



International  
Telecommunication  
Union

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*ITU Regional Development Standardization  
Forum on "Bridging the ICT standardization  
gap in developing countries"*

*Activities of the ITU-D on ICT*

**Accra, Ghana, 26-30 May 2008**

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# *ITU in the Information Society*

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5 regional  
offices, 8  
area offices  
HQ in  
Geneva,  
Switzerland



# *Our Framework - An Action Plan of 6 Programmes*

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- ❑ Regulatory Reform
  - ❑ Information and communication infrastructure and technology development
  - ❑ E-strategies and ICT applications
  - ❑ Economics and finance including costs and tariffs
  - ❑ Human capacity building
  - ❑ Least developed countries and small island developing states, and emergency telecommunications
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# *Cross-Cutting Initiatives*

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## **Activities**

- Statistics and information on telecommunications/ICT
- Partnerships and promotion

## **Special initiatives**

- Private Sector
- Gender
- Young people and children
- Indigenous people and communities
- People with disabilities

## **Regional initiatives**

- Africa / Americas / Arab Region / Asia-Pacific / CIS

## **WSIS Implementation**

- WSIS Action Lines

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## *Priority Areas*

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### **Enabling Environment for ICT investment**

(Regulatory and policy harmonization, training, toolkit, best practices, global symposia)

### **ICT Infrastructure/Access**

(Rural connectivity, regional interconnectivity, Tele-centres, village phone/shared access, Low cost connectivity, shared infrastructure)

### **ICT Applications and Cybersecurity**

(E-government, cybersecurity, e-health, e-education)

### **Capacity Building**

(Centres of Excellence, Internet Training Centres, Scholarships, internships, employability)

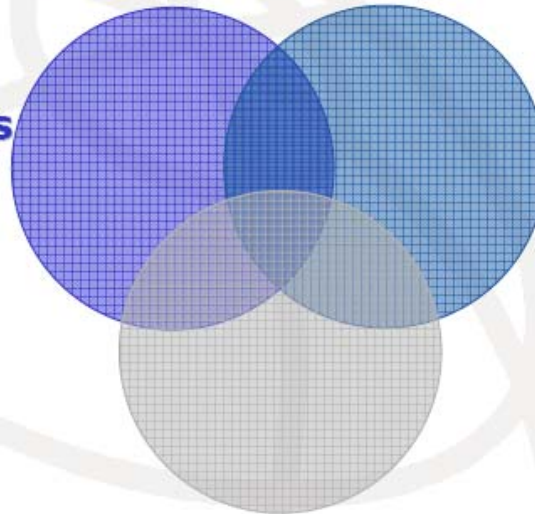
**Emergency telecommunications**(Standards, network rehabilitation, frequency allocation, collaboration for rapid deployment of equipment etc.)

