

**REPORT ON THE
WORLD SUMMIT
INFORMATION
SOCIETY
STOCKTAKING**

2015
2014
2013
2012
2010
2008
2005

REPORTING ON THE IMPLEMENTATION OF WSIS OUTCOMES
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Report on the WSIS Stocktaking 2013



Version 1.1

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Please, kindly note that this version is open for the additional input until the end of WSIS Forum 2013.

In case of any suggestions or recommendations, please, do not hesitate to contact us at wsis-stocktaking@itu.int

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International Telecommunication Union (ITU), Geneva

Foreword by the ITU Secretary-General, Dr Hamadoun I. Touré



It is my honour to present the fifth (2013) edition of the *WSIS Stocktaking Report*.

Since 2004, in response to § 120 of the Tunis Agenda for the Information Society, ITU has maintained the public WSIS stocktaking database as valuable tool for collecting information and for regular reporting on WSIS-related activities.

Throughout this period, the WSIS Stocktaking Report has served as a key information and reference work for governments and other stakeholders, turning into what is a unique repository of best practices on the implementation of WSIS outcomes. WSIS stocktaking has been playing a crucial role during these nine years, and this role takes on even greater significance in the light of the WSIS+10 review process on the implementation of the WSIS outcomes.

The 2013 report will reflect more than 700 of the latest WSIS-related activities, submitted to the WSIS stocktaking process between May 2012 and the present day, each highlighting the efforts deployed by stakeholders involved in implementing the WSIS goals.

In this fifth edition, you will find examples of emerging trends in actions geared to bridging the digital divide and building an inclusive information society.

It is reassuring to note, for instance, that many governments and other stakeholders are continuing to develop rural areas by providing access to ICTs through community centres, and the important role that telecentres play in providing access to the Internet, information and training in the use of ICTs cannot be overstated.

I am glad to see the growing number of training programmes for women - national programmes or initiatives that will help women to enter the workforce. It is also clear that teleworking is becoming an effective tool for empowering citizens and opening up greater employment opportunities.

A particularly gratifying trend is the progress being made in the development of e-accessibility policies that make our society more inclusive. Assistive technologies are being provided in schools, in the work environment and in public places to allow persons with disabilities to access information.

Youth is becoming a crucial element in the information society, and countries are recognizing the potential benefits of investing in young people. Incubators and innovation centres offer excellent platforms for raising awareness of ICTs among young leaders and boosting entrepreneurship.

The WSIS Stocktaking Report will again give readers an overall picture of and a sharper insight into the latest WSIS-related activities undertaken towards achieving the WSIS goals. The national and sector strategies reported, in areas such as broadband, accessibility, e-government, and so forth, are the catalysts required to shape the information society and guide all stakeholders.

The greatest challenge we face is to attain all the WSIS goals by 2015. We can only achieve this if all WSIS stakeholders - governments, international organizations, the private sector, civil society and other entities - continue to work together and apply the multistakeholder approach in each and every project or initiative we are working on.

I encourage all stakeholders to continue to report on their activities to the WSIS stocktaking process, which will serve as crucial tool for overall assessment and evaluation.

I would like to take this opportunity to express my sincere gratitude to all stakeholders who responded to the latest call for updated information and new entries, and thereby contributed to this important fifth edition of the WSIS Stocktaking Report.

Dr. Hamadoun I. Touré
ITU Secretary-General

Foreword by the ITU Deputy Secretary-General, Mr Houlin Zhao



WSIS stocktaking has proven to be an excellent tool for monitoring progress towards achieving the WSIS goals, and the *WSIS Stocktaking Report* series is seen as a significant contribution to the process of identifying trends in the implementation of WSIS outcomes with a view to establishing the information society.

I am proud to say that, since the launch of the previous report in May 2012, the number of activities submitted to the WSIS stocktaking process has increased dramatically, which makes it even more of a pleasure for me to announce the release of the fifth (2013) edition of the WSIS Stocktaking Report.

The Web 2.0 WSIS stocktaking platform provides a mechanism for sharing experiences among its 20 000 participants representing governments, the private sector, international organizations, civil society and other stakeholders. As a result, it has become the biggest ICT for development (ICT4D) platform.

I would like to express my gratitude to the countries that have been and continue to be involved in the reporting mechanism by providing periodical national-level reports to the WSIS stocktaking process, and I urge you all to continue to use the database and the platform as tools to raise international awareness of national projects, share experiences and lessons learned, build multistakeholder partnerships and attract foreign investment.

I believe that the best practices reflected in this report will serve as models to be replicated and will encourage stakeholders to move forward towards achieving the WSIS goals which are so important to us all.

Houlin Zhao
ITU Deputy Secretary-General

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Introduction to WSIS

United Nations General Assembly Resolution 56/183 (21 December 2001) endorsed the holding of the *World Summit on the Information Society (WSIS)* in two phases. The first phase took place in Geneva, from 10 to 12 December 2003, and the second phase took place in Tunis, from 16 to 18 November 2005. The objective of the first phase was to develop and foster a clear statement of political will and take concrete steps to establish the foundations for an Information Society for all, reflecting all the different interests at stake. The objective of the second phase was to put the *Geneva Plan of Action* into motion, as well as to find solutions and reach agreements in the fields of Internet governance, financing mechanisms and follow-up and implementation of the Geneva and Tunis documents.

Since the two WSIS summits, we have seen an extraordinary transition, from a world where most people did not have access to even basic telecommunications, to today's increasingly connected world: today there are 6.8 billion mobile-cellular subscriptions. In 2013 there are almost as many mobile-cellular subscriptions as people in the world.¹ We should not forget, however, two thirds of the world's people – some 4.5 billion people – are still offline and that the number of people worldwide with broadband access is still relatively small – despite the very rapid growth of new technologies such as mobile broadband.

To ensure that everyone will benefit from the opportunities ICTs can offer, the Geneva Plan of Action set out Action Lines which lay down the key principles for building an inclusive Information Society. Building on this, the *Tunis Agenda for the Information Society* states that the WSIS implementation mechanism at the international level should be organized while taking into account the themes and action lines in the Geneva

Plan of Action, and moderated/facilitated by UN agencies when appropriate.² It also states that ITU, UNESCO and UNDP should play a leading facilitating role in the implementation of the Geneva Plan of Action.³ The WSIS implementation process has been noteworthy for its multistakeholder engagement and approach in the implementation of the WSIS action lines, with the direct involvement of all WSIS stakeholders – governments, the private sector, civil society and international organizations.



Since 2003 and 2005, WSIS Stakeholders have made several efforts to implement WSIS Related activities for the benefit of society. Information and Communication Technologies are fast changing and evolving, and have provided us with new challenges and opportunities. In this regard, a review of the implementation of the WSIS Activities is considered essential and was foreseen in the WSIS Outcome Documents. Resolution 60/252 of the General Assembly resolved to conduct an overall review of the implementation of the Summit outcomes in 2015. The WSIS Stakeholder Community is at present assessing its achievements and present and future challenges, thereby sharing experiences to build a vision beyond 2015.

¹ ITU Statistics and Figures <http://www.itu.int/en/ITU-D/Statistics/Documents/facts/ICTFactsFigures2013.pdf>

² Tunis Agenda, § 108

³ Tunis Agenda, § 109

The WSIS Forum⁴

Pursuant to §§ 108 and 109 of the Tunis Agenda, the *WSIS Forum* serves as a unique global platform to coordinate implementation of the WSIS outcomes in a multistakeholder format. The cluster of WSIS-related events was rebranded as the “WSIS Forum” in 2009. Since then, the WSIS Forum has provided an international platform for WSIS stakeholders to network, learn and share, resulting in concrete actions and outcomes. Each year, the WSIS Forum is hosted and organized by ITU, and co-organized by UNESCO, UNCTAD and UNDP. The forum provides a perfect platform for world leaders to shape strategies that will harness the power of ICTs more effectively in order to accelerate progress towards achievement of the UN Millennium Development Goals (MDGs) and the WSIS connectivity targets for 2015 and beyond.

