

ECONOMIC AND SOCIAL COMMISSION FOR WESTERN ASIA (ESCWA)

**NATIONAL PROFILE OF THE INFORMATION SOCIETY
IN THE SYRIAN ARAB REPUBLIC**

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CONTENTS

	<i>Page</i>
Introduction	1
<i>Chapter</i>	
I. THE ROLE OF THE GOVERNMENT AND ALL STAKEHOLDERS	2
A. National information society policies and e-strategies	2
B. Public/Private Partnership (PPP) or Multi-Sector Partnership (MSP).....	3
C. Role of non-governmental organizations.....	3
D. Progress towards fulfillment of national policies and strategies	4
II. ICT INFRASTRUCTURE	5
A. Infrastructure	5
B. Personal computers.....	6
C. Investments in ICT infrastructure and development of new services.....	6
D. ICT connectivity	6
E. ICT equipment and services	7
F. Internet governance	7
III. ACCESS TO INFORMATION AND KNOWLEDGE	8
A. Public domain information	8
B. Multi-purpose community public access points	8
C. Using different software models.....	9
D. Free and open access to scientific knowledge	9
IV. ICT CAPACITY BUILDING	9
A. Computer illiteracy	9
B. ICT in education and training.....	9
C. Training programmes for capacity building in the use of ICT	10
D. Research and development	10
V. BUILDING CONFIDENCE AND SECURITY IN THE USE OF ICT	11
VI. ENABLING ENVIRONMENT	11
A. Law of intellectual property protection	11
B. Unified standard system	11
C. Other ICT laws and legislation	12
VII. ICT APPLICATIONS	12
A. Automation of government.....	12
B. E-government	13
C. E-business	13
D. E-learning	13
E. E-health.....	13

CONTENTS (continued)

Page

VIII. CULTURAL DIVERSITY AND IDENTITY, LINGUISTIC DIVERSITY AND LOCAL CONTENT	13
A. Local and national digital content development	13
B. Arabic Domain Names System (ADNS)	14
IX. MEDIA	15
X. INTERNATIONAL AND REGIONAL COOPERATION	15
A. Financing of ICT networks and services	15
B. Regional Plan of Action for Building the Information Society (RPoA).....	15
XI. MILLENNIUM DEVELOPMENT GOALS – MDG	16
A. Progress toward achieving the MDG.....	16
B. ICT field projects aiming at achieving MDGs for the	16
XII. WORLD SUMMIT ON THE INFORMATION SOCIETY (WSIS)	16
<i>References</i>	18

Introduction

GENERAL PROFILE OF THE SYRIAN ARAB REPUBLIC

Geography and population

The Syrian Arab Republic occupies a strategically important location in the eastern Mediterranean region and has a surface area of 185,000 square kilometers, sharing borders with Iraq, Jordan, Lebanon, Palestine and Turkey. It has a population of approximately 19.3 million, 36.5 per cent of which are below 14 years of age. The average population growth rate is about 2.24 per cent according to 2006 estimates, while the literacy rate according to 2003 estimates is about 77 per cent (89.7 per cent of men and 64 per cent of women).

Economy

The Syrian economy depends mainly on the oil and agricultural sectors, which together account for almost two thirds of the Gross Domestic Product (GDP). The public sector plays a central role in the economy, but the Government strongly encourages the private sector to play a greater role. In this regard, the Syrian Government has applied numerous economic reforms in recent years in order to encourage investment, among them a reduction in bank interest rates and the establishment of industrial zones and private banks. The Syrian Government estimates that the economy grew by 5.6 per cent in 2006. There are far-reaching economic challenges, most important of which are the reduction of oil production and exportation, the increasing pressure on water supplies owing to rapid population growth, industrial expansion and water pollution.

Total GDP estimated for 2006 is about \$24.26 billion, and the percentage shares by sector are as follows: 24 per cent for agriculture, 18 per cent for industry and 58 per cent for services.

Information and Communications Technology

The Syrian Arab Republic has a relatively good telecommunications network in comparison with telecommunications networks and systems in neighbouring Arab countries. It uses digital technology, especially optical fiber technology. The telecommunications system has a central cable system, an enhancing microwave network, terrestrial satellite communication stations and submarine cables.

The Syrian Arab Republic was among the first Arab countries to introduce information technology in its governmental institutions in the seventies of the last century. However, the information society in the Syrian Arab Republic did not become effectively dynamic until the mid nineties and the slow pace of its development is due to a number of factors, the most important of which are:

- Delay in the availability of qualified and adequate human resources;
- Weakness of the infrastructure of digital communication networks;
- Contraction, or even total absence, of the private sector's role in some sectors of the economy, such as banking and insurance, which are traditionally the pioneers in applying information technology.

I. THE ROLE OF THE GOVERNMENT AND ALL STAKEHOLDERS

The Syrian Arab Republic has been able to achieve a reasonably good level of cooperation between the Government and other interested parties, such as local public and popular organizations, international organizations, local and Arab investment funds, companies, universities, research centres, non-profit associations and others. This has helped to achieve clear steps towards moving to an information society, which started over ten years ago.

A. NATIONAL INFORMATION SOCIETY POLICIES AND E-STRATEGIES

The founding of the Syrian Computer Society in 1989, which is a non-profit domestic society, was a turning point in the strive for establishing the Syrian information society. It had a major role in creating an overwhelming public awareness of the importance of information technology (IT) and its links to society. It organized the International Conferences on Information and Communication Technologies in Damascus, the National Programme for Information Technology Dissemination (1994), and symposia on the situation of IT in the Syrian Arab Republic (1997), which have all contributed to developing a clear political will in the country aiming at giving high priority in the hierarchy of State priorities to information and communications technology (ICT), considering it a main tool for achieving economic and social development in the Syrian Arab Republic. This clear and stable political will has engendered a number of implementation steps, most important of which are the following:

1. IT was introduced in schools and all university faculties at a wide level (1995).
2. Computer engineering specialization programmes were introduced at the University of Damascus (1998) and at other universities (2000).
3. Internet services became available in the Syrian Arab Republic (1999).
4. The Syrian Virtual University was founded (2002).

