

**Report
on**

ICTs in Afghanistan

Based on a visit (22 June – 4 July 2003)

Version 2.0

by

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Executive Summary¹

Afghanistan is a country in change. After two decades of instability and war, anything vaguely resembling development is positive. But, in the two years since the multinational forces displaced the older regime and the new government has been established, Afghanistan has seen a sea change. Almost 3 million people have returned to the country, and media is vibrant. Direct air connectivity to neighboring countries now exists, and Afghans have fewer restrictions in traveling or working.

While the infrastructure is non-existent, human resources scarce, and businesses in shambles, the morale is high, the economy is moving, and people are returning. Along with the huge number of people who have returned to Afghanistan, have come new technologies like cellular mobile, and computers. In a short period, while technology is now available in Afghanistan for those who can pay for it, the ability to use it is not yet there.

The main feeling after two weeks in the country is that much more needs to be done towards institutional as well as human capacity building, before attempting to introduce novel ideas in the use of ICT technologies. There simply is not enough local capacity to handle projects of big magnitudes. Donors can share their experience from previous projects in other parts of the developing world to bring the Afghans into par with technology. The experience from older projects can, of course, be applied to newer sectors.

The main partners for donors in Afghanistan will be the Government. Afghan Computer Science Association can be a partner in the NGO sector. Kabul University's departments would also greatly benefit from external support.

The report is result of the two weeks I spent in Kabul. During the course of two weeks, I was involved in conducting a training to government IT experts on networking. Much of the information in the report is gained through interaction with the training participants. Also extensive discussion with the MoC advisors Mr. Aimal Marjan and Mr. Abdul Fatah contributed to this report. Mr. Marc Lapage of the UNDP was also extremely helpful in arranging the training and answering many of my questions. Also Mr. Muhammad Aslam of the '.af' registry, was helpful in correcting factual errors in this document.

¹ This is the second version of the report after feedbacks from different people who've been involved in Afghanistan. The updates are in the footnotes.

Background

Afghanistan's literacy rate is 30 percent (15 percent for women). It is largely a rural country, with four major cities – Kabul, Kandahar, Herat and Mazar-I-Sharif. Jalalabad is another major city and serves as the transit to Pakistan. The population of the country is 22.5 million according to a 2001 estimate. Continuous war for two decades had stopped the development of public communications network, and much of the current state has been achieved in one and half years since the fall of the previous Taliban rulers.

The current telephone system in the country was born out of the wreck. The Afghan Wireless Communication Company (AWCC), has been operating mobile service in Kabul since 1998, but is severely under capacity. It also provides landline communication inside Kabul and other major cities. It also provides international connectivity to government offices and others. The government signed an agreement with the Aga Khan Foundation for Economic Development for a second provider, but it was yet to offer services. Since September, the second operator has started service.

Currently, there are projects in the pipeline to create a national backbone. It will take time, and in the mean time, satellite services are used extensively for communication.

Internet Services

Internet was banned under the Taliban. One of the first things done by the Afghan Aid Co-ordination Authority (AACA) was to establish proper Internet connectivity to major ministries and aid agencies. The AACA is under the auspices of the World Bank and uses the World Bank Global Distance Learning Network (GDLN) for access. The major network though, is that of the UN Agencies. All the UN agencies operating in Kabul currently have their own Internet access through satellite. Few of them share the facilities. The UN network also extends to a few ministries, NGOs and buildings used by the expatriate community.

Outside the two networks, there are five ISPs currently functioning in Kabul. The sixth was licensed in early August. These ISPs started operating without a license, and the Ministry of Communication later granted them licenses to operate. More importantly, there are almost 200 cyber cafés in Kabul only. At least one of those operates round the clock and has an impressive twenty four computers.

Most of the Internet use is by the many expatriates who have come to work in Afghanistan. But the largest community is the educated Afghans who were previously denied access to the resource. Journalists, private companies and others who don't have access to the AACA or the UN network are also regular customers.

All the ISPs and organizations, use wireless data equipment to connect their different point of presence (POPs). Without any regulation and the poorly equipped ministry, it's difficult to ascertain what frequencies this devices are using.

.af ccTLD

One of the main accomplishment of the local Internet has been the reclaiming of the .af ccTLD. After a swift process, it came live on 12 February, 2002 and has since then gone on to register about 80 domains ending in .af. The cost structure and other details are available at www.nic.af. The servers are still located at the UN Headquarters in New York, but the administration is done entirely from Kabul. The effort to be able to put a backup server in Kabul were not being fruitful, due to firewalls and lack of basic infrastructure like power backup and required equipments. This is being worked on.