The WSIS Forum is also a platform for networking, learning and sharing experiences and outcomes in regard to projects implemented by stakeholders. Each year, the forum is enriched by case studies and projects submitted to the *WSIS Stocktaking Database*. Real stories about project implementation by stakeholders complement the forum programme, thereby linking the policy and planning processes with implementation and grassroots action.



WSIS Forum 2013

Welcoming an expected 2000+ delegates from governments, the private sector, civil society and international organizations, the *WSIS Forum 2013* will focus on “identifying emerging trends and a vision beyond 2015”. The comprehensive programme⁵ of the WSIS Forum 2013 features five High-level Dialogues, a Ministerial Round Table, the official WSIS +10 Review Plenary sessions, WSIS Action Line Facilitation Meetings, Interactive Sessions, Thematic & Country Workshops, Knowledge Exchanges and an Exhibition. A Ministerial Round Table on the second day will explore the vision of world leaders in the WSIS Process beyond 2015, ensuring that ICTs remain a priority in the development agenda beyond 2015.

World Telecommunication and Information Society Day (WTSID) 2013 will be celebrated on Friday, 17 May, around the theme of “*ICTs and improving road safety*”.⁶ The theme, “ICTs and Improving Road Safety” for World Telecommunication and Information Society Day 2013 is in line with the United Nations “Decade of Action for Road Safety” which dedicates the period 2011-2020 towards improving global road safety.

Every year the programme of the WSIS Forum is shaped by an extensive Open Consultation Process with a wide range of stakeholders. Submissions made during the open consultation process provide the framework for the forum’s agenda, speakers and format. Naturally, this will have a direct impact on the outcome and success of the 2012 event, and we can proudly say that the WSIS Forum is evolving into a true stakeholder-driven platform that demonstrates our common desire and commitment to build a people-centric, inclusive and development-oriented Information Society.

⁴ www.wsis.org/forum

⁵ <http://www.itu.int/wsis/implementation/2013/forum/agenda/agenda.html>

⁶ <http://www.itu.int/en/wtsid/Pages/default.aspx>

The agenda includes interactive dialogues and information exchanges on a wide range of key topics such as Emerging trends and Innovation in the ICT Ecosystem; Women's Empowerment in the Information Society; Smart Climate change monitoring; Expanding Access to Information on Weather, Climate and Water; ICT Innovations and Standards: Creating technology for the Next Three Billion; and Securing Cyberspace in a Borderless World: Vision 2015 and Beyond are among the other hot issues that will be discussed during the High-Level Dialogues. Two high level substantive sessions will focus on the important issues of Youth and ICTs, and ICTs and Post 2015 Goals.

This year's WSIS Forum programme has been greatly enhanced through the strategic partnership and contribution of the Sultanate of Oman (government) and Intel Corporation (private sector). The forum has also benefited from contributions from Azerbaijan (Republic Of), Kazakhstan (Republic of), Kuwait (State of), Mexico, Poland (Republic of), Rwanda (Republic Of), Saudi Arabia (Kingdom Of), Tanzania (United Republic of) and Hewlett-Packard, as partners for Specific Activities. Supporting the vision of the WSIS Process beyond 2015, United Arab Emirates is the WSIS+10 Visioning Partner.

Over the years the WSIS Forum has evolved into an outcome oriented forum that provides multistakeholder consensus and recommendations on the process. Building on the success of the Outcome documents from last year, this year the forum will provide crucial outcomes, in the form of the Forum 2013 Outcome Document, a compilation of recommendations from all sessions with special focus on recommendations for WSIS+10 and the 2013 edition of the publication Identifying Emerging Trends and a WSIS Beyond 2015



Today, ICTs provide the opportunity for representation and inclusion of all stakeholders in the WSIS Forum by way of remote participation. In order to facilitate participation and inclusion of all WSIS stakeholders, remote participation was designed as an integral feature of the WSIS Forum 2013. Building on the success of e-participation facilities rolled out at WSIS Forum 2011, the organizers have worked towards integrating the most user-friendly and widely employed tools for encouraging remote participation at WSIS Forum 2013. These easy-to-use tools enabled two-way communication, allowing WSIS stakeholders to participate in the WSIS Forum at their own convenience and, at the same time, disseminate information about the different sessions and happenings at the forum.⁷



United Nations Group on the Information Society⁸

Since 2006, the UN Group on the Information Society (UNGIS) – comprised of 30 UN agencies – serves as an interagency mechanism to coordinate substantive policy issues facing the United Nations system's implementation of the Geneva Plan of Action and Tunis Agenda for the

⁷ http://www.itu.int/wsisis/implementation/2013/forum/rem_part.html

⁸ www.ungis.org/forum

Information Society adopted by the World Summit on the Information Society, thereby contributing to improving policy coherence in the UN system, as requested by the 2005 World Summit. Subsequently, pursuant to Para 46 of the GA Resolution 62/208, UNGIS also ensures coordination within the United Nations development system, in order to respond to the international attention being given to science and technology transfer as reflected by the outcomes of the 2005 World Summit. The following lists only a few recent activities undertaken by the Group : actions directed towards incorporation of ICT for development in the UN Development Assistance Framework; joint contribution to the RIO+20 preparatory process; open consultation on the overall review of the implementation of the WSIS outcomes (WSIS+10); joint initiative on the mobile for development; and collection of the actions undertaken in reference to the implementation of the WSIS outcomes, undertaken by the UNGIS members.

During WSIS Forum 2013 the UNGIS members will issue a joint declaration highlighting how the link between the potential of ICTs as key enablers of development, and as critical components of innovative development solutions, is fully recognised in the Post-2015 Development Agenda, and that the Post-2015 Development Agenda reflects lessons learned during the past decade in the implementation of the WSIS outcomes.

WSIS+10

The World Summit on the Information Society (WSIS) outcome documents and the UN General Assembly Resolution 60/252 resolved to conduct an overall review of the implementation of the Summit outcomes in 2015. The ITU Plenipotentiary Resolution 172 (PP-10) on the Overall Review of the Implementation of the Outcomes of the WSIS, including the possibility of holding a high-level event in 2014/2015, requested the ITU Secretary General to initiate the preparatory process at the UN Chief Executives Board (CEB).

Consequently, in 2011 the CEB tasked UNGIS, under ITU leadership, to prepare, on the basis of an open consultation, an Action Plan for the WSIS Overall Review (WSIS+10). The Board requested

UNGIS to present the Action Plan at its spring 2012 session. HLCP noted the plan and forwarded to CEB for endorsement. During the CEB Spring Session held at ITU Headquarters in April 2012, the plan was approved and ITU was attributed a managerial role for the process. Further to the request of the ECOSOC Resolution (31) on the Assessment of the Progress Made in the Implementation of and Follow-up to the Outcomes of WSIS, the Secretary General, ITU reported to the 15th Session of the CSTD that during the WSIS Forum 2012 multi-stakeholder consensus was achieved on the 10 year reporting templates (Annex One).

Following the Plan of Action, two plenary sessions on WSIS+10 were organized during the WSIS Forum 2012. A comprehensive report on the outcomes was provided by the ITU Secretary General to the 15th Session of the Commission on Science and Technology for Development. Following the 2012 ITU Council Resolution, the ITU Secretary General contributed to the 67th session of the General Assembly, providing an update on the Plan of Action as well as all activities related to the WSIS+10. Building upon this input, the 67th session of the General Assembly in its Resolution on ICT for Development resolved that the modalities for review process will be considered by the end of 2013.

In 2012, in its Resolution 1334 (2012), the ITU Council resolved to support a high-level event on the Overall Review (WSIS+10) to be held in 2014 in conjunction with the World Telecommunication Development Conference. In response to the kind invitation of Egypt, ITU initiated necessary preparations towards organization of the WSIS+10 High-Level Event to be held in Sharm el Sheikh from 14-18 April 2014, being an integral part of the WSIS Forum.

Within the framework of the Regional Preparatory Process towards the World Telecommunication Development Conference, the ITU is in the process of collecting regional views on the implementation of the WSIS outcomes and WSIS+10.