Finally, these steps culminated in 2000 in the establishment of a ministerial portfolio which later became the Ministry of Communications and Technology (MOCT) (2003), and which was entrusted with all matters concerning ICT. The following are among its main tasks: to supervise IT development in Syria and lay the foundations to promote its systems, networks, standards and safety, to introduce and upgrade these technologies in cooperation with the concerned bodies and to prepare draft legislation needed for this purpose; to enhance the performance of the government executive system by officially introducing ICT into administrative procedures; and to enhance electronic means in commercial transactions.¹

The State has concentrated its efforts on building ICT capacities, whether at the level of human resources or that of parallel ICT infrastructure networks. It has also provided a motivating environment for ICT development and the move to an information society. Among the first and foremost tasks undertaken by the newly established MOCT was the laying down of an ICT integrated national strategy for economic and social development in the Syrian Arab Republic. The strategy was prepared by a national working group that was formed by virtue of a decision taken by the Prime Minister in collaboration with the United Nations Development Programme (UNDP). Inputs from a number of international experts from Great Britain and the Economic and Social Commission for Western Asia (ESCWA), as well as others, contributed to enriching the formulation of the strategy. The general objectives of the strategy were specified at the first national forum of decision makers that was held under the auspices of the Prime Minister in the spring of 2003. The most important of these objectives were:²

- (a) A complete move to an information society during the first quarter of this century;

¹ Decree 35 of 2004 Stipulating MOCT Tasks.

² MOCT, National ICT Strategy in the Syrian Arab Republic.

(b) Use of ICT to promote performance of business transactions, services, education and habilitation, with a view to achieve sustainable economic and social development;

(c) Use of ICT as a basic tool for the dissemination of culture and effective learning, continued learning, self-learning, habilitation and training; to provide such dissemination to all citizens, regardless of their age or place of residence, with a view to eliminate illiteracy and promote their intellectual standard; and to communicate with emigrants;

(d) Use of ICT to promote administrative procedures and services of the State;

(e) Provision of ICT to all individuals and institutions of the Syrian Arab Republic.

The strategy consists of two action programmes falling under the responsibility of the MOCT and of five national initiatives shared between the Ministry and other concerned governmental and non-governmental organizations and bodies. The two action programmes are the programme of restructuring the telecommunications sector and the programme of building the IT sector. The national initiatives are the following:

- (a) National e-government initiative;
- (b) National initiative for technology parks;
- (c) National initiative for sectoral centres of excellence;
- (d) National ICT capacity-building initiative;
- (e) National knowledge society initiative.

B. PUBLIC/PRIVATE PARTNERSHIP (PPP) OR MULTI-SECTOR PARTNERSHIP (MSP)

There have been tangible changes in the communications and information sector in recent years, starting from the year 2000. There have also been timid steps toward liberalizing the telecommunications sector since the beginning of 2001, which led to the emergence of companies offering communication services by contracts based on the Build, Operate and Transfer (BOT) principle, along with the public telecommunications institution which has the monopoly of offering and disseminating communication services. This monopoly continues to be an impediment to the liberalization of this sector. Communication activities had an average growth rate of 20.88 per cent in the last five years, which is an excellent rate by all standards and largely surpasses GDP growth rates. The main factor for this growth is the private sector, which witnessed exceptional growth, and its contribution to the communications sector as a whole reached about 53.7 per cent by the end of 2003.

On the other hand, the private sector and the non-governmental sector played a central role in offering Internet services. Of the seven Internet providers in the Syrian Arab Republic, five are from the private sector.

As for the software industry in its various forms, it is almost exclusively private and there are numerous small and medium-size companies working effectively in this field. Despite the fact that this sector has not reached its expected standard of efficiency and productivity, it remains one of the promising sectors.

C. ROLE OF NON-GOVERNMENTAL ORGANIZATIONS

Of all the non-governmental bodies in the IT field, the Syrian Computer Society is still the main player. It also was and still is the main and most widely used private provider of Internet services. The Syrian Computer Society created a software incubator to support the software industry, and started working in 2005 as the moving force of the national programme for ICT dissemination.

The Fund for Integrated Rural Development of Syria (FIRDOS), a non-profit organization, participated in many ICT dissemination activities in remote and rural regions. Among its pioneering projects

was the itinerant ICT training centre, and it supported the project for the Rural Knowledge Network which was developed in collaboration with UNDP and MOCT.

Furthermore, there are some specialized ICT forums, most prominent being the Open Software Forum, which inform about this software and disseminate their culture of software industry.

D. PROGRESS TOWARDS FULFILLMENT OF NATIONAL POLICIES AND STRATEGIES

The tenth five-year plan of the State (2006-2010) adopted the national ICT strategy, which became an integral part of the plan. The plan was issued by virtue of Law No. 25 for 2006 and became thereby binding.

The tenth five-year plan has far-reaching objectives for the ICT sector that have to be reached during the tenth and the eleventh five-year plan (2010-2011). The most important objectives may be summarized as follows:

1. Sustaining the momentum of exceptional growth of the ICT sector during the previous five-year plan.
2. Expanding services in the field of communications and information at the horizontal level (socially and geographically) and at the vertical level (new services).
3. Building highly qualified expert cadres capable of accelerating the development of this sector.
4. Creating a real competitive environment in the communications sector, protective of consumers' interests.
5. Achieving a quantum leap in the infrastructure of various Internet services, and specifying an accessibility goal of 8 per cent (one million subscribers).
6. Encouraging the production of Arabic software and having the Arabic content in all domains.
7. Encouraging international manufacturing companies to invest directly in the Syrian Arab Republic.
8. Encouraging the establishment of assembly-lines of basic products in the Syrian Arab Republic.

The tenth five-year plan of the State included a set of important projects, mainly the following:

- (a) Creation of a regulatory public body for the communications sector in the Syrian Arab Republic;
- (b) Issuance of a new communications law governing the sector and the creation and activation of a regulatory body for the communications sector;
- (c) Preparation of a draft law for organizing the IT sector;
- (d) Establishment of a centre for computer resources and a centre for computer services;
- (e) Establishment of the governmental e-gate;
- (f) Expansion of the information society centres (the Rural Knowledge Network);
- (g) Creation of a centre for providing consultations and computer services;
- (h) Establishment of two technology parks: the electronic village in Dimas, near Damascus, and the technology park in Aleppo;
- (i) Computerization of the Arab Business Academy;
- (j) Creation of a high-level training and habilitation centre in the communications field;
- (k) Creation of a research laboratory for computer communications.

