United Nations
Economic and Social Commission for Western Asia (ESCWA)

NATIONAL PROFILE FOR
THE INFORMATION SOCIETY IN THE REPUBLIC OF YEMEN

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The Republic of Yemen is the only least developed country in the ESCWA region. It has a population of about 19.7 million people and the annual population growth rate is 3.02% according to the latest census in December 2004[1]. Yemen is predominantly mountainous, supporting terraced agriculture. The development process faces many challenges such as low GDP per capita (870 US$ in 2002[2]), high illiteracy rate (49%[3]), high population growth rate, high rate of poverty, unemployment, the ineligibility of the administrative body and corruption. In addition, Yemen has a dependence on oil income representing 30% of GDP[4].

The Yemeni government believes ICT development is a means to accelerate the process for solving its social and economic problems and aims to diversify its reliance from the oil sector. However, its telecom facilities currently remain among the least developed and under-utilized in the Arab region[5]. An International Monetary Fund (IMF) and World Bank-sponsored government economic restructuring program began in 1995. Since then, policies to alleviate poverty were set to priority including the development of the telecommunications infrastructure.

1. *Policies and Strategies*

National Information society policies and strategies

In the Vision of 2025 and the Second Five Year Socioeconomic Development Plan 2000-2005 document, the Ministry of Planning and Development highlighted the importance of ICT infrastructure, ICT applications, and capacity building. The vision documents suggested also a basic benchmark for ICT indicators to be targeted by 2025 (table 1).

**Table 1. Suggested benchmarks for penetration of ICT in Yemen as suggested for Vision 2025
and the real indicators for 2004/2005**

Suggested Benchmarks	2000	2004	2025
Fixed lines - teledensity (per 100)	1.91	4.30	15
GSM density (per 100)	0.175	5.48[6]	15
Internet users (per 100)	0.001*	1.03*	26*
Internet hosts	53**	119**	7000
PC's (per 100)	0.2	0.93*	7

* Madar Research
** www.isc.org

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[1] Central Statistical Organization, Republic of Yemen, 2005

[2] United Nations Development Program: The human development report 2004

[3] UNICEF statistics. http://www.unicef.org/infobycountry/yemen_statistics.html: Population annual growth rate 1990-2003

[4] Central Statistical Organization, Republic of Yemen, 2005

[5] Program to foster socio-economic development in Yemen using Information and Communication Technologies (ICT), United Nations Development program; preparatory assistance document

[6] In 2005, according to a personal interview with Spacetel, two GSM operators have between 680,000 and 700,000 active lines each. A CDMA operator may have up to 1,500,000 lines. A third GSM licence is in 2005 for bidding. In total, mobile penetration may have increased up to 7.5%.

Yemen's first Poverty Reduction Strategy Paper (PRSP)[7] currently being implemented for the period 2003-2005 aims to reduce poverty to 35% by year 2005. For the period 2006-2010 Yemen will be merging its second PRSP and its Third Five Year Development Plan into one national planning document spanning a five year time period.

In the PRSP document, ICT for Human Development Purposes is highlighted to enhance the use of ICT through adopting policies to adopt result-oriented innovation schemes to encourage ICT and support its use in areas of Poverty Reduction Scheme (PRS), including health and education to serve the public in general and poor in particular.

One of the first initiatives is the development of the National Information Center (NIC) of Yemen in mid-1990s. The NIC aims to establish, develop and manage a national information sector and form national strategies in-line with global requirements. Clear and limited policies for the information society have not yet emerged. This has contributed to Yemen, investing in substantial resources in a national infrastructure whose use is limited by inconsistent policies and procedures[8]. In July 2001 NIC embarked on a national survey of IT activities in Yemen.

The NIC is still working on preparing a national information strategy and organizing discussions for the proposal on sectoral issues. It is expected that the strategy is going to be approved before the end of 2005[9].

