Part D

Review of individual economies

.af

Afghanistan

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Total population	28,513,677 as of July 2005 est.
GDP per capita	USD 383
Key economic sectors	Telecom, agriculture, dry fruit, carpet, minerals
Computers per 100 inhabitants	3
Fixed-line telephones per 100 inhabitants	2
Mobile phone subscribers per 100 inhabitants	28
Internet users per 100 inhabitants	2
Domain names registered under .af	1,570
Broadband subscribers per 100 inhabitants	0.5 (or 1 per 200 inhabitants)
Internet international bandwidth	150 Mb as of December 2007

(Sources: Central Statistics Organization 2008; MCIT 2008c)

INTRODUCTION

Information and communication technology (ICT) is an important part of the infrastructure of any country and it plays a vital role in the growth of any economy. Recognizing its importance, the Government of Afghanistan has placed ICT development under pillar three — Economic and Social Development: Infrastructure and Natural Resources — of the Afghanistan National Development Strategy (ANDS) (2008). ICT will enable the Afghan government to successfully execute its broad reconstruction effort. A modern telecommunications sector and e-government initiatives will enhance the effectiveness, efficiency and transparency of the public sector and the provisioning of social services.

Today when the telecommunication revolution has reduced the world to a global village and its development is important for Afghanistan as well. All Afghan communities face the 'tyranny of distance' and the alienation associated with remote geographic conditions. Afghan women in particular face restriction of movement due to security concerns and conservative traditions. To restore cultural and social normalcy throughout the country, it is essential that all 34 provinces, 365 districts, and over 6,000 villages and rural areas be integrated with each other, Kabul, and the rest of the world. ICT could be the basic enabler of the informal social and economic discourse necessary for the strengthening of civil society and the promotion of economic activity (e.g. access to markets and pricing).

ICT is necessary for the resumption of productive capacity and stimulating activity in all sectors of the Afghan economy. It plays a critical role in re-establishing basic economic linkages by relieving communication bottlenecks in financial, governmental, and cultural information flows. In addition, ICT use, particularly in Government-to-Government (G2G), Government-to-Business (G2B), and Government-to-Citizen (G2C) services, can facilitate the administrative reforms that are considered to be one of the major challenges for the government of Afghanistan.

In short, the ICT sector has a crucial role to play in economic growth, poverty reduction, and the overall development of the Afghan nation.

TECHNOLOGICAL INFRASTRUCTURE

Over the last half decade there has been significant progress in putting in place the ICT and telecom infrastructure of Afghanistan. Both the private and public sectors have contributed to the build-up of this infrastructure.

A 3,600 kilometre national fibre optic backbone following the national ring-road infrastructure is being installed, connecting 16 of 34 provinces to the Trans Asia Europe (TAE) and South East Asia–Middle East–Western Europe (SEA–ME–WE) submarine cable system through Iran, Pakistan, Tajikistan, Turkmenistan, and Uzbekistan. The network will have a capacity of 36 STM4. The construction started in 2007 and is expected to be completed by March 2009. At present domestic and international voice and data communication is based on satellite, which is very expensive and low in quality. With the completion of the network, both domestic and international connectivity will be shifted from satellite to the fibre optic ring. The project has regional importance as the Central Asian countries do not have a direct connection with the SEA–ME–WE, and their call route to the

rest of Asia is currently via Europe. The fibre ring will serve as a bridge, which will lower the cost of international calls for Central Asian as well as European countries.

At present the provincial capitals and government ministries are connected through C-Band very small aperture terminal (VSAT), microwave and fibre optic (for Kabul only) for data, voice, and video conferencing services through the government communication network completed in 2007. A 3.6 MHz World-wide Interoperability for Microwave Access (WiMAX)-based network has been established to connect the offices of the provincial governor, other government offices, and hospitals in the provinces. Thirty-four governor's offices will be connected by mid-2009. Sixty-nine percent (or 252 out of 365) of district capitals are connected through KU-Band VSAT terminals for voice, Internet access, and fax services.