Although some of these projects are new and are being included in the State's plan for the first time, most of them had actually been started before the tenth five-year plan and even before the plan was adopted by the State and its strategy finalized. The preparation of the strategy was in fact affected by the proposed projects that were already underway. Many of these projects had achieved a noticeable progress during 2004 and 2005. All these initiatives, in addition to being part of the national strategy, lead to achieving the goals set forth at the World Summit on the Information Society (WSIS), held in Geneva (2003) and Tunis (2005).

II. ICT INFRASTRUCTURE

The Public Telecommunications Establishment, which is a public administration affiliated to MOCT, has the monopoly of telecommunications and their governance over the total Syrian territory, airspace and territorial waters and is the sole operator of the fixed telephone network.

In spite of this monopoly, the Public Telecommunications Establishment may, by virtue of the prevailing laws, contract private concerns according to the BOT principle, for the implementation, operation and exploitation of telecommunications projects. This inevitably brings other parties into the communications market. Accordingly, two operators from the private sector were given the license to provide mobile phone services under the supervision of the Public Telecommunications Establishment, which gets a percentage of the profits. The two operators are the only ones that are currently licensed to do business in the mobile phone market in the Syrian Arab Republic, yet a new license is supposed to be given to a third operator in 2008.

A. INFRASTRUCTURE

The Syrian Arab Republic is among the first three Arab countries in terms of fixed phone subscribers, together with Egypt and Saudi Arabia. According to the "mainlines market share index", which was computed by the Arab Advisors Group,³ it was ranked seventh after the Arabian Gulf countries and Lebanon. The fixed network has been considerably developed and improved in recent years and almost completely digitized.

The number of fixed telephones was about 2,903,000 lines at the end of 2005,⁴ which means that the mainline telephone penetration rate reached 15.04 lines per 100 persons. The penetration rate increased by an average annual rate of 8 per cent during the period 2000-2005, which is acceptable in comparison with countries of the region and the group of countries to which the Syrian Arab Republic belongs.

Regarding mobile phones, their entry into the Syrian Arab Republic was as late as the year 2000, yet their network has expanded significantly during the last five years. Signal coverage ratio to the population is about 99 per cent.⁵

Mobile phone subscribers rose from 600,000 in 2003, almost equally shared by the two operators, to 2.95 million lines⁶ at the end of 2005 according to official statistics of the Syrian Public Telecommunications Establishment, i.e. a penetration rate of about 15.28 lines per 100 persons. As for statistics of the operating companies themselves,⁷ they indicate that the number of lines of Syriatel, the Syrian Arab Republic's leading mobile telecommunications company, at the beginning of 2007 was 2.3 million, i.e. a market share of 55 per cent. This leads to believe that the number of mobile phone lines of both operators at the end of 2006 was about four million (prepaid and billed) with a penetration rate of about 20.7 lines per 100 persons. Notwithstanding that this rate is still modest compared to some other Arab countries, such as Bahrain,

³ Arab Advisors Group report: Arab Advisors Mainlines Market Share Index (MMSI) 2005 (11 May 2006).

⁴ Syrian Arab Republic, Public Telecommunications Establishment, Annual Report 2005 (in Arabic).

⁵ International Telecommunication Union (ITU), Country Profile: ICT Statistics 2005; <http://www.itu.int/ITU-D/ictve/DisplayCountry.aspx?countryId=224>.

⁶ Syrian Arab Republic, Public Telecommunication Establishment, Annual Report 2005 (in Arabic).

⁷ SYRIATEL: <http://www.syriatel.com>.

Kuwait and even Morocco, the rise in the penetration rate is very high and is almost the same as that of Egypt⁸, which had mobile phones long before the Syrian Arab Republic. The number of subscribers increased in the period 2000-2006 by an average annual rate of 150 per cent, which is one of the highest worldwide.

A modern public digital network (PDN) was built during the last five years, which is the basis of the digital telecommunications infrastructure. The first stage was completed in 2005 and is currently undergoing upgrading. The main use of this network is to provide for data exchange all over the territory of the Syrian Arab Republic and to secure the basic Internet infrastructure. However, advanced network services (leased circuits, integrated services digital network (ISDN), broadband) are still relatively limited.

B. PERSONAL COMPUTERS

The number of personal computers (PCs) was estimated in 2005 to be 800,000, their penetration rate being 4.2 per 100 persons,⁹ which limits the widespread dissemination of the Internet. In addition to that, existing host services are scarce in the country and there are restrictions on the use of certain Internet protocols (transfer of files, news services, chatting), as well as accessibility to Internet websites. This low figure is attributed to the weak purchasing power of the ordinary citizen compared to prevailing market prices of PCs, which are often assembled locally to reduce their cost. The number of annual PC sales is estimated at 110,000.¹⁰

C. INVESTMENTS IN ICT INFRASTRUCTURE AND DEVELOPMENT OF NEW SERVICES

The bulk of infrastructure investment in the information and communications sector of the Syrian Arab Republic in 2006 was in computer information and communications. This investment concentrated in the following areas:

1. Investment in the fixed network infrastructure by the state-owned Public Telecommunications Establishment amounted to \$120 million (6 billion Syrian pounds),¹¹ distributed among 19 different projects. Most important of these projects are the new submarine cables, expansion of the core network, expansion of the fixed network, the third rural project, expansion of the infrastructure of forwarding data, expansion of the penetration network and management of the frequency spectrum.
2. The investment of the two mobile phone companies is estimated at about \$150-200 million, most of which has been earmarked for the development of the mobile phone network of the two companies as well as for new related services.
3. No precise information about investment in information systems in the public and private sectors is available, but it is estimated to be about \$80-100 million.

D. ICT CONNECTIVITY

The main communication indices are those adopted by ITU: the access index, the connectivity index, and the ICT diffusion index. The values of these indices of the Syrian Arab Republic for the year 2004 are as follows:¹²

- Access index: 0.476;
- Connectivity index: 0.078;
- ICT diffusion index: 0.277.