# Key Development Issues

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## ITU-D Study Groups

**ITU-D Study Group 1  
Telecommunication  
development strategies  
and policies**

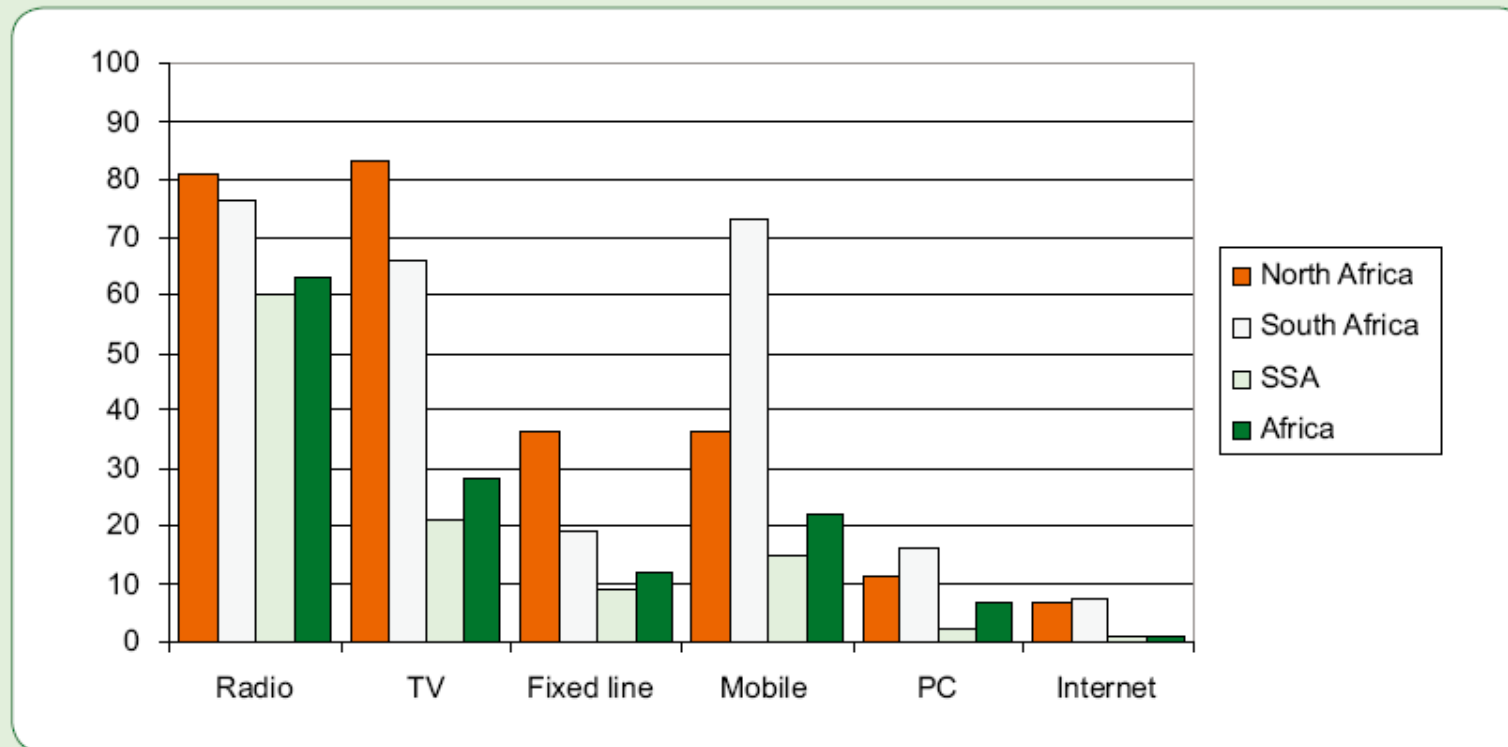


**ITU-D Study Group 2  
Development and  
management of  
telecommunication  
services and networks**

**Collaboration with others ITU-T and ITU-  
R Study Groups  
Global Initiatives or Focus Groups**

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## *Percentage of households with ICTs, latest available data, Africa*

