

Universal Service: Trends, opportunities & best practices for Universal Access to Broadband services

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opening telecommunications opportunities

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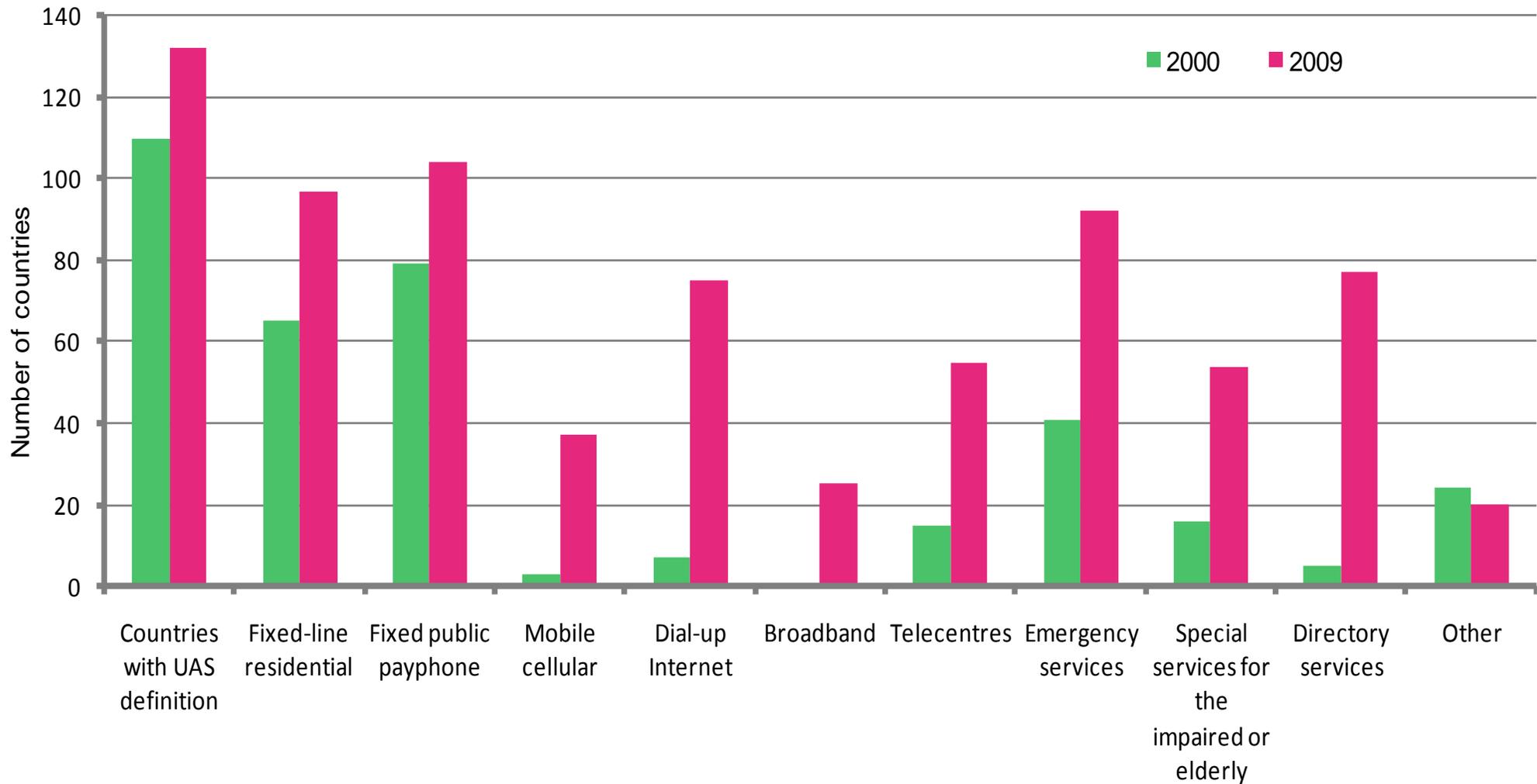
Universal Access & Service today

- ❑ **Universal Access and Universal Service are taking place together (UAS) in almost every country**
 - Tailored separately to Urban, Mid –rural & Remote
- ❑ **Voice service**
 - Mobile has transformed the market & is also leading convergence
 - Universal service in urban and rural towns at all income levels
 - Universal access in remote places – beyond wire or mobile coverage
- ❑ **Internet – Useful UA *is* Broadband**
 - Essential facilitator of modern development
 - But Universal Service is much more complex – *useful content* is key
 - IP based services (VOIP/ IPTV) also a driver of the market
 - Access to Broadband is taking on a different look in various countries

What are the key UAS trends?

