Information Communications Technology
Support to Reconstruction and Development:
Some Observations from Afghanistan

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“Adapting C2 to the 21st Century”
Purpose

• Increase awareness of importance of Telecoms and IT as an enabler of cross sector reconstruction and development

“Information Communications Technology (ICT) is the merger of Telecommunications and Information Technology”

• ICT investment priority needs to be equivalent to roads, water and power
Observations

• Afghanistan ICT a “Success Story”
  – Government of Afghanistan vision and support at highest levels
  – Knowledgeable and experienced Ministers of Communications
    • Vision, strategy and plan
  – Early emphasis on establishing Telecom and IT policies, regulations, laws, and regulatory authority
  – Use of civilian advisors embedded in Ministries
  – Donor assistance for public sector infrastructure and to MoC
  – Good public-private sector partnership
  – Early ICT capacity building initiatives (MoC, USAID, UNDP)

But...........

• There were and still are challenges
Afghanistan

Population: 30 Million (45% under 15 years)
Land Locked country
Size: Slightly smaller than Texas
Literacy: 36% (male: 51%, female: 21%)
Life Expectancy: 42.7 male, 43 female (2004)
Languages: Pashtu (35%) & Dari (50%)
Religions: Sunni Muslim (80%) & Shia Muslim (19%)
Unemployment Rate: 40%
Industry: small-scale production of textiles, soap, furniture, shoes, fertilizer, cement, hand-woven carpets; natural gas, oil, coal and copper
Agriculture: Opium poppies, wheat, fruits, nuts, wool, mutton, sheepskins, and lambskins
Arable Land: 12%
Minerals and Resources: Natural gas, petroleum, coal, copper, chromite, talc, barites, sulfur, lead, zinc, iron ore, salt, precious and semiprecious stones
Currency: Afghani (45 to 1 U.S. $)
Banks: 6 Private commercial banks in Kabul
Afghanistan End of 2001

- Telecommunications infrastructure destroyed
- Roads, power, water, health care, and education disrupted or dysfunctional
- Lacked functioning government and laws, regulations and enforcement mechanisms
- Management, administration and technical skills left country
- Lacked an Internationally agreed ICT strategy and plan for reconstruction and development including a national support strategies and plans
  - At the outset of intervention
    - Donors shunned providing telecom reconstruction funds for public services
      - Influenced by “Washington Consensus” championed by the World Bank
    - USG took a largely hands-off approach to underwriting Afghan telecom
      - World Bank and USAID eventually invested in public sector ICT
- Lot’s of International civil-military responders
  - Coordination and information sharing problematic
• ICT will be critical to
  – Success of planned national elections
  – Facilitate communications among the central government and regional authorities.

• Recognized as being important to
  – Supporting the collection of taxes and customs duties
  – Establishing a national banking system
  – Enabling other political, security, governance, judicial, social and economic recovery actions.
Nature of the Challenge

- Coherent ICT investment strategy for reconstruction and development problematic
- Civil-Military coordination and information sharing problematic (not a technology issue)
- Common shared situation awareness for reconstruction and development (especially ICT)
- Force protection complicates conducting reconstruction and development activities
- Need to manage expectations
• A weak but functioning government
  – With elected officials but corruption and legitimacy challenges
• Peace and stability fragile
  – Insurgency on the rise
• Establishing legitimacy and transparency a challenge
  – 75% of development spending initially outside of government channels
  – 70% of spending in Kabul but only 10% of the people live there
• Lack leaders, managers, administrators, and technical personnel with 21st Century skills
  – Business practices and management and project management
  – Telecom, computer and English language
Afghanistan ICT June 2006

