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Country Overview

Afghanistan lies to the north and west of the Islamic Republic of Pakistan and is also bounded by the Islamic Republic of Iran to the west and to the north by Turkmenistan, Uzbekistan, and Tadjikistan. It is a mountainous country with numerous valleys and basins, and with the Hindukush range as its spinal column extending from the north-east to the south-west with a length of 6,000km.

COUNTRY PROFILE	
Geography	
Map reference	Asia
Border countries	China 76 Km, Iran 936 Km, Pakistan 2,430 Km, Tajikistan 1,206 Km, Turkmenistan 744 Km, Uzbekistan 137 Km
Climate	Arid to semiarid, cold winters and hot summers
Area	647,500 sq km
Terrain	Mostly rugged mountains, plains in north and southwest
Natural resources	Natural gas, petroleum, coal, copper, chromites, talc, barites, sulfur, lead, zinc, iron ore, salt, precious and semiprecious stones
People	
Population	28,513,677 (July 2004) estimated
Nationality	Afghan
Ethnic groups	Pashtun, Tajik, Hazara, Uzbek, Turkmen, Baloch and others
Religion	Muslim
Languages	Pashtu, Dari, Turkic languages, and other minor languages
Government	
Country Name	Islamic Republic of Afghanistan
Government Type	Republic
Capital	Kabul
Administrative division	34 provinces
Independence	19 August 1919 (From UK control over Afghan foreign affairs)
Economy	
GDP	US$ 7 billion (2003 est.)
GDP per Capita	US$ 212 (2003 est.)
GDP composition by sector	Agriculture: 60%, industry 20% and services 20%
Currency	Afghanis (AFA)
Exchange rates	48 Afghanis per US dollar
Fiscal year	21 March-20 March
Communications	
Main Telephone Lines	50,000 lines
Telephone Density:	?
Telephones mobile cellular	475,000 subscriber
Paging Subscribers	0
Telex subscribers	0
International Outgoing Traffic	5.34 million minutes
Network Digitization:	Switching: 115,000 lines
	Transmission: N/A

GOVERNMENT DEPARTMENT RESPONSIBLE FOR TELECOMMUNICATIONS

MINISTRY	ADDRESS	TEL NO	FAX NO
Ministry of Communications	Mohammad Jan Khan watt, Kabul-Afghanistan	+93 20 210 1100	+93 20 2103700

MINISTER: H. E. Mr. Amirzai Sangin

CELL PHONE COVERAGE IN AFGHANISTAN NETWORK SYSTEM

Network	System	GPRS	HSCSD
AWCC	GSM	No	No
TDCA	GSM	No	No

Overview of Telecom & ICT Status

Background

Afghanistan's telecommunications sector is rapidly recovering from its dilapidated status at the end of recent hostilities. Prior to the hostilities, Afghanistan's telecommunications network operated approximately 57,000 lines in five major cities (two thirds of these lines were in Kabul). These largely survived the bombing, but many were old analogue equipment in need of overhaul. Maintenance, operation and billing systems had largely collapsed and international links had been damaged or destroyed. Country teledensity was on the order of two telephones per 1,000 people. The fixed analogue, fixed digital and wireless digital networks present in Kabul were not interconnected.

The objectives of the MoC have been rapid development of the telecom sector by having multiple operators providing quality services at reasonable price. Based on this, the MoC has finalized its Telecommunications and Internet Policy, which outlines an overall framework that is intended to get investment flowing. It 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 and to separate the operations from regulations.

In line with this Policy, MoC has issued 2 nationwide cellular mobile telephony Licenses .Two years after the fall of the Taliban, full mobile services are rapidly taking off, passing 475,000 subscribers in December 2004 covering major parts of Afghanistan. MoC has also issued several Internet licenses and these companies have also made some small Investment s and are providing Internet services in major cities in Afghanistan.

MoC is currently implementing projects to install over 150 000 digital lines in 23 provinces, interconnecting all provincial capitals as well as all districts via satellite network providing voice, Internet and video conferencing services. MoC is also in process of implementing a 3300 km optical fiber backbone network along national highways passing through major provincial capitals and also interconnecting with neighboring countries in two phases.

In addition, the MoC is extending basic communications services to government at the Ministry and provincial capital level, and improve international connectivity through a microwave link to Pakistan and repair of the satellite system in Kabul. Work is also underway to install simple communications facilities in all 355 districts across the country.

There is a comprehensive network of 424 postal centres in provinces and 355 districts across Afghanistan, most of which are in a bad state of disrepair and are under rehabilitation. The postal sector is presently functioning at a higher level compared to two years back and a number of telekiosks in key provincial centres are established. There are further plans to expand these services to districts.

Government of Afghanistan also recognizes the critical importance of ICT and has published an ICT policy to develop ICT in Afghanistan. ICT is another sector in which the private sector can play an important role and quickly develop. However, there remain important roles for government oversight and investment. Governments must develop and enforce policies and the regulatory environment required to promote private provision of services. Governments should play a role in extending access beyond that which the market would provide alone, and governments have an important part to play in ensuring that their own operations benefit from access to and use of ICTs to improve governance and government operations. The Government also sees ICT as a sector that can create opportunities for disadvantaged groups in Afghanistan and will invest on an ongoing basis in developing these opportunities. The government has also made specific requests for donor support in the field of communications to help it play that role.

