

Islamic Republic of Afghanistan

ICT Sector Strategy (DRAFT)

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Abbreviations

ACSA	Afghan Computer Science Association
ATRA	Afghanistan Telecommunication Regulation Authority
CCN	Copper Cable Network
CDC	Community Development Council
CDMA	Code Division Multiple Access
DCN	District Communication Network
G2B	Government to Business (Application)
G2C	Government to Consumer (Application)
G2G	Government to Government (Application)
GCN	Government Communication Network
GIS	Geographical Information System
GIPI	Global Internet Policy Initiative
GPRS	General Packet Radio Services
GPS	Global Positioning System
GSI	Globecomm Systems International (Contractor)
GSM	Global System Mobile
ICT	Information and Communication Technology
ICTTC	ICT Training Center
IN	Intelligent Network
ISP	Internet Service Provider
IXP	Internet Exchange Point
MCIT	Ministry of Communications & Information Technology
LFSP	Local Fixed Service Provider
NDC	National Data Center
NGO	Non-governmental Organization
OFC	Optical Fiber Cable
PABX	Private Automatic Branch Exchange
SIM	Subscriber Identification Module
VCN	Village Communication Network
WLL	Wireless Local Loop
WTO	World Trade Organization

I. Executive Summary

Providing Strategic Leadership to the ICT Sector

In February 2007, the cabinet approved the re-naming of the Ministry of Communications to the Ministry of Communications & Information Technology (MCIT) as an acknowledgement of the central role that the information and communications technology (ICT) sector¹ will play in accelerating Afghanistan's full participation in the global Information Society. MCIT will provide strategic leadership to ICT sector development, and it will act as the focal point for all of the stakeholders to help shape future policies and to promote large-scale projects.

The ICT Council was established by Presidential Decree in May 2007 as the primary forum for all of the stakeholders. The ICT Council includes representatives from the government ministries, plus business (service providers), civil society (relevant associations) and academia.

Stakeholders & Strategic Channels

In every economy in the world, the government is always the single largest buyer of goods and services. In this role as mega-consumer, governments are also able to play a leading role in the development of sectors, industries, products and even commercial process. In the case of the development of the ICT sector in Afghanistan, the government has explicitly acknowledged the role it must play, and through the ICT Council, MCIT will achieve the following objectives:

- Promotion of ICT development
 - Create awareness in the ministries and public about the importance of ICT
 - Encourage implementation of required ICT solutions and systems in each Ministry through CIO (Chief Information Officer) Culture
 - Make ICT as a cross-cutting tool to support the ANDS
- Coordination of ICT Activities
 - Create awareness about existing situation of ICT in the country
 - Coordinate new activities among ministries and/or donors
 - Avoid duplications and waste of resources
- Policies and Standards for ICT
 - Establish Policies and procedures
 - Establish the Legal framework for ICT
 - Create ICT standards

¹ The ICT sector is fully defined in Part II.

- Establish proper procedures for data integrity, security and access
 - Ensure Privacy protection
 - Create Emergency preparedness
- E-Government initiatives
 - Develop strategic plan for e-Government
 - Promote e-Government to deliver services effectively, reduce bureaucracy and fight corruption
 - Ensure interoperability of systems and solutions
 - Example: National ID, Passport, License, Land Ownership Register etc

By mobilizing resources to build up the ICT sector within the public sector institutions, MCIT will also be accelerating the development of ICT support capabilities of the private sector in Afghanistan, both through contracts and via participation in the policy processes of the ICT Council.

The ICT ecosystem is characterized by stakeholders and relationship channels. For example, an inter-Ministerial electronic personnel and payroll system is an example of a Government-to-Government (G2G) channel. Electronic procurement is an example of G2B. Ultimately, as the ICT market matures, it will resemble a matrix of relationships, as in the table below:

	Government	Citizen	Business	Education
Government	G2G	G2C and G4C	G2B	G2E
Citizen		C2C		
Business	B2G		B2B	
Education		E2C		E2E

These relationships are already well understood and it will be the task of the ICT Council to foster their development in Afghanistan. Several logical high-priority starter programs have already been identified and are listed in the Programs section below.

Key Strategic Targets for ANDS

This ICT sector strategy carries forward two elements that were adopted in the Interim ANDS (I-ANDS) with adding up the third:

- Telecom access to 80% geographic coverage of populated areas by 2010
- US\$100 million revenue contribution to treasury by 2010
- Transforming Afghan society into information based society by 2013

The approach taken to achieve the first target is wireless service. From July 2003 to July 2007, the total number of mobile subscribers has grown from 1,800 to over 3.5 million and from 6 to over 250 urban areas. Afghanistan now has five nationwide mobile service providers plus three regional licensees. Competitive incentives will continue to spur the expansion of access to ever more remote areas. For the next five years, MCIT policies, working through the Afghanistan Telecom Regulatory Authority (ATRA) will also deploy satellite solutions to the

less populated areas where personal mobile is too costly. The current program is to reach at least 3000 villages by 2010. Plans are also underway to issue new licenses for the provision of fixed wireless access for broadband internet.

The second target has been dictated by the Ministry of Finance. The ICT sector is already the most heavily taxed, primarily because it is comprised of the largest law-abiding enterprises in Afghanistan, and therefore an easy target for collections. As more licensees enter the legitimate market, great care should be given to reduce – not increase – the burden on the sector. A World Bank study is being prepared which will provide guidance to the ICT Council, and ultimately the cabinet, on improving the tax regime to avoid killing this nascent industry which is providing vast economic benefits in terms of employment and development. With the new telecom infrastructure e.g. Fiber optic ring and national data centre, new business like call centers will spur in the sector contributing to the government revenues.

With the achievement of third target Afghans will be able to enjoy their day to day life. The establishment of national data center by end of 2008, implementation of e-Government, e-Commerce, m-Commerce, e-Health (telemedicine) towards the end of 2010 will enable afghan to enjoy the information age. The new mandate of MCIT and establishment of ICT council will strengthen the political well to achieve the third target.

Impediments

The impediments to the healthy future of the ICT sector are:

- Security – impeding the ability to build and maintain ICT infrastructure in remote areas
- Literacy – the high level of illiteracy reduces the immediate impact of many internet applications
- Corruption – adds a significant burden on legitimate business processes.
- Human Resource-the low level of ICT work force is another hurdle to the adoption and promotion of ICT

Solutions

The ICT sector also brings solutions that will help address these impediments, which will bring cross-cutting benefits to the whole of Afghan society:

- Security – wireless technologies require less infrastructure to cover a wider territory, and citizens will no longer be isolated from government
- Literacy – once access to the internet is available, it can be used for education, and it is proven to be easy for children to self-teach, which will increase the ICT literate work force
- Corruption – when you make information widely available, you eliminate abuse by the bureaucracy and make the government more accountable.

II Introduction

Definition of the ICT Sector

Information & Communications Technology (ICT) is defined as the infrastructure, applications and services that are helping to shape the Information Society.

By **infrastructure**, we primarily mean the computers and all other IP based devices that is linked on a global basis by the public internet (or other private access networks). Locally, these devices are either linked to each other by wire infrastructure (Ethernet) or wireless infrastructure (WiFi) or they can connect directly to the internet using the infrastructure of a telephone company.

Software makes it possible for various **applications** to utilize the computer hardware. Basic software includes word processing, spreadsheets and relational databases for desktops or laptops. But, as used in this Sector Strategy, the relevant applications mean enterprise-wide or government-wide software, including especially those that are web-enabled, meaning that they can be accessed by any IP enabled device or terminal worldwide (with appropriate security measures).

Services consist of all those E-enabled G2G, G2C, G2B services e.g. e-Passport, e-Land registration, e-Public Services.

Today, there are over 1 billion personal computers in use worldwide.² There are 1.3 billion internet users, compared with 1 billion in 2005, 420 million in 2000 and 45 million in 1995.³ The value of worldwide telecom services was US\$123 billion in 2004, projected to reach US\$282 billion in 2010. The value of ICT equipment sold was US\$198 billion in 2005 is anticipated to reach \$447 billion by 2010.⁴

The Importance of the ICT Sector to Afghanistan

The ICT sector is one of the important parts of the infrastructure of any country and it plays a vital role for further growth of any economy and seeing its due importance it has been placed under pillar three Social and Development in the Infrastructure and the natural resource consultative group of the Afghanistan National Development Strategy.

ICT will enable the government to successfully execute the broad reconstruction effort. A modern telecommunications sector, incorporating e-government initiatives wherever possible, will enhance the effectiveness, efficiency and transparency of the public sector and the provisioning of social services. In this case such provision of services has largely occurred through the enabling environment created within the sector for sustained private sector investment.

