International Telecommunication Union

Report on the World Summit on the Information Society Stocktaking

world summit
on the information society
Geneva 2003 - Tunis 2005

2008

International Telecommunication Union

International Telecommunication Union

Report on the World Summit on the Information Society Stocktaking

2008

International Telecommunication Union

The 2008 edition of the WSIS stocktaking report acknowledges the tremendous involvement of governments, international organizations, business and civil society entities and others in providing information on ongoing projects and initiatives to the WSIS Stocktaking Information System. Most of the data contained in this report are extracted from the WSIS stocktaking database available at www.itu.int/wsis/stocktaking/index.html

The report was prepared through the collaborative efforts of the ITU team, comprising Onder Cetinkaya, Christopher Clark, Simon De Nicola, Vanessa Gray, François-Gaël Jaboulay, Youlia Lozanova, Isabelle Lucas, Kerstin Ludwig, Lucy Macdermot, Mike Nxele, Hilary Platman, Jaroslaw Ponder, Ana Dory Rodriguez Rodriguez, Nicolas Stauble, Christine Sund, Regina Valiullina and Oyuna Umuralieva.

Special thanks are attributed to the Ministry of Internal Affairs and Communications (MIC) (Japan) for providing financial assistance in the WSIS stocktaking process.

DISCLAIMER

Information contained in this publication is provided by multiple stakeholders that contributed to the WSIS stocktaking information system and do not engage ITU. The designations employed in this report, including web links, do not imply expression of any opinion whatsoever on the part of ITU concerning the legal status of any country, territory, city or area, or concerning the delimitations of its frontiers or boundaries. The mention of specific companies or of certain products does not imply that they are endorsed or recommended by ITU in preference to others of a similar nature that are not mentioned.

Foreword

The World Summit on the Information Society (WSIS), held in two phases in Geneva 2003 and Tunis 2005, set out a clear vision to harness the vast potential of information and communication technologies (ICTs) to achieve the development aspirations of all the world's inhabitants. Recognizing the importance of ICT as valuable assets for economic growth, world leaders expressed their strong political commitment towards building an inclusive, people-centred and development-oriented information society.

The Summit was an important landmark in the global effort to eradicate poverty and achieve the UN Millennium Development Goals (MDG) by 2015. Since the Tunis Phase of WSIS, much progress has been made. For example, the *Connect Africa* Summit, the first of ITU's *Connect the World* series, held in Kigali last year showed the extent of the commitment to achieving the WSIS goals and was a huge step towards achieving an all-inclusive information society. Many other flagship initiatives have been announced and are reflected in this report, the objective of which is to benchmark the efforts of all WSIS stakeholders in encouraging growth of the information society around the world.

However, we need to keep in mind that there is much more to be done and there are only seven years remaining to 2015. All WSIS Stakeholders need to recognize the fact that, in order to benefit from the capability of ICTs to act as a key enabler for achieving MDG goals, we may need to be more ambitious in many domains, for instance aiming to connect the unconnected by 2012.

Building on the existing multistakeholder spirit, all WSIS stakeholders need to continue working together, focusing on concrete actions and projects in the field of ICTs, supporting the development of the inclusive information society, spurring investment, employment and broader human, social and economic development.

ITU is proud to publish this second edition of the WSIS Stocktaking Report, and we look forward to a continued and successful collaboration in monitoring WSIS follow-up of the implementation of the WSIS goals by 2015.

Dr Hamadoun I. Touré
Secretary-General
International Telecommunication Union

Table of contents

Introduction

The World Summit on the Information Society (WSIS) serves as a platform for governments, international organizations, business companies and other entities to address issues related to Information and Communication Technologies (ICTs), particularly, focusing on turning the digital divide into a digital opportunity for all. During the WSIS all players acknowledged the vital role that ICTs can play in boosting economic growth, as well as in social development, by creating not only employment opportunities but also building human capacities and contributing to cultural identity.

The aim of this report is to update stakeholders on activities undertaken by governments and other organizations with regard to the achievement of WSIS objectives and targets in the period of time from end 2005 to mid 2008. This report is a continuation of the WSIS Stocktaking Report series, which was officially launched at the Tunis Summit in November 2005, and that time reflecting the flagship activities carried out by the WSIS stakeholders during the two phases of the Summit and submitted to the WSIS Stocktaking Information System.

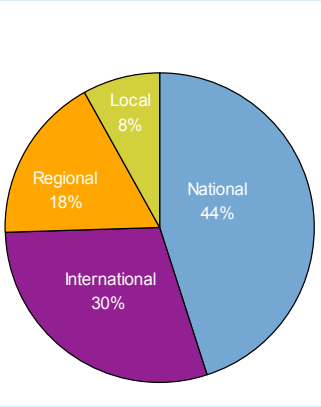
Without the numerous efforts dedicated by governments, international organizations, business stakeholders, civil society organizations and other entities in providing up-to-date information on initiatives and projects, the preparation of this report would not have been feasible. Consequently, ITU expresses here its appreciation to all parties involved in the WSIS Stocktaking Process and is looking forward to continued and successful collaboration in monitoring WSIS follow-up of the implementation of WSIS goals by 2015.

WSIS Stocktaking process

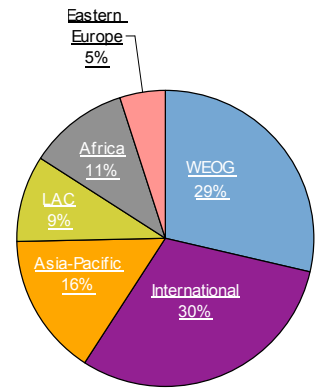
The WSIS stocktaking process was initiated by the WSIS Executive Secretariat in October 2004, aiming to provide an inventory of activities carried out by governments and other stakeholders (international organizations, business companies, civil society and other entities) in order to mark the progress accomplished in pursuance of WSIS goals. Through the consultation process and the use of an online questionnaire, the WSIS database was elaborated taking into account the feedback received from the participants. The database[1] is publicly accessible and presents information on WSIS-related initiatives and projects executed by governments and stakeholders to meet the targets set out by WSIS. It is possible to conduct a search within the database by WSIS action line, number of a project, keywords, geographical location and other specifications.

Table I below presents an overview of submissions from stakeholders to WSIS databases broken down by geographic coverage, region and stakeholders. By 21 May 2008, a total number of 3 812 activities had been submitted by the majority of governments representing 54 per cent of the total amount of submissions; international organizations were second submitting 29 per cent, followed by business and civil society entities and others. Some 44 per cent of activities submitted had been carried out at a national level, while 30 per cent were of an international nature. The majority of submissions by region were of international scope (up to 30 per cent), followed by Western Europe and Northern America (29 per cent), followed by the Asia-Pacific region (16 per cent).

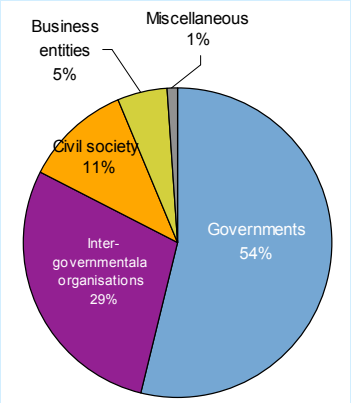
Table I: Overview of WSIS data breakdown by geographical coverage, region and stakeholders



Breakdown by geographical coverage



Breakdown by region

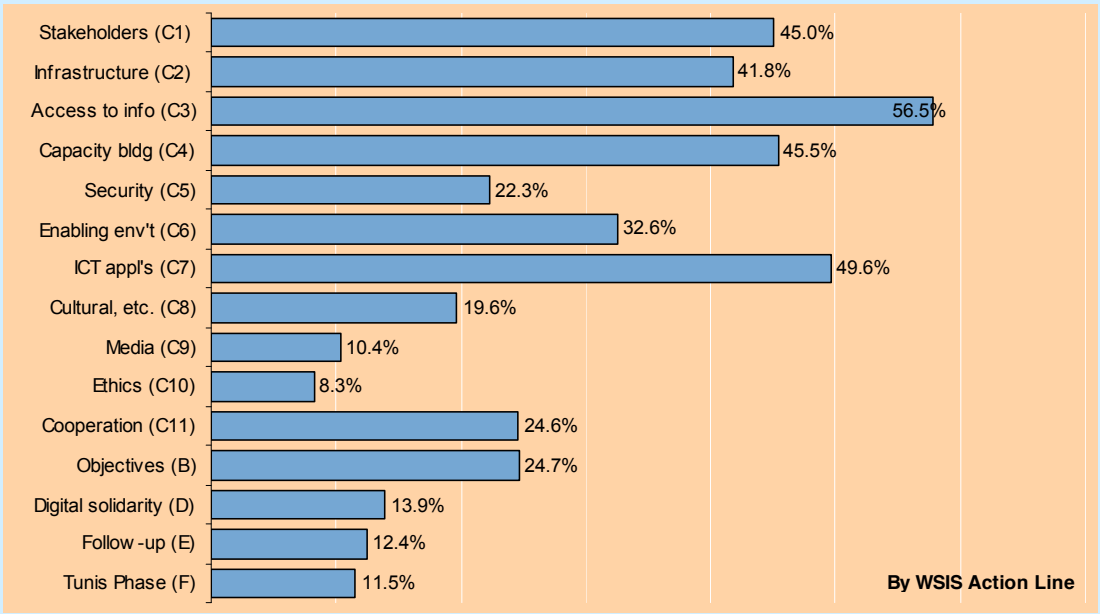


Breakdown by stakeholder

[1] www.itu.int/wsis/stocktaking/index.html

Table II outlines the activities by action line. The overview is presented in percentages, which add up to more than 100 per cent due to the fact that many projects incorporated several action lines as their targets. As indicated below, the majority of submissions were related to action line C3 (access to information and knowledge), accounting for 56.5 per cent. The other four action lines – C7 (ICT applications), C4 (capacity-building), C1 (stakeholders), and C2 (infrastructure) – have an almost equal amount of submitted projects ranging from 49.6 to 41.8 per cent.

Table II: Overview of WSIS activities broken down by action line



Source: WSIS Stocktaking Database (05.05.08).

The last Table III provides joint overview of action lines and stakeholders. As illustrated below Governments focused its efforts in majority of the cases on stakeholders (C1), infrastructure (C2) and security (C5) action lines. In its turn, international organizations dedicated its attention to cooperation (C11), capacity building (C4) and enabling environment (C6) activities. Interestingly enough both the business entities and civil society greatly contributed to ethics (C10).

Table III: WSIS-related activities by action line and stakeholders

Action lines		Total	% of Total	Govern-ments	Int.org.	Business entities	Civil society	Misc.
Stakeholders	(C1)	1688	45.0%	64.9%	20.9%	4.9%	8.1%	1.2%
Infrstructure	(C2)	1569	41.8%	60.2%	22.6%	7.5%	8.6%	1.1%
Access to info	(C3)	2168	57.8%	57.5%	21.9%	6.1%	13.2%	1.2%
Capacity bldg	(C4)	1706	45.5%	53.5%	25.7%	5.3%	14.2%	1.3%
Security	(C5)	837	22.3%	62.0%	20.4%	7.0%	8.6%	1.9%
Enabling env't	(C6)	1222	32.6%	56.2%	25.5%	5.4%	11.5%	1.5%
ICT appl's	(C7)	1861	49.6%	57.2%	20.4%	5.9%	15.5%	1.0%
Cultural, etc.	(C8)	737	19.6%	48.4%	24.3%	6.9%	18.3%	2.0%
Media	(C9)	391	10.4%	51.9%	26.1%	5.1%	14.1%	2.8%
Ethics	(C10)	310	8.3%	49.4%	19.7%	8.4%	20.3%	2.3%
Cooperation	(C11)	922	24.6%	41.0%	38.2%	6.2%	13.3%	1.3%
Objectives	(B)	926	24.7%	64.5%	17.7%	5.9%	10.6%	1.3%
Digital solidarity	(D)	521	13.9%	51.6%	23.2%	9.6%	15.0%	0.6%
Follow-up	(E)	466	12.4%	50.6%	32.2%	4.1%	12.2%	0.9%
Tunis Phase	(F)	532	11.5%	56.9%	21.8%	5.1%	13.2%	3.0%

A. The Evolving Information Society

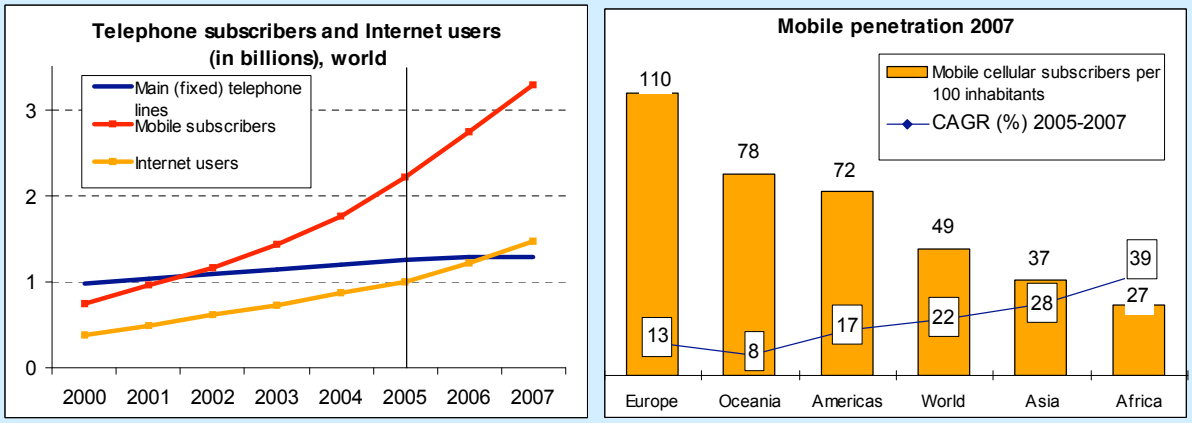
Since the Tunis Summit, governments and stakeholders have undertaken many initiatives and projects to bridge the digital divide. The general trends identified a positive development in the growing use of ICTs in the majority of countries. The following component of this report presents an overview of general trends and specific efforts undertaken by the international community in addressing WSIS goals. The bridging the digital divide part focuses mainly on analysing the use of mobile, Internet and broadband technologies worldwide. The section on creating an enabling environment outlines regulatory reform trends and highlights the need for a fundamental shift in policy and regulatory frameworks to enable countries to achieve WSIS targets by 2015. The capacity building and ICT services part draws attention to capacity-building initiatives undertaken so far by the international community and outlines ICT services mainly focusing on e-health, e-government, e-environment and e-agriculture. The section on building security in the virtual world focuses on the real and significant risks posed by cybercrime and provides for strategic mechanisms to meet the global challenges in building confidence and security in the use of ICTs.

1 Bridging the digital divide

Over the last two years, the telecommunication and ICT sector has seen continued growth, particularly in the mobile cellular market. Globally, the number of mobile subscribers increased by over a billion since 2005, with over **3.3 billion mobile subscribers by the end of 2007**. This corresponds to a mobile penetration of 49 per cent at the end of 2007. During this time period (2005-2007), mobile growth has been strongest in Africa, where year-on-year growth stood at 39 per cent. This compares to 28 per cent annual growth in Asia, where over the last two years India and China alone added 154 million and 143 million subscribers respectively. Globally, annual average growth rate stood at 22 per cent. The more saturated and matured markets, including Europe, where mobile penetration has surpassed the one hundred per cent mark, have been characterized by slower growth rates.[2]

Higher growth rates in the developing regions are having an impact on the distribution of ICTs: By the end of 2007, 69 per cent of the world's mobile subscribers were from developing countries – a positive trend that suggests that developing countries are catching up, since in 2005 developing countries represented only 63 per cent of all mobile subscribers.

Figure 1: ICTs on the rise and mobile penetration and growth rates, 2005-2007

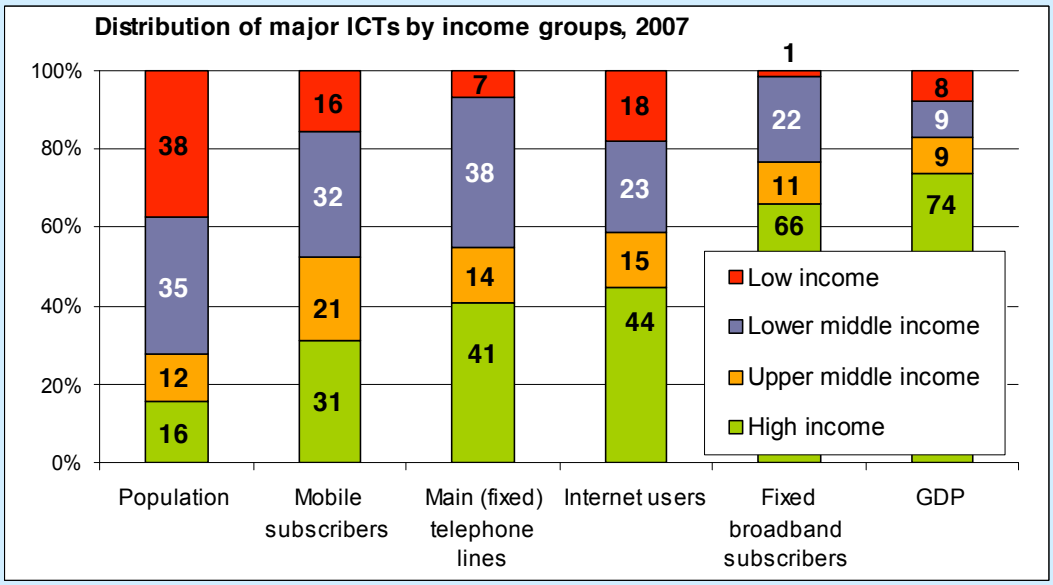


Source: ITU World Telecommunication Indicators Database.

[2] While some people may subscribe to two (or more) mobile services, high penetration rates and research suggest that mobile subscriber data do not strictly correspond to mobile-phone users. Double counting takes place, especially when one person owns multiple SIM cards and when operators do not identify active subscribers.

Mobile cellular is increasingly dominating the telephone market and, worldwide, mobile subscribers today represent no less then 71 per cent of all (fixed and mobile) telephone subscribers. In Africa, this percentage is close to 90 per cent. The continued growth in the mobile sector is matched by no-growth in the fixed-line sector. Fixed telephone penetration has been stagnating at just under 20 per cent globally for the last years and growth has been below one per cent between 2005 and 2007. Exceptions include some developing countries, where fixed line penetration is low. Nigeria, for example, Africa's most populated country, has been able to increase fixed-line penetration from below one, to over 4 per cent within three years, mainly through fixed-wireless systems. The low levels of fixed-line penetration in the developing world limit the availability to roll-out of fixed broadband services, including DSL, which today remains the most popular fixed broadband technology.

Figure 2: Worldwide distribution of ICTs by national income levels



Source: ITU World Telecommunication/ICT Indicators Database.

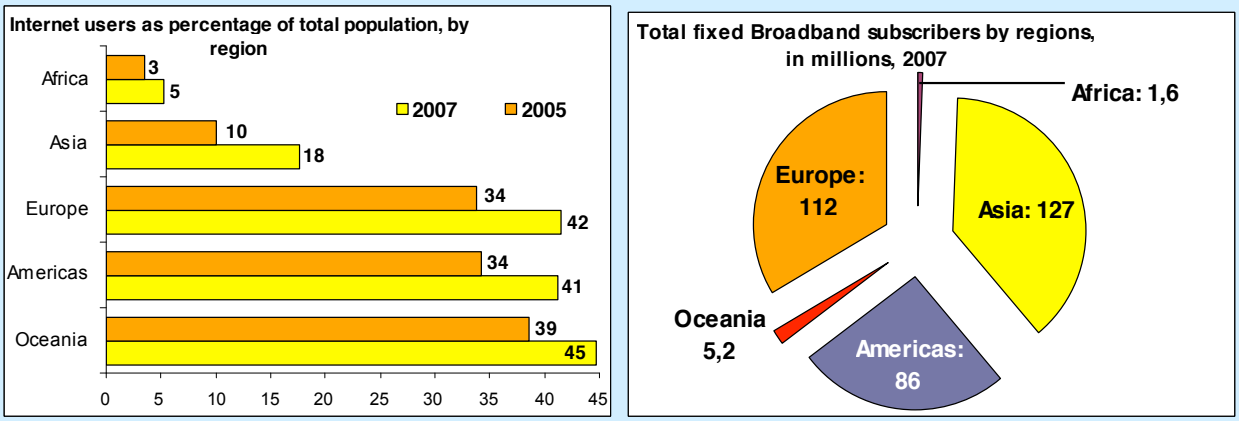
Note: Data refer to end 2007, except for data for GDP, which refer to 2006. Income levels refer to the World Bank classification.

Figure 2 highlights the distribution of different ICTs by income levels at the end of 2007. It shows that the most equally distributed ICT service is mobile telephony; the least equally distributed one is fixed broadband: although only 16 per cent of the world's population comes from high-income countries, they represent no less than 66 per cent of all fixed broadband subscribers. People in low-income countries, representing no less than 38 per cent of the world's population, make up only one per cent of the world's fixed broadband subscribers. Internet users are somewhat more equally distributed and 18 per cent of the world's total comes from low-income countries.

A comparison to the distribution of ICTs in 2005 shows that the situation has slightly improved, especially for the lower-middle and low-income groups. While, in 2005, they represented 19 per cent and 10 per cent (respectively) of all Internet users, their share had increased to 23 and 18 per cent two years later. In the fixed broadband market, only the lower middle income group was able to increase its share from 18 per cent in 2005, to 22 per cent in 2007. Low-income countries, where broadband access remains very low, risk falling behind in an area that is particularly important in delivering innovative applications and services.