The new Ministry of Communication and Information Technology (MCIT) previously known as the Ministry of Communications is now responsible for telecommunications policy and its regulatory aspects.

The Yemen IT Master Plan (2003-2007)[10] on E-government was prepared by MCIT contributing to substantial dealing with government applications and building/establishing the network for e-government. The ministries council approved the plan in November 2002. MCIT now plays the role of the coordinator as a head of the steering committee.

Sectoral plans for building the Information Society

According to the IT Master Plan (2003-2007) of Yemen[11], crafted by the Ministry of Telecommunication and the Public Telecommunication Cooperation (PTC), the IT National Program is initiated to cover seven areas.

1. ICT infrastructure development in telecommunications, Internet Service Provider (ISP), Computers and Networks development;

2. Formation of ICT coordinating bodies in each government organization to regulate and coordinate ICT-related issues for maintenance of ICT systems, and to implement future ICT initiatives;

3. Information Management and Content Development of on-line information and e-services through a government web portal, and employing ICT to evaluate governmental work;

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[7] Poverty Reduction Strategy Paper (PRSP) 2003-2005

[8] Overview, considerations and parallels with Asia, 2002, Information and Communication Technology for Development in the Arab States UNDP Yemen

[9] National Information Center, Yemen, 2005

[10] Information Technology Master Plan for Yemen February, 2003, YTEL

[11] Information Technology Master Plan for Yemen February, 2003, YTEL

4. Forming Regulations, Guidelines, and Legislation Enact an ICT Law and implement digital signatures to ensure that a regulatory body coordinates all ICT activities;

5. Increase Public Access points and Awareness by ICT promotional and awareness programs to inform the public about the benefits of IT throughout the country;

6. Private Sector Development to establish private ICT companies, and encourage work sector to invest in ICT, promote the export of ICT services, and encourage the development of e-commerce;

7. Human Resources and Training of ICT specialists to provide ICT training for Employees, students, colleges and unemployed youth.

Involvement of WSIS objectives

The IT Master plan was drafted in line with WSIS Declaration and Plan of Action. However, the level of endorsement or implementation of the plan by the government is not clear. Notwithstanding, Several projects and endeavors already taking place in Yemen are in line with the plan.

Yemen has still the focus on finding appropriate solutions to improve the livelihood of the people, combating poverty, illiteracy, and paying attention to expansion of basic education. Despite the described challenges and difficulties in the development process, Yemen has participated actively in multilateral forums such as the United Nations and the International Telecommunication Union (ITU) and spoke up on the importance of development of the information society. Yemen has also been an active participant at the World Summit on the Information Society (WSIS)[12].

Progress towards fulfillment of national policies and strategies

The cabinet has endorsed the national program for IT project under the supervising of a high national committee to form the general program policies delegating the implementation of the program. Absence of needed budget, clear mechanism, efficient national bodies and structures with clear functions leads to freezing the activities.

The progress so far achieved in the seven areas mentioned above which were covered by the National Plan of IT is just the result of scattered efforts which were made by the various institutions and ministries within their plans and projects. The initiatives that were suggested by UNDP simultaneously with the national program of information technology have not been implemented. As noted before, the level of implementation of the IT plan is not clear. However, one of the most noticeable advancement is the cooperation between UNDP/ICT for Development in Arabic Region (ICTDAR), Microsoft and the Ministry of Education, five Microsoft IT academies has been established to provide training for teachers to train others in the use of ICT in the classroom, and provide curricula in ICT basics. From September 2004, 20 MoE staff volunteers took part in a thorough two-and-a-half month course. Several other projects are:

President Project for Computer Distribution: the plan aim to distribute 1018000 computers on a three stages over an eight years period with an overall cost of 50.9 Million USD. Stage one (distributing 4000 computer is already done by 2004), stage two (distributing 5000 Computer is already undergoing). The project also includes an assembly line for computers. E-Rial is now fully implemented by Yemen Post

E-Government Portal: this project is still in Phase one (information portal). Stage two is underway and will provide an interaction such as web call-back, web chat, call center support, etc. In the final

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[12] The Role of Information and Communications Technologies and Promoting Yemen-U.S. Dialogue by the Ambassador David A. Gross, U.S. Coordinator for International Communications and Information Policy University of Science and Technology held in Sanaa, Yemen, March 25, 2005.

stage of the project, all back-end applications will be integrated with a transaction portal (phase three) to provide all types of services.