Development Objectives

In order to further develop the telecom sector in line with MoC's objectives and policies, the followings are proposed:
1. Strengthen the Telecom Regulatory Board so that existing operators fulfill their license obligation and provide quality services in competitive environment
2. Accelerate the corporatization and privatization of afghan Telecom. This is very important so that it is capable of implementation and operations of the new networks in competitive environment.
3. Accelerate Afghan Telecom plans of services rollout and expansion to provide phone on demand across the country
4. Expansion of ICT infrastructure and services in close coordination and cooperation with other Governmental administrations and inclusion of national languages in computer's operating systems
5. Accelerate the modernization of the postal sector and introduction of new services such as banking and parcels and electronic mail services
6. Substantial investment on Human Resources Development.

The Ministry of Communications' investment and technical assistance requirements over the next five years can be broken down into five major areas: telecommunications infrastructure investment, postal infrastructure investment, buildings and central physical infrastructure, capacity building and reform and restructuring.

Main challenges in the telecommunications development

The major challenges to achieve the telecommunications goals are weak implementation capacity, which is the major concern. Security risks also deter contractors from bidding and conducting consultancy services which impede progress in implementation of development projects. Therefore, large capacity building effort is required to upgrade the capability of personnel and the government is also coping to assure that an acceptable security environment for sound business is stabilized. Another challenge is to penetrate with the state-of-art technology right upto district levels of Afghanistan, with a view to give voice and data communications capabilities to the common man.

Service market

At the present time there is no local telecom equipment industry in Afghanistan, hence the telecom sector is entirely represented by the telecommunications services sector. Given the presence of two privately owned GSM operator, a number of internet service providers, and the pending issuing of a number of additional fixed and mobile licenses in 2005 and 2006, the service market is set for a significant growth in competitiveness and volume.

Telecommunications industry trends

The main trend in the Afghan market is the strengthening of the provision of voice and internet services. In 2005 it is expected to expand significantly in the consumer market. Mobile internet services do not seem to be in demand and GSM operators will likely delay their introduction until at least 2006, while likely push the adoption of SMS messages, first of all through SMS interconnection between GSM operators.

National Policy (Telecom & ICT)

Telecom Policy

The Islamic Republic of Afghanistan firmly recognizes the importance of embracing telecommunications and Internet technologies to achieve the nation's development and reconstruction goals. An effective telecommunications infrastructure will help stimulate economic growth, raise living standards and restore the traditional sense of community and common purpose that unites the Afghan people. A modern communications network can play a vital role in narrowing the physical distances that separate our villages and towns and dramatically improve access to government services, educational opportunities and humanitarian relief efforts. They will lay the foundation for an Afghanistan that is vibrant, productive and strong.

Today Afghanistan has one of the weakest telecommunications systems in the world. Communications between provinces is extremely limited and effectively non-existent in smaller towns. Whole communities of our people face the "tyranny of distance" and the alienation associated with remote geography. Internet and data services have only recently begun. Government operations and the management of civil affairs are hampered by the absence of reliable communications services. Economic activity is difficult, costly and at times impossible. After 23 years of conflict and stalled investment, the entire sector needs to be completely rebuilt.

> *The Government's Telecommunications Policy is to enable the rapid growth of affordable communications to all of our people so they may experience the Digital Age, wherever they are and whoever they may be.*

Afghanistan is committed to following international best practices in telecommunications sector reform. We will embrace a market regime based on aggressive market liberalization, transparent and non-discriminatory regulation, fair competition and private sector participation. The Government will move as quickly as possible to privatize the telecommunications sector to ensure that adequate financing is available to meet our development goals. Private investment has already led expansion of mobile communications. Private participation will be harnessed further to fund Afghanistan's substantial communications infrastructure needs. Taken together, competition and private investment will lower prices to consumers for network services and equipment, improve quality of service and accelerate a faster rate of market innovation.

Telecommunications is a basic enabler of informal social and economic discourse necessary in the strengthening of civil society. Reliable communications will enable the government to successfully execute the broad reconstruction effort. A modern network will enhance the effectiveness, efficiency and transparency of the public sector, improve delivery of social services, and build our future as a peaceful and unified society.

Telecommunications is also necessary for the resumption of productive capacity and stimulating activity in all sectors of the Afghan economy. It will play a critical role in reestablishing the financial system and relieving communication bottlenecks in commercial, governmental and cultural information flows. It is essential for boosting productivity and creating a climate for job creation, investment and sustainable growth.

Finally, a robust telecommunications environment will provide Afghanistan with greater assurances for achieving and sustaining national and civil security. Domestic preparedness, education, NGO and community outreach, peace-building and national security efforts are all strengthened when reliable and robust network resources are distributed widely throughout society.

