

ECONOMIC AND SOCIAL COMMISSION FOR WESTERN ASIA (ESCWA)

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

United Nations

Distr.
GENERAL

August 2007
ORIGINAL: ENGLISH

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ABBREVIATIONS

ADSL	Asynchronous Digital Subscriber Line
MDG	Millennium Development Goal
ICT	Information and Communication Technology
DSL	Digital Subscriber Line
JD	Jordanian Dinar
SFI	Subscription-Free Internet
ISPs	Internet Service Providers
NGOs	Non-governmental Organizations
PIS	Palestinian Internet Services Co., Ltd
InterPAL	Palestinian Relief & Development Fund
IT	Information Technologies
TDM	Time-Division Multiplexing
PCBS	Palestinian Central Bureau of Statistics
TV	Television
GCC	Government Computer Center
WiFi	A wireless standard for the Wireless Ethernet Compatibility Alliance
WiMAX	Worldwide Interoperability for Microwave Access
ICDL	International Computer Driving License
MoHE	Ministry of Higher Education
PNINA	Palestinian National Internet Naming Authority
MTIT	Ministry of Telecommunication and Information Technology
PEI	Palestinian Education Initiative
OCR	Optical Character Recognition
DOI	Digital Opportunity Index

Introduction

The years 2006 and 2007 constitute a turning point in the life of the Palestinian people in West Bank and Gaza. The Palestinian National Authority (PNA) held its legislative council national elections in January 2006, bringing Hamas group to the scene. The direct impact of the victory of Hamas in the legislative elections and the change of government is the following:

1. Almost all donor countries have ceased their financial support to the Palestinian authority on the pretext of refusing to deal with a new government that is formed by Hamas;
2. This political change in the Palestinian internal affairs resulted in a serious “wait-and-see” attitude among foreign investors and the private sector.

The newly elected Hamas government had little experience in the affairs of governance, and this has led to major delays in the work processes and on projects related to information and communication technology (ICT) in many ways. Furthermore, the freezing of direct aid led to the stoppage of payment of governments salaries for six-months, during which strikes in governmental offices went for a long time calling for salaries and other demands.

However, the business growth in the field of telecommunications and information technology was perhaps the least affected by such major change in government. It continued to grow but at less momentum, and this has minimized the impact of the political change on the ICT sector and the information society in general. During the period 2006-2007, the information society in Palestine was characterized by the following:

1. An increasing opportunity for growth, especially in the field of telecommunications as the period witnessed an end to a monopoly and a start of competition. In addition, the ICT regulations that were studied and addressed between 2003 and 2005 have found ways to be implemented, even if partially.
2. The decoupling of the ICT sector from other sectors of the Palestinian economy to a high extent; although it sounds impossible, but the Palestinian economy had not many choices as the economic and financial boycott took its toll on the PNA operations.
3. Finally, the implemented ICT regulatory mechanisms allowed for closer cooperation between the private sector and the civil society with the direct help of donors and without the government intervention. This has facilitated the growth of ICT-based development on the society level.

I. THE ROLE OF THE GOVERNMENT AND ALL STAKEHOLDERS

The stakeholders in the development of the information society include many others than the government and the private sector. As the information society is a cross-sectoral society, the civil society also has its significant role as a major stakeholder, especially when non-governmental organizations (NGOs) are very active and become practically the most viable channel of donor support when a boycott of the government takes place.

In the PNA, a set of regulations and policies were discussed in detail between 2003 and 2005, at many levels, from the commissioned technical and professional committees to the politicians who include the ministerial level and the legislative council. These regulations could be traced to the resolution of the Council of Ministers No. 09110, January 2004, regarding a national strategy for ICT, and the formation of the Palestinian Telecommunications Regulatory Authority (TRA).

A. NATIONAL INFORMATION SOCIETY POLICIES AND E-STRATEGIES

Although initially the PNA started to mostly depend on the United Nations bodies and other international organizations for improving the infrastructure of the Palestinian industry, the private sector and some of its business ventures with foreign investors played a stronger role in such development work. The information society infrastructure enjoyed a significant priority within this work.

As the approval and endorsement of the national ICT strategy took place in 2004, the Ministry of Telecommunications and Information Technology (MTIT) has adopted the development of the ICT sector as a major priority until the January 2006 elections. In fact, the MTIT has pushed forward a number of activities during the year 2005, most visible of which are the following:

1. Adopting of the Palestinian TRA and empowering it to seek further studies relating to forming legislation and to be passed in the Legislative Council.

2. Establishing the Palestinian electronic government committee <<http://www.egov.ps>> that would have developed the background for policies and priorities in e-government implementation and regulation. Up to summer 2007, this web site did not include details of such plans and regulations. Although currently there exists such a plan, the internal political stalemate seems to be blocking any immediate move on this issue.

3. Allocating a higher budget for the ICT sector in the Palestinian Medium Term Development Plan (MTDP) for 2005-2007¹, as advocated by the Ministry of Planning (MoP) (see sections 1 and 4). Although this seems to date as farfetched, but somehow as soon as the internal political crisis is cleared, both MTIT and MoP are determined to proceed further in this plan.

4. The licensing of another mobile phone operator, besides the only existing mobile company Jawwal of the Palestine Telecommunications Company (PalTel), is another major factor promoting ICT development. As the new operator PalTel is about to start operation in the PNA, the ICT sector would significantly be affected.

It is important to recall that during 2003-2005 the Ministry of National Economy (MoNE) promoted the founding of the Palestinian Information Technology Association (PITA) <<http://www.pita.ps/>> and established many agencies and departments in the industrial sector. Certainly due to the economic boycott, among other factors, very limited development have been achieved during 2005-2007, in terms of promoting the industrial and economic development of ICT.

¹ Palestinian National Authority Operational Plan for 2007, Ministry of Planning.

Much of the sectoral plans for developing the information society, such as the Palestinian Socio-economic Stabilization Plan (SESP) for 2004-2005, remained inactive. The participation of the private sector and the international support for such plans and their implementation were heavily impeded by the lack of financing.

In other sectors, notably education, health and agriculture, ICT has been a major concern. The Palestinian Education Initiative (PEI) <<http://www.pei.ps/>> that was planned in 2005, was launched as early as 2006. It promotes a major ICT component that includes developing and deploying e-curricula and the pedagogies to support their delivery, enhancing connectivity and in-classroom technology, and developing and providing training to teachers/administrators on how to build and deliver e-content in the classroom.

It has been noted that Palestine does not have regulatory laws in Internet-related services. This is in spite of the fact that an independent Palestinian National Internet Naming Authority (PNINA) <<http://www.pnina.ps/>> was formed in mid-2003 with a mission to formulate the necessary registration policies for the .ps domain and to set appropriate policies for enhancing Internet usage in Palestine. The organization is also entrusted with managing all administrative, registration, technical and financial aspects of the .ps domain based on the international standards and best practices in this regard. During the year 2004, there were 634 domain names registered on the .ps domain, and by November 2006 the figure increased to 3510 domain names.

