

## ICT in Education in Egypt

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Source: World Fact Book<sup>1</sup>

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## Overview

Egypt faces significant challenges in harnessing its education system to promote its development plans. The government has articulated a vision of an information society in which widespread access to technology can nurture human capital, improve government services, promote Egyptian culture, and support economic growth, and the ICT sector has been targeted as a vehicle for this growth and social development. A national ICT policy has been adopted and is managed by the Ministry of Communication and Information Technology, of which education is one priority. The Egyptian Education Initiative, launched by the First Lady, is a prominent result.

## Country Profile

Egypt, sometimes referred to as the “Motherland of the World” and the “Land of Civilisations,” is famous throughout the world for its ancient civilization and 7,000 year history along the Nile River. It is an important political and cultural centre of the Middle East.<sup>2,3</sup>

Table 1 provides some selected socio-economic indicators for Egypt.

**Table 1: Socio-economic Indicators: Egypt**

Indicator	
Ethnic groups	Egyptian 98%; Berber, Nubian, Bedouin, and Beja 1%; Greek, Armenian, other European (primarily Italian and French) 1%
Religions	Muslim (mostly Sunni) 90%; Coptic 9%; other Christian 1%
Languages	Arabic (official). English and French widely understood by educated classes.
Population	78.9 million (July 2006 est.)
Population growth rate	1.75% (2006 est.)
Literacy	Total population: 57.7% Male: 68.3% Female: 46.9% (2003 est.)
GDP per capita (US dollars)	\$4,200 (2006 est.)
Labour force	21.8 million (2006 est.)
Unemployment rate	10.3% (2006 est.)
Telephones (main lines in use)	10.396 million (2005)
Telephones (mobile cellular)	14.045 million (2005)
Radio broadcast stations	AM 42 (plus 15 repeaters); FM 14; shortwave 3 (1999)
Television broadcast stations	98 (1995)
Internet users	5 million (2005)

## The Education System

The education system (pre-university) in Egypt is state-sponsored and set up in three stages: primary school (six years), preparatory school (three years), and secondary school (three years). Basic education consists of the first two stages and is obligatory for all students in the country.

The higher education sector in Egypt comprises universities and institutions of technical and professional training. The system is made up of 16 public universities, 51 public non-university institutions, 11 private (for profit) universities, and 89 private higher institutions. Of the 51 non-university institutions, 47 are two-year middle technical institutes (MTIs), and four are four- or five-year higher technical institutes.

The Ministry of Education has jurisdiction for all levels of education through secondary school. Each of the 27 governorates has its own governance system. The state Ministry of Education is responsible for the planning, policy formulation, quality control, co-ordination, and follow-up for all levels of public education, including the universities. The state government is responsible for most of education finance for both educational systems. Egypt also receives aid from the World Bank, UNICEF, UNESCO, and several countries.

Curriculum guidelines for each subject, such as arts, literature, mathematics, sciences, and Arabic, are determined through a system of committees at the state level. Each subject-specific committee comprises consultants, supervisors, experts, professors of education, and experienced teachers. Once the committee has reached agreement, the curriculum guidelines are then referred to the Supreme Council of Pre-university Education for official release. Each governorate is responsible for implementing the guidelines.

Table 2 shows Ministry of Education data reflecting the increase in the number of students at different stages and kinds of education from 2000/2001 to 2005/2006.