The mechanism for ten years reporting based on the WSIS Stocktaking process that was set up by Tunis Phase of WSIS to assist the follow-up, has been designed. Administrations and Action Line

Facilitators have been informed about the templates for reporting. ITU held series of virtual coordination meetings with Action Line Facilitators.

The WSIS Forum has evolved as the mechanism to identify emerging trends in the ICT ecosystem in a multistakeholder format, with expert inputs from UN Agency Focal Points; it plays a strategic role within the framework of the WSIS+10 Overall Review and beyond 2015 as the only international multistakeholder platform to get multistakeholder consensus on WSIS+10 Overall Review. In the upcoming WSIS Forum 2013, several WSIS+10 Visioning tracks have been integrated in the agenda. The main tracks include two WSIS+10 plenary sessions, the WSIS+10 Visioning Challenge and the Ministerial Round Table. The WSIS Forum 2013 will offer an opportunity to discuss substantive issues, collecting concrete inputs thereby contributing to the vision beyond 2015.

In response to the requests of the member states and other stakeholders, in May 2013 ITU launched the WSIS+10 Overall Review Portal (www.wsis.org/review) with the aim of facilitating preparatory process and creating central point for information sharing for all WSIS stakeholders willing to engage in the process leading towards creation of a new vision for WSIS beyond 2015.



PARTNERSHIP ON MEASURING ICT FOR DEVELOPMENT

Partnership on Measuring ICT for Development⁹

The *Partnership on Measuring ICT for Development* is an international, multistakeholder initiative to improve the availability and quality of ICT data and indicators, particularly in developing countries. One of the key achievements of the Partnership has been the identification of a core list of indicators. This list of 50 indicators, which was agreed upon through a consultation process involving governments and international organizations, covers basic infrastructure and access indicators as well as ICTs in households, business and education. The list, which is revised regularly, was identified to help guide countries in measuring the information society.

The Partnership's work is closely related to WSIS, which called upon countries and international organizations to develop appropriate indicators and produce official statistics to monitor the Information Society. The Tunis Agenda makes reference to the partnership¹⁰, and invites the international community to strengthen the ICT-related statistical capacity of developing countries¹¹, which is also a key objective of the Partnership.

The Partnership, through its Task Group on Measuring the WSIS Targets (TG WSIS, which is led by ITU), has also helped identify a concrete list of indicators to help track the ten WSIS targets – which range from connecting villages, schools and health centres, to developing online content and providing people with ICT access – by producing a [statistical framework document](#) which will help guide countries in their data-collection efforts. The report is expected to

⁹ www.itu.int/ITU-D/ict/partnership/

¹⁰ Tunis Agenda, § 114.

¹¹ Tunis Agenda, § 118.

become the main reference document for final review of achievements towards meeting the WSIS targets in 2015. TG-WSIS will organize two workshops at the WSIS Forum 2013 to provide an update on the partnership's work measuring the

WSIS targets, and present concrete examples of progress made towards monitoring the targets as well as highlighted gaps that still need to be addressed.

Box 1: ITU Contribution to the Implementation of the WSIS Outcomes

ITU has initiated a series of annual publications that provide information on the key WSIS related initiatives and activities carried out by the three sectors of the Union (Standardization, Radiocommunication and the Development Sector) and the General Secretariat. The annual reports provide yearly updates on the tasks carried out by the ITU at the operational and policy level, covering all assigned mandates with reference to the WSIS Process, in particular:

- In its capacity as leading facilitator in coordinating the multi-stakeholder implementation of the Geneva Plan of Action. (para 109 of TAIS) and primary organizer and host of the annual event in May, i.e. the WSIS Forum
- Facilitator of Action Lines C2 (Information and communication infrastructure) and C5 (Building confidence and security in the use of ICTs); as well as C6 (Enabling Environment).
- Co-facilitator of Action Lines C1, C3, C4, C7, and C11
- Partner in Action Lines C8 and C9
- Rotating Chair and Vice Chair of the United Nations Group on Information Society (UNGIS) (Para 103 of TAIS)
- Lead of Partnership on the Measuring the ICT for Development (Para 114 of TAIS)
- Facilitator of the WSIS Stocktaking Process (Para 120 of TAIS)
- Organizer of World Telecommunication and Information Society Day (Para 121 of TAIS)
- Lead of the Connect the World Initiative (Para 98 of TAIS)
- Others

These annual reports will also be considered as the official submissions from ITU for different internal and external WSIS process related meetings like the WG-WSIS, Council, CSTD.

WSIS Stocktaking:

The WSIS Stocktaking Database continues to be a global repository of projects and initiatives relating to the use of Information Communication Technologies (ICTs) for development purposes. This repository provides a register of ICT activities carried out by governments, civil society, international organisations, private sector and other entities. In accordance with §120 of the *Tunis Agenda for the Information Society*, the International Telecommunication Union (ITU) maintains the WSIS Stocktaking Database as a publicly accessible electronic resource www.wsis.org/stocktaking. The Database is a means to monitor progress towards achieving the objectives and targets of the Information Society, set out in the *2003 and 2005*. Each of the 11

Action Lines seeks to harness the potential of ICTs for advancing internationally-agreed development goals by 2015.

In 2010, the Web 2.0 WSIS stocktaking platform was launched to provide a mechanism for sharing experiences among its 20 000 participants representing governments, the private sector, international organizations, civil society and other stakeholders. As a result, it has become the biggest ICT for development (ICT4D) platform.

WSIS Project Prizes 2013

The WSIS Project Prizes is an international contest developed in response to requests of the WSIS Stakeholders that requested for an effective mechanism to evaluate and recognize individuals; governments; civil society; local, regional and

international agencies; research institutions; and private sector companies for outstanding success in implementing development-oriented strategies that leverage the power of ICTs. The new WSIS Project Prizes are now an integral part of the WSIS Stocktaking Process established in 2004 (www.wsis.org/stocktaking).



On 13 May 2013- ITU Secretary-General Dr Hamadoun Touré announced the winners of 18 WSIS Project Prizes to the public, as part of the Opening Ceremony of the WSIS Forum 2013 event that took place in Geneva from 13-17 May 2013.

18 winners were awarded for their tremendous efforts and achievements on implementation of WSIS outcomes.

The winners of WSIS Project Prizes 2013 are:

- [Ministry of Higher Education](#) (Saudi Arabia) with the project Safeer Program in category C1: The role of public governance authorities and all stakeholders in the promotion of ICTs for development
- [Ministry of Education](#) (Saudi Arabia) with the project Schools Connectivity Project in category C2: Information and communication infrastructure
- [Public Library Radislav Nikcevic](#) (Serbia) with the project AgroLib Ja (Agricultural Libraries in Jagodina) in category C3: Access to information and knowledge

- [EIFL \(Electronic Information for Libraries\)](#) (Italy) with the project PLIP builds communities ICT skills in 23 developing and transition countries in category C4: Capacity building
- [Ministry of Telecommunication and Information Society](#) (Ecuador) with the project Digital Training through Mobile Classrooms in category C5: Building confidence and security in the use of ICTs
- [Ministry of Communication and Transport](#) (Mexico) with the project Club Digital: massive open online ICT courses in category C6: Enabling environment
- [Network for Information and Computer Technology, Indore](#) (India) in cooperation with Municipal Corporation, Indore and Bank of India with the project SAKSHAM - ICT enabled Direct Old Age Pension Distribution in category C7: ICT applications - e-Government
- [National Information Technologies JSC](#) (Kazakhstan) in cooperation with the Ministry of the transport and communications of the Republic of Kazakhstan and the Ministry of Regional Development of the Republic of Kazakhstan with the project E-license Information System in category C7: ICT applications - e-Business
- [African Forum for the Promotion of New Information and Communication Technologies \(AFP-NICT\)](#) (Congo) with the project Training and connecting rural people in category C7: ICT applications - e-Learning
- [Ministry of Health](#) (Oman) with the project Reduce Childhood Mortality Rate: Infants and Children under 5 years of Age in category C7: ICT applications - e-Health
- [Civil Service Commission](#) (Kuwait) with the project E-Employment system in category C7: ICT applications: e-Employment
- [University of La Punta](#) (Argentina) with the project Zero Balance in category C7: ICT applications - e-Environment