B. PUBLIC/PRIVATE PARTNERSHIPS OR MULTI-SECTOR PARTNERSHIPS

It is evident that there are circumstances that prevent public/private partnerships (PPPs) from developing in Palestine, in situations like they exist to date. Perhaps the financial dearth and lack of political stability within the PNA is one reason, but that does not negate the fact that the major reason is the lack of mobility and the regulations imposed by the Israeli occupation authorities that have been interrupting heavily the ways of life of the Palestinian society, for employees and institutions, not only in transport and mobility but also in accessing and sharing technology that are largely associated with a donor or a foreign body. That process is very often delayed and hindered by the interfering Israeli legislation and imposed regulations.

However, there are several examples of partnership channels between different stakeholders. Under such situations, many of these channels are between the private enterprises and the local communities. As an example of similar public/private partnerships, PalTel carried out several partnerships to promote ICT. For example, a specialized Telemedicine Unit was installed at Nablus Hospital, connected with An-Najah National University Faculty of Medicine. This unit has connected the local medical institutions with the international health society worldwide, and has provided medical consultancy to all doctors in Palestine. In addition, PalTel has established, in cooperation with the Italian Embassy in Palestine, a data Internet network connecting between governmental hospitals all over Palestine, in order to unify medical information and strengthen their exchange among the hospitals. Another example, PalTel allocated one million USD to establish a "computer fund" aiming to provide a computer for every home in Palestine, through enabling the payment by installments that are charged as part of the phone bills. This comes as a strategic step by PalTel to increase computer literacy in the Palestinian society.

C. ROLE OF NON-GOVERNMENTAL ORGANIZATIONS

Many NGOs in Palestine focused on the utilization of ICT tools and applications within their cross-sectoral activities. These NGOs realized that using ICT would be necessary for the facilitation of their work and services. Examples of such NGOs are the Palestinian Agricultural Relief Committees (PARC) <<http://www.parc.ps/>>, and the Palestinian Medical Relief Society (PMRS) <<http://www.upmrc.org/>> that has been active for a long-time in the relief, medical and health services and are advocating ICT in many of their projects. The Applied Research Institute of Jerusalem (ARIJ) <<http://www.arij.org/>> is another example of an NGO that was able to conduct research and work through ICT GIS technology.

Another important non-governmental player in the ICT sector is the Palestine Information Communications Technology Incubator (PICTI) <<http://www.picti.ps/>>. It is established with the vision to design, develop, implement and promote those initiatives that will support the development of entrepreneurial business ventures.

D. PROGRESS TOWARDS FULFILLMENT OF NATIONAL POLICIES AND STRATEGIES

During the past two years the progress, if any, towards the fulfillment of national policies and strategies was limited to the following:

1. Individual and small initiatives have contributed to localized progress on specific targeted groups and strategies. This shy contribution is mainly due to the lack of attitude for partnerships between the NGOs, private sector and foreign donors;
2. Planning and initiation of certain events at the national level that could contribute to the process.

With the existence of a two governments and two ministries of telecommunications within the Palestinian political spectrum, it seems impossible to achieve significant progress towards such a fulfillment.

II. ICT INFRASTRUCTURE

A. INFRASTRUCTURE

Until May 2007, PalTel was the only telecommunications operator in Palestine. Established in 1995 as a public shareholding company, PalTel commenced its operations on January 1, 1997 with a paid capital of JD 45 million (USD 63 million), which further increased in 1999 to JD 67.5 million (USD 95 million). A remarkable success in its operations was indicated by the ever increasing growth on the 31st of December 2005 as PalTel's capital amounted to JD 101.25 million (US\$ 142.6 million), with about 7500 shareholders. It offers subscribers with a wide-range of services including local and international telephone services, access to the Internet, and payphone services. In 1998, PalTel established the only Palestinian cellular company known as Jawwal that uses a GSM cellular network. Both PalTel and Jawwal have invested more than USD2 billion in the telecommunications sector. Currently, PalTel has 400,000 fixed line subscribers and Jawwal has 800,000 mobile subscribers. The following table shows the basic infrastructure indicators of PalTel for 2005 and 2006.

Table 1. A summary of infrastructure characteristics of PalTel for 2005 and 2006

	December 2005	December 2006
Main Switch	52	50
Secondary Switch	100	123
Capacity (users)	425302	443983
Served localities	533	545
Number of working Lines	348968	341330
Penetration rate	9%	9%
Number of PalTel centers	25	30

Source: PalTel 2006 Annual Report.

In summer 2007, preparations are in their final stage for the start of operation of the second mobile operator in Palestine, Al-Wataniyeh².

PalTel owns the data communication infrastructure and is the sole provider of the data communication services in Palestine. It offers a range of services other than data communications, including local and international telephone services, Internet, mobile, value-added services, pay phones, and next generation services, in addition to creating the backbone for other related telecommunication services. PalTel has an exclusive license agreement with the Palestinian National Authority (PNA) to develop the telecommunications sector. This exclusivity has expired in November 2006.

B. INVESTMENTS IN ICT INFRASTRUCTURE AND DEVELOPMENT OF NEW SERVICES

The Palestinian ICT sector employs around 3,000 individuals in more than 120 companies in the West Bank and Gaza (WB/G). Almost all types of ICT specialized companies exist, including hardware (Direct agents or computer assemblers), software development, business consulting, telecommunications, Internet service providers (ISPs), and office automation equipment. Most of the demand for ICT is in Ramallah, Jerusalem and Gaza, the majority of ICT companies are located in these areas, with more presence in Ramallah. With the development of the Palestinian ICT sector, the demand for sophisticated computers and web designing is growing.

By July 2006, the total number of ISPs in Palestine reached 37. The 37 ISPs were reported by the MTIT as registered in 2006, and as a figure that went down from 56 ISPs in the end of 2005. Of the 37 ISPs, 23 are Subscription Free Internet providers (SFIs). As of the middle of June 2006, 94% of these lines were residential and the remaining 6% were commercial. Furthermore, the most wanted speed by the residential customers was 128 KB while the commercial customers preferred 2MB³.

It is estimated that the total number of Personal Computers (PCs) in Palestine is around 238,000 (end of 2005). The number of PCs grew at a compound annual growth rate (CAGR) of 24% during the period 2002-2005. Between 2006 and 2010, the Arab Advisors Group forecasts that Palestine's PC market will grow at a CAGR of 14% to reach 478,000 PCs in 2010, a penetration rate of 10.6% compared to 6.3% in 2005.

Table 2. Computer Acquisition and growth in the Palestinian Society

Year	Computers	PC penetration rate
2002	130,000	2.6%
2003	170,000	3.4%
2004	200,000	4.0%
2005	250,000	5.0%
2006	300,000	6.0%
2007	340,000	6.8%
2008	380,000	7.6%
2009	430,000	8.6%
2010	480,000	9.6%

Source: "Palestinian Internet and Datacomm Landscape Report" : Arab Advisers' group.

² On March 15, 2007, Wataniya Mobile signed a license agreement with the Ministry of Telecommunications and Information Technology (MTIT) bringing the new mobile operator in Palestine one step closer.

³ Arab Advisers Group, 2006, Palestine Internet and Datacomm Landscape Report.

With the licensing of a second mobile operator, Al-Wataniyeh, it is expected that competition will grow high. That will induce similar competition in other ICT fields and applications. In particular, if plans for ICT development of the PNA Medium Development Plan of the Ministry of Planning are realized, it is expected that a growth in the demand for ICT businesses and support would result in a substantial move of the ICT society into a more active one.

