

Distr.
LIMITED
E/ESCWA/ICTD/2009/12/Add.3
14 December 2009
ORIGINAL: ARABIC

ECONOMIC AND SOCIAL COMMISSION FOR WESTERN ASIA (ESCWA)

**NATIONAL PROFILE OF THE INFORMATION SOCIETY
IN IRAQ**

United Nations
New York, 2009

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09-0544

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Introduction

The process of modernization and development which Iraq began implementing during the past few years, enabled the country to achieve tangible progress taking into account the security problems and the difficult circumstances which faced the society and the State alike.

The relative improvement in security which comes as a result of the government's implementation of a plan to enforce law enabled government institutions and private sector companies to move ahead to achieve what has been planned at an increasing pace, and to move in an atmosphere more suited to the practice of the democratic process, economic prosperity and development of basic services.

The exceptional interest in the ICT sector in Iraq is set against this background. The infrastructure development for this sector is essential for the advancement of many other sectors such as the finance and the trade sectors which depend on electronic networks that link banks and enable transfer of funds and electronic transactions, and that enables the education sector to harness these technologies for the implementation of its projects in e-learning and in linking the Iraqi Universities, and that helps the e-government project which is the most important means to enhance the democratic, interactive, and transparent practices between the government and the citizens.

This report highlights the features of the ICT sector: its current situation and the most important developments in its strategies and policies.

I. THE ROLE OF THE GOVERNMENT AND ALL STAKEHOLDERS

Despite Iraq's turmoil, successive governments have been able to improve the telecom sector and the information society, as well as involve the private sector through the creation of the regulatory environment which is represented by the Communications and Media Commission, which resulted in a boom in the mobile services (GSM). Work is also underway to restructure the sector and to plan its policies by approving a package of legislation and governmental regulations.

A. NATIONAL INFORMATION SOCIETY POLICIES AND E-STRATEGIES

In 2009, the Ministry of Communications, almost completed several strategic projects, through which modern technologies for the NGN systems, optical, microwave, and wireless communication services will be introduced. Added to that is the step taken to establish more international space stations, more Internet services, and more infrastructure projects for electronic applications, notably the e-government project. There are also measures taken to approve the five-year strategy for the development of the sector which has been laid down in collaboration with ESCWA.

Currently, consecutive meetings are being held to study the strategy, yet its implementation has not been approved. The Ministry of Communications will be the body responsible for its implementation starting from 2010 instead of 2009 as was decided earlier.

In 2004, the Iraqi Communications and Media Commission was also established. It aimed at promoting investment and enhancing the role of the private sector. It is an independent body and is not affiliated with any governmental entity. The main activities of the Commission are intended to create competitive, solid and fair work standards. The independent procedures of its organization also push towards adopting the best services and the most useful investments, and enhance the regulatory authority in-order to prevent the abuse of freedom, which is in line with the orientations of telecommunications and broadcasting investors. It also comes in line with the Athens framework document, which was taken as a legal basis for the establishment of the Commission after consultation between the Governing Council and Iraqi document specialists.

Due to the events of 2003, and despite their limited capabilities and poor infrastructure, the Ministry of Higher Education and Scientific Research Sought to lead the vehicle of the IT and to bring higher education to the level of its counterparts locally and internationally.

In 2003, the Ministry of Planning formed a general directorate. Its mission was to automate the work of the Ministry. The plans of the Directorate of computer operations included data entry through linking its computers to an advanced network. As a first stage, the Directorate of Geographic Information was built in the Central Organization for Statistics and Information Technology to be the nucleus of a national center that serves all ministries, and to implement its first stage major plan (aerial maps) and to gain the expected benefit from the general 2009 population census. The Organization was linked to a closed-circuit television and all governorates are currently being linked to the center, all directories of the Organization have also been linked to an internal information network. In 2008, the Organization carried out specialized surveys on the use of ICT by households and individuals, and it laid down a national strategy for census covering the period 2010 - 2014.

The Ministry of Interior is committed to the implementation of twelve projects to computerize its systems. These include:

- The ministry's website;
- Internet and Intranet;
- Database management system for the Iraqi police;
- Iraqi Justice Integration System;

- Geographical information system;
- The system for issuing passports;
- The national card project (which is underway).

The Ministry of Water Resources also established a center for geographical information systems. It is responsible for the management of water resources. Work is currently underway in the Ministry and in collaboration with the other Iraqi ministries to create and develop its electronic systems. A central Internet network including multiple systems was built in the Ministry. In addition to that, several computers and their accessories were introduced to facilitate the Ministry's activities. In addition to that, several databases and systems were built in the Ministry, they include the following:

- The Hydrogeology information bank;
- The Ministry's projects system;
- The bidding system;
- The library database;
- Database of the hydrological stations.

Moreover, the Ministry has completed installing and operating the devices and monitors of the (e-Notepad) system which puts into view the activities, instructions, and circulars as well as disseminate the latest knowledge on modern technology in the areas of water resources and technical information. Added to that are the Ministry's achievements in the revival of the marshes, the general estuary project and other water resource projects which use the software, applications, and systems that are designed specifically to this end and continuously update its information.

Moreover, a Technical Committee for Information and Communication Technology (TCICT) was set-up on July 2005 to support the SCICT implement its objectives. The TCICT includes representatives from various ministries, public agencies and non-government organization as follows:

- Central Informatics Organization;
- Ministry of Transportation;
- Ministry of Information;

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

In May 2006, the USAID launched the Iraqi ICT Alliance, which is "a general partnership - devoted to promote the development of ICT in Iraq". Participants in the alliance include global support agencies, multinational companies, and government institutions. The Alliance aims at capacity-building and developing training programs. Thus, a number of public/private partnerships with universities emerged whereby private companies provide computers and access to the Internet. One such example is the Iraqna mobile phone network which provides the Faculty of Engineering at the University of Baghdad with Internet Labs.

As for the five-year strategic plan, it shall be implemented in collaboration between most government ministries, the private sector and the civil society.

In an effort to build a free-market and multi-resource economy, the state, in collaboration with the World Bank and the UNDP is aiming at adopting policies that support the private sector and give it a greater role in the process of economic development.

After the events of 2003, private companies which provide Internet and international communications via small VSAT stations became widespread. There were no restrictions or regulations that determine its operation. The performance of these companies evolved with time so that it became an effective indicator. In

addition to that, the General Company for International Information Web Services (Internet) granted two (Dial-up) technology licenses to all of Iraq except the Kurdistan region.

Three more licenses were awarded to three (ADSL) operators, and soon all governorates of Iraq will be provided with this type of service. A study is underway to consider granting more licenses to provide Internet services using Wi-Fi technology, as well as licensing VoIP, in addition to installing and operating the WiMAX project with the private sector operator during the years 2009-2010.

In May 2006, the Communications and Media Commission granted three national licenses for a period of 10 years, extendable to 15 years to provide fixed wireless phone (WLL) services. It has also granted local licenses for a period of five-years extendable to 7 years.

In turn, the Ministry of Communications announced at the national level the bid for the two wireless networks license of the Telecommunications and Post Company.

In July 2007, three national long-term licenses were granted for 15-years, extendable to 20 years, to provide mobile phone services. This led to larger coverage, more intense competition, and broader investment in the telecom market in Iraq.

Moreover, the Ministry of Communications awarded to private companies (outsourced) the maintenance of the lines and exchanges of fixed copper telephone networks in Iraq.

With the help of the private sector the Ministry of Labor and Social Affairs, is providing its system of the type "Dedicated" with the Internet service too.