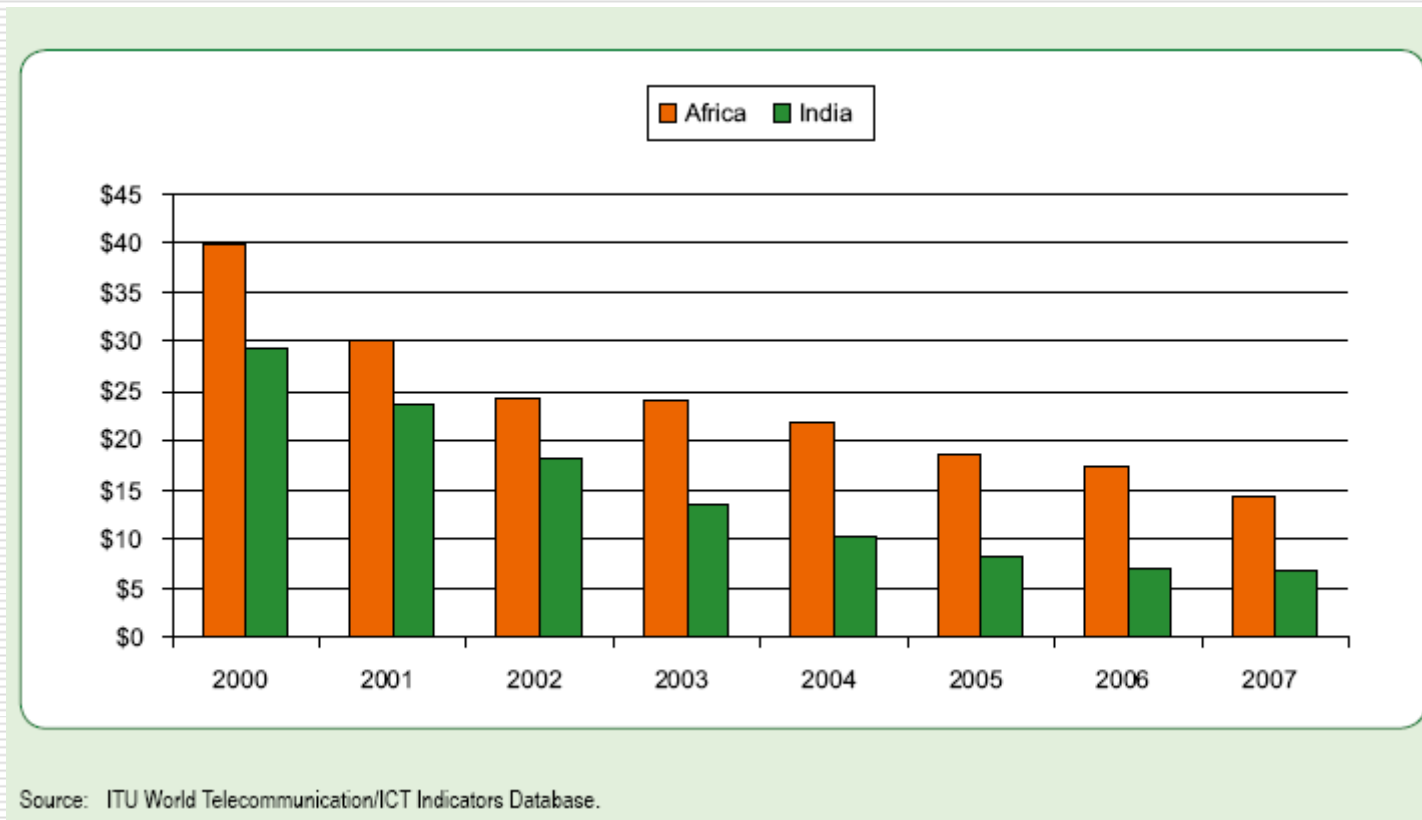


Note: This analysis is based on a simple average of all those countries with data available.

Source: ITU, adapted from national household surveys from national statistical offices.