2. *Legal and regulatory frameworks*

National Intellectual Property Rights, Privacy status and Freedom of expression

In 1994 the Yemen government issued resolution #19 to address intellectual property rights of writers, inventors, industrial trademarks, samples and duties, but is not TRIPS compliant.

Yemen has a record of inadequate protection of intellectual Property rights (IPR), including patents, trademarks, designs, and copyrights. In late 2004 the cabinet approved the Berne convention for the protection of literary and artistic works, as well as the international agreement on protecting IPR. Parliament has yet to ratify these agreements. Yemen will need to enact its revised IPR legislation and take concrete steps to enforce these laws adequately. In 1999, a large U.S.-based multinational firm litigated successfully a trademark infringement case in Yemen's courts. However, this ruling has not been enforced[13]. Yemen's Ministry of Industry and trade drafted a new patents law, trademark law, and a design and copyrights law.

Telecom regulatory framework

In the Mid-1990, the Ministry of Transportation formulated bylaws specifying private sector's duties, telecommunication services and telecom centers. In 1991, the Ministry of Communications, now known as MCIT, was formed to insure communicative services and regulate telecom tariffs. The Ministry was able to confer licenses to establish telecom networks and frequencies.

Neither NIC nor any IT National Programs has standardized any software applications to be used in the government sector. There is an absence of the legal and legislative framework that organizes the national information sector.

Regulating the Internet

In mid-2002, the Yemeni MCIT and Culture started to ban and censor many websites claiming to preserve "moral values". Regulation imposed on the removal of dividing booths and screens in Internet cafes in order to censor users from outside.

Privacy and security laws and regulations

Personal privacy on the Internet is not legally guaranteed. There are no standards for network environment or cabling procedures and standard codes for use in databases applications. Yemen has yet to implement national IT regulations, guidelines, legislation or standards.

The current IT Master Plan suggest to enact an IT law that will encompass legislation for IT security, promote digital signatures, propose to standardize government-wide use of common software and mandate a regulatory body to ensure adequate quality of IT projects.

On May 2005, the Sana'a specialist court issued a verdict concerning cases of piracy and the embezzlement of money with the use of electronic methods. It is the first of its kind to be dealt with by the Yemeni judiciary.

Other ICT related laws and regulations

Yemen is not yet a member of the WTO. In March 1999, Yemen became a member of the World Intellectual Property Organization (WIPO) and is now revising its laws with WIPO guidance. In 2000, the

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[13] US department of state, 2005 Investment climate statement: Yemen. http://www.state.gov/e/eb/ifd/2005/42199.htm

government of Yemen requested accession to the world trade organization (WTO) and gained observer status in 2002. Yemen has signed the WIPO's Paris Convention in 1979. It is not a member of TRIPS or a party to any interim treaty.

3. *ICT infrastructure*

Telephone penetration

The fixed line market is currently a monopoly of the government owned Public Telecommunications Company (PTC). Table 2 summarizes teledensity and Internet penetration in the country.

Table 2. Teledensity and Internet penetration in the country

Communication Indicators	2001	2002	2003	2004
Telephone fixed lines	422,000	542,000	685,000	798,163
Teledensity	2.24%	2.78%	3.39%	4.05%
Internet Subscribers PTC	0	4300	23500	67,653
Internet Subscribers TeleYemen	7000	8480	8080	7880

Source: Based on ITU data and MCIT.

