Telecommunications Development Strategy

Islamic Transitional Government of Afghanistan

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Introduction

The Islamic Transitional Government of Afghanistan firmly recognizes the importance of embracing information and communications technologies (ICTs) to achieve the nation’s development and reconstruction goals. An effective communications 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.

Telecommunications is a priority development sector essential to facilitating the broad reconstruction effort. Today Afghanistan has one of the weakest telecommunications systems in the world. Only one out of every 625 Afghan citizens has access to telephone service. Communications between provinces is extremely limited and effectively non-existent in smaller towns. Internet and data services have only recently begun in Kabul. Government operations and the management of civil affairs are hampered by the absence of reliable communications services. After 23 years of conflict and stalled investment, the entire sector needs to be rebuilt from the ground up.

Afghanistan is committed to a telecommunications environment that transparently promotes competition and private ownership of network facilities and services. While the Government is crafting a progressive policy and legislative environment to encourage and protect private investment, Afghanistan’s immediate reconstruction needs cannot be met solely through private sources. Revenues from existing operations are insufficient to restore productive capacity to the sector. Our need for capital investment is acute. In the near term, we urgently require assistance from the international donor community to support priority projects that will help ensure the success of the overall development program.

Currently, a considerable amount of donor funds are spent on individual communication networks run by the UN, NGOs, the business institutions and various government departments. This is as a consequence of the lack of infrastructure to support these organisations. These operational costs are considerably higher than they should be. Investing in the MoC’s infrastructure today can help to reduce these operational costs in the future and at the same time help the MoC build an operation that will be sustainable in the future.

This *Telecommunications Development Strategy* summarizes critical aspects of the Ministry of Communications’ (MoC) approach for enabling the rapid growth of affordable communications to all of our people – whoever and wherever they may be. This paper addresses six topics that will be explored in greater detail in a forthcoming *Telecommunications National Development Plan*:

1. The importance of telecommunications in Afghanistan’s reconstruction;
2. Strategic objectives for the communications sector;
3. Accomplishments achieved to date;
4. Telecommunications infrastructure status report;
5. Priority development projects; and,
6. Funding and technical assistance requirements.

An appendix summarizes immediate priority projects and funding needs.

Additional background information on the telecommunications sector in Afghanistan can be found at the MoC’s web site (www.af-com-ministry.com).

1. The Importance of Telecommunications in Afghanistan’s Reconstruction

The importance of a modern and competitive communications network cannot be overstated. Strong, widespread and efficient communications are the underpinning of any knowledge economy and play a central role in economic development and poverty reduction. In Afghanistan it will help maintain the humanitarian relief effort, stimulate all aspects of the economy, and build our future as a peaceful and unified society.

By embracing a market regime based on transparent competition and public tenders, Afghanistan can broaden the base of sources of investment capital and operational expertise to achieve tangible benefits to consumers. These include lower prices for network services and equipment, improved quality of service and faster rate of market innovation. The MoC recently successfully concluded an open and transparent competition for a second GSM mobile services operator. [1]

Communications can produce the following beneficial effects:

§ Accelerate the unification of a fractured society

Today whole communities of our people face the “tyranny of distance” and the alienation associated with remote geography. To restore cultural and social normalcy throughout the country it is essential that all 423 administrative districts be integrated with Kabul, with each other, and with the rest of the world. Telecommunications is a basic enabler of informal social and economic discourse necessary in the strengthening of civil society.

§ Empower the government to execute its duties

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 and the provisioning of social services. As one of the most visible shortcomings of the national infrastructure, communications has become a litmus test for the government’s ability to rapidly deliver services the people want and expect.

§ Ignite the economy

Telecommunications 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. Communications is an essential enabler for boosting productivity and creates a climate for job creation,
investment and sustainable growth. Research data shows that positive economic effects flow to all parts of a community once basic telephone access is achieved. As important, an efficient telecommunications sector has the potential to quickly become the largest contributor of tax revenues to the national treasury.