In 2007, GSM coverage was also extended to most of these districts by various operators. The networks have played a major role in connecting Afghans scattered in different parts of the country and the world, improving their social ties and economic and security conditions. The four GSM and one fixed line operator provide services to seven million subscribers, which is equivalent to a penetration rate of 32 percent of the population. Close to 2,576 telecom base stations are now installed, making telecom services possible in more than 250 cities, towns, and populated areas, and bringing 75 percent of the population under telecom coverage. Local call prices dropped from USD 0.30 in 2002 to USD 0.02 in December 2007. International call prices went down from USD 1.80 in 2002 to USD 0.20 in December 2007. SIM prices too dropped from USD 300 in 2002 to USD 1 in December 2007.

As the existing telecom services provided by operators are focused in the urban areas, the Village Communication Network (VCN) is now being pursued to bridge the divide between urban and rural areas. VCN will connect 6,000 villages through public-private partnerships (PPP) with a capital investment of USD 2,000.00 per VCN by the local owner. Each VCN node will have a KU band VSAT powered by solar energy.

The private sector is also active in building Afghanistan's telecom infrastructure. The Afghan Wireless Communication Company (AWCC) has established a 2,500 kilometre nationwide microwave ring covering 31 provinces and more than 250 towns, cities, and highways with a minimum capacity of STM1 connectivity expandable to 155 Mbps. The AWCC offers roaming services in 124 countries and 353 networks worldwide.

The Afghanistan National Data Centre (ANDC), which will be ready by June 2009 with an initial capacity of 40 Terabytes, will host e-Afghanistan, consisting of e-government applications. By end 2009, the National Internet Exchange of Afghanistan will be established as a PPP involving local Internet service providers (ISPs) and data network owners (see 'Internet Penetration in Afghanistan').

Internet Penetration in Afghanistan

About 500,000 people were subscribed to the Internet as of October 2007, which is equivalent to a penetration rate of 2 percent (up from 1 percent in 2006). Seventy-eight percent of subscribers are from the foreign missions and the NGO community in Afghanistan. Individuals comprise 10 percent, Internet cafés 7 percent, and government 5 percent of Internet subscribers.

Non-government organizations (NGOs) are utilizing the Internet for financial, project tracking, and MIS applications. The number of public Internet cafés is increasing. However, there is an imbalance in the number of Internet cafés in urban and rural areas of the country, with more than 60 cafés in Kabul and only one in Farah, a province in the South, for example.

GPRS services were launched by the GSM operators in January 2007, enabling Afghans to access the Internet over their mobile phones.

The Internet penetration in Afghanistan is low because of the limited availability of electricity in the country (households in Kabul have five hours of electricity per day), the lack of local content, and the high cost of bandwidth. In addition, there is a lack of local access networks. The government and the private sector are investing in the installation of local access networks and last mile connectivity. It is expected that the fibre and copper cable installation initiatives will improve conditions toward the end of 2009.

(Source: Altai Consulting 2007)

KEY INSTITUTIONS AND ORGANIZATIONS DEALING WITH ICT

In February 2007, the Afghan Cabinet approved the renaming of the Ministry of Communications to the Ministry of Communications and Information Technology (MCIT) as an acknowledgement of the central role that ICT will play in accelerating Afghanistan's full participation in the global information society. The MCIT will provide strategic leadership in the development of the ICT sector, and it will act as the focal point for all of the stakeholders to help shape future policies and promote large-scale projects.

In May 2007, the ICT Council was established by Presidential Decree as the primary forum for all of stakeholders. It is expected to play a major role in the promotion of ICT and e-governance in Afghanistan. The ICT Council includes representatives of government ministries, business (service providers), civil society (relevant associations), and academia. It is chaired by the first vice president. In 2008 the Council held three meetings where the main issues in current and future ICT development in Afghanistan were discussed. The Council has agreed to support the MCIT and Ministry of Interior in introducing the smart card/electronic ID card in Afghanistan in the next three years. The Council has also discussed the introduction of other e-services, in particular land titling.

The Afghanistan Telecom Regulatory Authority (ATRA, http://www.atra.gov.af) was established in December 2006 as an independent regulator responsible for telecom sector regulation in Afghanistan.