**Table 2: Student Enrolment in Egypt**

Education Level	2000/2001			2005/2006		
	Boys	Girls	Total	Boys	Girls	Total
Pre-primary	201,114 (52.4%)	182,502 (47.6%)	383,616	281,071 (52.6%)	253,260 (47.4%)	534,331
Primary	3.8 million (52.8%)	3.4 million (47.2%)	7.2 million	4.6 million (51.9%)	4.2 million (48.1%)	8.8 million
Preparatory	2.3 million (53%)	2.1 million (47%)	4.4 million	1.5 million (51.9%)	1.3 million (48.1%)	2.8 million
Secondary	538,841 (49.5%)	548,662 (50.5%)	1.1 million	596,380 (48.1%)	642,809 (51.9%)	1.2 million

Industrial	58,610 (65.5%)	308,867 (34.5%)	894,967	617,620 (62.3%)	374,437 (37.7%)	1 million
Agricultural	159,937 (78.6%)	434,96 (21.4%)	203,433	172,161 (77.1%)	51,225 (22.9%)	22,386
Commercial	358,803 (37.6%)	594,257 (62.4%)	953,060	252,343 (33.8%)	493,376 (66.2%)	745,719
Special Education	19,921 (64.7%)	10,849 (35.3%)	30,770	23,294 (63.3%)	13,514 (36.7%)	36,808
One-class School	1,804 (3.2%)	54,022 (96.8%)	55,826	2,955 (4.3%)	65,672 (95.7%)	68,627
Friendly for girls	-	-	-	1,022 (12.8%)	6,953 (87.2%)	7,975
<b>Total</b>	8.9 million (52.3%)	8.2 million (47.7%)	17.1 million	8.9 million (51.4%)	8.5 million (48.6%)	1544508

Students take various exams throughout their formal schooling that determine the path that they will take. A primary school exam is administered at the end of the sixth year to test basic knowledge. The preparatory school exam at the end of the ninth year determines which school a student moves on to. Students with high scores continue on to a general secondary school, which qualifies them to attend university later. Those with low scores are directed to technical secondary schools, where students study commercial, industrial, or agricultural education and pursue careers as technicians, salespeople, secretaries, etc.

## ICT Policies

Since its formation in 1999, the Ministry of Communications and Information Technology (MCIT) has been responsible for the development of ICT in the country. The MCIT has two strategic objectives: to spread ICT tools nationwide and to set the foundation of an export-oriented ICT industry. Many of the policies and initiatives targeting the attainment of these objectives are publicised to the general public. The MCIT has engaged in partnerships with the private sector, UN agencies, and civil society organisations to maximise the outcomes.

## National Policy

The National ICT policy in the area of education is jointly co-ordinated by MCIT and the Ministry of Education. The plans up to 2015 are as follows:<sup>4</sup>

### *Integrating technology at schools*

- Providing a computer, data show, and wide screen connected to the Internet for each class
- Providing computer labs in schools at the rate of one lab for every 15 classes

### *Introducing developed educational software*

- Developing the production of software on scientific bases and linking it to curricula. This can be achieved through the comprehensive development of curricula that the ministry has started recently

*Providing electronic educational services*

- Uploading the entire primary, preparatory, and public secondary schools curricula on the Internet so that the students can use them at school and at home, take exams that determine their level, and move from one class to another after passing the exams provided
- Extending virtual classes for effective transmission to include a class at least in each educational directorate

*Establishing the infrastructure of the information technology*

- Increasing the capacity of the international Internet of the ministry to allow the biggest possible number of people to log onto the ministry site, and to make use of the provided services especially the electronic education
- Expanding the tools of linking the Internet to the “E1 circles” (Internet connectivity) that are specialised for exchanging information among schools, administrations, educational directorates, and the ministry to avoid overcrowding
- Expanding the use of ADSL (broadband) and leased lines in addition to what is available now in (dial-up) circles to help schools log onto the Internet

*Distance-training national net*

- Upgrading the equipment of the distance-training national net (video conference)
- Using video streaming to include rooms in schools
- Using distance interactive learning for testing the standards of those attending the training sessions in the video-conference halls, and for an active participation with the lecturer

*Training the educational cadres*

- Aiming for most teachers to earn the international computer driver’s licence (ICDL) within eight years through a wide international programme, provided that it is mandatory for those who join the work in the Ministry of Education to have this certificate
- Training teachers to use ICTs in preparing and conducting lessons
- Training teachers to use discussions and assign groups of students to prepare co-research instead of just using lecture format