The need to bring more people online is highlighted by the difference in regional penetration levels around the world. Although, between 2005 and 2007, all regions have made progress in terms of the number of Internet users per 100 population, the differences are significant. Africa, especially, where only one out of twenty people uses the Internet, is far behind the other regions. Since 2005, Asia managed to almost double its penetration rate from 10 to 18 per cent, and in Europe and the Americas, over 40 per cent of the population are Internet users (Figure 3).

Figure 3: Internet user penetration and total fixed broadband subscribers, by region



Source: ITU World Telecommunication/ICT Indicators Database.

Regional differences are even greater in the adoption of broadband technologies. While at the end of 2007 fixed broadband penetration stood as low as one per cent in Africa, it had reached much higher levels in Europe (16%) and the Americas region (10%). Globally, broadband penetration has increased from three to five per cent between 2005 and 2007. The difference in the uptake of broadband is also reflected by the regional distribution of total broadband subscribers (Figure 3, right).

Regional comparisons hide major differences between countries, though. While a number of (high-income) economies have reached broadband penetration levels of over 30 per cent, other developing countries have not yet commercially launched high-speed Internet access, or prices are so high that they are out of the reach of the country's citizens (and reserved largely to major businesses). More and more people in developed countries are replacing dial-up with broadband, and by the end of 2007, 63 per cent of all Internet subscribers in high-income countries were broadband subscribers. The ratio is relatively high in other income groups and developing countries, too. Even in the low-income group, almost 20 per cent of all Internet subscribers have a broadband connection, compared to 39 and 50 per cent in lower middle and upper middle income groups. Chile, Senegal and Turkey are among those countries where almost all Internet subscribers have gone high speed. For more people to benefit from the potential of broadband and the applications that it can deliver, governments need to do their share to ensure that high-speed technologies become more accessible as well as more affordable.

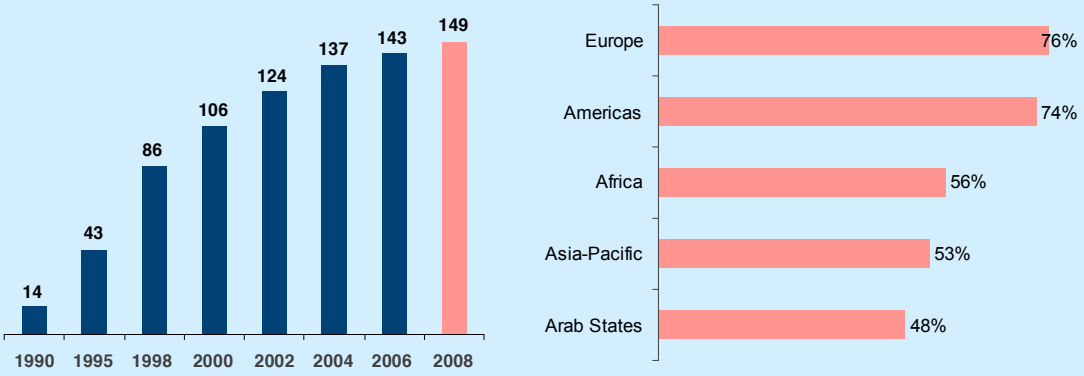
2 Creating an enabling environment

The creation of an enabling environment is one of the key building blocks in the establishment of an information society. WSIS recognized that a trustworthy, transparent and non-discriminatory legal, regulatory and policy environment is necessary to maximize the social, economic and environmental benefits of the information society.

Over the past decade, the majority of countries worldwide have initiated reforms in their telecommunication sector by establishing a national regulatory body (see Figure 4 below, left chart), introducing competition and at least partially privatizing their operators, among other measures (see Figure 4 below, right chart), thus creating an enabling environment for investment. Foreign Direct Investment (FDI) has

helped to finance ICT infrastructure and develop telecommunication services in many countries since the 1990s. However, much of the world's population still remains without basic access to ICT services, as further key reforms have yet to be undertaken in many countries. A fundamental shift in policy and regulatory frameworks is needed to enable countries to achieve the WSIS targets by 2015.

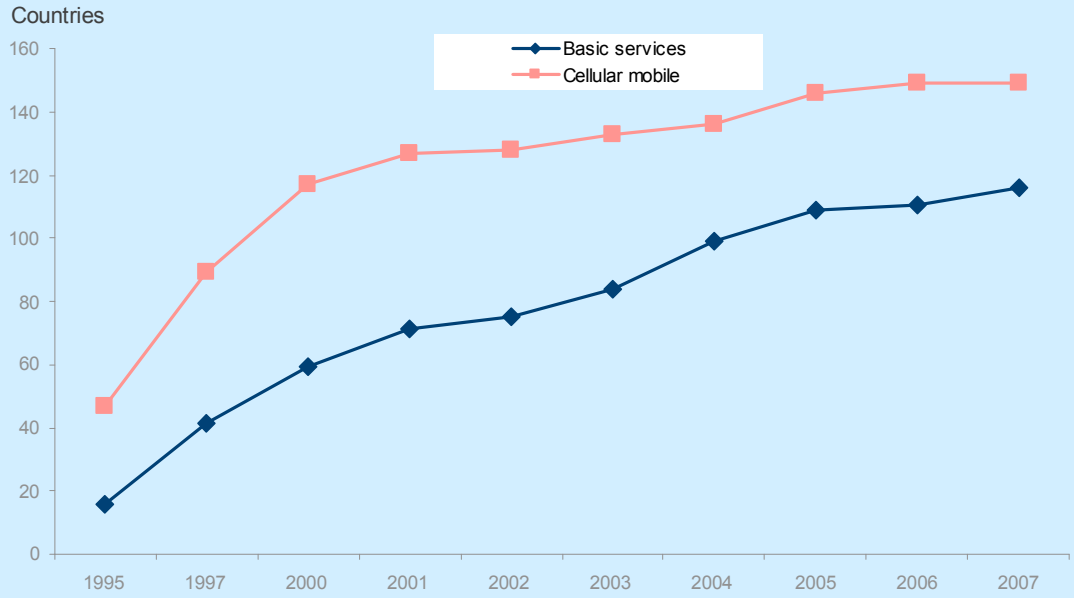
Figure 4: National regulatory authorities, world cumulative, 1990-2008 (left chart) and proportion of privately-owned incumbents, by region, 2007 (right chart)



Source: ITU World Telecommunication Regulatory Database.

Developing countries have a unique opportunity to build on the success of their initial sector reforms. Technological advancements and savvy business practices make the WSIS targets entirely feasible as long as regulatory roadblocks are removed. The obvious change is visible from the days of the Maitland Commission, which urged developing countries to find the *missing link* to connect all the peoples of the world to basic telecom services. That seemed an almost impossible goal when the only technology for connecting the world was copper fixed line networks. Then, in 2002, it was declared that the missing link had been found – mobile cellular services. By 2003, when the first phase of WSIS was held, the "mobile miracle" had brought basic voice services to more people than the Maitland Commission could ever have imagined possible, enabling many countries to meet, if not surpass, their national teledensity goals. This spectacular growth wouldn't have been possible without the introduction of competition, which today drives market growth in nearly 80 per cent of countries worldwide (see Figure 5 below). In addition, technological developments such as broadband are unleashing an array of new opportunities for business, government and consumers alike, and ICTs are increasingly relied upon as a tool for economic development.

Figure 5: Growth in competition in basic services and in cellular mobile, 1995-2007



Source: ITU World Telecommunication Regulatory Database.

The pace of ICT development, including broadband take-up, however, hinges on the policy and regulatory framework. In many countries, today's *missing link* is the policy and regulatory framework. Political will is requisite at the highest levels of government to establish an enabling environment that will create a level playing-field for all stakeholders to promote the roll-out of ICTs and the access for all. This goal is being repeatedly enshrined in the Best Practice Guidelines adopted every year by the global community of regulators during the ITU Global Symposium for Regulators.[3]

Furthermore, innovative business strategies, such as infrastructure sharing, could bring solutions to reduce network deployment costs, making roll-out more affordable. One of the main reasons to adopt sharing is to lower the cost of deploying broadband networks to achieve widespread and affordable access. Developing countries can harness the technological, market and regulatory developments that have fostered access to mobile services to promote widespread and affordable access not only to voice, but to broadband services as well, reaching those un-served or under-served today. For developed countries, infrastructure sharing promises to play an important role in the move to FTTx access as well as to reduce the environmental impact of ICT network deployment. In short, both developed and developing countries share the goal of further network deployment and development and need a working market to ensure that market forces are fully able to work to meet the WSIS targets.

Three years after WSIS in Tunis, regulators and policy-makers find themselves at a crossroads, analysing how to revise their current regulatory framework to keep pace with the dynamic market expansion, seeking to ensure that their regulatory frameworks will attract the huge investments needed to ensure that new technologies, services and applications are widely available, particularly in the case of developing countries and under-served areas. Attracting investments to improve consumer welfare requires clear, transparent, predictable and future-proof national policies and regulatory frameworks that promote a competitive environment. Furthermore, regulatory reforms have to be coupled with appropriate incentives. The creation of an enabling environment is the foundation for a vibrant ICT sector and for maximizing the benefits of ICTs. The multiplier effect of investment incentives can aid to ensure a high return and contribute to the overall performance of the ICT sector.

3 www.itu.int/ITU-D/treg/bestpractices.html

3 Capacity building and ICT services

The usage and deployment of ICTs should assist in creating benefits in all aspects of daily life and entail skilled personnel to employ newly developed ICT applications. ICTs should also contribute to sustainable production and consumption patterns, as well as reduce traditional barriers, providing an opportunity for all to access local and global markets in a more equitable manner. The new market structure and licensing regime have necessitated a new set of skills which will assist in the development and use of ICT services. ICT applications should be user-friendly, accessible to all, affordable, adapted to local needs in languages and cultures, and support sustainable development. To this effect, local authorities should play a major role in not only the provision of ICT services but also delivering the requisite training to empower professionals to use ICT services for the benefit of their populations.[4]

Many stakeholders have recognized the central role of human capacity building for the success of their development projects and, in particular, in bridging the digital divide. For this reason, human capacity-building issues were incorporated as an integral component of all national and regional projects that support the development of infrastructure and ICT applications projects. For example, human capacity building has become an integral part of the *Connect Africa* Summit, held in Kigali in October 2007. In addition, a number of global initiatives have been launched to address identified needs; among these are the Global Centre of Excellence Project, the Internet Training Centre Initiative and the Global Human Capacity Building Initiative.

The rapid growth of broadband technology and the convergence of telecommunications, computing, information and multimedia applications are opening up new perspectives for the ICT sector, providing opportunities for e-applications and e-services. ICT applications are potentially important in health care and health information, government operations and services, education and training, employment and job creation, business, agriculture, transport, protection of the environment and management of natural resources, disaster prevention, and culture, as well as in promoting the eradication of poverty and other agreed MDG goals.

The following provides an overview of just some of many ICT applications, i.e. e-health, e-government, e-environment and e-agriculture. Other areas of society and industries clearly use similar technologies and services, customized to their respective environment and needs. Examples include e-business, e-commerce and e-employment dealing with aspects of international trade, economic growth, inclusion of gender equity and people with disabilities, private sector investment, and development of small and medium enterprises as a strategy for poverty reduction. ICT applications dealing with scientific knowledge and grid technology can provide support to researchers and academia in their role of analysing, synthesizing, and networking as they seek to design new and energy-efficient innovative products and services.

E-health

E-health solutions and applications can play a very important role in health-care delivery, in particular in developing countries, where the acute shortage of doctors, nurses and paramedics is directly proportional to the enormous unsatisfied demand for health services, and that e-health could not be achieved without using telecommunication facilities to accomplish the objectives of the health-care system.

Certain trends were identified by a WHO survey on analyzing e-health ICT applications, indicating that the majority of responding countries are providing health information for the general public, and there is an emerging priority for countries to enhance access to information and ensure quality of content. The survey was released in 2006 and projected that by 2008 an increase will be achieved in the adoption of policies promoting equitable access to e-health. The overall trend is that approximately 50 per cent of responding countries have established some form of governance mechanism for e-health. The need for sound governance practices was recognized and the implementation of effective e-health systems and services hinges on the successful collaboration of multistakeholders.[5]

To be effective, e-health requires appropriate regulatory, legal and policy frameworks in both the telecommunication and health sectors. Some of the critical factors for success are proper project management tools, a coordinated

[4] Declaration of Principles – Building the Information Society: a global challenge in the new Millennium, Document WSIS-03/GENEVA/DOC/4-E.

[5] WHO Report of the WHO Global Observatory for eHealth "Building Foundation for eHealth. Progress of Member States" 2006.

approach that pursues a clear vision, the building up and maintenance of adequate technological infrastructure, the commitment of trained end users and ICT-literate citizens, and the political desire to achieve challenging but realistic e-health goals. Some key issues in e-health are data security and privacy. Wherever possible, e-health networks and applications should share otherwise expensive communication infrastructures with other ICT applications requiring secure and interoperable systems, such as e-government and e-commerce.

E-government

Information is a critical resource that assists in ensuring the accountability of government, enables governments to manage their operations, and allows the public to participate in the governance of their country. With the revolutionary changes that ICTs are bringing to global society, governments worldwide continue to develop more sophisticated ways of digitizing their routines and practices so that they can offer the public access to government services in more effective and efficient ways. WSIS recognized that implementing ICT applications and services in public administrations can support sustainable development by promoting transparency and democratic processes, improving efficiency and strengthening relations with citizens.

Making better choices to align ICTs with a well-developed strategy will leverage this critical resource to give each government the capability to provide e-government services that will help each person to obtain information and services about educational opportunities, health care, commodities, food supplies, housing, land records, and so on, in a way that meets individual needs. There is a growing interest in research examining e-government policies in developing countries that is yielding new insights into the challenges of implementing services through ICTs. E-government focuses on the adoption of ICTs to deliver government services through the Internet and other emerging digital technologies.

According to the results of the UN E-government Survey 2008: "From e-Government to Connected Governance", governments around the world are moving forward in e-government development. Only a few governments have made the necessary investment to move from e-government applications *per se* to a more integrated connected governance stage. Europe tops the e-governance readiness index followed by the Americas, Asia, Oceania and Africa. Asia and Oceania are slightly below the world average while Africa lagged far behind in terms of citizen engagement. The e-participation index indicates a modest upward movement, with 189 countries online in 2008 as compared to 179 in 2005. The United States scores highest in the e-participation index.[6]

E-environment

Unequivocal and authoritative scientific evidence, recent climate events and an increased public awareness have elevated climate change to the highest ranks of the political agenda – globally, regionally and at national levels.

Climate change is a concern for all of humanity and requires efforts on the part of all sectors of society, including the ICT sector. It is estimated that ICTs contribute around 2-2.5 per cent of global greenhouse gas (GHG) emissions[7]. These percentages are likely to grow as ICTs become more widely available. At the same time, ICTs can be a major linchpin in efforts to combat climate change and serve as a potent, cross-cutting tool to limit and ultimately reduce GHG emissions across economic and social sectors, in particular by the introduction and development of more energy-efficient devices, applications and networks, as well as their environmentally sound disposal.

It is necessary to limit and ultimately reduce GHG emissions and foster sustainable development, in particular by promoting the use of more energy-efficient devices and networks and the development of technical standards to limit and reduce the power requirements of ICT equipment and services. A number of initiatives have been undertaken by multistakeholders. As an example of a major new initiative on the overall topic of ICTs and climate change, ITU organized Symposia on ICTs and Climate Change by bringing together key specialists in the field, from top decision-makers to engineers, designers, planners, government officials, regulators, standards experts and others. Work also focuses on the mitigation of climate change in other industries – including the automotive sector – using ICTs.

E-agriculture

In the agricultural sector, information on prices of raw materials and products are of dire importance. Especially given rising food prices, ICT applications and services can provide

---

6 For more information, see www.unpan.org/

7 www.itu.int/themes/climate

support for accessing information and for increasing production in quantitative and qualitative terms. In rural areas particularly, access to comprehensive, up-to-date and detailed knowledge and information can have a significant impact on agriculture, animal husbandry, fisheries, forestry and food that can translate into higher standards of living.

New and emerging ICT applications can be used for mapping and protecting natural and agricultural resources, as well as providing early warning systems for natural disasters, creating business opportunities through market information for farmers and traders; and enabling interactive communications through online communities.[8]

As a matter of great urgency, the international community is moving quickly to tackling the issue of food insecurity as well as of food safety. In combing the knowledge available in the agriculture sector and in the telecommunication sector, such as climate monitoring and early warning systems, studying the impact of climate change can aid in finding potential solutions and responses to food security, agriculture, forestry and fisheries through telecommunication technology. Action is not only quickly required on examining and addressing the global food crisis, but also on working to address access to clean water and sanitation, which is often the cause of suffering in humanitarian, social, environmental and economic terms, and seriously undermines development goals.

4 Building security in the virtual world

A battle for the future integrity of the Internet is under way. From its origins as a dedicated defence research network, the Internet has transformed modern lifestyles with its promise of open, real-time communications and limitless information.

With more than a billion people connected to the Internet, information and communication technologies (ICT) are the driving force for today's economic growth. They are also the most important tools to meet 2015 targets of the MDGs. However, the misuse of these advances in technology, along with the absence of truly global and multi-stakeholder strategies to address the global challenges we face, are threatening the collective benefits we, as citizens of the information society, should obtain. Cybersecurity and cyberpeace are the most critical concerns of our information age. Criminals are on the prowl to prey on the unwary and use their technical skills to break into networks not only for financial gain but also to collect information, invade privacy, steal identities, sow hatred and, worst of all, pander to the nefarious habits of paedophiles. Financial loss alone is estimated to run into several billion dollars both from fraud on the Internet and from the costs of rebuilding networks that have suffered cyberattacks. Moreover, national security can be at risk if hostilities and extremism become too overbearing in cyberspace.

Making a simple transaction on the Internet using a credit card can be fraught with danger. Imagine the difficulties this could pose in an increasingly networked world of e-commerce and e-government. Hackers can thwart sophisticated banking systems. Children, students and senior citizens communicating by Internet or mobile phone are equally vulnerable.

Confidence and security in using ICTs are fundamental in building an inclusive, secure and global information society. These two fundamental principles have been acknowledged by WSIS. The legal, technical and institutional challenges posed by cyberattacks and cybercrime are global and far-reaching, and can only be addressed through a coherent strategy taking into account the role of different stakeholders and existing initiatives, within a framework of international cooperation. Current attempts to address these challenges at the national and regional levels are inadequate, as cyberspace is boundless and limited only by human imagination. The boundaries of the information society have no direct correlation with existing geographical borders – cyber-threats can arise anywhere, at any time, causing immense damage in a very short space of time, before they are tackled.

> "Strengthening the trust framework, including information security and network security, authentication, privacy and consumer protection, are pre-requisites for the development of the Information Society and for building confidence among users of ICTs. A global culture of cybersecurity needs to be promoted, developed and implemented in cooperation with all stakeholders and international expert bodies." *WSIS Geneva Declaration of Principles, Para 35*

WSIS recognized the real and significant risks posed by cybercrime and entrusted ITU with facilitating the implementation of WSIS Action Line C5 (Building confidence and security in the use of ICTs).

[8] See for more information www.e-agriculture.org/.

To meet its obligation as sole facilitator for WSIS Action Line C5, ITU launched the Global Cybersecurity Agenda (GCA)[9] as a multi-stakeholder global framework for international cooperation. In line with WSIS principles, ITU GCA is built on leveraging expertise and in building synergies with existing initiatives to avoid duplication of work and to encourage collaboration amongst all relevant partners from various stakeholder groups.

The ITU Global Cybersecurity Agenda is built upon five (5) strategic pillars:

1. Legal Measures
2. Technical and Procedural Measures
3. Organizational Structures
4. Capacity Building
5. International Cooperation

A multistakeholder High-Level Experts Group (HLEG) for the Global Cybersecurity Agenda was established by ITU's Secretary-General to develop global strategies to meet the global challenges faced in building confidence and security in the use of ICTs.

With more than 100 Members, the HLEG comprises high-level experts from governments, industry, regional/ international organizations, academic and research institutions and individual experts from all parts of the world appointed by the ITU Secretary-General.

With its 191 Member States and more than 700 Sector Members, ITU is uniquely placed to provide a framework for international cooperation in cybersecurity. Its membership includes the least developed countries, developing and emerging economies, as well as developed countries. It is the ideal forum where actions and responses to promote cybersecurity and tackle cybercrime can be discussed, with the goal of arriving at a common understanding as to how best these challenges can be addressed.

9 www.itu.int/cybersecurity/gca

B. WSIS Implementation by Action Line

Action Line C1
The role of public governance authorities and all stakeholders in the promotion of ICTs for development

The WSIS Plan of Action calls for the effective participation of governments and all stakeholders in developing the information society within a partnership framework. This can be achieved using different approaches ranging from development of national e-strategies to providing connectivity for all. A few examples, demonstrated below, will present an overview of initiatives and projects undertaken by States and other stakeholders to meet the indicative targets set out in the Plan of Action.

1.1 National e-strategies

In **Bhutan**, the Ministry of Information and Communications produced an ICT Policy and Strategies (BIPS) report presenting a Bhutanese approach to the challenges of ICTs. BIPS comprises five strategic components: policy, infrastructure, human capacity, content and applications, and enterprise.

The National e-Indonesia Strategy is a strategic plan for the implementation of ICTs that intends using ICTs as a supporting facility for building the information society and knowledge-based society in **Indonesia** commencing in 2008-2009.

In **Lesotho**, a National ICT Development Policy was elaborated that included implementation strategies outlining an institutional framework and the role of the Government as a leader in the development of the sector.