§ Enhance national and civil security

Civil 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.

Telecommunications is a strategic sector that urgently requires rapid modernization. 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.

2. Telecommunications Sector Strategy

The primary goals of the national telecommunications sector strategy are to:

- Provide the people of Afghanistan with access to high-quality telephone, data communications, Internet and postal services, and

- Enable 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.

To achieve these broad policy objectives, the Ministry of Communications has further identified a series of strategic initiatives and development principles to guide and direct our work. These initiatives are based on international best practices in telecommunications sector reform. They are calculated to accelerate market liberalization, attract direct inward investment and protect consumer rights.

i. Establish appropriate legal frameworks

We are working aggressively to draft a new Law on Telecommunications in cooperation with the International Telecommunications Union (ITU). With the December 2001 Bonn Agreement Afghanistan reverted to the 1964 constitution where telecommunications infrastructure may be construed to be the exclusive right of the State. The Telecommunications Law that we anticipate forwarding to the Cabinet will specifically grant rights for private ownership and operations of public telecommunications services, including to foreign entities. Other provisions in the Law will specify the creation of a transparent and independent regulator (see ii, below); rights for the allocation and utilization of radio spectrum for commercial purposes; legal recourse for arbitration and disputes; and other issues currently being considered.

The Ministry will also recommend supporting legislation, as appropriate, to create an optimal climate for attracting investment, managing competition and protecting personal liberties related to the broad scope of telecommunications, information and
communications services. These may include but not be limited to Laws on Electronic Commerce, Copyright, Digital Signatures, and so on.

ii. Establish an independent regulatory authority

Currently all policies and regulations pertaining to telecommunications in Afghanistan are developed and managed by the Government through the Ministry of Communications. The MoC will establish an independent and non-partial Regulator. The Regulatory Authority, to be organized with technical assistance provided by the World Bank, will be an autonomous commission and will protect the rights of consumers and service providers. It will also promote the policy objectives for sector development while maintaining a fair and level playing field for all stakeholders.

The Regulatory Authority’s main areas of responsibility include but are not limited to;

- Issuing operator licenses in a transparent manner for mobile, fixed services and long distance (other services will receive class licenses);

- Setting rules regarding interconnection between networks;

- Regulating tariffs under conditions of dominance or anti-competitive behaviour;

- Setting technical standards for approved usage of telecommunications equipment;

- Monitoring service quality and adherence to rules and regulations by service providers;

- Planning, assigning and managing radio frequency spectrum;

- Managing the national numbering scheme;

- Universal access

- Consumer protection

iii. Corporatisation of state-owned network operations

The MoC intends to separate its network ownership and operations from policy and regulatory functions. This process of “corporatisation” will entrust the facilities, legal rights and assets currently managed by the Telecommunications Department at the MoC to a state-owned corporation to be established: Afghan Telecom. Afghan Telecom will initially be organized as a state-owned corporation. Its responsibility will be to plan, finance, manage and operate public telecommunications facilities throughout the country, including local, long distance, international, data, Internet, value-added and other network services. Over time, the government will define a medium to long-term roadmap for privatization of the company.

iv. Investment in “Afghan Telecom”
Afghan Telecom will play a leading role in sector development. As a department within the MoC, it is responsible for planning, operating and expanding the existing network and meeting public expectations for telephone service. However, available funds for upgrading the network are effectively zero. A sustainable financing strategy for both the immediate and long-term is needed. In the near term, it is imperative that donor funds be allocated to assist with urgent development priorities.

While private capital is effectively being harnessed for limited network projects (such as GSM), market conditions in Afghanistan suggest that the MoC will by necessity need to lead the network rehabilitation effort. The MoC believes that it will be difficult to secure investment purely from private sources on the scale required to provide even a minimum level of modern network functionality.

