

Trends in Telecom Development Globally: A Perspective from Washington

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Overview

- **The Case for ICT Sector Development**
- **The Case for Wireless**
- **Some Principles & Best Practices**
- **The Digital Freedom Initiative**
- **Going Forward**

I. Case for ICT Development in the Global Economy

- ICT Capabilities and Skills – or their lack --- help determine a nation's:
 - ability to compete
 - its economic growth, and
 - its standard of living
- USA – 40% of U.S. productivity growth between 1995-2002 attributed to ICT *(12/03)*
- China - ICT growth has generated 6% of Gross Domestic Product (GDP) growth *(1/04)*

Yet Many Countries Lack ICT Access

- Africa
 - 75 people per 1 telephone
 - Sub-Sahara - total capacity used to connect to Internet < that used by Luxembourg
- Asia
 - 60 % of population has no communications
- New ITU “Digital Access Index” Tracking
 - Countries are high, upper, medium and low.
 - 55 countries are “low” out of 178

U.S. Government Goals for ICT Access

3 Key Principles

- Domestic policies - encourage investment in research and innovation
 - privatization of ICT services supply
 - introduction of competitive supply models
- Governments, private sector - invest in human capacity-building
- Intellectual property of innovators, content producers, and consumers - protect

UN World Summit on the Information Society (WSIS)

- “First Phase” of WSIS December 2003
- Over 175 nations agreed on:
 - *the pressing need for universal ICT access and the widespread infrastructure on which it is founded*
 - *connecting all villages, schools, hospitals and governments with ICT by 2015 and ensuring that **half of the world’s people** are within reach of ICT*

II. Why Wireless?

- Countries are using it to leapfrog wireline approaches and install new infrastructure
- Mixtures of solutions – fixed wireless, terrestrial and satellite, VSAT with Wi-Fi
- Mobile access devices – cheap, easy to sell and start-up, voice as well as data applications; now video
- 80% of world population can't be served terrestrially

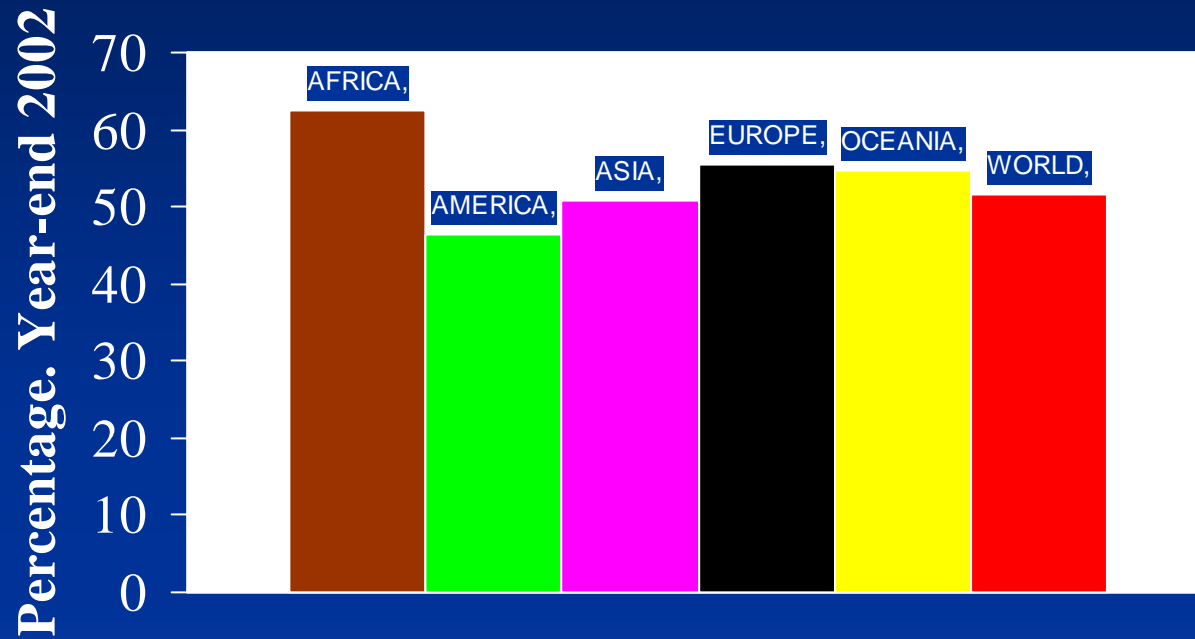
Wireless Access Stats

Exponentially High Growth Rates

- Mobile subscribers are 51 percent of all telephone subscribers worldwide
- 1 billion GSM subscribers worldwide 2/04
- Uganda in 1997 – 5K cell subs, in 2002, 393K
- Paraguay in 1997 84K cell subs, in 2002 1.7 million
- China expects 400 million mobile subscribers by 2005