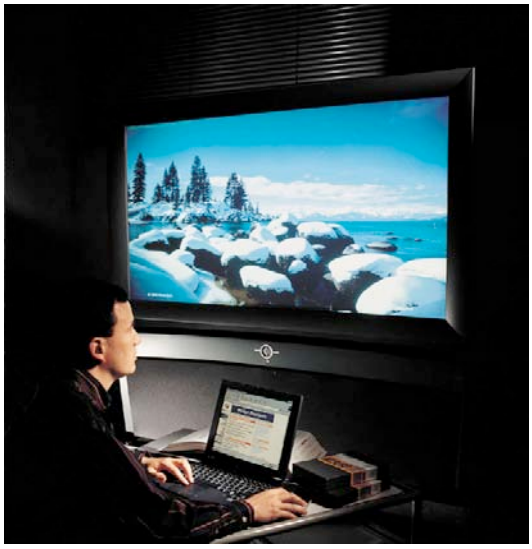
The Programme for Lithuanian Information Society Development for 2006-2008 was designed in order to implement the Lithuanian strategy for development of the information society. During recent years, the scope of computer and Internet use has rapidly expanded in Lithuania. In the last four years, the number of households with computers at home doubled and those using the Internet at home increased sixfold. In total, 49 per cent of all individuals from the age of 16 to 74 utilized the Internet during the first quarter of 2007. In addition, a network of public Internet access points is being actively developed in **Lithuania** to promote the use of computers and the Internet among the population.

Moldova approved a National Strategy on Information Society Technologies for Development (e-Moldova) and the National Action Plan (NAP) for its implementation. Both documents are concentrated on the realization of concrete measures in the following areas: e-government, e-economy, e-education, e-science, e-culture, e-health. The implementation of the national strategy and the NAP will have a long-term impact contributing to the reduction of poverty through increased economic competitiveness and productivity. Moreover, it will further strengthen and expand e-governance-based democratic practices, which will assist Moldova in integrating processes into European structures.

Namibia adopted the National e-Governance Policy and Strategies to ensure access to information, active citizen participation, transparent administration and simplified use of government services. The policy will be implemented in four stages, starting from providing e-government services to citizens on a regular basis. In order to create a favourable legal environment for the technical transformation of most governmental transactions, relevant laws have been reviewed and developed. For instance, copyright law was revised, the draft Electronic Transactions and Information Systems Management Law was prepared and the Government plans to draft a Freedom of Information Law.

New Zealand's national"'Digital Strategy" is currently publicly consulting on a "refresh" to the Digital Strategy, which was published in May 2005. The starting point for the refreshed strategy was a national Digital Future Summit held in November 2007. Essential components of the Digital Strategy incorporated the Broadband Challenge Fund, through which the Government has provided funding to remote communities to facilitate the delivery of broadband services, and NZD 14 million in seed funding to allow the development of broadband infrastructure in urban centres. In addition, the Community Partnership Fund, a contestable fund that has provided NZD 17 million of matching seed funding to support community initiatives, on a partnership basis, to develop capability, ICT skills and digital content, and the "Digital Content Strategy", a whole-of-government framework, led by the National Library, for initiatives to increase the pool of digital content, were included. Other initiatives under the overall Digital Strategy comprised the creation of: KAREN, a national 10Gbit/s research data network for use by government, the research sector, industry, the creative sector and national

heritage institutions, and – increasingly – schools and public libraries; Te Ara, the national online encyclopedia, for which citizens are encouraged to submit ideas for themes and entries; Farmgate, an agricultural ICT research initiative to improve efficiency in the primary produce sector; and Best practice guidelines for the reduction of waste electrical and electronic equipment. The new "refreshed" Digital Strategy 2.0 will include a focus on developing ICT skills for the retention of skilled workers and increasing the number of ICT graduates.



The National ICT Strategic Plan for **St. Kitts and Nevis** was completed in November 2006. It has been a remarkable achievement as it is the first document of this kind developed and there is strong support in the community for the full implementation of this plan.

The Information Society and Development Plan (ISAD) seeks to present a national vision of **South Africa**'s information society and outlines the country's plan to implement the WSIS action lines. It was developed in consultation with stakeholders and has six pillars: ICT policies, ICT infrastructure, ICT access, HRD and R&D, social inclusion, e-awareness and a funding model. The Plan has the following priority focus areas for ICT applications: e-education, e-health, e-government, SMEs and local content development. The ISAD was developed to support the implementation of the e-strategy concept stipulated in the Electronic Communication and Transaction Act.

1.2 ICTs for development in international organizations

The Commonwealth Connects Portal aims to share the common ICT assets of the **Commonwealth Secretariat**. The wealth of technical and human capital within the organization is incomparable and can be creatively tapped to benefit the cause of social and economic development of Member States. The Portal's functions include dissemination and access to primary communications (i.e. news, announcements and hosting member country ICT initiatives). It serves as a forum for stakeholders (i.e. with free software, best practices, and research findings). The Portal is also a primary medium for data collection and skills exchange, and provides a "matching" function between donors and project applicants (i.e. project marketplace).

The United Nations Economic Commission for Latin America and the Caribbean (UN-**ECLAC**) has promoted the development of a strategy for the information society in Latin America and the Caribbean**, eLAC**, a programme funded by the European Union. An extensive benchmarking exercise was undertaken in the process of renewing the eLAC Plan, including participatory exercises in online public policy-making for intergovernmental processes in the region: the *Policy Priorities Delphi*. In its first stage (from 2005-2007), *eLAC2007* helped to spur significant progress in most countries of the region towards a more comprehensive development of their information societies. According to the **Monitoring eLAC2007** study, conducted by ECLAC, the region made good progress on 15 of 27 quantifiable goals, with moderate or inadequate progress on the remaining 12.

The **United Nations Economic Commission for Africa** (UNECA) has developed a National Information and Communication Infrastructure (NICI) aiming at enhancing policies and national e-strategies on e-government, e-education, e-health and e-services.

The **United Nations Development Programme** (UNDP) TICAD Exchange Network aims at improving the information base on trade and investment to guide the identification of new business opportunities, to provide an online facility for information exchange among users. It

is a web-based information network that provides a wide rage of information. This includes macro and micro economic indicators, data on industrial production, trade and investment policies, as well as the laws and regulations of African countries. Eight countries, namely Cameroon, Ghana, Kenya, Senegal, Tanzania, Tunisia, Uganda and Zambia, were selected for initial showcasing and this is soon to be expanded to cover the entire continent. It provides a link to the trade and investment promotion sites of African Governments, relevant sources of data and case studies compiled and managed by international organizations (UNCTAD, UNIDO, and the World Bank) as well as research institutions.

1.3 Public-private and multistakeholder partnerships in developing and implementing national e-strategies

Availing Social Insurances Services on the Egyptian Portal project was initiated in **Egypt** in partnership with the Private and Public Sector Employees Social Insurance Fund (PPSESIP), the Government Employees Social Insurance Fund (GESIF), the Ministry of Finance and IBM. The project aims at facilitating access to insurance services of both companies and citizens by providing two separate portals to the PPSESIP and the GESIF, thus enabling the services to have full transaction availability.

Celebrations within the framework of the World Telecommunication/Information Society Week 2008 took place on 20 May 2008 in Kampala and were organized by the Commonwealth Peoples' Association of **Uganda** in partnership with I-Network, UCC, Winux Institute, LIIDA, as well as the Ministry of ICT (Uganda), the National Commission for UNESCO, UNDP and the UN System office in Uganda. This event contributed to the development of a project aiming to enhance the ICTs and MDGs knowledge base in Ugandan communities.

The Memorandum of Understanding between **ITU** and the **Ugo Bordoni Foundation** was signed with the intention of implementing projects in partnership, by organizing a new series of workshops, case and thematic studies, producing official publications focusing on technologies, policies, and identifying best practices for Shaping Tomorrow's Networks. The parties will form a new, non-exclusive, partnership that will assist in achieving identified objectives for improving connectivity and universal, equitable, non-discriminatory and affordable access to, and use of, ICTs. For this vision to become a reality, network technologies, content, and user accessibility must be developed in an integrated fashion.

ECLAC developed the eLAC strategy, agreed by the Latin America and Caribbean countries, that conceives ICTs as instruments for economic development and social inclusion and incorporates **eLAC2007** with 30 goals and 70 activities for the years 2005-2007, as well as **eLAC2010** with 83 goals to be achieved during the 2008-2010 period. The *eLAC* process is a new type of regional agreement in terms of its approach, scope, topics and the participation of multidisciplinary stakeholders. Governments are taking the lead in the process of developing and implementing public policies, but also facilitating the participation of actors such as private enterprises, civil society, the academic community and international organizations.

UNECA elaborated Regional Strategy Guidelines aimed at adopting a regional strategy on the information and knowledge society for the two regional integration institutions of Central Africa – CEEAC and CEMAC. The Guidelines were approved by ECOWAS in December 2007. They incorporated the following activities: establishment of a Committee of Regulators; harmonization of ICT framework; promotion of Universal Service; and unification of electronic communications tariffs. Furthermore, in collaboration with ITU, the Governments of Canada and Finland, and the African Union, UNECA is developing harmonized guidelines on personal data protection, cybercrime and e-signature.

1.4 Other examples

A number of different initiatives and projects can serve as examples of multistakeholder activities that have been submitted by international organizations, private businesses, civil society entities and others:

- The **Arab Urban Development Institute/Arab Towns Organization** developed the Arab City ICT Strategy (CICTS);
- The **Asian Development Bank** (ADB) project Assistance in ICT describes ADB's activities in the development of ICTs as of March 2007;
- ITU compiled a Handbook on Emergency Telecommunications that was written for use by those involved in humanitarian work;
- The **World Bank Group** has several initiatives supporting multistakeholder activities. Among these it is worthwhile mentioning: World Bank support to deepening the Reform Agenda and the World Bank Group Private Sector support.

Action Line C2 Information and communication infrastructure: an essential foundation for the information society

As stipulated in the WSIS Declaration of Principles, infrastructure continues to be the essential element for enhancing connectivity in fostering access to information society services. Activities submitted to the stocktaking database under this action line included the following examples:

- Infrastructure and broadband development projects;
- Projects for implementation of universal access policies through wired and wireless networks;
- Initiatives aiming to increase connectivity for institutions accessible to the public (e.g. schools, universities, research centres, health institutions, etc.);
- Telecentres projects for broadening ICT access;
- Affordable ICT equipment and services projects; and
- International and regional cooperation projects for infrastructure development.

2.1 Infrastructure projects and broadband development

A significant percentage of the entries submitted under Action Line C2 are related to infrastructure projects, most of which focus on the development of broadband infrastructures, as follows:

In **Congo (Rep. of)**, it is planned to deploy a CDMA network throughout the territory and to promote the fixed network.

Egypt's Broadband Initiative aims to increase broadband penetration in order to provide all citizens with easy and affordable access to the opportunities offered by new technologies.

In **Ghana**, the National Communications Backbone Project will provide a non-discriminatory, modern, high-speed communications service and affordable bandwidth within the country, and will also

regionally connect to Burkina Faso, Cote d'Ivoire and Togo.

The KDDI Corporation of **Japan** is running a project on Wireless Broadband LAN for Rural Areas aiming to improve ICT access in Indonesia, Malaysia, Peru and Viet Nam in cooperation with academia and local communities. The networks offer long-haul transmission up to 20 km at a speed of up to 10 Mbit/s, and can support VoIP and IP-based teleconferencing systems for telemedicine, e-learning and other applications suited to rural and isolated areas. A recent telemedicine trial in Viet Nam successfully transmitted scanned X-ray data and medical records for review by a doctor in a remote location.

Since 2005, **Myanmar** has continued to implement a project on the establishment of a Broadband Satellite Gateway. The Gateway uses the IPSTAR Broadband Satellite System for corporate meetings, technical support functions, distance learning, telemedicine, job recruiting interviews, direct-sales, legal work telecommuting, and other purposes aiming at promoting the MDGs.

In **Oman**, Nawras – the mobile operator – announced the launch of third-generation services based on the 3.5G next-generation network in 2008.

The Cyber Services Corridor of the **Philippines** is an ICT channel running over 600 miles across the country and is supported by a high bandwidth fibre backbone and digital network that enables various services and e-applications.

2.2 ICT for All

Different governments and stakeholders undertook the implementation of appropriate universal access policies and projects in line with the WSIS Declaration of Principles, as the following examples demonstrate:

In **Ethiopia**, as a result of the Rural Connectivity Project, more than 60 million citizens can access telephone, Internet and television services.

The Universal Service Obligation Basic ICT to Villages Project was initiated by the **Indonesia** Government to provide telephony services and ICT access for 43 000 rural villages. The next stage of the project covers the 2008-2010 period and aims to develop telephony access for 18 522 villages of several rural areas by using VSAT, cellular, radio point-to-point, IP Base, and PFS technologies.

Latvia undertook steps to increase the accessibility of broadband (always on 256/128 kbit/s) coverage in up to 90 per cent of its territory by 2012. The project is jointly financed by the Latvian Government and EU structural funds.

In **Lithuania**, there are about 23 000 small villages and 33 per cent (2007) of the population live in rural areas. The objective of the Rural Internet Access Points Network – RIAP project is to contribute to the provision of computer services and Internet access mostly to small communities in rural and remote areas of the country through 400 public Internet access points in 2007-2008.

Mexico is aiming to provide universal access to remote areas by exploring various network configurations and technologies with promising opportunities, such as fixed and mobile wireless services, Wi-Fi or WiMAX technologies and systems based on satellite technologies.

The Universal Service Obligation Fund was established in **Mongolia** under the Information and Communications Technology Authority (ICTA) to assist in the provision of telecommunication services to underserved areas. This Fund aims to finance the establishment of telecommunication centres that will provide a variety of services, including telephone and the Internet.

In **Morocco,** the National Agency of Telecommunications Regulation implements the Generalization of Access to Telecommunications Programme. The Programme intends to serve around 9 200 rural localities by the year 2011 and will reach about two million citizens who did not previously have access to telecommunication services. By virtue of this programme, 100 per cent of citizens will have the possibility of accessing telephone services and the Internet. The Universal Service Fund primarily funds this programme.

The National Rural Telephony Program (NRTP) of **Nigeria** focuses on underserved communities by setting up communication facilities with Internet access and electronic services in 358 local government headquarters.

In **Turkey,** the Turk Telekom operator was designated the universal service provider in order to provide basic telephony services for rural areas where telecommunication networks do not exist. As a result, GMPCS systems have been set up in 800 villages.

Telecentres *continue to be one of the most commonly used methods in broadening access to ICTs in many countries; for instance:*

In **Bulgaria**, a National Network of Telecentres aims to narrow the gap between Bulgarian society today and the information society, by improving the technological and information skills of citizens and businesses in regional and rural areas and by facilitating the flow of information. It is projected that the coverage of the entire network will expand to every municipality.

The International Development Research Centre (IDRC) of **Canada** hosts telecentre.org which is a collaborative initiative connecting telecentres, networks, innovators, social investors and other interested groups who believe that information and communication technologies used locally strengthen individuals and the communities.

Ecuador developed two projects related to telecentres focusing on broadening access to ICTs:

The first project is a PROMEC project that aims to reduce the "digital divide" in rural and marginal urban areas of the country, through the installation of systems for access to ICTs, such as public telephony, the Internet and multimedia. The objective of the second pilot project is to install and operate a network of telecentres in rural indigenous communities in the province of Chimborazo.

The Multipurpose Community Telecentre (MCT) project will enable the establishment of community teleservices and multimedia training centres in the regional and departmental capitals of **Senegal**. The project aims to reduce the digital divide by giving urban and rural populations access to the information society.

ITU will assist in carrying out feasibility studies and identifying the funds necessary for establishing MCTs within Senegal. The current phase of the project is valued at USD 2 million for 100 MCTs, calculated at USD 20 000 per telecentre.

2.3 Connectivity for public access institutions

ICT connectivity for all institutions that are accessible to the public is encouraged in the WSIS Declaration of Principles. The examples include:

INFOVIA.RJ NET is an ongoing project to establish a high-speed network that integrates 92 cities in **Brazil** by linking Government Net to the Rio Net (an academic net that enables connection between institutions of education and research in Rio de Janeiro), using wireless technologies, DWDM, PLC and satellite technologies.

In **Bulgaria**, the National State Network project aims to extend the ICT backbone with an initial transmission capacity of about 2.5 Gbit/s, and with a further option for an increase to 10 Gbit/s in order to connect 27 regional centres and the capital within the fibre-optic ring.

The Networking Project in **Egypt** began in June 2007 and is to be completed within 3 years. It aims at connecting a VPN to 3 100 post offices across the country by linking individual post offices to each other and to the Head Office.

The Public Net Project of **Hungary** aims to provide the means of electronic communication infrastructure for public institutions and communal access points (i.e. local public administration organizations falling outside the scope of government IT, public institutions, schools, other organizations with public functions and non-governmental organizations).

In **Lithuania**, a secure state data transfer network is being created which may be used both by State institutions in Vilnius and municipal institutions of all counties and districts. Moreover, the network will be connected to the EU institutions' network – TESTA.

On 30 July 2006, the Portuguese Government launched the programme "Connecting Portugal" which enabled all primary and secondary schools in **Portugal** to have broadband connection to the Internet through ADSL (in most cases at least 1 Mbit/s).

In **Senegal**, fibre-optic infrastructure will be extended to 11 regional capitals within the scope of the national government intranet infrastructure extension exercise, as well as establishing Wi-Fi networks in 35 metropolitan locations.

The Ministry of Infrastructure Development of **Tanzania** is working on a project for the development of national broadband infrastructure, which would provide electronic services in the fields of education, good governance, health and communications in general.

The Ministry of Education of **Turkey** and Turk Telekom agreed on establishing ADSL connections in primary and secondary schools all around the country to provide broadband access for students. As a result, 28 500 schools had broadband connections by the end of 2006, which enabled 11 million students (85 per cent of primary school students and 97 per cent of secondary school students) to have Internet access.

The **iSchool** project was devised and implemented by AfriConnect Zambia, in collaboration with local partners and the Zambia Ministry of Education. The objective of the iSchool project is to provide a model for sustainable internet connectivity to all Zambian schools by providing them with computers and the necessary infrastructure; high-speed broadband Internet connectivity; and technical and user training for staff and for pupils. In addition, an educational website (www.ischool.zm) was set up to enrich the Zambian school curriculum.

2.4 Adequate and affordable ICT equipment and services

The WSIS Plan of Action encourages availability of affordable ICT equipment and services in order to facilitate access to ICTs. The following initiatives and projects serve as illustrations:

In **Egypt**, the PC for Every Home initiative led to an increase in PC usage. It was achieved by providing end users with computers at prices and terms that are manageable for the average user and by allowing fixed-line phone subscribers to buy a PC using a credit plan linked to their phone subscription.

The **Mongolian Information and Communication Technology Authority** is implementing a Low-cost PC initiative aiming to provide affordable access to the Internet for each household.

The Bringing a Shareware Telecommunications Model to Global Delivery of Broadband Services initiative developed by SWANsat™ (a non-profit organization) aims to offer by 2010 a shareware open telecommunications model to satellite-delivered telecommunications, targeting those who cannot afford to pay the costs of services. Such services will include VoIP telephony, e-mail, and text messaging, and is expected to be delivered through a battery-operated or fuel-cell-powered handset.

Extending the Network is an initiative undertaken by a consortium of Aptivate, Plextek and Sagentia that is also part of the ICT Empowerment Network. This initiative aims to

provide low-cost connectivity for isolated communities by extending the GSM network throughout rural areas. E-mail and SMS communication could be offered to the smallest villages whilst larger communities could benefit from local GSM networks. The target is to connect every community by 2015.

2.5 International and regional cooperation

A substantial number of infrastructure-related projects involve international and regional cooperation, as the following examples reveal:

The **Africa Finance Cooperation** is funding the MaiN OnE project aiming to deploy a new broadband submarine fibre optic cable system to increase capacity and lower costs for international and intra-Africa voice, data and Internet communications, along the West Coast of Africa. It is expected that, before the year 2010, implementation of the project will contribute to the reduction of broadband bandwidth prices by 50 per cent below current rates at inception and by up to 75 per cent or more within the first few years of operation.

Broadband for Development in the ESCWA Region: Enhancing Access to ICT Services in the Global Knowledge Society. This publication builds a regional framework for the deployment of broadband in the **ESCWA** region. It falls within the recommendations of WSIS and is part of ESCWA's Regional Plan of Action for Building the Information Society in Western Asia. It provides guidelines for the development of ICT infrastructures and includes: (1) an analysis of the status of broadband in the ESCWA region; (2) an assessment of lessons learned from international experience; and (3) an evaluation of technologies and business cases that may support the deployment of broadband in the region. This study was translated into Arabic during 2007.

World network (broadband) is based on a unique wireless communication system with long range and very high-speed capabilities developed by **WebForce**. The creation of a WebForce network, developed in partnership with multistakeholders, is based on the installation and the interconnection of several elements of equipment that form the global architecture of the network. Each "WebForce Point" enables a link to the complete group of users by offering them numerous services: Internet access; VoIP; e-learning; telecommuting; etc. The network's capacity goes from the cover of a village, a region, and even to a whole country.

The NEPAD ICT Infrastructure Programme is a multistakeholder programme, which will enable the establishment of the East African Submarine Cable System (EASSy) linking South Africa to Port Sudan and providing for landing stations in countries along the East Coast of Africa with access to adjacent land-locked countries. It will also enable rationalization and development of the ICT Broadband Network for Africa region, with collaboration from the NEPAD e-Africa Commission, the Common Market for Eastern and Southern Africa (COMESA), the East African Community, the Intergovernmental Authority on Development (IGAD) and the Southern African Development Community (SADC), as well as other stakeholders such as local operators, regulators and policy-makers.

In 2006, the **United Nations Economic Commission for Latin America and the Caribbean** (ECLAC) launched the project on Universal Access for Telecommunications in Latin America: New Models for Universal Access in partnership with Regulatel and the World Bank in order to analyse and assess the efficiency of universal access programmes and provide a gap analysis of Regulatel member countries.