- [Technical Centre for Agricultural and Rural Cooperation ACP-EU \(CTA\)](#) (Netherlands) with the project Web 2.0 and Social Media Learning Opportunities in category C7: ICT applications - e-Agriculture
- [Abu Dhabi Technology Development Committee](#) (United Arab Emirates) with the project Abu Dhabi Science Festival in category C7: ICT applications: e-Science
- [Ministry of Information and Communications Technologies](#) in cooperation with [Colnodo](#) (Colombia) with the project En mi idioma ("In my language") in category C8: Cultural diversity and identity, linguistic diversity and local content
- [Ministry of Youth and ICT](#) and [Workforce Development Authority \(WDA\)](#) (Rwanda) with the project Africa Digital Media Academy in category C9: Media
- [Ministry of Communication and Transport](#) (Mexico) with the project Mujermigrante.mx: promoting human rights for migrant women in category C10: Ethical dimensions of the Information Society
- [Child Helpline International](#) (Netherlands) with the project Child Helplines and Telecoms: A toolkit to assist your child helpline to advocate for a free of costs telephone number in category C11: International and regional cooperation.

The WSIS Stocktaking Report 2013 is based on the contributions of stakeholders including governments, civil society, international organizations, private sector and other entities that responded to the 2012 ITU Official Call for updates and new entries. Based on the information submitted, it was possible to identify the key achievements and the progress made so far to achieve WSIS targets.

The purpose of Stocktaking Reporting is to update stakeholders on activities undertaken towards achieving WSIS goals between May 2012 and the present day. It reflects 700 dedicated efforts to realize a common vision of a people-centred, inclusive and development-oriented Information Society. Stakeholders are therefore actively encouraged to contribute information on their activities through the WSIS Stocktaking Platform www.wsis.org/stocktaking

The total number of activities submitted to the WSIS Stocktaking Database exceeds 6200 entries, of which more than half came from governments and a further quarter from international organizations. The remaining activities were submitted by civil society, business sector entities and miscellaneous submissions.

It is important that governments continue to contribute to the WSIS Stocktaking Process and use the WSIS Stocktaking as the mechanism of the reporting.

The activities reflected in the report provide key information and reference work for stakeholders how to bridge the digital divide, how to enhance partnerships and multi-stakeholder collaboration and how to address the challenges of the Information Society.

The publication will provide readers with key findings on the emerging trends of the Information Society and will guide through the activities by main facilitators, co-facilitators and other stakeholders according to the mandate of the 18 Action Lines.

Action Line C1. The role of governments and all stakeholders in the promotion of ICTs for development

The United Nations Department of Economic and Social Affairs (UNDESA) is the lead facilitator for Action Line C1: The role of governments and all stakeholders in the promotion of ICTs for development.

UNDESA has continued its efforts to ensure the comprehensive exchange of views, information and experiences, to provide advisory services and technical cooperation assistance to developing countries, and to promote policy dialogue and advocacy for implementation of the World Summit on the Information Society (WSIS) outcomes by a variety of United Nations bodies, governmental and non-governmental stakeholders and partners through a number of modalities and initiatives.

In the course of 2012, more than 15 *advisory and technical assistance missions* have been initiated and taken place to support governments in implementing their respective e-strategies (covering e-content, citizen engagement, online services, e-participation, infrastructure development and e-government policies and guidelines), thus helping to provide institutional frameworks and bridge the digital divide in the following countries: **Bahrain, Brunei Darussalam, Chad, Costa Rica, Ethiopia, Haiti, Morocco, Qatar, Republic of Korea, Saudi Arabia** and the **United Arab Emirates**. These advisory missions have empowered Member States to strengthen their respective strategies, policies, content development, citizen engagement, understanding of e-government and use of social networking tools, while building their capacities at the national and regional level.

In further support of Member States' efforts to improve performance in the areas of public administration, development management and e-governance, UNDESA continues to work on

development of the *United Nations Public Administration Country Studies* (UNPACS), in order to underline the importance of public-sector reform initiatives. UNPACS aims to provide easily accessible online information on public-sector institutional development, public-sector human resource management, e-government and mobile government, citizen engagement in managing development, open government data and services, the use of ICT to improve the effectiveness and transparency of public administration, innovative practices for public-sector development, and an Internet-based shared knowledge platform for information sharing and dissemination.

In 2012, UNDESA and the Inter-Parliamentary Union (IPU) continued to cooperate, through the jointly established *Global Centre for ICT in Parliament*, to strengthen the role of parliaments in advancing the information society and to encourage the use of ICT in legislatures to promote transparency, openness and accountability.

In cooperation with the International Federation of Library Associations (IFLA), the Global Centre for ICT in Parliament organized training for librarians of Arab parliaments on strategic management of ICT in libraries. At the meeting, hosted in August by the Parliament of **Finland**, the *ICT in Parliamentary Libraries* handbook was officially launched. Several other publications focusing on core areas of parliamentary work were prepared during the year to provide guidance and references to parliaments on ICT use: the *Technology Options for Capturing and Reporting Parliamentary Proceedings* handbook, the *ICT Strategic Planning in Parliament* manual and, with leadership from IPU and the Association of Secretaries-General of Parliaments (ASGP), the *Social Media Guidelines for Parliament*.

In September, the Centre published the third edition of the *World e-Parliament Report (2012)*, which documents the efforts of legislatures to use ICT to support their constitutional functions. The report's findings are based on data received from 177 legislatures representing 126 countries that responded to the Global Survey on ICT in Parliament. The report was launched at the World e-Parliament Conference 2012, hosted by the Chamber of Deputies of **Italy** in Rome, where just under 500 delegates from 120 parliamentary delegations exchanged views and practices on several policy and technical aspects related to openness and transparency through ICT. The Centre's high-level Board met on this occasion, and in its final statement underlined the key role the Centre plays within the parliamentary community.

No fewer than 20 advisory missions coordinated by the Centre were conducted during the year to different parliaments of the **Caribbean** and **Africa** (Southern African Development Community (SADC) countries) to support ICT strategic planning exercises. A total of 12 technologically-advanced parliaments provided expertise at no cost through the Centre to support peer institutions.

In May 2012, during the WSIS Forum, IPU participated in the seventh *Facilitation Meeting on implementing the WSIS outcomes*. Under Action Line C1, IPU acted as facilitator of the Subgroup on *ICT and Parliaments* and reported on the activities of the Global Centre for ICT in Parliament for 2011.¹²

A number of examples of activities highlighting the role of stakeholders in the promotion of ICTs for development are reported below.

C1.1 National e-strategies

In **Oman**, the *Digital Strategy* – known as *e.Oman* – is a vision for the country's transformation into a new area. The e.Oman strategy was developed as comprehensive national strategy outlining the vision, objectives and targets for developing Omani digital society, in cooperation with stakeholders, on the basis of inputs from citizens, and in line with the WSIS Plan of Action. It sets a

long-term direction founded on six pillars: Society and human capital development; Enhance e-government and e-services; Enable ICT industry development; Governance, standards and regulations; National infrastructure development; and Promotion and awareness. Key performance indicators (KPIs) have been defined and translated into annual milestones achievable through an integrated portfolio of national programmes and projects, with annual measurement and improvement. Currently, more than 70 government entities are following the e.Oman strategy.



In **Uruguay**, the Agency for e-Government and Information Society has developed the *Digital Agenda Uruguay* (Uruguay's digital policy), which represents a sustained and continuous effort deployed over time through several versions: 2007-2008, 2008-2010 and 2011-2015. Rather than being a government plan, the digital agenda is above all a multistakeholder commitment. Furthermore, more than a mere technology plan, it is a social inclusion agenda. Highlights of the projects include:

¹² UNDESA contribution.