C. ICT CONNECTIVITY

During the year 2005, PalTel launched the Subscription-Free Internet (SFI) and the ADSL services, both of which constitute a turning point in the ICT sector in Palestine, ensuring affordable Internet access to all subscribers. In cooperation with the Ministry of Telecommunication and Information Technology (MTIT) and Internet Service Providers in Palestine, PalTel launched this service, which provided Internet access to new segments of the Palestinian market, and increased the number of Internet unique users from 30,000 to 67,000. In addition it started offering ADSL services on May 2005⁴. This paves the way for introducing additional Internet services, such as video on demand, gaming and E-learning in addition to many others. ADSL services are available in major cities and towns, with the number of working lines reached 7,534 towards the end of 2005, distributed over 39 locations. The service has reached 17,181 lines by June 2006, and by March 2007 it reached 35,000 lines.

Table 3. Growth of Internet subscriptions by type 2005-2006

	2005	June 2006
Dialup subscribers (000s)	1.888	6.532
Added subscribers (000s)	-43.441	4.644
Growth %	-96%	246%
SFI subscribers (000s)	70.427	65.044
Growth %		-8%
ADSL subscribers (000s)	7.463	17.181
Growth %		130%
Total Internet Subscribers (000s)	79.778	88.757
Added subscribers (000s)	34.449	8.979
Growth %	76%	11%

Source: "Palestinian Internet and Datacomm Landscape Report": Arab Advisers' group.

PalTel continued to provide digital leased line services and backbone connectivity to economic and academic institutions as well as to ISPs. At demands of certain customers, and in order to provide better quality data communications for customers with large capacity needs, PalTel provides Fiber connectivity as well. As a result of the increase in demand for Internet, resulting from the provision of new services (SFI and ADSL), PalTel increased its backbone capacities by 300%, in order to meet customers' needs.

As of February 2005, PalTel established the Hadara Technological Investment Company through the acquisition and merging of the main four ISPs (PalTel, Palestine Online, PIS and InterPAL). By merging these companies, Hadara was able to concentrate on penetrating the market of broadband (ADSL) and investing in information technologies (ITs) convergence and integration services, and to participate in paving the way for the future where IT plays an important role in the development and growth process in Palestine.

⁴ Paltel was able to do so after overcoming all obstacles that impeded the clearance of the necessary equipment from Israeli Ports, where they had been seized for more than a year and a half.

Table 4. Breakdown of the Internet subscribers (June 2006)

	Subscribers	% Total of accounts
Prepaid and postpaid dialup	6,532	7.4%
SFI	65,044	73.3%
ADSL	17,181	19.4%
Total Internet subscribers	88,757	100%

Source: "Palestinian Internet and Datacomm Landscape Report": Arab Advisers' group

The main services of Hadara include: Internet access and connection; commercial network connection services, such as network setup, installation and connection "LAN/WAN/WLAN", server set-up and installation; information security services; and hosting and content services that include e-mail and Web hosting, server hosting and content services.

Table 5. PalTel Leased Line Breakdown (2004, 2005 and June 2006)

	2004	2005	June 2006
Type	Number of lines	Number of lines	Number of lines
TDM	567	565	550
Growth %		-0.4%	-2.7%
Frame relay leased lines	468	289	265
Growth %		-38%	-8%
PVC over frame relay	452	248	206
Growth %		-45%	-17%
Total	1487	1102	1021
Growth %			-26%

Source: "Palestinian Internet and Datacomm Landscape Report": Arab Advisers' group

According to an online survey that the MTIT has conducted on its web in July 2007, around 75% of the connectivity was based on the Asynchronous Digital Subscriber Line (ADSL), while 2% only was using ISDN, 4% leased lines and 12% dial-up.

**Table 6. An online survey results of Connectivity to the Internet
Ministry of Telecommunications and Information Technology, Palestinian Authority July 2007**

Connectivity Method	Percentage
ADSL	75%
ISDN	2%
Dial-up	12%
Leased Line	4%
Other methods	7%

Source: http://www.mtit.gov.ps/mtit/show_poll.asp?id=59

D. ICT EQUIPMENT AND SERVICES

According to the Palestinian Central Bureau of Statistics (PCBS)⁵ household surveys of 2006, 32.8% of Palestinian households have computers at home. But half of them (15.9%) have Internet access. Those who have computers justify that for the following reasons: Education 62.7%, Entertainment 17.5%, and Work 8.4%. In fact 77.7% of the population does have a computer in spite of its high cost. Only 38.6% do not have a computer because they believe that there is no one qualified in the house that can use it. 50.9%

⁵ PCBS Household surveys of 2004 and 2006, <http://www.pcbs.gov.ps/>

of people of the age 10 years and above use the computer, but only 18.4% of those use the computer for accessing the Internet.

Palestine has many portals and web site, most of which provide general information about the country. Many also provide other entertaining information like jokes, games, horoscopes, chat rooms and information on other countries in the region. Most of these content players aim at generating most of their revenues by renting advertising banners to other companies.

Many of the organizations and companies have also their controlled Intranet and portal sites. For example, universities have each their own web portals, and enable students and employees to log in remotely, exchange information and conduct business almost as usual. That includes e-learning such as delivery of course material, exchange of teaching assignments, and sharing with students and faculty any information and communication should they wish to.

By 2005, there were 24 major portals, 15 online newspapers, 7 online magazines, 8 radio stations and 1 Television (TV) station. In addition, 16 banks used online banking.

With the help of the Government Computer Center (GCC)⁶, the government has a structured arm for the implementation of ICT-based projects and tasks. However, the GCC is not central as the intention is that each ministry would have its own information and knowledge resources as well. In fact, the GCC is a government ISP that provides Internet connectivity to the Palestinian ministries, governmental institutions and educational institutions. The GCC offers its customers core services such as broadband Internet access, email, web hosting, and .ps secondary domain registration. It connects through the national telecommunications provider in Palestine, PalTel.

In January 2004, the council of Ministers requested all ministries and public institutions to switch their Internet service to the GCC, provided that GCC can provide similar or better services than those available in the private sector. In this context, GCC offers Internet access services, emails, site hosting, domain name registration, and Web development and consulting.

E. INTERNET GOVERNANCE

In Palestine there is no fixed Internet backbone formally, however the main connection provided by PalTel is the de facto one. It is composed of the actual connections that extend from the different PalTel technical sites in all parts of Palestine, with the main servers and routing technology needed to provide such connectivity. This is connected to a main gateway through the Israeli connection. However, as the telecommunications sector in Palestine grows, the issues of concern shifted from the technological to the political and economical nature. There have been several meetings to discuss a separate connection between Palestine and Jordan and Egypt.

Major services of Internet are still handled through little principal connection to the Internet passing through the Israeli gateway.

There are no clear signs or indications for activities regarding the broadband network infrastructure, including delivery by satellite and other systems although the MTIT has issued specific and clear recommendations and studies regarding such policies, it is still in the hands of the only telecommunications operator to monitor and provide broadband Internet. According to the latest statements from MTIT, as soon as the second mobile operator Al-Wataniyeh starts its services, a special committee would be formed in order to study the policies and strategies to be recommended to the Ministry in order to follow-up on the WiFi hotspots and WiMAX services.