IT Economy

Kabul as a city has seen it's population grow 200% to almost 3 million, due to the return of refugees from neighboring countries. This has also meant that a high number of educated people have returned in search of better opportunities for work in their homeland. Along with them, they brought back skills and knowledge. Much of the growth in the IT industry in Afghanistan can be attributed to the returnees.

As with most other resources, Pakistan is the gateway for the burgeoning local IT industry. Due to the proximity to the Pakistani market, it's fairly easy to have access to computer hardware locally. There are resellers of international companies like HP and Dell operating in Kabul. Assembled computers though occupy the biggest segment. The local industry is also beginning to provide computing related services to larger organizations. The total turnover is estimated at USD800,000.00 (Digital Review of Asia Pacific).

For affluent Afghans, and returning Afghans, the cost of the computer is not as much. The prices are comparable to those in Nepal and India. But for the local population, it's still expensive. Much of the hardware available in governments has been provided by different donor agencies, and this has not helped the local industry.

Software

There is no any software industry in Afghanistan. Much of the computers use the Windows operating system that does have support for 'Dari' one of the official Afghan languages. Computers are still extensively used for word processing and to access the Internet, and the need of organize data in software have yet to be reached.

Some larger projects, like computerization of the Afghan Adriana Airlines incorporate significant software portions, but much of the current focus is on establishing the infrastructure.

Use of IT in Governments

Compared to quite a few developing country governments, the Afghan government is using ICTs very extensively at this stage. Almost all ministries have computing resources available, mainly through donor funding. The major ministries have Internet Access provided through the AACA network. The UN agencies have provided access to projects in various ministries.

Major ministries have dedicated computer engineers and systems personnel in their staffs. In smaller ministries, the project staffs or the expatriate staff help others in using the technology. E-mail is used quite extensively, at least within the ministries. Web Access is also used for accessing e-mails from free services like Hotmail and Yahoo. There is a lack of co-ordinated policy for use of e-mail inside the government ministries. I was not able to access the level of e-mail usage for communication between different ministries.

In retrospect, e-mail is currently the most reliable form of communication in Afghanistan apart from two way radios or satellite phone.

The government could well be helped to develop a co-ordinated policy on use of ICT within the government. This may include the development of acceptable usage policy, implemented frequently in corporate sector.

While I was there, the MoC was looking at inter-connecting ministries to form it's own network, but I am not sure if that has gone forward. The advisors at the MoC may not have the expertise to develop such a plan.

Major ICT Projects

Computer Training Centers Project

The one single major ICT project is the UNDP/French Government supported 'Computer Training Centers Project' at the Ministry of Communications². The main aim of the project is to provide computer training to government employees in all the provinces. This project has established nodes in the provinces and has also actively encouraged women to participate. The main node of the project is located at the Ministry of Communications, and a second training unit is located at the Ministry of Women Affairs. The project also established the Cisco Networking Academy at the Kabul University. The project is also aiding the MoC in formulating of the national ICT policy.

My major work while in Afghanistan was to conduct a specialized Linux and IP based network administration training for Afghan government engineers. This was arranged by the project. The project has also been active in arranging specific advanced training for government employees.

Apart from the specialized trainings held from time to time, the project has been able to create training manuals and an instructor based training system to train Afghans in basic computer literacy. The local instructors have been through a rigorous process and are now able to teach class without external support.

The same project was also helped in retaining the '.af' to Afghanistan.

² The project was initially funded by the European Union.

Marc Lapage, the project director had been the main person to push for the different programs. Marc left Afghanistan in August, and so far a replacement has not been brought in.

Tele Kiosk Project

The other major project, also funded by UNDP, is the TeleKiosk project. Located at the MoC, the project aimed to establish manned TeleKiosks at post offices through out the country. Initially, the plan is to establish twelve nodes in Kabul city. Six of these were launched in August.

Other Projects

Various other agencies have supported ICT components in all their projects. Many of these projects also have components for training users on use of ICTs. UNESCO has supported computerization of media centers, the Journalism Faculty of Kabul University, Ministry of Culture and Information amongst others.

Policy Development

In early July, work was in final stages for the release of the National IT policy and the telecommunications policy. The policy was being formulated with the active involvement of USAID, by the special advisors to the Ministry of Communications. Internews and UNDP were also involved in the project. The plan was to send the final draft policy to different ministries for feedback.

The draft policy document states "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."

The policy specifies the broader policy roles for the government and other players. It also has specific goals to broaden the reach of telecommunications services. The drafts Policy envisages the creation of an independent regulator - Telecommunications Regulatory Authority of Afghanistan (TRAA) and regulate the government owned Afghan Telecom. The policy also sets guidelines on a competition policy in telecommunications.