Table I. Cellular Penetration Levels by World Regions

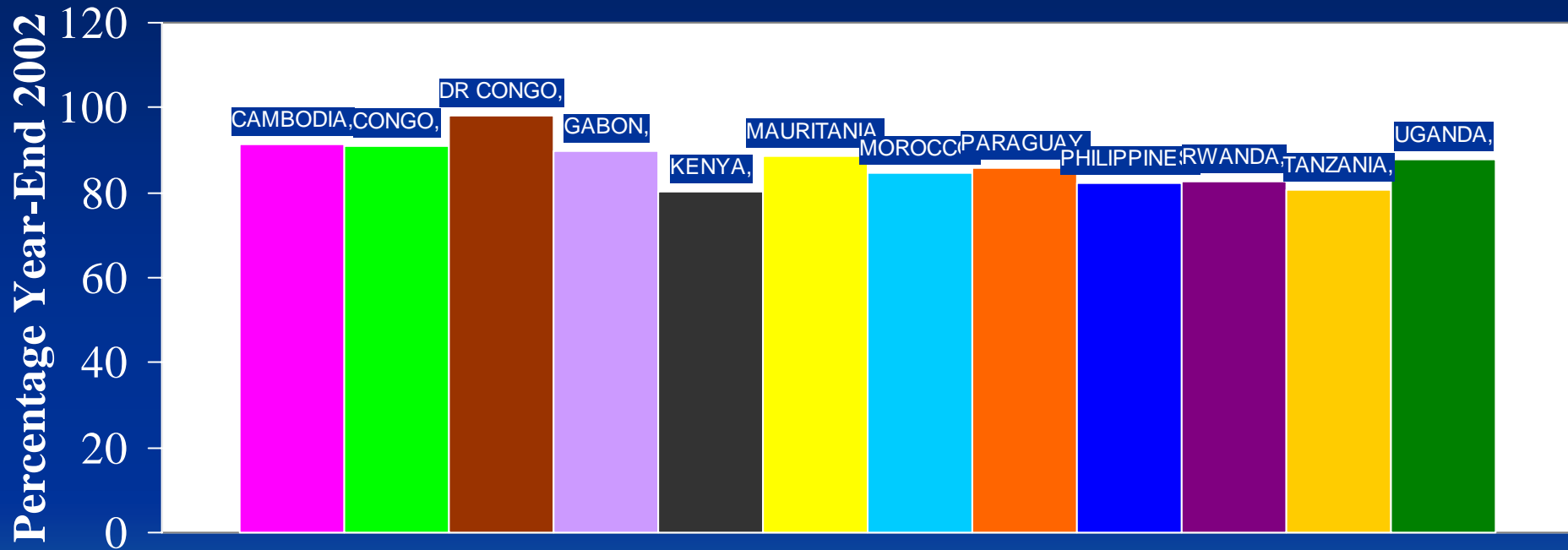
Source: ITU



Cellular Mobile Subscribers as
Percentage Total Telephone Subscribers

Table II. Countries Over 80% Cell for Total Phone Penetration

Source: ITU



The Problem of WI-FI Policy

- Many countries have no law/policy regarding WI-FI, thus 2 approaches
 - Ban it
 - Let it flourish
- Kenya forbids since no law; question of protecting incumbent telecom/ISP suppliers?
- Senegal – grey area; we're working with regulators to allow WI-FI and WIMAN

III. Principles and Best Practices

U.S. Government Paths

- **Funding**: Traditional and new aid initiatives (USAID, TLP, USTTI, DFI)
- **Market Access**: Interagency reform efforts in overseas markets (NTIA, State, ITA, FCC, USTR, DOJ)
- **Principles**: Joint efforts through bilateral partnerships, multilateral and regional organizations