⁸ Arab Advisors Group report: Arab Advisors Cellular Market Share Index (CMS) 2005.

⁹ ITU, Country Profile: ICT Statistics 2005; <http://www.itu.int/ITU-D/ict/eve/DisplayCountry.aspx?countryId=224>.

¹⁰ ESCWA, National Profile for the Information Society in the Syrian Arab Republic.

¹¹ Syrian Arab Republic, Public Telecommunications Establishment, Annual Report 2005 (in Arabic).

¹² United Nations Conference on Trade and Development (UNCTAD), *The Digital Divide Report, ICT Diffusion Index 2005*, United Nations publication (UNCTAD/ITE/2006/5).

ITU has also established the concept of community connectivity¹³ related to providing access to communications and information for all citizens in their respective locations, whether by providing communication peripherals at their homes or making rural access points available to them. This accessibility is measured by the number of access peripherals in society per 100 persons.

The Arab Advisors Group used a special connectivity measure, namely the total country connectivity measure (TCCM), which is the sum total of the fixed phone connectivity rate in each home, mobile phone connectivity rate and Internet connectivity rate. With respect to the Syrian Arab Republic, this measure was 86.3 per cent in 2005. The community connectivity rate is considered relatively good, and the Syrian Arab Republic ranks tenth among the Arab countries, before the Arab Republic of Egypt and Algeria. This rank is primarily due to high accessibility of fixed phones in homes, which is about 68 per 100 homes.

Furthermore, toll phones and public telephone booths that are found all over the territory of the Syrian Arab Republic constitute an enhancing factor for community connectivity. In 2005, the number of public toll phones was 2,656 and phone booths 1,989.¹⁴

International connectivity

The Public Telecommunications Establishment has realized many connectivity projects with Arab and neighbouring countries in the last ten years. The projects include optical submarine cables with the Arab Republic of Egypt, Cyprus and Lebanon, and a microwave link with Iraq, Jordan, Lebanon and Turkey. There are about fifty links of the telephone network with the outside world in different directions, including microwave links, land and submarine cables and satellite communications. The Public Telecommunications Establishment has yet another plan to enhance the capacity of its international communications with neighbouring countries, and it is a member of ARABSTAR satellite system, INTELSAT for satellite communications and it uses INDIASAT satellite system and INTERSPUTNIK.

E. ICT EQUIPMENT AND SERVICES

In spite of the availability of a good number of ISDN lines with the Public Telecommunications Establishment, the accessibility rate of these lines remains weak, since it did not exceed 0.3 per cent at the end of 2005. This is primarily due to the poor marketing policy for these lines by that establishment.

There is also a very limited number of mobile phone lines that are linked to the Thuraya satellite phone system, and they are especially used in places that are outside the coverage area, particularly in the oil industry and in territorial waters. There are a number of projects aimed at improving ICT services in rural areas and in marginalized communities. The Public Telecommunications Establishment is in the process of applying the third rural project for wireless local loop (WLL) to provide fixed telephone communications in rural and marginalized areas. The Rural Knowledge Network has used the Internet for providing access to remote rural centres. The Ministry of Communications, in collaboration with FIRDOS and ESCWA, launched the project of model communities and villages aimed at providing assistance to poor communities and building capacities through technological advisory initiatives, as well as providing employment opportunities and enhancing business enterprises through the introduction of business incubators.

F. INTERNET GOVERNANCE

The PDN project, or the data forwarding network, constitutes the Internet backbone in the Syrian Arab Republic and was put into service in mid-2005. The responsible authority for Internet governance in the Syrian Arab Republic is the Public Telecommunications Establishment, by virtue of its monopoly of telecommunications in the State. It is the proprietor of the public network of data forwarding.

¹³ ITU, 3rd World Telecommunication/ICT Indicators Meeting, Geneva, 15-17 January 2003; <http://www.itu.int/ITU-D/ict/WICT02/doc/pdf/Doc11E.pdf>.

¹⁴ Syrian Arab Republic, Public Telecommunications Establishment, Annual Report 2005 (in Arabic).

The Public Telecommunications Establishment formulated a special system for the Internet by which it licenses Internet providers to the private sector and has thus given five licenses to Internet providers from the private sector. At present, the following Internet providers compete in the Syrian Arab Republic: Trasul, 190.sy, STI, Best Italia, CEC, Aloula, and Aya. Two of these providers offer satellite Internet, and there are no application service providers (ASPs) at present in the Syrian Arab Republic.

The network is still not providing the required accessibility equipment for the broadband, and 98 per cent of Internet subscribers use normal telephone lines (Dialup) or ISDN, while 1.47 per cent of them are broadband ADSL lines (only 2,700 subscribers), and a very small percentage of about 0.1 per cent uses satellite Internet.

The number of Internet subscribers was 233,000 at the end of 2005, with a 40 per cent increase over the preceding year. The accessibility ratio of subscribers was 1.27 for every 100 persons.¹⁵ However, the number of Internet users is estimated at 875,000, being an accessibility rate of about 4.8 per cent which is low by any standards. Internet cafés in some major cities offer Internet through wireless fidelity (WiFi), but the number of these cafés is very limited due to limited ADSL lines.

On the other hand, the traditional media, whether newspapers, radio or television, have effectively contributed in motivating the use of ICT. There are specialized magazines in Arabic that focus on technological subjects, among them the magazine *Raqmiyat*, and some local newspapers devote weekly pages or daily columns to such subjects. There is a weekly radio programme which deals with ICT issues in the form of a discussion with the public.

The Syrian Computer Society was for many years sponsoring a weekly television programme to promote computer public awareness.

III. ACCESS TO INFORMATION AND KNOWLEDGE

A. PUBLIC DOMAIN INFORMATION

The majority of public and private Syrian institutions, especially those involved in services and marketing, provide information to the public which can be accessed in various forms and means. Many of these institutions provide voice mail systems that can be accessed through the fixed telephone line. Most of these institutions also provide Internet websites that give general information about the services and products they offer. Some of them even go further to providing interactive websites. SMS technology on mobile phones is becoming a channel for publicity and to disseminate information.