- Regional leader in ICT access
- Outstanding plans offered by government, such as 1 GB broadband with no monthly fee
- Uruguay the first country where all public school students have their own PC
- PC access gap between lower-income and upper-income households cut to only 1 per cent
- No child should need to walk more than 300m from home to access the Internet
- Main software exporter per capita
- Uruguay the first country with 100 per cent livestock traceability.

The *Lithuanian Information Society Development Programme 2011–2019* was approved by the government of **Lithuania** on 16 March, 2011. It was developed as a horizontal planning document, linking objectives with institutions implementing various tasks. The strategic objectives of the programme are to improve both quality of life for Lithuanian residents and the business environment for companies, by exploiting the opportunities created by ICTs, and to increase the proportion of Internet users in Lithuania to at least 85 per cent by the year 2019. The information society must be developed on the basis of the following priorities: enhance Lithuanian residents' ability to use ICTs; develop electronic content and services, and promote their usage; development the ICT infrastructure.

In **Qatar**, the Supreme Council of Information and Communication Technology (ictQATAR) released its *2011 Annual Report*, which highlights the many achievements of the past year, showing progress towards attainment of the goals outlined in Qatar's National *ICT Strategy 2015*, for example how ictQATAR has striven to improve connectivity, boost human capacity, foster economic development and modernize the sector's regulatory and legal framework. The report is organized around the strategic goals, which are addressed through a total of 11 different programmes comprising nearly 60 unique projects. Some of the highlights of the 2011 Annual Report include:

- Qatar moved one step closer to an advanced, next-generation infrastructure through the establishment of the *Qatar National Broadband Network* (Q.NBN), which is moving forward with the roll-out of a nationwide broadband fibre-to-the-home (FTTH) network.
- Public- and private-sector investment in the ICT market continued to grow.
- Telecom competition continued to progress, with consumers reaping the benefits.
- ictQATAR introduced periodic *strategic sector review reports*, the first assessments of the current state of competition of their kind, and *quality-of-service* (QoS) reports from service providers that indicate each operator's level of compliance with its respective QoS obligations.
- ictQATAR established a new *Consumer Affairs Department* with the role of ensuring that the rights of consumers are protected, and also introduced a forward-looking radio-spectrum policy.
- The *Qatar Domains Registry* (QDR) was launched, which equips Qatar with specific domain names in both Arabic and Latin scripts, thereby helping to foster a more widespread Arabic digital presence.
- Government continued to lead the way in driving ICT usage: public use of *i-Gov services* increased by 14 per cent in 2011, to 2.5 million transactions, including for services such as obtaining a passport or paying parking tickets.

In **Austria**, the Federal Chancellery has initiated an *Information society for everyone* programme, encompassing a wide range of strategic elements for creating an inclusive information society, in which digital technologies and their application are regarded as tools for achieving greater equality of opportunity, personal freedom and solidarity between all members of society.

In **Mexico**, the Ministry of Communications and Transport and the Department of Coordination of the Information Society and Knowledge launched the *Compuapoyo* programme, whose main aim is to narrow the digital divide in Mexico in the segment of the population with lower incomes, and thereby reduce discrepancies in access and use of ICTs.

In **Latvia**, on 20 December, 2012 the Parliament approved a national strategy document – the *National Development Plan 2014-2020*, which constitutes the main instrument for medium-term development planning, and is a component of the *Latvia 2030* sustainable development strategy. The plan is intended to present the government's vision of the country's development in order to ensure predictability over time in various national sectors and businesses. It sets three priorities: economic growth, residents' security, and territories supporting growth. The pursuit of these priorities is expected to result in an economic breakthrough and, as a result, higher quality of life in Latvia. For each of the priorities, key activities, goals, funding requirements and sources of funding are identified. The plan pinpoints activities in the public ICT sector relating to digital content, e-services, infrastructure and e-skills.

Likewise in **Latvia**, the Ministry of Environmental Protection and Regional Development has developed a *public ICT management organizational model*. The implementation concept will frame public ICT strategies, principles and scenarios that will ensure strategic coordination of public ICT development and maintenance through partly centralized management: competence and responsibility in ICT management will be shared between the national and sector levels. This optimal ICT management model identifies the main parties involved: the public ICT organization, sector ICT

organizations, hybrid ICT organizations, public ICT manager forum, sector ICT management councils. To achieve the aim of optimal ICT management, both public- and private-sector resources will be used, providing effective cooperation focusing on benefits for the public and the creation and maintenance of convenient and user-friendly e-government solutions. The concept was approved by Cabinet of Ministers on 15 January, 2013.

In **Kazakhstan**, the Ministry of Transport and Communications has developed the *Information Kazakhstan – 2020* programme, designed to create the conditions for transforming Kazakhstan into an information society by embedding ICT in all fields of economic activity and human life. The programme also foresees the active utilization of ICT processes in all spheres of public services.

In **Azerbaijan**, the Ministry of Communications and Information Technologies has drafted the *National Strategy* with the following key objectives:

- create and develop the legislative basis for the information society;
- establish an enabling environment for citizens and social institutions to obtain, disseminate and use information;
- conduct effective, transparent and controllable state administration and local self-administration, including e-government, e-forms and the development of e-commerce;
- enhance the country's economic, social and intellectual potential, create a competitive economy, and create and develop an information and knowledge market;
- develop the production of national software products and other ICT products (ICT industry);
- eliminate the "digital divide" in the country.

In the **United Arab Emirates**, in line with the government's vision and strategy, the Telecommunication Regulatory Authority (TRA) has developed the *National Emergency Plan for the Telecom Sector*. The plan identifies the various

threats liable to affect the telecom sector, such as loss of mains electricity, permanent or long-term absence of staff, loss of mains water and sewerage, loss of supply of fuel or oil, disruption to land, sea or air transport, infrastructure failure, telecom system failure, software failure, electronic interference, cyberthreats and embargoes. It also sets the UAE telecom sector's priorities in an emergency situation, which are geared towards the provision of telecom services to priority user groups, and identifies the commercial entities that have contracts in place with licensees to ensure a minimum level of service is maintained. It lays down the requirements to protect priority telecom services for the priority user groups identified by TRA.

Indonesia has established *national human competency standards* for ICT, as a reference to be used by the National Profession Certification Body in issuing certificates for human capacity standards, in line with the national *ICT Roadmap 2010-2020* as reflected in the national *ICT White Paper*. The White Paper contains Indonesia's ICT development strategy, including stages with different development focuses and targets geared to different levels of development and areas. In implementing the national ICT strategy, Indonesia identifies ten national flagship areas, namely: single national window, e-learning, national backbone fibre-optic project, software development, e-procurement, e-budgeting, single identity number, e-health, e-cultural heritage and e-agriculture.

In **Bulgaria**, the Ministry of Transport, Information Technology and Communications has drawn up *Digital Bulgaria 2015*. The aim of this national programme is to define the parameters (key actions, responsible institutions, deadlines, budget) for development of the information society in Bulgaria, and to support implementation by 2015 of the EU guidelines and tasks formulated in the *Digital Agenda for Europe* (DAE), bearing in mind the social and economic potential of ICT and the Internet. The document provides legal, technological, economic and social guidelines for development of the information society in Bulgaria, recognizing that ICTs continue to be the driving force for improving

quality of life for all citizens. The programme promotes innovation, and reflects the new role of the Internet as a critical infrastructure and an essential medium for supporting a rich mix of economic and social activity.

C1.2 ICT for development in international and regional organizations

The Regional Commonwealth in the field of Communications (RCC) has instituted *regional monitoring of infocommunication development* (RMICD), as a tool for assessing the economic efficiency of integration processes in countries, strategy effectiveness and informatization policy. RMICD offers solutions for such tasks as evaluating status, estimating the potential of ICT4D at the regional and international level, grouping countries by socio-economic, educational and demographic indicators at the regional level and making comparisons with international composite ICT4D indicators.