For large projects we anticipate exploring financing structures that encourage private investment (wholly-owned private service providers, joint ventures with Afghan Telecom, build-operate-transfer arrangements, and so on). Our immediate task, however, is to quickly improve social and economic opportunities for the Afghan people by substantially supplementing existing operations.

The MoC specifically requests the donor community to allocate reconstruction funds toward specific priority development projects, with special consideration to those outlined below in Section 5 and Appendix A.

v. Capacity Building

The MoC recognizes that our greatest resource is human capital. We have many talented staff, including many female workers, who require intensive training in the latest digital technologies and operational procedures. There is an urgent need to transfer knowledge from abroad and to structure specialist training sessions calibrated with the new technological environment.

Human resources capacity-building is required in the following areas:

- policy, legal and regulatory matters;
- institution-building and general management;
- financial planning, accounting and billing;
- Internet policy planning, licensing and regulatory issues
- technical training in a wide range of specific topics including network design, spectrum management, wireless communications, network management, Internet, satellite communications etc.

We eagerly seek additional resources from other donors to strengthen and expand these programs.

Additionally, to the best of our ability, the MoC intends to embrace information technologies in its own work. Global experience demonstrates that the application of information technologies in everyday government activities significantly improves
administrative efficiency and public access to information. A first major step in this direction was demonstrated with the recent GSM tender. The MoC website posted all tender documentation information online, and provided secure access to pre-approved information for qualified bidders. The Ministry anticipates expanding its range of online web-based e-government services over time.

3. Accomplishments to Date

Reform and development activity at the MoC has been brisk. Among the accomplishments completed include the following:

- Completion of National Telecommunications Policy
- Successful completion of National GSM Tender
- Rehabilitation of Telecoms Training Centre
- Restoration of approximately 45% of existing fixed network in Kabul city
- Agreements for training to start – USA, Pakistan, Iran
- Inter Ministerial communications almost completed (World Bank)
- Installation of VSAT satellite services for domestic long-distance traffic in five major cities currently in progress (Heart, Kabul, Kandahar, Kunduz, Jalalabad)
- Commissioned 5000-line digital switch in Kandahar
- Concluded agreement with ITU to set up spectrum management and frequency planning department.
- Concluded agreement with ITU for technical assistance related to drafting of the new Telecommunications Law
- Engaged strategic technical assistance professionals from the UK and USA
- Recognition of the +93 country code by major international and regional carriers
- ICT centres being set up in Kabul and provinces (UNDP)
- Recovery of Afghanistan’s .af domain name
- Established MoC website (www.af-com-ministry.com)

4. Telecommunications Infrastructure Status Report

The national telecommunications network has been decimated by 23 years of conflict and under-investment. The infrastructure is not currently capable of leading Afghanistan successfully through its period of reconstruction, social unification and economic renewal. Services are extremely limited and can be summarized as follows:

**Telephony.** Afghanistan has fewer than 40,000 working telephone main lines for a population of approximately 25 million. This equates to roughly one working telephone for every 625 inhabitants, or a teledensity of 0.16 main lines per 100 population, one of the lowest levels in the world. Many of the lines in service are aging analog systems, some utilizing step-by-step exchanges estimated to be up to 45 years old. In Kabul with both analog and digital systems, the two networks are not dynamically interconnected. Kabul has by far the greatest number of installed and active lines.

Local Telephone Switching Capacity
<table>
<thead>
<tr>
<th>City</th>
<th>Capacity</th>
<th>Active</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kabul</td>
<td>27,000</td>
<td>20,150</td>
</tr>
<tr>
<td>Heart</td>
<td>7,800</td>
<td>7,000</td>
</tr>
<tr>
<td>Kandahar</td>
<td>5,000</td>
<td>n/a</td>
</tr>
<tr>
<td>Mazar</td>
<td>3,500</td>
<td>3,500</td>
</tr>
<tr>
<td>Kunduz</td>
<td>1,000</td>
<td>1,000</td>
</tr>
<tr>
<td>Jalalabad</td>
<td>1,400</td>
<td>1,400</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>45,700</strong></td>
<td><strong>33,050</strong></td>
</tr>
</tbody>
</table>

In addition to a shortage of basic telephone switching capacity, the local transmission network delivering last mile services, presents an even more difficult bottleneck. The cabling conduit, trunk cables and copper wires are old, in poor condition, or have been destroyed. The MoC is currently exploring the financial and technical viability of using Fixed Wireless Access technologies, to rapidly extend network connectivity in local calling areas.