C. ROLE OF NON GOVERNMENTAL ORGANIZATION

The USAID and the World Bank support the Social Protection Network project and the system for subscription to the retirement and social security fund in the Ministry of Labor and Social Affairs. Besides, the Ministry and the Korean Agency for Cooperation also collaborated in the establishment of the Iraqi Korean training center for training the unemployed in several areas including computer skills in-order to reduce the impact of unemployment and to increase employability.

II. ICT INFRASTRUCTURE

A. INFRASTRUCTURE

By The Ministry of Communications is heading towards renewing its outdated fixed phone networks and updating its communication systems infrastructure with the latest technologies. As evident in the following projects:

- There is the seven rings optical network which connects all Iraqi governorates via an optical system (DWDM) with a capacity of STM-64. There are also other projects like the Baghdad eight rings optical network (DWDM) with a capacity of STM-64, the optical links STM-1 project, and other projects that link the Iraqi governorates together and with neighboring countries and with the rest of the world;
- There is the national microwave system with seven tracks, with capacities of 7STM-1+ 1, and 5STM1+1;
- There is a new exchange system (NGN) with 720,000 numbers distributed over 26 exchanges of different capacities, work is also carried out to expand the IP Backbone, and update the aging ground network in-order to operate all modern exchanges, as well as establishing 3-management domains which are divided into three zones northern, central and southern, work is also carried out to complete the optical system DWDM access networks to overcome the fiber to cabinet problems;

- There are also the space communications, where there are three satellite stations operating in service with a total expandable capacity of 74E1S. There is also a plan to create more space stations, one of which is Al-Kadhimiya station to the north of Baghdad which is under construction with an expandable capacity of 24E1S;
- There is also the IP project for the e-government and to link ministries and state institutions;
- Seeking to establish a management center to control all communication projects in Iraq, and the electronic archiving project together with the establishing of the LAN networks for the center of the Ministry;
- The reliance of the Internet company on the above mentioned infrastructure to implement its plan using various technologies as a means of network access, including DSL, WiMAX, and in some assemblies the Wi-Fi technology.

The Ministry of Higher Education and Scientific Research is one of the largest ministries, and that is why the Iraqi Commission for Computers and Informatics recommended that there is a need to activate the role of computer centers in-order to achieve the objectives of higher education in the field of IT and its applications in addition to implementing the electronic projects. Besides, through a central committee the Iraqi Commission has become the head of all computer centers.

The development and construction of an integrated university network (internal and external) was amongst the objectives of the Ministry of Higher Education. This would serve as an infrastructure which uses software applications to automate procedures and other e-applications, as well as to develop the process of teaching and research. The Iraqi Commission for Computers and Informatics supervised the installation and preparations of 110 computer and Internet labs for universities and higher education and scientific research institutions including universities of the Kurdistan region in Iraq. This was all carried out within the framework of the Qatari grant project. Since it is not possible to advance with any modern institution without preparing and rehabilitating its employees, training centers and departments were established at Iraqi universities and institutions for training employees and other participants from the private sector. Training took place according to modern curricula in-order to raise the standard of the participants.

In 2008, designs were laid down and frequencies were distributed for the project linking electric power plants across Iraq by a microwave network. The Commission also distributed and allocated frequencies for the project for trains control by means of communication. The project is currently under trial operation.

B. INITIATIVES AND PROJECTS FOR ICT INFRASTRUCTURE AND DEVELOPMENT OF NEW SERVICES

In 2008, the sum of government allocations for investment projects of the Ministry of Communications reached 378 billion Iraqi dinars according to preliminary estimates for this budget. In 2009, these allocations exceeded 250 billion dinars.

Investments in communications networks reached big sums, whereby approximately 3.75 billion dollars worth of mobile phone licenses were invested in. That was in addition to the revenue share of these companies, which ranges between (15-18 per cent) of the gross revenue, and approximately 80 million dollars worth of fixed wireless phone licenses and a revenue share ranging between (10-33 per cent) of the gross revenue. This investment encouraged competition in the telecommunications market in Iraq, which resulted in better service at a lower cost.

C. ICT CONNECTIVITY

Based on a survey carried out by "The Iraqi Mobile Bang", mobile phone users did not face difficulties and they were from both sexes and from all social classes. They were also able to call rural areas which suffer from limited fixed telecommunications networks, the public mobile telephone service covered nearly all of Iraq, and the rate of mobile phones reached 1.56 mobile phone per Iraqi family. The rate of the Internet

use by Iraqis amounted to 3 per cent, where 39 per cent of whom use it at home, 34 per cent in internet cafés, and 26 per cent in educational institutions, work and other places.

D. INTERNET INFRASTRUCTURE

The Ministry of Communications signed a partnership contract with a Lebanese firm to supply the devices necessary for the Internet service using (Dial-up, VoIP, WiFi, DSL) technologies. The contract continued until 31/12/2007. The Ministry is planning to provide Internet service using fiber optic cables network. It is also planning to sign contracts for the supply of a band between (50-100) MB / s via satellite, as well as to carry out the management, maintenance and expansion of the broadband in Baghdad in-order to provide interconnection to all ministries and some institutions and universities via the micro technology (PTP) and (PMP). This would serve as the infrastructure for the e-government project. Added to that is the expansion of the project during 2008 to cover all the city of Baghdad, using the WiMAX technology, and targeting the year 2012 to cover with this technology all of Iraq in-order to serve all government institutions. In 2009, the building of the international access portals of the Internet in Iraq was completed and its expansion to include all governorates will be finished by 2011. This would provide the possibility to integrate with a very broadband of up to (10GB / s).

At the national level, the Communications and Media Commission granted licenses to provide fixed service WiMAX (802.16d) under the fixed wireless phone licenses in the band of 3.5 GHz whereby it granted every national company a band of 4 * 3.5 MHz and every local company a band of 3 * 3.5MHz in-order to provide this service. The Commission looks forward to granting other mobile licenses for this service (802.16e) one of which is the license which will be allocated to meet the requirements of government institutions.

In accordance with the World Bank grant, the project linking Iraqi banks in the governorate of Baghdad with the Central Bank of Iraq using the WiMAX technology was implemented. The project includes the interconnection via VSAT technology of the major banks in other governorates with the Central Bank.

In the Ministry of Health work is currently underway to use the WiMAX technology in-order to show surgical operations to medical students.

Some mobile phone operators provide services such as GPRS, MMS, and the roaming service but the most commonly used mobile phone services are voice calls and SMS that is because they are less expensive and pre-paid cards are widely available and are used by more than 90 per cent of the subscribers.

The use of computers in public and private sectors is steadily increasing. In the houses too, there is a gradual increase in wireless Internet services. In spite of this, computer users still use Internet cafes. However, businessmen are the most dependent on e-mails in the management of their businesses.

The private sector is also becoming increasingly popular and has witnessed increased development in other services like the Fax and the express mail. Work is also underway to automate the postal system for the Post and Savings Office, especially in the areas of electronic money transfer and the dissemination of ATMs.

III. ACCESS TO INFORMATION AND KNOWLEDGE

A. PUBLIC DOMAIN INFORMATION

The basis of the wireless network which connects all ministries and government institutions together is now available as part of the ongoing efforts towards establishing the e-government. There are also websites for all ministries and for most government institutions which offer the public a lot of information, mostly in Arabic.

The Ministry of Higher Education realized the importance of providing its beneficiaries with the largest amount of information in addition to making this information easy to access. The Ministry contributed greatly to the e-government project. Besides its national project to link the Iraqi universities in an internal network (Intranet). Internet cafes are the most common means for using computers and the Internet, and for that reason, ESCWA started implementing the community centers project for multi-use technology.