- 1. Much more ambitious goals – towards e-inclusion across all sectors of the economy**
- 2. Internet more closely aligned with voice**
- 3. Targets being set higher & dates compressing**
 - Greater urgency for the economic benefits
 - Broadband essential for the economy – now eclipsing other aspects of UAS
- 4. More complex interactions necessary with other policies and between Government agencies**
- 5. Greater interest in reaching rural areas by commercial companies, especially mobile**
- 6. Common access *and competitive* infrastructure needed**
- 7. Funding – USFs, direct budget/stimulus & PPP's**

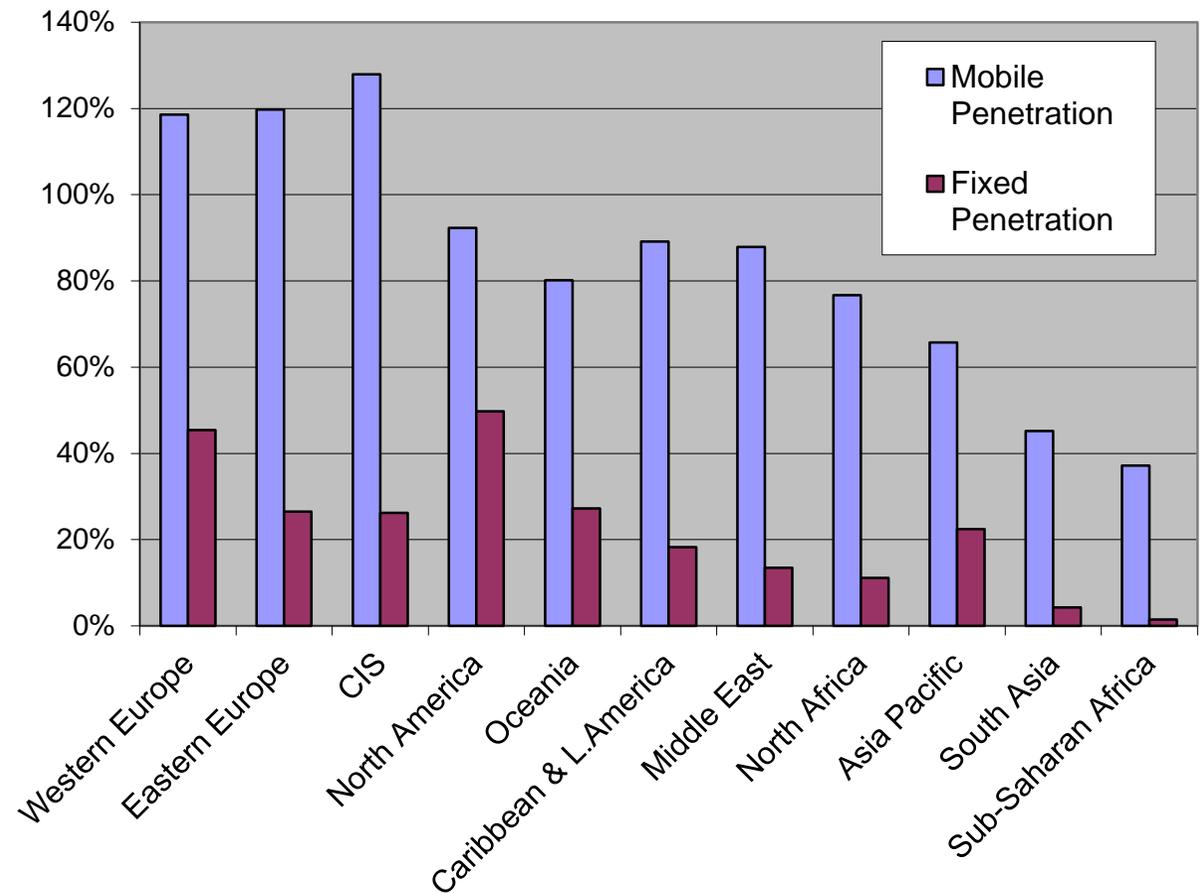
Components of UAS around the world ITU



Much more ambitious goals

- Driven by mobile success
- Countries are achieving UA for voice and move to US goals for voice as mobile phone penetration rises
- Migration to 3G & 4G increases Internet expectations & possibilities