Further, the MoC has inadequate billing and operational support systems to manage it facilities and automatically bill customers for service. At the moment all service billing is performed manually. There are very few technicians trained in digital switching and transmission technologies.

**Mobile** – Mobile communications services based on the European GSM standard began operations in April 2002 and are provided by AWCC, a joint venture between the MoC and Telecommunications Systems International, Inc. AWCC currently has network coverage in Kabul, Heart and Mazar e Sharif. The total number of subscribers is approximately 11,000 and concentrated heavily in Kabul.

A second GSM operator will be awarded a license in October 2002, based on the tender that was concluded on October 5, 2002. The new operator is expected to roll out a network capable of covering at least 80% of the population of Kabul and the 5 main cities within 6 months of commercial launch.

Additionally, at least two “global mobile” satellite companies, Thuraya Satellite Telecommunications Company and Iridium Satellite LLC, have a “footprint” over Afghanistan and thereby enable owners of phones to make international telephone calls.

**Domestic long distance** – Afghanistan does not have a functioning long distance network connecting major population centers, lesser towns or the national borders. The absence of “backhaul” transmission and switching facilities is a major obstacle to disseminating affordable telecommunications services throughout the country. Long distance communications have only recently been commissioned via VSAT between Kabul, Mazar e Sharif and Heart and Kandahar. There is a VSAT sited in Jalalabad but no switch to connect, while Kunduz has no facilities whatsoever. With appropriate funding, VSAT services can be rapidly expanded to reach anywhere in the country. A total of six geostationary satellites have footprint over the national territory.
The MoC is currently in the planning stages for specifying a national fiber optic ring linking the five big cities along major roadway arteries.

**International** – The primary international gateway in the country today is owned by AWCC and routed via satellite through Guam. Direct inbound calls are routed to Afghanistan to the +93 country code, primarily over networks in the United States. Certain of the existing microwave links can be upgraded quickly by replacing damaged towers and repeaters to enable international connections through Pakistan.

**Rural** – Public switched network communications in rural areas are virtually non-existent. Many outlying communities, particularly in areas with large refugee populations, have push-to-talk access over radio frequency (RF) systems operated or donated by the UN, USAID and other relief organizations. With the award of the GSM tenders, the MoC has instituted a National Development Fund amounting to 2.5% of operators’ net revenues. The Fund may be applied to investments in areas where it is not commercially viable for private service providers.

**Internet** – Public Internet services are virtually non-existent. The MoC provides Internet services for government agencies through a management contract with a systems integrator. Several NGO organizations, including the United Nations, have established global Internet connectivity over private satellite network facilities. Currently, the MoC is in the process of regaining control of the “.af” top-level domain name.

5. **Priority development projects**

Afghanistan’s telecommunications development requirements are staggering. The entire public infrastructure needs to be rebuilt to ensure basic functioning of the national economy and to improve civil welfare. Certain projects must be completed immediately to assist with humanitarian relief and public security issues. Others are medium- and long-term development steps that must necessarily be taken to ensure that the effort to re-integrate the society and economy is successful. While many tasks must be completed simultaneously, the MoC has formulated a list of top priorities that demand high priority attention:

i. **Restore and upgrade local telephone service in key cities**

All the local telephone exchanges in the country need to be upgraded and expanded – to raise teledensity levels, improve quality of service and automate customer billing. Interfacing newer digital technologies with older analog systems is neither practical nor cost-effective. The MoC Operation Strategy calls for an immediate increase of approximately 50,000 lines of extra switching capacity. Additionally, the plan for expanding local switching capacity must be complemented with a scenario for low-cost, last-mile transmission capability.