² Computer Industry Almanac – <http://www.c-i-a.com>

³ International Telecommunication Union – <http://www.itu.int>

⁴ Research and Markets – <http://www.researchandmarkets.com/reports/c21014>

Today when the telecommunication revolution has reduced the world to a global village its development is important for the Afghanistan as well. As all the communities of our people face the “tyranny of distance” and the alienation associated with remote geographical conditions of Afghanistan. To restore cultural and social normalcy throughout the country it is essential that all 365 districts, major villages and rural areas be integrated with Kabul, with each other, and with the rest of the world. ICT is a basic enabler of informal social and economic discourse necessary in 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 reestablishing basic economic linkages by relieving communication bottlenecks from financial, governmental and cultural information flows. ICT is an essential enabler for boosting productivity and creates a climate for job creation, investment and sustainable growth. In fact; currently there are more 50 thousand people who have been provided with direct and indirect job opportunities in this sector since 2002. Research data shows that positive economic effects flow to all parts of a community once basic telephone access is achieved. And now with the advent of Internet the flow of market information is more rapid enabling the market stakeholders enjoy the availability of business/economic statistics thus the information technology revolution which has influenced all the economies in the world can't leave Afghanistan as exception and it has started making ripples by becoming a sole sector which contributes maximum to the exchequer or the national treasury of our country. The contribution of the ICT sector for 2005 estimated at 20% of national domestic revenue collection which is going to rise further will provide government more revenue for carrying out its fight against poverty reduction and reconstruction of the nation and thus this sector will contribute directly or indirectly in poverty reduction crusade of the nation.

Civil preparedness, education, NGO and community outreach, peace-building and national security efforts are all strengthened when reliable and robust ICT network resources are distributed widely throughout society. ICT is a strategic sector that urgently requires further rapid modernization by encouraging further private sector investment into the sector. It plays a unique role as a facilitator in the overall reconstruction effort – from providing a support infrastructure for humanitarian, aid and other NGO relief workers to improving education, supporting emergency operations and social welfare and boosting the economy.

Administrative reforms being accepted as one of the major challenges by the government of Afghanistan can be tackled with the use of ICT by introducing G2G (Government to Government), G2B (Government to Business) and G2C (Government to Citizen) services. As per the international experiences technology can be one of the strong factors helping reduce the bureaucracy and increase the accountability and transparency. Thus the ICT sector has a crucial role to play in economic growth, in poverty reduction and in overall development of the nation.

III. Context

History Up to 2002

Modern telecommunications technology arrived in Afghanistan in 1930 with a small exchange built in Kabul. The network was gradually expanded to five additional urban areas via copper wire but this infrastructure had been decimated by 23 years of conflict and under-investment since the mid-1970s. At the beginning of the transitional government in 2002, the infrastructure was negligible and services were extremely limited. Wealthy people could afford to use satellite phones (at a cost of US\$5 per minute) and those less fortunate either traveled to neighboring countries to place a call or to post a letter. But in reality, the majority of Afghans were simply isolated without communications.

In early 2003, Afghanistan had fewer than 15,000 functioning telephone lines for a population of approximately 25 million. This means a telephone penetration rate of 0.06%, among the lowest in the world. In addition to a shortage of basic telephone switching capacity, the local transmission network delivering last mile services, presented an even more difficult bottleneck. The cabling conduit, trunk cables and copper wires were also old or completely destroyed.

Afghanistan did not have a functioning long distance network to provide national or international connectivity. The absence of transmission and switching facilities meant that citizens could only complete calls within their own cities and were unable to reach any other parts of the country or the outside world.

Adoption of Modern Policies

The government adopted the first modern policy for the ICT sector in October 2002, which was immediately posted to one of the first government websites. This initial broad policy statement was further refined and split into two separate policies – one for basic telecom infrastructure and regulatory principles, and a second for ICT applications and a vision for the Information Society in July 2003.

The government has not veered from these policies and they remain in force to this day. Their principles have subsequently been given a statutory basis, in the form of the Telecom Law that was promulgated in December 2005 (published in Official Gazette 787). The telecom infrastructure aspects are being implemented by ATRA, which was established in June 2006. The ICT applications aspects are being implemented via the ICT Council, which was established in May 2007.

The transparent approach taken to the adoption of the policies and the consistency of the vision from design to implementation has produced rapid results. These results have been formally acknowledged in two film documentaries – the first produced by the World Bank, and the second produced by USAID in 2006. In addition, there have been numerous favorable articles published in the leading business media, including *The Economist*, *The Wall Street Journal* and *The Financial Times*.

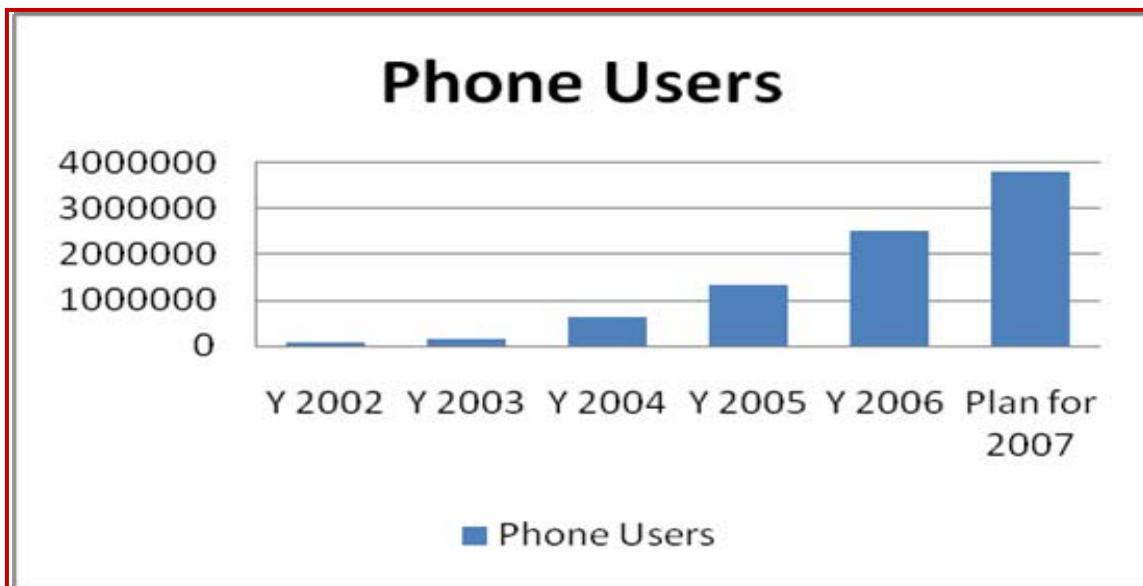
The Explosion of Coverage, Access & Usage

The fact that most of the existing infrastructure was either antiquated or broken meant that Afghanistan was free to abandon them and essentially start again with a fresh slate. In 2003, the obvious choice for personal communications was wireless. Global standards for wireless mobile meant that the equipment was reliable, cheap and could be deployed rapidly. So wireless was a good fit for the Afghan market.

In July 2003, two nationwide mobile (GSM) networks began operation, following an international competitive tender. The licenses required commercial service to be offered in Kabul within six months of the effective date, with nationwide service within 18 months. Pursuant to the original Telecom Policy, these first two licenses also were provided a legal duopoly for three years.

In October 2005 and May 2006, two additional nationwide mobile (GSM) licenses were awarded, with identical terms and conditions as earlier.

There was immediate strong demand for the mobile services, and has gone from zero to over twelve percent of the population, as documented in the table below:



The additional two licenses have clearly illustrated the benefits of competition, namely:

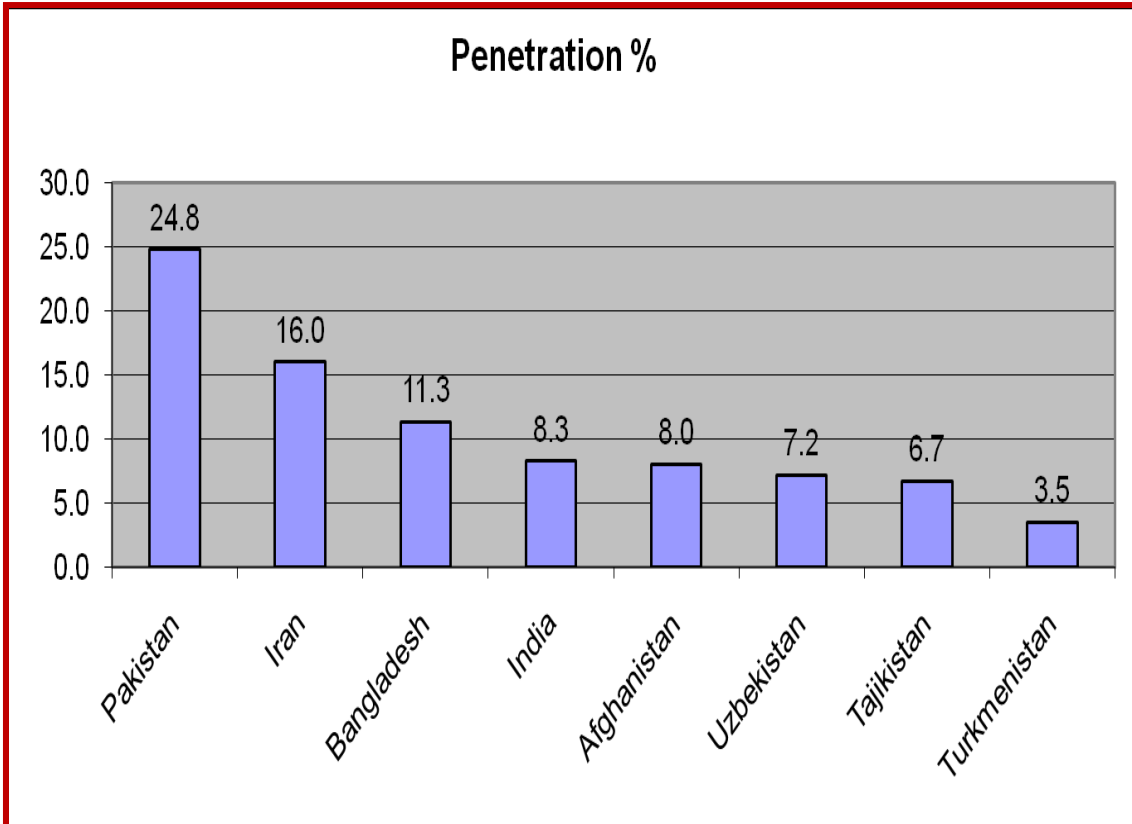
- Rapid expansion of coverage to new communities – 250 so far
- Reduction of prices – from US\$0.30 to under US\$0.07 per minute
- Call per second is considered as 40% decrease in the prices
- Wider selection of optional features – voicemail, SMS.