Fixed and Mobile Penetration 2009



Much more ambitious goals (2)

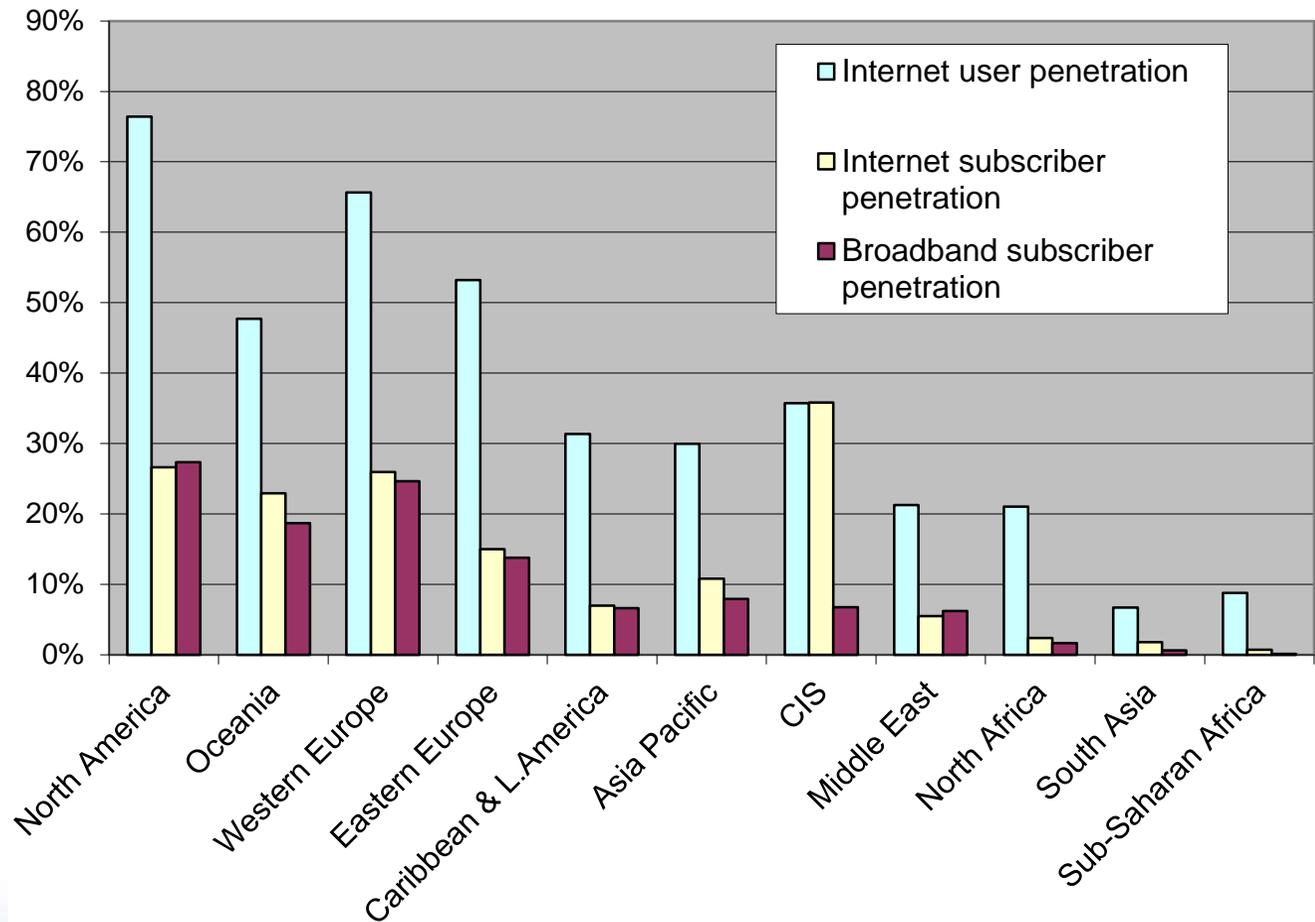
Internet UAS requires broadband, but still a long way to go