National Telecommunications Policy Principles and Goals

To rapidly transform telecommunications into a leading engine in Afghanistan's renewal, the Ministry of Communications (MoC) has defined the following general principles to guide the national *Telecommunications and Internet Policy*:

- *Create a legal and regulatory environment that nurtures and accelerates industry growth.* The Government intends to rapidly introduce a *Telecommunications Law* that will define the rights and responsibilities of market participants in the telecommunications sector. It will also create an independent telecommunications regulator, the *Telecommunications Regulatory Authority of Afghanistan (TRAA)*, to implement the Government's commitment to international best practices for sector modernization and reform.

- *Engage private investment to the greatest extent possible.* Afghanistan's capital requirements for telecommunications infrastructure are tremendous. Neither the state nor the international donor community can provide the vast financial resources necessary to quickly provide for the communications needs of the nation. The participation of private investors is essential and encouraged.

- *Establish a level playing field for competition.* The role of the state in providing telecommunications services will be steadfastly reduced in favor of fair, transparent and market-based competition among commercial enterprises.

- *Introduce market liberalization.* Afghan consumers will benefit from healthy competition in all aspects of telecommunications networks and services. Market opening will lead to a wider range of suppliers and products, lower costs, and establish a service industry that is responsive to customer demands. New entrants will bid competitively for market opportunities based on open and transparent international tenders. In the near term, the Government will introduce a framework of limited, managed competition to ensure stable market conditions for strategic infrastructure projects. Aggressive liberalization of the sector is anticipated after three years, or commencing in 2006.

- *Encourage the usage of Internet and information and communications technologies (ICTs).* Widespread adoption of modern information technology tools will create new educational opportunities for the young, improve the efficiency of government departments and private companies, and help Afghanistan to "leap frog" into the Digital Age. Recent technological advances have unleashed a range of new alternatives for bringing powerful and affordable voice and data services to consumers. The Government is committed to pursuing an open, flexible, and technology-friendly regulatory strategy to encourage the deployment of the latest technologies throughout Afghanistan.

Specific targets for the sector in the near term include:
- *Quickly restore the productive capacity* of the existing public network with expanded and upgraded systems in the primary and secondary cities;

- *Establish a national long distance network* to provide basic voice, data and Internet communications to even the remotest regions in the nation;

- *Establish a National Backbone Network* around the country that connects major domestic population centers and our international neighbors;

- *Issue additional nationwide licenses for Fixed Telecommunications Services*;

- *Issue multiple ISP licenses*;

- *Maximize the use and value of radio frequency spectrum* through competitive international tenders; and,

- *Establish tele-centers in small communities* to bring the benefits of modern communications to all of our people as quickly as possible. It is essential that all 355 administrative districts be integrated with Kabul, with each other, and with the rest of the world.

Role of the Government

The Government's chief objective as articulated and led by the MoC is to set the overall vision for the telecommunications sector, to promote access to ICT as a facilitator for sustainable development and to create an enabling environment for private investment, competition and rapid industry growth. Through the creation "corporatization" and rapid privatization of Afghan Telecom, the Government will relinquish its role as an *operator* of public telecommunications services. The MoC's specific responsibilities include:

i.   Provide overall direction for telecommunications sector development and formulate broad policies for the benefit of all of Afghanistan;

ii. Ensure that this Policy is consistent with other national development plans and laws;

iii. Rapidly separate the Ministry's Telecommunications Department into a state owned enterprise to be known as "Afghan Telecom";

iv. Encourage private investment in the sector from the earliest stage of development and immediately open Afghan Telecom to private equity participation;

v.   Establish an independent *Telecommunications Regulatory Authority of Afghanistan* (TRAA) to ensure regulatory transparency and fair treatment for all market participants;

vi. Promote domestic and international investment in the telecommunications sector;

vii. Encourage competition in infrastructure, services and investment;

viii. Stimulate introduction of telecommunications network services in underserved and rural communities to the best of its ability with available resources and with support from donors; and,

ix. Represent the Government of Afghanistan in telecommunications and Internet matters pertaining to regional and international organizations.

Competition Policy

The Government supports the full liberalization of the communications sector as market forces allow -- to promote innovation, extend network coverage and lower consumer service charges. For a period of three years from the issuance of this Policy, the MoC will adopt a period of limited competition for facilities-based network services. The Government's objective is to create a stable market for initial infrastructure projects and protect consumer interest through aggressive management of operator service quality.

Currently, there are two private operators of Mobile Services Providers (MSP) that have been awarded National GSM Mobile Licenses: Afghan Wireless Communications Company (AWCC) and Telecom Development Company Afghanistan (TDCA), commonly known as *Roshan*. No other providers of GSM mobile telephony services will be authorized before January 10, 2006.

Local network services are subject to the issuance of a Fixed Service Provider (FSP) license. The TRAA will issue two additional nationwide FSP licenses via international competitive tender, in addition to the nationwide FSP license that is already held by Afghan Telecom.