Through its Development Fund, the GSM Association, in partnership with the **United Nations High Commissioner for Refugees** (UNHCR), will assist mobile operators and equipment suppliers to benefit from the cost-effectiveness of GSM mobile networks and devices to provide refugees in Northern Uganda refugee camps with affordable and sustainable access to a wide range of services, including voice calls, Internet access and electronic learning programmes.

In partnership with other international organizations, **ITU** undertook the following activities:

- **ITU** organized the World Radiocommunication Conference (WRC-07) between 22 October and 16 November 2007, which took decisions on global frequency planning in order to foster broad access to orbital resources and promote provision of high-speed satellite services for underserved areas.
- **ITU** is carrying out feasibility studies, both on the Implementation of Broadband Infrastructure and Digital Broadcasting Roadmap in Africa. The purpose of the first project is to conduct feasibility studies and develop project documents aimed at investment for laying out broadband infrastructure within all African countries, with particular attention to underserved populations in rural and remote areas. The objective of the second project is to undertake a feasibility study aiming at the preparation of the digital broadcasting roadmap for African countries.
- **ITU** in cooperation with **UNDP**, contributed to the African Capacity for Cost-Effective Access to the Internet project by coordinating and assisting beneficiary countries from Africa (Sub-Saharan) in the implementation of national and regional Internet backbones and exchange points. The project was completed in 2007 and was valued at around USD 2 460 000. Other concerned regions – Asia (China, India, Malaysia, Singapore), South America (Brazil, Chile, Mexico), and Arab States (United Arab Emirates, Egypt) – were expected to benefit by drawing lessons from the African experience.
- **ITU, UPU** and the **Republic of South Africa**, launched a project on Rural Telecoms, ICT Services and Entrepreneurship Development. The objective of this project is threefold: 1) to encourage telecommunication operators to provide services in rural/remote areas with appropriate private investments; 2) to foster development of the content of the ICT services through private public sectors collaboration; and 3) to trigger provision of services to the general public by local entrepreneurs with support from microfinance institutions and other banks.

The **World Bank** is currently working with African Governments on a project to provide broadband connections in Central Africa to the Global Fibre Loop by using optical fibre already deployed along the Chad-Cameroon pipeline. To further support preparation of a regional backbone project in Central Africa the amount of financing to be considered for approval is between USD 30 million and USD 160 million. The project is expected to decrease prohibitive telecom costs in landlocked countries, improve quality, route diversification and coverage of telecom services, and enable regional integration through public-private partnership implementation. Phase 1 of the Central African Backbone (CAB) project is expected to focus on Cameroon, the Central African Republic and Chad and involves approximately USD 30 million financing. Phase 2 of the CAB Project is expected to include other Central African countries, as well as Nigeria, and could mobilize up to USD 130 million of additional financing.

Action Line C3
Access to information and knowledge

3.1 Policy and legislation

In order to provide access to information and knowledge within a society, policy and legislative efforts should be undertaken by States in line with the spirit of the WSIS Plan of Action. To this

end, various governments developed policies, strategies and legislative reforms, and established special bodies coordinating the work of relevant institutions. The following initiatives can serve as an example of efforts carried out by different governments:

The State Program on Development of Communication and Information Technologies (2005-2008) of **Azerbaijan** focuses on the harmonization of telecommunication, postal and information technologies with world standards in order to increase the quality of services provided to end users.

The National Commission of Information and Communication Technologies was established in **Costa Rica** to coordinate ICT strategies in the public sector. In its work, the Commission covers issues of technical coordination, access to information programmes, e-governance, and others.

In **Namibia**, the Development and Implementation of National Policies and Laws initiative aims at the socio-economic development of the population, through the provision of a broad, reliable, efficient and affordable supply of universal services. The policy development process entailed revision of relevant legislation. As a result, major legislative reform processes took place to draft a new Communications Law. The draft law provides mainly for a new independent regulatory regime, the introduction of competition, the establishment of a Universal Service mechanism and a new approach to licensing.

The **Peruvian** Ministry of Transport and Communication developed a Plan for the Information Society Collective Responsibility to keep track on the implementation of the strategic objectives and actions provided by the "Development Plan for the Information Society – The Peruvian Digital Agenda". This Plan assists in the promotion of universal access to and use of a technology report.

In the **Philippines**, the Implementation of Information System Strategic Plan (ISSP) 2005-2009 serves as an organizational blueprint for adopting and using ICTs. The ISSP goal is to develop information systems that would offer better services to users. The information system architecture will: strengthen monitoring, assessment and CITAP delivery to clients; reinforce and enhance internal and network partners' communication; and provide for a "one-stop search" portal.

The Ministry of Planning and Development of **Trinidad and Tobago** anticipates that, by implementing the IT Development Project, it will provide to customers quality services in a more cost-effective manner by offering reliable, timely and user-friendlier access to services.

Uruguay's project "Portal to the Uruguayan State" foresees that the use of new technologies will improve governmental services, reduce costs, enhance knowledge amongst State officials, contribute to increasing transparency and improve networking among agencies. The project's activities include coordination efforts amongst State agencies to update information on existing institutional websites, synchronizing the information available, and making it accessible and transparent to citizens and/or companies.

3.2 Information access

Access to information initiatives and projects includes a variety of activities ranging from capacity-building projects to the establishment of governmental portals. The following examples indicate the diversity of initiatives undertaken by various States to provide wide public access to governmental websites and facilities:

Australia developed several projects addressing access to information issues. Such projects include:

- access to government information that was developed and managed by AGIMO to facilitate access to information held by the Australian Government;
- the Local Government Interoperability Framework project was developed by ALGA aiming to connect all local government websites;
- Citizenship E-Lodgement focuses on providing services to persons seeking to obtain Australian citizenship; and
- through ServiceNSW, the local community has access to government services 24 hours a day, seven days a week.

The Access to Information (A2I) Programme of **Bangladesh** was designed to ensure that new initiatives and programmes are in line with national priorities in ICT development. Its scope includes strengthening capacities and enhancing ICT skills of key government individuals and organizations. In addition, this programme will provide technical assistance to monitor and evaluate implementation of selected projects.

The eHungary Programme aims to establish public Internet Access Points (IAPs) all over **Hungary**, offering access to information for those individuals who are without Internet access at home, at work or at school. All eHungary points will minimally offer the following services: Internet access available in defined time periods at prime cost; the presence of qualified personnel; a means of e-mailing for registered visitors using free mail addresses; and access to information offered by IHM (uniform eHungary information opening page, EU information data base, ECDL curriculum, etc.). Furthermore, eHungary points may, depending on emerging demand, also offer other services (faxing, copying, printing, etc.) at a market price.

In **Jamaica**, the Access to Information and Records Management project supports the establishment of two courses in Records Management and Access to Information at the undergraduate and postgraduate levels.

The General Education Schools Informatization Project in **Latvia** aims to advance the provision of computers, software and Internet access to schools; to provide access for teachers, pupils and parents to digital learning resources and other resources available on the Internet to ensure that the learning process is in accordance with educational standards; and to train teachers and other educational employees on how to work with the software that was developed within the framework of this project. In addition, a digital information system is being planned to enhance access to information for centralized exam applications.

The development of access to Internet is planned by Rostelecom to connect all Internet-traffic exchange areas in the **Russian Federation**. The ultimate goal of the project is to enable users to have easy access to information using Internet operators throughout the territory of the Russian Federation.

In **Zambia**, the Chawama Youth Project and Skills Training Centre carries out the ICT Integration Multimedia and Recording project. The Centre has already trained over 300 people in different fields that include carpentry and joinery, tailoring and design, and power electrical, among others. The Centre recently established an ICT centre that enables youths and the local community to have easy access to the Internet and other computer-based services.

3.3 Research and Development

Governments and other stakeholders executed various projects aiming to promote research and development (R&D) in order to assist educational communities and disadvantaged and vulnerable groups to have access to ICTs, as illustrated below:

The National University of **Colombia** provides free public access to its educational facilities for students, teachers, researchers and educational institutions. In addition, the content of virtual galleries of several museums is accessible to the wider public, including the Science and Natural

History Museums as well as others. The University contributes to the development and construction of the information society in Colombia by providing free access to knowledge.

The Community Knowledge Generation e-Library project in **Egypt** promotes the use of ICTs for research skills development, specifically focusing on the development of Arabic content. This project is a part of the Fekrzad project that was designed to build tools to further underpin knowledge amongst users of ICTs. These tools included a text-to-speech (TTS) engine to enable illiterate and blind users to access locally generated content, as well as English-to-Arabic translation in order to allow users to integrate the vast amount of English content available online into their learning and research activities.

In **Japan**, the promotion of IP-based Networks Building was undertaken during the Next Generation IP Network Promotion Forum that was established in 2005, comprising 211 members including universities, telecommunication carriers, manufacturers and application production companies. Through industry-academia-government collaboration, this forum serves to implement investigation of various technical issues and development of frameworks for interconnection testing and demonstration experiments, as well as the strategic promotion of R&D and standardization activities. In 2006, with the aim of confirming conditions for fair competition in response to Next-Generation Networks, MIC launched studies at the Information and Communication Council. Based on the report of the study group on a framework for competition rules to address the transition to IP-Based Networks, a new Competition Promotion Program 2010 was revised in 2007 and MIC is carrying out further studies.

The SIST project (Système d'Information Scientifique et Technique) in **France** aims to establish an information system that will sufficiently increase availability of scientific information and communication between researchers.

The National Geology Database of **Iran** (NGDIR) has been developed in order to collect and unify geological information in an organized fashion and to provide easy and quick access to this information. The dissemination of information was undertaken by different means, such as the Internet, intranet, CDs and maps. Through the specially designed website, all branches of earth science, including geology, mining, and relevant geographical information, were made available and accessible to the public.

The **Italian** ICT Programme for Development and Innovation in Western Sicily in the Field of Marine-applied Scientific Research (ICT-E3) aims to strengthen ICT-related infrastructures and services policies to provide the private sector, research institutes and local governmental institutions with useful means to cooperate. Information sharing and intra-institutional dialogue, as well as stronger cooperation between research and the private sector, will effectively allow increased scientific outputs, applied research, and local skills in the fishery sector.

The National IT Development and Promotion Unit was established in **Pakistan** with the aim of creating a "Think Tank" body that will provide research, analysis and advice on issues related to the realization of goals stipulated in the National IT Policy and IT Action Plan. The Unit will interact and cooperate with IT experts and organize sessions with the Government, academia and private sector structures to collect ideas and proposals on issues related to IT disciplines. By preparing market surveys, feasibility reports and concept papers, the Unit will assist government institutions to identify and implement IT-related initiatives and projects within specific areas.

The **Swiss** Agency for Development and Cooperation (SDC) is carrying out a MercoNet – Industrial Regional Integration initiative that includes two research projects on industrial regional integration to be undertaken simultaneously under the overall responsibility of Red Mercosur – an IDRC-supported network of policy research institutes. The two selected sectors are automotive and software in the Mercosur countries. The main objectives are to update knowledge on both sectors' prospects in the face of regional challenges and opportunities posed by globalization, and to assess the potential of increasing inter-country cooperation (firms, governments, and policy research) through bilateral and intergovernmental mechanisms.

In **Venezuela**, the project Alianzas para un mayor acceso a la información desde las unidades de información de ABIDEANA promotes greater access to information from the intelligence units of ABIDEANA and develops joint projects aiming to increase access to information using ICTs as a support for educational and research activities developed in its institutions.

On 25-27 September 2005, an International Workshop on African Research and Education Networking was jointly organized by CERN, ITU and the United Nations University (UNU) in close cooperation with AUF, AIG/INTIF, DANTE, IDRC, IEEAF, Internet2, ISOC, RENATER, TERENA and UNESCO. The purpose of the Geneva workshop was to facilitate scientific and medical collaborations with Africa.

Focusing on improving the access to ICTs for people with special needs, ITU initiated the World Telecommunication and Information Society Day which adopted the theme **"Connecting Persons with Disabilities: ICT Opportunities for All"** to address the special requirements of persons with disabilities. ITU focuses on a series of strategic issues ranging from the rights of the disabled, to making technical design standards accessible, to providing education and training on accessible ICTs.

Moreover, **ITU**, in cooperation with G3ict, is going to develop a global online toolkit to support the development of successful policies and strategies addressing ICTs, and to mainstream disabilities issues in the application of the disposition of the Convention on the Rights of People with Disabilities, to be officially launched early 2009.

Additional efforts are undertaken by other international organizations to facilitate access to ICTs with specific focus on disadvantaged groups. The E-accessibility project of the **European Commission** aims to ensure that people with disabilities and elderly people will have access to ICTs on an equal basis with others. A horizontal legislative approach is taken to improve accessibility to the information society thus removing the barriers encountered when trying to access and use ICT products, services and applications. The 2008 e-Inclusion initiative takes into account the 2005 e-Accessibility Communication, by including issues such as public procurement practices, certification of ICT products and services, and the value of current legislation. In addition, the ICT Policy Support Programme (in which e-accessibility is considered a key priority) is being implemented to stimulate competition and innovation while encouraging greater uptake of ICTs across society.

3.4 Community centres

In order to establish multipurpose community public access points that will provide affordable and free-of-charge Internet access, various actors implemented the following initiatives and projects:

An **Argentinean** project, Cybermeetings for Children of the Street, is targeting 600 children living on the streets by inviting them to spend some of their time in five different Telecoms Centres. Each Centre has healthcare facilities and psychologists to assist children in reintegrating into society. The children are learning how to use the Internet and their physical well-being is monitored by nutritionists.

The MUKIM.NET project addresses the national digital divide in **Brunei Darussalam**. The project aims to establish Community Technology Centres, which will provide Internet access and training to citizens on how to use computer equipment. In the short-term, the project will carry out two activities: 1) a pilot scheme that will set up one Community Technology Centre in each of the four districts in Brunei Darussalam; and 2) research will be conducted to measure and address issues related to the nationwide digital divide.

Public Access Centre (PACs) were established in States and Divisions of the Union of **Myanmar** with a view of providing easy ICT and Internet access to public schools, enterprises and local organizations. Since November 2005, 16 PACs sites were launched in joint efforts with Myanmar Info-Tech and local partners. The second and final phases of the project were completed in 2006 and 2007.

Establishment of a Community Access Point (CAP) is part of **Indonesia**'s effort to spread ICT knowledge throughout the country. In partnership with different bodies, the CAP programme is implemented focusing on different themes to support various segments in Indonesian society: women, education, the blind, farmers, etc.

Iran is encouraging the private sector to develop IT training centres in order to create an ICT-enabling environment and to boost ICT knowledge. The Professional and Technical Training Organization will encourage the private sector to invest in the development of 70 IT training centres.

Suriname's rural telecommunication network expansion and enhancement programme was included in the policy statement of 2005-2010 aiming to take all necessary measures to improve the disadvantaged conditions of the indigenous and maroon communities. It is planned to establish Multipurpose Community Telecentres in order to make Internet services available to remote villages. The overall objectives for providing telecommunication services to rural areas include facilitation of integrated rural economies, increase of accessibility to social and educational services, and promotion of ecotourism. Several Multipurpose Community Telecentres have already been established.

The main goal of the Knowledge Networks through ICT Access Points for Disadvantaged Communities project is to empower poor and disadvantaged communities through the transformation of existing ICT access points in selected countries around the world into knowledge hubs of global knowledge networks. It aims at increasing the engagement of target beneficiaries in disadvantaged communities, with emphasis on women. This involvement will serve to deploy relevant knowledge pertaining to key areas of sustainable development such as employment, education, gender and health. The project is implemented jointly by the **United Nations Regional Commissions**, with **ESCWA** as the lead organization, over a period of 36 months starting in 2006.

3.5 Software and open access

Various projects have been submitted to the WSIS database to encourage software development and promote awareness amongst all stakeholders. The examples presented below demonstrate the diversity of various approaches undertaken by Member States and other stakeholders:

The Strategic Plan for the Software Industry and Information Services in the province of Corrientes in **Argentina** aims at strengthening this sector of the economy and at contributing to the technological development of the region. The plan specifically aims to provide technical assistance to enterprises located in the province to further enhance the software industry and to provide adequate information services to public.

In **Barbados**, the Public Expenditure Management Project involves provision of computer hardware and software to the various government ministries in order to facilitate electronic human resource management and accounting activities. In addition, training was provided for staff on how to use the software.

A specially established intranet site will link ministries to the Coordinating Department and the Office of the Accountant General**.**

Establishment of a National Network of Virtual Libraries to enhance the use of technology in **Bulgaria** entails the development of a software engine that will provide adequate support to the dynamic creation of educational content on the basis of a centralized digital repository and in accordance with world education standards (SCORM, etc.).

Two companies assist **Egypt** with software-related matters. The first is the *Industrial Modernisation Centre* which provides Capacity Maturity Model Integration (CMMI) services that include training, mini assessment and formal assessment to around 20 Egyptian software development companies. The second one is the *Information Technology Industry Development Agency* which, through the Embedded Software Development project, offers support, training and advice to Egyptian local companies that utilize technology transfer in the area of embedded software development.

The Programme for the Development of Software Industry (PROSOFT) of **Mexico** aims to achieve an annual production of software of up to USD 5 000 million, thus reaching the average global spending on information technology.

Oman's Information Technology Authority (ITA) set up a MICROSOFT Innovation Center in Muscat with the aim of supporting the development of applications and software services for the specific requirements of each organization. This initiative will further enhance government services, as well as facilitate IT human resources development in Oman. It is envisaged that, within three years, the Microsoft Innovation Centre will be established and equipped with 27 000 desktops.

The Protocols for Government Procurement of Software Assets were initiated by the **Initiative for Software Choice.** The Protocols encourage governments to adhere to fundamental principles in software procurement policies that include: competing software assets should be based on economic considerations; full transparency must be ensured in the procurement of software assets; procurement of software must be consistent with international trade norms, and international norms governing intellectual property must be respected.

Global Alliance for ICT and Development (GAID) established an Initiative 512. This initiative is called 512 as it intends to provide 500 000 computers by the year 2012 to children in Africa. Computers will have relevant content and be aimed at training children and developing software. Currently, GAID forms a global youth coalition of e-leaders from youth from across the world.

In Tanzania, the Government, through the **Tanzania Communications Regulatory Authority** (TCRA), supported the establishment of the Tanzania Internet Exchange Point (TIXP) in 2003. To date, there are more than 14 ISPs and non-ISP institutions. The TCRA, in collaboration with the Tanzania Internet Service Providers' Association (TISPA), has deployed another IXP in the city of Arusha and two more IXPs for Mwanza and Dodoma planned to be operational by September 2008. These upcountry IXPs will be linked with TIXP in Dar es Salaam, thus keeping Tanzania traffic local. For the three IXPs, TCRA offered financial assistance for the respective hardware, software and associated logistics to a tune of about USD 90 000.

3.6 Digital libraries and archives

Aiming to facilitate the creation and development of digital services available in libraries and archives, certain governments realized a variety of initiatives and projects, for instance:

The **Dominican Republic** anticipates in its Red de Bibliotecas Digitales en Escuelas y Liceos project to develop virtual libraries in public and high school libraries, thus enabling pupils and teachers to use technological resources in education. So far, 13 locations in different provinces have been covered in the implementation phase of the project.

Two projects in **Hungary** aim to enhance archive development programmes: the National Audiovisual Archive (NAVA) and the National Digital Data Archive (NDDA). NAVA is the Hungarian national depositary archive of production broadcasted programmes developed by nationwide terrestrial television and radio stations. The digital records are catalogued and made available for the public for educational and scientific purposes. NDDA is a distributed network of archives that makes available Hungarian national cultural assets in a digital form for a wide range of users. NDDA is an information system with interactive and multimedia features that is available through the Internet.

Egypt organized a Middle East Digital Library Workshop in Alexandria, on 15-17 January 2006. The participants focused on cultural heritage and discussed the necessary requirements and actions to develop a large-scale digital repository of resources on and about the Middle East. A primary goal of the workshop was to develop a vision and mission statement for a digital library in the Middle East and to identify key constituents in a community of practice that can ensure the realization of the aims of the project.

The Tebyan Digital Library of Iran has been developed with the aim of providing extensive reference materials for research in the three languages of Persian, English and Arabic, and holds about 7 000 books. At present, this library has the biggest digital library collection of Persian poetry.

Lithuania is undertaking implementation of two projects related to digital libraries: establishment of the Lithuanian National Radio and Television virtual library and creation of an integral virtual information system of libraries. The first project involves a TV and radio public virtual library and seeks to ensure electronic access to Lithuanian audiovisual heritage recorded in television programmes. The second project is being implemented in cooperation with the Lithuanian Art Museum and Lithuanian Archive Department. This project anticipates harmonization of a data bank of digital cultural heritage objects belonging to libraries, archives and museums holding over 3 million digital pages of original manuscripts, newspapers, old books, registers of births marriages and deaths, works of art, folk graphics, maps, drawings, paintings and other valuable cultural heritage objects of high historic value.

UNESCO has assisted the Government of **Nigeria** to conduct a Feasibility Study for the development of a Virtual Library for Higher Education Institutions, with the support of Japan's Funds-in-Trust. A virtual library (VL) is a repository of knowledge, which is only available electronically, yet comprises information existing in non-electronic libraries.

Action Line C4
Capacity building

The WSIS Plan of Action calls for development and promotion of initiatives and projects aiming to eradicate illiteracy, through delivery of educational and training activities, and by using ICTs at national, regional and international levels. At present, more than 1 700 activities were submitted to the database that are of relevance to the capacity-building issue. The examples presented below offer an overview of these activities:

4.1 ICT literacy

In **Brunei Darussalam**, the Internet for Schools project was launched by the Ministry of Education and intends to increase the level of ICT literacy by providing all schools, libraries and governmental offices with Internet access.
A Smart School Network has been established to allow **Egyptian** students to achieve computer literacy after completing preparatory school. It also aims to enhance student creativity and to enable students to adapt to the requirements of the modern workplace, both in Egypt and abroad. Students and teachers will be qualified to obtain the International Computer Driving Licence. The overall objective is to improve teaching and educational methods by introducing interactive methods, such as Learning Management and School Management Systems.