The national network consists of microwave radio relay, cable, troposphere scatter, and GSM cellular mobile telephone systems. In 2004 Yemen Mobile first CDMA network was launched in the Arab region. International network include 3 satellite earth stations, 1 Intersputnik, and 2 Arabsat and InmarSat (International Maritime Satellite Organization) global satellite system. Telex service is available within Yemen and other countries in the world. The PTC is currently responsible for Yemen's international gateway, switching, transmission stations, earth link satellite and submarine cable.

PTC and France Telecom are currently operating Government-owned TeleYemen with the aim to help build international ICT infrastructure in Yemen's rural areas. TeleYemen can offer mobile satellite services together with portable telephone sets with voice, Fax or Data transmission through InmarSat, and also provides all domestic, local and long-distance fixed telephone lines, mobile telephony, telecommunication services and Internet access.

Alcatel was selected by Yemen Telecom (PTC) to be the first supplier of Digital Subscriber Line (DSL) network[14]. Subscribers will get access to a high-speed Internet connection with the first phase of the installation to cover 3,000 DSL lines. By mid 2005, 2000 have been installed and around 700 are already in use.[15]

TeleYemen was the only mobile service provider with ETACS service until the launch of SabaFon and Spacetel's GSM network services whose establishment lead to the fast growth in mobile subscriptions in 2003. SabaFon and Spacetel both claimed over 66% penetration by the end of 2003 reaching over 80% of geographic coverage, 36% in urban areas ad 29.4% in rural areas. 25% are postpaid services while 75% of subscribers are prepaid[3]. Mobile growth has an annual growth of 79%. However, penetration remains low with only 4.88% in 2004.

Yemen's mobile services are continuously being upgraded with interest to extend telecom-network in various regions. With partners like Alcatel and Siemens, mobile users can have access to High Speed Data

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[14] Mena Report http://www.menareport.com

[15] based on a personal interview with SpaceTel

Rate network, General Packet Radio Service (GPRS), MMS, Internet Access, Video Streaming, PoC, IM and LBS services[16]. Table 3 summarizes Mobile and Internet use in the country.

Table 3. Mobile and Internet use in the country

Communication Indicator	2001	2002	2003	2004
Total Telephone fixed lines	422,000	542,000	685,000	798,163
Teledensity	2.24%	2.78%	3.39%	4.05%
SabaFon + Spacetel Yemen (mobile)	120,000	384,420	651060	837.000
Teleyemen (mobile)	278,000	266,700	241,000	6.940
Yemen mobile				120.000
Total Mobile subscribers	144,500	487,700	726,820	963.940
Mobile penetration (%)	0.89%	2.51%	3.75%	4.88%
Internet Subscribers PTC	0	4300	23500	67,653
Internet Subscribers TeleYemen	7000	8480	8080	7880
Total Internet Subscribers	17,000	59520	…	75.533
Internet penetration (%)	…	…	…	0.38%

Source: Based on ITU data and MCIT

Pursuant to the decision of the Cabinet of Ministers in which they approved the issuance of a new license for a third GSM900 Network Operator in Yemen, MCIT announced a Tender to obtain license for a third GSM900 Network Operator.

Internet Backbone

Yemen is linked to ArabSat satellite system operating IRD-TDMA systems and has fiber-optic connections to Saudi Arabia and currently there is a connection project to Oman. In 2003, TeleYemen's prepaid Internet card "Easy Access" was introduced. Services include dial-up leased lines, DSL, ADSL and ISDN services.

ISPs and ASPs

Internet services have been available in Yemen since 1996 however usage remains limited and low with an estimate of 2.6% Internet users of the total population (ITU Digital Access Index) due to poor infrastructure, low literacy rates, and lack of PC affordability.

YemenNet Internet service launched in 2002 (The Decision of the cabinet was made in May 2000) and ended the monopoly of TeleYemen's Ynet being the sole Internet Service provider (ISP). Its mission is to enhance service standards with suitable prices, and also provide training programs for the Internet uptake. TeleYemen ISP was reported to have 7880 subscribers in 2004[17].