In December 2012, the United Nations Conference for Trade and Development (UNCTAD) published the *Information Economy Report 2012: The Software Industry and Developing Countries*. The report emphasizes that ICT trends are creating better opportunities for developing countries to build indigenous software capabilities. It makes a strong case for the social and economic benefits to be gained from leveraging software skills in the domestic market – in both the private and public sectors. The report comprises the following chapters: 1) Software for development; 2) Software trends; 3) Software market orientation: selected cases 4) The role of free and open-source software; 5) Policies to enable national software systems; and 6) Conclusions and policy recommendations.¹³

UNCTAD has also published a new study on Mobile Money for Business Development in the East African Community: A Comparative Study of Existing Platforms and Regulations, which looks at how the use of mobile phones for money transfers, payments and more sophisticated financial activities such as credit, savings and

¹³ UNCTAD contribution

insurance can benefit from region-wide rules to coordinate and harmonize laws and regulations. The study calls for more harmonization and collaboration at the EAC level in regulating mobile money so that intraregional use of the technology can be expanded – a step that would boost regional economic growth.¹⁴

During 2012, UNCTAD contributed to inter-agency coordination of the United Nations Group on the Information Society (UNGIS), serving part of the year as one of its vice-chairs and part of the year as the chair. In this capacity, together with other member organizations of UNGIS, UNCTAD co-organized a side event at the Rio+20 Conference on Sustainable Development.¹⁵

C1.3 Other examples

Engagement and motivation of stakeholders is crucial for development of the information society.

In **Latvia**, the Ministry of Environmental Protection and Regional Development has developed a legitimate NGO-led *social participation platform* - <http://manabalss.lv>. In the platform, a voter's identity is approved by i-bank authentication tools. An initiative can be submitted and signed by any citizen of the Republic of Latvia of at least 16 years of age, after authorization through a state-registered i-bank. Every initiative that gets at least 10 000 signatures and complies with the Parliament's legal criteria is sent to Parliament for consideration. To sign the initiative, a person is connected with the i-bank, where their identity is ascertained. After authentication, the i-bank system sends the person's name, surname and identity number to the platform, where personal data is saved in a secure database, and the person can vote once only for each initiative. After signing the initiative, only the person's name and surname is available to public. At the Parliament's request, the database of signatories is compared with the register of citizens, thus verifying the authenticity of those signing.

In **Saudi Arabia**, the *Safeer* programme was created to address the critical need to support Saudi students and cultural missions around the world. The effort was designed to further develop the country's commitment to gender equality, citizens' education and empowerment and social justice among citizens in the information society. The Kingdom of Saudi Arabia has invested a significant budget in a massive scholarship programme to advance citizens' education and bring higher levels of knowledge, research and openness on the world through an integrated online system. The Safeer system gives priority to disabled students.

In the **Russian Federation**, the Rostelecom open joint-stock company assisted in the organization of the presidential elections through *online video monitoring*. In accordance with the Russian government's instructions, Rostelecom deployed and ensured the operation of an unprecedented video system for online monitoring of the presidential elections held on 4 March, 2012. The system covered 97 per cent of polling stations throughout Russia, making the elections more transparent. The preparation and deployment phase took only 79 days. No fewer than 91 745 hardware and software elements were deployed, and over 180 000 web cameras were used for simultaneous broadcasting and video recording. The voting procedure was watched by 3.5 million people at www.webvybory2012.ru, and 7.9 million people watched the broadcasts. In addition, the infrastructure is used to fulfil a wide range of social functions.

In **Oman**, international *Girls in ICT Day* was celebrated on 2 May, 2012 at the COMEX 2012 event, which hosted 210 girls who were able to explore the various ICT technologies exhibited, take part in an ICT information competition and attend a workshop about information security.

¹⁴ UNCTAD contribution

¹⁵ UNCTAD contribution

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

As stated in the Geneva Plan of Action, ICT infrastructure plays an important role in achieving the WSIS objectives. The construction and development of essential infrastructure within countries continue to contribute to progress towards WSIS targets such as digital inclusion, and encourage the creation of universal, sustainable and affordable access to ICTs for all. This chapter illustrates some of the initiatives relevant to this field.

The International Telecommunication Union (ITU), as the sole facilitator for WSIS Action Line C2, organized the seventh WSIS Action Line C2 *Facilitation Meeting* in Geneva on 14 May 2012, as an integral part of the WSIS Forum 2012. On the basis of proposals received during the WSIS multistakeholder open consultation process, the meeting was devoted to *Innovative technologies and new opportunities providing access to ICT – Transition from analogue to digital terrestrial TV and the digital dividend*.

In 2012, ITU organized two *Connect Summits* aimed at mobilizing additional funds and new partnerships to attain the WSIS goals, including the development of infrastructure.

The *Connect Arab Summit* (5-7 March 2012) identified market opportunities worth over USD 46 billion for new projects designed to enhance ICT access, applications and services throughout the **Arab region**. The Summit attracted some 540 participants from 26 countries, including seven Heads of State or Government and 26 ministers. (<http://www.itu.int/ITU-D/connect/arabstates/>)

The *Connect Americas Summit* (17-19 July 2012) attracted 654 participants from 36 countries, including seven Heads of State or Government

and 12 ministers. Projects valued at USD 53.4 billion were proposed by stakeholders, helping to mobilize the human, financial and technical resources needed to connect the unconnected and to strengthen the role of ICT as the engine of economic prosperity, sustainable development and poverty reduction in the **Americas region**. (<http://www.itu.int/ITU-D/connect/americas/index.asp>)

The *Connect a School, Connect a Community* initiative, within the framework of the Connect the World initiative, aims to improve access to broadband in schools and enable schools to serve as community ICT centres. ITU is connecting schools in **Comoros, Lesotho, Sri Lanka, Sierra Leone and Tanzania**, in cooperation with **Switzerland**, and is equipping and connecting schools in **Tanzania, Gambia and Niger**, in cooperation with **France**. Also, a project in this field was implemented in **Jamaica** and is now being replicated in **Suriname**.

ITU has been assisting countries in developing their own *wireless broadband master plans*, which will eventually provide access to broadband-supported services and applications at rates that are affordable and comparable to those in developed countries. In cooperation with the **Republic of Korea**, it has helped to draw up wireless broadband master plans in **Myanmar, Samoa, Nepal and Viet Nam**, and is currently preparing the national broadband policies for **Bhutan, Bangladesh, Pakistan, Papua New Guinea, Cambodia and Indonesia**. ITU has also assisted **Fiji**, and will provide similar assistance to additional countries in the **Africa, Americas and Asia-Pacific** regions.

In cooperation with the Craig and Susan McCaw Foundation, ITU is implementing broadband wireless networks and developing ICT applications to provide *free or low-cost digital access* for schools and hospitals and underserved populations in rural and remote areas in selected countries. The broadband wireless network is now operational in **Burundi**, and development of mobile WiMax is ongoing in **Djibouti** and of broadband wireless **Burkina Faso**. In addition, ITU is focusing on smart villages, smart schools, smart hospitals, and so forth, in **Rwanda**.

In cooperation with the **Republic of Korea** and **Japan**, ITU is continuously updating *guidelines on digital broadcasting* to take account of new developments in the area of DTTB and MTV implementation and convergence, while adding sections on IPTV, satellite TV, etc. Also, assistance has been provided to **Indonesia, Myanmar, Philippines, Papua New Guinea, Fiji, Thailand, Gabon, Laos, Viet Nam, Vanuatu** and **Guyana**, in cooperation with the **Republic of Korea**, and to **Micronesia, Mozambique, Congo** and **Bangladesh**, in cooperation with **Japan**, and is still ongoing for *roadmaps for the transition from analogue to digital terrestrial television broadcasting* and for the introduction of *mobile television*. (<http://www.itu.int/en/ITU-D/Technology/Pages/Broadcasting.aspx>)

ITU has continued to organize ITU *regional development forums*, a platform where decision-makers from ITU Member States, Sector Members and various other partners meet to review, discuss and recommend priority areas for telecommunication/ICT development programmes and initiatives. In 2012, ITU held six regional development forums, one for each region.