The Afghanistan Computer Science Association (ACSA, http://www.acsa.org.af), a non-profit and non-political computer world trust founded in 1999, aims to introduce computer science and ICT to the Afghan nation. The Association has completed the localization of MS Windows XP and MS Office 2003, which has helped ordinary Afghans to use computers in their daily activities. Open source products, such as the Sea Monkey suite, are also being localized. The Association is also actively involved in raising ICT awareness, promoting Internet policy, regulatory reform, and capacity-building.

The National ICT Alliance of Afghanistan (NICTAA) is an umbrella organization and a strong voice for ICT in Afghanistan. Founded in 2007 by 11 leading ICT associations and companies known as the Founding Members of the Alliance,[1] it represents the four major pillars of the ICT sector, namely, private companies, professionals, academia, and consumers.

The National ISP Association of Afghanistan (NISPAA) was established in 2006 by ACSA and Internews Europe. The organization has nine ISPs as members.

Established in 1999, the Afghan Media International (AMN) has a range of programs, such as national and international media support, research, training, journalists' information, freedom of speech, and human rights.

Afghanistan will have an operational Electronic Certification Authority by the end of 2009, which will enable the implementation of e-commerce and e-banking.

ICT AND ICT-RELATED INDUSTRIES

The ICT sector in Afghanistan is only six years old, but it has developed dramatically compared to the ICT sectors of neighbouring countries. Active ICT industries and related markets in the country include services (software/database development, website and Web hosting, IT consulting, and IT support); infrastructure and hardware (hardware sales, public and private infrastructure); telecom (telecom operators, mobile repair services, and telecom dealers); and Internet services (ISPs and Internet cafés). The total telecom market value at present is USD 1.3 billion, with foreign direct investment (FDI) amounting to USD 1 billion.

The share of local companies in the market is very small, as they are quite new. However, there is increasing evidence of local entrepreneurship, particularly in software/database and website development, Internet cafés, hardware sales, mobile repair services, and IT support. The government is establishing an ICT Park by mid-2010 and it is hoped that this facility will support local entrepreneurship.

KEY ICT POLICIES AND STRATEGIES

As described in the chapters on Afghanistan in previous editions of the *Digital Review of Asia Pacific*, a number of policies and regulations have been put in place for the promotion and development of the ICT sector. These policies have encouraged the private sector to invest in the telecom sector, with FDI reaching USD 1 billion by end of 2007. The focus of policies and investments has been on physical infrastructure and basic telecom services, and ICT applications have not received attention.

As the country is getting ready for the second round of presidential and parliamentary elections in mid-2009, the

government is drafting new development policies and strategies to be handed over to the next government under ANDS. The government endorsed the Strategy at the Paris conference held on 12 June 2008.

The government is working on attracting business process outsourcing, help desk, and call centre businesses to the country to give Afghan women opportunities to work from home and be economically productive without offending cultural sensitivities. This activity will also help in the drive against narcotics and terrorism in Afghanistan since low employment is one of the factors giving rise to terrorism and the trade in narcotics.

The adoption of the e-Afghanistan program in the context of ANDS is envisioned to help the country overcome corruption, improve government efficiency, and strengthen the rule of law. As part of the program, all government ministries and governor's offices will have an online presence by end 2009.

The ICT sector strategy also encompasses regional cooperation through the fibre ring, national data centre, local content development, regional data repositories, regional cybercrime, regional data interconnection, and other similar projects and activities positioning Afghanistan as a central point in the region.

Several policies have contributed to ICT sector development in Afghanistan. One of these is the ICT Policy adopted in November 2003 with three objectives: *(i)* use ICT to improve government services and promote e-government; *(ii)* rehabilitate existing infrastructure and build new infrastructure; and *(iii)* develop the National ICT Council of Afghanistan.

The Telecom Policy was also adopted in November 2003 with the objective of creating an enabling regulatory environment and promoting fair competition, encouraging private investment and market liberalization, and encouraging widespread adoption of ICT.