It is worth mentioning, in particular, that the Assad National Library provides its documentation, books and pamphlets in a database and in archive systems that are accessible through a data forwarding network from which information can be obtained. However, the provision of general information is still in its infancy and more efforts are needed in this regard.

B. MULTI-PURPOSE COMMUNITY PUBLIC ACCESS POINTS

Internet cafés constitute access points spread all over the territory of the Syrian Arab Republic, although their number is still limited and they are concentrated primarily in major cities.

Nevertheless, the project of Rural Knowledge Network,¹⁶ which is being implemented in collaboration with MOCT and UNDP, is, with respect to the points of community access centres, like betting at the horse races. The project envisages setting up a big number of access centres in the provinces, as well as adding an information and discussion network on the Internet focusing on issues of different local rural communities. There are two types of centres that were established within the framework of the first multi-purpose type,

¹⁵ Arab Advisors Group, Syria Internet market report (February 2006).

¹⁶ <http://www.reefnet.gov.sy/>.

providing various means of access (Internet, public telephone network, fax, photocopy machine, etc.). These centres are generally in the rural areas (villages and remote regional centres). They also offer training courses in the field of ICT. The second type is found in cities and offers, in addition to being a multi-purpose access centre, a specially appropriate environment for vocational training in the field of computers for persons with special needs (handicapped people), including blind people.

In addition to the Rural Knowledge Network, another network of access centres is being established at cultural centres in small cities and other locations affiliated with municipalities. This is being carried out in collaboration with MOCT, the Ministry of Culture, and the Ministry of Local Administration and Environment.

C. USING DIFFERENT SOFTWARE MODELS

The software models used at the national level differ, depending on the nature of their application. Licensed software is the most commonly used software and the balance tips in favour of Microsoft products. However, many government applications use other licensed products of a different technology, mainly those compatible with POSIX and Oracle. For a few years, the tendency has been to go for open-source software and a professional club was founded which aims to promote a culture of open-source software through seminars and workshops. The software incubator that was founded by the Syrian Computer Society plays a catalytic role in providing new models of applicable software.

D. FREE AND OPEN ACCESS TO SCIENTIFIC KNOWLEDGE

The Ministry of Higher Education provides the digital virtual library, which enables Syrian universities to have free access to publications and international scientific periodicals through the network of Syrian universities. There is also the Assad National Library which enables referencing through fax of the results of research in a great number of scientific journals.

IV. ICT CAPACITY BUILDING

A. COMPUTER ILLITERACY

The national programme for computer dissemination, which was implemented by the collaboration of the Syrian Computer Society and the Ministry of Education, is considered the main activity in computer dissemination in the Syrian Arab Republic. The project trained thousands of citizens, mostly young men and women in all regions of the Syrian Arab Republic, in the principles of computers. Most of this training was carried out during the summer vacation of schools, in order to benefit from the computers that are available in schools for that purpose. Training took place in more than 200 centres, and the programme comprised three levels for computer dissemination: a first level for beginners, and advanced second and third levels.

Furthermore, the Syrian universities undertook the preparation of similar programmes of computer dissemination for their alumni. The Syrian Government launched a national programme for computer dissemination among civil servants consisting of training courses organized in the different Syrian governorates.

B. ICT IN EDUCATION AND TRAINING

1. *Higher education*

Syrian universities started, since the eighties, to use communications technology in many of their specialized programmes, especially engineering, where they introduced computer-aided courses for programming and designing. The University of Damascus established a laboratory for computer-aided engineering education, supported by the Regional Office for Science and Technology for the Arab States (ROSTAS), which is an affiliated body to the United Nations Educational, Scientific and Cultural Organization (UNESCO). The Syrian Higher Education and Research Network (SHERN), which is a

computer network at the higher education and scientific research level, was established, and it links Syrian universities to each other.

The first computer engineering specialization was started at the Higher Institute of Applied Sciences and Technology in 1982. This institute contributed in the early provision of human resources and was a source of academic cadres in this specialization. In the year 2000, independent faculties of computer engineering were inaugurated at all governmental universities, as well as computer engineering sections in existing mechanical and electrical engineering colleges.

Among the prominent projects in the field of ICT utilization in education and training is the project of the Syrian Virtual University,¹⁷ which was inaugurated in September 2002. It was among the pioneering institutions in adopting e-learning in the Middle East.

2. *Computers in education*

The Ministry of Education introduced the computer to classes at the beginning of the nineties and designed computer courses in secondary and preparatory schools, and in particular in vocational schools. The Ministry, in collaboration with UNESCO, formulated a strategy aiming at using IT in schools. The Ministry started in 2002 to acquire computers and distribute them to schools, as well as to construct a computerized network between schools on the one hand and educational administrations in the governorates and the central administration of the Ministry on the other, and to provide for the Ministry's access to the Internet. No less than 800 out of 3,000 schools will be connected during a period of three years; 4,700 schools were equipped with PCs, i.e. 80 per cent of preparatory and secondary schools have become equipped with computers.

C. TRAINING PROGRAMMES FOR CAPACITY BUILDING IN THE USE OF ICT

There are several ICT training programmes at institutes and public and private training centres, especially at centres belonging to non-profit organizations. Some of these institutes and training centres offer the acquisition of aptitudes leading to obtaining the International Computer Driving License (ICDL). The Syrian Computer Society offers training programmes for computer technologies in different sectors, and supervises the ICDL. The National Information Centre and the training centre of the Ministry of Higher Education also organize specialized training courses.

The national programme of computer dissemination for civil servants plays a very important role in building special ICT capacities in government institutions. Among the important institutions in the field of capacity-building is the Arab Centre of Excellence, which was founded through the collaboration of the Public Telecommunications Establishment and ITU.

D. RESEARCH AND DEVELOPMENT

Research and development in ICT in the Syrian Arab Republic are primarily of the applied type and focus on Arabization. However, two high-standard series of scientific conferences have become on-going activities, namely Al Sham (Damascus) International Computer Conferences which are organized every four years by the Syrian Computer Society, and International Conferences on Information and Communication Technologies: From Theory to Applications (ICTTA), which are organized once every two years by the Network of Syrian Scientists, Technologists and Innovators Abroad (NOSSTIA). These conferences are very popular, and the number of participants in the last ICTTA conference reached 700, 400 of whom were from outside the Syrian Arab Republic.