- Telecommunications and Internet Policy approved October 2003
- Comprehensive Telecom law passed in 2005
- Afghan Telecom Regulatory Authority (ATRA) created in 2006
- International involvement
  - ICT Investors
    - World Bank, USAID and CFC-A CERP and PRTs
    - CSTC-A for MoD/MoI (ANA/ANP)
  - UNDP, World Bank, and USAID initiatives
    - Advisors in ministries and agencies (e.g., MoC, Afghan Telecom, ATRA)
    - Capacity building: Univ Computer Science, 6-CISCO academies, 12-ICT Training Centers
- Strong demand for telecom services
  - In 2002 fewer than 40,000 telephones working nationwide (not interconnected)
  - June 2006 over 1.4 million subscribers and growing rapidly
- Telecom sector has attracted more private investment than any other sector
- Estimated that over 40,000 jobs have been created in the telecom sector
- Largest single legitimate revenue producer (over $100 M in 2006)
MoC ICT Investment Strategy

- Private sector
  - Mobile access and services to major urban areas
- Government
  - Backbone services
  - Fixed mobile services (wireless local loop) in major urban areas
  - Service provisioning at district level
  - Selective extension of access to services to rural areas
Afghanistan ICT – April 2006

April 2006: 50 out of every 1,000 Afghans are connected

End of 2006 over 2 million users
Projections: 100,000 per month and 5 million by 2010

Competition driving costs down

New licenses 2006: Areeba, Etisalat

Color/Symbol Operators

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Private Sector Services

- Internet Service Providers (ISPs)
  - Over 300K users
  - Hundreds of Internet Cafes
- Private industry and NGO VSAT networks
  - Reconstruction teams
  - Humanitarian assistance
  - Education/Healthcare
- Public Call Offices
  - Cellular fee-for-service
- Global mobile SATCOM
  - Globalstar, Iridium, Thuraya and INMARSAT
ICT Environment--Afghanistan

• Government use of ICT increasing
  – Government and District Communications Network (GCN/DCN) being implemented by MoC and operated by Afghan Telecom
  – MoC owned Afghan Telecom corporatized
    • To be privatized in near future
  – National fiber optic network around ring road contracted
  – Independent ICT networks being established by MoD and MoI to support the Afghan National Army (ANA) and Police (ANP)
    • Both fixed satellite-based networks and mobile tactical capabilities
    • Use of GSM cellular and access to GCN services
  – Ministries implementing independent IT networks
“Default” Afghanistan ICT Architecture

Afghan Telecom

Int’l & Regional Access

Government Communications Network

President and Ministries in Kabul

Connect Kabul Government with 34 Provincial Governors, and Administrators (Provincial Capitol Node)

Provincial Governors Communications and Ministers Communications Network

District Communications Network

District Nodes (Kiosks)

Village Communications Network

Transmission Backbone: Satellite, Digital M/W, Fiber Optic Cable, Copper Cable

Int’l & Regional Access

Four Cellular Providers (GSM, Text Messaging, Public Call Offices)

15+ Internet Service Providers (Direct Access, Internet Cafes)

Voice, Fax, Internet, VTC, WiMax

CDMA Switches

Wireless Local Loop

Local Fixed Service Provider

Voice, Fax, Internet, VTC, WiMax, Telekiosks, Pay Phones

Afghan National Police

Afghan National Army

MoD

MoI

Afghan Telecom

Four Cellular Providers

15+ Internet Service Providers

Voice, Fax, Internet, VTC, WiMax

Transmission Backbone: Satellite, Digital M/W, Fiber Optic Cable, Copper Cable

District Communications Network

Village Communications Network

District Nodes (Kiosks)