In addition, private investment in local communications networks is encouraged. Local Fixed Service Provider (LFSP) licenses will be issued to community-based operators in small cities, towns and villages seeking to rapidly expand communications services through private investment.

After a period of 3 years, full competition will be allowed between national FSPs and MSPs. At that time, FSPs and MSPs shall be entitled to provide any facilities-based network service subject to obtaining the appropriate service licenses. The TRAA may also consider issuing licenses to additional new entrants.

ICT Policy

Vision

> *To enable Afghanistan to further benefit from Information and Communication Technologies (ICTs) by becoming part of the global information society while preserving Afghanistan's cultural heritage. To promote national goals as well as in order to achieve a tolerant and vibrant Afghanistan, Afghanistan will use ICTs to expeditiously improve Government and social services and foster the rebuilding process, increase employment, create a vibrant private sector, reduce poverty and support underprivileged groups.*

Background

ICTs describe various technologies that make information and communication services available to a wide range of users. The term is used broadly to address a range of established and relatively new technologies, among which are the telephone infrastructure and broadcast media. An emerging and now critical use of some of these technologies is the Internet. Additionally, ICTs deal with the application layer, the systems that enable information to be collected and distributed, analyzed and processed in a number of formats including text, images, sound and video.

Over the last few years, in order to take advantage of the opportunities afforded by ICTs within a policy framework, many nations have developed objectives and proceeded with the formulation of an ICTs strategy as a part of the overall national development plan. A step by step process including a coordinated and multi-pronged strategy is essential to achieve development of the sector. In this, education, investment opportunities and infrastructure availability play a major role. A dependable information and communications system is also essential for efficient management and operation in the public and private sectors. This includes areas such as internal government information, citizen's services, trade, banking, and international relations.

Recognizing its critical importance, this document presents the objectives, policies and action plans for the development of the ICTs sector in Afghanistan. Afghanistan intends to use ICTs as a key, driving element for socio-economic development.

This Policy aims at building a society fully benefiting from ICTs. In view of this, a nation-wide ICTs infrastructure will be developed to ensure that information can be used by citizens to facilitate their endeavors and enhance democratic values for sustainable human development. In addition to this document, the Ministry of Communications (MoC) has published the Telecommunications and Internet Policy, which communicates policies more specific to the telecommunications sector.

Objectives

In order to build an Afghan society fully benefiting from ICTs, the MoC has defined the following objectives:
1. Wide adoption of ICTs in order to improve all aspects of Afghan life, including education, health, employment and access to information;
2. Growth of the local ICTs industry, in order to foster investment and employment generation in this area; and,
3. Use of ICTs to increase Government efficiency and to effectively deliver improved social services.

ICTs Policies

In order to accomplish the objectives defined above, the following ICTs Policies will be implemented in a fair and competitive environment:

1. **Government Services**. Recognising the importance of ICTs as a vital tool for improving Government services, the GoA will actively use ICTs to provide healthcare, social services, and citizen's services. The GoA will give particular attention to services to benefit underprivileged groups and the poor;

2. **Infrastructure & Convergence**. The importance of infrastructure development to Afghanistan can not be overstated. Recognising the convergence among telephony, data transmission and broadcast technologies and networks, the GoA while undertaking rehabilitation of existing infrastructure and the building of new infrastructure will promote systems that accommodate convergence of various technologies and networks and will promote the integration of technologies in order to maximise the use of infrastructure;

3. **Development**. Recognising that information and communication are vital to the development of all other sectors, the Government of Afghanistan (GoA) declares the ICTs sector a priority sector. This prioritisation includes designating the MoC as the leading Government entity responsible for ICTs and developing a National Information and Technology Council of Afghanistan (NITCA);

4. **Investment**. Keeping in view the important role that the private sector will play in the development of ICTs and to create an environment conducive to investment from the private sector, including foreign direct investment (FDI), the GoA will provide a favourable investment and taxation environment including but not limited to reduced import duties and taxes levied on profits;

5. **e-Government**. Recognising the importance of government efficiency the GoA will undertake computerisation of all central governmental entities by the year 1384 (2005). The GoA will enhance its effectiveness by using e-government technology and by establishing a national data centre;

6. **Education & Training**. Recognising the importance of building a skilled workforce capable of understanding, entering and benefiting from the digital age, the GoA through the MoC, the Ministry of Education, the Ministry of Higher Education and associated institutions will promote effective ICTs training courses at secondary and tertiary level and will build partnerships with the private sector to implement corporate training facilities; and,

7. **e-Commerce**. To foster the capacity to trade goods and services by electronic means the GoA will draft appropriate legislation and will establish the necessary mechanisms to create the sector including protecting the rights of consumers and the interests of providers.

Business Environment

Market conditions/competition

Market conditions in Afghanistan are generally favorable to competition. The Ministry has put forward a forward-thinking policy and encouraged private investors. On the other hand, as far as investment friendliness, there are a number of important issues still pending, such as the approval of the new Telecom Law (drafted by the Ministry in 2003 and pending promulgation), enabling among others the creation of an independent regulatory agency, legislation protecting the rights of investors in the telecommunications market, incentives for foreign direct investment, and the recent imposition of targeted taxes on service providers. The Ministry is addressing these issues aggressively, with a view to improve the investment climate by the end of 2005.