# *Mobile ARPU, US\$, Africa in comparison with India*

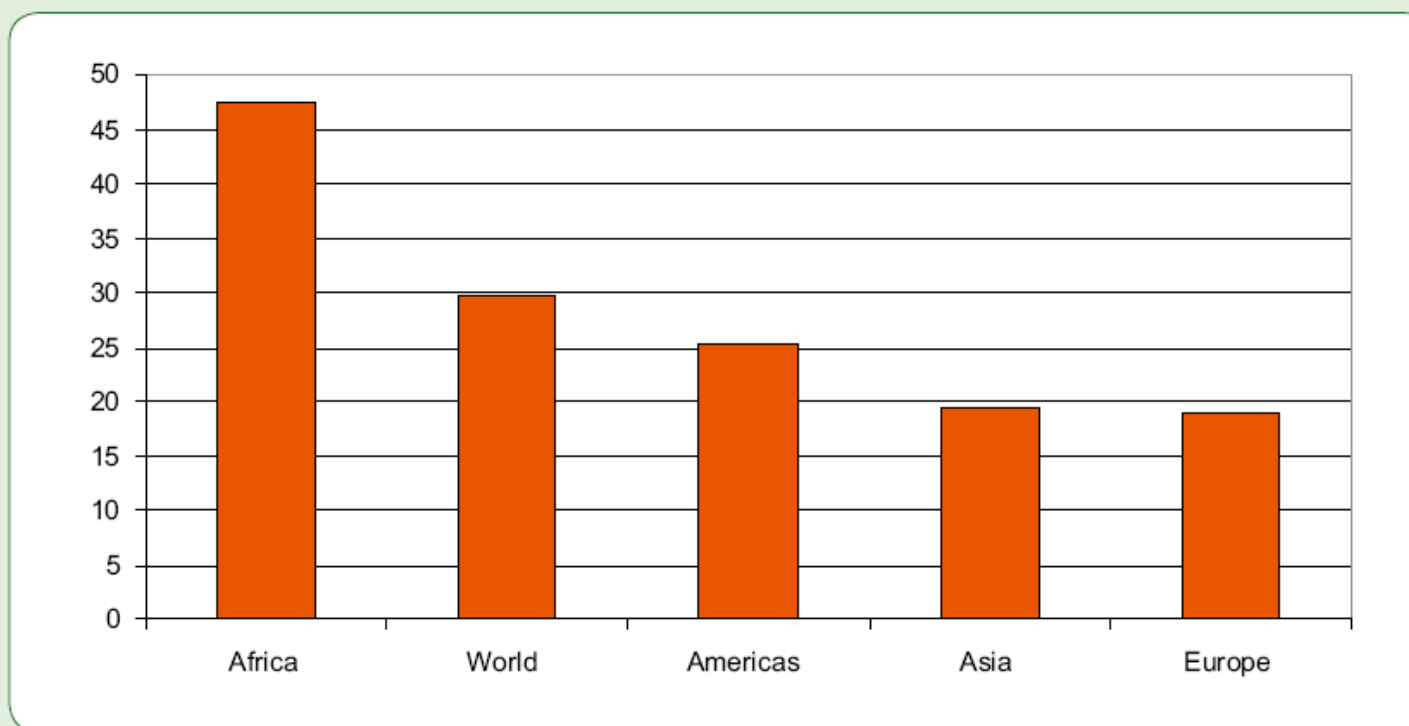
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## *Price basket for Internet (US\$ per month), 2006*

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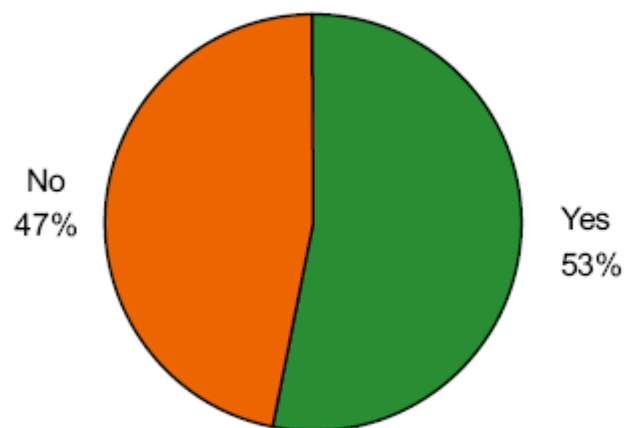
Source: ITU.

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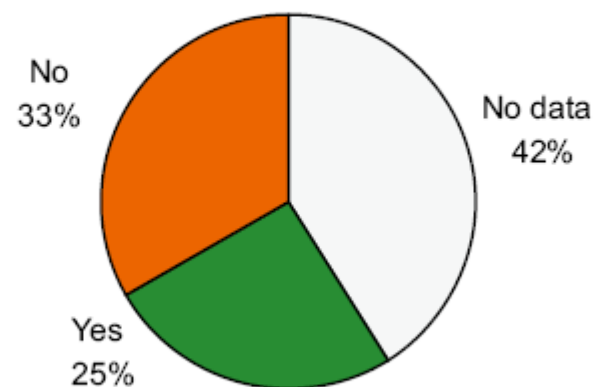
## *Status of VoIP, Africa, 2007*

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**Are users allowed to make voice over IP phone calls?**



**Does your country have policies or regulations in place that deal with VoIP ?**



Source: ITU World Telecommunication Regulatory Database.