A report from licensees indicates that the ICT market in Afghanistan is growing faster now than any time in its history, and still accelerating. In January 2007, the three mobile networks were adding 100,000 net subscribers per month – and by August 2007, close to 180,000 were being added per month (as a fourth

licensee entered the market). It is estimated that approximately 70% of Afghans now live within a coverage area of a telecommunications network.

Afghanistan Compared With Regional Neighbors

In just four short years, Afghanistan has made remarkable progress in bridging the digital divide, as compared to neighboring countries **as of December 2006:**



Current Institutional Framework

The Ministry of Communications & Information Technology (MCIT) is responsible for providing the institutional leadership for the ICT sector in Afghanistan.

MCIT's ICT Policy Department has the primary responsibility for developing ICT policy and it supervises the implementation of certain ICT projects, like the National Data Center (NDC). MCIT's Planning & Policy Department supervises the implementation of certain large-scale infrastructure projects, including the Optical Fiber Cable (OFC) project and the Copper Cable Network (CCN) project.

The Afghanistan Telecom Regulatory Authority (ATRA) was established by the Telecom Law as an independent institution operating within the political framework of MCIT. This means that its 5-member Board is appointed by the President. It also is financially independent, in that its administrative costs are fully recovered on the basis of regulatory, licensing and spectrum fees that are paid by the private sector.

Afghan Telecom is presently a corporation that is 100% owned by MCIT. It is being privatized pursuant to government policies articulated in the July 2003 *Telecom & Internet Policy*, the Interim ANDS and the MCIT Sector Strategy published in April 2007.

MCIT also has a department for capacity building, called the Information Communication Technology Institute (ICTI). It provides specialized technical training and issues vocational certificates and has just launched a 4-year ICT bachelors program. Since 2003, it is also in the process of considering a transformation to public-private partnership in order to ensure that its curriculum meets the needs of the private sector (which has a huge demand for properly skilled workers). Also, MCIT has been fortunate to receive considerable capacity building support from the UNDP, which has trained over 2000 MCIT staff in English and IT.

The ICT Council is the primary forum for all stakeholders in the ICT sector. It consists of all of the government institutions that already have ICT activities, and it is open to all other institutions as they acquire ICT infrastructure and applications. The ICT Council is chaired by the First Vice President and its total membership is fully inclusive of all interested parties, including the private sector, civil society organizations,

As of September 2007, the main government institutions utilizing ICT – and therefore the most active members of the ICT Council – are: Da Afghanistan Bank (DAB), the Ministry of Finance (MOF) and the Ministry of Foreign Affairs (MOFA).

The Parliament has also become an important institutional player in the ICT sector, both in terms of policy and utilization. Parliamentary review of Telecom Law began in April 2007 and amendments are expected by the end of 2007.

Current Legislative Framework

The Telecom Law was promulgated by the President on 18 December 2005 (Official Gazette 878 – 23 February 2006). The law is already compliant with the World Trade Organization (WTO) Basic Telecom Agreement (BTA) framework requirements, notably, that it separates the three basic functions and assigns responsibilities to three independent sector elements:

- Policy – MCIT
- Regulation – ATRA
- Operations – Licensed Service Providers.

The main effect of the Telecom Law is the establishment of the independent sector regulator, called ATRA. The legal authority of ATRA rests with its 5-member Board, which was appointed by the President on 6 June 2006.

The Telecom Law empowers ATRA to make implementing regulations and normative acts. Generally, these regulations fall into three categories, pursuant to ATRA's own Code of Procedure, which was adopted in October 2006:

- Administrative Rules (hiring, firing, documentation)
- Procedural Rules (public consultations, rule-making, appeal)
- Substantive Rules (licensing obligations, consumer protection)

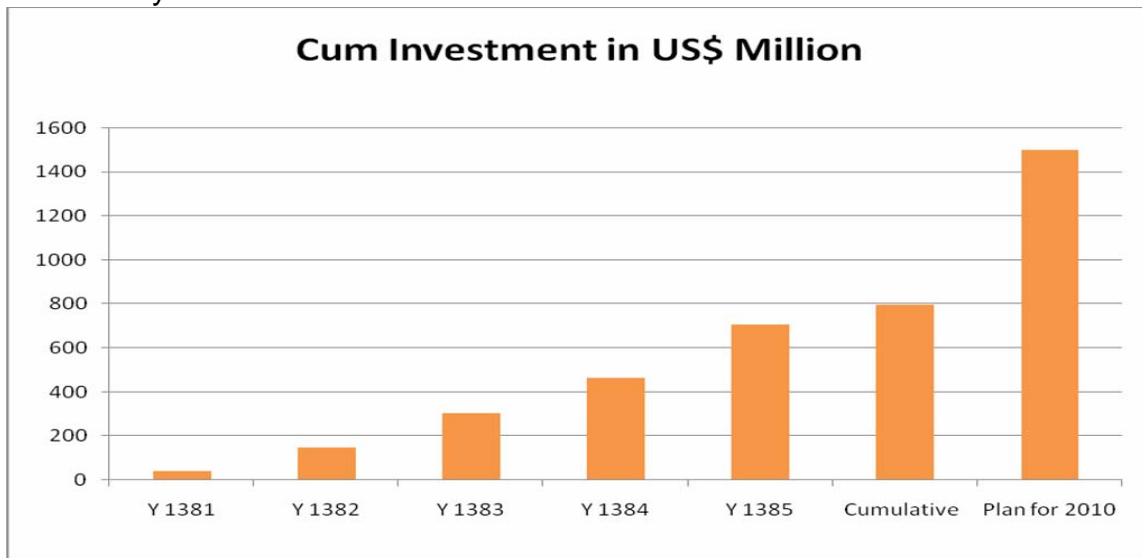
The ICT sector is also governed by many other laws because most of the services are provided by the private sector. The related commercial legislation includes, for example:

- Investment Law (July 2006)
- Arbitration Law (January 2007)
- Corporation Law (pending)
- ICT Law (pending)

MCIT has just started drafting the ICT Law. The telecom law addresses the telecom infrastructure and services but the law doesn't cover the content of the services. The ICT law will address issues such as legal recognition of electronic/digital signatures and formation of electronic contracts (affecting transactions both in public and private sectors), 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 internet service providers, cyber piracy and digital rights management, facilitation of e-government and cross border interoperability of e-commerce frameworks affecting trade.

Attracting Private Investment into ICT Sector

From 2003 to 2007, approximately US\$800 million has been invested by the private sector into the ICT sector of Afghanistan. According to numerous studies by the World Bank and other observers, this is by far the largest investment into the licit economy. MCIT estimates that an additional US\$750 million will be invested by the end of 2010.



Most Active Donors in ICT in Afghanistan

MCIT has been working extensively with both the donor community and the private sector since 2002. The primary donor relationship has been with USAID and the World Bank, but there have also been projects and activities supported by the ITU, UNDP, JICA and the Governments of China, India, Iran and Korea. The list of private sector partners is even more extensive. The primary ones include the four nationwide mobile licensees (Areeba, AWCC, Etisalat and Roshan), as well as GSI, Motorola, Samsung, Huawei and ZTE.