⁶ <http://www.gcc.gov.ps/>

As early as 2005, there has been an initiative to link a Palestinian academic network to the EUMEDCONNECT⁷ project. A group of institutions, such as universities and research centers in Palestine, mostly around Bethlehem area, started meeting to establish an NGO that will become the official partner of EUMEDCONNECT. This NGO was named the Palestinian association for the development of Internet 2 (PADI2) <<http://www.padi2.ps/>> and the founding institutions met several times, and eventually arranged for joining the connection, but financial support is delaying the complete link-up.

F. TRADITIONAL MEDIA

According to the PCBS, 93% of Palestinian households have television and 80.4% of families have satellite decoders to watch satellite TV stations. The increase of media usage in the Palestinian community is perhaps the fastest growing indicator of the information society. Although there is no specific statistical indicator to substantiate this statement, there are many reasons to believe so, including the following:

1. There is a reasonably growing ease in the use of computing technologies for all kinds of audio and video productions. This shows easily by the ever increasing video applications and exhibitions of short film documentary contests and shows;

2. During 2006-2007, an increase in the calls for project proposals was noticed, paving the way for the availability of funding for similar projects and activities, especially those that give special attention to gender issues;

3. The increasing tendency of all NGOs and other bodies to document their work and share it as part of the public information and knowledge availability, and a growing incentive for using ICT tools to process video recordings, and hence the documentary production of videos in addition to printed material with artwork and graphic design.

III. ACCESS TO INFORMATION AND KNOWLEDGE

A. PUBLIC DOMAIN INFORMATION

Albeit there is a substantial growth of public domain information, there is no significant effort made in promoting and encouraging its use. Measures need to be enforced in order to encourage the digital content usage. For example, some government offices may request citizens to consult their web sites for the information they need rather than calling in by phone or visiting the offices.

B. ACCESS TO INFORMATION AND PUBLIC INFORMATION

It has been noticed in the past two years that many of the population who has connectivity started to rely on Internet access to get information and pass it among respective partners. This began perhaps in the education sector where university students could access their academic records and exchange comments with either advisers or students. Gradually this included access to their financial records as well. Slowly, government offices started to encourage its employees to use the Internet as the main source of communication. This did not work well because of the lack of computer literacy among the employees, and hence a major training program was launched, namely the International Computer Driving License (ICDL).

⁷ <http://www.eumedconnect.net/>. The EUMEDCONNECT project of the IS of the EU aimed at connecting European and Mediterranean research centers and institutions. It has been implemented since then, but Palestine did not participate in it until this initiative started to try to connect Palestine to it.

The following table from the PCBS shows the usage of computers and access to the Internet in Palestine.

Table 7. Percentages of people using computers and accessing the Internet (March 2007)

Place of usage	Usage of Computers		Internet access	
	Male	Female	Male	Female
Home (male)	45.4%	49.2%	31.6%	53.3%
Work place	11.4%	4.6%	14.5%	5.1%
School / University	13.0%	32.9%	8.9%	15.6%
Internet coffee shop	14.6%	2%	39.1%	15.6%
Friends' home	9.0%	5.9%	4.9%	5.7%
Sports & culture clubs	1.6%	0.7%		
Youth centre	1.0%	0.6%		
Other places	4.0%	4.1%	1.0%	4.7%

Source: "Current Status reports #8" Palestinian Central Bureaus of Stataitcs, *Book 1331*.

C. MULTI-PURPOSE COMMUNITY PUBLIC ACCESS POINTS

In 2005, the government encouraged a large number of institutions to develop Internet access points. This was coupled with enabling connectivity with related central government offices. For example, some institutions whose field of work covers and affects natural resources, such as agriculture, environment and water, were encouraged to connect to each other through online servers, and at some time with limited video conferencing as well. However, there was no specific and direct plan or effort from the part of the government and its ministries to formally encourage community public access. The reason was mainly administrative and financial rather than political, as the priorities and realities diverted attention to the relief and emergency efforts.

This situation was highly visible during 2006 and the first half of 2007, as the government was paralyzed by the internal power disagreements and the boycott of the donor countries. However, many donors have directly encouraged and supported the efforts of the civil society and NGOs. This resulted in better technical infrastructure, such as the formation of aggregates of web serves that are easily connected with each other, but structured information and its management on the administrative level and community awareness regarding sharing it remained relatively poor.

One major exception in this regard was the higher education institutions, where libraries of Palestinian universities and colleges continued unhindered by the current situation in developing connectivity, at both the infrastructure and information levels, to share their catalogues and become online.

D. USING DIFFERENT SOFTWARE MODELS

Similar to many developing countries and societies, software models used in Palestine extend over almost all types of models present in the IT industry. In particular, one can classify them into the following:

1. Specialized software at the professional commercial level: Few companies in Palestine are developing applications for clients, nationally and internationally. In the area of Ramallah, there has been a growing effort in developing technical relations with software companies abroad, especially in the United States. This is mainly due to the fact that there are computer professionals who either have family ties or residency privileges in the United States and through which technical relations have developed in the form of joint business. However this is far less than the level that can be classified as a national economy indicator. Its potential is growing and as this is not tied directly to any regulations affected by the political situation, more business is expected in 2007 and 2008;

2. Software models that are commercial and developed internationally constitute perhaps over 40% of the current models of the market⁸. However the intellectual property rights and copy rights affect a lot their usage, therefore limiting their usage to large corporations, including banks;

3. Finally the Open Source models are getting more popular. However, it seems that the resistance to this software is due to either the lack of confidence in its support services or the existing possibility of acquiring the proprietary software through donations and other commercial means.

E. FREE AND OPEN ACCESS TO SCIENTIFIC KNOWLEDGE

There is a serious lack of opportunities in accessing scientific information. An effort by the European Union was introduced during 2004–2006 to the Palestinian universities where prepaid access to online journals and scientific information was offered to academics. This is perhaps the only significant opportunity to access scientific knowledge that the Palestinian academic society has been entertained with so far.

IV. ICT CAPACITY BUILDING

A. BASIC LITERACY

With the implementation of several literacy programs, there has been a growing tendency to apply ICT in many sectors. This originated perhaps in the strong support of household ICT acquisition and learning. Many of the employers, including public offices, have strongly encouraged their staff to use ICT tools.

Households in the Palestinian society exhibit certain indicators for ICT usage and practice. The following table shows a summary of values of such indicators⁹.

**Table 8. Households using computers and purpose of accessing the Internet
For the years 2004-2006**

Indicators	2004	2006
Households that own a computer	26.4%	32.8%
Households that have access to Internet	9.2%	15.9%
<i>Households that have computer by main purpose of:</i>		
- For education	56.7%	62.7%
- For entertainment	16.2%	17.5%
- For work	11.6%	8.4%
- Internet at home	68.3%	61.8%
- Households with one of its members having a Web site	5.1%	5.3%
<i>Purpose Internet Use</i>		
- For Education	19.8%	19.3%
- For Entertainment	11.2%	16.5%
- Knowledge Acquisition	27.5%	15.0%
- For Work	10.9%	9.3%
- E-mailing	17.0%	9.1%

Source: "Current Status reports #8) Palestinian Central Bureaus of Stataitics, *Book 1331*.

⁸ Pilot survey conducted in Bethlehem district with a sample of 118 installations, in June 2007.

⁹ PCBS, Household surveys, 2004, 2006.