*Co-projects with donors*

- Extending the use of loans and grants from donors, whether local or foreign, to enhance the educational process
- Setting contracting protocols and agreements with international companies such as Microsoft, Cisco, Intel, and Oracle to help enhance the educational process through upgrading the programmes and training teachers to use modern technology

- Co-operating with the World Bank, European Union, US Aid, and African Aid (among others) to provide schools with the sets and the technological equipment, that will improve the educational process

### **MCIT Policies and Activities<sup>5</sup>**

MCIT supports participation of local and foreign capital through various public-private partnerships (PPPs). These include incubating technology transfer and offering training programmes to young people graduates in co-operation with pioneering international companies, ensuring transparency in restructuring the ICT sector, co-operating with stakeholders in using ICT to improve service delivery to citizens, and showing commitment to the Universal Service Policy.

Further, in June 2000, MCIT, in co-ordination with the private sector, formulated the Telecom Master Plan. This plan suggests strategic economic, business, services, and technical directions and a framework for Egypt's telecommunications infrastructure. The plan calls for the following:

- Emphasising the need to raise teledensity and teleaccessibility in Egypt through restructuring tariffs of both multi-line business and residential services to more cost-based figures and using a universal service fund to subsidise annual charges and installation fees for eligible customers
- Establishing a reliable, scalable, and readily available multi-service, high-speed telecommunications backbone through the transition from circuit switching technology into a more efficient packet switching technology
- Liberalising access services through unbundling and sharing of facilities and wireless services
- Adopting standards to facilitate interconnection.
- Introducing telecom services with new features and capabilities to the Egyptian market, with the appropriate quality of service

The Egyptian government has identified several ways to strengthen the local ICT industry and business sector in Egypt. These include attracting foreign direct investment, stimulating growth of the domestic ICT industry, and promoting exports of ICT products.

Egypt is one of the world's most promising emerging markets, and the country has long been poised to become the information technology hub of the region. The government has made the establishment of a strong national ICT industry one of its top priorities and believes that it will contribute to the acceleration of economic development, promote exports, and increase employment opportunities. With its huge pool of trained ICT personnel and an expanding market, Egypt is increasingly attractive to foreign investment and must take advantage of opportunities to further develop the industry. The ICT Export Initiative aims to:

- Increase local demand in ICT applications and tools

- Promote exports and support marketing initiatives
- Attract investment in the Egyptian market
- Maximise the local value-added component
- Embrace new inventions

To achieve these objectives, the following guiding policies and strategies have been put in place:

- Promote foreign direct investment to Egypt as the regional hub for the Middle East region and the gateway for Africa
- Encourage the private sector to drive the development of the ICT industry in Egypt
- Create an enabling environment for private sector initiatives where the government invests in human capital as a critical input for the ICT industry development

Out of the total number of schools in Egypt (39,926), currently 69.7%, or 27, 838 have computer labs with Internet connection (either dial-up or ADSL). Table 3 shows the breakdown of these figures by level of school.<sup>6</sup>

**Table 3: ICT Penetration in Education**

Education Level	Number of Schools with Computer Labs
Pre-school	6,956
Primary	8,707
Preparatory	4,327
Secondary	7,848

As a comparison, Table 4 shows the change in ICT penetration (Internet users) in the general population from 2000 to 2006.

**Table 4: ICT Penetration in the Population**

Year	Users	Population	Penetration
2000	450,000	66.3 million	0.7 %
2006	5 million	71.2 million	7.0 %

## Current ICT Initiatives and Projects: Ministry of Education

### Multimedia Laboratories

Computer labs have been established in all public and experimental schools for the projection of multimedia programmes using computers as a teaching aid. TV and video sets, enlargement projectors, and interactive CD-Roms and drivers have been provided for the kindergarten and primary stages.