Furthermore, the private sector “window” of the international financial institutions is also very active:

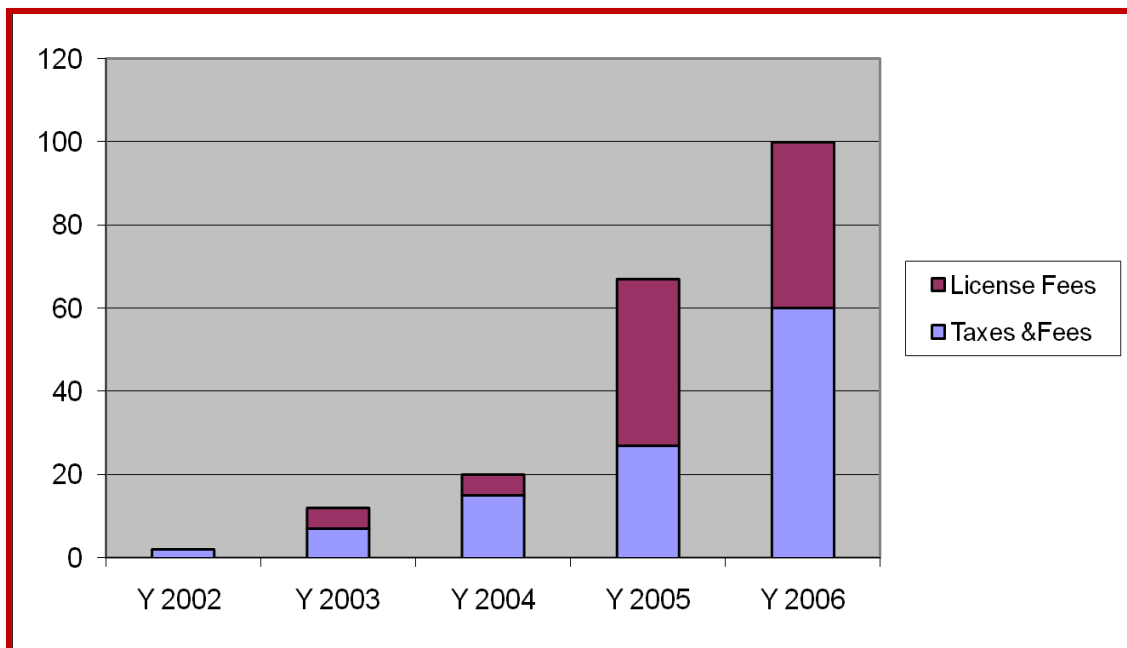
- Asian Development Bank (lending US\$75 million to Roshan)
- International Finance Corporation (lending US\$40 million to Areeba)

If aid effectiveness is measured on the basis of return on investment, then the role of the donors in the rapid development of the ICT in Afghanistan can only be deemed to be exceptionally high.

ICT Sector Contributes 20% of All Government Revenues

For the government fiscal year that ended on 20 March 2007, the ICT sector contributed approximately 20% of all government receipts to the treasury of Afghanistan. The ICT sector is heavily taxed, because it is law-abiding and is highly visible. The main elements of the contributions are:

- Business Receipts Tax = 10%
- Spectrum Fees = 2%
- Telecom Development Fund = 2.5%



Integrating ICT into ANDS Cross-Cutting Themes

In September 2007, the ANDS at one of its CG meetings has acknowledged that ICT is itself a cross-cutting theme, because it makes significant contributions to achieving the government's goals in ANDS themes. For example:

Security: Terrorists are taking advantage of the physical isolation of many communities to forcibly hold them back from integration into Afghan society; several ICT projects (like TDF, DCN, VCN) will provide the basic connectivity to eliminate this obstacle to progress. Another aspect is the storage and processing of authentic people and physical data of the county, which will reduce the opportunities of producing false and fake information.

Governance and Rule of Law: with the implementation of e-Government and e-Democracy the rule of law will be strengthened.

Education: With the introduction of Internet and distance learning to Afghan society the education sector will enter in to a new paradigm.

Health: The telemedicine and e-Health will enable Afghans living in far and remote areas of the country to benefit from the health facilities in metropolitan cities of the country and the rest of the world.

Social Protection: Through having national wide data bases with people data on it, it will enable the citizen as well the government to securely host, process and produce the authentic data about individuals thus reducing the tempering of people data. Thus no entity will abuse any one with the false testimonials in the society.

Agriculture and Rural Development: Through ICT we can promote the local commodity markets, by giving access to the farmers and other local business to market their product over the internet. Data bases of first hand information for farmers will help them cultivate the right crop and market it in the right place in the right time.

Economic Governance and Private sector Development: It is always important to have the right information (facts and figures) in the right time to make a good economical decision. Most of the time the economical data in Afghanistan is missing, thus discouraging the FDI and economic growth. The bureaucracy is another factor of this discouragement, ICT can play vital role through the implementation of different MIS, the private sector development and economical governance will foster.

Gender Equality: Mobile and Electronic commerce will make it possible for women to work at home and be commercially viable without offending cultural sensitivities.

Counter-Narcotics: Well connected societies are the lesser victims of narcotics and terrorism besides low employment is another breeding factor for terrorism, ICT will connect afghan society and will create job opportunities and facilitate ground for entrepreneurship.

Anti Corruption: E-Governance and other e-Enabled services will reduce the corruption chances. If information is shared among all then it is less prone to force any entity for corruption.

Regional Cooperation: Fiber optic, national data centre, local content development, regional data repositories, regional cyber crime, regional data interconnection and such others are all good examples of regional cooperation which will be furnished by ICT.

Environment: Telephone services and the internet reduce the need to travel, which saves expenditures on gasoline and eliminates harmful emissions.

Impediments

The major challenges to achieve the telecommunications goals are security, administration and financial bureaucracy, late approval of the annual budgets and development projects as well as weak implementation and technical capacity, which are the major concerns. Therefore, a strong capacity building effort is required to upgrade the capability of personnel and the government is also coping to assure that an acceptable security environment and refined administration and financial procedures be developed for sound business.

Lack of security across Afghanistan has the following two primary negative impacts on the growth and development of the telecommunications sector.

Lack of security will dramatically slow down licensees' ability to extend network coverage and service provision into insecure parts of the country, thereby limiting the ability of Afghans in those areas to benefit from the provision of affordable telephony services. A sustained lack of peace and security will simply reduce foreign private investors and stakeholders' willingness to continue to invest in the sector. Given that much of the expansion of the sector has been driven by private sector investment to date, it should be expected that continued expansion will also result from further private sector investment. Investment levels may drastically be reduced in light of continued insecurity.

Lack of coordination among the government entities and lack of political will in the area of ICT is a major challenge; MCIT through the ICT Council will try to address the issue.

Lack of localized/local content is also slowing down the pace of the ICT promotion and adoption.

Solution Missing:

Policy Framework

IV Overall Strategy for ICT Sector

1. Strategic Vision

MCIT's strategic vision, which was first stated in May 2003 and recently presented to the ICT Council, is:

“To make affordable communication services available in every district and village of Afghanistan through enabling market economy, ,so that Afghans can use ICT to expeditiously improve Government, social services, foster the rebuilding process, increase employment, create a vibrant private sector, reduce poverty and support underprivileged groups”.

The objectives of the MCIT have been rapid development of the ICT sector by having multiple operators providing world-class quality services at reasonable prices. In July 2003, the MCIT adopted its Telecommunications and ICT Policy with the aim to promote rapid telecom development through private sector investments. The Islamic Republic of Afghanistan firmly recognizes the importance of embracing telecommunications & ICT technologies to achieve the nation's development and reconstruction goals.

The ICT Policy is fully compliant with the sector framework required by the World Trade Organization (WTO) by making the MCIT responsible only for policy, by establishing an independent sector regulator Afghanistan Telecommunication Regulatory Authority (ATRA) and by corporatizing Afghan Telecom as the first step to removing the government from the provision of services to the public. The Policy encourages private investment through the introduction of measured competition; established Afghan Telecom as a state-owned corporation with the right to accept private investment; and supports rapid expansion of telecommunications and Internet services at the local level.

The policies recognize the use of ICT to provide healthcare, social services, and citizen's services, promote systems that accommodate convergence of various technologies and networks through providing a favorable investment and taxation environment. The policies will enhance government effectiveness by using e-government technology and by establishing a national data centre, to promote effective ICT training courses foster the capacity to trade goods and services by electronic means.

2. Needs Assessment

The demand and supply in the sector is purely market driven and it has been observed in the developing economies that it is the economic growth and the purchasing power of the people which gives further growth to this sector.

>> chart illustrating relationship between ICT infrastructure & GDP growth (OECD) will be inserted

In 2003, the World Bank did its initial needs assessment of ICT in Afghanistan, and provided recommendations which were generally accepted and incorporated in the *Telecom & Internet Policy* (July 2003).

To date, closest thing to market analysis was GIPI a project by ACSA report (December 2006).

MCIT is conducting the first E-Readiness survey by the end of 1386, which will indicate the state of ICT in the country and the needs will be spelled out.

3. Priority Policies & Objectives

The top policy priorities for the ICT sector strategy are:

- To bring every resident, home and school, every business and every public sector institution into the digital age and online;
- To create a digitally literate Afghanistan, supported by an entrepreneurial culture ready to finance and develop new ideas;
- To ensure that the whole process is socially inclusive, builds consumer trust and strengthens social cohesion.