Purpose of ITU-D Question 13/1

Promote Internet Access in Developing Countries

- Develop policy guidelines for government officials to foster development of Internet infrastructure
- Identify the technological options available to achieve Internet build out
- Determine how to best build human capacity for technical expertise

13/1 - Policy Environment For Internet Infrastructure Development

- **Basic telecom capabilities are the infrastructure necessary to provide Internet applications**
- **Telecom regulatory policies have a direct impact on the Internet**
- **Competition and privatization in Internet service spur development of affordable basic telecom infrastructure**

Telecom Licensing System

- Licensing conditions should be published
- Licensing procedures should be transparent
- Procedures should be minimal and expedient
- Fees should be proportionate and based on market principles

Recommendations For Policy-Makers:

- Promote widespread and affordable access to the Internet
- Ensure that the regulatory regime does not hinder development
- Urge ISPs to develop concessionary rates for Internet access in public service and development-oriented institutions
- Establish a consortium of public service institutions to contribute to Internet access, use and development
- Encourage the development of information strategies and models that facilitate community access
- Develop national programs to promote capacity building in Internet development and use, and the creation and dissemination of multicultural and multilingual Internet content

13/1 INTERNET TECHNOLOGICAL OPTIONS

- **Traditional Internet transmission technology**
 - Wire (often copper), cable and fiber
 - Expensive for rural, remote and/or poor communities
- **RF-based technologies include:**
 - VHF and UHF radio systems using narrow packet radio technology
 - Global System for Mobiles (GSM400) Using Packet Switching Technology
 - Time Division Multiple Access (TDMA) Based on Point-To-Point (PTP) or Point-to- Multipoint (PMP) Radio Systems

Additional RF-Based Technologies

- **Code Division Multiple Access (CDMA) 450 MHz**
- **Multipoint Multichannel Distribution System (MMDS)**
- **Local Multipoint Distribution System (LMDS)**
- **Very Small Aperture Terminals (VSAT)**
- **Satellite Based Internet Access**

HUMAN CAPACITY-BUILDING

Some ITU Suggestions

- **Develop education and training programs**
- **Sponsor and promote programs aimed at assisting entrepreneurs with loans and/or matching grants**
- **Promote collaborative efforts to attract private companies to establish training**
- **Develop national and international networks of institutions, teachers and learners**
- **Enlist volunteers from the relevant community to manage other volunteers**

Asia Pacific Economic Cooperation (APEC): Digital Divide

(21 Economies)

- **Level of Internet Access:**
 - varies among populations
 - Income, education, age, gender, disability and rural/urban location
- **APEC “Triple” Goals:**
 - To triple Internet access between 2000 and 2005
 - To ensure all groups within an economy have Internet access by 2010

APEC: Underserved, Unserved Needs

- Underserved areas are being served through a combination of:
 - technology deployment
 - supportive policy environments, and
 - programs directed at the needs of the underserved
- Meeting such needs crucial for macro-economic growth and improved quality of life.

APEC's Six Digital Divide Principles

- **Leadership** – Governments should create national, regional, and local initiatives
- **Partnerships** – Economies should create partnership among business, education, civil society, and government
- **Policy Coherence** - Governments should ensure policies (macroeconomic, social, educational) work seamlessly
- **Market Focus** – Governments should promote pro-competitive supply, to foster demand that justifies investment required
- **Sustainability** –All should ensure the continuation of initiatives beyond the seed money stage, and
- **Scalability** – Project designers should ensure these can be replicated for other applications and geographic areas

IV. Digital Freedom Initiative (DFI)

- Launched March 2003, by Commerce, USAID, USA Freedom Corps, and Peace Corps – today is anniversary
- **Goal**: promote economic growth by transferring ICT benefits to entrepreneurs and small businesses in the developing world
- Three DFI Countries Now: Senegal, Peru, Indonesia
- To expand to 20 countries 2003-08

Key Elements of DFI

- Knowledge Transfer: Place volunteers in small businesses to share business knowledge and technology expertise
- Regulatory/Legal: Promote pro-growth regulatory and legal structures to enhance business competitiveness
- Entrepreneurs: Leverage existing technology and communications infrastructure in new ways to help entrepreneurs and small businesses to better compete