B. ICT IN EDUCATION AND TRAINING

A substantive effort in teaching and training has been strongly advocated by both the government ministries and the donor organizations. This was not limited to higher education, in fact it was spread across all sectors of education, vocational and professional training to bring home ICT skills to those who did not have them, and could not continue their community services without adapting to these new technologies.

In almost all higher education teaching, irrespective of fields and specializations, a growing tendency of all teaching staff has been to resort to ICT tools for their course preparation and teaching. This extended from simple presentation techniques to simulation, application of specialized teaching software, online examinations and tutorial and the like. This also helped them in promoting life-long learning, self-paced and online learning as well. This increased significantly the inclusion of ICT in the teaching sector and hence contributed to furthering the pace towards the development of the information society.

As mobility has been a major impediment to the Palestinian life in all sectors in general and in education in particular, the application of ICT has been grossly and effectively used. Several video-conferencing lectures took place and exchange of teaching over telecommunication circuits. For example, few courses were taught at Bethlehem University for students who were in Gaza. It is important to note that such application of ICT was not limited to education: it was used in political meetings such as in the meetings of the legislative council between Gaza and Ramallah, some health service providers in remote areas, and so on. Currently there are several efforts to institutionalize distance learning, and ICT is a major and basic component of such plans. A committee from the Ministry of Higher Education (MoHE) has been commissioned to examine such models of teaching in order to present their findings to the Ministry.

One other ICT training and development that has been on the rise during 2006 and early 2007 is the e-learning or, more accurately, the ICT application in education. This included the production of educational content such as teaching material that involves tutorials, simulators, drills and the like for all kinds of teaching, at all levels: from the kinder garden to higher education. Many of the postgraduate education programs encouraged students to get involved in such ICT applications in teaching. One can say that this part seems to be the most successful in terms of continuous growth and development, irrespective of the current political and economic crisis in the Palestinian society. The World Bank, UNESCO and the European Union have been equally supportive to this sector.

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

One of the increasingly popular programs of ICT training is the ICDL program. Practically all universities have conducted training courses for students, employees and the community. This included different ICT training courses, such as word processing, office work, and Internet and email usage. Currently, it is estimated that over 86% of employees¹⁰ of all firms have gone through training in ICT skills. It is perhaps one of the most popular training programs¹¹.

Many schools, especially primary ones, have introduced computer literacy activities, in particular in summer classes and camps. School children of ages 8-10 have been introduced to ICT indirectly through using computers and accessing Internet and online chatting with their friends. This early inclusion resulted with an increasing opportunity for the young acquire ICT skills, hence advancing their ICT literacy and capabilities.

The following data from PCBS¹² shows the availability of computer labs in schools.

¹⁰ Pilot survey conducted in Bethlehem district with a sample of 118 installations, in June 2007.

¹¹ Specially the program that is referred to as ICDL: International Computer Driving License.

¹² Palestine Central Bureau of Statistics, March 2007, Current status reports from the ICT sector in Palestine.

Table 9. Schools that have computer labs

Type of School	Number of Computer labs	Percentage of Schools that have labs
Public (governmental)	978	56.7%
Private	183	67.3%
UNRWA (Refugee schools)	76	27.1%
Total	1237	

Source: "Current Status reports #8" Palestinian Central Bureaus of Stataitcs, *Book 1331*.

It is noticeable that 8.8% of Palestinian students in higher education institutions were involved in programs related to ICT in the year 2004-2005.

Very few programs concentrated on advanced training in ICT. Some of these include real time programming, statistical processing of data, geographic information systems and others. These were administered by dedicated NGOs in these fields, sometimes upon the request of some government offices in related ministries, and others were motivated by project oriented development programs.

D. RESEARCH AND DEVELOPMENT

The MoHE has acquired a small fund, mostly from Arab sources, to support research in ICT fields. Additional sources were the European Union, UNESCO and other international organizations. However, the type of research concentrated mostly on theoretic aspects of computing. Few research projects were development oriented and conducted in cooperation with businesses in the society. As such, it is reasonable to say that research and development has not been placed in a high priority situation, and although faculties were encouraged and urged to conduct research, the lack of funds and lack of support to release scholars for research and less teaching has caused an impediment to research. Although hardware and infrastructure resources were available in general, it is time and cost of research that were the scarcities for researchers.

V. BUILDING CONFIDENCE AND SECURITY IN THE USE OF ICTS

A. USE OF ELECTRONIC TRANSACTIONS AND DOCUMENTS

One of the main concerns in the development of the information society in Palestine is to enhance and adopt scientific and legal measures related to information security, network security, use of electronic documents and transactions, including electronic means of authentication, online transaction security and reliable applications. This also includes countering the misuse of ICTs and providing privacy and data protection.

The most used form of electronic transactions is the usage of credit cards. The dramatic increase of the number of cards used in 2005 shows a great surge towards electronic transactions. This of course includes ATM cards. As noticed in the following table, we can see less usage of ATM cards and a greater surge in using debit cards, indicating clearly e-transactions have been more trusted in 2005.

Table 10. Credit cards used in e-transactions for the years 2004-2005

Type of Card	2004	2005
Debit Cards (000s)	4.222	68.098
Credit Cards (000s)	15.760	21.279
ATM Cards (000s)	169.946	147.074
Total	189.928	236.451

Source: "Palestinian Internet and Datacomm Landscape Report": Arab Advisers' group

The electronic transactions and documents are also used in other commercial and business applications. The recent approach for this is the use of ICT in financial transactions, especially in the Palestinian stock exchange market¹³. Banks for example allow several transactions to be carried out by their clients online, such as money transfer, balance checking and bill payments. Over sixteen banks use corporate e-banking and retail e-banking¹⁴.

B. ONLINE TRANSACTION SECURITY

The regular security procedures used in operating systems and networking is the only type of online transaction security used so far. Authentications have been based on applications running on these operating systems. However there is a man-machine arrangement through which security can be maximized and data protected through technical staff operating ICT servers used for online transactions. Cyber security as such does not exist. The majority of such applications depend on authentication on several levels, and very few applications employ on encoding and enciphering of data.

C. COUNTERING MISUSE OF ICTS

Prevention and detection of cyber crimes are already difficult and rarely carried out effectively by installations and applications. This consequently reflects that prosecution of such crimes is hardly implemented by the judicial system, due to lack of clear legislation on such crimes.

As for real-time incident handling, this is planned in major organizations and firms, where on duty technicians are trained to act as “human firewalls”. The lack of well-developed protection routines in applications used is reflected as extra dependence on human monitoring of machine operations.

D. PRIVACY & DATA PROTECTION

Privacy and data protection is a very sensitive issue in the ICT sector in Palestine. Perhaps the volatile situation in the society in all sectors has a major impact on such sensitivity. However, strict security measures are taken by public offices and government ministries in promoting for the security of data and its significance. This is highly dependent on the specific source where such information is, and the application of varying levels of security measures enabled companies and offices to sustain.

