INTERNET and AFGHANISTAN

Walida Sardari

Lecturer of Communication and Operating System Department, Balkh University, Mazar-i-sharif, Afghanistan

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Abstract: *Internet has become an important and necessary tool for learning, studies, governance, business and social networking in the world today.*

Afghanistan is a landlocked country in Asia. Generally considered a part of central Asia, a country that has suffered from war for almost last four decades. Since 2001 progresses and rehabilitation in different fields have been initiated.

Afghanistan is a developing country, every sector is in the process of progressing and building infrastructures. Internet is an important aspect in the development of every sector of the country in today's technology. I am interested to write this paper about Internet current situation in Afghanistan, ISPs in the country and challenges against it. In fact Afghanistan has a valuable progress in field of Telecommunication and Internet in last few years.

Key words: Internet Service Provider, Fiber-Optic, GSM, telecom.

1. Introduction

In the process of different sectors reconstruction and rehabilitation in Afghanistan, Internet is also one of the sector started developing since 2002. Before the services of the Internet was banned, because it was thought to broadcast obscene, immoral and anti-Islamic materials (Peter, 2011).

After 2002 it was recognized, that Internet is an important source for changing the current status of the situation in the country. In 2003 a domain name ".af" was given legally to Afghanistan, and the Afghanistan Network Information Center (AFGNIC) was established to manage domain names (Larry Wentz, 2008) (NATO, 2009). All telecommunications, operations and services were transferred into a newly created national telecommunications carrier company called "Afghan Telecom", through a presidential decree (Larry Wentz, 2008) (Telecom, 2020).

Today Afghanistan supports many hosts and 62 internet service providers (ISPs), a growing number of Internet cafes and mobile communication private companies (GSM). Afghanistan began the construction of the Optical Fiber Cable Backbone Ring in 2007 with support from the World Bank and other donors. Now Afghanistan is connected to five of its neighbors by optical fiber cables, but technical issues within the country are reasons for slow internet services and high consumer prices. Afghanistan's telecom backbone networks

are connected to the telecom networks in Tajikistan, Uzbekistan, Turkmenistan, Iran, and Pakistan and nearly connection will be establish between Afghanistan and China via the Wakhan Border of Afghanistan-China. (Bank, 2020) .

New policies adopted by the Ministry of Telecommunication for Telecom and ICT to have right legal frame work. Policies outlined key ICT infrastructure development initiatives and set the conditions for Afghanistan telecommunications and Internet (Technology, 2011).

There has been an enormous loss and lack of skilled professionals because of civil war in the country from last four decades. It is necessary to recognize the lack of human resources in order to maintain probable and meaningful infrastructures, education and maintenance for ICT. And in this field significant progresses is being done and under hand.

2. Methodology

The aim of this research was to identify the current Internet situation in Afghanistan. Technical review and site survey beside literature review are the most relevant approach to investigate the statistics of Internet. To collect data for conduct the research used authentic papers, news, journals and web sites.

3. Brief history of the Internet

Computer development raise the idea for Internet to connect two or more computers in order to share and change the data to each other.

After the expand of Network the defense department of the US took over the project ARPA, so the name changed to DARPAnet (Defense Advance Research Projects Network) in the early to mid 1970s. Leonard Kleinrock developed the theory of packet switching, which was to form the basis of Internet Connections. Massachusetts computer with a California computer connection was made in 1965 over dial-up telephone lines. It showed the feasibility of wide area Networking, as Internet is an example of wide area Network in the world today (Roy, 2008).

Steve Crocker was the first man in Internet history who release RFC # 1 on 7 April 1969 introducing the Host to Host and IMP software.

First email was written and sent by Ray Tomlinson in 1972 (Roy, 2008).

TCP was design during 1973 by Robert Kahn and Vinton Cerf, later it was published in December 1974 in RFC 675. In 1984 DNS was introduced by Paul Mockapetris and Jon Postel.

Like this new discoveries, researches and experiments reached the Internet to today technologies that have made great revolutions in human life. Internet is a thing which we use for Information, News, E-commerce, Entertainment, communication and many other services in our daily life.