Among the active players in the field of applied computer research is the Higher Institute of Applied Sciences and Technology, which has undertaken a number of important research tasks in collaboration with regional and international scientific bodies. Its officials have effectively contributed to Syrian development in computer literacy.

¹⁷ <http://www.svuonline.org/sy/arb/index.htm>.

V. BUILDING CONFIDENCE AND SECURITY IN THE USE OF ICT

USE OF ELECTRONIC TRANSACTIONS AND DOCUMENTS

The use of electronic transactions in the Syrian Arab Republic started with the use of smart cards and automatic teller machines (ATMs), but these transactions are still in their early stages due to non-availability of the requisite legal frameworks. There is a special law for electronic transactions (e-commerce law), which was prepared by the collaboration of the Ministry of Economy and MOCT, but this draft law has not been issued as a law yet. MOCT has also prepared another draft law, the law of electronic signature, which is indispensable for starting to deal in electronic documents. It is also necessary to amend the law of data at the Ministry of Justice to enable the adoption of electronic documents relating to electronic dealings in courts. The issuance of these laws is mandatory and basic for providing confidence and security in instantaneous electronic transactions.

On the other hand, MOCT has prepared the necessary legislation for the protection of information and prevention of privacy violation, and to provide safety measures for information networks.

VI. ENABLING ENVIRONMENT

The general framework of organizing ICT in the Syrian Arab Republic can be considered in its formation stage. MOCT has been working, since its inception, with many other bodies in the State to provide the necessary legal and organizational environment to launch the ICT sector. A new telecommunications law was prepared to abolish the monopoly of the Public Telecommunications Establishment and to create a special body for organizing telecommunications. The text of this law was prepared in consultation with many bodies, inter alia ESCWA, the European Community and ITU. This law was submitted to the Government.

There is an ongoing preparation of laws covering other basic aspects, such as electronic signature and protection of information privacy.

All the basic issues related to the organization of the ICT sector, including the rules governing the exercise of the ICT profession, the rules of saving and archiving information and matters of standardization and measurement, were subjects for which MOCT laid special regulatory foundations. The strategy that the Ministry established included a special programme for the organization of the ICT sector, which tackles all these issues.

Despite all efforts, the Syrian Arab Republic still lacks a legal environment supportive of ICT. The prevailing investment law does not take into account the requirements of new companies in the field of ICT, particularly as regards tax exemptions.

The task of organizing the names of Internet domains lies within the competence of the Public Telecommunications Establishment, which is currently in the process of setting the rules for registering domain names. It is expected to apply this system shortly.

A. LAW OF INTELLECTUAL PROPERTY PROTECTION

There is a law for the protection of intellectual property in the Syrian Arab Republic that was issued in 2001. This law covers the protection of publications, multimedia products, artistic works and software products. Its application was assigned to the Ministry of Culture, but there is a general feeling that many points in this law still need clarification, and its implementation directives are not all-inclusive. An amended draft law, therefore, is under preparation.

B. UNIFIED STANDARD SYSTEM

MOCT designed a unified standard system in the State bodies for the automation of their administrative and financial operations. The output of this study is a set of unified procedures for the

financial and administrative operations and standardized documents, entry screens and database for storing information. This system is supposed to create a motivating environment for companies in the software industry to develop standard applicable software that can be marketed on a wide scale in the Syrian public sector.

C. OTHER ICT LAWS AND LEGISLATION

The Syrian Arab Republic signed a free trade partnership convention with the Arab countries, which is supposed to liberalize markets between them during the six years following its signature. Naturally, this convention includes the output of ICTs. The Syrian Arab Republic is not a member of the World Trade Organization, but it signed the Paris Convention for the Protection of Industrial Property of 1883, the Madrid Agreement for the Repression of False or Deceptive Indications of Source on Goods of 1891, and the Nairobi Treaty on the Protection of the Olympic Symbol of 1981.

VII. ICT APPLICATIONS

A. AUTOMATION OF GOVERNMENT

The Ministry of Finance was the first ministry to automate its operations in 1975. The automation process of that Ministry passed through several stages, covering the majority of its operations, whether as regards taxation (revenues) or accounting of State operations (expenditures). The central administration of the Ministry and the financial administrations in the governorates were also automatized. For that purpose, the Ministry created a computerized network linking the financial administrations in the governorates to the central administration. The Ministry of Finance is probably the most automated government body today.

The Ministry of Interior has also started, in 2000, to automate its operations and it established a wide-reaching computer network extending to border positions. The civil registry of the Ministry, as well as the judicial register and the cross-border movement of persons, were automated. These systems entered into practice and have contributed to improved services to the public. The Ministry is currently planning to combine three systems into one providing an appropriate gateway to electronic government applications.

Hence, most public and private institutions, if not all service rendering institutions, such as the Public Telecommunications Establishment, electricity companies, water companies, aviation companies, mobile phone operators, private industrial companies and others, achieved quite some time ago the automation of their services to citizens (the front office), and the specialization of operations relating to issuance and collection of bills. Some of these systems provide the possibility of receiving bills by e-mail (the Public Telecommunications Establishment) or getting information through the answering machine system. Some of them have also automated operations relating to personnel administration and financial matters.

Among other bodies that have taken new steps in automating their operations is the Central Bank of Syria.

The Ministry of Expatriates provided an Internet gateway in 2006 to communicate with Syrian emigrants abroad, and it is supposed to provide them with information that facilitates their dealings with their native country and the possibility of discussing matters that concern them and inquiring about them.

The Ministry of Industry has, in collaboration with the Syrian European Business Centre, developed a computerized system for registering private industrial companies in the Syrian Arab Republic. It also conducted a study on automation dissemination in the private industrial sector. At present, the majority of public industrial institutions have administrative and financial computer systems. However, most of these systems do not meet the requirements of standardized e-government.

B. E-GOVERNMENT

The initiative for e-government administration is the Syrian version of e-government, and it is one of the initiatives of ICT strategies for economic and social development in the Syrian Arab Republic. This initiative included three main projects adopted by the tenth five-year plan of the State, namely:

1. Creation of a centre for computer services, constituting the first model for the gateway organization of the Syrian e-government, whose implementation started in 2006 in collaboration with the Ministry of State for Administrative Development in Egypt.
2. Creation of a centre for providing consultancies and computer services to the various State bodies.
3. Activation of the centre for decision-making support in the cabinet and implementation of a participatory Syrian gateway for the cabinet.