MCIT will achieve these objectives by providing leadership in the following strategic elements (the corresponding programs are discussed further below):

Enabling Environment

The enabling environment means the written policies, laws, regulations, procedures, standards and other normative acts that ultimately comprise the legal-regulatory framework. As noted above, much of framework has already been accomplished.

Going forward, MCIT will be the primary force in further developing and improving the enabling environment, in order to attract additional private investment to the ICT sector. MCIT will work through the ICT Council to ensure that the enabling environment truly meets the needs of all Afghans. Public consultations will continue to be an important ingredient to achieve this strategy. In the past, MCIT has used videoconferencing to reach stakeholders in each of the 34 provincial capitals, plus has conducted periodic briefings in the districts (including the Community Development Councils) and semi-annual meetings in Kabul. This approach has proven successful and will be continued.

Infrastructure

Infrastructure includes telecom networks, hardware and physical facilities necessary to provide access to services.

The largest percentage of infrastructure has been deployed by the private sector since 2003. However, in very limited cases, where the private sector has shown

unwillingness or inability to respond to infrastructure demands on a timely basis, MCIT has stepped in to take the leadership and utilized public funds. The best example is the national OFC ring, which is being funded using US\$65 million from the treasury.

E-Afghanistan

Applications refer to the business processes that are carried out utilizing the ICT infrastructure. For example, once a point of connectivity has been established in a particular village, the basic application will generally be telephone services, allowing the citizens at this location to communicate with everybody else on a worldwide basis. Depending on the location, additional ICT infrastructure may include computer terminals, which then enable additional applications, including internet access, distance learning and even telemedicine. Afghans living in close proximity of the access networks will be able to access the government services on line e.g payment of taxes, health services, distance learning etc.

Literacy

There is no easy way to overcome the high illiteracy rate in Afghanistan, which is frequently estimated at more than 70% nationwide. Regardless of the approach, it will surely take decades to reach the acceptable literacy rate in developed economies. But the linkages between jobs, economic growth, prosperity and literacy is very clear – Afghanistan will not become a stable economy without first achieving major progress in addressing literacy.

ICT can play a significant role in accelerating literacy. Within three (3) years, ICT infrastructure and applications will be accessible to more than 80% of the population of Afghanistan. The Telecom Development Fund (TDF) – a program that is described in detail below – can facilitate ICT access to every school nationwide. However, this will not be enough. Working through the ICT Council, the teaching curricula has to be updated and expanded to take advantage of this access channel.

In many emerging markets – Egypt for example – the literacy challenge has been addressed by exposing all school children to distance learning on a mandatory basis. The miracle of ICT is that even the youngest children have a remarkable ability to rapidly accept new technologies, to the point that they quickly out-master their teachers and parents.

4. Desired Outcomes

Enabling Environment

- The ICT Council, through the MCIT, will work to achieve the following:
 - By Jaddi 1386 (end-2007), support good governance by adopting a short list of priority programs, projects and funding mechanisms to ensure that ICT is deployed to support the timely implementation of the national elections in 1388 (2009).
 - By Jaddi 1387 (end-2008), promote transparency and citizen access to public information by adopting Rules and Procedures to

require all government institutions to publish documents on their official websites (as a supplement to the Official Gazette).

- By Jaddi 1387 (end-2008), promote government efficiency, reduce costly waste and ensure information system interoperability by adopting a full set of Rules and Procedures that will govern the competitive procurement and utilization of ICT by all government institutions.
- By Jaddi 1388 (end-2009), reduce corruption by reviewing all government services and making recommendations for the adoption of ICT to streamline and automate (for example, customs processing, procurement and licensing).
- By Jaddi 1387 (end- 2008), the CIO (Chief Information Officer) culture will be implemented in the government.
- By Jaddi 1387 (end- 2008), the e-Government resource centre will be established, which will be a central brain drain for the e-government projects of the government.
- By Jaddi 1387 (end-2008), MCIT will attract private investment for Afghan Telecom to reduce the financial burden on the treasury, and adopt the legal instruments for private investment into Afghan Post.
- By Jaddi 1389 (end-2010), the ICT sector will contribute 5 billions Afs (US\$100 million) annually to the national treasury by broadening the tax base (attracting additional investors to the market, rather than over-burdening the existing ones).
- By Jaddi 1389 (end-2010), ATRA will foster a transparent legal-regulatory regime that attracts a further 37.5 billion Afs (US\$ 750 million) in private sector investment, and adds 50,000 in sector employment.
- By Jaddi 1387 (end-2008), MCIT will submit draft ICT Law governing e-Transactions, electronic commerce, electronic signatures and cyber crimes to the Parliament for promulgation.

Infrastructure

- By Jaddi 1389 (end-2010), national ICT networks will be expanded and interconnected so that more than 80% of Afghans will have access to affordable telecom services.
- By Jaddi 1387 (end-2008), Afghan Post offices will be modernized using ICT to ensure reliable collection and distribution of mail.
- By Jaddi 1387 (end-2008), Afghanistan National Data Centre will be ready to host the e-government applications
- By Jaddi 1388 (end-2009), ICT Village will be established in Kabul, this facility will attract the FDI and local investments in the ICT market.

E-Afghanistan

- By Jaddi 1387 (end-2008), cross-cutting electronic government applications will be launched to support the government efficiency and reduce bureaucracy e.g. e-Procurement, e-document Management System.
- By Jaddi 1387 (end-2008), the infrastructure of mobile networks will be adapted to enable mobile commerce, meaning the use of phones to transfer funds and conduct other financial transactions (pay utility bills and taxes, make retail purchases).
- By Jaddi 1389 (end-2010), all Afghans should have the possibility of obtaining basic medical diagnosis by remote ICT access and having a health smartcard providing secure, confidential access to networked patient information.

Literacy

- By Jaddi 1387 (end-2008), unified Curriculum and regulatory framework for the private ICT training centers will be drafted in cooperation with Ministry of Education.
- By Jaddi 1388 (end-2009), all schools should have access to the internet and multimedia resources, together with a basic curricula that includes browsing, searching and messaging.
- By Jaddi 1389 (end-2010), digital literacy must be adopted as one of the mandatory basic skills of all young Afghans. The internet and multimedia resources must be introduced in schools and education must be adapted to the digital age.
- By Jaddi 1397 (end-2018) all pupils should be digitally literate by the time they leave school.

Capacity Building

There has been an enormous loss of skilled professionals from Afghanistan over the last two and half decades of the civil war in the country. Afghanistan has either lost such people or they were forced to leave the country because of the political plights. The government of Afghanistan recognizes the critical importance of embracing capacity building to achieve the nation's development and reconstruction goals. The lack of local capacity for the management and implementation of the projects is the main problem to further develop the reconstruction of the country

Empowering the capacity building is one of the government's high priority and most attentive project in Afghanistan to start comprehensive capacity building with initial funds available at provincial and capital level, which is the key to the development of the capacity of civil servants; therefore, further support to above is needed to allow them to continue providing these much-needed services.

Within the Ministry, employees have received ongoing training in basic computer

skills and English, which is the primary language for business worldwide. It is the goal of MCIT that by the end of 2007, every employee will have a written job description that addresses their contribution to the achievement of MCIT's goals, that a performance appraisal will be conducted every six months and that training will be mandatory to achieve professional conduct and career advancement. MCIT has initiated a public dialogue to transform its ICT Training Center into a public-private partnership so that the technical curriculum is modernized to reflect the needs of prospective employers. MCIT has also begun collaborating with the University of Kabul to accelerate the formation of the Public Administration Institute as the vehicle to raise the standard of institutional capacity building.

In 1973 ITU in collaboration with UNDP had established a very well equipped "Telecommunication Training Centre, **TTC**" in Kabul Afghanistan. At that time The TTC had been recognized as an especial college by Ministry of Education of Afghanistan to train the students at Telecommunication Engineering and Technicians level. Most of the existing technical staff of Ministry of Information and Communication Technologies (MCIT) are graduates of this centre or were trained in this centre. Since its inception, more than 1,200 well-trained professionals have graduated from this centre. During the two and a half decades when Afghanistan was faced with invasion, civil war and isolation, most of the technological infrastructures of the country including this Centre were badly damaged and all laboratory equipments of the Center were destroyed. **More serious is the damage to human capacity and knowledge due to the fact that two generations missed to get education and most of the previously educated class have migrated or have become too old. Also, nearly all instructors of the Center left the country.**

The Ministry of Communications included development of human resources among its highest priorities. Development of human resources in communication and information technology plays a significant and important role in the reconstruction and development of the country both from social as well as economical point of view. In fact, telecommunication is the key ingredient of economic development. The whole process of development of this sector depends on the availability of trained and qualified people in the market. The huge task and challenge in reconstruction of Telecom sector and its modernization, depends on training young Afghan students and full capacity development of the existing staff who have been disconnected from the new era of the information and communication technology and the advances made in the last two and a half decades.