Access

According to International Telecom Union, Yemen is categorized having low access with a digital access index of 0.18. In Yemen, usage remains limited and low with only 0.38% Internet subscriber. As of July 2002, 60% of the total 11,600 Internet subscriptions are owned by the business community and 23% are personal subscriptions. According to the UNDP Internet population case study, foreign organizations and expatriates share 14% of subscriptions[18].

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[16] ameinfo, September, 2004. http://www.ameinfo.com/news/Detailed/46263.html

[17] Report of MCIT TO Alshoura council, june 2005, Sana'a.

[18] Helmi Noman. UNDP An Overview of The Demographics and Usage Patterns of Internet Users in Developing Countries: Yemeni Internet Population as a Case Study http://www.undp.org.ye/ict.htm

In 2002, the Ministry of Telecommunications started to offer dial-up Internet doubling the number of users that year. Subscribers however, still need to pay for the telephone line, although the rate of usage is only one Rial per minute from any province in the Republic[19]. There are no monthly subscription charges but subscribers still pay for the set up charge.

Internet cafes are the main access point with 61% of the Internet users[20], followed by work (24%) and home (13%). Only 2% have access from their schools. Most individuals cannot afford to use cafes on regular basis with only 8.9 per 10,000 individual[21].

PC Dissemination

According to NIC report in 2002, a survey revealed a total of 140,000 computers[22] present, mostly Personal Computers (97%). The number of PCs was supplied to the universities (1000 Pcs. Project) as well as the PCs were purchased by installment through the national project of promotion of PCs. 15 thousand PCs were involved in this project. MCIT provides summer camps with up to 500 PCs for training on computer. Various corporations and ministries were also provided with a number of PCs.

4. *ICT Capacity-Building*

Awareness and dissemination

The NIC works on the first phase of linking information centers of 10 main Ministries through a national network. It aims at linking the various information centres in the public sectors and coordinating their efforts in (processing) inputting data/information to facilitate the provision, accessibility and exchange of integrated, comprehensive and timely information. The network helps to establish national policies and formulating and publish detailed strategies in the information technology. It also works to evaluate the progress of IT development.

YemenNet is currently in charge of raising awareness and conducting training programs for the Internet uptake. Accessible sites such as Yemen gateway provide online information resources for researchers, students, journalists and interest groups.

Currently, there are several training centers and companies among them Sana'a University computer center offering training of UNESCO-approved International Computer Driving License (ICDL) and advanced levels of Microsoft + Cisco certified courses.

Computers in schools

The government has allocated 22% of its total expenditure to education in order to enhance its community capacity to increase literacy rate[23].

Around 92.30% of private schools have computer access, compared to only 25.70% for public schools. Some private universities are making access to the Internet available to their students as a value added service. However, connectivity in these schools is usually very slow because they depend on sharing dialup accounts via proxy servers. A proposed program to equip Yemeni universities with 1000 PCs exists.

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[19] According to a personal interview with SpaceTel, taxes have been lifted from internet service and PCs.

[20] Most internet cafes are located in telecommunication centers, which are around 12,000 in 2005 all around Yemen.

[21] IT Master Plan for Yemen

[22] Profile for Yemen 2003, ESCWA.

[23] UNICEF Yemen statistics at a glance, 2003 http://www.unicef.org/infobycountry/yemen_statistics

From 2003-2004, computer studies were introduced in governmental schools as part of an experiment. Schools with information technology is still limited and under research and studies.