The policy extensively sets the rules for telecommunication licensing. It has devised a model for monopoly, duopoly, triopoly and complete liberalization in different sectors. In the Internet sector, the policy provides for differentiated licensing for International Connectivity providers and local service providers. The Table of content of the draft policy document is annexed.

A separate IT policy is also in the preliminary stage, the access to which was very limited. The IT policy aims to set up a National Information Technology Center to co-ordinate IT related matters within the government. The IT policy also aims to create a sustainable IT infrastructure in the country and enable growth of the industry. It also aims to integrate ICTs as integral part of the governance system.³

Capacity Development

Kabul University's Computer Science and Engineering Department is the only center for academic learning on computing science in Kabul. Vocational training though is available. Quite a few computer training centers have sprouted in Kabul and according to UNDP project staffers in other parts of the country.

The University department is not well funded, and lacks faculties. Internet Access is available and with the Cisco Networking academy program, the department has seen a rejuvenation of its activities.

Of the ten participants in my workshop – eight had been educated in Pakistan. Only three of them had prior working experiences. It's easy to ascertain that most of the people managing the networks and computer systems are returnees from outside – mostly Pakistan. They lack the experience to scale or design proper systems and manage them. The unstable situation in Afghanistan means that foreign consultants are reluctant to stay in the country for long, and if these local engineers are not trained, the large amount of money being spent in building facilities and infrastructure would not find optimal use.

³ Asia Pacific Development Information Program (APDIP) organized an Information and Communication Technology Policy Development and Implementation Seminar for Afghanistan (14-18 October 2002), details of which are available at <http://www.apdip.net/afghan/about.asp>.

The capacity in private sector is also lacking to execute large project and manage them. The need to train people in all aspects of ICT from design of systems, be it database or network to train people to manage projects is urgent.

The Telecom Training Center, also located at the Ministry of Communications, is soon to start it's own Cisco Networking Academy. The instructors for this center are currently being trained at the Kabul University. The plan is also to open another Cisco training center in the Ministry of Women Affairs. As of late September, the TTC center has started operation.

Infrastructure Development

Much of the country was destroyed due to the war. The present focus for all donor agencies and the Afghan government is to re-build the infrastructure. In the IT and telecom sector, the infrastructure plans aims to ultimately connect the entire country into a fiber optic grid. For immediate future, the plan is to create a satellite based network for communication. It is also hoped that with the licensing of private operators, much of the infrastructure would be build with private investment.

There is also a plan to connect the ministries in Kabul and their offices in the provinces to create a Government network. This is at a very preliminary stage and much work needs to be done. The government would be looking for a suitable agency to fund this program.

Much of IT / Telecom infrastructure building are going to be huge inter-agency and private investments projects.

Possible Future Projects

In terms of new innovative projects in Afghanistan, plenty can be done. But the focus should always be on building capacity of the locals to handle these projects. The capacity of the local NGOs and the government, as well, to handle these projects also needs to be built. Without any banking infrastructure in the country, the financial consideration of stacking a lot of cash also needs to be considered. But discussions with the mainly the MoC advisors, give the idea that the people are open to new ideas and things that can make a difference.

Capacity Building

A series of higher level skill training or a sustained program to support research and development at the Kabul university would prepare the country to manage larger and more complex projects. The capacity building can be extended to inter-connecting different systems and projects in ICTs to create a central knowledge base for use by many projects to come.

Government Network and Content Development

The plan for interconnecting the ministries into a useful network has not been achieved. Already, there exists a logical path between the major ministries through the Internet service provided by the AACCA. But without any co-ordination work, the network effect has not been seen. Development of software to make the network more usable and creation of an intranet would be an important step in setting up good governance in the government.

While hardly any content exists currently, because of the new state of things in the country, if started at this point, the content development work can become a very important feature for future development of ICT projects. Rather than trying to bring together different content later in time, it would be imperative to start early.

Support for Localization efforts

There already is an effort to standardized character set in computers⁴. But expertise is lacking. The ministry is very positive of this effort, and has already conducted a study on this feasibility. A sustained effort in making sure that both Dari and Pashtu languages are available for use on computers would be an added benefit for the country.

Support for the National Archives

Something everyone seems to have been putting on the back burner is the automation of the national archives and also digitizing old records. While this was my personal

⁴ See see <http://www.evertype.com/standards/af/>

feeling, inquiries into if any projects were supporting the National archives were negative. *Late July update: New York University along with SUN Microsystems has announced to preserve cultural heritage of Afghanistan digitally, but details are not known. Under the first phase of the project, 43 books known to have been published in the country between 1871 to 1900 are expected to be digitized, cataloged and uploaded to a website.*

Support for the Afghan Computer Science Society

The ACSC is the only association of its kind in Afghanistan. The society consists of engineers and computer experts currently in Kabul. This is an organization in its infancy, but due to its collective expertise is in a position to execute projects in an effective manner.