The case of e-commerce can be taken as an example for security concerns. There is a serious lack of information regarding electronic commerce and the application of ICT in the economic and business transactions. The reasons for this lack of data is basically related to the insecurity that businesses feel about conducting online transactions, and hence insufficient efforts to develop a steady use of such technology. So any effort to record statistics would have to consider several variables that control the validity and lifetime of this data. Prior to 2006, no authentic records of statistics existed about e-commerce in Palestine. In 2006, only 1% of trade conducted in the Palestinian economy involved ICT in the form of e-commerce. This does not represent any serious change or tendency in Palestinian commerce. It is also very difficult to monitor commercial exchanges between companies and institutions electronically without their proper participation and consent, which very often contradicts with the privacy issues of business relations.

Currently, legislation is being studied to propose data protection laws, hence those issues relating to privacy and information and intellectual property.

¹³ As an example, <http://www.sahem-inv.com/> is a company that enables the e-transactions in true from over shares and stock exchange.

¹⁴ “Banks”: Palestinian Monetary Authority, and “Palestinian Internet and Datacomm Landscape Report”: Arab Advisers’ group.

E. INFORMATION SECURITY AND NETWORK SECURITY

This aspect is more successful in fact than the more general automated data protection and security. The separate networks are well protected in general, and it is the standardization that makes the data security and information in integrity on the general level difficult and not so successful. In each installation one finds adequate security measures and trained staff to handle the information security. However it is left to the individual installation to seek ways of doing that, which results in some limitation to the e-business concept.

VI. ENABLING ENVIRONMENT

A. LEGAL AND REGULATORY ENVIRONMENT

On August 2, 2003, the Council of Ministers proposed a resolution to establish a body for regulatory issues of ICT. The legal work to establish this committee was delayed until June 2006¹⁵ when it crystallized into a clear set of rules and regulations. The vision of the Palestinian TRA is to regulate the communication and ICT industries for the benefit of all Palestinian people by enabling effective access to affordable ICT services. In more explicit terms, the mission of the TRA is to work with all stakeholders to create a regulatory environment that is proportionate, appropriate and consistent with the best practices, facilitates competition, and investment, and meet the interests of the end users and those of the Palestinian economy.

On February 11, 2006, the President of the Palestinian Authority endorsed the proposed regulatory law. Although follow-up and discussion continued on the TRA, especially from the Palestinian Information Technology Association of companies (PITA: <<http://www.pita.ps>>), which expressed further concern and intention to work on enhancing some parts of the law.

The enabling environment extends from some dormant to more active practices. For example, legal and regulatory issues are being studied but most of them exist as recommendations to prospective government offices to be processed legislatively. The issue of intellectual property rights is a much-disputed issue regarding its implementation, although concrete steps were taken in 2005 and 2006 towards implementing such regulation.

B. SECURE STORAGE AND ARCHIVAL

The storage and archival of information in electronic formats have been traditionally maintained by the respective owner of such documents. In this regard, no standardization has been approved by any official committee, which would help to provide integrated and safe methods and framework for ease of portability of information as well as security.

C. DOMAIN NAME MANAGEMENT

The Palestinian National Internet Naming Authority (PNINA) is the official institution with the mission to “realize the Palestinian presence in the information age through the formulation of necessary registration policies for the PS domain and to set appropriate policies for enhancing Internet usage in Palestine”¹⁶. In specific terms, it is charged with the management and supervision of Palestinian country code top-level domain name (ccTLD).

Until December 31, 2006 almost 3350 domain names have been registered. Most of these are *.ps* or *org.ps*. It is noticeable that in 2006, the domains registered were almost doubled from those of 2005.

¹⁵ “Palestinian Telecommunications Regulatory Authority Internal Rules And Procedures“, Gilbert & Tolbin Law Firm.

¹⁶ <http://www.nic.ps/about/about.html>

D. STANDARDIZATION IN ICT

Work in this field has been mainly voicing concern and issuing technical recommendations and reports, but none has been adopted nationally. The usage of e-banking, which is perhaps the most important factor in developing need for standardization, has been a driving incentive. It is hoped that as the regulatory process is completed, standardization would be implemented and reflected scientifically in these regulations.

E. ICT SECTOR

It is estimated¹⁷ that over sixty ICT companies are operating in Palestinian territories. These companies vary from simple ICT service support and product supply to larger companies which implement large projects and installations. These companies do not have financial assistance from the government in general, however a lot of donor countries encourage them to develop business relations with other international bodies. So far, apart from few companies in Ramallah area, which deal with limited software foreign trade as subcontracting, there is no substantial ICT export of services.

F. SUPPORTING MEASURES

The government and stakeholders of ICT have closely worked together in 2005 and to some degree in 2006 in promoting partnership to foster the development of the information society. Such partnership included several tracks, with the most significant as the encouragement of the professional aggregation of experts from different backgrounds to act independently, within the framework of NGOs, in order to play a major role in directing the path of development in this field. Committees and organizations were encouraged to foresee integration of ICT in education directly. This included also working towards faster connectivity for the high education, electronic media development and encouragement of ICT driven media productions and so on. In other aspects, the private sector has introduced a serious motive towards such growth. Providing opportunities for ICT technical work and employment was the leading and most visible contribution on the short run. Examples of such private businesses, in addition to the telecommunications and information technology firms, were the banks, financial institutions, large production firms of products such as pharmaceuticals, etc.

The presence of the PICTI <<http://www.picti.ps>> as a main body to develop ICT projects in the form of business incubation has been well noted by way of supporting ICT-related creative ideas of young professionals, leading to the development of a company in ICT market.

VII. ICT APPLICATIONS

A. E-PALESTINE

In May 2005, the Palestinian government has approved the establishment of the “e-Palestine” project. This project is meant to be an electronic repository and central resource to host knowledge and information concerning Palestine and its history. It is structured to contain components, namely e-government, e-education, the smart card project, the National Institute for Telecommunication and information technology, woman’s role in the telecomm sector and information technology, the Palestinian partnership-Euro Mediterranean, and a project to form a database of the Palestinian culture and ideologies. The establishment and operation of the e-Palestine project is the responsibility of a Committee between Ministries’ as determined by the Ministry of Telecommunication and Information Technology (MTIT). Certainly its main tasks include the drawing of a regulatory framework, regulations and the structure of e-Palestine’s project, and undergoing the needed surveys. It also includes providing the needed funds for the project from the sponsoring countries and implementing it in all its components.

¹⁷ <http://www.picti.ps>

B. E-GOVERNMENT

Legislation has already been passed, in May 2005, by the government to establish a committee on e-Government <<http://www.egov.ps/>>. It targeted the establishment of a committee and department that would study, design and implement the e-government project, which includes setting a strategy to convert into an electronic government and submitting this strategy to the Council of Ministers. It also has the responsibility of dealing with sponsors of the project, managing it financially, and securing needed funds. It has a clear objective to try to decrease the Internet and data communication network tariffs in cooperation with the telecommunications operators and the concerned parties in the private sector. Both projects, e-Palestine and e-Government, are not yet launched.

C. E-LEARNING

The increasing number of connectivity in schools has been well noticed. Hardware was made available either directly through the Ministry of Education, or through the active NGOs who receive direct support from donors. The connectivity rate in schools is relatively high, and although private schools have the highest rates, government schools have been advancing in accessibility. All 1237 computer labs in schools have network structure. It is estimated that all urban school labs are connected with DSL lines.

So far there is no virtual university, but Al-Quds Open University is working towards providing service as close to a virtual university as possible, i.e. having online courses that are delivered electronically and managed and conducted virtually. There have been similar efforts from other universities, using portals for their students and staff. This has been the closest to e-learning environment. See “ICT in education and training”.