In **Georgia,** the School Computerization Program is a four-year project, which will cover 2 700 public schools in Georgia. The ongoing phase of the program (2005-2009) will provide integration of an Education Management Information System at regional and national levels. In addition, the outcomes of the program will include: modern computer labs in schools, increasing the computer-to-student ratio from the current 1 to 200 to 1 to 20; access to computers and the Internet in each school; availability of educational software and services; development of the ICT skills of teachers and students; and integration of ICTs into the curriculum.

Guyana is focusing its effort to establish a state-of-the-art IT facility (computer centre) in order to provide high speed Internet access and computer terminals for training and research for students at the University of Guyana. The state-of-the-art Information Technology building was constructed through a grant of USD 200 million from the Government of Guyana. The building has two computer labs used for teaching of computer-related courses and one Internet lab. Each of the teaching labs has capacity for 50 computers and one server. The lab will be used to provide computer training to students of the university. The Centre of Information Technology manages four servers used for Proxy, Mail, Web and DNS.

In **Iran**, the Tebyan Internet School aims to provide information on information services to schools, teachers and students and the information is updated twice a week. The Internet school activities include: an Internet magazine, interactive teaching, consulting, presenting information references, learning skills, lesson plans and others.

A Computer Literacy Basics for e-Citizens project was initiated by the Association "Window to the Future" (W2F) in **Lithuania**. The objective of the project is to provide training on basic computer literacy, as well as raise awareness about safe Internet usage, to 50 000 persons. The content of the training courses is based on the computer literacy standard developed by the Government-approved qualification programme, which corresponds to the latest version of the European Computer Driving Licence (ECDL) programme.

In **Qatar**, the ICDL Women and Youth project was implemented, aiming to increase e-literacy rates in the women, youth, and government sectors.

The iSchools (Internet in Public High Schools) Project supports the efforts of the **Philippine** Government to incorporate ICTs in public high school education. In order to bridge the digital divide and to enhance effective learning, the project is developing an Educational Digital Network that will provide training to all public high school teachers and students on ICT literacy skills, as well as equip them with relevant digital content and applications.

In **South Africa,** the Oracle project expects to connect around 600 000 schools in ten years all over Africa, including North Africa. The planned activities include: installation and operation of computers, accessories, servers and Internet access; provision of computer desks, TV screen and digital satellite decoders; delivery of teacher training in ICTs; and provision of e-learning and e-health applications.

Similar programmes to promote digital literacy by designing special education programmes and establishing connection to the Internet in schools are being implemented in several countries (e.g. Cameroon, Ecuador, France, Guatemala, and Hungary).

4.2 National policies

Some Governments included ICT development projects in their national policies and programmes in order to contribute to the eradication of illiteracy (i.e. Finland and Iran). Canada's Public Sector Capacity Building Program (PSCAP) serves yet as another example of such applications by national governments. The PSCAP is designed to: 1) improve the scale, efficiency, and responsiveness of public service delivery across all levels of the Government; 2) empower citizens to participate more effectively in shaping their own development; and 3) promote good governance and accountability.

In **Ethiopia,** national studies identified a critical need for ICT development in the field of human resource capital. As a result, an ICT human resource development strategy was elaborated that aims to build and enhance human resource capacities to rapidly develop the ICT sector in the country.

The Education Areas Network Development was launched in **Kuwait** focusing on improving information exchange.

Other governments are developing educational training programmes, which aim to improve the ICT skills of various social groups. Examples of such programmes include:

- **Philippines:** GMA Ladderized Education Program CHED
- **Republic of Korea:** ICT Education for Teachers, Instructor Pool for ICT Education, and ICT Education for the Elderly
- **Republic of Moldova:** National Programme for Schools Informatization SALT
- **Thailand:** SchoolNet Thailand

The following projects were developed to promote the use of ICTs in strengthening university management systems:

- An E-admission system was implemented in **Oman** by the Ministry of Higher Education, which was designed to modernize the Ministry's operations by providing online application services for students to apply to different universities located throughout the country.

- In **Kuwait**, a Student Affiliation and Registration System allows students to check online university course timetables and student's grades.
- **Poland** implemented a Bilateral Data Exchange and System Integration project, which supported all key areas of university management, including finance and administration, student affairs, curricula and research. Over 120 000 students and nearly 10 000 academics have access to the system.

4.3 ICT for professionals and experts

Strengthening capacity building in adult education is one of the essential contributions to the WSIS implementation of Plan of Actions. The following examples highlight some of the efforts undertaken by governments.

In the **Dominican Republic**, the INDOTEL, in conjunction with the National Institute of Magisterial Welfare (INABIMA), has developed a project to install training centres for teachers in order to encourage the use of technology in teaching.

The Government of **Finland** is assisting Asian countries to strengthen ICT skills by offering high-level master and doctoral programmes for students in its Support to the Information and Communications Technologies (ICT) Program.

Qatar is intending to increase e-literacy rates by organizing ICDL Training for School Teachers and Government Staff. This project will assist school teachers to acquire skills necessary for the utilization of ICTs in schools. In addition, around 1 500 government staff will receive training to update their skills and knowledge on the use of ICTs.

Three projects are focusing on the establishment of **Centres of Excellence** in Africa, the Middle East and for Spanish- and Portuguese-speaking countries to tackle issues of institutional capacity building, education opportunities and to further enhance the ICT sector, as follows:

- **Kenya** established a Centre of Excellence project for English-speaking Africa aiming to develop and build human and institutional capacity within the ICT sector in a sustainable manner.
- Another project is the Intel Information Technology Center of Excellence at the Islamic University of Gaza. The Intel IT Center of Excellence, the first of its kind in Gaza, will expand educational and employment opportunities and will provide critical IT support for local businesses and organizations. The Intel Corporation will build the Centre of Excellence in cooperation with the American Near East Refugee Aid (ANERA).
- **Spain** supports ITU in carrying out Capacity Building Initiatives. Three initiatives are foreseen to be undertaken to enhance capacity building for Spanish- and Portuguese-speaking countries: 1) establishment of a Centre of Excellence; 2) development of Internet Training Centres; and 3) provision of youth scholarships. To this end, a contribution of one million euros has been allocated to the implementation of this programme.

4.4 Distance learning

In line with the WSIS Plan of Action, States undertook the implementation of different distance-learning initiatives and projects as the examples indicated below demonstrate:

Distance Learning in Developing Countries is an initiative undertaken by **Peru** in assisting governments in the use of ICTs and to bring about change within societies**.** The issue of ICT access has developed a deeper appreciation of the need for capacity and confidence-building amongst State officials and populations at large. It is expected that this initiative will foster the development of communication skills, creativity, critical inquiry, a sense of ownership and, most importantly, a culture of learning within societies.

The Electronic Educational Portal project will provide **Oman**'s Ministry of Information Technologies and other administrative sectors with access to an electronic network. The Portal will allow relevant ministries to update their work and also offer attractive interactive teaching tools by using advanced and innovative techniques, and by supporting improvements in the evaluation and assessment of teaching methodologies and curricular development, thus contributing to the improvement of the education system. The Portal's electronic teaching programmes will train teachers on how to develop self-learning skills for their students through distance learning and virtual classrooms.

The **Russian Federation** launched the organization of videoconference communications in the framework of the national project with the aim of using the means of videoconferences for the education sector, thus increasing advanced training via distance learning.

SEPiensa is a **Mexican** education portal, which enables persons related to the education field to have access to a wide range of information on virtual learning methods. The Portal assists in the strengthening of knowledge and improvement of educational skills. The Portal was designed by a multidisciplinary team of the ILCE as part of the national education programme.

4.5 International and regional cooperation

Multiple partnerships between different stakeholders were formed, aiming to assist capacity building in ICT-related sectors, as follows:

The **European Commission** initiated a Digital literacy project aiming to eradicate illiteracy, thereby assisting citizens to be equipped with adequate skills in order to benefit from and participate in the information society. To this end, digital literacy is an element in the i2010 Strategy, where emphasis is placed on inclusion, better public services and ICT-related skills that are vital for competition and innovation within the European economy.

Cooperation between **Finland** and **ECA** in the Field of ICT has led to the implementation of a programme that will support Member States in the area of ICT policy formulation. It is expected that a scale-up in ICT policy implementation and mainstreaming in various socio-economic sectors will take place. In addition, further efforts will be undertaken to assist regional economic communities in harmonizing and consolidating national efforts at the subregional levels.

Under the patronage of the United Nations University (UNU), the **Global Virtual University** (GVU) was established as a consortium of universities to work together to enhance online learning for environmental sustainability. The consortium is specifically designed to meet the educational needs of the developing world. The UNU-Global Virtual University (Phase 2) will primarily focus on the African region. Online learning (e-learning) forms the basic educational method for all of the study programmes and courses. A substantial part of teaching, collaboration, and supervision will take place on the Internet.

Italy, with the partnership of the Abdus Salam International Centre for Theoretical Physics (ICTP), implemented the Strengthening ICT Training Capacity in Africa project. The main goal of the project was to foster the development of science and higher education in Africa, by encouraging the exchange, production and dissemination of scientific and technical information via digital media. The objective was reached by transferring to African institutions the know-how needed to set up network connections that can be used for scientific data exchange, real-time collaboration, and for accessing scientific literature.

The PERI project was designed by the **International Network for the availability of Scientific Publications** (INAPS) and aims to support capacity building in the research sector in developing and emerging countries by encouraging the production, access and dissemination of information and knowledge. The programme comprises five components**:** delivery of information; production of national research publications; enhancement of ICT skills; country collaboration and networking; and research and development.

The **Intel Corporation** Teach Programme has been helping K–12 teachers to be more effective educators by training them on how to integrate technology into their lessons, thus promoting problem solving, critical thinking and collaboration skills among their students. To date, the programme has trained more than five million teachers in more than 40 countries. Intel Corporation will further expand the Intel Teach in the Future Program which aims to reach 13 million teachers by the year 2011.

United Nations Economic and Social Commission for Western Asia (ESCWA) has initiated the project Knowledge networks through ICT access points for disadvantaged communities. The main goal of the project is to empower the poor and disadvantaged communities through the transformation of existing ICT access points in selected countries around the world into knowledge hubs of global knowledge networks.

Action Line C5 Building confidence and security in the use of ICTs

Governments implemented a number of initiatives, both on national and international scale, to address issues of prevention, detecting and responding to cybercrime and misuse of ICTs.

5.1 National approaches

Various projects were undertaken at the national level including the development of national approaches and policies to e-security, countermeasures for spam and fighting cybercrime.

The Government of **Australia** included issues of E-Security within the scope of its security policy and also designed an Infosec-Registered Assessor Program (I-RAP) to register suitably qualified information security assessors to conduct work in accordance with the Commonwealth best-practice standards.

Japan continues to undertake countermeasures against spam, and the Ministry of Internal Affairs and Communications (MIC) drafted an amendment bill to introduce an opt-in regulation in order to enhance law enforcement and strengthen international cooperation. The bill passed the House of Representatives in April 2008 after its submission to the Diet in February 2008. In addition, MIC is actively participating in international cooperation on this matter, by joining the London Action Plan and the Seoul-Melbourne Anti-Spam Memorandum of Understanding, as well as concluding bilateral agreements with Canada, France, Germany, and the UK, on fighting spam. MIC also supports the introduction of effective anti-spam technologies such as Outbound Port 25 Blocking (OP25B) and sender domain authentication technologies by ISPs.

A Protection and Security System Network was established by the Government of **Kuwait** to protect the LAN against hackers and viruses. As a result, it is expected to safely link the PAMA network with external sites and the Internet.

A TRANSITS training workshop for CSIRTs (Computer Security Incident Response Teams) was organized on 29-30 March 2006 in Vilnius, **Lithuania,** on the initiative of the European Network and Information Security Agency (ENISA) and the Lithuanian Communications Regulatory Authority. The CSIRT training course

aimed to develop the knowledge and skills required by the members of a Computer Security Incident Response Team.

Malta continues its efforts in making the Internet a safer place by implementing a number of security-related initiatives intended to protect citizens, businesses and children during their online activity. These initiatives include a consultation document, elaborated within the scope of the National ICT Strategy, aiming at ensuring an adequate legal framework, protection of Internet and Mobile Technology users, establishment of an e-Security Working Group, and setting up of a hotline that supports people who have encountered any form of abuse online. In addition, an intensive awareness campaign on Internet security that targets parents was undertaken using public media and an online e-Security portal.

Nigeria elaborated a National Cyber Security policy aimed at providing all stakeholders with secure access to cyberresources, computers, electronic and ancillary devices, the Internet and related resources, along with associated knowledge management and technological processes and procedures. The policy is focusing on the safety and development of children, and empowering adults with the requisite skills.

A few initiatives and projects addressed matters of e-signatures, including in the area of e-commerce, as the following examples show:

- The Smart token for E-signature project focuses on **Egypt**'s USB-based authentication token for multiple applications and network services, as in E-signature, VPNs, Controls intranets, extranets and Internet access.
- **Turkey** streamlined procedures and principles for legal, technical aspects and implementation of e-signatures to transform the country into an information society. Since February 2007, it has also developed partnerships with private sector actors to offer Mobile e-Signatures to be used for Internet banking.
- Usage of private public keys was approved in **Mexico** to provide electronic services for taxpayers and the business community which have the same validity as a signature by hand.
- In **Singapore**, a Pro-Business Legal and Policy Environment initiative aims to facilitate e-commerce by eliminating any barriers to e-commerce resulting from uncertainties over writing and signature requirements.

5.2 International and regional cooperation

Several international and regional cooperation activities have been implemented focusing on the issues relating to cybersecurity and the fight against cybercrime:

The **Council of Europe** policy on the Fight against Cybercrime aims to promote the accession to the Convention on Cybercrime and its Protocol. The first meeting of the Cybercrime Convention Committee (T-CY) took place in Strasbourg on 20-21 March, 2006.

The **European Commission** adopted a proposal for a new Safer Internet Program on 27 February 2008. The new programme will fight illegal content, as well as other types of harmful conduct like bullying. The final adoption of the programme is expected in early 2009. Furthermore, continuing its efforts to fight against spam, spyware and malicious software, the 2006 Communication on the review of the regulatory framework for electronic communications proposes strengthening the rules on privacy and security. The Commission may also propose new rules concerning the severity of penalties for infringements and examine the viability of a European information-sharing and alert system, which would react to threats to electronic networks.

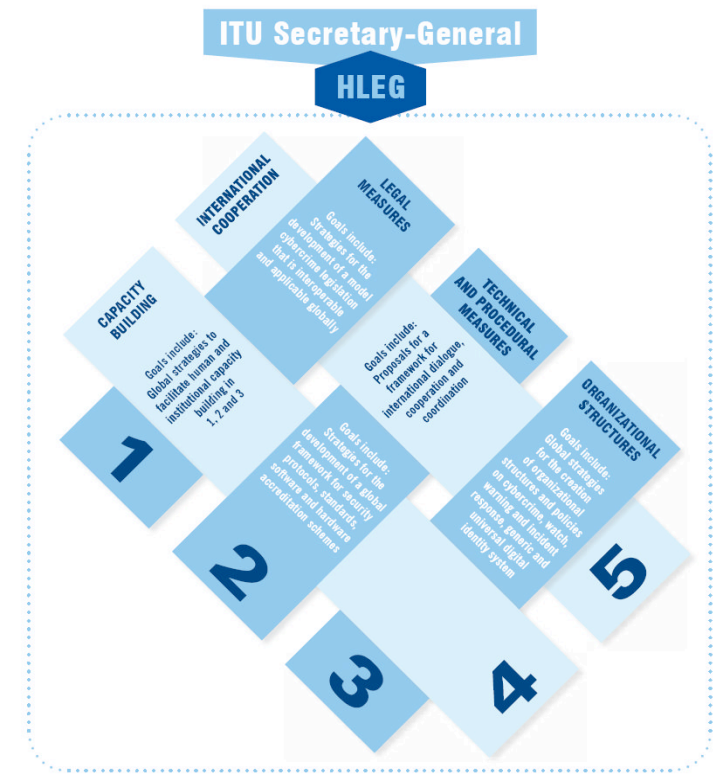
In 2007, **ESCWA** produced a study analysing Models for Cyber Legislation in ESCWA Member Countries, focusing on the current status in the ESCWA region, including the following subjects: (a) electronic communication and telecommunication laws; (b) e-transactions; (c) e-commerce; (d) intellectual property rights, including neighbouring rights and patents; (e) data protection and privacy; (f) cybercrimes; and (g) censorship and freedom of expression.

ITU organized a series of seminars and workshops addressing the issues of cybersecurity and fighting spam. For instance, the ITU Regional Seminar on Cybersecurity for the Information and Communication Technologies discussed a subregional view on cybersecurity issues as an input to the WSIS Thematic Meeting on Cybersecurity and to WTDC-2006. In addition, a Focus Group on security baselines for network operators was established for the first time in Moscow at the end of March 2006, focusing on issues of building confidence and security in the use of ICTs, in cooperation with numerous standardization actors (ISO, ISO/IEC JTC 1, MAAWG, Liberty Alliance, etc.).

The **World Intellectual Property Organization** (WIPO) continues to undertake activities in the field of cybersecurity and the establishment of robust preventive mechanisms against abusive registration in generic Top-Level Domains (new gTLDs). In this respect, an Internet Governance Forum (IGF) – 2006 was launched in Athens, Greece, from 30 October to 2 November 2006.

In May 2007, **ITU** launched the Global Cybersecurity Agenda (GCA), a framework for international cooperation aimed at proposing strategies for solutions to enhance confidence and security in the information society. It will build on existing national and regional initiatives to avoid duplication of work and encourage collaboration amongst all relevant partners.

The ITU Global Cybersecurity Agenda is built upon five strategic pillars: 1) Legal Measures, 2) Technical and Procedural Measures, 3) Organizational Structures, 4) Capacity Building, 5) International Cooperation. The legal framework, technical measures and organizational structures need to be undertaken at the national and regional levels but also harmonized at the international level. The last two pillars, capacity building and international cooperation, cross-cut in all areas. In order to carry out its Agenda, ITU fully engages its Member States and all the world's players in its activities. It collaborates closely with its partners to identify current challenges, consider emerging and future threats, and propose global strategies to meet the goals of the Agenda. The Global Cybersecurity Agenda facilitates the implementation of activities aimed at meeting ITU's Strategic Goals in this domain by developing and proposing forward-looking global strategies using a wide range of expertise and taking account of existing initiatives.



The **Universal Postal Union** (UPU) introduced a Digital postmarking standard and technology developments project. Five postal services of **Canada**, **France**, **Italy**, **Portugal** and the **USA** are joining an international network of digital postmark services based around the UPU technical interface standard (S43), to ensure that post offices can authenticate cross-border secure transactions, thus ensuring worldwide interoperability. In order to support the legal infrastructure to ensure cross-border authentication and non-repudiation, policies and regulations are being developed within the postal industry, thus significantly contributing to the security of global written communication on the Internet.

Action Line C6
Enabling environment

Governments undertook various initiatives to create transparent and non-discriminatory legal, regulatory and policy environments. A few

examples demonstrated below indicate on-going efforts to promote awareness of the Internet, small and medium enterprises, consumer-related policy and dispute initiatives, as follows:

6.1 Policy, regulatory and legal reforms

The following initiatives and projects have been undertaken by various organizations to foster supportive and transparent policies, legal and regulatory frameworks:

The Radio Spectrum Policy of the **European Commission** (EC) has several objectives: to ensure coordination of radio spectrum policy approaches; to harmonize conditions for the availability and efficient use of radio spectrum; to provide relevant information on spectrum usage, and to coordinate Community interests in international negotiations in relation to existing policies, such as in electronic communications, transport, R&D or broadcasting. The Communication "A Forward-looking radio spectrum policy for the European Union – Second annual report" issued in September 2005 sets out the Commission's strategy for a coherent EU radio spectrum policy as part of the i2010 initiative.

The **International Electrotechnical Commission** (IEC) launched an Affiliate Country Programme aiming to provide developing countries with free access to existing international standards for electrotechnology and related fields (including ICT standards). Participating countries are able to select a library of standards based on domestic needs and to participate in the standard-setting activities.

ITU with the assistance of the European Commission (EC), has developed a number of initiatives and projects supporting countries in Africa to contribute to the creation of development-oriented information societies. In particular, such initiatives are:

- ICT Market Harmonization for ECOWAS/UEMOA
  ITU has been actively working with funding from the EC to assist the West African countries in establishing a harmonized ICT framework. The results of this project were a series of decisions on ICT policy, numbering, spectrum management, interconnection, universal access and licensing, and were approved by the ICT ministerial meeting of ECOWAS in 2006 and adopted as Supplementary Acts by Heads of State and Government on 19 January 2007 at the Ouagadougou ECOWAS Summit.
- Regulatory reform and harmonization of ICT policies for Sub-Saharan Africa countries
  To leverage the success of the ICT Market Harmonization for West Africa, a further EUR 6 million have been earmarked by the EC to continue the collaboration with ITU in order to extend the ongoing efforts in establishing a regulatory framework for telecommunications in the rest of Africa and by doing so achieving a unified set of Telecom Directives on the African continent. This project will assist African Governments in the development of national ICT policies, as well as in enabling a competitive environment for investment in ICTs. The objectives of the project include: development of common ICT policies and guidelines; harmonization of new policies and guidelines with the regional and subregional relevant institutions and transposing them on the national level, and building requisite capacities by 2010.