Government Communications Network

Transfer of Voice, Fax, Internet, VTC, WiMax

Three Cellular Providers

15+ Internet Service Providers

Voice, Fax, Internet, VTC, WiMax

Transmission Backbone: Satellite, Digital M/W, Fiber Optic Cable, Copper Cable

District Communications Network

Transmission Backbone: Satellite, Digital M/W, Fiber Optic Cable, Copper Cable

Passed Through (Deemed to be a different entity)
• ICT sector growth more than voice
  – Wireless data, Internet and e-Solutions
    • Internet access and coverage in all major urban areas
      – Internet Service Providers
        » Direct access and Internet Cafes
      – CDMA wireless local loop Internet/data access
        » Trial city-wide service offering in Kabul
    • Exploring Internet banking and data networks to link banks
    • Exploring e-Government for Ministries
    • Exploring expanding Internet to schools and Universities
    • Local Fixed Service Providers in smaller towns and villages
      – Wireless voice, data and Internet access
  – Cell phone functionality expanding
    • SMS: Text messaging
    • GPRS: Connect laptop to cell phone to access Internet
    • Exploring use of cell phones for financial transactions
      – G-Cash, CelPay, Smart Money like capabilities--Cell phone wallet
• Preliminary steps for broader ICT use undertaken
  – Satellite and Microwave long distance networks deployed nationally
  – Expanding Regional interconnections and International capacity
  – Contract for a national fiber optic network
  – Ministries introducing ICT
    • Largely separate and independent solutions
  – ICT being selectively introduced into education, health care, and other sectors but not as an integrated and coordinated approach
    • Largely private sector and NGO initiatives
  – MoC/Afghan Telecom expression of interest proposal to franchise operation and management of DCN nodes
  – Establishing modern ICT Institutes for capacity building
    • CISCO academies, ICT training centers, University programs in computer science and telecoms
Making Progress But Not Without Challenges

• Public and Private ICT infrastructure fragile and business processes weak
  – Telecom network
    • Ability to support emergency response
      – Cell network overloaded during May 2006 riots in Kabul
    • Quality and capacity marginal but getting better and costs coming down
    • Coverage largely urban areas, little to no coverage in rural areas
    • Data strategies and services inadequate to support eSolutions and broader user community access to and use of the Internet
  • Security issues with growing Afghan Critical National Infrastructure
    – Cyber security
      » Virus and spyware protection, intrusion detection-protection, firewalls
      » Control use of pirated software and porn surfing by gov’t employees
      » CERT, cyber laws or enforcement mechanisms
    – Physical infrastructure and key personnel protection
      » Insurgency is growing and threatening personnel on government facilities but not attacking infrastructure
      » Criminal elements steal equipment
      » 24x7 protection is over 20% of the cost of doing business in private sector
  – Most Afghan ministries have minimal IT organizations
    • Implementation of internal capabilities is uncoordinated and non-standard
    • Lack “Chief Information Officer Culture” (business processes, standards, best practices,..)
  – Very thin layer of competence and skills of ICT service providers and users
• Much remains to be done to make it a viable and robust network to support security, governance and other sector needs
  – Need a coherent International strategy and approach to supporting ICT development and its use as an enabler of cross-sector development
    • Currently driven by cylinders of excellence for sectors
  – Coordination and information sharing among responders and with GoA remains a challenge
    • Lack a shared common operational picture for ICT reconstruction and development
    • Sharing among US Embassy, USAID, US Military and others varies and still is a challenge
      – Was working for ICT sector until rotation of civil-military personnel
  • Ad hoc approaches employed to try to improve
    – Liaisons, coordination teams, reachback groups, portals, embedded SMEs in ministries, USACE developing a shared common operating picture for development (USG, UN, ISAF, GoA stakeholders)
Some Useful Next Steps

• **ICT support for governance and security**
  – Fund and implement the remaining 22 provincial governors communication network
  – Extend GCN service to provincial police chiefs
  – Extend DCN services to district administrators and police
  – Enhance robustness and performance of GCN/DCN

• **Improve ICT access and use for education and healthcare**
  – Implement pilot programs to extend ICT to rural areas
    • Digital solar village like capabilities
  – Market and enhance DCN services
    • Improve local marking at District level
    • Pilot option to franchise DCN nodes and services
  – Wire up campuses and connect Universities via Internet
  – Link University Medical Schools and Hospitals via Internet
  – Link Hospitals and Healthcare centers via Internet
  – Provide Internet services and computers to schools
Some Afghanistan “Take Aways”

- Understand the culture
  - Need to understand and be accepted
  - “Three Chai tea” rule
  - Perceptions of “Power” counts
  - Need to keep your word

- Manage expectations
  - Don’t over expect Afghans ability to perform
    - Lack of ICT skills and modern business skills and practices
  - Don’t raise expectations of Afghans if not sure of ability to deliver

- Good public-private sector partnerships key
  - Enable private sector

- ICT is important as both a sector and as an enabler—priority needs raised

- Collaboration and information sharing important—common shared situation awareness
Questions?