The ISPs act on providing their services via satellite or DSL to a growing number of Iraqi homes. There is also an electronic library that provides its services through the General Company for International Information Web Services (Internet).

B. ACCESS TO INFORMATION AND PUBLIC INFORMATION

To provide access services to their beneficiaries, the Intranet system requirements were set up at the Ministry of Higher Education and Scientific Research, and at universities and their subsidiary institutions.

In the area of free access to scientific knowledge, the Ministry with the support of the American Foundation (CRDF) succeeded in establishing the Iraq Virtual Library, whose members are 25 universities and five ministries. The number of its subscribers reached (6,351) subscribers. It managed to provide thousands of new books, magazines and current scientific journals for students, researchers and academics. During the year 2008, (306,021) books and articles were retrieved electronically from this library.

The Ministry of Labor and Social Affairs for example, also provides, a proper access to official information through various communication means including the Internet. It covers all segments of society, particularly the marginalized, vulnerable and disadvantaged groups, in addition to providing access to information to the social protection network and the Department of Labor and Vocational Training. It also acts on informing citizens on how to take advantage of the loans from its employment center. The website division of the information and software department at the Ministry's Office act on disseminating information regarding the social protection network, the Department of Labor and Social Security, the Department of Labor and Vocational Training, and other departments to show how to take advantage of the services provided by these departments.

The Ministry of Industry also introduced the e-library service to provide its technicians with up-to-date information. The Ministry of Defense also provides virtual library services to its users in the National Defense University.

C. MULTI-PURPOSE COMMUNITY PUBLIC ACCESS POINTS

Some non-governmental organizations provide ICT community centers to the public. The two centers established by ESCWA are considered examples of such community access points. See Box 1.

D. USING DIFFERENT SOFTWARE MODELS

Through the UNDP Open Source Network, the Ministry of Science and Technology is developing a structure for the open source software. This activity will cover areas of training and eradicating computer illiteracy. The free Internet access has provided Iraqis with a lot of information from its global and regional sources. According to the development plan of the Directorate of Systems and Programs, the Central Bureau for Statistics and IT changed its writing program into new languages such as ORACLE database. It also established a base for a database using the ready-made system (Dev-Info) in addition to the new versions of the old programs, and it converted all of the old working systems to new programming languages. In the analysis, it relied on the updated versions of SPSS, STaTa and other programs. The Commission also activated new input systems such as optical scanning devices, and it laid down plans to develop its website design in line with its plans for publishing and with the modern technologies used in information systems.

The Commission provides technical support through offering specialized courses in web design, use of the Internet and learning about its services, demonstrating its use in the workplace, and allocating standardized e-mail addresses for the Commission departments in the governorates.

Since 2006, the Ministry of Industry and Minerals has collaborated with the German Agency for Technical Cooperation (GTZ) whereby many employees were training on the application systems of "Oracle". The Ministry is also seeking to make use of open source software for the automation of its work.

Box 1. Multipurpose Technology Community Centres (MTCC)

These centres aim at providing ICT services to rural communities and poor areas. These include training and access to the Internet and other facilities. Since June 2006, two centres have been established and operated. They provide the following services:

- Training in basic computer skills based on the ICDL;
- Training programs are provided in Arabic, English, Turkish and Persian;
- Using the Internet.

These centres encourage community members to attend training programs by offering these services at low cost. Special guarantees were given for women to participate in workshops that are strictly for women. It should be noted that trainers in these centers use innovative methods such as advertising and organizing competitions and social events to attract participants to join these training programs.

IV. ICT CAPACITY BUILDING

A. BASIC LITERACY

In the past two years, different ministries exerted clear efforts to eradicate computer illiteracy among various employees, including the decision-making ones. The role of the education directorates, the department of Computer Engineering and Computer Science and the computer centers in the universities is apparent in the organization of training courses and programs. Likewise is the role of the Ministry of Labor and Social Affairs in training and rehabilitating the unemployed in the computer field. Added to that are the activities of the training centers of the private sector companies.

The number of schools that teach about computers is 1,475 schools, 105 of which are primary schools, 225 are middle schools, 1,120 are secondary and preparatory schools, and 27 are institutes. The total number of computers in the General Directorates of Education is 7,955 computers, and number of students which are learning about computers is 355,798 students. The Ministry of Education was also provided by 1,107 computers from some organizations and governorates councils, and the Ministry has signed a contract for buying 9000 computers (type Acer).

In their curriculum, the Iraqi Commission for Computers and Iraqi universities rely on qualifying courses equivalent to that of the ICDL. It runs those courses periodically throughout the year and charges minimal fees. In addition to that it offers courses in advanced programming, website design, project management, information networks security, e-governance, etc...

All Iraqi ministries send their employees abroad to attend specialized courses and to develop their skills, particularly in the area of ICT.

The methods used by the education directorates in the governorates to eradicate illiteracy are being updated. NGOs too play a key role in providing illiteracy eradication programs for selected areas of Iraq. There are also a number of private sector offices and training companies which offer computer awareness courses and introductory courses for beginners.

The Ministry of Planning and Development Cooperation is taking the responsibility of capacity building via three bodies that train public and private sector employees on the use of computers, modern software and ICT technologies.

B. ICT IN EDUCATION AND TRAINING

The Iraqi Commission for Computer and Informatics prepared a number of projects to improve the ICT status in Iraq. It also established in universities about 110 computer centers and 37 centers for the Internet. The Commission opened an academy for networks to train employees from both the public and private sectors, after which the participant is granted an international certificate recognized by the (Cisco) company.

Iraqi universities have more than (50) departments in the disciplines of computer engineering, computer sciences, and IT. The number of students in the preparatory studies for these disciplines amounted to about 7,000 students. The number of graduates in these specialties amounted to 8,089 graduates and their ratio to the total number of graduates is about 10.8 per cent (according to the reports of the Central organization for Statistics and IT).

The universities benefit from ESCWA project on Iraqi academic networks. Refer to Box 2 for more information.

To give a general idea about the number of employees working in the ICT disciplines, the General Company for Telecommunications and Post is given as an example, whereby in 2008 the number of its engineering staff amounted to about 1,150 engineers from both sexes, and the number of its technicians amounted to 7,100 in addition to the various supporting staff from other disciplines.

The Higher Institute for Telecommunications and Post; one of the centers of excellence for training in communications and information systems in the Middle East is associated with the Telecommunications Company. After 2003, the institute's curricula and educational laboratories were digitized in line with the advanced systems of the Lab Volt company. Due to the coordination arrangement with ESCWA, the Institute also entered into the system of the Iraqi Universities Network as a sub academy for networks. Work is underway to make it a major academy for networks and to include more modern technologies in communications systems and informatics. During the last three years the Institute graduated nearly (267) graduates in the disciplines of messaging, exchangers, data and information transmission, and mail systems.

In a pioneering step towards the development of ICT human resources in higher education, the Ministry signed contracts with about 100 engineers (from both sexes) on two batches to study for a master's degree at Brunel and Portsmouth Universities in the UK. When all students of the first batch received their Masters degree at the end of the year 2008, the second batch joined their courses in the UK.

At the Ministry of Interior, training centers for ICT are being opened in its various headquarters and general directorates.

There are several distance learning activities taking place at different centers for training and life-long -learning, for example, the certificates of (CCNA) and Microsoft are currently granted on-line in the consultation office of Baghdad University. Thus, any qualification that falls under the concept of industrial license can be obtained through distance learning. This office also receives from the Cisco Company on-line advanced learning packages. At the level of education the provision of educational packages for different stages of education through educational television channels such as the Iraqi Education channel. However, that does not apply at the level of Academic degrees of the Ministry of Higher Education and Scientific Research due to reasons related to the reliability of granting academic certificates on-line.