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# Bringing the benefits of ICTs to the population

**Global E-Government Project**

ITU International Telecommunication Union

European Union

**Enhancing Government Services Through the Use of Secure and Trusted Internet Infrastructures and Applications**

**Project implementation period**

- Phase 1: January 2003-December 2005
- Phase 2: January 2006-December 2008

**Beneficiary countries**

- Phase 1: Cameroon (Africa), Kyrgyzstan (Central Asia) and Rwanda (least developed country (LDC), Africa)
- Phase 2: 10 countries globally selected from the regions of Africa, Asia, Europe and Latin America

**Key success factors**

ITU is seeking to increase government efficiency and transparency in developing countries by providing Internet-based services and applications to citizens. ITU is working actively with beneficiary countries to ensure successful project implementation:

- ITU's E-Strategies Unit identifies, together with decision-makers in the beneficiary countries, the priorities, needs and user requirements for the project.
- A series of e-Government services are proposed to each government, including secure e-mails, e-Transactions, e-Procurement, e-Passport, e-Learning and online government information services.
- The evaluation of project impacts will be carried out 12 months after the service rolls out. Key performance indicators will be established taking into consideration various factors such as strategic objectives, cost efficiency, service delivery outcomes and social-economic benefits.
- Once implemented in the selected countries, this project can be replicated at low cost in other countries that meet the same criteria.



# *Bringing the benefits of ICTs to the population*

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**Secure e-mail:** Security features like digital signatures and encryption.

**E-Mandate:** Through the use of Public Key Infrastructure (PKI) technologies, a secure tool for the processing of postal mandates via Internet in post offices

Training

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# *Bringing the benefits of ICTs to the population*

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**Public Internet Access:** equip and connect to Internet 16 sites, of which 5 are located in Bishkek and 11 are located in provinces.



**E-Government web portal:** provide information from the government in a systematic and structured way to the citizens of the Republic

**E-Agriculture:** - Enable rural farmers in Madaniyat to have access to information on the price of their produce- Vital information on agriculture to the rural population.

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# *Bringing the benefits of ICTs to the population: connecting schools*

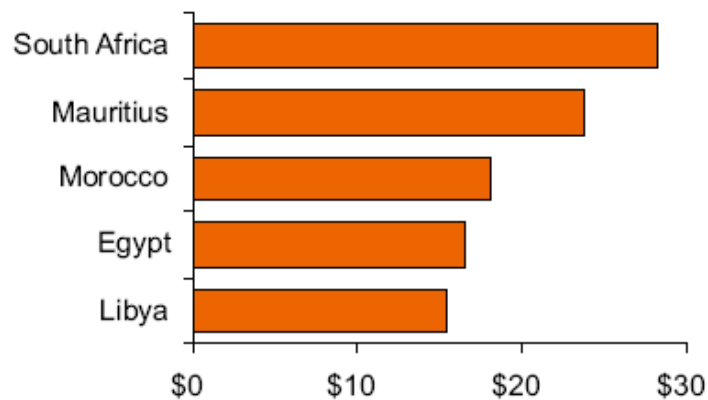
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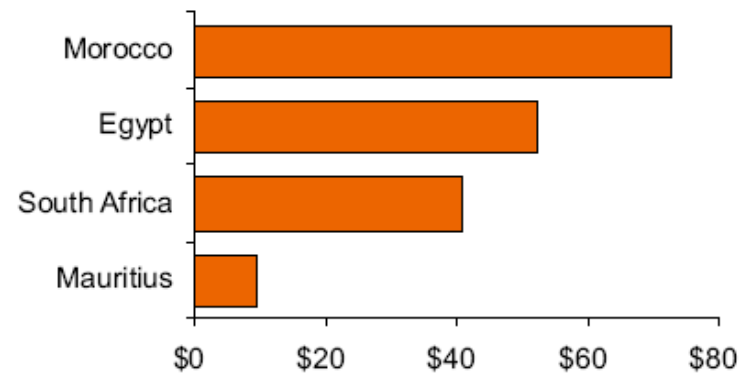
# *Broadband brings changes: broadband pricing in Africa, 2007, US\$*

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**Cheapest monthly DSL pricing in Africa, 2007, US\$**



**Cheapest monthly W-CDMA pricing in Africa, 2007, US\$**



Note: In the left chart, prices refer to 256 kbps downstream capacity, except for South Africa (384 kbps).

Source: ITU World Telecommunication/ICT Indicators Database.