Therefore, by taking into account the acute need of skilled human resources development, priority was given for rehabilitation and reconstruction of this Training Centre by the MCIT. To achieve this goal, in **December 2003**, an agreement was signed between the ITU, the Government of I.R. of Iran (as the Donor country) and the government of I.R. of Afghanistan.

By Jaddi 1387 (end -2008), MCIT will have established one IT Training centre in 34 provincial capitals each to facilitate the ICT literate work force in the provinces as well.

5. Inputs & Outputs

Fiscal Implications

More to come, to cover:

Now brings 20% of tax receipts to the treasury

Expected to reach US\$100 million by 2010
Privatization of Afghan Telecom will bring a significant windfall to the treasury

Broadening the tax basis by private sector competition to meet the demand of the users (where the money is coming from). Right now, collect 14.5% of revenues:

- Custom duty for the importation of the infrastructure = 8%
- Telecom Development Fund (TDF) = 2.5%
- Spectrum Fees = 2%
- Business Receipt Tax (BRT) = 10%
- Income tax = 10%
- Payroll/health benefits and life insurance = ?

Every additional user brings the multiplier affect of these revenue resources to the government. Meanwhile, each company hires additional staff and employee payroll has additional tax benefits to the government.

The MCIT is also in process of implementing a 3,200 km optical fiber backbone network along national highways passing through major provincial capitals and also connecting with neighboring countries. This will be completed within two years.

6. Programs

Program One: The Enabling Environment

The Afghanistan Telecommunication Regulatory Authority (ATRA) and the ICT Council are the primary mechanisms to achieve MCIT's strategies and goals. In particular, ATRA will continue to issue licenses that attract private sector investment, pushing the availability of telecom services further into every village in Afghanistan. Each existing and new licensee will pay licensing fees and spectrum fees, as well as taxes and customs duties, which will reach a volume of 5 billion Afs (US\$100 million) by Jaddi 1389/2010. Each existing and new licensee will also invest in telecom infrastructure, expected to reach a further 37.5 billion Afs (US\$750 million) by Jaddi 1389/2010. ATRA is committed to achieving the following projects in the coming by 2010.

MCIT established the Afghan Postal Commission (APC) in June 2006 in order to achieve the WTO benchmark to separate policy, regulatory and operations. The APC has taken some rudimentary steps to become an independent sector regulator, but it requires a vast amount of technical assistance and institutional capacity building. Among the top priorities for the sector is the adoption of a transparent licensing regime, including a license for Afghan Post. Afghan Post is presently an administrative department of MCIT, but in order to attract foreign direct investment, Afghan Telecom should be re-structured and incorporated, just as was done with Afghan Telecom.

Telecom Development Fund (TDF): ATRA will conduct a public consultation to define the terms and methodology for multiple projects to accelerate the construction of wireless networks in rural and underserved areas of Afghanistan. Examples of likely projects are: creation of community telecenters; provision of internet connectivity to schools; rapid mobilization of Village Communication Network (VCN) to respond to requests from community leaders. ATRA will work closely with Provincial and District governors, the Provincial Development Councils (PDC), the Provincial Reconstruction Teams (PRT), the provincial directors of the MCIT, the members of Parliament, donors and other interested parties to ensure that these new access facilities meet the immediate needs of the rural users. The immediate goal is to provide basic telephony connectivity, but further needs such as distance learning, remote payment of salaries and access to microfinance via mobile commerce platforms will be promoted.

By Jaddi 1386 (end-2008), the Afghanistan Telecommunication Regulatory Authority (ATRA) will conduct public consultations to complete all of the normative acts that are required by the Telecom Law, including:

- Procedural Rules (Voting, Appeal)
- Administrative Rules (Hiring, Spending, Reporting)
- Substantive Rules (Licensing, Frequency Assignments).

By Jaddi 1386 (end-2008), ATRA will complete an independent audit of its finances, with particular focus on the Telecom Development Fund (TDF). The results of the audit will be submitted to the Government as part of an annual report of activities published on the ATRA official website.

By Jaddi 1387 (end-2009), ATRA will have launched international competitive tenders to provide telecom and ICT services in rural underserved areas of Afghanistan, using the TDF.

By Jaddi 1389 (end-2011), the majority of ATRA professional staff will have completed certification program in the newly launched Public Service Institute at Kabul University (or equivalent).

Removing the Government from Provision of Telecom Services

- By Jaddi 1386 (end-2007), Afghan Telecom will be fully restructured and will be ready to introduce new products and services to improve its commercial position in the market. The first phase will be to move to prepaid calling and to automate all the internal operations.
- By Jaddi 1387 (end-2008), it is expected that most retail customers will be receiving full mobility services and institutional customers will have wired broadband services.
- By Jaddi 1386 (end-2007), a fully functioning ICT Council will be in place to avoid duplication and waste and to improve the professional capabilities of the staff.

- By Jaddi 1387 (end-2008), the ICT Council will select the first cross cutting e-government applications (for example it might be payroll, procurement).
- By Jaddi 1387 (end- 2008), the CIO culture will be implemented in the government.
- By Jaddi 1387 (end- 2008), the e-Government resource centre will be established, which will be a central brain drain for the e-government projects of the government By Jaddi 1389 (end-2008), MCIT will submit draft ICT Law governing e-Transactions, electronic commerce, electronic signatures and cyber crimes to the Parliament for promulgation.

Program Two: Infrastructure

The traditional structure of the communications sector is comprised of telecom and postal services. Afghan Telecom will continue to refine its commercial strategy to better meet the needs of the consumer and react more successfully to the new competitive market conditions. Afghan Telecom will deploy new wireless technologies to make service more affordable and comparable with what is now offered by the GSM licensees. It will also move to adjust its retail prices to be cost-oriented, as required by the Telecom Law, and will migrate to a pre-paid service platform to eliminate the non-payment problem. Based on what has been done with Afghan Telecom, MCIT will go the same path with Afghan Post.

Afghan Post is active at approximately 400 facilities nationwide, but the vast majority is in very poor physical condition and generally lacks ICT. Taking advantage of those locations with ICT, Afghan Post has recently entered into a commercial arrangement with Western Union to provide funds transfer services and will offer money order and other financial services in the near future. Afghan Post implemented a self-service kiosk and is in the process of automating its sorting processes to improve customer service.

The primary ICT infrastructure programs by Jaddi 1388 (end-2010) include:

- Expansion of telecom service coverage to 6000 villages, 150,000 digital lines in 5 major cities and highways, including roads to major border points.
- Implementing the national fiber optic ring to further enable national and international communications at lower prices with good quality.
- Extending the reach of the existing GCN and DCN locations to all schools within 10-30 kilometers via wireless (WiMAX) as is presently being done with the PGCN.
- Accelerate the deployment of towers in rural and underserved communities, using subsidies from the TDF, if necessary.

Fiber Optic Ring: Afghan Telecom will continue to supervise the MCIT's major infrastructure programme, which will link the six major cities of Afghanistan via fiber optic cable. This system will also link to neighboring countries like Iran and Pakistan to eliminate the high cost of satellite connectivity, this making retail calls and internet access more affordable to more people. MCIT will retain ownership

of the system until it can be privatized to provide non-discriminatory access to all licensees. The supply and construction contract was awarded to a Chinese supplier in November 2006 and the project is expected to be fully complete by the end of 2008.

District Communications Network (DCN): Afghan Telecom will continue its satellite system to reach all of the 365 districts with at least a basic level of telephone services. In many cities, where demand warrants it, the DCN will offer additional community services, such as distance learning and access to microfinance.

Village Communications Network (VCN): VCN will be a further extension of the DCN satellite network, which will eventually reach 5-6,000 communities throughout Afghanistan. A financial analysis of the DCN operations revealed that a low-cost version could be commercially viable if the package configuration is scaled down. Nevertheless, donor funding would be essential to achieve a rapid roll-out.

Broadband Access: An integrated public safety network, linking local, regional and national players – ATRA is responsible for assigning spectrum for all commercial and public service requirements. ATRA will conduct a public consultation to define the terms of an international competitive tender for multiple nationwide licenses of new broadband wireless services. Pursuant to the Telecom Law, the licenses will be awarded by an auction that may bring substantial fees to the treasury and include mandatory network construction milestones.

- By Jaddi 1386 (end-2007), organize a Public Safety Task Force, consisting of the Ministry of Interior, the Afghan National Army, the border protection forces, the President's National Security Advisor and the police, fire and ambulance entities
- By Jaddi 1387 (end-2008), facilitate the adoption of the appropriate technical standards, including the assignment of spectrum frequencies, to ensure interoperability of all public safety elements and to establish protocols for emergency response at the local, provincial and national levels. Guidance will be based upon the technical specifications already contained in the ANA TETRA network procured by international competitive tender in 2006, as well as international best practices using TETRA systems in Germany and elsewhere.
- By 2009, identify gaps in coverage and capability and obtain donor funding to achieve reliable public safety network architecture. The network will be managed by the individual user groups, and additional technical training will be included as part of the competitive tender solicitation requirements.