LEGAL AND REGULATORY ENVIRONMENT FOR ICT DEVELOPMENT

The Telecommunications Services Regulation Act was adopted in December 2005, paving the way for the establishment of ATRA as an independent regulatory body. The Telecom Law empowers ATRA to implement regulations and normative acts. Generally, these regulations fall into the following three categories, pursuant to ATRA's own Code of Procedure, which was adopted in October 2006:

1. Administrative rules (hiring, firing, documentation)
2. Procedural rules (public consultations, rule-making, appeal)
3. Substantive rules (licencing obligations, consumer protection).

To reach underserved areas, the Telecom Development Fund (TDF) was established under the Telecom Law. It will be used to help telecom operators rollout telecom services to the rural areas.

The MCIT has also just started drafting the ICT Law, which will address issues such as legal recognition of electronic/digital signatures and formulation of electronic contracts, content regulation, competition regulation, electronic evidence, data privacy protection, consumer protection and rights, domain name registration and regulation, intellectual property rights, encryption and security, financial and banking sector law and regulation relating to electronic transfers and settlements, taxation of transfers, customs, jurisdiction, dispute resolution and civil and criminal offences, limitations of liability of ISPs, cyber piracy and digital rights management, facilitation of e-government and cross border interoperability of e-commerce frameworks affecting trade. The target is to complete the draft and get the law approved by the Parliament by end 2009.

The Intellectual Property Law, which is expected to be passed by mid-2009, aims to help encourage FDI in the ICT, print, and electronic media sectors.

The e-Government Interoperability Framework of Afghanistan will be ready by the end of 2009. It will put in place a framework and standards, including context, technical content, process documentation and implementation, and compliance regimes, for e-government in Afghanistan.

DIGITAL CONTENT

ACSA, in collaboration with the MCIT and Microsoft, completed the Pashto version of Microsoft Windows XP and Office 2003 in December 2007. ACSA is now localizing Microsoft Windows Vista and Office 2007. Work on font, lexicon, and spell check development is ongoing. The ACSA team has likewise prepared the initial feasibility report and produced the localized version of International Domain Names in the Pashto language. All of these are expected to boost the capacity of the Afghan people to develop digital content.

Today there are about 70 independent radio stations, 15 television channels, and 500 printed publications whereas six years ago there was only one radio station and it was operated by the Taliban. And while in the last four years most of the broadcast content was of Indian, Iranian or Pakistani origin, beginning in 2007 local TV channels have started presenting Afghan-produced TV dramas and short films, which is an indication of the local capacity to develop local content.

Over the past three years, the availability of local online news has improved considerably. Some online news services are www.benawa.com, www.pajhwok.com, www.tolafghan.com, www.larawbar.com, www.bakhtarnews.com.af, and www.wakht.com.

A number of cultural websites are also available, such as www.worbal.com, www.dastanona.com, www.sabawoon.com, www.realafghan.com, www.afghanan.net, www.afghanpost.com, www.hewad.com, www.mastana.net.

There are more than 1,570 domain names registered under the .af domain, and this number is increasing.

ONLINE SERVICES

In June 2007, the first telemedicine project was launched at the French Medical Institute for Children (in FMIC), one of the local hospitals. Using broadband technology, wireless video consultation, and digital image transfer, the telemedicine project will provide hospitals in Afghanistan with real-time access to specialist diagnosis, treatment, and training expertise from abroad.

One year later, in June 2008, the Afghan government initiated a project to implement the smart card concept in Afghanistan, starting with the electronic national ID to serve as the platform for electronic driving licences, electronic academic records, and electronic health records. The first phase of the project will be completed in 2011.

Over the last three years the banking sector has enjoyed tremendous growth, with 15 private banks licenced to operate. The assets of these banks grew from USD 262 million in 2004 to USD 1.8 billion in 2008. ATM services and internationally accepted credit and debit cards are available for Afghans through these banks. With the expected approval of the ICT Law the local banks will soon be able to open merchant accounts, making it relatively easy to set up an e-commerce business in Afghanistan.

In February 2008 Roshan, one of the local GSM operators, started the first mobile money transfer system in the country. Branded M-Paisa, the service is a mobile technology platform that provides financial services for those without access to banking. Its aim is to foster economic activity in the region.

The Afghanistan financial management information system, electronic human resource system for government offices, verified payroll payment, and other such electronic applications have been deployed over the last two years.