Box 2. Iraqi academic networks project

It aims at providing ICT education for youth in the Iraqi colleges and universities, especially the Cisco technology for networking. This project enables Iraqis to learn at any time from any place and to evaluate and interpret information better than in traditional classrooms.

The project was implemented in collaboration with a coalition of national, regional, and international institutions, including the Iraqi Ministry of Higher Education and Scientific Research, five major Iraqi universities, Cisco, UNESCO and the Lebanese American University. The project, which won the Cisco award "against all the circumstances" in 2005, has succeeded so far in establishing of five academic networks in the provinces, in addition to 21 local academic networks. As a result of this project more than 30 tutors gave guidance to more than 250 teachers in more than 75 classes containing more than 750 students.

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

The ICDL Center of the Gulf Cooperation Council gave approval to four ICDL training centers. The training courses on the multi-use of technology offered by the community centers rely on the ICDL curriculum. There are also several training companies in the private sector which offer non-accredited training courses that are based on courses offered by outstanding international companies such as Microsoft, Oracle and Cisco. In addition to that, in most Iraqi universities there are highly developed centers that are specialized in the skills development of employees, teaching staffs, and students alike.

The Public Company for the Services of the International Information Network provides courses on IT, networks and communications, and human development of government employees. Its courses depend on curricula of outstanding international companies such as Microsoft and Cisco.

In this regard, some Iraqi universities obtained an official license to open training centers for granting (ICDL). In addition to that, the Iraqi Commission for Computers and Informatics started a Graduate Diploma in IT, websites design, and multimedia. Iraqi universities also expanded their programs by opening new departments of science and computer engineering, IT, software engineering for undergraduate and postgraduate studies in addition to participating in seminars and conferences inside and outside Iraq.

The Advisory Office for information systems and computers at the University of Baghdad is considered one of the main centers of excellence in the Middle East, besides its being a regional center for the Iraqi Networks Academy project, referred to in Box 2 of this document.

The Ministry of interior also provides governmental and non-governmental training programs which aims at developing skills and capacity building. Besides, it also considers the skills needed for the eradication of electronic illiteracy a basis for upgrading its staff.

Since its establishment, the Communication and Media Commission has worked on training and developing its employees inside Iraq and outside it. The Ministry of Water Resources is also working on training its trainers and rehabilitating them to become lecturers in different training courses. The Ministry of Industry put into application a project to eradicate electronic illiteracy through providing ICDL courses.

D. INNOVATION AND PATENTS

Due to the events of 2003 and the years that followed, most research and development facilities were disrupted, however some were recovered through voluntary contributions from the USAID and others.

The research and development sections in universities and Iraqi ministries played a major role in introducing IT to its divisions and related institutions. The Ministry of Higher Education and Scientific Research besides offering undergraduate studies and possessing computer labs, they also have more than (100) lecturers who hold a PhD. These lecturers contribute to the development of scientific research in

Computing Engineering and Computer Science and they currently have 150 students that are distributed on all Iraqi universities.

V. BUILDING CONFIDENCE AND SECURITY IN THE USE OF ICTS

A. USE OF ELECTRONIC TRANSACTIONS AND DOCUMENTS

The Government will soon approve a new law for regulating the e-signature and electronic transactions services. This will provide the legal framework for the use of electronic means, which will be in line with the development in the ICT field. Iraq also signed the Arab Convention for regulating the rules of the electronic signature in the area of electronic transactions which was issued by the Council of Arab Economic Unity. The Government is taking the necessary steps to approve it.

To prevent fraud, forgery and manipulation, the Ministry of Education developed and updated the application of the preparatory schools e-notebook. It has also issued efficient electronic documents of high quality and accuracy and which are difficult to forge.

B. ONLINE AND NETWORK SECURITY

The use of security applications were restricted to the individual efforts of those responsible for networks management. Similarly, the use of the anti-virus and anti-spam programs were also restricted to individual PC users. Work is currently underway to issue the legislations necessary to protect the Iraqi cyberspace. One can also note some of the good practices of network security on the individual level of those responsible for networks or institutions. One such example, are the centers established by ESCWA which impose laws that prohibit the use of portables within these centers. Similarly, most Iraqi ministries took the necessary actions to protect their networks and electronic information systems, whereby the Ministry of Labor and Social Affairs for example, installed the ISA SERVER to ensure the protection of the internal network of the Ministry. the Ministry's networks were also protected by the domain controller.

The Ministry of Industry and Minerals implements a thorough plan to protect data and networks by linking the ministry's network and all those of the beneficiaries to a firewall device, in addition to the use of licensed copies of antivirus programs.

C. PRIVACY AND DATA PROTECTION

Privacy and data protection were only applied to individual websites. However, the authorities are about to finalize the legislation for cyberspace security and protection, data privacy protection and misuse. There are different steps taken by Iraqi ministries to this end. One such example is the Ministry of Industry which is spreading awareness among users to educate them about privacy and data protection.

D. COUNTERING MISUSE OF ICTS

In February 2009, the Ministry of Communications held a conference, to discuss the mechanisms and measures to be taken to protect data security and privacy and to face cyber-crime and misuse of cyberspace. The measures taken by the Ministry of Industry include for example measures to counteract anti-spam. They also have a plan to make disaster recovery.

VI. ENABLING ENVIRONMENT

A. LEGAL AND REGULATORY ENVIRONMENT

Currently, an advanced legislative system is being formulated and there is a package of legislations and laws that have been discussed in the House of Representatives for approval, such as the general law for communications, the law for the Ministry of Communications, the communications regulation law for the Communications and Media Commission, as well as the law for the Iraqi informatics.

Iraq has also signed the Arab Convention for regulating the policies of the electronic signature in electronic transactions which was issued by the Council of Arab Economic Unity. The Government is also taking the necessary steps for approving it.

Iraq was one of the first countries that enacted laws to protect copyrights and trademarks in the years 1957 and 1971, but their application was limited. In 1976, Iraq signed the Charter of Paris of the World Intellectual Property Organization (WIPO). The most recent Iraqi legislation regarding this issue is the order of the interim coalition authority No. 83 of 2004 on amending the copyright law.

The Iraqi legislation exclusively authorizes the Communications and Media Commission to grant licenses and regulate telecommunications, transmission and information services in Iraq. According to the Iraqi constitution this Commission is considered financially and administratively independent, and functions under the supervision of the Council of Representatives.

As for the funding of the Commission, the legislation specifies that it relies on the licensing fees that are paid by firms and it will transfer to the Iraqi public treasury all profits that exceed the approved budget of the Commission.

The Commission is committed to issuing regulations, instructions and working rules that are necessary to manage its operations and to manage the work of the industries under its authority. As a result of that, the Commission developed a comprehensive framework for its policy, and put regulations for the distribution of the frequency spectrum and for granting licenses and it set the ethical principles and rules of business. It also put rules for dispute settlement, protection of consumer rights, and for organizing media content.

Whilst the Ministry of Communications is the body directly responsible for the development and adoption of the communications strategic policy and issuing its legislations, the Communications and Media Commission is the independent body that implements this policy.

Since its foundation, the Commission also worked on implementing some strategic steps and achieved the desired objectives for the development and implementation of the project of the fixed local wireless licenses. Iraq was one of the first countries that enacted laws to protect copyrights and trademarks in the years 1957 and 1971, but its application was limited. In 1976, Iraq signed the Charter of Paris of (WIPO). The most recent Iraqi legislation regarding this issue is the order of the interim coalition authority No. 83 of 2004 on amending the law of copyright.