Market structure and trends

The telecom market is currently segmented in the GSM mobile market, where two mobile operators are competing since 2003, the internet service provider market, which sees competition between a large number of national and local service providers, and the basic telephony services provided by the Ministry of Communications. Thuraya is also providing satellite mobile communications services and cooperates with a national service provider since late 2004.

Key players

Afghan Wireless Communications Company (AWCC) owns a GSM mobile license, and is owned (80%) by Telephone Systems International (TSI), a US based company and (20%) by the Ministry of Communications

Telecommunications Development Company of Afghanistan (TDCA) owns a GSM mobile license, and is owned (51%) by AKFED, the development arm of the Agha Khan Development Network (AKDN), (36.75%) by Monaco Telecom International (MTI) and (12.25%) by MTC, which operates several mobile operators in Central Asia under

Regulatory environment/ Overview of the regulatory system

Regulations & Liberalization

After the establishment of the Transitional Government of Afghanistan pursuant to Bonn Agreement and general policy of the government, the Ministry of Communications (MoC) decided to attract national and international investors to provide telecommunication services throughout the country.

The Telecommunication Regulatory Board (TRB) has been established as an interim sector regulator within the MoC. The MoC has also completed a comprehensive Telecom Law now in the final stages of review with the Ministry of Justice, and it is expected to be promulgated by April 2005. The law will create an independent regulatory body, the Telecom Regulatory Authority of Afghanistan (TRAA) with broad powers including licensing, frequency assignment, and numbering and consumer protection.

The MoC, under the mentioned goals and to create a transparent environment has decided to separate the Operational, Policy and Regulatory functions of the Ministry and for this purpose beside the establishment of TRB, has separated the operational functions from the structure of the Ministry and has created Afghan Telecom.

In addition, the MoC has published its Telecom and Internet Policy (3 July 2003) and Ten-Year Plan (February 2004) which lays out a wide range of options for the provision of all ICT and Telecommunications services.

Based on these new policies, the MoC has decided to issue two (2) additional Local Fixed Services Licenses in 2005 and two (2) more licenses for GSM Services in 2006, to provide a better way of services for country. It is also under consideration to use the proper and rational methods facilitated by a fully competitive environment in telecom market by migrating to a Unified Services License regime by 2006.

The MoC has tried its best to create a good opportunity for the private sector to provide services in an non-discriminatory and transparent manner, and this philosophy has been reflected seriously in the new law.

Privatization and Licensing

Afghanistan has two incumbent GSM Services licensees. AWCC was licensed in 2001 and is twenty percent (20%) owned by the Government of Afghanistan. The second GSM Services license was awarded by international competitive tender in 2003 to Roshan (TDCA) and is 100% private. Both licensees now have the identical terms and conditions. Both licensed GSM networks are operating in the 900 MHz band and today serve over 500,000 users nationwide (covering 23 cities).

The MoC has today licensed six (6) private internet service providers. Internet is provided to the users through PSTN dial-up networks and wireless local loop systems.

Frequency Allocations

According to the new licensing regime of Afghanistan, in order to provide wireless services to the public, each licensee is responsible to pay for frequency assignments according the new wireless regulations which were promulgated in December 2004. The frequency fees are calculated and payable based on the kind of services, coverage, sites and number of sites of the operators.

Concessions

The MoC has established a transparent licensing and authorization regime now implemented by the TRB.

Revenue and conduct of contribution in basic services

The MoC collects 2.5% of the net revenues of all licensed service providers for a Telecom Development Fund (TDF) to increase penetration in the rural and un-served areas. The TRB is in the process of developing procedures and policies to use these funds efficiently and effectively. Also, the MoC is working on a plan to provide subsidized telecom services to the public education sector and other social services and for disabled and poor people.

The majority of GSM Services users utilize pre-paid scratch cards, while the majority of internet usage is by NGOs and private companies that pay monthly subscription fees.

Infrastructure

The national telecommunications network has been decimated by 23 yeas of conflict and under-investment. At the beginning of the transitional government, the infrastructure seemed to be incapable of leading Afghanistan successfully through its period of reconstruction, social unification and economic renewal. Services were extremely limited; therefore, the ministry prioritized rebuilding the telecommunication infrastructure:

Afghanistan had fewer than 40,000 telephone lines for a population of approximately 28 millions. Many of the lines in services were analog system and the two networks were not dynamically interconnected. 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 are also old or even have been destroyed. The MoC could successfully explore financial and technical capability to introduce the new technologies and rapidly extend network connectivity.

Mobile communications services based on the European GSM standard began operation in April 2002. Ministry of Communications has issued two GSM licenses and has network coverage in majority of Afghanistan. The total number of subscribers is approximately 475 000.