The Palestinian Education Initiative (PEI) <<http://www.pei.ps/>> is a promising project that would culminate in transforming teaching at schools into information society learning environment for school students, young and teens.

D. E-HEALTH

E-health services have been classified into two major groups: General delivery and dedicated delivery. The general delivery of e-health services is centered on the ability of the health administrator and provider to use computer literacy to perform better, with accuracy and fast processing. Regular ICT skills constitute the main function of the general e-health services. However, the dedicated e-health services depend on specialized ICT skills and resources through which health services are better provided. This includes remote diagnosis through video conferences, online medical records update and checking, and sharing and requesting medical supplies and services electronically.

In October 2006, the Norwegian Ministry of Foreign Affairs financed a project to support the rehabilitation centers in Palestine via telemedicine and e-health. This was based on recommendations by a pilot project conducted in 2004. The telemedicine network will link together four national rehabilitation centers in Palestine and provide a connection to relevant rehabilitation centers abroad. The network will consist of dedicated broadband lines suitable for computer and video transmission, in addition to a computer network. Each hospital will be equipped with video conference units and their necessary accessories. In parallel, there will be established and developed Internet based courses aimed at the different aspects of rehabilitation. This project is expected to be implemented late 2007.

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

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

With the growing concerns for the preservation of cultural heritage and the national identity, a very substantial drive towards application of ICT into this field has flourished. This drive included the direct application of ICT skills and tools, ranging from web site technologies to video recordings and editing and other applications. It is estimated that more than half of such applications in the year 2006 focused on political issues, of which the construction of the separation wall was the most visible.

B. LOCAL AND NATIONAL DIGITAL CONTENT DEVELOPMENT

Several applications of databases and multimedia content have been digitally stored on CD's and DVD's, from high school students' records to video and media applications, in Arabic and other languages. Multimedia applications have been individually developed by several NGOs in Palestine during 2006 and 2007. This covered the inclusion of the print media, and as it is directly linked to business and marketing, the development of these applications was coupled with a substantial growth in the skills and experience in using ICT. In fact, in one district in 2006, the private business of artwork and graphic design has tripled¹⁸, including many web site construction services, and more importantly, video and audio recording facilities to produce audio and video documentaries. At least there are three projects that address the establishment of virtual museum like media and sites. The Bir-Zeit University has pioneered this kind of work, and digital media centers were established in Bethlehem University, Palestine Polytechnic University and others. Many training workshops were regularly offered in continuing education centers.

C. ARABIC DOMAIN NAME SYSTEM - ADNS

No substantial work has been planned in this field yet.

D. ICT TOOLS, AND R&D PROGRAMMES

Modest attempts are conducted by companies in this field. Some research is undertaken in some Palestinian universities¹⁹. Few joint cases of companies working in cooperation with some international partner have been pioneering efforts in this field. Several education projects and junior research and development efforts have been seeking to investigate and build ICT tools that would address issues such as translations, multi-lingual search engines; content referencing, optical character recognition (OCR), and general and application software. These form a step towards more serious research and development in ICT as applied to cultural and identity issues.

IX. MEDIA

A. MEDIA INDEPENDENCE AND PLURALISM

The role of ICT in modern media is essential and overwhelming, and this is true too in Palestine. Although there are many media operators (such as newspapers, radio and TV stations, press offices etc.) but the active ones are relatively few. Companies have developed a more reliable use of ICT in their work²⁰, some of them range from satellite communication to sophisticated web and video productions. Most of these are private firms, and less than 2% are governmental. The following summary shows the numbers of such media companies and organizations.

¹⁸ In the district of Bethlehem, the chamber of commerce.

¹⁹ As an example: Arabic character recognition in Alquds University, Jerusalem

²⁰ As an example, Ma'an Palestinian News network, <http://www.maannet.org/>

Table 11. Media summary of active media companies and installations

Type of media	2007
Internet press	8
Newspapers & press offices	56
Radio and Television stations	62

Source: Media Directory in PASSIA Directory, 2007 group

B. THE MEDIA AND ITS ROLE IN THE INFORMATION SOCIETY

The widely distributed newspaper in Palestine, Alquds <http://www.alquds.com> daily, has been introducing prints that include a lot of information on culture, sports and social aspects in addition to the political coverage of the daily life in Palestine. This newspaper is available in many rural areas and refugee camps. Other newspapers of course do the same but with less popularity and intensity of coverage. In any daily issue, one can hardly find a page in its 36 pages that has no reference to something related to ICT, from commercial ads on computers, internet connectivity lines, to many other aspects, or news of events and cultural events that relate to ICT. Similarly many other magazines, such as Al-bayader <<http://www.al-bayader.com/>>, include electronic versions of their issues and content, so an increasing number of readers of this electronic media are getting used to using ICT tools through Internet connectivity or CD-ROMs.

C. GENDER PORTRAYAL IN THE MEDIA

Most of the media coverage tends to highlight gender issues very visibly, so activities and news of women and their contribution to the society is highly emphasized. Women participating in media production as well have been very much increasing. For example, many female reporters Palestinian movie producers have been active in 2006 and 2007 to the level of organizing film festivals in Palestine with women directors.

X. INTERNATIONAL AND REGIONAL COOPERATION

The deteriorating economic situation caused by the political strain, internally and regionally, has discouraged investment, and has caused priorities to shift, so basic infrastructure priorities, such as roads, public buildings, water, and salaries, were addressed, which caused less aid to ICT-oriented development. As such the development of the information society has become slower in 2006 and 2007.

Private investment has ceased to operate, except for perhaps the large project of the second mobile operation, Al-Wataniyeh, that is due to start its operations in the second half of 2007. All other funding has been at the governmental and smaller scale NGOs work in sectors that may enhance the development of the information society.

A. FINANCING OF ICT NETWORKS AND SERVICES

During 2006 to early 2007, almost all the funding and government support in Palestine has ceased due to the political strife between Hamas and Fateh political groups. However, the support to the development work of NGOs continued to reach the Palestinian people. According to the Ministry of Planning, in its operational plan for 2007, an approximate amount of USD 7.5 million is needed for the ICT infrastructure support. The European Union resumed as late as July 2007 its donation to the Palestinian Authority. However, it is expected that the ICT sector would have to wait a little more as priorities go for government salaries and emergency and relief activities.

Table 12. Summary of Palestinian Economy

Gross development Product (GDP)	\$3.3 billion
Population	3.6 Million
GDP per person	\$934
Foreign Aid per person	\$469
Change in GDP per person since 1999	-38%
Poverty Rate	48%
Unemployment Rate	27%

Source: World Bank

B. INFRASTRUCTURE DEVELOPMENT PROJECTS

Apart from major projects of starting other competitor telecommunications operators, and the encouraging more private business in ICT services, the Palestinian Information Society is likely to pick up progress and respond to such growth. There are several projects of regional cooperation especially in the field of ICT that are planned and funded, but implementation is hardly progressing on schedule. Most of such projects involve training and development of ICT solutions. Among such donors are SIDA, JICA, EU, GTZ, World Bank, USAID and ODA and others. As a simple and quick example of how such infrastructure is developed, penetration of new technologies has been remarkably well. (See table 13).