B. DOMAIN NAME MANAGEMENT

The Iraq National Internet domain name (.iq) was not available until 2006, the time when the Iraqi government recalled the name during official talks with ICANN. Since 2004, the Communications and Media Commission started intensive contacts until it was able to launch Iraqi national symbol "iq" on the Internet.

Iraq contributed effectively in all regional and international events starting with the preparatory meetings for the World Summit on the Information Society, and then the subsequent meetings of the Arab

team in charge of examining the use of Arabic in domain names on the League of Arab States' Internet. Added to that is the attending of all relevant international events, the last of which was the Internet Governance Forum in December 2008 in Hyderabad.

C. STANDARDIZATION IN ICT

Modern methods for archiving, processing and saving databases are employed in the Central Organization for Statistics and IT. The electronic signature and electronic transactions legislations, which was drafted on the basis of the relevant international legislations have also been addressed. This is the responsibility of the Central Organization for Standardization and Quality Control at the Ministry of Planning and Development Cooperation.

D. SUPPORTING MEASURES

In 2008, the amount of government allocations for investment projects at the Ministry of Communications reached 378 billion Iraqi dinars. In 2009 these allocations exceeded 250 billion dinars, added to that are the grants and loans from international bodies such as the World Bank grant and the Japanese loan.

Investment in communications networks reached high rates, whereby about 3.75 billion dollars worth of mobile phone licenses were invested in, in addition to the revenue share of these companies which ranges between 15-18 per cent of the gross revenue. Similarly, approximately 80 million dollars worth of fixed wireless phone licenses were invested in, in addition to a revenue share that ranged between 10-33 per cent of the gross revenue. This investment encouraged competition in the telecommunications market in Iraq, which resulted in the provision of a better service at a lower cost.

The Government supports the transition towards a multi-resource economy and it encourages sustainable economic and social development through encouraging the private sector to invest in diverse sectors including ICT, as one of the sectors that has value added and high income and contributes to reducing unemployment. The Iraqi Commission for Investments and civil society organizations such as the Union of the Iraqi Industries, the Chambers of Industry and Trade, and the Communications and Media Commission support this move and that is apparent in its offering full or partial financing, banking and tax facilities, and by embracing emerging projects.

VII. ICT APPLICATIONS

All available means of communication and electronic applications are used across all Iraqi ministries to improve the performance of different employees and to raise the productivity and interaction with other mutual bodies within the Government. At the Ministry of Labor and Social Affairs, for example, several systems are being applied in the departments of the Ministry such as the salary payment system, the subscription system, the services system; in addition to that the ministry is connected to the Internet via wireless broadband (WBB) system which is specifically used for the e-government project.

A. E-GOVERNMENT

The Ministry of Communications held two conferences in the field of e-government. They were held through the Internet Corporation. The first took place in November 2008 and the second in February 2009. They were attended by all those concerned with the field of communication systems and IT in all the ministries in-order to discuss the ways and methods of performance necessary to prepare the infrastructure for the e-government project, amongst which was the history and background of the WBB project which is one of the infrastructures of this project, under which all the ministries will be linked and provided with the Internet service.

As part of the e-government project, the Iraqi Commission for Computers and Informatics is currently implementing the Baghdad fast WBB network in coordination with the Ministry of Communications.

The Ministry of Science and Technology and the Iraqi Commission for Computer and Informatics implemented the e-government project in selected ministries, whereby 10 government institutions were linked to a wireless network. This is considered the backbone of the e-government. The Center for Continuing Education at the University of Baghdad also built a model for the e-government. However, more funds are needed to complete this project.

The Ministry of Industry participated in the application of the financial management integration systems (FMIS) which is one of the requirements for the implementation of the e-government. The ministry's website too was also built on the Internet and Intranet.

According to the broadband projects of the Ministry of Communications Iraq's e-government infrastructure is about to be completed; besides the issuance of the e-laws package such as the e-signature law and others. As for e-shopping, e-payment cards are used on a limited scale. However, in the area of trade information, the Ministry of Trade has a special center for trade information which offers a lot of informatics services and full support to businessmen and investors.

B. E-BUSINESS

Currently, e-procurement facilities for some reconstruction and rebuilding projects of Iraq are available. International, regional and local bodies from the private sector launched e-procurement initiatives in order to achieve effectiveness, impact and more transparency, the most significant of which was that which was approved by the International Fund for the reconstruction of Iraq and which provides e-procurement facilities for multiple projects covering a wide range of sectors. In early 2004, another initiative was launched by the "Commercial Iraq" which provides a meeting point for the buyer and the supplier on a wide range of products and services. Some government websites publish procurement requests, but procurement procedures are still completed using traditional methods. In early 2009, a project was launched for linking the Iraqi banks in the governorate of Baghdad with the Central Bank of Iraq using the WiMAX technology. The project also aimed at interconnecting the major banks in other governorates with the Central Bank using the VSAT technology. This will open doors for the Iraqis to automate financial transactions, funds transfer, and clearing. In accordance with the WBB project too, the linking of the financial payments system at the Ministry of Finance is also being tested and shall be launched during the first half of 2009.

Currently, e-shopping is used at the Ministry of Commerce, but with limited use of e-payment cards.

C. E-LEARNING

The introduction of e-learning systems and applications, and IT curricula to all stages and levels of study is a matter that is currently being pursued.

In collaboration with the UNESCO and ESCWA, computerizing curricula and establishing an e-library is underway and is benefiting from a grant of 4 million dollars. Besides, there is a project that uses the educational administration system (EMIS2004) for entering the students' statistical data for the purpose of issuing the annual educational statistics report. In this regard too, the technical center for pre-publishing was opened and it is one of the UNESCO projects aiming at transforming textbooks into CDs. There is also the e-governance project that links the Ministry with all of its directorates. The Information and Communication Center at the Ministry has also completed a project called "educational management system (EMS)" which aims at building the ministerial information database. The Ministry is also using the GBS technology to implement the project entitled "the schools atlas", specifically for schools. The development and updating of the e-book experiment for preparatory schools has been carried out in order to prevent fraud, forgery and manipulation. Added to all that, the first Iraqi satellite educational channel in the country has been launched.

Currently, the Ministry has an electronic portal, which is mainly used for the compilation of job applications. However, there are plans to provide electronic registration services by the end of 2007. The University of Baghdad managed to deliver and present to graduate students more than 70 lectures, from lecturers in Canada, Australia, South Korea and the United States. The implementation of e-learning applications is also underway at the University of Basra.

The Iraqi Commission for Computer and Informatics was interested in completing "the e-learning" project at the Ministry of Higher Education. This was carried out through the provision of scientific and feasibility studies for the project implementation. It also recommended giving support to the relevant pilots that were carried out in this regard in some Iraqi universities.

In 2007, ESCWA in cooperation with the UNESCO began implementing a project on education in Iraq. The project aimed at building sustainable capacity at the ministry of higher education and enhancing sustainable quality teaching and learning. It also aims at improving the ICT knowledge and skills of the ministry's staff, teachers and students, besides enhancing the role of the Ministry in the design, development and dissemination of e-learning materials and programs that help develop teachers' skills in the use of such materials.

The multi-use technology community centers which were established by ESCWA in northern and southern Iraq, provide training according to the ICDL curriculum. ESCWA in cooperation with the UNRWA trained the trainers. In addition to that, ESCWA developed a software package for vocational training.