- Top 15 markets still average only 35%, but
- Household penetration more important

Focus shifts from simple access to

- Bandwidth/speed
- ICT capacity/ ability
- Methods of verification
- Applications/services
- e-inclusion

Internet subscriber, user and broadband penetrations by region, 2009

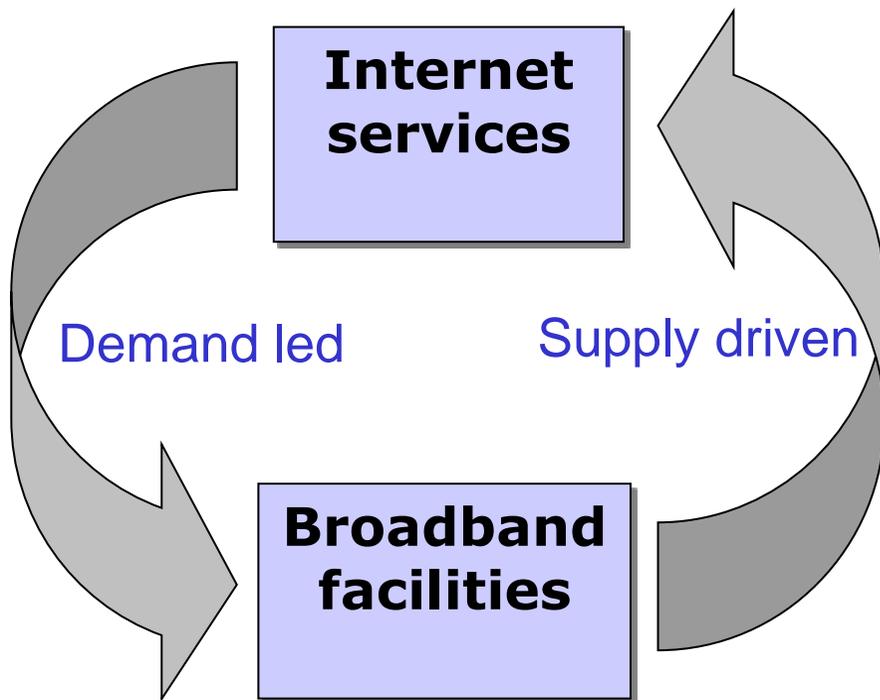


UAS and broadband policies are merging

UAS policy

Strong focus on Internet which requires minimum broadband speeds

Increased focus also on ICT enablement & training



Broadband policy

Includes wide range of measures

Typically addresses broadband nationally

But heaviest intervention/ incentives required for rural areas

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UAS policies migrating to (rural) Broadband policies

Broadband is more than technology

Must integrate

- Diffusion of PCs and Internet access devices**
- Web Content, applications (“apps”) & services**
- eGovernment**
- New Law and Regulatory Policy**
 - Upgrade of Licensing
 - RF Spectrum
- Infrastructure policy**
 - Common access/competition /subsidy
- Policy coordination to underwrite ISP demand in education, health, administration**
- Skills and capacity development**

Must also coordinate ICT Policy/Strategy and the Financing instrument/agency

UAS integration with other programs

❑ Education

- Vanguard user to be targeted under UAS
- First priority & demand – the emerging generation
- Education Ministry responsible for the computer strategy

❑ e-Government / e-governance

- ICT improves administration, services, health, etc.
- Accountability

❑ Electricity

- Raises the potential for ICT demand
- Reduces the complexity & cost of infrastructure build-out

❑ Microfinance and m-banking

- Allied initiatives with pro-rural and pro-poor direction
- m-banking regulated under Central bank but reliant on increasing ICT reach & telecom operator innovation