Vocational training

Yemen's overall illiteracy rate for person age 15 and older is 50 %[24], 28 percent for men and 68 percent for women. Yemen's unemployment rate stands at about 35 %. Those who complete secondary education and university studies in Yemen often do not possess the same professional standards as their counterparts from western educational institutions. University graduates also experience difficulty finding appropriate employment and are sometimes unwilling to accept lower skilled jobs. The government is beginning to focus on increasing access to and improving the quality of vocational training as a mean to develop skilled laborers in high demand fields as part of the four main areas of focus within the Education system[25]. In 2001, the Ministry of Technical and training sector was established to provide support for small enterprises to maintain work opportunities and the up-date of databases on education.

Currently, there are several Yemeni companies offering "on the job" training in ICT. There are local IT training centers and some International IT training certified institutes such as NIIT, Excutrain and Aptech have launched courses providing the IT international standard training.

University education

There are 16 universities in Yemen[26]. Seven are governmental but few specialize in ICT. Only 24% of Yemeni students graduated from programs in applied science in 2002/2003 (Table 4), which shows the weaknesses in university education output and proper orientation.

Table 4. Distribution of students according to the specializations at Yemeni universities

Specializations	Male (%)	Female (%)	Total number
Humanities	78.1	76	138,675
Applied Science	21.9	24	43,770

Source: The High Council of Education Planning, universities indexes in 2002/2003

ICT specializations are newly developed specializations in the Yemeni universities. They have existed for not more than a decade. Out of the total 130 Yemeni faculties, a limited number of such faculties are specialized in ICT fields (Table 5).

Table 5. Number of universities, faculties and departments which qualify in ICT specializations

Number	Description
12	Universities give first university certificates in ICT field.
6	Faculties specialized in ICT field .
26	Scientific Departments which are specialized in ICT
42	Specializations in ICT

Source: Fudeel, Dr. Ahmed Mehdi, Alrewi, Dr. Yehia Mohamed. Reality of ICT in the Yemeni universities. September 2003.

The number of members of the teaching staffs in ICT specialization universities is limited, and there is a shortage in departments. They constitute to only 4% of the total members of the teaching bodies in the

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[24] World Bank, September 2004

[25] Education in Republic of Yemen "the National Report", Presented to the forty seventh session of the international conference at education. August 2004

[26] Education in Republic of Yemen "National Report"

Yemeni universities. The programs and curricula in the ICT university education institutions has not met the required level and quality.[27]

Research, Development and Innovation in ICT

Currently, there are no clear and funded plans for research and development in ICT field. Research is confined to graduation projects as well as promotion at universities. One of the few other institutions is the Development Center of the ministry of Communications, but with limited experience.

5. *Building the ICT sector*

The NIC together with MCIT and the Central Statistical Organization (CSO) issue statistical reports periodically.
NIC conducted an information survey in 2001 to evaluate the current progress of ICT in Yemen. .

This survey was distributed to all government organizations, corporations and selected private companies. Results show a lack of coordination and exchange of information among the ICT applications sector in the government.

One of the most difficult tasks is to get accurate, correct and updated data and indicators about ICT. Because of the lack of transparency and absence of national statistical information system for ICT often data is inconsistent. There is remarkably weak information awareness.

ICT firms

Yemen is considered to be a consumer of imported electronic products. There are many ICT business companies in the private sector, mostly dealing with hardware and peripherals, networking, repair and maintenance, applications development, Web design and sales. However, there is a great shortage in IT Solutions and Consultancy industry.

Investment in ICT

The Yemeni Government is committed to attracting foreign investors. To this end, it adopted a new policy of uniform treatment for all investors, domestic and foreign. A new agreement has been established between Yemen and South Korean Bank for Export and Import in particular with projects to extend telecom-network in various regions[28].

A foundation stone was laid for computer local assembling factory on April 2004 in the Information Technology City in Sana'a. The factory is scheduled to assemble 150,000 desktop computers and 1000 laptops per year. This project targets the Yemeni market and aims to make personal computers accessible to Yemenis. They will be offered at reasonable prices and easy-term installment payments.