C. E-BUSINESS

Electronic commercial applications are not yet very far-reaching in the Syrian Arab Republic, mainly on account of the non-availability of an appropriate legal and organizational environment for the development of this type of applications. Nevertheless, some e-commerce systems are being applied in a very limited way based on electronic card transactions. These systems include the use of these cards in paying telephone bills or in banking operations using ATMs.

On the other hand, the creation of the Arab E-business Academy is underway in the city of Aleppo, in the north of the Syrian Arab Republic. It is an academy for building Arab and local e-commerce capacities and it is expected to have a positive impact on launching e-commerce applications.

Most large and medium-size companies in the Syrian Arab Republic have websites for their products and services.

D. E-LEARNING

It was pointed out earlier that the most prominent project in e-education is the Syrian Virtual University, which was inaugurated in September 2002. In addition to this pioneering project, there are a number of other initiatives for direct e-education in universities and private schools, or indirect life-long education and training by means of projects with social objectives having e-learning components, such as the educational aspect of the Rural Knowledge Network. It is worthwhile to mention the efforts of the Ministry of Education in developing the electronic textbook and the sizeable number of educational websites that are administered by non-profit organizations.

E. E-HEALTH

The Ministry of Health is aiming at implementing a group of e-health applications, such as using health smart cards for the electronic storing of health records. The first stage of the project aims at providing diabetic patients in Damascus with health smart cards. The second stage is the issuance of cards for the patients of the Bassil Computer Centre. The Rural Knowledge Network also offers free medical consultations through the Internet with specialized doctors.

VIII. CULTURAL DIVERSITY AND IDENTITY, LINGUISTIC DIVERSITY AND LOCAL CONTENT

A. LOCAL AND NATIONAL DIGITAL CONTENT DEVELOPMENT

Internet providers in the Syrian Arab Republic have started, since 2002, to host websites of certain local concerns on the Syrian domain. The server of the Syrian Computer Society was the first to offer this service; however, many Syrian concerns continue to domicile their websites outside the Syrian Arab

Republic for various considerations. Syrian websites have developed significantly in number during the period 2005-2006 and now cover many commercial, economic, educational, cultural, informational, social and religious fields. For example, if a research is conducted on the Internet on the literary topic of contemporary Syrian authors, dozens of Syrian websites would be found which cover this topic in one way or the other. Most of these sites are in Arabic, yet some of them target users from outside the Arab world and are in English or other languages.

However, the local and national digital content is still in its very early stages, and there is an urgent need for a concerted effort to digitize the Syrian heritage on the Internet. What is promising in this respect is the willingness of domestic institutions and non-profit organizations to participate in this effort.

The numbers of Syrian websites shown by the different Syrian website indicators vary significantly. Some of these indicators classify available websites according to their nature. The following table details some statistics on the number of available sites according to their nature.

TABLE. SOME AVAILABLE SYRIAN INTERNET WEBSITES

Nature of website	Number
Society	166
Registers	70
Fashion	144
Website gates	116
Personality gates	183
Organizations	54
Restaurants	19
Women	2
History	8
Shopping	127
Education	57
Religion	46
Government	70
Sports	36
Tourism	134
Politics	50
Health	116
Newspapers	27
Enterprises	1,271
Hotels	16
Arts	69
Information	23
Economics	7

B. ARABIC DOMAIN NAMES SYSTEM (ADNS)

The Syrian Arab Republic is one of eight Arab countries participating in the pilot project for Arabic domain names, and is represented in that project by the Syrian Computer Society. The project originated from the Council of Arab Ministers of Information and Communications Technology and is being implemented in the framework of the League of Arab States. It aims at creating an experimental work environment for Arabic domain names in the Arab world, thereby enabling the Arab countries to have an early acquisition of skills to operate and experiment Arabic domain names. It also helps to identify the requirements for their launching and possible problems that might arise, finding technical solutions for them, agreeing on standards and measurements and developing the necessary tools and policies for operating and managing the project.

The project has a steering committee and a technical committee, and the Syrian Arab Republic participates in both. The first meeting of the Arab working group was held in Damascus from 31 January to 2 February 2005 and studied the use of the Arabic language in domain names on the Internet.

IX. MEDIA

The traditional mass media, radio, television and newspapers, were still under the control of the State until 2005. A good number of private entertainment and advertising radio stations were licensed and started broadcasting on the frequency modulation wave (FM) in 2006. However, no licenses were given for private television stations, and television remained restricted to the official three channels, one of which is a satellite channel. Of course, there are the international satellite channels that are received freely all over Syrian territory, are very popular and considered as the principal competitors of the official television channels.

As concerns print media, a few years ago, licenses were given to local non-official newspapers, of which there are quite a number. However, their informational impact is still weak compared to that of other media. A new kind of journalism, namely electronic journalism, emerged, which has become very popular, particularly in educated circles, and has turned into a factual competitor of traditional journalism.

As for penetration rates, the radio has a ratio of 27.5 per cent for every 100 persons, while television has a ratio of 19.2 per cent for every 100 persons.¹⁸

X. INTERNATIONAL AND REGIONAL COOPERATION

The Syrian Arab Republic participates effectively in international and regional cooperation in the field of ICT. At the international level, it is an active member of ITU and participated in the two stages of the WSIS, held in Geneva (2003) and Tunis (2005), and it represented the Arab group in the first stage. It has hosted many activities of ITU at the regional level. The Syrian Arab Republic participated in the work of the International Federation for Information Processing (IFIP) over long periods of time. It is an effective member of the Council of Arab Communications Ministers and actively participates in most committees and working groups attached to that council. The Syrian Arab Republic cooperates also with many regional international organizations, such as ESCWA, which conducted many of its ICT activities in the Syrian Arab Republic, the last of which was in 2004. At the level of technology and the rendering of services, there is continuous coordination with neighbouring countries in the field of communications.