National Data Center (NDC): The NDC is being refurbished and by Jaddi 1387 (end-2008) will be the secure physical hub for many government-wide networks and computer applications. It will also contain a research and development centre to allow Afghans to conduct research as per the needs of the country and afghans society The NDC will also facilitate web hosting and other advanced web services presently available only outside of Afghanistan. An e-Government

resource centre will be hosted in the national data centre, which will be the central location for the development of main e-enabled services projects for the government.

Internet Exchange Point (IXP): The IXP will be housed in the NDC and provide a shared platform that will eliminate the need to send vast volumes of internet traffic outside of Afghanistan via satellite. Presently, every electronic message has to be routed to external hubs (in Dubai, Hong Kong or elsewhere) even if both the originating and terminating location is within Afghanistan.

Program Three: E-Afghanistan

The official name of the Ministry has been changed from MCIT to MCIT to reflect its new, broader responsibilities which extends beyond just communications to include also information technology (computers and networking).

For the promotion and development of ICT, MCIT has designed E-Afghanistan as a program which covers E-Government, Cyber Security, National ICT Council, Internet Governance, Building ICT Capacity, Localization and ICT standards. ,

These activities will enable Afghanistan to fully benefit from ICTs and in the course of coming 10 years Afghan society will be based on information fully benefiting from the international market and opportunities. To achieve that goal the following projects are planned and are underway:

National Identity Management Initiative (NIMI): The ICT Council must act quickly to avoid a serious waste of financial resources that is just over the horizon.

During the national elections in 2004 and 2006, more than US\$200 million was spent on the entire process, which included the rudimentary documentation of “qualified voters” at over 60,000 locations nationwide. In order to meet donor benchmarks, all of this work produced over 2 million paper records, with absolutely no forward-planning that would avoid the need to repeat the entire process in all future elections.

Consequently, the United Nations (UNAMA) and the Independent Election Commission (IEC) have assessed that the entire data set from the previous two elections are incomplete, unreliable and unusable for the 2009 elections. In mid-2007, UNAMA and IEC have undertaken two pilot projects to explore the use of ICT to create a new qualified voter database. Once again, individual voter data will be collected at more than 60,000 locations, but this time it will be a combination of biometric scans and paper (that will eventually be stored electronically). It is estimated that close to US\$100 million will be spent on the 2009 elections (to be funded largely by USAID).

It is imperative that the maximum lasting value of this expenditure accrue to the people of Afghanistan. The ICT Council will need to coordinate the following projects:

- Mapping (digital mapping of the election districts)
- Identity Cards (starting with the Civil & Voter Registry)
- Valuable Documents (Ministry of Finance printing of passports, drivers licenses, birth & death certificates, etc)
- Census.

The basic idea is to create a minimum “core personal data set” that would eliminate the need to repeatedly collect the same information at various government institutions.

Electronic Government (e-Gov): e-Gov applications will make the provision of government services more efficient and transparent, this reducing fraud and corruption. Examples include automated procurement and logistics, driver’s license and passport renewals and fiscal services (payroll, budget, and customs).

- By mid-2007, bring the ICT Council to becoming a fully-functioning institution that will guide the adoption of government-wide standards and ICT policies and coordinate ICT projects and resources amongst all institutions to reduce duplication and wasteful spending
- By mid-2007, drive the ICT Council to reach an agreement of the top ICT priorities and conduct a nationwide e-Readiness assessment (including infrastructure, applications and human resources)
- By the end of 2007, define a suitable e-Government project that will serve as the template for all future cross-cutting ICT applications, and obtain donor funding for rapid implementation
- By mid-2008, have the first e-Government project deployed on a small scale and by the end of the year, fully deployed across all institutions
- By 2008, identify further e-Government projects and obtain donor funding as needed
- By 2009, ensure that e-Government applications reach to the provincial, regional and district levels MCIT will work with the new 5-year US\$200 million USAID Afghans Building Capacity (ABC) program to ensure that training is provided to all potential user groups.
- By 2010, deploy the broader suite of e-Government applications.
- The MCIT will work closely with the Ministry of Education and Kabul University to mobilize the necessary resources to ensure that the youth of Afghanistan are e-Ready

Accelerating E & M commerce

- By the end of 2007, ATRA will organize a task force to promote the adoption of technical standards so that mobile phones can be used to access commercial bank accounts as part of an inexpensive medium for microfinance and trade

- By the end of 2008, mobile commerce should be possible on a nationwide basis and also facilitate standard commercial transactions amongst users and vendors
- By the end of 2008, the MCIT will facilitate the establishment of Electronic Certification Authority in collaboration with Da Afghanistan bank responsible for the issuance of Public Key Infrastructure (PKI) certificates.
- By 2009, the IXP should substantially reduce nationwide internet costs by eliminating the need to route all traffic outside of Afghanistan
- By 2009, the PKI should foster the creation of domestic electronic commerce sites, including government electronic procurement

Smart cards for secure electronic access:

- By the end of 2008, the ICT Council will adopt a suitable national standard for smart cards that may be used as the basis for a National Identity Card, National Healthcare Card and other official and commercial purposes
- By the end of 2010, the ICT Council will facilitate donor funding to integrate these smart cards into applicable e-Government projects.

Electronic participation for the disabled

- By the end of 2010, the ICT Council will adopt standards requiring the design and content of all official websites and e-Government applications to be accessible to persons with disabilities. These are specially-designed features geared only to overcome disabilities such as blindness (Braille keyboards, voice conversion into text, etc.)
- By the end of 2008, the ICT council will support MCIT to ensure all such official websites and e-Government applications are fully functional.

Healthcare online

- By the end of 2008, the ICT Council will work to obtain donor funding for a pilot project that will utilize the District Communications Network (DCN) as the basis for remote healthcare (possibly diagnosis, exchange of basic medical information and real-time remote treatments) MCIT is already working with the Ministry of Health for the initial pilot phase, which is to utilize teleconferencing facilities and high-speed broadband connections that can rapidly display color images on standard computers.
- By the end of 2010, MCIT will work with the Ministry of Health, the Ministry of Environment and the Ministry of Labor to adopt a plan for all Afghans to have the possibility of having a health smartcard providing secure, confidential access to networked patient information.
- By the end of 2008, MCIT will establish MPCT (Multipurpose community Technology Centers) to be used for the E-Agriculture, e-Health and other such e-services for the local communities.

Program Four: Literacy

- By end of 2008, MCIT will establish 34 IT training centers in 34 provincial capitals each.
- By end of 2008, MCIT in cooperation with Ministry of Education will draft the curriculum and regulatory framework for the ICT training center in the private sector. **More to come:**

V ICT sub-sector strategies

The ICT sector strategy envisions an ecosystem of many stakeholders. The government is the main actor in the development of the sector, and works through the ICT Council to reach all stakeholders. There are four primary ICT sub-sectors:

- Government (Provincial, District & Community level)
- Consumers (Constituents, Citizens & Civil Society)
- Business
- Education (Academia, Research & Technology Transfer).

Government:

The government is the focal point for, and facilitator of, all of the ICT sub-sector strategies. As already noted above, the ICT Council is the forum for the stakeholders. Looking to the future, the hardest task facing the ICT Council will be reaching out to government institutions outside of Kabul. ICT will also help to achieve this goal, so as the infrastructure and application programs are activated, this strategy will be self-sustaining.

One example of a program that is already well underway is the videoconferencing platform that connects several offices in Kabul with at least one government office in each of the provincial capitals. The President regularly uses this technology to reach out to government officials, media and civil society representatives (like elections coordination) in one or all 34 end points.

A second program is underway to extend basic connectivity to all government institutions in each of the provincial capitals. The Provincial Governors Communications Network (PGCN), funded by the US military, uses the latest wireless technology (WiMAX) that connect all locations within 10 kilometer radius (depending on topology) with broadband access that can be used for voice, fax, internet and videoconferencing.

The ICT Council will need to consider additional programs and projects to drive the impact of ICT down to the most grassroots level, meaning greater participation at the provincial, district and community levels. Consideration must also be given to integrating the Parliament into these initiatives, because each elected official will be more effective with more robust connectivity with their local constituency.

Consumers:

Because of the high level of illiteracy in Afghanistan, most consumers depend on word-of-mouth, and to a much more limited extent, radio and television. Consequently, there is not a very strong consumer voice detectable, which also fosters corruption, fraud and poor quality goods and services.

The first nationwide consumer help line was established by ATRA in February 2007. It caters primarily to protect and assist consumers of mobile telephone services. Each week, an average of 300 legitimate complaints are registered and resolved. This ATRA office is a safety net to all consumers to ensure that the five major telecom licensees provide the services as promised. The ATRA consumer help line is a supplement to the consumer care lines established by each of the service providers (which is a firm license requirement). The utility of the ATRA consumer line was proven in May 2007, when the number of calls spiked to 1000 per week in reaction to malicious and erroneous rumors emanating from Pakistan and Iran about bizarre mobile handset malfunctions.

Similar consumer help lines are now being considered to report customs corruption at the frontier border posts, assist arriving passengers at Kabul airport and generally report government fraud, waste and abuse.