### **Knowledge Sources Network**

Twenty-seven “distance training halls” and 127 schools are using the Internet through direct contact. Over 4,000 schools use the services of electronic mail through the network of the Ministry of Education. A central “electronic library” has been set up with of CD-ROMs, videotapes, and books with teaching aids. All schools participating in the project can benefit from the remote access to the central library. The Internet services are being expanded to reach 4 Mbps to enable a large number of sites and schools to exchange files and share screens by sound, text, and pictures.

### **Educational Satellite Transmission**

Advanced schools have been equipped for receiving thematic educational satellite channels with the possibility of extension to remote rural schools.

### **Developing Educational Administrative Departments**

Twenty-seven administrative departments have been provided with Centres of Training on Technological Development, equipped with multimedia laboratory equipment and receivers of educational satellite channels and training equipment on networks. Over 500 computers have been provided to the educational administrative departments for administrative automation and more than 400 for the analysis of educational statistics.

### **The iEARN Project**

The International Education and Resource Network (iEARN) is a non-profit organisation with over 15,000 member schools in over 100 countries. Children and young adults are collaborating on school assignments using the Internet and other communication technologies.

### **GLOBE**

Global Learning and Observations (GLOBE) is an international project that aims to promote recognition of relevant environmental issues inside and out of schools. It aims to raise awareness of the environmental changes in the world today, provide knowledge, and give students a new vision. Students are encouraged to work in teams within the project.

### **Seed**

This project is a part of the Intel initiative for creativity in learning, which aims for co-operation in education all over the world in the fields of engineering, mathematics, science, and technology learning. The programme began in Egypt in 2004.

Project partner: Schlumberger (a private sector international petroleum company)

### **NEPAD e-Schools Project**

This project focuses on providing end-to-end ICT solutions that will connect schools across Africa to the NEPAD e-Schools Network and the Internet. Solutions include the provision of content and learning material and the establishment of health points at



schools. Egypt is the sixth country in Africa to launch the project after Uganda, Ghana, Lesotho, Kenya, and Rwanda, and the first in north Africa.

Project partner: HP and Oracle

### **Mtandao Afrika (MAF)**

MAF is a collaborative programme for youth to form teams and develop educational Web sites. It is implemented in collaboration with SchoolNet Africa and AGENT Consulting. Within the framework of the project, basic ICT training for over 400 participants from 10 governorates was conducted in 2006 under the auspices of the Ministry of Education.

Project partners: Microsoft Unlimited Potential Program, Ministry of Communication and Information Technology, Xceed Call Center

### **Josoor Arabia**

The Minister of Education in Egypt has launched a new educational initiative addressing the Arab region. The programme aims at promoting Arabic-language content on the Internet. The programme is implemented in collaboration with SchoolNet Africa and AGENT Consulting.

### **Global Teenager Project**

This is a collaborative learning programme addressing secondary school students and operating in a number of schools in Egypt under the auspices of the Ministry of Education. It is implemented by SchoolNet Africa and AGENT Consulting.

### **Virtual Egyptian Chinese School Project**

Both countries agreed on starting a project to teach Arabic to a selected group of students in China, and Chinese to students in Egypt through distant learning

### **Information System and Decision-making Support**

A database has been designed to cover all schools using Oracle software. Educational projections are being made on alternative assumptions. Linkages among different departments have been established for better co-ordination. Personnel are also being trained in the areas of: creation of databases, documentation by scanning, geographical information systems, and the creation of “expert banks.”

### **The Electronic Educational Project**

The project aims to establish a new educational environment that provides distinguished education. The project started with three subjects: mathematics, English, and science. The project has a focus on activating self-learning principle and co-assessment, in addition to facilitating the publication of distinguished educational works whether they belong to students, teachers, or schools..