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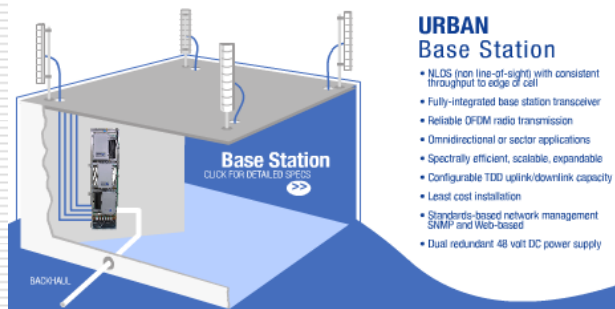
## *Broadband brings changes*

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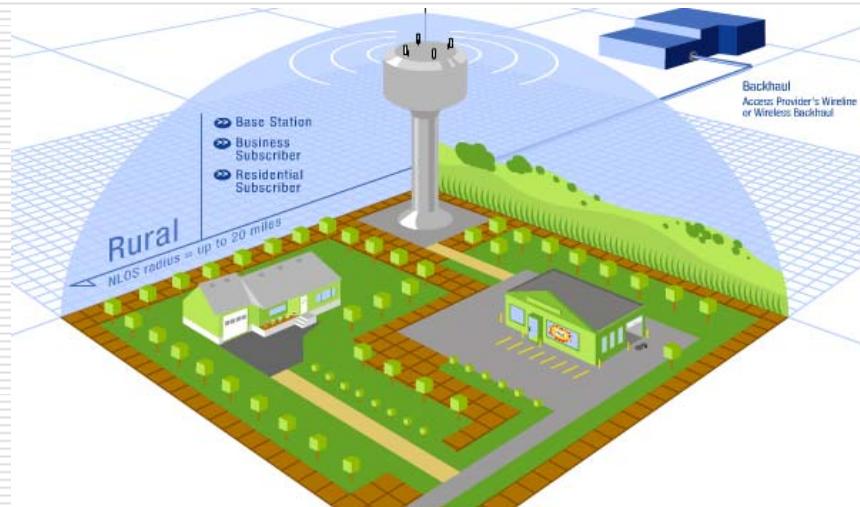
- Wireless connectivity
    - Pre-WiMax solutions
    - Wi-Max (IEEE 802.16e, mobility)
      - Range: theoretically 50 km, in practice 15 km
      - Bandwidth: theoretically 80 Mbps, in practice 20 Mbps (within the cell)
    - CDMA 2000: 1xEVDO
      - Range: theoretically 30 km, in practice 10 km
      - Bandwidth: theoretically 2 Mbps, in practice < 2 Mbps
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# Wireless Broadband Urban Connectivity



# Wireless Broadband in Rural Areas



**RURAL Base Station**

- NLOS (non line-of-sight) with consistent throughput to edge of cell
- Fully-integrated base station transceiver
- Reliable OFDM radio transmission
- Omnidirectional or sector applications
- Spectrally efficient, scalable, expendable
- Configurable TDD uplink/downlink capacity
- Least cost installation
- Standards-based network management SNMP and Web-based
- Dual redundant 48 volt DC power supply

**Base Station**  
CLICK FOR DETAILED SPECS

BACKHAUL

**RURAL Business**

- Indoor, NLOS coverage up to 5 miles from base station
- Consistent throughput performance to edge of cell
- Configurable service levels (QoS) to support small and medium enterprises
- Plug-and-play subscriber unit (CPE) connects to computer or LAN through standard Ethernet port
- Self-installable subscriber unit – no truck rolls required
- Outdoor NLOS subscriber unit available

**Outdoor Subscriber Unit**

**Indoor CPE**  
CLICK FOR DETAILED SPECS

# Conclusions

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- ❑ Challenges :
    - Internet Backbones and –(QoS)
    - Financial \$\$\$ (Internet Only or Internet + Voice + Mobility)
  - ❑ Core network: Designing
  - ❑ Appropriate International Bandwidth
  - ❑ Transport (OF-DWDM)
  - ❑ Access Strategies: Internet Access, Pre-WiMax, WiMax - (Interoperability and mobility?)
  - ❑ Broadband Licensing
  - ❑ Connecting the World by 2012
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THANK YOU FOR YOUR ATTENTION

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