The World Telecommunication Development Conference (Hyderabad, 2010) (WTDC-10) approved Resolution 47 (Rev. Hyderabad, 2010), on enhancement of knowledge and effective application of ITU Recommendations in developing countries, including conformance and interoperability (C&I) testing of systems manufactured on the basis of ITU Recommendations. ITU has developed a set of guidelines on building C&I testing labs for

equipment and systems in developing countries and on the development, implementation and management of mutual recognition agreements (MRAs). The Union is also conducting C&I assessment studies with the aim of proposing unified C&I regimes based on the establishment of MRAs and/or the building of labs, as appropriate. In addition, ITU has organized training activities on C&I, and five regional forums on C&I issues.

(<http://www.itu.int/en/ITU-D/Technology/Pages/ConformanceandInteroperability.aspx>)¹⁶

C2.1 Infrastructure and broadband

In **Rwanda**, within the framework of the country's strategy and plan, the Ministry of Youth and ICT has established the *National Broadband Communications Network*, comprising a national fibre backbone, a Kigali metropolitan fibre network, an Internet exchange point (RINEX), a virtual landing point and the acquisition of long-term redundant international broadband capacity using Tanzanian and Ugandan routes (slashing the Internet retail price by more than 80 per cent). Coupled with VSAT delivery for remote underserved rural locations (directly supported by the Universal Service Fund), this communications network has increased access to information resources tremendously, and has optimized traffic usage by connecting all major universities, provincial/district hospitals, schools and telecentres.

In **Mexico**, the Secretariat of Communications and Transportation is providing *broadband access* for everyone, in public sites. The Mexican Government is mainstreaming ICTs by providing broadband access for public buildings through an in-house innovative model that indicates which is the most cost-effective technology option according to the community's dispersion and remoteness. In 2012, using this model, the government contracted broadband Internet services for 34 000 public buildings in both rural and urban communities. Through demand aggregation, the government has achieved considerable savings as well as international quality-of-service standards. Such a large-scale

¹⁶ ITU contribution

connectivity effort in such a short period of time was previously unheard of in the region.

In **Colombia**, the National Spectrum Agency has implemented the *Spectrum strategic planning* project, which seeks to determine policies, guidelines and strategies for efficient use of the spectrum, with a social impact in the medium and long term. The project entails developing a master plan for spectrum management, defining mechanisms to stimulate the efficient use of spectrum and flexible spectrum management, and publishing a spectrum management manual.



In **Lithuania**, the *Rural Area Information Technology Network* (RAIN) has been developed in order to enable residents, the State and local governments and business organizations to access broadband Internet services in the country's rural areas. The project will entail the use of 5 500 km of optical cable lines, the establishment of access infrastructure and access points (3 000 sets) as well as infrastructure aggregation (50 sets), and the installation of one set of network and service management systems. Upon its completion, 950 small towns and villages will be connected to the broadband network thus created, and a further 23.7 per cent of the population will have the opportunity to use broadband services by comparison with 2005.

In **Ukraine**, the Institute of Telecommunications and Global Information Space of the National Academy of Sciences (NAS) has developed a set of methods to determine, on the basis of simulations

of the construction or modernization of the telecommunication network, the most promising technologies for the construction of *next-generation networks*, in order to identify the most promising features of construction technologies from both the technical and economic standpoints. The methods are implemented as web services in which the designer can enter information on current (or planned) architecture and equipment and receive a full report detailing the most appropriate technology and the construction cost and time. The common network of general educational institutions of Ukraine (Open World project) and many other nationwide networks have been designed using this set of methods.

In **Azerbaijan**, the Azercosmos open joint-stock company has launched the first telecommunication satellite in Azerbaijan and indeed the Caucasus (*AzerSat-1*). Azerbaijan's current growth rate calls for diversification of the economy. Seeing the genuine prospects for ICT-related growth, the government is carrying out projects that contribute to regional information transmission, and is collaborating with other nations to produce solutions for local/global challenges. In order to address these challenges, Azerbaijan decided to create its own space industry, launching its first satellite into geostationary orbit in early February 2013. The Azerbaijani satellite covers a broad geographic area and has been designed to offer digital broadcasting services, Internet access and data transmission, as well as the creation of multiservice VSAT networks and support for government communication.

In **Morocco**, the National Telecommunications Regulatory Agency (ANRT) has introduced a *Programme for Generalized Access to Telecommunications* (PACTE). This universal service programme aims to ensure access to telecommunication services for the entire Moroccan population and, more specifically, to provide Internet and telephony to 9 275 localities identified as dead zones. Operators involved in this programme are allowed to use different technologies such as GSM, EDGE, VSAT and 3G. The programme was adopted in November 2006 by the Universal Service Management Committee (CGSUT), and, by the end of 2012, a total of 8 046 localities had been covered.

General Satellite from the **Russian Federation** has undertaken a *Digital Terrestrial TV project*. The main goal of their joint venture is to launch a digital terrestrial pay television service in **Cambodia**. This platform will be able to cover 70 per cent of the population in the Kingdom of Cambodia with digital wireless (cable-free) television. ONE TV will bring about 60 Khmer and international digital TV channels to almost every Cambodian household, providing people with an affordable and reliable source of information, education and entertainment.



In **Brazil**, the National Association for Digital Inclusion (ANID) has developed *broadband in remote regions of Brazil*. ANID's main objective is digital and social inclusion in Brazil. Since 2007, a pioneer backbone, covering the semi-arid region and Amazon forest, among other remote regions of the country, has been rolled out. With network expansion, ANID has installed traffic exchange points, like the one in Campina Grande, which is the first in the semi-arid part of Brazil. Implementing a culture of environmental preservation in the installation of its 78 telecommunication towers, it makes intensive use of alternative energy sources, where necessary employing draft animals and small boats to transport materials, in order to keep the native vegetation intact by avoiding the opening of new roads for motorized vehicles.

In **Mauritius**, the Ministry of Information and Communication Technology has been *upgrading network infrastructure*. The Government of Mauritius is undertaking many initiatives to improve the network infrastructure in both Mauritius and Rodrigues, in line with the government's vision of turning the country into a

cyberisland. The initiatives include upgrading the connection of some ministries and departments on the government intranet system to a gigabit passive optical network (GPON), connecting secondary schools to high-speed fibre-optic cables in order to transform Internet in schools, and connecting Rodrigues by an undersea fibre-optic cable.

In the **United Arab Emirates**, the Telecommunication Regulatory Authority has launched the *UAE-IX project*, which is a neutral Internet traffic exchange platform that interconnects global networks and, above all, network operators and content providers in the Gulf Cooperation Council (GCC) region. UAE-IX is built on a fully redundant switching platform located in a neutral secure datacentre in Dubai. The new IX will reduce latency times by up to 80 per cent, and costs by up to 70 per cent, for GCC providers. UAE-IX delivers a readily available local alternative for regional traffic exchange, localizing Internet content. It will dramatically improve routing efficiency and the quality of the Internet experience for end users.

In **Mexico**, the Secretariat of Communications and Transportation is transforming the country's telecommunications through a *fibre-optic backbone network*. Recognizing that Mexico faces a great challenge in delivering universal broadband access, the government has launched a project that will transform the country's telecommunication outlook by extending its current long-haul fibre-optic backbone infrastructure from 22 000 km to 57 000 km so as to bring broadband within a 40 km radius of 98 per cent of the population. This will enable more than 1 500 last-mile operators, including cable operators, to become broadband Internet service providers. Government investment in this project will amount to several hundred million US dollars over six years.

In **Bulgaria**, the Ministry of Transport, Information Technology and Communications has launched the *National Operational Plan* for the implementation of the *national broadband strategy*. The aim of the National Strategy for Broadband Development in the Republic of Bulgaria is to present a unified approach for the development of broadband in order to achieve long-term strategic results. The current, updated

strategy reflects the systematic goals set in the EU's new "Europe 2020" and "Digital Agenda for Europe" (DAE) programme documents. The national operational plan contains measures for the successful implementation of the strategy, setting new goals for the next (2014-2020) programming period. Special emphasis is placed on the development of next-generation access (NGA) networks for achieving the DAE goals.