Domestic long distance- Afghanistan did not have a functioning long distance network to connect to provide national or international network. The absence of transmission and switching facilities was a major obstacle to disseminate affordable telecommunications services though out the country. Therefore, VSATs have been installed to provide connectivity all over Afghanistan.

Ministry is currently in the planning stages for specifying a national fiber optic ring linking the five big cities along major roadway arteries.

Ministry is developing a networking telecom and IT infrastructure all over Afghanistan. Local area networks will be established between all ministries and provincial governors. Infrastructure will support linkage of any other office at the provincial capital.

For developing voice and data communications infrastructure in each district, it is planned to establish satellite based network, which can provide tele-centers at the district levels.

To integrate the existing fixed line, CDMA and mobile digital telephones switches of Afghanistan with the existing and futuristic transmission network based on satellite, microwave and fiber transmission media will ensure fully integrated communications infrastructure in Afghanistan.

Basic Telephony

Growth of main lines

At the present time, the only provider of fixed basic telephony services is the Ministry of Communications. The Ministry operates these services on the market under the 'brand name' of Afghan Telecom until the corporatization project is concluded and Afghan Telecom is incorporated and takes over the service operating activities from the Ministry.
The Ministry operates telephone and fax services, and will soon offer internet services, based on a mix of land-line and CDMA-based wireless local loop networks being deployed in all provincial capitals. Services are currently being offered on a post-paid basis, but pre-paid services will be introduced later in 2005. CDMA-based services are offered on a limited-mobility basis that is the customer can make calls within the cell his address falls in.

Afghan Telecom has planned 3,000 to 10,000 basic telephone lines in each province within the next two years. Both fixed line and CDMA technologies will be used.

Facilities-based licensees

A process to award Local Fixed Service Provision licenses was launched at the end of 2004 and it is expected that the licensed operators will start activities in 2005 to provide internet and voice facilities to the business nodes of Afghanistan, which have not been covered.

Competitive landscape in basic telephony

At the present time there is no competition in the basic telephony market. The policy foresees the awarding of two additional national (fixed-line telephony) service provision licenses in 2004, which, together with the LFSP licensees will significantly increase competition in the sector. Moreover, it is foreseen that the mobile operators will receive fixed service provision licenses in 2006, further adding to the competitive landscape in basic telephony.

Mobile communications

Mobile communications market

The mobile communications market is currently experiencing competition between the two licensed GSM operators, Roshan (TDCA) and AWCC (Afghan Wireless Communications Company), and the satellite services Service Provider for Thuraya. An additional GSM license is slated to be awarded in 2005, for launch of operations in January 2006. It is also foreseen that by that time fixed service providers will be awarded mobile licenses and vice versa.

Market structure and trends

The mobile communications market has developed in a rapid and tumultuous fashion. Operators have quickly developed coverage in most provinces, while the quality of coverage and interconnection has experienced recurrent setbacks. Roaming is currently offered only by one operator and features some of the highest tariffs in the world. Interconnection agreements are in the process of being renegotiated and should lead to improved inter-operator call quality and pricing.

Analysis of revenues, usage and adoption

The GSM market subscribers' total has recently surpassed the half million mark and is growing rapidly. Services are mostly being offered on a prepaid basis, while some postpaid customers exist in the corporate market. ARPU (Average Revenues Per User) were initially fairly high but are expected to decrease, as penetration increases.

Overview of mobile data service and adoption

Mobile data services are currently not being offered, whereas one of the operators (soon to be joined by the other one) is one of the main providers of internet services to the business market, through point-to-point wireless connections.

Adoption forecasts by technology

No official statement has been made by mobile operators as to technological innovations slated for introduction yet, but it is assumed that the offering of roaming by both operators will introduce competition in this sector and reduce tariffs. The expanded offering of internet services to the consumer market by the Ministry scheduled for 2005 will likely stimulate the start of mobile data service offerings.

Internet and E-Commerce

Market structure

As Internet is an intense need of the day, which has a very positive impact on the information based economies and access to information for the information based communities. The market structure for Internet in Afghanistan is very simple. Ministry of Communications has put in place a very relaxed regime for ISPs. There are 6 IPS already operating in the country and 5 more will be soon launching their services in the country. The government neither in past nor at present provide ISP services. There is no technological restriction on the companies which are providing internet services in the country. As there is limited number of fixed lines available, many ISPs have selected WiFi technologies for the provision of internet services.

Recently the new banking law has been approved by the government and commercial banks are popping up in the country. As of today E-Commerce is not available in the country, but ATM is already started and soon MoC in cooperation with Ministry of Justice will start working on the E-Legislation and related issues, which will lay grounds for E-Commerce in the country.

Revenue trends

As mentioned above the fixed lone network is not well extended through the country and is very limited in main cities as well, which will be expanded soon, the number of dial up customers for ISPs are very little and most of the customers ISPs are serving are those who has dedicated 32kbps, 64kbps or 128kbps wireless connections. As of today internet is very costly, it cost USD 1/hour and USD 300 for 32kbps. So the main revenue for the ISPs are from their wireless users. Some ISPs also provide broad band connectivity in remote areas of the country.