### **Information Technology in Schools**

From January 2002 through June 2006, information technology in schools brought computers, software, and computer training to 14 schools, affecting 39,000 students in Egypt. The programme also trained teachers to incorporate information technology into their lesson plans and created an online network that allows teachers to exchange lesson plan ideas and to access information on general ICT use.

Project partner: USAID

### **Training for Development**

Training has two components related to ICT. The first is a video-conference distance learning centre that has been established to link 27 sites in all governorates and Luxor City in order to provide learning facilities in remote areas. This has reduced the cost and increased the number of female teachers. Over 370,000 individuals have been trained through 274 training courses and 47 special programmes on practice and assessment. The second component is a training centre on networks and multimedia which has been established in Al Haram to provide training for all the personnel in the field of education on using networks each in their own field of specialisation. In addition, all teachers are encouraged to take the ICDL certificate by making it a prerequisite for future promotions.

### **Production of Educational Aids**

One hundred and thirty-eight multimedia programmes have been produced for different stages of education, 75 films using computer graphics system have been made, and five multimedia programmes have been produced for students with special needs, including a visual dictionary for the deaf.

### **The Centre for Technological Development and Support of Decision Making**

The Centre is provided with the necessary equipment in the fields of information systems, multimedia and videotape productions for transmission through the educational thematic channel. The Centre also produces computer programmes, graphics, and animation; runs a virtual library; and develops modern management techniques for itself and the ministry.

## **Current ICT Initiatives and Projects: Higher Ministry of Education<sup>7</sup>**

### **Information and Communications Technology Project (ICTP)**

The ICTP has established a digital library that now provides all public universities with on-line academic and research content and full access to over 22,000 international journals in almost all subjects to faculty and students. The design of ICT courses (e-learning) has also been completed and was applied during the academic year 2006/07. E-learning activities are also progressing well with the design of 30 e-learning courses completed before end of 2006. One e-learning course was already applied during the academic year 2005/2006 for post-graduates of the various faculties of education of which 29 students have graduated.

### **Faculties of Education Project (FOEP)**

The FOEP sub-project has progressed well over the past 18 months and 54 competitive projects will soon be completed. Improving the infrastructure of the faculties of education is underway through the provision of labs, equipment, and Internet connectivity. Training programmes are being implemented in all faculties of education, and four faculties have agreed to pilot reforms and have already developed new curricula that began to be implemented in 2005/2006 academic year. An additional 14 faculties of education took joined the reform efforts for the academic year 2006/2007, bringing the total to 18, representing 70% of the 26 faculties of education in Egypt.

Project partner: World Bank

## **Current ICT Initiatives and Projects: Ministry of Communication and Information Technology<sup>8</sup>**

### **Technology Mobile Teams**

Mobile laboratories have been provided to 25 out of 27 governorates (administrative departments) to transfer development to faraway villages and hamlets. The teams deal with teachers, students, parents, specialists, and administrators. They also participate in literacy programmes.

Project partner: Egypt ICT trust Fund, which was established in January 2002 jointly by MCIT and UNDP. The fund sponsors programmes and initiatives driven by public private partnerships. The main objective is empowering local communities and providing them with access to the tools and skills needed for the information age. For more information: [www.ictfund.org.eg](http://www.ictfund.org.eg)

### **Mobile ICT Unit**

This project involves the use of buses specially equipped with functional media labs to service remote and poorly serviced areas. The units usually stop at schools and communities for up to two weeks.

Project partner: Egypt ICT Trust Fund

### **ICT for Illiteracy Eradication**

The illiteracy eradication software designed by the ICT4IE (ICT for Illiteracy Eradication) is a simple, self-based, interactive computer tutorial that requires minimal input from the student to promote basic literacy. The pilot schemes were selected based on local illiteracy rates, availability of ICT clubs, and supervisory representation in both rural and urban areas. The first CD was tested and evaluated in 2004, with pilots being organised by GALAE and the National Council of Women in Qalubiya and Fayoum. These were evaluated internally and by the Social Research Center (SRC) of the American University in Cairo (AUC), and based on a comparison with six traditional illiteracy eradication classes in the same governorates it was apparent that retention rates were higher and learning was quicker by use of the CD-based media. The second CD was tested in 2005, and since then a contract has been issued to commence large-scale production of the double CD. The CDs are available to all who need them at no charge.