With the support of the American institution CRDF, the Ministry of Higher Education and Scientific Research established the Iraqi Virtual Library, its members are 25 Universities and 5 ministries. In 2008, the number of its subscribers amounted to (6351) subscribers, and the number of its electronic acquisitions amounted to (306,021) books and articles.

According to a report by the Ministry of Education, the achievements of the year 2007 in this respect were:

- The number of schools that teach about computers is (1,475) schools;
- The number of computers in the General Directorates of Education amounted to (7,955) computers;
- The number of students studying about computers amounted to (355,798) students;
- The number of computers given to the Ministry by some organizations and governorate councils amounted to (1,107) computers;
- In cooperation with UNESCO and ESCWA initiating the establishment of the electronic library and the curricula computerization project using a grant of (4) million dollars;
- Implementing the educational administration system (EMIS2004) for entering students' statistical data for the purpose of issuing the annual educational statistics report;
- The establishment of the educational television channel "Iraqi Education".

D. E-HEALTH

Since early 2009, the Iraqi Commission for Computer and Informatics started implementing the patient's e-document project and following-up this process through e-procedures and processing it via databases. This project is implemented through the design and building of a wireless network in support of its electronic system.

A number of health programs and projects are developed and implemented through the Ministry of Health in collaboration with the WHO, UNICEF, USAID and other organizations.

As part of the bilateral programs with the WHO, a project linking the Ministry with health departments in all governorates was completed in order to work on the health information system HIS. Cooperation with the USAID has also been going on to implement within the electronic infrastructure of the Ministry's headquarters the project of the internal network.

The Center for IT in the Ministry prepared some programs, such as:

- The program for the treatment records of in-patients;
- The program for statistical health indicators;

Future projects of the Ministry include the completion of the health visitor's project to all health centers in Baghdad and the governorates. Work is also underway to use WiMAX technology in the Ministry of Health in-order to show surgical operations to students of the faculty of medicine.

E. E-EMPLOYMENT

The database of ESCWA specialists for the reconstruction of Iraq is an example of e-recruitment efforts in Iraq. The facilities and the websites allow and accept the CV of individuals who are interested in working for the United Nations and international and regional organizations in Iraq.

Another example of e-recruitment is "the Iraqis for the reconstruction of Iraq", which provides a platform for job seekers and those searching for employees. The Ministry of Planning, the UNDP and the International Organization for Migration are working on implementing this project.

As mentioned before, there is the website of the social protection network, through which one can get information about the ministry's systems for granting loans and finding jobs for the unemployed in addition to providing information on jobless training courses of the Vocational Training Center in the areas of computers, the Internet and networks.

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

A. USE OF ICT IN SUPPORT OF CULTURAL AND LINGUISTIC DIVERSITY

Iraq is the cradle of one of the ancient civilizations of the world. It is a multi-cultural State too and the Iraqi population consists of Arabs, Kurds, Turkmen, Assyrians and other minorities, the digital content which reflects the diversity of the cultures is available on the Internet in Arabic, Kurdish and Turkish as well as other minority languages. There is a project carried out by the National Commission for Education, Culture and Science and its objective is to save the Iraqi memory.

B. LOCAL AND NATIONAL DIGITAL CONTENT DEVELOPMENT

Since the founding of the Internet Corporation in the year 2000, the implementation of the hosting service and deployment of websites has been activated on the Internet through the website (www.uruklink.net). The websites design service has also become popular through the help of specialized civil offices.

A recent review of Iraqi Internet websites showed that there are at least 2096 websites in various disciplines, both public and private. They all contribute to the enrichment of the digital content locally and nationally.

One such example is that each year the Central Organization for Statistics and IT publishes 2,350 web pages in Arabic and 2,350 pages in English which includes the most important digital indicators of the Organization.

C. ICT TOOLS AND R&D PROGRAMS

In the past three years, Iraq witnessed intense efforts in the areas of Arabization and the production of both electronic and paper dictionaries in various disciplines. At the regional level, Iraq is also one of the sponsors for the initiative of the Arabization of ICT terms that was launched by the World Conference on Telecommunication Development in Doha, 2006.

The Central Organization for Statistics and IT introduced the optical reading technology of texts. This will be used to scan and read the data of the 2009 general census; it is also used at present by the Ministry of Higher Education in the central admissions application for Iraqi universities.

IX. MEDIA

A. MEDIA INDEPENDENCE AND PLURALISM

Until recently, the channels of the media working in Iraq were caught in a vicious circle. They were dominated and controlled by the former regime and their mission was to promote the political system without paying attention to the substance of the work of the media and its real objectives and without being committed to its criteria.

After the events of 2003, information and communication services were opened broadly, and a large number of television and radio stations were launched. It seemed to many as if this was without any restrictions. That is why the role of the Communications and Media Commission came into being. It is a body that undertakes the responsibility of regulating and developing the telecom and media sectors in accordance with modern foundations that agree with the norms of the Iraqi society.

The "International Compact with Iraq," expresses the need "to educate the general public, to liaise with the media and political groups and the civil society, to update the website of the Compact, issue periodic reports, to issue a newspaper and to produce information materials which include press releases, excerpts from speeches and articles and the opinions of the participants".

Through the Department of the Media Monitoring the Communications and Media Commission, carries out continuous monitoring of the audio-visual and written means of information that are transmitted. The importance of this action lies in its dealing with cautioning and evaluating the different media.

The ownership of the media is diverse and non-monopolized by a specific body. It is divided into three types of ownerships: governmental, party, and private.

The Communications and Media Commission acts on the management and licensing of radio and television and satellite channels. It also organizes the media policies, ensures the work of the licensed stations and takes responsibility for its performance, and it also ensures that its programs do not contradict with the standards accepted by the Iraqi society, according to the parameters set by the Commission.

In the light of these responsibilities, the Commission via the Department of Licensing laid down the foundations and procedures required for obtaining a license. The Ministry of Defense is responsible for publishing e- journals, and the website for the Information Systems Directorate offers news and information services. The Directorate also publishes the monthly informatics magazine, and other magazines for awareness purposes.

Iraqi women play a prominent role in the media, and occupy leadership positions in it. They are journalists, correspondents, news presenters, analysts, and critics. The observer cannot but describe this role as a courageous and dangerous one just to deliver to people the plain truth.

B. THE MEDIA AND ITS ROLE IN THE INFORMATION SOCIETY

As a result of the government's implementation of a plan to impose laws, the security of journalists improved tremendously.

All types of Iraqi media are characterized by its diverse content and languages, which contributes to increasing the citizens' knowledge and cultural awareness. The citizen's understanding and conceptions are particularly expanded through interactive programs and live talk shows which inform citizens especially those living in rural areas and remote provinces about their rights, and help make their voices heard. In addition to that, many of these programs receive via e-mail suggestions and complaints in certain fields made by citizens. Which are in turn replied interactively by the people in charge.

The Iraqi media with its different languages and backgrounds Contributed effectively to the governorates' councils elections that took place in early 2009. It helped to raise the Iraqi citizen's awareness regarding the process of election and the freedom of expression to choose the most appropriate candidate.

The Commission conducted many activities and events that contributed to maximizing the role of the Iraqi media. These include:

- Issuing a monthly magazine specialized in public information and communications affairs;
- Establishing a website pertaining to the Commission;
- Publishing several publications in the areas of information and communications;
- Issuing a detailed report on controlling the Iraqi media during the parliamentary elections in December 2005;
- Convening a special conference in Baghdad on the reality of the Iraqi media and ways of developing it;
- The Paris International Conference on Freedom of Expression and Media Development.