UNDP is one of the most prominent international bodies with which there is cooperation in the field of ICT, with the aim to build the information society. Among the cooperation projects in that field are the strategic programme for the use of ICT in social and economic development and other subsidiary projects, and the project of automation of Syrian customs. The European Union also participates in some ICT development projects in the Syrian Arab Republic, a number of which have in fact been implemented, while others are still in the implementation process.

A. FINANCING OF ICT NETWORKS AND SERVICES

The Syrian Arab Republic has participated in, and financed many regional ICT services projects. Among these projects are the ARABSAT project for satellite communications and the INTELSAT project. Cyprus, Egypt and Lebanon participated in funding the submarine cables projects.

B. REGIONAL PLAN OF ACTION FOR BUILDING THE INFORMATION SOCIETY (RPOA)

The Syrian Arab Republic is effectively involved in formulating the Arab ICT strategy. It participated in proposing and detailing regional projects and a regional work plan to the WSIS.

¹⁸ <http://www.uty.ubt/ITU-Displaycountry.aspx?countryID=224>. ITU, Country Profile ICT Statistics 2005.

XI. MILLENNIUM DEVELOPMENT GOALS – MDG

A. PROGRESS TOWARD ACHIEVING THE MDG

The second national report on the Millennium development goals in the Syrian Arab Republic¹⁹ summarized the progress realized by the end of 2004 towards achieving the Millennium development goals. The report shows a good performance in the achievement of a big number of these goals, as manifested in the dissemination of elementary education which has almost reached a 100 per cent coverage, not only at the national level, but at the regional level too. The rates of elementary school drop-outs have decreased significantly and health services have improved, especially first-aid services. Vaccination campaigns have been extended to small remote communities, which led to a decrease in infant and child mortality to levels below the target, and to a rise in life expectancy to 72 years. The death rate for women at childbirth was noticeably reduced, as were many infectious diseases, such as AIDS, leishmaniasis, malaria and tuberculosis. Poverty ratios in society decreased; good progress has been achieved in gender equality and in providing opportunities for the participation of women in the economic and social development process.

However, per capita income is still low and the percentage of the poor in society is still high, so is the number of unemployed people. New employment opportunities are still limited, especially for university and high-school graduates. Furthermore, a number of regions still lack basic services, especially potable water and sanitation facilities. Unsafe housing is still to be found in certain locations of some regions. The main reason for these conditions are the contraction of investment projects and dwindling economic growth rates at the beginning of the millennium.

B. ICT FIELD PROJECTS AIMING AT ACHIEVING MDGS

The five-year plan included a number of field projects earmarked for achieving the Millennium development goals. The main field projects of the plan which reflect directly on achieving the Millennium development goals are the following:

1. The initiative of e-health.
2. Expansion of centres of the information society (Rural Knowledge Network).
3. Establishment of two technology parks: the technology e-village of Dimas in Damascus, and the technology park in Aleppo.
4. Creation of incubators for the software industry.

XII. WORLD SUMMIT ON THE INFORMATION SOCIETY (WSIS)

The Syrian Arab Republic has deployed great efforts towards the achievement of the goals that were set forth at the WSIS, particularly as regards the provision of communications services. Despite those efforts, these services are still below the expected levels of quality and cost. This could be explained by the low accessibility to the Internet in spite of its significant evolution in the last couple of years, but which was quantitative and not qualitative. The ICT sector has a general sustainable growth, but its impact on the national economy remains marginal and it is not contributing to economic and social development as it should. The main achievements in the realization of the goals of the WSIS are the following:

1. National ICT strategy for economic and social development, which was included in the tenth five-year plan.
2. Significant development of the communications infrastructure, in the form of expansion and provision of new services.

¹⁹ The State Planning Commission of the Syrian Arab Republic: Launching the Second Report on the Development Goals for the Millennium; http://www.planning.gov.sy/ar/?page_id=101.

3. Establishment of a number of multi-purpose access centres in rural and remote regions.

FOLLOW-UP AND EVALUATION

Although MOCT specified a number of projects that are linked to the goals of the WSIS that were included in State plans, the progress in achieving these plans and the national ICT strategy is still weak. The real results of this progress will be known only after the application of the first part of the strategy is completed, according to the tenth five-year plan of the State, which ends in 2010.

REFERENCES

- Syrian Arab Republic, Ministry of Communications and Technology, National ICT Strategy in the Syrian Arab Republic, 2004.
- Public Telecommunications Establishment, Annual Report 2005.
- Statistical Series, website of the State Planning Commission of the Syrian Arab Republic: http://planning.gov.sy/ar/?page_id=101.
- United Nations Development Programme, Indices of the Information Society in the Syrian Arab Republic, 2004; [http://www.undp.org.sy/publications/national/E-Strategy/ICT Strategy ar.pdf](http://www.undp.org.sy/publications/national/E-Strategy/ICT%20Strategy%20ar.pdf).
- _____, Human Development Report 2005.
- _____, Syrian Arab Republic Ministry of Communications and Technology, National ICT Strategy of Socio-Economic Development in Syria, Damascus 2004.
- Syriatel website: <http://www.syriatel.com>.
- Website of the Knowledge Society gateway: <http://www.reefnet.gov.sy>.
- Website of the Syrian Virtual University: <http://www.svuonline.org/sy/arb/index.html>.
- _____, Arab Advisors Mainlines Market Share Index Report (MMSI) 2005 (11 May 2006).
- _____, Arab Advisors Cellular Market Share Index Report (CMSI) 2005.
- _____, Syria Internet Market Report (February 2006).
- ESCWA, National Profile for the Information Society in the Syrian Arab Republic, 2005.
- ITU, Country Profile: ICT Statistics 2005; <http://www.itu.int/ITU-D/ict/DisplayCountry.aspx?>
- _____, ICT Indicators Meeting 2003; [http://www.itu.int/ITU-D/ict/WICT02/doc/pdf/Doc11 E.pdf](http://www.itu.int/ITU-D/ict/WICT02/doc/pdf/Doc11_E.pdf).
- UNCTAD, The Digital Divide Report: ICT Diffusion Index, 2005; http://www.unctad.org/en/docs/iteipc20065_en.pdf.
- _____, Human Development Report 2006, Human development indicators - Syrian Arab Republic: country fact sheet.