See Project 1. Kabul. FWA technology to provide an extra 15,000 lines in Kabul.

See Project 2. Kabul. FWA technology to provide an extra 23,000 lines giving a total of 50,000 lines.

See Project 3. Top 5 cities. FWA technology to provide an extra 27,500 lines.
ii. **Introduce FWA technology in secondary cities**

To address pent-up demand for basic connectivity services, MoC is examining the potential for introducing FWA systems in a further 11 cities in Afghanistan with a minimum capacity of 1,000 lines each. In the near term it is likely that the government will be required to underwrite the service expansion with reconstruction funds provided by the international community. The use of private capital from local community, project finance or other investment structures will also be explored.

See Project 4. Medium/Small Cities x11

iii. **Complete fully-meshed national and international satellite network**

With no landline long distance network in place, it is imperative to quickly complete the existing 5-city VSAT network to establish at least a minimum degree of connectivity among Afghanistan’s biggest cities and with the international community.

See Project 5. Meshed national and international satellite network

iv. **Expand and improve transmission links to neighbouring states**

Telephone network traffic to Afghanistan’s neighboring states provides an important social link to the Afghan refugee community and a commercial tie to trading partners. The MoC has identified an immediate project for re-establishing terrestrial networks, from Kabul to Pakistan. Other longer term projects such as a link to the Trans-Asia-Europe line will also be studied. The national backbone project will provide opportunities for connections to all our neighbouring states.

See Project 6. Microwave to Pakistan

v. **Construct national fibre optic/ microwave backbone**

The MoC needs to proceed without delay with a program to create a national high-speed long distance network that follows the national roadway grid and connects the biggest cities. A broadband “backbone” network comprised of terrestrial facilities will dramatically improve the nationwide network, lower transmission costs and lay the foundation for expansion of local services in communities around the country.


vi. **Launch national postal network and community communication centers**

The MoC believes that the fastest means for integrating Afghan society is to deliver satellite-based network connectivity to all 423 administrative districts in the country. Our vision is to install VSAT terminals at local post offices to quickly provide access to all domestic cities and towns and to the rest of the world. Each post office will house a local public telecenter offering low-cost public voice and email facilities that can act as an electronic billboard for surrounding communities.
See Project 8. Build community centres in 423 post offices

vii. Emergency communications systems for the central government

Government departments cannot communicate effectively given the poor state of public network facilities and uncommonly high traffic levels on the GSM system in Kabul. It is a matter of national and civil security that the nation’s leaders be guaranteed the ability to communicate instantaneously with their peers and reporting organizations. The MoC believes that a back-up emergency mobile network is urgently required to link key officials throughout the nation’s capital.


viii. Install Prepaid/Postpaid Billing capability

The MoC has no capacity to bill its customers other than by manually retrieving call data records and rating them before raising a manual invoice. This operation is clearly prone to clerical error and fraud and limits the MoC from expanding its services or customers. The improvement of this area is critical to ensure that the MoC will have the capacity to record, account and bill its customers in an accurate and timely manner. It is essential to ensure future revenues are accountable and used to create a sustainable stand-alone corporation.


ix. Internet Service Provision

The project aims to establish the facility to serve the Afghanistan community. Individual users, schools, universities, hospitals, business, government and national agencies, NGOs, youth groups, international agencies. The MoC firmly believes that provision of such a service builds on the awareness of the community to access the technology and hence build local capacity. This will be the first phase of a long term plan to extend access across Afghanistan and meet the government’s vision of communications for everyone.