Five approaches to Broadband Policy

	Approach	Leading country examples
1	Competitive tender to build new backbone &/or access infrastructure	Canada, Chile, Sri Lanka, Singapore, USF countries
2	Create / Underwrite Demand	Malaysia, Singapore
3	Stimulate Private Demand in the ICT Sector – e.g., PC initiatives, industry & educational initiatives, local services	Korea, China, Egypt, Thailand
4	Regulatory Reform, liberalisation, licensing, spectrum frequencies, & USF	Pakistan, India, S. Africa, Chile, Brazil, Peru
5	Integral part of an Economic Stimulus package	USA, UK, Canada, Japan, Finland, Singapore, Korea, Australia

- These address the main obstacles to broadband development
- Not necessarily exclusive to one another
- May be pursued in combination

Broadband → Digital/ICT Strategies

Most recent trend is re-naming to reflect breadth of policy

- ❑ **UK: Digital Britain (2010)**
- ❑ **EU: Digital Agenda for Europe (2010)**
- ❑ **Australia: Australia's Digital Economy – Future Directions (2009)**
- ❑ **Norway: eNorway 2009 – The Digital Leap (2009)**
- ❑ **New Zealand: Digital Strategy 2.0 (2008)**
- ❑ **Chile: Digital Development Strategy 2007-2012 (2007)**
- ❑ **Philippines: ICT Roadmap (Under revision)**

Trend to “e-Inclusion”- ICT in all sectors

- ❑ **Originally EU-centric term but is now the trend globally.**
- ❑ **Includes both ICT and the use of ICT to achieve wider inclusion objectives.**
- ❑ **The Riga Declaration (June 2006) stressed actions in the following areas:**
 - Improve digital literacy & competencies
 - Reduce geographical digital divides
 - Use ICT to promote cultural development & diversity
 - Promote inclusive e-government
 - Use ICT to address the needs of older workers, elderly & disabled
 - Enhance e-accessibility & ICT usability for people of all abilities, gender & social standing

Digital/ICT Strategies - examples

Common Topics Addressed in ICT Strategies								
Country	Access/ Inclusion/ Infrastructure	Legislative/ Regulatory Framework	Content Creation	eGovernment	Interoperability/ Standards	Security / Cyber- crime	Research/ Innovation	Skills/ Training/ Education
Australia	●	●	●	●		●	●	●
Chile	●	●		●	●	●	●	●
Egypt	●	●	●	●		●	●	●
EU	●	●	●	●	●	●	●	●
Kenya	●	●	●	●	●	●	●	●
Malaysia	●	●	●		●	●		●
Netherlands	●	●	●	●	●	●	●	●
New Zealand	●	●	●	●	●	●	●	●
Norway	●	●		●	●	●	●	●
Seychelles	●	●	●	●			●	●
Singapore	●	●	●	●	●	●	●	●
South Korea	●		●	●	●	●	●	●
UK	●	●	●	●	●	●	●	●

Government structural approaches

- ❑ **Central ICT Policy – Ministry or Agency**
- ❑ **Inter-Governmental Coordinating Committee**
- ❑ **New, expanded approaches to Public-Private Partnerships**
- ❑ **USF is still a key financing instrument and most often remains separate from the Policy agency**
 - Regulatory Authority most often hosts the USF, but USF could also be an independent company
 - Credibility and Transparency
 - Technical Expertise
 - Consultative with stakeholders
 - Experience with tendering
 - Separation from Government accounts
 - Public Private Board Management

Experience with USFs

- ❑ **100+ countries have decided on use of USFs for financing UAS**
 - Around 50-60 fully operational to date
- ❑ **The “Ideal” tool of a liberalized market, replaced monopoly cross-subsidization, but**
 - Some (e.g., Malaysia 6%, India 5%) have over-collected from operators
 - Most collect between 0.5-2% (**ECTEL** – Yr 1 0.25%/Year 2 0.5%/Yr 3+ 1.0%)
 - No developing country fund has distributed more than 2%
 - Only a few have successfully balanced receipts with disbursements
- ❑ **Should be used for current & future needs**
 - Target Broadband Access & backbone – Chile, India, Pakistan, S.Arabia
 - Competitive bidding process suitable to most cases
 - Can be used effectively for demand side funding – e.g., schools ICT
 - Should be balanced with other means and with targeted UAS supply side (e.g., rural) credits