The Frontline SMS project serves as a clear example of "enabling" technology in the **United Kingdom** through the development of the kiwanja.net site. Currently, there are multiple SMS gateways that are set up by development organizations which provide information to local communities via text message. These systems are often exclusive, and costly to develop, and therefore are not appropriate for many low-level, grassroots NGOs. Frontline SMS provides free SMS services to NGOs in the field by using innovative software linked to a mobile phone via a cable, with the overall objective of promoting the use of the system in the wider NGO world where there has been considerable interest in its use.

The Global Broadband Satellite Infrastructure Initiative (GBSI) was launched by the **United States of America** and **International**

Telecommunications Satellite Organization. Through harmonization of relevant regulatory principles, the initiative will establish a framework for satellite broadband service by creating a mass market and encouraging private investment. It will identify harmonized frequency spectrum worldwide, thus achieving the use of an open and global transmission standard.

6.2 Internet-related law and governance

Governments have carried out a number of initiatives and projects in order to promote awareness of the Internet. The following examples provide information on the variety of activities that cover legal aspects related to the Internet, and also include establishment of Internet centres and facilitation of access to the Internet within the scope of Internet governance.

Lithuania's Law on Electronic Communications Networks and Information Security aims to promote the use of the Internet and to encourage the development of a secure information society. The Law establishes the main conditions of networks and information security use. Detailed rights and obligations of providers of public communications networks, publicly available electronic communications services, providers of information society services or providers of information society intermediary services are specified. The main objective is to build a comprehensive framework and information security in private and state-owned electronic communications networks.

France facilitates the implementation of projects that enhance the use of the Internet in Africa , thus contributing to better Internet governance. For instance, the Appui au désenclavement numérique (ADEN) project aims to set up around sixty public Internet access points within areas that are lacking Internet access in Sub-Saharan Africa (secondary cities, large suburbs, and densely populated rural areas). The project is focusing on the needs of African civil society and local authorities. This project covers 13 French, English and Portuguese-speaking countries in Sub-Saharan Africa. The activities involve three types of training accompanied by trilingual educational materials. Specifically, the training includes: courses in technical, administrative and financial management on how to maintain public access points connected to the Internet. In addition, a pan-African network of cybermanagers is being established. A similar project is being carried out in Caracas, réalisation de huit points d'accès dans des communautés défavorisées de Caracas, whereby eight Internet access points in disadvantaged communities of Caracas were established.

The **Mexican** Internet Association organized a series of meetings known as Encuentro Estratégico de Internet de AMIPCI in order to develop Internet strategies for 2005 and 2006 in Mexico City.

Turkey established an e-Legislation Information System in order to provide access to all types of legislative texts, thus contributing to awareness of the Internet. Access to the e-Legislation website is free and around 13 000 laws and 5 000 directives are currently accessible through the site.

6.3 Entrepreneurship and Small and Medium-sized Enterprises (SMEs)

While acknowledging the impact on economic development of SMEs, the following examples present governments' and other stakeholders' efforts to assist entrepreneurs in enhancing their participation in ICT-related projects:

Bulgaria established an Information Centre for introduction and use of ICT by SMEs with the main goal of promoting the implementation of ICTs in SMEs. The centre provides: training to SMEs on the use of ICTs in managerial practices and business processes; assistance in the process of adoption and usage of ICT systems and applications; advice on how to ensure successful participation of SMEs in EU projects in the area of ICTs; and consultations on developing a Grant Scheme for SMEs in close cooperation with potential donors.

Small business training for woman using radio programmes in Cameroon has been supported by the Commonwealth Secretariat in order to

create a Multi Media Resource Kit (MMRK) for use by radio stations. The main objective was to offer radio-based learning for women who wish to develop or who are already involved in micro-enterprises, by providing easy access to those radio stations with suitable equipment in **Cameroon** and elsewhere.

In **Turkey**, KOSGEB (SMEs Development Organization) initiated an ICT Support Program for SMEs at the beginning of 2007. The objective of the programme is to increase the efficiency, competitiveness, economic power and export capability of the Turkish SMEs by granting certain financial aids for improving ICT infrastructure. The programme consists of financial assistance, such as grant of credit without interest (for a 24-month period), providing Internet access and website design free of charge, and education of the employees of SMEs.

In **Spain**, the Acciones Regionales de Telecomunicaciones para Pequeñas y Medianas Empresas programme aims to assist SMEs to integrate into the information society by co-financing projects based on electronic commerce and involving the use of information technology and communications. In order to meet the common needs of SMEs, a more favourable environment has been created for their development.

The Swiss Agency for Development and Cooperation (SDC) assists the ILO Training Centre in Turin in managing global knowledge to improve practice in Business Development Services (BDS). The immediate objective is to enhance the current availability of knowledge about enterprise development approaches, such as BDS markets, business environments, value chains and business linkages, by developing adequate methodologies. To this end, the ILO Training Centre in Turin offers an Annual Seminar on service market development, with an associated Annual Reader that provides an overview of the work of all agencies in this field.

The UNIDO and Microsoft Computer Refurbishment and E-Waste Recycling Programme announced a Refurbished Computer Initiative in June 2007. The initiative will establish local refurbishment centres of excellence, which will be based on a sustainable business framework and will provide affordable hardware, relevant software as well as ICT training for SMEs. The ultimate goal is to provide SMEs in Africa with access to affordable, quality PCs, thereby increasing their productivity and competitiveness and contributing to skill transfer and ICT training.

6.4 Consumer-related policy and dispute

In order to address the issues of privacy protection and alternative dispute resolution, governments and stakeholders implemented projects relating to the establishment of arbitration institutions and the development of consumer protection policies:

Creation of Arbitration Office and Development of Legal Infrastructure in **Iran** aimed to establish a governmental body that would deal with intellectual properties issues. The newly elaborated arbitration rules will be in compliance with approved international regulations, especially those of WIPO.

Qatar adopted the Decree Law 34 of 2006 (Telecommunications Law) that allocates the full range of legal powers to ictQATAR in Telecom Liberalization. ictQATAR also has powers relating to consumer protection and dispute resolution, and a Regulatory Authority has been established to manage the liberalization process through the formulation and implementation of appropriate policies.

The Ministry of Justice of **Kuwait** has developed a G2C project which provides parties in dispute with information about on-going cases; promotes information about the services offered by the Ministry and assists parties in issuing the necessary documentation related to dispute resolution.

In **Thailand,** the Ministry of Labour designed the Labour Relation system for collection and storage of data related to labour disputes and conflicts; registration of employers and employee organisations; and registration of labour advisors and other commissions.

The **European Commission** prepared the Alternative Dispute Resolution (ADR) Mechanisms consultation document, a so-called Green Paper, in order to facilitate access to justice, as the importance of ADR mechanisms

has been stressed repeatedly by the EU Heads of State and Government, in particular with regards to e-commerce. The objective of this proposal is to improve access to justice by providing a predictable legal framework on mediation. This ADR mechanism is well suited for disputes related to e-commerce. It is supplemented by a non-binding European Code of Conduct promoting principles to which mediators can commit that was elaborated by a special group of stakeholders in cooperation with the Commission.

ITU and the **World Bank** have joined forces in their efforts to create a Telecommunications Dispute Resolution Database. The ICT Regulatory Decisions Clearinghouse (ICTDec) was developed by LexUM, the University of Montréal, Canada, thanks to initial funding provided by the Public-Private Infrastructure Advisory Facility (PPIAF). ICTDec is an online resource that provides a one-stop access point to decisions originating from ICT decision-making bodies such as telecommunication regulators, industry ombudsmen and specialized dispute resolution tribunals. It also includes a meta crawler allowing internautes to search for decisions on specific topics. The search engine crawls and indexes thousands of documents that are published on the websites of ICT decision-making bodies. ITU and key stakeholders are now in the process of populating the database and further enhancing its functionalities.

Action Line C7
ICT Applications: benefits in all aspects of life

The role of ICT applications is crucial in the field of sustainable development. Consequently, the WSIS Plan of Action has identified eight sectors where the application of ICTs can greatly contribute to social and economic progress. The examples below provide an overview of government and stakeholders efforts dedicated to enhancing the use of ICT applications:

E-government

An E-Governance Cell was established at the Chief Adviser's Office in **Bangladesh** with the mandate to lead and provide coordination support to all e-governance initiatives implemented at various national and regional levels. This Cell will also provide leadership in developing the national e-governance vision, and to organize and coordinate national efforts in achieving this vision.

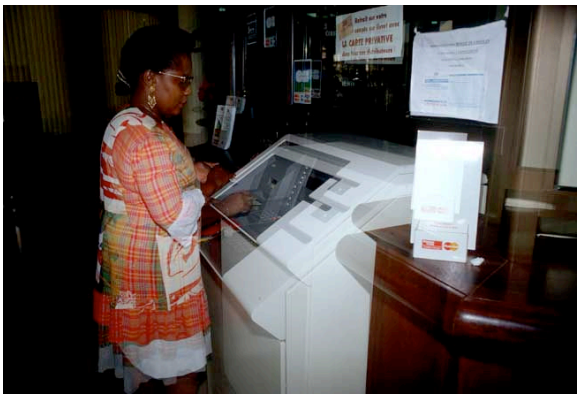
In **Brazil**, the Electronic Government project was initiated, aiming to provide information to citizens about the services rendered by the State through the Internet. This project aims to increase the use of ICT applications and facilitates access to the services by the public.

A network has been set up in **Congo** (Rep. of) within the framework of the réseau gouvernementale project in order to enhance electronic administration within the Government, thus further strengthening good governance.

A One-Stop Shop Project in **Croatia** focuses on bringing the State and local administration closer to its citizens. This is an ongoing project that aims to provide friendly, affordable, speedier and more efficient communication between the government and the public. The expected results of the project include development of responsive, transparent and cost-effective government services.

The eGOIA – Electronic Government Innovation and Access project, supported by the **German** Fraunhofer Institute for Open Communication Systems, provides assistance to Brazil and Peru. The goal is to provide a single virtual space supporting the interaction of citizens (independent of social status, gender, race, abilities and age) with the public administration in a simple and cost-effective manner. Technically, the project is based on two main paradigms: *front-office* that concentrates on a Web service-oriented architecture approach to access already existing and newly emerging government services, and *back-office* integration

that supports these services in Citizen Access Points focusing on the integration and participation of the public in governmental affairs.



In **India**, the Akshaya project pursues an e-governance vision that encompasses the set-up of citizen-friendly-services through the application of ICTs that will enable the local population, including businesses, enterprises, institutions and organizations, to enhance their knowledge and skills in the field of good governance. The project includes three objectives: to ensure broad-based access to ICTs for every citizen; to provide basic functional skills (100 per cent household e-literacy); and to make available relevant content to the local population in the local language.

Building e-governance in Moldova supports national institutions in applying ICTs to public administration systems and processes by advancing new solutions aimed at better public service delivery and more transparent decision-making. The areas of intervention cover policy-making for the development of the information society, development of online public services, training of public servants in using ICTs and promoting e-democracy practices.

The E-Mongolia Strategy program aims to establish the information society and institute a knowledge-based society in **Mongolia** by enhancing the application of ICTs in all sectors. The multiple objectives include, among others: establishment of a legal environment for ICT development; creation of a broadband backbone network throughout Mongolia; establishing government institutional memory by creating a centralized government database and information system; development of the new management structure based on ICTs and support e-government implementation strategy, as well as the provision of 200 PCs per 1000 members of the population by implementing a "Universal Computerization" programme.

E-Government initiatives in **Myanmar** cover three ministries: Industry, Forest and Communications, and Posts and Telegraphs. These have been implementing an e-procurement system since April 2004. It is intended to cover all governmental institutions, and currently another six ministries are operating on a trial basis.

The Government of **Qatar** focused its efforts on development and the establishment of a government network that provides the Government with infrastructure to facilitate the dissemination of information, exchange of documentation and processing of services. The network aims to provide a secure backbone for processing customer information and transactions between relevant government entities applying ICTs. For instance, the Government Data Center consolidates the government IT infrastructure, maintenance and support; the Payment Platform establishes a central payment platform that allows government entities to offer their users e-payment services to procure/pay for online government services; and the Employment and Recruitment Services enhance online search and application portals for positions within the public and private sectors.

The Information Technology Authority (ITA) in **Oman** has developed a multi-year, integrated national strategy to provide a unique environment for e-government by integrating and synchronizing the use of ICTs for socio-economic development.

The Système administratif de formulaires informatisés in **Senegal** encompasses the provision of online administrative procedures and delivery services to users, which include, for example, the declaration of VAT, the provision of civil status documents and the establishment of a State digital archive.

In the **United Arab Emirates**, Etisalat delivered an important project related to e-governance – the Unified Portal for the UAE Federal Government – that enables all public ministries and entities to use and update their websites. The Portal links all governmental websites and in addition provides news, events and information for e-government users. The work of the Portal has greatly contributed to the democratic process and the promotion of transparency in public administration, and the Portal has been recognized as an example of best practice in the region.

The NEPAD e-Governance Programme, with the assistance of the **Commonwealth Secretariat**, convened two workshops to advance the e-governance agenda on the African continent. In June 2006, in an intense multistakeholder

consultation and brainstorming, the first workshop "Strategic Gap Analysis" focused on an e-readiness assessment of a representative sample of twenty African countries, and identified themes and their prioritization to enable the development and implementation of the NEPAD e-Governance Programme. The second workshop, that took place in November 2006, built on these prioritized themes and developed an integrated "NEPAD e-Governance Strategic Plan", which will form the framework upon which ICTs will be used to support good governance on the African continent in the context of NEPAD.

An Online Workshop on E-Government: Policies and Strategies took place from 12 January to 15 March 2007 aiming at assessing and reviewing the status, reach and impact of e-government applications in the **ESCWA** region. It involved 15 participants from the ESCWA region who made the following recommendations: (a) set-up of independent e-government entities at the national level; (b) establishment of national entities to develop and keep track of indicators for monitoring the implementation of activities; (c) a stronger regional collaboration framework for the development of better e-services; and (d) encouraging countries to make their e-government strategies public and to revise them in accordance with national priorities.

In March 2007, the World Bank approved a Fund of USD 424 million for a Regional Communications Infrastructure Program (RCIP) which will cover up to 25 countries in Eastern and Southern Africa for development of regional broadband infrastructure to support regional connectivity efforts. The RCIP will assist in financing e-government transparency initiatives. The beneficiary countries can tailor financing from the Programme's Menu of Options to cover connectivity activities in line with their own requirements.

E-business

The following countries are focusing on the development of national e-business initiatives and services to foster the use of new applications in partnership with the private sector:

- **Morocco**, within the framework of the E-transport project, has implemented several projects in a public-private partnership aiming to enhance the use of ICTs.
- In **Guatemala**, the Implementación de Aplicación WAP-WEB para venta al detalle project is focusing on designing strategies and developing WAP and WEB applications to raise levels of competition in domestic businesses.
- The E-procurement initiative of **Turkey** has resulted in public procurements being initiated, negotiated and/or concluded using the Internet.
- In **Qatar**, the Business Setup Services initiative adopted a customer-focused (one-stop-shop) approach of delivering necessary assistance, through different channels, including registration and commercial licensing services.

Business incubators initiatives have been launched in several countries aiming to promote the use of ICTs and contribute to job creation. Some examples are given below:

- In **Egypt,** the ICT Incubators initiative is aiming to support local companies working in the field of ICTs and to attract multinational companies to invest in ICT development activities. The initial objectives include: to increase job opportunities in the ICT sector; to enhance local companies' competitiveness by increasing the exports from that sector; and to positively affect poverty reduction in society at large. The initiative is another model of a public-private partnership supported by the Developmental Fund, which would mainly focus on newly established companies. Another scheme of Soft Loans provided primarily by the Social Fund for Development applies to already established local companies who would like to work in the field of ICT development.
- Incubateurs d'Entreprises in **Senegal** have been organized in partnership with the private sector in order to promote the ICT market. Business Incubator Centres offer new and existing businesses access to services such as free Internet use, provision of stationery, photocopying and others. In addition, administrative and legal advice is available. Partnership with public sector enterprises has resulted in increased access to office space in the Centre and to certain tax rebates.

The **European Commission** (EC) has taken action in various fields to facilitate the take-up of e-commerce across the Member States. In its efforts to establish a Legal Environment for E-commerce, the EC has adopted several new legal instruments ranging from a Copyright Directive on the enforcement of intellectual property rights to a proposal for a Software Patent Directive.

The Establishment of Sustainable e-Business and Network for Women Enterprises in Rural Communities project is supported by **UNESCAP** and is expected to contribute to the empowerment of women in rural communities through the use of ICTs as a tool for socio-economic development. The project comprises of three major components: (a) development of entrepreneurship skills for women members of agricultural enterprises; (b) strengthening of capacities in ICT and e-business applications; and (c) establishment of a knowledge network to share information, experience and knowledge regarding products and market trends.

E-learning

The Ministry of Higher Education in **Egypt** established a National E-Learning Center (NELC) to provide Egyptian universities with the global e-learning infrastructure. It produced templates and web applications for the instructional design system, and an e-course generator, virtual lab repository, learning style system, and e-learning portal. The NELC established 17 e-course production centres to offer a complete course every six weeks.

After a successful one-year pilot, the **Kenya** Institute of Education (KIE) and World Space are planning to revive Kenya's nationwide school broadcast service, using World Space technology to broadcast educational content to 11 million students in 18 000 primary and 3 000 secondary schools. To this end, Kenya e-Learning Initiative was launched, expecting to increase the level of education amongst pupils through e-learning.

In **Mali**, an E-learning (Internet @ Schools) initiative is focusing on disadvantaged young people and will launch Internet access at distant or even the most remote locations around the world. It is aiming to provide an additional educational tool via the Internet through which regularly updated information can be received. ITU, the Mali Government and Swisscom have already carried out a successful pilot project at Timbuktu High School in Mali. ITU hopes to encourage new partnerships within the framework of the ITU-BDT "One to One" initiative, and recruit a series of partners from the North and South in order to unite efforts to cross the digital divide.

In January 2008, an agreement was signed between the **Oman** Information Technology Authority and Microsoft Corporation to launch a Learning Solution for High School Students programme. The programme will bring advanced online services to 650 000 high school students in Oman.

Qatar undertook the implementation of three projects aiming to empower local communities, such as:

- The first is e-schoolbag innovative project that was adopted by ictQATAR to install and operate Tablet PC in Qatari classrooms. In 2006, Phase I was launched in partnership with the Singaporean Infocomm Development Authority in Al-Wakra Preparatory Independent School for Girls and reached 200 students.
- The second project is the ICT Curriculum Standards Development which focuses on the development of ICT curriculum standards and provides guidance and training for teachers.
- The third project is the School Knowledge Net which promotes learning of management systems and offers pedagogical training to independent schools in order to improve learning and teaching through an ICT integration Learning Management System.

In **Zambia** Enhancing the Visual and Presentation of Educational Content (ENEDCO) project focuses on content visualization of existing teaching materials. ICTs will be used to make such content not only available but also adaptable to improve and positively impact the quality of the teaching process. The ENEDCO project specifically aims to improve the national performance at School Certificate level and provide a relevant and diverse curriculum that develops appropriate skills and knowledge for employment. Ultimately, the project will contribute to the improvement of the Zambian economy through the strengthening of human capacity.

CoseLearn is the **Swiss** programme for e-learning that was initiated by QualiLearning with support from the Swiss Agency for Development and Cooperation (SDC). The main goal of this programme is to promote distance learning and e-learning by progressively implementing a Virtual Campus in more than 50 partner universities. The programme is promoting e-learning in a number of French-speaking countries in Africa, namely Algeria, Burkina Faso, Chad, Congo-Brazzaville, Mali, Mauritania, Morocco, Niger, Senegal and Tunisia. During the first year of the CoseLearn programme, 168 experts from the partner universities will benefit from QualiLearning courses.

In the **United States of America,** the Global Education and Learning Community (GELC) was founded, aiming to improve education worldwide by empowering teachers, students and parents with self-paced, web-based, free and open content (curriculum resources, assessment) combined with best practices for advancing student achievement. GELC is a community comprising academic and non-academic individuals eager to share and develop a broad and complete framework of educational tools, research, open learning standards implementations and open course learning materials on a worldwide basis. Since July 2005, there have been more than 2 030 developers/members contributing to 291 open source projects, and all resources are expected to be free of charge to educators, students and parents.

The **United Nations University** (UNU) initiated a UNU-REDMESO Collaborative Project on E-Learning for Biodiversity Conservation to develop e-learning materials related to biological conservation. The UNU developed a joint proposal with Mesoamerican Network of Biotic Resources (REDMESO) for the large-scale production of e-case studies on biodiversity-related topics in Central and South America.

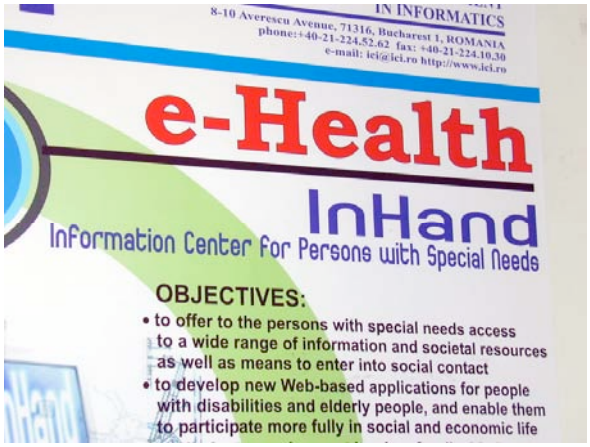
E-health

The main objective of the e-Health Project implemented in **Brunei Darussalam** is to provide a consolidated electronic record for each patient, regardless of the location of treatment. The system must be accessible to all authorized health-care providers throughout the country, either from a permanent building or a temporary location such as a travelling medical team or home nursing.