See Project 11. Internet Service Provision, Kabul & 5 cities

x. Expand and improve international connectivity

The MoC is exploring options for establishing a national, publicly owned international satellite gateway as the primary transit point for international services. This project has the potential to quickly generate hard currency earnings for re-investment in other infrastructure expansion. The immediate need is to establish a direct relationship with an international gateway provider.

See Project 12. Build International Gateway

xi. Set up the Regulatory function
While the MoC has made great strides in formulating a national telecommunications policy substantial technical assistance and capacity building is required. Considerable work is required to establish a regulatory function that can perform the various activities outlined earlier in this paper. In addition, this needs to be supported by a well drafted Telecommunications Act and other supporting legislation.

See Project 13. Regulatory Function

xii. ICT Capacity Building

A two-fold strategy is proposed to address these needs. Firstly, establish in the MoC a core capacity to plan, manage and maintain Governments ICT infrastructure. Experienced technical assistance would establish the initial parameters of the functions, twined with MoC Staff who will take on these functions on a long term basis. Secondly, MOC will need to develop a basic ICT strategy for governments own needs and a corresponding phased action plan for its implementation.

See Project 14. ICT Capacity Building.

xiii. Upgrade traditional postal services

Basic postal service operations need to be completely modernized. Prior to the introduction of multi-role post offices, the provision of basic postal equipment -- delivery vehicles, bicycles, weighing scales, letter boxes etc. -- is an immediate need for all post offices nationwide.

See Project 15. Post Services.

6. Opportunities for International Assistance

The international community has an opportunity to make a meaningful contribution to Afghanistan’s overall reconstruction by creating a communications environment that enables peace, stability, humanitarian relief and economic growth.

The communications sector requires a concerted infusion of capital to restore the productive capacity of the network. A prudent financial intervention will serve to “prime the pump” and accelerate a generation of operating revenues for reinvestment. Our goal is not to enter a cycle of dependence on external financial assistance. Rather, the government desires to encourage private investment and ownership of telecommunications operations and services through progressive policies and legislation.

In the near term, donor financial intervention is essential. The amount of financial assistance needed will depend on a variety of factors. Rebuilding Afghanistan’s telecoms could require almost limitless amounts of capital. Our strategy is fashioned to serve priority needs first and to explore the use of affordable technological solutions. The MoC has begun work on a Telecommunications National Development Plan that will outline proposed projects in detail. We seek to achieve general agreement among the donor community on the order of priorities, scope of projects and implementation schedule. Similarly, we want to commence feasibility studies for major projects with technical assistance funding.
The MoC intends to explore financial strategies that promote foreign direct investment. We believe that several of the high priority development projects, such as the proposed national backbone are good candidates for public/private joint venture cooperation. Such projects may be commercially attractive to private investors and therefore some element of private equity financing to complement donor funding is anticipated.

Finally, we intend to identify and leverage synergies with other reconstruction projects outside of the communications sector. For example, the topology of the proposed national backbone network will closely follow that of the national roadway infrastructure. We intend to continue coordinating with other ministries and state bodies to avoid duplication of investment in network facilities.

Based on preliminary estimates, the MoC forecasts a 2003 donor financial requirement of approximately $100 million.
## Appendix A: Priority Development Projects Summary