There is one time license and fixed annual fee these ISPs pay to the Telecom Regulatory Board of the Ministry of Communications.

ICT Status and Development

The ICT sector is very new in Afghanistan. In order to address the issue in a more concrete way MoC has developed the ICT policy, which will enable the government to pine point the objectives to be achieved. In order to enable Afghans to access the information, ministry has come up with internet regime which turned in to brining 6 ISPs in the country and in very short time 5 more will be establishing their services in the country. In order to enable public to make use of internet, MoC has also established 9 telekiosks which

enables the public to use internet for their daily use. MoC has also established the AfgNIC which is working on the cctld of the country facilitating the identity of the country over the internet.

MoC is planning to establish a National Data Centre in Kabul and 4 ICT Centers in 4 of the major cities of Afghanistan, the centre will host the equipment central to the government offices, such as the National Databases that could be for the government use or for the public use. These facilities will enable the government organizations to provide E-Services to the public that may cover, educational, health, financial, banking and such information.

In order to start the culture of using the new technologies and new methodologies; MoC has started the pilot phase of the E-Gov project in its offices; the project will re-engineer the process of the organization in order to implement e-administration and paperless office.

Afghanistan and Cyber Securities

Afghanistan and ICT Background

The ICT sector is very new in Afghanistan. In order to address the issue in a more concrete way MoC has developed the ICT policy, which will enable the government to pine point the objectives to be achieved. In order to enable Afghans to access the information, ministry has come up with internet regime which turned in to brining 6 ISPs in the country and in very short time 5 more will be establishing their services in the country. In order to enable public to make use of internet, MoC has also established 9 telekiosks which enables the public to use internet for their daily use. MoC has also established the AfgNIC which is working on the cctld of the country facilitating the identity of the country over the internet.

MoC is planning to establish a National Data Centre in Kabul and 4 ICT Centers in 4 of the major cities of Afghanistan, the centre will host the equipment central to the government offices, such as the National Databases that could be for the government use or for the public use. These facilities will enable the government organizations to provide E-Services to the public that may cover, educational, health, financial, banking and such information.

In order to start the culture of using the new technologies and new methodologies; MoC has started the pilot phase of the E-Gov project in its offices; the project will re-engineer the process of the organization in order to implement e-administration and paperless office.

Ministry of Communications is implementing a number of projects in the telecom sector which will enable Afghans to access information and communicate within and outside the country. The GCN (Government Communication Network) and DCN (District Communication Network) will provide an infrastructure, which will connect all the government offices in Kabul and in provincial capitals enabling them to exchange information.

In today's world everything is based on information and the most critical thing for an organization to secure is its information. Ministry of Communications is planning to establish a centre, which will address the security issues of the data over the digital networks inside and out side the country.

There are several projects running by Ministry of Communications inside Afghanistan in order to increase the availability of cyber securities some of the main important projects which reflect the cyber securities are the following.

Establishment of Afghanistan Computer Emergency Response Team (AFCERT)

New information and communications technologies (ICTs) are fostering profound changes throughout the world's social, political, legal and economic systems. For developing countries, ICTs have the potential to help reach key development goals as agreed upon in the United Nations Millennium Summit: reduced poverty, improved education and healthcare, enhanced empowerment, and greater protection of environmental resources. At the same time, the increasingly important role of ICTs in the broader process of globalization means that countries that do not tap into these technologies risk being left even farther behind. While domestic policy can help developing countries seize the advantages of ICTs, decisions made at the global level will increasingly affect these nations' ability to benefit from ICTs.

Information technology is transforming the economy and society, creating a completely new paradigm. Businesses are using telecommunications to speed up transactions, reduce costs, and expand their markets. Consumers are buying books, CDs, and clothing online. Families are exchanging photos via e-mail. Students at all levels are taking courses via distance learning technologies. And telemedicine is making mental health services available in remote, underserved areas of the state.

It is clear that communication is crucial for the Government stability, national unity, conflict resolution, de-mobilization of old combatants and their re–integration in the society. The Ministry of Communication believes that communication and information technology play a significant and important role in the reconstruction and development of the country both from social as well as economical point of aspects. In fact, telecommunications is the key ingredient of economic - development.

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Establishment of AFCERT (Afghanistan Computer Emergency Response Team) is of a crucial importance for Afghanistan as other countries in Asia like Malaysia, China, Korea, Indonesia etc.

Reasons, purpose and goals of having An AFCERT

As mentioned above that Ministry of Communications is establishing data networks throughout the country, which will be used by the government, private and as well public sector of the country. As the network will be expanded day by day and more users and more machines will be added to the network so it is important to have an entity which will take care of the following issues:

- Data over these networks will contain critical information, which will need protection from unwanted access.
- The organisations connected to the network will install machines on the network; it is important to double check whether the machines are type approved.
- Intrusions, virus, spam
- Incidents related to hardware problem or mis-configurations
- Handling international incidents
- Illegal activities such as software piracy;
- Special requests from the Law Enforcement or the Government to do investigation.
- Intrusion
- Denial of Service (DOS)
- Spam
- Harassment
- Forgery
- Malware
- Hack Threat
- Destruction

AFCERT will detect the above mentioned issues and will make aware the member / registered organisations regarding the threat and will also help/recommend them how to overcome the issues.