Business:

The only way for a stabile economy to emerge in Afghanistan is for legitimate private sector development to flourish. As noted by the World Bank's "Doing Business Indicators" the chief barrier to entry is the very high level of corruption. Afghanistan should look to the most business-friendly places like Hong Kong and Singapore as a suitable template for attracting new investment (and de-emphasize the neighboring countries).

For example, two commercial laws that were promulgated in January 2007 require a central business registry to be established. This would replace the present system that requires registration of companies with the Commercial Court of Kabul. This goal for this registry should be to make it as easy to register a company as in Hong Kong, Qatar or Delaware (in the United States). Using ICT, the registration process can be accomplished in under 15 minutes, online, from any place in the world. Using electronic commerce, the entire process can be 100% transparent and also give prospective investors a very favorable first impression of the business climate in Afghanistan.

Education:

Illiteracy is the enemy of economic progress. In many developing countries, the political leadership has recognized that the most effective method of rapidly raising the literacy rate is to focus primarily on the youth. In Egypt, a government initiative launched in 1998 is now widely considered a good model to make the large number of youth employable, by giving them access to ICT from the very earliest age. While the program has evolved over the past decade, the key ingredients are: free access to ICT at all schools, integration of ICT into the normal school curricula (for example, web research of relevant topics) and multi-media courseware (including short courses upon demand).

In the near term, the ICT Council can foster the development of linkages between existing ICT infrastructure and applications to accelerate progress in literacy. For example, the Ministry of Education already prepares hourly educational programs that are broadcast on national television. Discussions have proposed to make this library of educational programming available upon demand via the internet.

VI Cross cutting and other sector related issues

More to come

Implementation Framework

VII Monitoring and Evaluation

Program (1) The Enabling Environment			
Objectives	Expected Results	Indicators	Risk
The enabling environment means the written policies, laws, regulations procedures and other normative	Clear policies accelerate the role of telecom services to the citizens	1) Attracting Cumulative among of investment 2) No of Jobs created in the ICT Sector	1) Regime changed will paralyze policies
Project One: Telecom Development Fund (TDF):	80% of Afghan will be able to access to affordable ICT Services	No. of additional rural communities that are served/covered	1) The project might be delayed due to the security reasons
Project One: Drafting the ICT Law	Legal platform for the usage of ICT in the day to day activity e.g. e-commerce, e-government and so on will be made available	1) Fixed telephone penetration rate, 2) % of population with access	3) The project might be delayed because of missing coordination among the government entities.
Project Two: Government online (web presence)	Public and international community will be able to access the information regarding government on line. Public will be able to access the government services on line, thus reducing the gap among the government and public.	All the 34 government offices and 34 provincial governments will be having web presence	1) Lack of information and local content

Project Three: CIO (Chief Information Officer) culture	All government office will stream line all of its ICT activities and will be able to manage the technology as per their requirements.	34 government offices will have functional CIO.	Lack of coordination among the ICT implementing and adopting agencies.
Project Four: E-Government Interoperability framework	The e-gov applications will be stream lined and there will be no technology duplication and no future interoperability issues.	E-Gov interoperability framework will be drafted and approved by the NICTCA.	Lack of trained HR and local e-gov expertise.
Project Five: E-government Resource Centre	This centre will be the brain drain and R&D centre for the central e-Gov projects for the government.	E-Gov resource centre will be established in Kabul.	

Program Two : Infrastructure

Objectives	Expected Results	Indicators	Risk
Project One – Optical fiber backbone	80 Percent of Afghans will have access to the affordable ICT services	No km operational and functioning	1) Government official interference 2) Lack of Resources, 3) Security 4) Geographic condition of rural Afghanistan
Project Two: Copper Cable Network		No. of access points	
Project Three- Expansion of District Communication Network (DCN)		% of introduced districts	
Project Four– Expansion of Microwave System		% of all governmental institution connected	
Project Five: Village Communications Network (VCN):		% of introduced villages	
Project Six:		40% of Afghans will have	

Modernization of Postal Services	access to affordable postal services	are ICT connected and have power	be the only concern
Project Seven : National Data Centre	The electronic data of the government will be securely hosted and will be available to all entities upon request and level of access.	National Data Centre of Afghanistan will be stabled in Kabul	Ministries might not be ready to host their data in the data centre.
Project Eight: Internet Exchange point	IX will enable us to use the international band width of the country more efficiently and keep the local traffic local.	IX will be established in Kabul	The buy in from the local data network owners could be delayed the project implementation
Program Three: E-Afghanistan			
Objectives	Expected Results	Indicators	Risk
Movement of the government institution to a modern level of services to the citizens	Efficient administration, Transparent governance, Rule of Law, reduced corruption	% of basic government services ICT enabled(passport, NIC, Tax, Utility bills and so on	1) Lack of funding to implement government ICT system 2) Bureaucrat resistance to change
Project One : ICT Village	The village will be a good platform for the attrition of FDI and will be a facility for afghan entrepreneurs in the ICT sector.	ICT Village will be established in Kabul.	1) unavailability of Land, 2) cooperation of Kabul Municipality and Ministry of Urban Development
Project Two: E-Government	The government entities will have good relation among themselves, public will be enjoying the government services. Government will be more efficient and transparent; businesses will enjoy the free market economy and transparent competition.	At least one government cross cutting application will be launched. Government wide.	1) Resistance to change in the business process.
Project Three: ICT Training centers	Afghans in provincial capitals and some districts will enjoy the basic ICT education, which will make them employable.	34 ICT training centers will be established.	Lack of security might delay the project implementation.

Project Four: National Internet Registry of Afghanistan (NIRA)	The data and voice networks will operate on country owned IP; this will reduce the spamming, hacking and cyber crime.	NIRA will be established.	1) The buy in from the local data network owners could delay the project implementation
Project Five: Afghanistan Cyber Emergency Response Team (AfCERT)	The data and voice networks in the country will be secured and cyber crimes will be prevented.	AfCERT will be established with CSO (Chief Security Officers) in all government offices,	1) Lack of human resource could delay the implementation of the project.
Project Six: National Identity Management Initiative (NIMI)	A secure central repository of citizen information for elections and other government services	No. of citizens data records stored	1. Lack of funding to implement government ICT system 2. Bureaucrat resistance to change
Program Four: Literacy			
Objectives	Expected Results	Indicators	Risk
An educated population produces a better governance and results in better employment prospects	Employment rises	% of qualified workforce	No risk expected
Project One: Establishment of ICT centers in 34 Provincial capitals	All provincial capitals will have access to computers and internet	No. of ICT users increased	No risk expected
Project Two: Developing Curriculum and Regulatory Framework for ICT Training Centers in the Private Sector	Afghanistan produces world class ICT workforce	No of certified ICT specialists increased	No risk expected

VIII Annexes:

Annex I: Activity Policy Matrix (Action Plan)

More to Come

<i>Policy Action</i>	<i>Responsible institution</i>	<i>Deadline</i>	<i>Cost</i>
Developing ICT Law	MCIT	December 2007	100,000
ICT rules and procedures	ATRA	December 2008	100,000
Guidelines for using Telecom Development Fund(TDF)	ATRA	December 2008	200,000

Annex II: Sector Investment Program

More to come:

Annex III: Achievements (2002-2007)

Reform and development activity at the MCIT has been brisk. Among the accomplishments MCIT has made since 2002 are the following:

- Creating an enabling environment in which telephony penetration has risen from 0.06% to app 12 % in over last 3 years, which represents faster growth in comparison to the neighboring countries.
- Adopting and Publishing the Telecom Law (December 2005)
- Finalizing and Publishing the Telecom and ICT Policy
- Establishing of Afghan Telecom as a state owned enterprise (2005).
- Issuing the first national unified services license to Afghan Telecom (2006).
- Creating Afghanistan Telecommunication Regulatory Authority (ATRA).
- Issuing 4 GSM licenses
- Issuing 15 national and local Internet Service Provider(ISP) licenses
- Rehabilitating the Telecommunication Training Centre and upgrading it to the Information Communication Technology Instituted (ICTI)
- Renaming the Ministry of Communications (MoC) to Ministry of Communication and Information Technology (MCIT)
- Establishing ICT Directorate in MCIT
- Regaining the Recognition of the +93 country code by major international and regional carriers
- Establishing 12 ICT centers n Kabul and provinces
- Recovering the Afghanistan's .af domain name
- Establishing MCIT web site (www.mcit.gov.af)
- Expanding District Communications Network (DCN) in more than 170 Districts.
- Expanding of Government Communications Network(GCN) in all provincial capitals as well as 42 ministries and other major governmental organization
- Implementing 150,000 landline copper cable network
- Expanding District Communications Network (DCN) in more than 220 Districts.
- Expanding of Government Communications Network(GCN) in all provincial capitals as well as 42 ministries and other major governmental organization
- Implementing 150,000 landline copper cable network

Annex IV: Statistical Data & Maps

Timeline of rapid development
Table of ICT stats (GIPI)
List of all licenses (GSM, ISP, GMPCS, etc)
Maps of optical fiber project

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