<table>
<thead>
<tr>
<th>Project Number</th>
<th>Project Scope</th>
<th>Benefits</th>
<th>New Digital Capacity</th>
<th>Estimated Investment US$’000s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project 1</td>
<td>Decommission analogue exchanges and transfer the lines to the digital exchanges in Kabul. Expand digital capacity from 12,000 lines to meet the transfer from the analogue exchanges.</td>
<td>Allow communication between the 2 systems. Meet urgent need for communications to facilitate reconstruction efforts.</td>
<td></td>
<td>15,000 6,000</td>
</tr>
<tr>
<td>Project 2</td>
<td>Install FWA for the expansion Expand Digital Capacity in Kabul using FWA</td>
<td>Meet urgent need for communications to facilitate reconstruction efforts.</td>
<td></td>
<td>23,000 11,500</td>
</tr>
<tr>
<td>Project 3</td>
<td>Expand capacity in top cities</td>
<td>Meet urgent need for communications to facilitate reconstruction efforts.</td>
<td>Heart (currently 8,000) 2,500 5,000 5,000 10,000 2,500 5,000 1,000 1,250 1,250 1,250</td>
<td></td>
</tr>
<tr>
<td>Project 4</td>
<td>Medium/Small Cities x11</td>
<td>To meet urgent needs for provincial communications</td>
<td>1000 5,500</td>
<td>5,500</td>
</tr>
<tr>
<td>Project 5</td>
<td>Meshed national and international satellite network</td>
<td>Short term national backbone solution and international links</td>
<td></td>
<td>400</td>
</tr>
<tr>
<td>Project Number</td>
<td>Project Scope</td>
<td>Benefits</td>
<td>New Digital Capacity</td>
<td>Estimated Investment US$’000s</td>
</tr>
<tr>
<td>Project 6</td>
<td>Microwave to Pakistan</td>
<td>Provides alternate international</td>
<td></td>
<td>250</td>
</tr>
<tr>
<td>Project 7</td>
<td>National fibre optic/microwave backbone</td>
<td>connectivity</td>
<td>Provides future proof high capacity national backbone</td>
<td>35,000</td>
</tr>
<tr>
<td>----------</td>
<td>----------------------------------------</td>
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<td>------------------------------------------------------</td>
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</tr>
<tr>
<td>Project 8</td>
<td>Build community telecentres in 423 post offices</td>
<td>Step towards universal access, unity and integration across the country.</td>
<td>6,000</td>
<td></td>
</tr>
<tr>
<td>Project 9</td>
<td>Emergency Communications for government</td>
<td>National Security and Crisis scenarios</td>
<td>1,000</td>
<td></td>
</tr>
<tr>
<td>Project 10</td>
<td>Prepaid/Postpaid Billing Platform</td>
<td>Provide automated processes for the recording of revenues and help build sustainability of operations</td>
<td>2,000</td>
<td></td>
</tr>
<tr>
<td>Project 11</td>
<td>Internet Service Provision, Kabul and 5 cities</td>
<td>Allow provincial internet access &amp; benefits of digital age</td>
<td>10,000</td>
<td></td>
</tr>
<tr>
<td>Project 12</td>
<td>Build International Gateway</td>
<td>Independence from other carriers for the exchange of traffic</td>
<td>1,000</td>
<td></td>
</tr>
<tr>
<td>Project 13</td>
<td>Set up Regulatory Function</td>
<td>Provides international investor confidence and stability</td>
<td>1,500</td>
<td></td>
</tr>
<tr>
<td>Project 14</td>
<td>ICT Capacity Building</td>
<td>Manage government ICT needs</td>
<td>3,000</td>
<td></td>
</tr>
<tr>
<td>Project 15</td>
<td>Upgrade Postal Service</td>
<td>Alternative communication mode</td>
<td>3,000</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>100,900</strong></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>
Appendix B: National Backbone and International Connections

As this ringroad begins to complete, cities will convert from a dependency on VSATs for their national and international communications. The top cities will become the centres of the primary exchanges and depending on the topology and demand of the remaining cities, there will grow a gradual network of secondary and local exchanges linking all the main provincial cities of the country.

The red line depicts the proposed fibre-optic network following the country’s ring road

The blue line in the north reflects the Trans-Europe-Asia fibre cable.

The green lines depict proposed international links negotiated as bilateral agreements with our neighbouring countries. This provides alternative routing as traffic demands increase reducing the need for satellite communications.

[1] http://www.af-com-ministry.org/5sep2002.htm. *n.b.*, This international competitive process led to the selection of both the most highly qualified technical partner as well as the highest financial bid for the Government.