In January 2007 and under the theme "Towards a vital, free and pluralistic media", the Communications and Media Commission in Iraq held "the International Conference on Freedom of Expression and Media Development in Iraq" which was jointly sponsored by the UNESCO and the UNDP and was supported by Japanese official development aid (ODA) and the EU. A member of foreign and Arab Political figures and media, participated representing all active and influential sectors in media development.

In November 2007, the Commission also organized workshops for the development of Iraqi media in Amman jointly with UNESCO and the Albany Group. The main aim of the workshops was to benefit from the discussions on the future of the Iraqi media that took place in the international conference in Paris. More than fifty information, legal, and professional personality participated in the workshops.

In what follows is a summary of the achievements of the support and development of the status of the media in Iraq:

- Cultural and informational seminars and workshops are held at the Commission's headquarters in which representatives from the Iraqi media participate in order to support the media and to create an information structure that is in line with the technological developments;
- Extended meetings with the directors of the Iraqi satellite channels are held to discuss the regulations of media transmission, media work ethics, and the role of satellite channels;

- Preparing and participating in a workshop in Amman to discuss the terms of the Charter of Ethics for the Iraqi media, which resulted in the issuance of the Charter;
- In collaboration with the Independent High Commission for the Elections, the Commission organized a conference on the rules and regulations of media coverage during the election period;
- In collaboration with the Iraqi Media Support Program, the Commission organized a training workshop for employees of the Iraqi media. It covered the rules governing the election campaigns during the period of media coverage of the elections of the governorates councils.

X. INTERNATIONAL AND REGIONAL COOPERATION

A. FINANCING OF ICT NETWORKS AND SERVICES

After 2003, the government eased its control over the mobile, fixed and Internet networks which witnessed an unexpected growth in the past few years. It also implemented the infrastructure projects using the investment budget of the State, and in other projects, it relied on partnerships with non-governmental organizations or UN or WB projects (with a funding of 55 million dollar) or international companies, whether in the form of grants or loans to countries or investments.

During the ICT and education summit in Iraq, which was held in Sharjah in February 2007, a new collaboration between the Ministry of Higher Education and Scientific Research and the Ministry of Communications was launched. It aimed at the full exploitation of the 35 data centers founded by the Ministry of Higher Education and Scientific Research.

In 2007, ESCWA in Iraq in cooperation with the UNESCO began implementing an education project. The Ministry of Higher Education and Scientific Research succeeded with the support from the American foundation CRDF in establishing the Iraqi Virtual Library.

Some non-governmental organizations provide ICT community centers to the public. The two centers established by ESCWA are considered examples of multi-use community access centers. See Box 1.

The Ministry of Labor and Social Affairs collaborated with the Korean Agency KOICA for establishing a youth training center on computer applications as well as in many other areas. In addition to that, the WB and the USAID contributed to the construction of the social protection network.

In May 2006, the USAID launched the Iraqi ICT coalition which is a partnership – specially for the promotion of the development of ICT in Iraq. The Alliance aims at building capacity and developing training programs.

Some R&D facilities which were among the many which were affected during 2003 were restored with the help of contributions from the USAID and others.

A number of health programs and projects are being developed and implemented through the Ministry of Health in collaboration with the WHO, UNICEF and USAID and other organizations. Through the bilateral programs with the WHO a project to link the Ministry with the health departments in all governorates was completed in order to work on the health information system HIS. Cooperation also took place with the USAID in-order to implement the Intranet project within the electronic infrastructure of the Ministry's headquarters.

Using a grant of 4 million dollars, curricula computerization and the establishment of the electronic library in the Ministry of Education are carried out in collaboration with the UNESCO and ESCWA. Besides, the launching of the technical center for pre-publishing work is also one of the UNESCO's projects, which has been implemented in order to convert curricula books into CD-ROMs.

B. INFRASTRUCTURE DEVELOPMENT PROJECTS

Great efforts were made by the Iraqi government to develop the ICT infrastructure and the government through its investment budget has encouraged investment projects, and through various means and facilities encouraged the private sector also to invest in such projects.

The previous sections of this report contain detailed information on projects related to this issue, such as the project concerning the microwave network which is being spread in Iraq using the WB grant and the Japanese loan.

Moreover, with the help of the WB grant, the project of linking the Iraqi banks in the governorate of Baghdad with the Central Bank using the WiMAX technology was implemented, besides the project of linking the major banks in other governorates with the Central Bank using the VSAT technology.

C. WSIS FOLLOW-UP

In the regional action plan for the building of the information society ESCWA pointed out the principle of partnership and investment to which priority goes to countries that suffered from internal strife in its first phase in Geneva in 2003. The declaration of Principles for the summit referred to the same concept in paragraph 16. At the World Telecommunication Development Conference in Doha in 2006 resolution no.51 which supports Iraq's rebuilding of its communications infrastructure was issued.

Besides, the inclusion of Iraq by the laws of resolution no.34 and its appendixes in support of countries with special needs for the building of their communications systems. However, the implementation of these laws was rather limited. Iraq was also one of the nations that at an international level attended the Tunisia Summit, and the preparation meetings that preceded it as well as at the level of the Arab League countries, Iraq is also cooperating at the regional level with ESCWA as in laying down its ICT strategy in accordance with the frameworks of the regional plan of ESCWA and the outputs of the information society summit. The projects set up by ESCWA in Iraq also come in accordance with the objectives and general declarations of the information society summit. All the above apply to all WSIS outputs and action plans which Iraq has progressed in the implementation on what has been reviewed earlier in this document.

XI. MILLENNIUM DEVELOPMENT GOALS

A. PROGRESS TOWARD ACHIEVING THE MDGs

The MDGs are monitored by the UN Development Group and the WB through the projects funded by the IF for the reconstruction of Iraq. A group of units were formed to meet the needs of these projects. These include:

- The education and culture unit;
- The governance and human development unit;
- The rehabilitation of basic infrastructure unit;

The element of ICT is important and common to all programs and activities in all of these units.

The Central Organization for Statistics and IT is heading towards deriving from global indicators its national indicators for measuring the progress made in achieving the development goals. It is also targeting a national upper limit for each indicator, which is in line with the national developmental and social conditions so that it can be later followed up and monitored in terms of the progress achieved.

The Iraqi Ministry of Environment is issuing legislations and taking strict measures to protect the Iraqi environment and the health and safety of Iraqi citizens. In December 2008 and at a conference hosted by the

Ministry, the parameters and standards of control for the deployment of the mobile phone towers were discussed in-order to avoid the potential side effects of high frequencies on the health of citizens.

The project of the social protection network of the Ministry of Labor and Social Affairs whereby IT is being used in its major sections has been reviewed. In addition to that, IT is also used in the subscriptions' system of the department of retirement and social security in-order to facilitate employees' subscriptions and cashing of pensions.

TABLE 1 – DATA ON RATES OF NATIONAL INCOME, GROSS DOMESTIC PRODUCT, AND THE AVERAGE PER CAPITA (US \$)

Year	National income (million dollars)	Gross domestic product (million dollars)		Per capita (U.S. dollar)	
		At current prices	At constant prices	The national income	GDP
2004	32,294.1	36,638.2	28.6	1,189.9	1,350.0
2005	44,700.1	49,954.9	29.5	1,598.5	1,786.5
2006	57,919.7	65,158.8	32.4	1,984.0	2,231.9
2007	76,291.8	85,714.2	38.0	2,534.9	2,847.9

Source: The Iraqi Central Organization for Statistics and IT (COSIT).

B. USE OF ICT FOR ACHIEVING THE MDGs

ICT facilitated the achievement of the MDGs through:

- Providing means of communication with different technologies and at reasonable cost;
- Creating jobs and reducing the impact of unemployment;
- Providing media for the exchange and dissemination of knowledge;
- Reaching out to rural areas and marginalized communities;
- Improving access to information in the education and health sectors;
- Moving towards higher productivity and better standards.