Project partner: Egypt ICT trust Fund

### **The e-Learning Competence Centre (eLCC)**

This initiative was set up to create a national e-learning programme, establishing an organisation to lead and co-ordinate all e-learning projects in Egypt.

Project partners: Oracle, Microsoft, Cisco, Middlesex University, and Learning Institute

### **ICT for Community Development**

This project aims to increase computer literacy and skills among school children across Egypt, improve citizens' access to services and information, and reduce illiteracy.

Project partners: USAID, Egypt Post, MCIT

### **Stimulating ICT innovation**

Two strategic decisions have been taken to stimulate the local ICT industry to innovate and stop the "brain drain" of Egypt's young ICT professionals. One is the Virtual Research and Development Centers of Excellence (CoE) and the other is the Technology Development Fund. The purpose of the CoE is to provide Egyptian researchers with the collaborative environment and support to make breakthrough innovations in the application of ICTs in traditional and new industries. The Technology Development Fund is a public-private partnership established to invest venture capital in Egyptian start-up companies.

### **Smart Schools Network**

The Smart Schools Network is the first integrated move towards a comprehensive modernisation plan for the Egyptian Schooling system. There are 38 schools in the first phase and 50 in the second phase.

Project partner: Egypt ICT trust Fund

### **IT clubs**

This initiative is working to provide IT access to Egyptian citizens and communities and to leverage IT to improve standards of living and the socio-economic conditions. There are currently over 1200 clubs nationwide.

Project partner: Microsoft Unlimited Potential

### **Free Internet and broadband**

The government's first major success in its effort to make technology more affordable came with the launching of the Free Internet Initiative in Cairo. The Free Internet project is a joint effort between MCIT and Telecom Egypt, in co-operation with the majority of Egypt's private Internet service providers (ISPs). The initiative offers subscription-free Internet services to users via dial-up to special-prefix numbers

### **PCs for Community**

The PC for Community scheme evolved from the PC for Every Home project to increase PC usage and to attain the level of penetration to reach one PC per every three families. The programme is also supported by banks offering credit payment facility.

Project partners: Information Technology Industry Development Agency, Ministry of Education, Misr Bank, National Bank, and Egypt Telecom

### **The Egyptian Education Initiative (EEI)**

EEI is a public-private partnership that aims to improve education in Egypt through effective use of ICTs. With the support of the World Economic Forum, multinationals, and donors, the Ministries of Communications and Information Technology, Education, and Higher Education have put in place several initiatives to provide ICT to all Egyptians at an affordable cost. The initiative supports Egypt's overall education reform efforts and maximises the potential for collaborative public-private partnerships to achieve its goals.

Project partners: MCIT, Ministries of Education and Higher Education, and World Economic Forum's IT member's community.

## **Current ICT Initiatives and Projects: Public Agencies**

### **Educational Satellite Channels**

The Centre of Technological Development and Decision-Making Support has produced 68 multimedia films. 9,478 schools, 27 educational directorates, 239 educational administrative units, and 25 mobile technological teams have been equipped with receivers of the transmission of educational satellite channels for use in schools of remote areas. In addition, in an attempt to make use of all potentials of the Egyptian Satellite (Nile Sat), the thematic educational programmes have occupied 7 satellite channels. Transmission for schools started in November 1998. This will cover primary education, preparatory education, secondary education, technical education, languages and general knowledge. A special channel will cover the upgrading of teachers and another for literacy programmes.

Egypt plans to expand the network of distance learning to cover its 260 educational directorates. 45 were covered in 1999. The country also plans to connect the local centers with European and American institutions to train its teachers.