Requirments of AFCERT

Staff

It is important to determine the appropriate number of staff to employ. This should provide a balance between the expected (and probably as yet, unknown) workload, and the budget constraints.

Besides the technical team, there must be management, administrative, and clerical support. If the AFCERT is to operate on a 24 hour basis, a minimum of four full time staff is required, where staff duty or standby on 24 x7 basis should be rotated.

Security incident rate is not constant. There will be quiet/peace times, and there will be busy/crisis times. The success of a AFCERT is usually measured in how they perform during the busy/crisis times, as this is when most members of the constituency are reporting and seeking assistance from the AFCERT. There must be sufficient staffs in the team to effectively deal with large and complex incidents. Failure to do this will result in dissatisfaction from the constituency.

Computer Systems & Networks

Computer systems and networks are very essential in the running of a AFCERT, as most of the AFCERT's activities and operations will depend on these. For example, the common mode of reporting incidents is done via emails and web. One of the activities of a AFCERT is to analyze incidents in order to determine trends and intelligence of future attacks. To do this, some form of incident analysis and database tools must be used. Since most of the information supplied to the AFCERT is already in machine readable form, a computer system is the obvious choice of tool. The team must be able to reach via the Internet so that information can be sent to it as well as other forms of information such as alerts and advisories can be sent back to the constituency. Some of the issues that need consideration when setting up computer systems/networks are:

i) IP Address Range
ii) Domain Name
iii) Subnetting
iv) Web server
v) Email server
vi) Test Equipment
vii) Routers/Firewalls
viii) Authentication matters.

Educating users – trainings (AFCERT Team), workshop (Awareness of public)
AFCERT must consider educating members of the constituency on incident handling, and systems & network security. This can be done by conducting trainings, workshops and seminars, targeting system/network administrators, IT personnel and home users. The education could be in the form of a technical workshops/trainings (for System Administrators, Network Administrators and IT Personnel) or in the form awareness programs (for home users and non-technical personnel).

Mailing/Announcement Lists
It is necessary for AFCERT to have its own mailing lists, which could be a platform of knowledge sharing/discussion forum on incident handling, systems & network security and other security issues. Besides as a platform for knowledge sharing, the mailing lists

could also serve medium of communication with the members of the constituency of new alerts and advisories on recent security threats, attacks and vulnerabilities.

Liaison with other CERTs around the world
The AFCERT also must consider liaison with other CERTs around the world, such as the Australian CERT (AUSCERT), Japan CERT (JPCERT), Malaysian CERT (MyCERT) and many other CERTs. Such liaisons and good rapport with other CERTs helps in the investigation of certain incidents originating from their respective constituency. The AFCERT also must play an active role in forums or discussions organized by the Asia Pacific CERT (APCERT) and Forum of Incident Response and Security Team (FIRST).

Establishment of National Internet Registry of Afghanistan
(NIRA)

NIRA (National Internet Registry of Afghanistan) is non-profit organization providing the service of allocating and registering internet resources in Afghanistan.

This document states that an Afghan internet registry be formed called NIRA (National Internet Registry of Afghanistan), with funding model similar to APNIC

Such an Afghan Internet registry will allocate IP address space, autonomous system numbers, and other identifiers that might from time to time be appropriate, maintain databases of registry information, make appropriate views of the databases (for example, DNS, WHOIS, registration of Internet resources) available for query from the database which will be available publicly and tasks to be performed that are expected of registry

1. **Drafting Policy**

   The draft policy for NIRA has already been drafted which may need some modifications.

2. **Getting Support from Govt & Internet Community of Afghanistan**

   Ministry of Communication has already supported the establishment of NIRA by providing supporting letter which is attached with this document. While supporting letter from Internet Community of Afghanistan has been drafted but not signed yet by any ISPs or network entities of Afghanistan

3. Sustainability of the entity (NIRA)

NIRA will be membership based non-profit organization which will be sustainable by applying membership fees on accredited members of NIRA while the members will get trainings in internet resource management and will be assigned IP classes as per their network requirements.

At the initial stage this body will be financially supported by different international donor agencies like UNDP which has already contributed in establishment of this body.

4. Submitting Application

Application will be submitted to APNIC (Asia Pacific Network Information Center) for authorization of acting as National Internet Registry (NIR) in Afghanistan.

5. Procurement of Equipments for NIRA

With the current allocated budget from UNDP , we will start purchasing the required equipment for proper management of NIRA so that it could fulfill its required functions without any hurdles.

6. Training in management of NIRA & Staff training by APNIC

Staff members of NIRA will require proper training in management of Internet Resources (IPs and ASes) which could be discussed with APNIC as well as coordinating with APNIC in mirroring of the its database (all related information regarding allocation/ assignment of IPs.