Table 13. Availability of new technologies in the society

TV Set	93%
Satellite TV	69%
Internet Connection	17%
Personal Computer	26%
Cellular Phone	61%
Telephone Line	66%

Source: Millennium Development Goals, Palestinian Occupied Territory, 2005 Progress Report

C. REGIONAL PLAN OF ACTION (RPOA)

Through the MoP there have been negotiations with some donor countries to adopt support to mega projects in Palestine that would develop and enhance ICT-related infrastructure and development. However all these are dropped in priority scale as the emergency donor plan²¹ is aimed at sustaining the government and the public sector. All plans of action are currently individual and specific to respective ministries and cannot be classified as inter-governmental projects on the regional level; they would include few partners from different countries and are funded separately.

XI. MILLENNIUM DEVELOPMENT GOALS - MDG

A. PROGRESS TOWARD ACHIEVING THE MDG

It was evident that the MDG can not be implemented or worked towards in a traditional manner, without the reconciliation between the MDG requirements and what is pragmatic and possible, not only because Palestine is a poor country but also because of the complex political situation it faces. So a process called "Localizing the MDGs in Palestine" has been started by the MoP with the help of UNDP. It addressed the issue of tailoring the global MDG goals to the national level. This process involved creating national

²¹ Palestinian National Authority Operational Plan For 2007 (Ministry of Planning)

policies and action-plans, involving multiple, relevant actors, that incorporate context-specific goals and targets to meet the MDGs. A committee at the MoP is working on monitoring such development. These goals were structured towards four major areas, but tailored for a *Medium Term Development Plan 2005-2007*. These are as follows: (There are no quantified targets or goals to assist in the implementation, monitoring and evaluation processes so far).

MTDP 2005-2007 Program Areas	MDGs
1. Ensure Social Protection	MDGs 1, 2, 4, 5, 6
2. Invest in Social, Human and Physical Capital	MDGs, 1, 2, 3, 4, 5, 6, 7
3. Invest in Institutions of Good Governance	Cross-cutting all MDGs
4. Create an Environment for Private Sector Growth	MDGs 1 & 7

A revision and study has been going on that will culminate in the revision of the Medium Term Development Plan for the occupied Palestinian territories.

However, as an example, regarding goal #2, achieve universal primary education, an ambitious five-year plan of the Ministry of Education & Higher Education (MoEHE) was formulated and many of the education goals have been accomplished in the past five years. The MoEHE did an impressive job introducing the new curriculum in grades 1-10, and producing and distributing textbooks on a 1/1 ratio every year. During this period, the MoEHE has focused on keeping the school system functional.

B. USE OF ICT FOR ACHIEVING THE MDGS

The usage of ICT was foreseen in Palestine for more of media rather than an end product. In industrial societies a balance is achieved, but in countries like Palestine it is hardly the case. As such the international donor community helped in great deal to embed ICT into development projects for health, education and so on. Two major concerns exist in this regard: integration of ICT into service of cross sectorial government and public services and concentrate more on rural areas. Development can best be achieved for the country if these two concerns are strongly considered.

C. ICT FIELD PROJECTS AIMING AT ACHIEVING MDGS

Starting the year 2005, certain successful steps were taking place in the ICT sector in Palestine, this was a good sign of the work towards the MDG's. For example, in 2005, the first Palestinian information communication technologies (ICT) strategy was announced. The ICT private sector has been instrumental in developing new technologies and defusing information technology to the rest of the economy's segments and to the Palestinian society. The challenge of developing a true public-private partnership (PPP) has started to be addressed in 2005 with the announcement of many ICT initiatives and projects by the new Ministry of Telecommunications and Information Technology (MTIT). These include ADSL/broadband Internet - access to the Internet is now free from subscription fees, Smart Card, e-government, the Palestine Education Initiative, telecom regulations and others.

XII. SUMMARY OF THE DIGITAL OPPORTUNITY AND WSIS

A. FOLLOW-UP AND EVALUATION

The ITU has developed digital opportunity index²² (DOI) in cooperation with other agencies to measure the opportunity in a society through which it can develop into an information society. This index is composed mainly of three sub-indicators:

1. *Opportunity*: This includes the percentage of population covered by mobile cellular telephony, Internet access tariffs as a percentage of per capita income, and mobile cellular tariffs as a percentage of per capita income;

2. *Infrastructure*: This is a measure of how the infrastructure is. It combines the proportion of households with a fixed line telephone, proportion of households with a computer, proportion of households with Internet access at home, mobile cellular subscribers per 100 inhabitants, and mobile Internet subscribers per 100 inhabitants;

3. *Utilization*: This represents utilization through the sub indicators, namely the proportion of individuals who use Internet, ratio of fixed broadband subscribers to total Internet subscribers, and ratio of mobile broadband subscribers to total mobile subscribers.

Using these indicators, the following data²³ was computed. A progress of the situation in Palestine between the years 2004-2005 and 2005-2006 was noticed. The infrastructure improved from a 0.21 to 0.23 figure, was more utilized (0.02 to 0.05) and moved well in advance relative to other countries in the world, going from the 122nd to the 99th rank.

Table 14. Digital Opportunity Index

Indicator	2004/2005	2005/2006
Opportunity	0.63	0.90
Infrastructure	0.21	0.23
Utilization	0.02	0.05
DOI	0.29	0.40
World Rank	122	99

Source: International Telecommunication Union & United Nations Conference on Trade and Development: World Information Society Report: 2007 beyond WSIS.

Table 15. 2007 ICT-OI sub-indices: Info density (networks and skills) and Info use (uptake and intensity) in the Palestinian Information Society

Indicator	Value
NET-WORKS Index	78.4
SKILLS index	122.7
INFO-DENSITY Index	98.0
UP-TAKE index	81.5
INTENSITY Index	81.27
INFO use Index	81.40
ICT-OI value	89.33

Source: International Telecommunication Union & United Nations Conference on Trade and Development: World Information Society Report: 2007 beyond WSIS.

²² <http://www.itu.int/osg/spu/statistics/DOI/index.phtml>

²³ International Telecommunication Union & United Nations Conference on Trade and Development: World Information Society Report: 2007 beyond WSIS.

B. INITIATIVES AND PROJECTS

There is a continuing effort on behalf of many NGOs in the Palestinian territories, trying to team up with regional and international partners in order to compete for funds for joint ICT-based projects. These efforts are partially successful. However, there is a lack of governmental strategic planning to advise and direct these organizations towards focusing on complementary projects that maximize benefits from the development activities.

Although certain government monitoring agencies have the responsibility of monitoring projects, there is a lack of authority to enforce compliance and the donors do not have an effect on the government planning.

C. SUCCESS STORIES

An example of a success story is the Palestinian Education Initiative (PEI) that was launched during the 2005 World Economic Forum (WEF). The PEI was adopted by the PNA and supported by both two ministries, the MoEHE and the MTIT, as well as the Palestinian telecommunication company PalTel. The goal of the initiative is to assist the MoEHE to integrate ICT into the education system to encourage innovative teaching models and stimulate economic development within a model of public/private partnership, and with support from international agencies and businesses. Almost 50 percent of MoEHE schools are equipped with computer labs and the Ministry has already introduced technology education and information technology in the new curricula from grades 5 to 12 and English language from grade 1.

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