### **The Children's Library Project**

The project was prompted by Bibliotheca Alexandrina with the aim of developing interest in the bookmaking process, including printing and binding, alongside encouraging children to gain a wider literary experience.

## **Implementing ICT in Education: What Helps and What Hinders?**

The Ministry of Education in Egypt is taking a leap in ICT to move to the 21st century. However it is faced by many challenges. Table 5 provides a summary of the current stage of ICT development in Mauritius in terms of enabling or constraining features in the education system.

**Table 5: Factors Influencing ICT Adoption**

<b>Factors</b>	<b>Enabling Features</b>	<b>Constraining Features</b>
<i>Infrastructure and access</i>	Egypt's telecommunications infrastructure has increased dramatically during the last few years. A number of initiatives have been undertaken to ensure the creation of a robust and well-spread infrastructure that allows for access to and benefit of ICTs, even in the most remote areas of the country.	Although there are many initiatives and programmes, the current technological infrastructure is still insufficient. As a developing country Egypt has addressed the issues of infrastructure and universal service to reach out across the unconnected parts of the country to allow development in ICT.
<i>Government support and regulations</i>	Egypt is now making firm strides towards fulfilling its obligation to achieving the MDGs by adopting the set plan of action as a framework for change. The Egyptian government affirms that the implementation of the WSIS Plan of Action goals is instrumental in developing the ICT industry in Egypt and providing opportunity for the development of a world class information society.	
<i>Availability of appropriate learning materials</i>	The development of learning/training materials and tools is at the core of the efforts in the area of education. The employment of technology as a vital tool for enhancing the educational process requires revamping of current learning materials. The Egypt Education initiative has as a major target the revamping and restructuring of curricula and learning tools.	Curriculum Education could contribute to the development of Egypt's information society by improving the quality of its human capital. A reform effort has been initiated and technology has been identified as an important component of this effort. ICT is a subject in the school curriculum, but the material is not periodically improved. There are major barriers to change within the education system itself. Most significantly, the country's curriculum and assessment systems emphasise the memorisation of facts, which works against innovative thinking and knowledge creation

		in both schools and universities.
<b><i>Rural/urban divisions</i></b>		Fewer numbers of schools and even fewer universities and higher institutions are available in rural communities. There is a lack of infrastructure and facilities in rural areas. There is also a serious problem with the number of school dropouts especially in rural areas.
<b><i>Gender equity</i></b>	Gender disparities in the field of education and access to ICT as well as role and placement in the workforce are being seriously addressed. Much improved graduation rates in women are being seen and schemes have been implemented to specifically to provide employment opportunities and education for women in the ICT industry. A number of projects have been implemented to ensure women's participation and inclusion in the development process. Figures and statistics show that the number of female graduates in several domains exceeds the number of males.	In general the level of illiteracy is higher among females, which reflects access to ICT training and skills. There are many more female school dropouts than males due to cultural and economic issues especially in rural areas where females receive education to a certain age then drop out of school.
<b><i>Human resources</i></b>	MCIT initiated a number of training programmes to familiarise graduates with the use of computers, which would then help them get better jobs. Egypt has put ICT training at the top of its agenda by including it in its National Plan, and the government has developed training programmes and formed partnerships with training institutes to invest and enhance ICT skills and capabilities. Human resources are one of the major assets in Egypt, and the government sets policy to ensure maximum investment in people to ensure and sustain the development process.	The larger population of teachers lacks proper ICT training; a large number of projects and programmes are concerned with capacity-building and human resource development as a basic need for achieving educational development.
<b><i>Sustainability</i></b>	Development projects and the government vision for 2020 has ICT as the founding pillar for achieving the knowledge-based society that is built on the integration of ICT in all	

	domains.	
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## Notes

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1 The World Factbook 2007. <https://www.cia.gov/cia/publications/factbook/geos/eg.html>

2 Ibid.

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