Table 2 shows the importance of ICT use in local Internet cafes; its impact on promoting development, and its effects on the economic opportunities available within the Iraqi community.

TABLE 2 - KEY INDICATORS OF THE SURVEY ON INTERNET CAFES, 2005-2006

Year	Number of cafes	Output value (million dinars)	Requisites value (Million dinars)	Workers compensation (million dinars)	Capital expenditures (million dinars)
2005	280	5,815.6	3,365.5	844.4	4,233.5
2006	358	10,798.8	5,902.7	1,406.1	4,383.6

Source: The Iraqi Central Organization for Statistics and IT (COSIT).

The Ministry of Higher Education, the Ministry of Science and Technology, and the Ministry of Communications participated in international conferences on ICT.

Amongst the initiatives regarding this issue is the preparing of statistical information on ICT in the Iraqi universities by the Iraqi Commission for Computer and Informatics. The Iraqi academic network which was established by ESCWA and the ICT projects in education, are also considered among the projects that lead to achieving the MDGs. (For more information, see section 4).

One of the success stories at the Center of Endocrinology and Diabetes in Baghdad with clear impact on the medical field is the patient's e-document and the follow-up of this process, and its processing in the database. The project is implemented through designing and building a wireless network in support of its electronic system.

Another example of a success story is the contribution of some international agencies such as the UNDP to developing websites for projects taking place in Iraq, and using the best practices to achieve that. Periodical updating of websites like "Iraq's development" and "the Iraqis for the reconstruction of Iraq" are some examples on this.

Granting loans to the unemployed under the social protection network project that was mentioned earlier may also be mentioned under the economic development section.

XII. BUILDING THE ICT SECTOR

A. ICT FIRMS

In the past two years, the ICT sector in Iraq witnessed an increased operation of telecom service operators, manufacturing of computer equipments, software development, website design, besides an increase in the size of local digital content and e-solutions.

1. Public sector firms

These include the two firms which are linked to the Ministry of Communications. Their activities have been addressed earlier in several sections of this document. Other types of these firms include:

- The general Company for Electronic Industries (mixed sector) which specializes in the manufacturing of a wide range of ICT products, such as various digital and symmetrical exchanges (PABX) etc...
- The systems company and the General Company for Information Systems, both of which are linked to the Ministry of Industry.
- The Salam Public Company which is a manufacturer of ICTs and is linked to the Ministry of Housing and Building.

2. Private sector firms

The private sector firms are committed to playing a role in the ICT sector that complements that of the state. Their activities include many areas such as business, consultation, service delivery, and maintenance of systems, etc... These companies usually assume a partner that is technologically more advanced for technology transfer.

B. R&D AND INVESTMENTS IN THE ICT SECTOR

The R&D issue was addressed in a previous section of this document. Apart from what has been mentioned we would like to point out to the existence of specialized labs in production research, the design of systems, industrial research, and development at the General Company for Electronic Industries which has been referred to in (a) of this section.

The following research centers are all linked to the electronic and communications systems at the Ministry of Science and technology and these include: Microwave and navigation center, the telecommunications center, the digital communications center, the precision and electronic microprocessor center, and the control and Mechatronics center. The following research centers are also linked to the IT

division at the same Ministry and these include: the software and systems integration center, the intelligent systems center, the telematics center, the computer networks and the Internet center.

The ICT sector is characterized by local and foreign investment, which come either from the investment budget, whereby the initial estimates of the year 2009 was over 250 million dollar, or from the investments in telecoms networks which reached high levels, whereby more than 3.75 billion dollar worth of mobile phone licenses were invested in besides its contribution in the revenue of these companies which ranges between (15-18 per cent) of the gross revenue. This amounts to about 80 million dollar of fixed wireless phone licenses and a participation rate in revenues that ranges between (10- 33 per cent) of the gross revenue.

The sum of investments of other companies in various other ICT activities is not available.

C. CONTRIBUTION OF ICT SECTOR IN THE NATIONAL ECONOMY

The salaries spent on employees working in this sector amounted to about 69 billion dinars in 2006 and 78 billion dinars in 2007, with an increase of 13 per cent.

In 2007, the percentage of family expenditure on communication services amounted to 2.5 per cent of the total family expenditure. It is worth mentioning that most Iraqis use pre-paid mobile phones lines.

The amount of spending and the outcomes of Internet cafes have been addressed in the section on the private sector. See the table on the relevant data given in section 11.

TABLE 3. PERCENTAGE OF ICT SECTOR CONTRIBUTION TO THE GDP, 2006-2007

Output	2006	2007
GDP (million dinars)	95,587,954.8	107,828,462.5
GDP of the communication sector (million dinars)	1,517,585.1	1,981,600.6
Percentage	1.58	1.83

D. GOVERNMENT FACILITATION

The State provides support and facilities to most of the private sector. This is carried out through investment cooperation and partnerships, including those of small and medium-sized companies by soft loans or simplified procedures. The Iraqi Industries Union is a partner to more than 80 government and international commissions, particularly the WTO, and to joint committees with different world and Arab countries.

The Ministry of Communications and the Communications and Media Commission encourage partnerships and investment. It also encourages the establishing of more IT private sector companies. Despite the Ministry and its sub-division's ability to run efficiently this type of networks as it did in the governorates of Baghdad and Najaf, still the Ministry transferred its licenses of local wireless phone network to operators from the private sector. This comes as a clear example of the kind of encouragement given.

REFERENCES

1. Report and the data of the Ministry of Communications/Dept. of studies & research in the Div. of Planning & follow-up. <http://www.moc.gov.iq>, Expert Eng.: Waqar Abdin /Head of Studies and Researches.
2. Report and data The Iraqi Central Organization for Statistics and IT/Ministry of Planning and Development Cooperation. <http://www.mopds-iraq.org>
3. Report and data of the Iraqi Commission for Computers and Informatics/Ministry of Higher Education and Scientific Research. <http://www.moheer.gov.iq>
4. Report and data of the R & D Directorate/Ministry of Higher Education and Scientific Research. <http://www.moheer.gov.iq>
5. Data of the Advisory Office for Information Systems and Computers/University of Baghdad. <http://www.moheer.gov.iq>
6. Report and data from the Ministry of Defense. <http://www.iraqimod.org>
7. Report and data from the Ministry of Interior. <http://www.iraq-moi.com>
8. Report and data from the Ministry of Industry. <http://www.iraqiindustry.com>
9. Report and data from the Ministry of Housing and Construction. <http://www.moch.gov.iq>
10. Report and data from the Ministry of Commerce. <http://www.motiraq.org>
11. Report and data of the Ministry of Health. <http://www.moh.gov.iq>
12. Report and data from the Ministry of Water Resources. <http://www.mowr.gov.iq>
13. Report and data from the Ministry of Labor and Social Affairs. <http://www.iraqi-molsa.org>
14. The website of the Ministry of Environment. <http://www.moen.gov.iq>
15. The website of the Ministry of Science and Technology. <http://www.most.gov.iq>
16. The website of the Ministry of Education. <http://www.moedu.gov.iq>
17. Iraqi web sites guide. <http://www.iraqws.com/iraq>
18. Report and data by the Iraqi Communications and Media Commission. <http://www.cmc.iq>
19. The website of the Iraqi National Commission for Investment. <http://www.investpromo.gov.iq>
20. The National Profile of the Information Society in Iraq (2007). <http://www.escwa.un.org>