The foundation stone of the multi-phase central control project also was laid. The project aims at monitoring, controlling and regulating the flow of various telecommunication networks and to allow swift intervention to resolve any break down of the network. It will contribute in drawing up policies to develop the Yemeni telecommunication network through statistical reports and will monitor the network to determine places of disruption to expedite the process of repair throughout the Republic. It will also monitor and observe illegal telephone calls.

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[27] Alrewi,dr. Yehia Mohamed ,problems of informatics in Yemeni universities, Regional Workshop about Informatics, Sana'a University, April 2005.Sana'a

[28] strategis.gc.ca 2003 Yemen CCG chapter 7 – Investment Climate

Government facilitation

The government has not yet achieved a clear plan to localize and encourage electronic industry and to establish the ICT sector. MCIT has started to formulate projects to develop programming solutions for various systems locally. This project aims to improve administrative, technical and trade fields, and establish an information network. However, the results of this idea have not shown probably because the Ministry has not cooperated with any company in the private sector

There is the absence of sufficient awareness about the discipline of the ICT sector. This limits national companies to investing in private equipment, and selling of imported technology that includes high custom-duties and taxation fees imposed by the government.

Import of ICT equipment/software (market, volume and obstacles)

Export of ICT equipment is almost zero in Yemen. Regarding import of ICT equipment and software, the House of Deputies is scheduled to discuss and approve a number of financial laws related to customs and taxes. These laws propose exemptions to computer equipment from customs and facilitate procuring ICT equipment.

6. *Applications in Government Establishments*

Yemen in 2003 has an E-government Readiness Index of 0.188[29], which is ranked last on the e-government readiness scale for Western Asia. This shows a deficiency in e-government initiatives due to their lower level of human/capital and technical infrastructure to provide information and services to population.

The Ministry of Telecommunications and Information Technology has prepared the National Project for Information Technology. The project was adopted in November 2002 with a technical committee to draw up general policies with the Ministry responsible for its execution.

Computerization of public administration

Following the regional workshop on the E-government in the Republic of Yemen in December 2003 the Yemeni Internet Gateway was established. The web portal is accessible to the public and to provide mobile Internet training units for government offices. There are still ministries that have not create websites on Internet.

Digitization of information

Indicators show that 25% of the public and private and government institutions have no current intention to adopt IT in their daily activities[30]. There is a lack of consistency among administrative database systems. For instance, the Ministry of tourism uses Sybase, the Ministry of Economy uses Informix, and the Ministry of Fishing uses Oracle. There is a high cost in adopting foreign applications because none are developed locally[31].

In order to facilitate the comparison process of government reports, the Ministry of Finance has plans to unify statistical data and merge government databases. These include government budget, fixed and planned invested projects reports, which can then be published on the Internet. The Ministry of Civil Services and Insurance also aims to modernize administration by connecting databases and services.

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[29] United Nations Economic and Social Affairs. World Public Sector Report 2003, E-government at the Crossroad.

[30] National Information Center

[31] National Information Center, Yemen,2002

There is currently coordination between the High Elections Committee and the Civil Register authority to use a uniform national number for the citizens in order to create the integrated data of the citizens between the databases in the two sides. ID cards at present are digital and depends on Modern equipment of the biological fingerprint and picture system.

e-government plans

The regional workshop on the e-government was held on September 2003 in order to evolve a clear vision of the e-government. Yemen is still trying to evolve and complete formation of a clear vision of the e-government project and building its structure and framework, as well as completing the necessary infrastructure. Yemen is also searching for funds, which is estimated to be about 60 million Dollars[32].

MCIT launched e-Government initiatives to start providing information websites towards e-Government applications. Aden, the second main city in Yemen, has been named "digital" city, which means that most of the main services provided by the government departments will be given electronically by year 2008. A training center for using IT is under way to train the employees in the governorate. No detailed plan has been shown, and no fund has been secured for it.