Senegal Pilot Projects

- 3 pilot projects to:
 - Improve productivity in Telecenters/Cybercafes
 - Improve access to markets for Small and Medium-Sized Enterprises (SMEs) using ICT tools
 - Create a supportive environment for micro-finance in a region where banking is centralized in a neighboring country.
- Recent successes:
 - Inauguration of a Cisco Networking Academy 12/03
 - Formation of a new users association, SITSA (Information Technology Association of Senegal)

DFI & WIMAN

- Senegal Feasibility Study – Pre-design Stages
- Considering Merits of Next-generation Wireless Technology, to include 802.16 WIMAN Technologies
- Objective: develop costing models and a testbed that can be replicated

WIMAN and Senegal

- Connection Goal: Dense Urban Settings to Sparse Rural Populations in Senegal at Greatly Reduced Costs, & Prices to Users
- Point-to-Multipoint Ability is Critical to Senegal
 - 0.14 on ITU Digital Access Index, #158 out of 178 Countries
 - Diverse Geographical Areas and Long Distances
- 3.5 GHz - May consider dividing the band between licensed and license-exempt, and use 2.4, 5 GHz for innovation and smaller businesses

WIMAN Targets in Senegal

- Connect an existing Wireless Internet Service Provider (WISP) or a traditional ISP or Internet café entrepreneur
- Project participants to provide equipment and training as needed
 - Jointly develop technical configurations and a business model
- Work with local regulator and incumbent operators to ensure a supportive, competitive environment
- Aim: extend connectivity while developing a more dense user base

V. Going Forward

- Iraqi Reconstruction:
 - Joe Gattuso and Fred Matos in Baghdad
 - Using ITU 13/1, other USG principles to reform regulatory processes
- ITU IP Policy Manual: NTIA leading effort to develop a best practices manual for developing countries on Internet policy issues:
 - domain names systems, root server management

Websites I

- Connecting the Globe: A Regulator's Guide to Building a Global Information Community. U.S. Federal Communications Commission: www.fcc.gov/connectglobe/
- New Technologies for Rural Applications, Final Report of the ITU-D Focus Group 7. ITU: www.itu.int/itudoc/itu-d/publicat/foc_gr7.html
- The Right to Communicate: At What Price? Economic Constraints to the Effective Use of Telecommunications in Education, Science, Culture and in the Circulation of Information. ITU and UNESCO: <http://unesdoc.unesco.org/images/0010/001008/100803e.pdf>
- The Networking Revolution: Opportunities and Challenges for Developing Countries: Are Poor Countries Losing the Information Revolution? World Bank: www.infodev.org/library/working.htm
- World Development Report 1998/1999: Knowledge for Development. World Bank: www.worldbank.org/wdr/wdr98/contents.htm
- World Telecom Development Report 1998. ITU: www.itu.int/ti/publications/WTDR_98/index.htm
- World Trade Organization Reference Paper on Basic Telecommunications. World Trade Organization (WTO): www.wto.org
- ITU-D Question 16/2 - Handbook on New Technologies and New Services : www.itu.int/publibase/catalog/index.asp (See Section 2.5 Work of the ITU-D Study Groups 1 and 2)

Websites II

- APEC Telecom & Information Working Group: www.apectel.org
- CITELE: <http://citel.oas.org>
- Digital Freedom Initiative (DFI): www.dfi.gov
- Global Connectivity for Africa:
www.worldbank.org/html/fpd/telecoms/gca.htm
- Global Internet Policy Initiative (GIPI): www.gipiproject.org
- ITU Development Sector (ITU-D): www.itu.int/ITU-D/index.html
- ITU IP Policy Manual: www.itu.int/ITU-T/special-projects/ip-policy/index.html
- ITU SG 13/1: *Promotion of Infrastructure and Use of the Internet In Developing Countries*, ITU Development Sector, Document 1/185(Rev.1)-E, 24 October 2001 at www.itu.int.
- ITU Internet Case Studies: www.itu.int/ti/casestudies/index.htm
- NTIA's Technology Opportunities Program (TOP):
<http://ntiaotiant2.ntia.doc.gov/top/2003/index.cfm>
- World Bank's Information for Development Program:
www.infodev.org
- World Bank's Investment Promotion Network: <http://www.ipanet.net>
- World Summit on the Information Society: www.itu.int/wsis/