Enabling regulation for broadband

As important as funding

- ❑ **Good competitive practice applies especially to broadband**
 - Open access to dominant access networks
 - Access to international connectivity & capacity
 - Competition, joint volume purchase, or both
- ❑ **Liberalization of backbone:**
 - Enforcement or inducement to sharing & co-location
- ❑ **Facilitate legal/regulatory status & strengthen financing tools**
 - USF will remain a key institution for its process skills
 - PPPs may increasingly be the roll-out vehicles
- ❑ **Tax/fiscal incentives to network components & build-out**
 - Growth brings economic & social returns
- ❑ **Convergence & transition to IP/NGN**
 - Consider position of VOIP (“killer app”) & multi-media

Licensing & UAS to Broadband

- **Countries that reform licensing regime in response to convergence, with technology neutral or unified licences, have opportunity to incorporate new UAS targets**
 - UAS targets more easily accepted in return for licences' flexibility
- **Newly offered licences can include territorial and UA obligations to Internet & broadband**
 - Important that those conditions are made public in advance
 - S.Africa's new entrant Neotel has to provide broadband connectivity to 5,000 public schools and rural medical clinics
- **Competition for new spectrum based licenses (3G, WiMAX)**
 - Mandatory roll-out targets & public and school access requirements
 - Matching attractive urban with less attractive region
- **Consider license fee reductions for meeting rural targets**
 - "Ex ante" subsidies may be more efficient than ex post

Frequency spectrum trends

First steps route towards broadband can be tactical

□ Review and expanded use of 850MHz & 900MHz

- Advantage of increased 3G coverage radius for rural areas
- UMTS900 - 3G networks using 900MHz 2G spectrum have been rolled out in Finland, Iceland, Australia, New Zealand, Thailand, Venezuela.
- Saudi Arabia also has approved the use of UMTS900 on its UAS strategy to bring 512 Kbps to all rural areas.

□ 700/800MHz – Digital broadcast “premium”

- Use for 4G mobile / LTE developing quickly & also useful for rural

□ CDMA 450MHz

- Has even better potential for coverage radius
- Broadband capable networks in Belarus, Czech Republic, Estonia, Georgia, Germany, Hungary, Indonesia, Kyrgyzstan, Latvia, Portugal, Romania, Russia, Tajikistan, Mongolia, Tanzania, Ukraine, Uzbekistan.

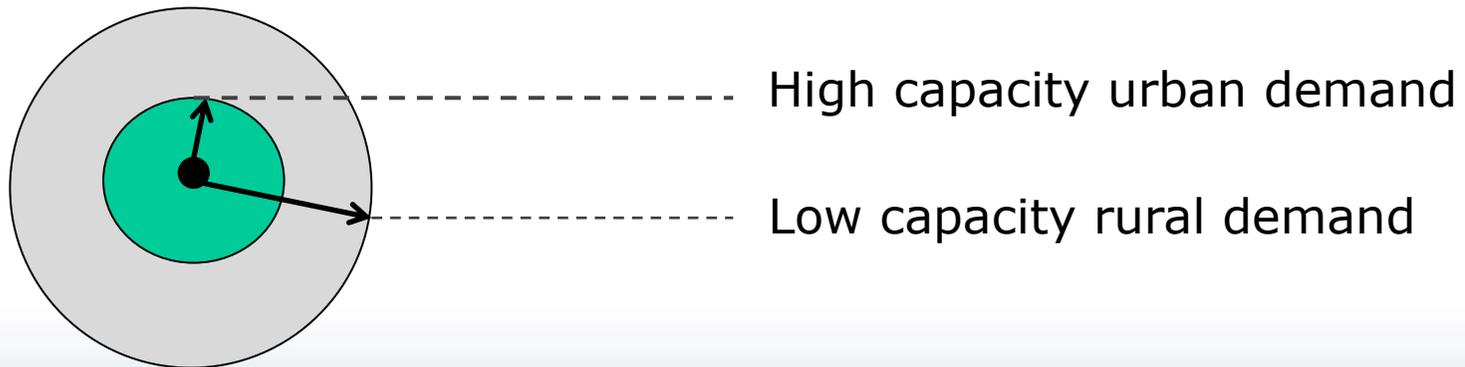
□ Unlicensed bands

- Peru has allowed high powered 2.4 GHz for rural
- USA has allowed use of 2.4 GHz for rural backhaul