Computerization of customs and taxation processing

The activities and programs which were implemented in the field of taxes and customs are represented in network linking for the taxes and customs authorities locally and externally with the branches as well as the application of (ASYCUDA or Automated SYstem for Custom Data) in the customs and tax number system (TRIS). The tax number is granted through automatic system and according to comprehensive statistics system of various commercial, industrial and vocational activities which are taxable. The implementing of these projects was with the help of SEFM.

7. *Applications in Education*

e-learning

Yemeni educational institutions have not yet integrated the Internet into the education system. Sana'a University and Microsoft Company signed an agreement for electronic education. The company will also give official licenses for using its various applications.[33]

e-school projects

Because of the widespread illiteracy, a National Strategy for Eliminating Illiteracy is being adopted with the aim of eradicating illiteracy. In terms of establishing e-school projects, Yemen has no clear plans to build more foundation to the infrastructure. The Ministry of High Education is supervising the network linking the Yemeni universities with foreign funding, however, this important project was yet not carried out.[34]

The Ministry of Education is seeking to introduce computer subject into study curriculum. Currently it is implementing pilot projects to provide several secondary schools in Sana'a and Aden with computer labs and linking them to the internet, and qualifying trainers who will train students on computer and internet skills[35].

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[32] Alrewi,dr. yehia Mohamed,Modernization of the management through E-Government – Reality of Yemen Republic, March 2004.

[33] Sana'a university www.sanauniv.net

[34] Same source No 24.

[35] YemenTimes, September, 2004 http://www.yementimes.com/article.shtml?i=774&p=community&a=1

Virtual universities

There is still no known vision or specialized body assigned to form a virtual university.

8. *Applications in Commerce and Business*

Extent and maturity of e-commerce and e-business applications

Online shopping, e-commerce and Internet governmental transactions are currently under-utilized because of the lack of institutional support, low GNI per capita and poor telecommunication infrastructure.

Availability and quality of e-banking

E-commerce, e-business and e-banking are still in its early stages of development. Although major banks in Yemen have a website, it cannot be considered electronic banking. Simultaneously with the national program of information technology (electronic government), other electronic services were declared, such as settling water electricity and telephone bills through Internet (E-Rial). However, these services have not been completely electronic, and their use is limited and not sufficiently promoted[36].

Maturity of regional ATM and banking networks

Regional ATM and banking networks in Yemen is in the very early stages.

Maturity of Bank-to-Bank financial transfer system

The Ministry of Finance has completed the project of developing the financial and accounting information system to enable financial administration and the ministries to connect to the budget units, provinces and directories.

Pamphlets and periodical financial reports are published on the web site of the Ministry of Finance. The Ministry of Finance aims at expanding its information system network to include a network connection with the central bank and the customs service, i.e., the ASYCUDA system and the system of administrative loans and taxes GST.

9. *Applications in Healthcare*

There are various statistics on health condition in Yemen published in annual statistical books (but are not available online) from which scholars and students can benefit. There are currently some Yemeni web sites on the Internet that work on supporting health care system and provide Telemedicine service. Al-Thawra General Hospital is currently on the Saudi National Telemedicine Network. Yemen is also connected to the Arab and Egypt telemedicine network.

10. *Digital Arabic Content*

Locally hosted sites account for only 1% of the total number of visited sites. 87% of the total visited sites are written in English with 78% visited sites being north American.

Tele Yemen can host websites, but most websites are having domain names such as COM, ORG or NET. Yet, the number and contents of the Internet sites is neither consistent nor sufficient in promoting the vast cultural and historical heritage of Yemen. Also most Yemeni websites are not updated and the quality of their information contents is not up to the standard and does not cope with new developments and events.

English is not widely spoken in Yemen, in addition to the high illiteracy rate, which are contributing factors to the lack of use of the Internet.

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[36] Ba'alwy,dr,abdulkhaleq Ahmed. E-rial Marketing in Yemen, The second Arab meeting, October 2003,Qatar.