WORLD INTERNET USAGE AND POPULATION STATISTICS
2019 Year-End Estimates

World Regions	Population (2020 Est.)	Population % of World	Internet Users 31 Dec 2019	Penetration Rate (% Pop.)	Growth 2000-2020	Internet World %
Africa	1,340,598,447	17.2 %	526,374,930	39.3 %	11,559 %	11.5 %
Asia	4,294,516,659	55.1 %	2,300,469,859	53.6 %	1,913 %	50.3 %
Europe	834,995,197	10.7 %	727,814,272	87.2 %	592 %	15.9 %
Latin America / Caribbean	658,345,826	8.5 %	453,702,292	68.9 %	2,411 %	10.0 %
Middle East	260,991,690	3.9 %	180,498,292	69.2 %	5,395 %	3.9 %
North America	368,869,647	4.7 %	348,908,868	94.6 %	222 %	7.6 %
Oceania / Australia	42,690,838	0.5 %	28,775,373	67.4 %	277 %	0.6 %
WORLD TOTAL	7,796,615,710	100.0 %	4,574,150,134	58.7 %	1,167 %	100.0 %

Figure 1: World Internet usage statistics (Stats, 2020)

After 2001 Afghanistan was the newest host of Internet Network in the world (Peter, 2011). But today there are Internet facilities almost in all cities of the country which will have bring positive and valuable changes in Afghans daily life.
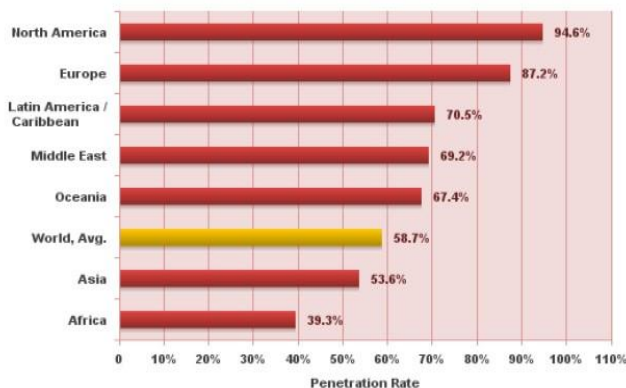

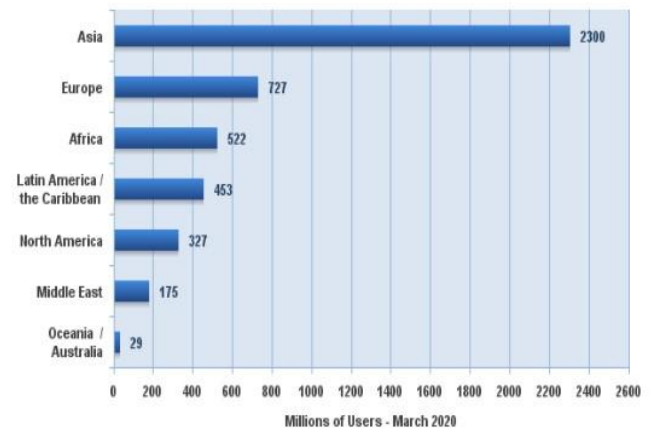**Figure 2:** World Internet penetration rates by geographic regions-2020 (Stats, 2020)

Figure 3: Internet users in the world by Geographic Region-2020 (Stats, 2020)

4. ISPs in Afghanistan

In middle 2002, after beginning of the new political system in the country Internet appear in Afghanistan. AWCC was the first who opened the Internet Cafe in Kabul Intercontinental Hotel in July 2002. Since then several private Internet Cafes start running in all big cities of the country. On that time an Internet Cafe in Mazar-i-sharif city costs about 100 Afghani per hour to use the Internet and approximately 60–70 customers are visiting per day, mainly youths checking emails and chatting, today, it is nearly 60 Internet Café. Right now, in Kabul, a larger number of people have their own computer or a smartphone with an internet connection. On the contrary,

in Kandahar, internet cafés are very popular because electricity power is very irregular and fewer inhabitants have access to a computer. The prices from 30 Afs ($0.53) to 60 Afs ($1.06) for one hour (USAID, 2014).

Internet has become an important and efficient way for communication and conducting business with distant clients. Internet made the way easy to check websites and emails to help businesses and dealings (Larry Wentz, 2008).

In 2003 the first Internet Service Provider (ISP) was licensed. Currently there are 62 major Afghan ISPs servicing in the country (ATRA, 2019). Most of the ISPs can provide satellite connections anywhere through the country. Update statistics show that 17.6% of the population use and have access to Internet according to IWS (Group, 2019)

ISPs in the country but ISPs typically offer VSAT arrangements, wireless broadband up to 20Mbps, and dial up connection to 56 Kbps.

