet high bandwidth demand of mobile network backhaul and Multi System Operators distribution network.**

# Business Model



**Price of broadband, perception of utilization and affordability is a concern and need to be addressed in business model.**

## Key Steps to boost Broadband

- **Create** national optical fibre infrastructure up to the villages.
- **Integrate** existing optical fibre networks under various central and state government IT projects for efficient utilization of resources.
- **Develop** appropriate content and applications in vernacular language to improve perceive value of utility for various contents and applications.

## Who should Initiate action

- Government may initiate action for creation of national optical fibre network.
- An independent agency may be created to manage national optical fibre network.
- Service providers may encourage development of new contents and applications in vernacular language. Open source platforms for development of various applications may be encouraged.

# Thank You

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