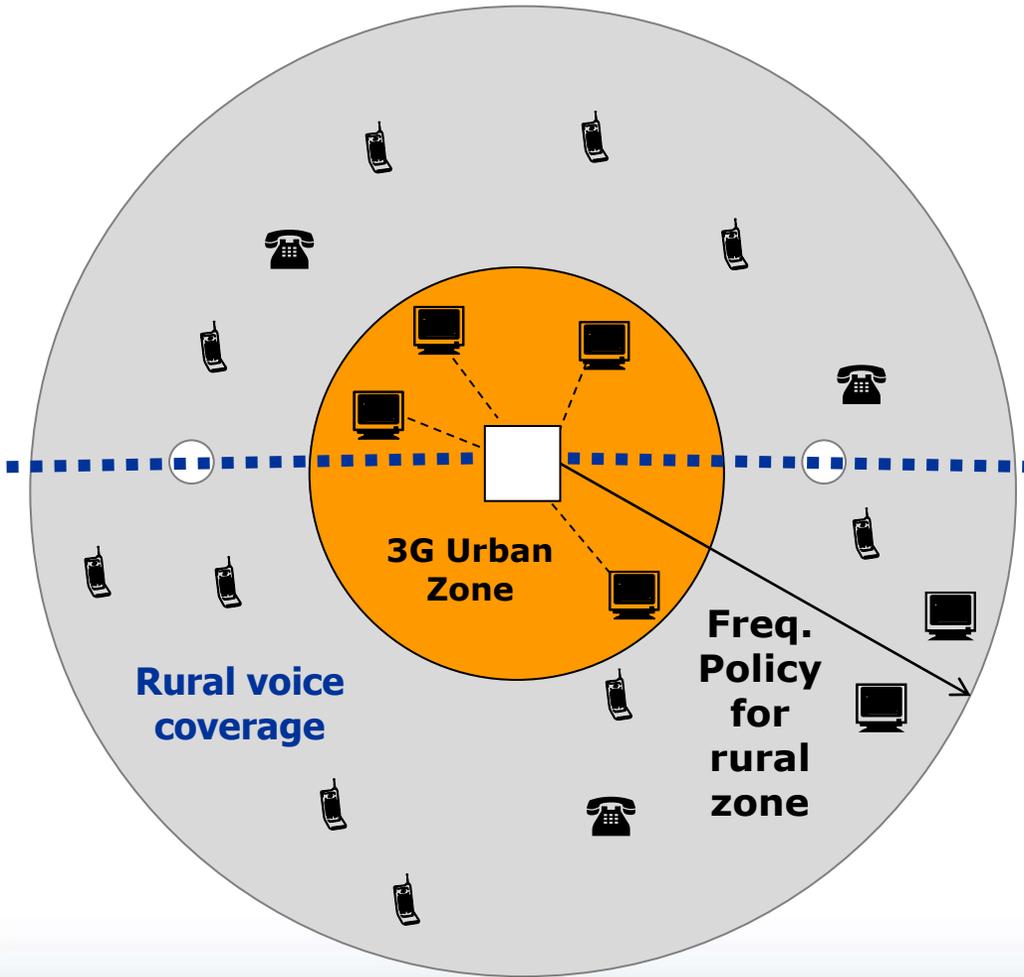
Tactics - 3G Network characteristics

- ❑ **Coverage** - the radius of effective line-of-sight signal reception from BTS
- ❑ **Capacity** – how many customers downloading or uploading content at same time
- ❑ **Speed** – the experienced data rates in Kbps

Cells "breathe" in response to demand



3G/4G Broadband – the role of frequency



- ❑ Voice telephony 2G coverage to all areas by mobile
- ❑ Digital Backbone links all BTS sites
 - Available for broadband service support
- ❑ WiMAX / 3G rural options
 - First Internet demand within 2-5 Km radius from BTS towers ... can be reached by 3G
 - WiMAX and/or lower freq. (850/900 MHz) mobile can extend range to 10-12+ Km, similar to 2G voice range
- ❑ VSAT or LD WiMAX/ micro Wi-Fi cells needed beyond economic boundary of mobile network

Thank you

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