Two other online services are www.tohfa.af, where one can place an order to send gifts anywhere in Afghanistan, and www.jobs.com.af, which is contributing a lot to the job market in the country.

ICT-RELATED EDUCATION AND CAPACITY-BUILDING PROGRAMS

Three decades of conflict and political unrest have destroyed the Afghan education system. In 2001, after the fall of the Taliban, the net enrolment ratio was estimated at 43 percent for boys and 3 percent for girls. There were approximately 21,000 (largely under-educated) teachers for a school age population estimated at six million. Females were forbidden to either attend school or to teach in the five years of Taliban rule. But the situation is gradually improving.

Several new institutions have been established by the government and the private sector to strengthen the education sector. Among these are the University of Afghanistan (www.universityofafghanistan.com), Afghan American University (www.auaf.edu.af), Kardan University (www.kardan.edu.af), Bakhtar University (www.bakhtar.edu.af), Aryana University (www.aryanauniversity.com), Afghan Pooshesh Training Institute (www.apti-af.com), and ICT Institute (ICTI) Kabul.

The new curriculum being developed will have computer education as a subject from class (grade) 4 to class 12 in schools. In addition, the MCIT and Ministry of Education signed a memorandum of understanding with the One Laptop per Child (OLPC) organization in May 2008, which provides for the deployment of 10,000 XO machines in Afghan schools in 2009. The MCIT and the Ministry of Education (MoE) are developing an e-learning strategy that covers the utilization of ICT in education delivery, ICT curricula, and the establishment of e-learning centres.

Also worth mentioning is the Afghan Institute of Learning (AIL), a women-led NGO that uses a creative approach to meet the health and education needs of Afghan women, children and communities, and provides ICT training at its IT centres. The training lasts from two to 10 weeks and covers basic computer skills such as word processing and use of spreadsheets.

OPEN SOURCE INITIATIVES

The open source sector in Afghanistan is very weak. There are a few private organizations working on open source platforms, including Paiwastoon Networking Service Ltd (www.paiwastoon.com.af) and Xala Technologies (www.xala.af). In April 2008, Linux Afghanistan (www.linux.af), a group of open source activists, was formed.

ICT RESEARCH AND DEVELOPMENT

The MCIT is planning to establish an e-government resource centre in 2010. It will serve as the government's ICT research and development (R&D) wing.

The Afghanistan Management Information Services (AIMS, www.aims.org.af) is also heavily involved in R&D in the area of software quality assurance and database standards, among others.

CHALLENGES AND OPPORTUNITIES

Over the past five years, Afghanistan has made major strides in the rollout of the telecom infrastructure and in building an environment conducive to the growth of the private sector. The government's decision to adopt new technologies for the delivery of public services is also a step in the right direction. The absence of legacy systems in most of the departments and the ongoing business process reengineering in the Civil Service Commission contribute to a favourable environment for the implementation of e-government.

Developing an ICT industry is something to be aimed for, given the country's human resources that can be trained to operate call centres, business process outsourcing companies, off-shore data entry, and the like. However, certain challenges will have to be addressed, namely, the security problems, lack of a stable political system, limited supply of electricity, and lack of skilled personnel in general and ICT professionals in particular.

Even as the country is struggling to address these challenges, progress is slowly being made in different areas, such as in the banking, health and telecom sectors, road construction, and secondary education. The Government of Afghanistan and the international community renewed their commitment to the country's development during the Paris Conference held on 12 July 2008. The Afghanistan National Development Strategy presented and approved during the Conference provides a well-defined and concrete road map toward a prosperous and stable Afghanistan.

NOTE

1. The NICTAA Founding Members are Afghan Computer Science Association (ACSA), Afghan Media International (AMN), South Asia Free Media Association (SAFMA) Afghanistan, National ISP Association of Afghanistan (NISPAA), Afghan Telecom, Afghan Wireless Communication Company, Alcatel-Lucent (ALU) Afghanistan, American University of Afghanistan (AUAF), Kardan University, MTN Afghanistan and Telecom Development Company of Afghanistan (TDCA)/Roshan.

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