Distance Learning System

The Ministry of Communications would like to explore the use of Distance learning techniques along side its Tele kiosk project. With schools in depilated state, the effort to use ICTs in education would be great.⁵

Information System

Information System supporting specific sector like Health, Agriculture, education, weather with direct benefits to the population are being sought by the MoC. But, due to the nature of many other works being done by MoC, they haven't been able to give focus to these ideas.

Seconding Faculty at the University

Kabul University is in severe lack of faculty who can teach and also innovate. There are many Afghans who are willing to return to the country to serve, but due to the lack of a system, they are not able to help. Helping the university set up an automated system to get qualified faculties into the country is important. The university would also need further support to support the faculties arriving from abroad.

⁵ The involvement of World Banks' GDLN in the beginning of re-construction efforts in Afghanistan means that there are activities already happening in Distance Learning, though that is limited to a higher level and is not a project for masses.

Future Directions

Policy Development

While the national IT policy is being developed (probably announced by late Sept.), there doesn't exist a co-ordinated policy for ICT use in the Afghan government. The lead has been taken by the MoC, but its focus is clearly the development of the telecom sector. . At the same time, all projects currently in implementation, in any sector, have a major ICT component. This has resulted in extensive use of computers mainly for word processing, accounting, and e-mail. The potential to use computing resources for information management will take time to be realized. The government will be content with current level of policy development for foreseeable future.

IT Economy

As the overall economy grown, the use of computers would increase. Local availability of hardware is already comparable to the markets in Kathmandu and Delhi, but software know-how and support services may be lacking.

But, it can be safely assumed that business in Afghanistan would be quick to utilize computing resources for their maximal benefits, as they don't have to go through a migration path. Un-availability of older hardware and mechanical devices also means that computing would be seen as something inevitable quite quickly.

For a foreseeable future, large scale IT projects will continue to be handled by companies in neighboring countries. But as the local capacity grows, this may change. But this will take considerable time, and will be dependent of development on other sectors like banking and finance.

On the software side, It would probably be website development and hosting business that'll develop rapidly compared to other sectors, as the tendency to use the Internet is high.

The education and vocational training institutes can also expect to do well, owing to the requirement to be computer literate in most new jobs.

ANNEX I

Telecommunications and Internet Policy Draft Table of Contents

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 - 10.4 ISP Liability
- 11.0 Taxation

ANNEX II

People Met for discussion

1. H.E. Mr. Baralyai Hassanm, Deputy Technical Minister for Communication
2. Mr. Aimal Marjan, National IT Advisor, Ministry of Communication
3. Mr. Abdul Fatah, National IT Advisor, Ministry of Communication
4. Mr. Marc Lapage, Project Manager, UNDP
5. Mr. Muhammad Aslam, .af Manager
6. Ms. Aita Jeeva, Communications Officer, UNDP
7. Participants from AACA, Afghan Central Bank, Foreign, Finance, Reconstruction, and Communication ministries in the workshop
8. Mr. Fazeel Hanif, Returnee Afghan, Manager of Cisco Networking Academy Program in Afghanistan
9. Many other locals, UNDP staffs, Project staffs

Some Web Site of Interest

1. www.afgahanistangov.org
2. www.undp.org.af

ANNEX III

Acknowledgement

The trip and the opportunity to share my knowledge with fellow Afghan engineers was provided by the Computer Training Centers Project, based at the Ministry of Communications and implemented by UNDP. I would like to thank all people who helped me to get to Afghanistan and also arranged the training. Mr. Marc Lapage, project manger, was instrumental in being able to do the training in Kabul. Special thanks to Marc.

Also would like to thank International Development Research Center (IDRC), for funding part of the extensive travel arrangements I had to make. Thanks to Mr. Renald Lafond and Mr. Frank Tulus for their interest in finding more about ICTs in Afghanistan

Mr. Aimal Marjan, and Mr. Abdul Fatah, both advisors at the Ministry of Communications deserve special thanks for providing their valuable time to me for discussing various issues including future project ideas. They also helped me achieve a perspective on current ICT industry in Afghanistan.

I'd also like to acknowledge the help provided by Mr. Muhammad Aslam, .af manager in conducting the training, by acting as a translator. Mr. Aslam has also helped me in writing this report by verifying facts.

My colleagues at Packet Clearing House (PCH), especially Bill Woodcock, for helping me with advance knowledge of the situation in Kabul, and helping me with planning my travel.

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