A Pilot Project for personal electronic healthcare cards was launched at the beginning of 2007 in **Bulgaria**. The project was implemented in a public/private partnership by a consortium

of international companies and reached 1 000 patients, seven general practitioners and four pharmacies in the cities of Slivnitsa and Aldomirovtsi. As a further step towards the achievement of the Bulgarian National Strategy goals, an Action Plan will be prepared.

In the **Dominican Republic**, the E-Salud Espaillat project (E-Health, province of Espaillat) aims to establish a sustainable use of ICTs in the health sector, specifically focusing on strengthening the referral system between patients and the network of specialists in primary care facilities countrywide. This will be achieved through radio communication and a system of electronic messaging by 35 service units. The creation of a web page linked to the virtual library of health will stimulate the development of community health awareness in various localities of the province.



Egypt undertook numerous efforts implementing projects aiming to contribute to E-health sector development. Some examples include:

- E-Health is an emerging field in the intersection of medical informatics, public health and business that comprises health services and information delivered or enhanced through the Internet and related technologies. Related projects include the Egyptian Telemedicine Network that aims to improve the cooperation between national and international health services and integration within hospitals; the Electronic Medical Archive System which provides the necessary tools to create an electronic medical record for every citizen and to provide some data on the surrounding environment; and the Ambulance and Medical Emergency Contact Center Project that will develop modern automated systems for a central medical emergency call room and to control and direct ambulances.
- The Suzanne Mubarak Regional Center for Women's Healthcare and Development project began in December 2006, with the first phase completed in April 2007. The project aims to offer better health services for women, more effective training of doctors, and an efficient transfer of knowledge through national and international conferences. The project includes developing an integrated system to manage the centre, a telemedicine system, a health records management system, and an integrated accounting system within the centre. In addition, a digital library will be established for research and development purposes. The second phase of the programme will further improve the centre by providing PCs and videoconference equipment.
- A Government and Cancer Registry Network Population was developed in order to increase health awareness through the Information System and National Network for Citizen Health Treatment. The project will provide an integrated and distributed system for managing and administering the work of the Ministry's medical boards and government-provided health care. The project has been implemented in 22 medical councils and 40 hospitals in a two-stage process between July 2005 and July 2007. In addition, the project will develop information systems and databases for the central department for government-provided health care and connect all peripheral departments and hospitals through a Virtual Private Network.

Various projects have been developed to focus on the development and establishment of health information systems and health-care databases to improve reporting of health data. The following examples demonstrate this trend:

- A Comprehensive IT System was Developed by Prokom Software for the Register of Health-care Establishments in order to keep records of all health-care sector entities, such as hospitals and clinics, in **Poland**.
- A Drug and Food Database and the Electronic Health Record (EHR) projects in **Iran** aim to create a strong technical and information infrastructure serving emergency medical services and providing a valuable source of information for

organizations involved in the production of medication.

- The Phones for Health project of the **United Kingdom** aims to develop a web and mobile-phone-based health information system to allow for real-time reporting of health data from the field.

- The African Health Infoway (AHI) initiative of the **World Health Organization** (WHO) is being implemented in partnership with the **UN Economic Commission for Africa** and **ITU** to build capacity and infrastructure in 7 000 districts across Africa by benefiting from wired and wireless technologies. The AHI initiative seeks to improve health information management in terms of the processing of health data and the dissemination of health information within and between 53 African countries.

- The **United States of America** initiated two projects: the ICT for Public Health Disease Surveillance and Reporting project that aims to enhance public health disease reporting through the use of web-based ICTs, and the Electronic Scientific, Technical, and Medical (STM) Journal Publishing and Its Implications which focuses on the STM publishing enterprise and what constitutes a publication in the digital environment.

In line with the Resolution WHA58.28 establishing an eHealth strategy for **WHO** adopted in May 2005, WHO launched the Global Observatory for eHealth initiative dedicated to the study of eHealth and its evolution and impact on health. The Observatory model combines WHO coordination regionally and at headquarters to monitor the development of eHealth worldwide, with an emphasis on individual countries.

E-employment

Argentina initiated the following three projects in the field of e-employment, focusing mainly on the aspect of telework:

- Programa Piloto de Seguimiento y Promoción de Teletrabajo en Empresas Privadas undertook preliminary studies to assess the legal implications of telework in private enterprise.
- Ley sobre Regimen de Teletrabajo en Relación de Dependencia was drafted by the Commission on teleworking and submitted to Congress for consideration, with the aim of stimulating the use of telework e-employment on an equal basis with traditional forms of employment.
- Programa de Capacitación para el Sector Software de Competencias del Teletrabajador was developed in partnership with Microsoft, the Ministry of Labour, Employment and Social Security of the National Government and the Chamber of Software (CESSI). The programme aimed to upgrade skills of personnel thus six laboratories in different provinces of the country were opened to provide adequate training.

The Government of **Jamaica** has initiated ICT Training Programme for Persons with Disabilities to facilitate training and employment of persons with disabilities. As a result, persons with disabilities will benefit from having a certified skill in ICTs, and will have increased access to scholarship and employment opportunities.

The Government of **Japan** (MIC) is promoting Telework with the aim of increasing the number of teleworkers and achieving 20% of the working population using telework by 2010. This can be achieved through several policy measures, such as establishing a tax system that gives incentives to introduce telework systems, providing opportunities to try and experience telework among private companies, conducting demonstration experiments of advanced telework model systems, implementing telework of MIC staff members in a proactive manner and promoting activities such as holding an international symposium and regional seminars.

In order to use ICTs to create jobs for thousands of unemployed educated youth, particularly young women, the **Kenyan** Government established an International Call Centre in Nairobi. Operations commenced in August 2005 and within six months, 54 persons received employment. The organization is seeking to employ 600 employees within the next three years.

The **Philippines** Department of Labor and Employment created Phil-JobNet which is an Internet-based job and applicant matching system, which aims to fast-track the jobseeker's

search for jobs and the employer's search for manpower. The service is free of charge.

The European Workforce Coalition is an ICT industry initiative promoting medium- and short-term solutions to significantly accelerate the implementation of horizontal and cross-sectorial eSkills in **Europe**. Key objectives include acceleration of the take-up and implementation of computing services across all economic sectors and advocating the business case for an effective enhancement of public financial means for proactive eSkills policies in EU member states.

The Capacity Building focusing on Digital Opportunities for the Youth programme addressing youth skills development and employability through Public Private Partnerships (PPP). It aims to build young people's IT skills to enable youth to participate and play an active role in local IT industry growth. The first initiative is built on the success in South Africa of the Microsoft Graduate Academy programme. The following initiative Digital Opportunities for the Youth was implemented by the Microsoft Students-2-Business programme reaching three Sub-Saharan countries. Implemented in collaboration with the US Government and Inter-Governmental Organizations, Microsoft and ITU, this initiative serves as an example of a truly collaborative programme between government, business, community and industry partners.

E-environment

The Egyptian Environmental Information System (EIS) was created to develop and maintain information related to the environment and its various components. The EIS collects and classifies information and data on the environment that relates to a specific activity of the Egyptian Environmental Affairs Agency (EEAA). The system provides EEAA management as well as other sectors and organizations with the data they need to use in order to prepare policies and plans and in the decision-making process. Using the system, the EEAA can produce reports related to environmental and socio-economic situations, it can monitor recent international developments related to IT, and can conduct studies and research.

Several projects and initiatives focused on the subject of E-waste by developing programmes that include the establishment of centres for the dismantling and recycling of hardware, and raising awareness of e-waste recycling:

- The I.C.T. = T.I.C.ket for the Future EcoMicro's project takes into account the obligation of collection and recycling of Waste Electrical and Electronic Equipments (WEEE) to be refurbished, tested and then distributed to non-profit organizations such as schools, hospitals, cultural centres, etc. As a result, computers are available to those who would otherwise not have access, through numerous operations each month to equip schools and other non-profit organizations.
- The Competence Center for Electronic Waste Recycling and e-waste – Knowledge Partnerships with Developing and Transition Countries in e-Waste Recycling are both projects supported by the Swiss State Secretariat for Economic Affairs. These projects aim to develop a business plan for a Competence Center for Electronic Waste Recycling (WEEE Competence Center) and to produce a knowledge base on e-waste recycling in developing and transitional countries. The results are published in the form of an e-waste guide on an interactive website.

- The Global Digital Solidarity Fund for E-Waste Management Programme in Africa is assessing the current conditions for electronic recycling in communities in Kenya, Morocco, Senegal, and South Africa, and offers testing methods and best practices to assist in making recycling of electronic equipment safer.

E-agriculture

The Corporeal Agricultural Land Registry System project in **Egypt** aims to develop high quality centralized land registration and cadastral services, provide secure property ownership, and encourage the land mortgage market in Egypt. In July 2007, a unified national database, for land registration, converting paper cadastral maps into digital maps and forming a cadastral certificate database, was developed. It also established systems to simplify procedures, and train employees on using the IT applications.

The E-agriculture project of the **European Commission** focuses on the enhancement of agricultural and rural development through improved information and communication processes, as all stakeholders of the agricultural industry need information and knowledge about latest developments.

E-agriculture.org: The Global Initiative to Enhance Sustainable Agricultural Development and Food Security by Improving the Use of Information, Communication and Associated Technologies is supported by the **Food and Agriculture Organization of the United Nations** (FAO) and **E-Agriculture Working Group** partners. This FAO and E-Agriculture Working Group Partnership established a Community of Expertise on e-Agriculture, incorporating the issues raised in the responses to a global survey involving 135 countries. The result was the launch of the Community' web-based platform, e-agriculture.org, the goal of which is to enhance the contribution of ICTs to agriculture and rural development through a multistakeholder, people-centred, cross-sectoral platform that will bring together all stakeholders from relevant constituencies. Launched in September 2007, the Community of Expertise includes policy-makers, rural service providers, development practitioners, farmers, researchers, information and communication specialists and others involved in agriculture and rural development. Currently there are over 4,000 Community members from more than 145 countries, who participate daily on the platform, exchanging opinions, experiences, good practices, lessons learned, resources, news and events, leading and participating in virtual forums. The success of the platform has been due to the volunteering by Community members from around the globe to lead discussions and promote further actions. In addition to its virtual activities, the Community of Expertise organizes face-to-face events and workshops, and will be expanding into the third component, in-country interventions, in 2009.

The Land Management Tool – Global Land Management Network is supported by a web-based system, where partners contribute their experience and knowledge on regulatory frameworks, security of tenure, land, housing and property rights, and supply of better quality housing for the poor, including women and HIV/AIDS orphans, especially in slums.

Zambia Agriculture Research Institute (ZARI) developed an effective Information Flow Network aiming at enhancing information flows between researchers, extension providers and farmers through the use of ICTs in order to improve small-scale farmers' livelihoods in agriculture. The project addresses the issues of ICT access, content and skills with the purpose of empowering farmers to take informed decisions regarding the increase of quality and amount of their produce. The project is implemented in the rural towns of Misamfu, Northern Province and Mount Makulu, near Lusaka.

E-science

The Arab Women in Science and Technology project aims at collecting information and statistics on Arab women employed in the fields of research, science and technology in order to create a geographic database that will be made available to decision-makers and to those interested in advancing the status of women in society. Some of the most important outputs of the project include: (a) a set of indicators on Arab women in research, science and technology; (b) a scientific report on the status

of these women and their impact on Arab society; and (c) a geographic database that can be accessed via the Internet.

The National Consultation on Access to Scientific Research Data (NCASRD) aims to assist **Canada** to maximize the value received from its publicly funded natural and medical sciences research by recommending an appropriate framework and guidelines, which will facilitate open and long-term access to data obtained from that research.

In **Nicaragua,** the Educación en tecnología project aims to support public awareness of science and technology. Training is offered on the use of the Internet to teachers and children. The first science park in Nicaragua is currently being planned.

The role of Scientific and Technical Data and Information in the Public Domain in the **United States of America** was discussed at a Symposium that brought together leading experts and managers from the public and private sectors who are involved in the creation, dissemination, and use of Scientific and Technical Data and Information (STDI). The topics included: (1) the role, value, and limits of making STDI available in the public-domain for research and education, (2) identification and analysis of the various pressures on the producers of public-domain STDI in research and education, (3) discussion of the existing and proposed approaches for preserving STDI in the public domain, or for providing "open access" in the United States.

In **Thailand**, ThaiSarn stands for the Thai Social/Scientific Academic and Research Network, which connects Thai researchers with foreign researchers over an advanced IP network. The aim is to use IP facilities to improve the collaboration between researchers.

Currently, the third generation is connected to three major international research networks and is aiming to promote research in networking technologies and applications.

The third meeting of the Consultative Committee on Scientific and Technological Development and Technological Innovation was held in Beirut on 6-7 March, 2006. The participants discussed and approved the pre-feasibility study on the establishment of the **ESCWA** Technology Centre for Development.

The UNESCO Virtual Laboratory Toolkit was elaborated with the purpose of providing information and free software tools to scientists. It is expected that this Toolkit will enable scientists in developing countries to establish and participate in basic virtual laboratories. Two types of tools, which play an important role, have been established: person-to-person (P2P) communication and person-to-equipment (P2E) communication.

Action Line C8
Cultural diversity and identity, linguistic diversity and local content

The WSIS Plan of Action highlighted the importance of the development of policies and initiatives supporting the respect, preservation, promotion and enhancement of cultural and linguistic identity and diversity. The examples of projects and initiatives listed below were implemented by governments and international organizations in support of this action line:

8.1 National approach

The mission of the Intercultural Communication Management (ICM) is to improve intercultural communications, especially those of NGOs, and is supported by **Austria – Sonovista**. The project focuses on new forms of knowledge and experience-sharing by using management-by-media tools. ICM is a multimedia-based communication instrument that attempts to overcome the barriers of intercultural communication, i.e. different languages, cultures, organizational structures, etc.

In **Bolivia**, the Wayra-Red boliviana de comunicación indígena is a network of radio stations and telecentres that publishes and distributes an electronic bulletin targeting the Wayra Bolivian indigenous community and has a daily audience of 500 000 people using its eighty radios and community telecentres.

Women Issues Through GIS is a web-based national programme that provides an online visual information tool for decision-makers on major gender issues, based on geographic specificity in **Egypt**. This programme ensures

access to information and knowledge and encourages the acceptance of cultural and linguistic diversity, and the belief in individual identity.

The Alfabetización Digital para la población Maya Q'eqchi' del departamento de Izabal initiative in **Guatemala** will assist in the promotion of intercultural and bilingual education and aims to develop alternative training and education activities focusing on the children and youth in the department of Izabal.

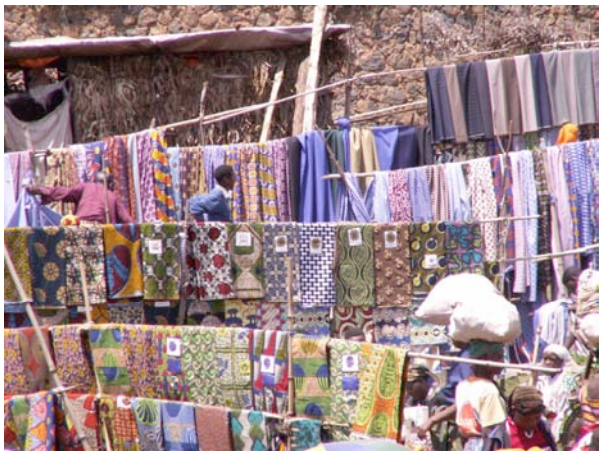
Turkey has developed a Turkish Language web-based database for Turkish dictionaries, including dictionaries for the general Turkish language, for words of foreign origin, for terms used in science and art, and for different Turkish dialects.

Intersections: Environment Through Art is a project sponsored by **UNESCO** in association with the Centre For Public Culture and Ideas of Griffith University in Australia. This project is essentially a web portal, which promotes public knowledge, innovative interdisciplinary endeavours and culturally diverse interpretations of the Australian landscape. The advantages of this website include opportunities for publicizing projects, providing a centre point for streamlining research, and creating opportunities for greater communication, networking and information-exchange between practitioners, new researchers and interested members of the public. The project is especially focused on promoting indigenous knowledge and perceptions, Australian Aboriginal archaeology and anthropology, cultural identity and nature, images of the future and sacred ecologies, as well as prominent environmental issues such as pollution and salinity.

The Global Teenager Project (GTP) was launched in **Zambia** in 1999 aiming, to bring the full potential of ICTs into the classroom. In short, GTP's aim is to enhance secondary pupils' ICT skills and learning skills while increasing their understanding of other cultures, by staging lively, global classroom debates in cyberspace. GTP unites secondary school pupils from all over the world in a safe, structured virtual environment, thereby helping to bridge the cultural and digital divide between the developing and developed world. So far, around 3000 teachers and students from 200 classes in over 29 countries are taking part and the number is rising every month. The aim of the Global Teenager Project is twofold: to improve the quality of secondary school education by introducing schools to the exciting new applications of ICT-media; and, to promote inter-cultural awareness and sensitivity.

8.2 International and regional cooperation

The **African Academy of Languages** (ACALAN) launched a new network on 15 November 2005 in Tunis. This network built a multilingual cyberspace and was created in partnership with the E-Africa Commission of NEPAD, including UNESCO, the Agence Intergouvernementale de la Francophonie (AIF), ITU, the Unión Latina, the International Literacy Institute of the University of Pennsylvania (ILI), the SIL International, FUNREDES, Multilingual Internet Names Consortium (MINC), the Casa de les Llengües of Catalunya, the Language Observatory Project (LOP), Unicode IDN in Africa, and ICVolunteers, under the auspices of the African Union.



Supporting cultural diversity and social inclusion is a project initiated by the **European Commission** aiming to address the phenomenon of social exclusion in the development of social and economic policies. In November 2007, the EC adopted the European i2010 initiative on e-Inclusion, calling on policy-makers at all levels to ensure ICT issues are taken into account in social and economic policies, as a means of tackling social exclusion issues. For its part, the Commission is undertaking a number of actions to promote ICT for Inclusion, which are tailored to benefit different vulnerable groups. One example of its activities is the provision of assistance through the ICT Policy Support Programme for a thematic network on inclusion that examines the best use of ICTs for social integration and diversity. Another example is the ICT for All project that aims to explore policies and actions that have produced best practices to assist older people, the disabled, the unemployed and immigrants to access digital technologies in a non-discriminatory manner. The project was launched in October 2006 and runs for two years. It will produce recommendations that should make ICTs more accessible to these excluded groups.

Creation of Global University System (GUS) aims to build a higher level of humanity with mutual understanding across national and cultural boundaries for global peace. The **GUS** is a worldwide initiative to create advanced telecom infrastructure for accessing educational resources around the world.

The **SIL** Open Font License was developed and published to validate a licensing framework to enable open and collaborative development, through the sharing and wide distribution of fonts. In many parts of the world, complex writing systems require specialized font knowledge and skills, but resources are limited. Such a collaborative approach involving many different partners, based on a community-validated FLOSS (Free/Libre and Open Source Software) licensing and methodology, allows unencumbered quality writing systems components to be available to many more language communities. More than 50 fonts released under OFL are now available.

The Navajo Nation ICT Based on Indigenous Traditions Project in the **United States of America** aims to enable the Navajo nation to use satellite and wireless communications to connect all community centres, other facilities and many homes with free access to computers and the Internet.

The Community Multimedia Centres (CMCs) project of **UNESCO** will combine community radio produced by local people in local languages with telecentre facilities (computers with Internet and e-mail, phone, fax and photocopying) for addressing the digital divide in the poorest communities. UNESCO's CMC pilot project has developed 40 sites in Africa, Asia and the Caribbean. Furthermore, during 2007-2010, UNESCO aims to set up a national network of at least 20 CMCs in each of the three scale-up countries – Mali, Mozambique and Senegal.

Action Line C9
Media

The media greatly contributes to freedom of expression and plurality of information, and it plays a vital role in the development of the information society as stipulated in the WSIS Plan of Action. Relevant examples were selected to present the variety of activities implemented by governments in this area:

The Media Convergence Project initiated in **Egypt** aimed at raising the understanding of media convergence amongst the ICT and media actors. This ongoing project is based on a set of individually designed training courses targeting different sectors, whereby each sector would receive a training that is the most suited to its professional profile and needs. The first training course was launched in November 2007, focusing on convergence of ICTs and media technologies.

The **Asia-Pacific Institute for Broadcasting Development** (AIBD) organized Asia-Pacific and Europe Media Dialogue meetings between broadcasters from the Asia-Pacific region and Europe which were held in Paris on 11-13 September 2006. Issues of freedom of expression, cultural diversity, human rights as well as new media and ICTs were addressed, among other themes. Another intercontinental dialogue on the same topics was held between broadcasters from the Asia-Pacific region and Europe in Bonn on September 2007. The information society has shrunk the world in a way that even the transportation revolution could not bring about. Broadcasters are now grappling with issues relating to the blurring of national borders in the satellite communication era, and their contributions are consequently of significance in the development of ICTs.

The **European Commission** has chosen four types of action to implement its Audiovisual and Media Policies, as follows: a) Regulatory Framework: the Audiovisual Media Services Directive (AVMSD) adopted in December 2007 aims at the realization of an effective single market for broadcasting. The new Directive amends and renames the Television without Frontiers Directive; b) Support mechanisms (MEDIA programme) function at a European level to complement the systems existing at the national level; c) Other actions are promoted with regard to the distribution of audiovisual content on electronic networks (Content Online and Media Literacy) and Media Pluralism; d) External measures, in particular the defence of European cultural interests in the context of the World Trade Organization.

The **Organization for Security and Co-operation in Europe** (OSCE), and in particular its Office of the Representative on Freedom of the Media, carried out a Guaranteeing Media Freedom on the Internet project which aimed to

support the creation of Internet governance in the OSCE Region.