Popular and Major ISPs are, AfSat, Afghan Cyber ISP/ICT, Neda, Insta Telecom, LiwalNet, CeReTechs, IO Global, Rana Technologies, Unique Atlantic Telecommunication and to be mentioned GSM companies also have services in providing Internet facilities in Mobile (Telecom, 2020). Graph of local and fast (ISPs) in Afghanistan offering broadband, Fiber Broadband, Dial up internet, narrow-band, Wi-Fi, 2G, 3G, 4G mobile internet, Wi-MAX, DTH services using cable, DSL, wireless, mobile and dial-up in Afghanistan.
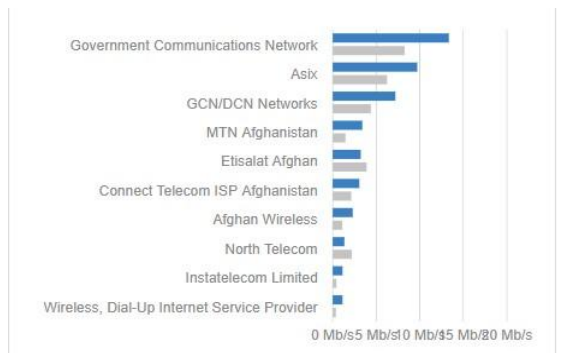

Figure 4: Top 10 - Fastest ISPs in Afghanistan (Broadband speedchecker, 2019)

5. Brief Introduction to GSM Networks in Afghanistan

In 2001, efforts began to build phone system in the country. In 2002 for the first time a Wireless communication company launched a new wireless operation. The first call was placed by the Interim President of the Country to an Afghan Embassy in Germany, 06 April 2002 (Larry Wentz, 2008).

Today there are some GSM Networks providing services to Afghan society as Afghan Wireless (AWCC), ROSHAN, MTN Group, Etisalat and Salaam.

Telecom Statistics 4th Quarter 2019	
GSM Subscribers	34,671,206
CDMA Subscribers	16,776
Landlines	134,636
4G Broadband Subscribers	633,050
3G Broadband Subscribers	6,676,747
Investment in Telecom Sector in Local Currency	182 Billion
Mobile Telephone Base Stations	7,179
Population coverage	Approximately 90%

Table 1: Afghan Telecom statistics (ATRA, 2019)

These GSM Networks provide Internet services via Mobile in the country that also have been helping and serving to some limit.

Since 2013 3G network launched and today 4G services in Afghanistan with five private telecom companies operating, and GSM users to have access to fast internet on their mobile phones, connect to live video calls, exchange video, music and photos (Tolonews, 2013).

6. Afghan Telecom Network and Services

This is a state-owned Network corporation providing wire line telephone, Internet, multi-media connectivity, video conferencing, and wholesale Internet services publicly and governmentally to provinces and districts. Additionally this Network provides video teleconferencing (VTC) services to provincial government to have better communications with central government and around the world with latest technologies such as DSL, WiMAX, Fiber Optics and Microwave Afghan Telecom has the right to accept private investment and support rapid expansion of Telecom and Internet services at the local level. It is the largest Internet provider in the country.

Afghan Telecom has passed its local border to the international markets, forming a network of businesses to international carriers with the Fiber-optic backbone. Afghan Telecom Fiber Optic Network is directly connected to international fiber optic backbones through neighboring countries. Currently connections has been made with neighboring countries Pakistan, Iran, Tajikistan, Uzbekistan with its "National Optical Fiber" and will be connect to Turkmenistan in near future (Larry Wentz, 2008) (Telecom, 2020). Fiber optic cable line streaming an internet connection from Turkmenistan to Afghanistan and onward to India is

expected to be implemented alongside Turkmenistan, Afghanistan, Pakistan, India Pipeline (TAPI). The 700 km long internet cable will pass through five provinces in Afghanistan and it will be connected with Afghanistan's main fiber-optic network (Omid, 2018). Also, work on the 'Wakhan Corridor Fibre Optic Survey Project' officially started with the first phase of a plan to install a cross-border fibre link connecting Afghanistan with China (Rosbo, 2020).

Challenges and concerns:

Significant progress has been made in the Telecommunications and IT sector in Afghanistan in last years, but still some challenges exists.

- Major challenge is security situation that do not allow more rapid and functional activities in the country.
- High costs of the Internet and communication services.
- There are problems and concerns with funds in expanding Internet coverage and modernizing of its networks.
- The lack of power supply, IT or ICT requires enough energy to support.
- Lack of professionals and technical staff in the field of IT.
- Lack of general knowledge about computer and new technologies around the world.

7. Conclusions

Much more has been done in the way of providing Internet Facilities privately and governmentally in last years, there have been successes and much more is ahead to be done. Internet is an important tool and thing that help to enhance capacity, legitimacy, increase economic growth and support social stability.

There are plans and programs on going in Afghanistan which will have positive effects on the expansion and extension of ICT or Internet services in the country, as reconciliation and peace program, power supply to all cities and district of the country, general knowledge about computer and Internet in the society and capacity building projects in different fields.

In fact Internet is a desire on the part of stabilization, reconstruction, development and international relations. Internet is a bridge for moving ahead in this century.

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