An ITU-T workshop on Multimedia in NGN was organized in Geneva on 10-11 September 2007. The aim of NGN is to provide the necessary service capabilities to support present and future multimedia applications and services, taking into account the great potential for further development of new services. This workshop on Multimedia contributed to the NGN vision to support future multimedia services and applications, and facilitated sharing of experience among multimedia service and application experts within the NGN community. The event investigated future trends driven by technology and business needs in the area of multimedia services and applications, including those resulting from fix-mobile-broadcasting convergences.

The **Swiss Agency for Development and Cooperation** (SDC) has supported a number of projects aiming to enhance and strengthen the role of media in different communities, as follows:

- Women, digital medias and development (FMD), implemented by a media centre in Dakar, focused on the issue of access and reinforcement of the capacities of women in the field of digital media. The media centre organized a workshop bringing together the principal partners and persons in charge of networks of women, during which the focus was on consolidating steps taken at the national level.
- Training courses for northern Iraqi print media, radio and television journalists were organized to raise awareness on how to cover issues related to human rights and democracy. Another aim of these courses was to professionalize the print media.
- The Media and Society Foundation has as its objective the creation of a standard for the news media to enable it to perform public services in its respective countries.

Action Line C10 Ethical dimensions of the Information Society

The WSIS Plan of Action specifically refers to universally held values in promoting a common understanding on the reduction of abusive use of ICTs in the information society. The examples stated below demonstrate the variety of projects and initiatives implemented by governments and stakeholders to promote, increase awareness and provide protection of privacy with regard to the use of ICTs:

10.1 Promoting respect for peace and fundamental shared values of freedom, equality, and solidarity

In **Bangladesh,** an NGOs Network for Radio and Communication (BNNRC) contributes to promoting appropriate technologies and policies to uphold the value of ICTs in promoting basic human rights. To raise awareness of the use of ICTs, poverty alleviation and the right to information, it is planned to establish an ICT Resource Centre and to promote a Radio Listeners Club as the primary ICT catalyst in remote rural areas. In addition, other activities are foreseen, including: advocacy campaigns to bridge the digital divide; pilot projects in rural areas to create showcase examples for expansion through a Rural Knowledge Centre, and establishment of Radio Amateur Civil

Emergency Services (RACES) for disaster risk reduction and others.

China is attempting to assist in relief operations and infrastructure rebuilding after the 2004 tsunami by setting up a team of local relief operations experts led by top executives. It sent over 30 Chinese and foreign engineering service professionals to aid in establishing telecommunication networks. Huawei company was an implementing body that worked in close contact with local authorities, the International Committee of the Red Cross, and the Chinese Government to ensure it always delivered the most useful and transparent aid possible. The list of beneficiary countries includes India, Indonesia, Sri Lanka and Thailand.

The **Zambia** Association for Research and Development (ZARD) provides support to ZARD WIDnet (Women's Organisations Information for Development Network) project, which serves as a platform for women's voices and issues. The project aims at connecting women in Zambia through the Internet to information, resources and ICT tools. Achievement of the following objectives is envisioned: to build, strengthen and maintain an information network among women's movement organizations through the use of ICTs; to increase awareness among stakeholders on women's rights, gender and development issues, and assist women to fight against social injustices via the application of ICTs; and to enhance capacities and skills of women to use ICT tools for accessing new knowledge and education related to jobs and the establishment of new business opportunities.

The Declaration of the Committee of Ministers of the **Council of Europe** on Human Rights and the Rule of Law in the Information Society (adopted on 4 May 2005) contains a series of principles and guidelines for States and other stakeholders at the national, European and global levels, which can ensure respect for human rights and the rule of law in the information society, taking account of the rights and responsibilities of all relevant actors. The first part of the Declaration considers the impact of the information society on specific human rights guaranteed by the European Convention for the Protection of Human Rights and Fundamental Freedoms (ECHR). The second part considers the respective roles and responsibilities of Council of Europe Member States, civil society, the private sector and the Council of Europe itself. This Declaration was the Council of Europe's contribution to the Tunis Phase of WSIS.

10.2 Increasing awareness of the ethical dimensions of ICT use

Training School Teachers on the Ethical Legal and Societal Implications of ICTs is planned to be carried out by the **Egyptian National Commission for UNESCO** and will target school teachers, especially in remote areas and small villages, with the aim of raising awareness on the important implications of ICT use. Teachers will be trained on how to include ICTs in their school curricula and how to educate their students to become aware of ICT applications. The videoconference network of the Ministry of Education will be utilized to reach remote locations during the project execution stage.

Thailand initiated a project aiming to educate and raise awareness of ethics, within society, on telecommunications and to ensure that users benefited from the use of ICTs.

The **United States of America** initiated a project entitled Bridging the Technology Gap in Alaska Native Communities, which seeks to empower local Alaskan natives through raising awareness on the use of ICTs. The website www.ArcticWays.com was created through a National Science Foundation grant in order to assist local craftspeople who wish to sell their crafts online while continuing to maintain their hunting and gathering subsistence lifestyles.

The **Holy See** is considering a plan of establishing an international committee promoting moral and ethical Internet content for young people. The Holy See envisages setting up a permanent commission composed of top specialists and prominent individuals, with the responsibility of promulgating moral and ethical guidelines concerning Internet information created for the education of young people. Entities or individuals who produce documents or media to be posted on the Internet would be required to respect these guidelines. The information would have a symbol or logo of approval guaranteeing its conformity to the ethical guidelines. The presence of this symbol or logo would be a very helpful assurance, especially for teachers, regarding the nature and content of Internet information.

10.3 Protecting privacy and personal data and taking preventive measures against abusive uses of ICTs

Under the circumstances in which the everyday lives of people and socioeconomic activities are increasingly dependent on ICTs with the development of affordable and high-speed broadband networks, the enhancement of information security is essential in order to realize a secure and safe environment for the use of ICTs. The Ministry of Internal Affairs and Communications (MIC) of **Japan** developed a Security Policy that is actively promoting measures for information security in order to establish an environment for people to use information communication networks safely. Such measures include implementing countermeasures against malware such as botnets, promoting the sharing of information between telecommunication-operators, conducting exercises against cyber-attacks, enhancing educational and awareness-raising activities for the public, and researching and developing technologies on information security.

In **Indonesia,** the Association of Community Internet Center (as well as the government-initiated deployment of a Multipurpose Community Internet Center and Directory) is focusing on rural villages, urban cities, small towns and municipalities. The main objective is to promote the use of billing systems with photo identification and authentications in order to reduce cybercrime in public Internet centers.

A project on controlling and inspecting non-merit and illegal websites and online games was initiated in **Thailand** with the aim of supporting the investigation of criminal activities conducted using the Internet. The cyber inspection group has been set up by the Ministry of Information and Communication Technology to determine measures for the protection of privacy through controlling and inspecting the content of inappropriate and illegal websites and online games.

A Declaration on protecting the dignity, security and privacy of children on the Internet is under consideration and the **Council of Europe** is tasked with exploring, together with its 47 Member States, the feasibility of removing or deleting Internet content generated by children, including its traces (logs, records and processing), as a means of protecting their dignity, security and privacy.

The Computer Emergency Response Team (aeCERT) of the **United Arab Emirates** (UAE) is the Cybersecurity Coordination Centre. It was established as an initiative to facilitate the detection, prevention and response of cybersecurity incidents on the Internet. The mission of the aeCERT is to sustain a resilient and vigilant ICT infrastructure against a broader set of cybersecurity threats and to build a secure and safe cyberculture in the UAE. The aeCERT will: (1) enhance the cybersecurity law and assist in the creation of new laws; (2) increase information and security awareness across the UAE; (3) strengthen national expertise in information security; (4) provide a central focal point of contact for cybersecurity incident reporting in the UAE; and (5) establish a national centre to disseminate information about threats, vulnerabilities and cyberincidents.

Action Line C11 International and regional cooperation

Cooperation among all stakeholders is of crucial importance in bridging the digital divide and promoting universal access. Consequently, projects and initiatives implemented with international collaboration and aimed at accelerating the creation of public-private partnerships and regional initiatives are highly welcome. Some examples hereunder demonstrate these undertakings:

The **European Commission** has developed a number of initiatives in the field of international and regional cooperation, for instance:

- The international and regional cooperation mission of the European Commission aims to shape the international dimension of the Information Society Policy and to steer its implementation in order to promote policies related to the development and application of ICTs. In this context, the Commission contributes to and participates in international dialogues and negotiations with non-EU countries and international organizations. This includes a direct involvement in the monitoring of the situation in enlargement countries.
- European Neighbourhood Policy (ENP) is focusing on the European Union's (EU) neighbours to the east, and the countries of the Southern Mediterranean area. Regulatory aspects are prominent in the EU's relations with the ENP countries. Cooperation with these countries was handled within the respective sub-committees, which included a chapter on the information society. During 2007, sub-committee meetings were held with Egypt, Israel, Jordan, Moldova, Morocco, Tunisia and Ukraine.
- An EU-Africa Partnership initiative on infrastructure was launched on 24 October 2007 in Addis. A Trust Fund has been endowed that included EUR 100 million in grants and EUR 260 million in loans for all four sectors: energy, transport, water and ICTs. The ICT component of the Infrastructure Partnership has three elements: a) Regulatory Reform, which focuses on the establishment of a stable legal environment and an appropriate regulatory framework; b) Broadband Infrastructure, which is supported by the deployment of technology-neutral pan-African broadband infrastructure; and c) Non-Commercial Electronic Applications, which has the objective of promoting the usage of the underlying broadband ICT infrastructures for electronic applications of high societal impact such as e-learning, telemedicine, e-government, etc.

The **Commonwealth Secretariat** organized the International e-Partnership Summit (IePS) which was the largest promotional and engagement initiative undertaken so far under the Commonwealth Connects (CC) programme. Its major objective was to communicate to the countries of the Commonwealth the work being done under the CC umbrella. It was ultimately aimed at promoting effective global partnerships between the public and private sector in order to develop and implement strategies, which will bridge the digital divide across the 53 countries of the Commonwealth. The Summit brought together very high-profile individuals from the public and private sector, including the President of India, civil society and academia.

The IAEA.org "corporate" website project was initiated by the **International Atomic Energy Agency** (IAEA) to provide access to nuclear information issues, documents and publications related to the IAEA and its role as the world's "Atoms for Peace" organization and centre of cooperation in the nuclear field.

The **UMTS Forum** aims to address the issue of lack of telecommunication infrastructure in low density population areas. Since mobile networks are characterized by lower roll-out costs and a higher speed of deployment than fixed networks, the project of extending UMTS mobile coverage in developing countries can serve as a solution to tackle this matter. It is expected that mobile

communication could contribute to the telecoms infrastructure development in lower density population areas, provided that they benefit from an enabling regulatory environment and frequency band harmonization.

UN-HABITAT initiated a Web for Development meeting in November 2007. The meeting gathered more than 300 development and IT experts from the United Nations, governments, local authorities, civil society and the private sector, and addressed issues related to policies, applications, technologies and best practices on promoting development using web technology.

UNESCO and the **Microsoft Corporation**, in cooperation with the Youth Observatory of the **Tunisian Ministry of Youth**, will inaugurate the New Regional Centre in Tunisia to Help Youth Participate in the Knowledge Economy. InfoYouth Centre is a regional community technologies centre for North Africa, designed to provide youth with access to, and skills training in, the information technologies. The Centre will act as a hub for ten centres in Egypt, Tunisia and Morocco, enabling them to share best practices and establishing joint activities and programmes. The Centre will allow underserved and disadvantaged young people to acquire necessary technology skills to enter the workforce.

United Nations Institute for Training and Research (UNITAR) has put into operation two projects that encompass training on IT for risk management, public safety and health in various contexts for 2006. The first project's objective is to implement an efficient information system for logistics management. The target group includes the Chinese public sector, Chinese port supervision authorities and relevant enterprises. The second project monitors all types of risks which have an impact on the community and the economy. This project focuses on health and epidemics, industrial risks as well as information systems for public safety. It builds on existing expertise and e-applications and involves a wide range of institutional, public and private sector partners.

During the *Connect Africa* Summit in Kigali, Rwanda, on 29 October 2007, the **World Bank Group** announced that it will double its commitment to ICTs in Africa to USD 2 billion in five years. The funds will be channelled through its three financing arms: the World Bank, the International Finance Corporation (IFC), and the Multilateral Investment Guarantee Agency (MIGA). The financing will continue to promote private sector participation in public private partnerships. In particular, mobile telephony is a remarkable success story in Africa. The recently approved USD 424 million for the Regional Communications Infrastructure Program (RCIP) will support governments of up to 25 Eastern and Southern African countries to partner with private telecom operators to jointly invest in infrastructure for high speed Internet. IFC financing will continue to support infrastructure projects such as the Eastern African Submarine Cable Systems (EASSy), mobile banking, the creation of knowledge products and capacity building for Africa.

ITU is spearheading the "Connect the World" initiative, an ambitious global effort to help "connect the unconnected" by 2015. In this vein, the Connect Africa Summit was held in Kigali, Rwanda, in October 2007, gathering over 1 000 participants from Africa and around the world, including Heads of State and Government, CEOs, Ministers, heads of international and regional organizations, development banks and various donor agencies and others. The Summit addressed issues related to expanding broadband infrastructure and access networks, rural connectivity, capacity-building, applications and services, and developing an enabling environment. A total of 55 billion dollars was committed, mainly from industry but also from development banks and other partners. The overall aim is to replicate this successful approach in other regions over the next few years.

As a follow-up, on 11 May 2008, with the support of Microsoft and IDV Solutions, ITU launched a pilot project "ITU Global View", an online platform to showcase ICT development projects and track progress towards WSIS goals. While hosted by ITU, this platform will be open to all stakeholders — governments, industry, international and regional organizations, as well as civil society — allowing users to check project status, identify gaps and avoid overlap in collaborative efforts to achieve the WSIS goals.

Conclusion: Towards Connecting the World

In order to achieve the vision of the information society foreseen in the WSIS outcome documents (Declaration of Principles and Plan of Action), the multistakeholder engagement and cooperative partnership mechanisms should be further promoted and employed in tackling the challenges in the development of the ICT sector.

Will the digital divide be turned into digital opportunities for all? The commitment of world leaders at WSIS is being tested today and for the seven years to come. Countries are leveraging the great potential offered by ICTs, and many of them are making strong gains towards achieving the WSIS connectivity goals. While it is unlikely that there will be a "one-size-fits-all" policy and regulatory model, policy-makers and regulators are intent on taking the necessary measures to support an enabling and competitive environment that will stimulate investment in new-generation ICT infrastructure, the development of new products and the take-up of ICT services in order to build an inclusive and prosperous information society for all.

Thus far, governments and stakeholders have submitted many initiatives and projects to the WSIS database since its initiation, which indicate the manifold efforts undertaken to bridge the digital divide and provide universal access to ICTs. In the past three years (2005-2008), governments and stakeholders have successfully contributed to advancing the achievement of WSIS targets on such significant matters as building infrastructure to enhance connectivity, fostering access to information services, assisting in the development of requisite capacities and skills, raising awareness on security issues in the use of ICTs, enabling the environment through the application of ICTs, and other Action Lines. Many projects focused on more than one Action Line, pursuing the realization of several objectives within one project, thereby undertaking a multidimensional approach to achieving WSIS goals. All these efforts facilitated the progress in assessing, monitoring and evaluating the impact of ICTs on the achievement of the internationally agreed MDGs.

List of Abbreviations and Acronyms

ACALAN	African Academy of Languages
ADB	Asian Development Bank
ADEN	Appui au désenclavement numérique
ADR	Alternative Dispute Resolution
AFUNET	African University Network
AHI	African Health Infoway
AIBD	Asia-Pacific Institute for Broadcasting Development
AIF	Agence intergouvernementale de la francophonie
ANERA	American Near East Refugee Aid
AVMSD	Audiovisual Media Services Directive
BDS	Business Development Services
BIPS	Bhutanese ICT Policy and Strategies
BNNRC	Bangladesh NGOs Network for Radio and Communication
Botnets	infected networks of computers
CAB	Central African Backbone
CAP	Community Access Point
CC	Commonwealth Connects
CERT	Computer Emergency Response Team
CESSI	Chamber of Software
CHED	Commission on Higher Education
CICTS	City ICT Strategy
CMCs	Community Multimedia Centres
COMESA	Common Market for Eastern and Southern Africa
CSIRT	Computer Security Incident Response Teams
DNS	Domain Name System
EASSy	East African Submarine Cable System
EC	European Commission
ECA	Economic Commission for Africa
ECDL	European Computer Driving Licence
ECLAC	UN Economic Commission for Latin America and the Caribbean
EEAA	Egyptian Environmental Affairs Agency
EHR	Electronic Health Record
EIS	Egyptian Environmental Information System
ENEDCO	Enhancing the Visual and Presentation of Educational Content
ENISA	European Network and Information Security Agency
ENP	European Neighbourhood Policy
ESCWA	United Nations Economic and Social Commission for Western Asia
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FDI	Foreign Direct Investment
FLOSS	Free/Libre and Open Source Software
GAID	Global Alliance for ICT and Development
GBSI	Global Broadband Satellite Infrastructure Initiative
GCA	Global Cybersecurity Agenda
GELC	Global Education & Learning Community
GESIF	Government Employees Social Insurance Fund
GHG	global greenhouse gas
GMA	Intel Graphics Media

gTLDs	generic Top-Level Domains
GTP	Global Teenager Project
GUS	Global University System
GVU	Global Virtual University
HLEG	High-Level Experts Group
IAEA	International Atomic Energy Agency
ICDL	International Computer Driving Licence
ICM	Intercultural Communication Management
ICT	Information and Communication Technologies
ICTA	Information and Communications Technology Authority
ICTP	International Centre for Theoretical Physics
IDRC	International Development Research Centre
IEC	International Electrotechnical Commission
IePS	International e-Partnership Summit
IFC	International Finance Corporation
IGAD	Intergovernmental Authority on Development
ILCE	Instituto Latinoamericano de la Comunicación Educativa
ILI	International Literacy Institute
INABIMA	National Institute of Magisterial Welfare
INAPS	International Network for the Availability of Scientific Publications
I-RAP	nfosec-Registered Assessor Program
ISAD	Information Society and Development Plan
ISPC	Information Security Policy Council
ISPs	Internet Service Providers
ISSP	Implementation of Information System Strategic Plan
IT	Information Technology
ITA	Information Technology Authority
IXPs	Internet Exchange Points
KIE	Kenya Institute of Education
LOP	Language Observatory Project
MCT	Multipurpose Community Telecentre
MDG	Millennium Development Goals
MIC	Ministry of Internal Affairs and Communications
MIGA	Multilateral Investment Guarantee Agency
MMRK	Multi Media Resource Kit
NAP	National Action Plan
NAVA	National Audiovisual Archive
NCASRD	National Consultation on Access to Scientific Research Data
NDDA	National Digital Data Archive
NELC	National E-Learning Centre
NGDIR	National Geology Database of Iran
NICI	National Information and Communication Infrastructure
NISC	National Information Security Centre
NORAD	Norwegian Agency for Development
NRTP	National Rural Telephony Programme
OSCE	Organization for Security and Co-operation in Europe
P2E	person-to-equipment communication
P2P	person-to-person communication
PAC	Public Access Centre
PERI	Programme for Enhancement of Research Information
PPP	Public Private Partnerships
PPSESIP	Private and Public Sector Employees Social Insurance Fund
PROSOFT	Programme for Development of Software Industry

PSCAP	Public Sector Capacity Building Program
RCIP	Regional Communications Infrastructure Program
REDMESO	Mesoamerican Network of Biotic Resources
RIAP	Rural Internet Access Point
SADC	Southern African Development Community
SDC	Swiss Agency for Development and Cooperation
SIST	Système d'information scientifique et technique
SMEs	Small and Medium-sized Enterprises
STDI	Scientific and Technical Data and Information
TCRA	Tanzania Communications Regulatory Authority
TISPA	Tanzania Internet Service Providers' Association
TIXP	Tanzania Internet Exchange Point
TTS	text-to-speech
UAE	United Arab Emirates
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNECA	United Nations Economic Commission for Africa
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNHCR	United Nations High Commissioner for Refugees
UNIDO	United Nations Industrial Development Organization
UNITAR	United Nations for Training and Research
UNU	United Nations University
UPU	Universal Postal Union
VL	virtual library
VoIP	Voice over Internet Protocol
W2F	Window to the Future
WEEE	Waste Electrical and Electronic Equipments
WHO	World Health Organization
WIPO	World Intellectual Property Organization
WRC	World Radiocommunication Conference
WSIS	World Summit on the Information Society
ZARD	Zambia Association for Research and Development
ZARI	Zambia Agriculture Research Institute

International Telecommunication Union
Place des Nations
1211 Geneva 20
Switzerland
Tel: +41 22 730 6065
Fax: +41 22 730 5484
E-mail: wsis-stocktaking@itu.int
Url: www.itu.int/wsis/stocktaking

Photo credits:
Cover: ITU, British Telecom
British Telecom: p.18; p.43
Direction nationale des postes et telecommunication, Guinée : p.23
MCIT/Egypt: p.43;
PhotoDisc: p.17; p.32; p.34
Photos.com: p.25
Philips Research: p.15
Solar Electric Light Fund: p.19
SOLTEMA / Birama Diallo: p.32
UNHCR: p.16 author A. Hollman
UNESCO: author V. Charneau: pages 28, 30 – Alphabetization project, Egypt, and 51 – Children signing; author N. Denissova: p.27 – Sengerema CMC, Tanzania; p.49 – Afia SMS, Senegal; p.51 – Koutiala CMC, Mali
ITU: Zouhri – p.17; p.55; p.22; p.53; L. Åström – p.39; M. Arditto – p.44; J.M. Micaud – p.33; p.37; p.40; A. de Ferron p.42; p.47; J.M. Ferre – p.54; R. Bastidas – p.46; E. Behdad – p.20; S. Berman – p.36

Printed in Switzerland
Geneva, 2008