In **Oman**, the Telecommunications Regulatory Authority (TRA) is developing a comprehensive roadmap to promote the widespread use of broadband and thereby accelerate achievement of the government's Digital Oman (eOman) goals. On the anvil is a new *National Broadband Strategy* that aims to ensure, among other things, that every home, business and institution has access to affordable high-speed broadband Internet services. Besides promoting across-the-board usage of high-speed broadband, the national strategy will also seek to open up broadband Internet to all service providers, content providers and application providers. A further key objective of the strategy is to ensure the availability of broadband access via multiple technologies and access mechanisms. Promoting greater competition across the telecom industry is another vital component. (see: www.trc.gov.om)

In **Latvia**, on 7 December 2012, the Cabinet of Ministers approved the *Next Generation Access Network (NGAN) Development 2013-2020* concept, which provides for significantly enhanced broadband availability through a step change in speed and quality of service. The concept will help to achieve the aim of Europe's "Europe 2020" growth strategy for enhancing Europeans' access to fast and ultrafast Internet. Furthermore, in view of the remarkable data-transmission speed it offers, NGAN is a major factor for further economic development and improvement of quality of life, and, as it uses a single infrastructure, its implementation will foster the use of different

services and make an increasing number of public and non-public services more readily available in a digital environment.

The *National Broadband Policy 2012-2020* (NBP2012) has been launched in **Mauritius**, outlining the overall policy objectives and targets for a broadband i-Mauritius and spelling out the strategies to be adopted. It also sets out the methodology to ensure adherence to a logical sequence, namely: promotion, oversight and universalization - which is the accepted and proven roadmap for successful broadband development. The policy objectives of NBP2012 are to: (a) achieve robust competition and, as a result, maximize consumer welfare, innovation and investment; (b) ensure efficient allocation and management of scarce resources, such as spectrum, facilities (e.g. poles) and rights of way, so as to encourage network upgrades and competitive entry; (c) reform current universal service mechanisms to support universal deployment of broadband even in high-cost areas and ensure that Mauritians with relatively low incomes can afford broadband; (d) support efforts to boost the take-up and utilization of broadband; and (e) facilitate reform of laws, policies, standards and incentives to maximize the benefits of broadband in sectors where government has a significant influence, such as public education, healthcare and government operations.

In **Bulgaria**, the Executive Agency for Electronic Communication Networks and Information Systems is developing *high-speed broadband* by building critical, secure, safe and reliable public ICT infrastructure for broadband next-generation access (NGA) networks for e-governance, and by creating conditions for the development of broadband services for citizens and businesses in economically backward and remote areas in Bulgaria.

In **Pakistan**, the Universal Service Fund is implementing several programmes. The aim of the *Rural telecom programme* is to provide basic telephone and data services in several remote areas of Pakistan. The *Broadband programme* aims to provide broadband connections to underprivileged areas of Pakistan. The purpose of the *Optical fibre programme* is to establish a stable and reliable fibre-optic network.

Also in **Pakistan**, the Electronic Government Directorate under the Ministry of Information Technology has launched an *economic development mapping* initiative, establishing a GIS-based data infrastructure for development activities at the federal and provincial levels. This will provide planners with an accurate spatial view of the country's economic landscape, for such purposes as road and rail network management and the planning of development projects. The initial pilot implementation in five districts is under way, and a GIS base application has been developed. The survey of one district - Kotli, AJK – has been completed.

In **Japan**, the Ministry of Internal Affairs and Communications (MIC) has engaged in *promoting the dissemination of broadband*. In order to comprehensively verify the degree of achievement of indicators on the spread of broadband and the status of compliance with fair-competition requirements, a *Fair-competition review system for promoting broadband dissemination* was established. The system began operating in the 2012 financial year, and the required policies are being executed, such as the revision of other related laws and guidelines.

C2.2 ICT for all and connectivity for public access institutions

In **Nigeria**, Techno-Science Limited has introduced a *SchoolTool Nigeria* project, which harnesses the power of data (information) availability, accessibility and visibility at all levels of education by providing access to ICT tools, as well as strengthening the capacities of the education workforce to improve education administration and management at all levels.

In **Argentina**, the University of la Punta has introduced the *All children online* initiative, which is a strategic effort to provide computers to all elementary school pupils. The objectives are to generalize the use of ICT, reduce the digital divide and improve the quality of life of citizens. *Digital public schools* (DPS) were created as an innovative learning system covering all levels of schooling

and contributing to the integration of indigenous peoples' communities (Huarpes, Ranqueles) and remote citizens in rural areas. To date, more than 70 000 laptops have been delivered (10 000 in 2013) and 71 digital public schools installed.



In **Moldova**, the Alliance for access to information and community training centres of Moldova has launched an initiative to give people from rural areas in Moldova *free Internet access*. The project aims to build free access to the Internet through WiFi areas in rural areas of the country. *Model WiFi networks* have been set up in 16 rural areas in schools, libraries, telecentres, town halls, parks and even whole villages. As a result, people are now able to use the Internet not just in front of computers provided by telecentres but also in public spaces. Schoolteachers can use computers and experiment with different aspects of wireless networks. Young people can share information and learn to use the Internet together. Over 20 000 people are expected to avail themselves of this facility in the future.

In **Qatar**, the Supreme Council of ICT (ictQATAR) has established *iParks Qatar* as part of ictQATAR's commitment to creating an advanced information-based society and a high-speed high-capacity ICT infrastructure. The iParks project has increased Internet use and access to information by providing free wireless access in public parks. The project, which was executed jointly with local municipalities, offers 8 Mbit/s connection in seven parks – three in Doha and four in underserved rural communities, with more being planned each year. For many users benefiting from the free service, this is the only way for them to get connected. The number of users doubled during 2012, exceeding 59 000 per month in December. Support is provided over a free hotline.

In **Saudi Arabia**, the Ministry of Education (MoE) has initiated a *Schools connectivity* project as part of a large nationwide MoE connectivity project. The aim is to connect more than 3 000 remote schools which have no Internet service, using VSAT, and enhance/upgrade the available connectivity in more than 19 000 schools. This project is strategic and extremely important in terms of ensuring that all schools in the Kingdom are linked to MoE via the Internet, thereby enabling them to access and use the services provided by MoE's major centralized systems, such as FARIS, NOOR and EduMap.

In **Indonesia**, the Ministry of Communication and Information Technology has established *fixed and mobile community access points* (CAP) to provide Internet service in rural areas. In 2007, after successful prototyping and piloting of 277 CAPs to enable rural communities to use ICTs, Indonesia started massive deployment of 5 748 CAPs in subdistricts. To intensify their use, a model mobile community access point (MCAP) has also been developed, and 1 907 MCAPs are serving economic and social activity centres, schools and health services in rural areas. To meet the challenge of maintaining the service, instead of owning the asset the government rents ICT facilities from operators, financed by the universal service obligation (USO) fund from ICT industry revenue.

In **Mauritius**, the Ministry of Information and Communication Technology has introduced the *WiFi Mauritius* programme. With a view to bringing Internet access closer to the community,

a wireless fidelity (WiFi) network is being set up at selected locations in Mauritius and Rodrigues. WiFi networks have been installed at the headquarters of the five municipal councils, the four district councils and an administrative building in Rodrigues. Users who have a laptop equipped with wireless access features within the coverage area of the WiFi network can have access to the Internet. The WiFi network will be extended to other areas in order to bridge the digital divide through a network in schools, public buildings and government offices.

In **Colombia**, the Ministry of Information and Communication Technology (Compartel) has introduced a *universal access to ICT* project, the purpose of which is to achieve the goals set in the national e-strategy (Plan Vive Digital), including in terms of infrastructure (expanding the coverage of fibre-optic transport networks to attain a rate of 95 per cent of municipalities connected to the highway), telecentre facilities (installing one community access point in each rural town over 100 people beyond the edge of market coverage; and installing 800 techno-centres in urban areas to benefit the lowest income groups, and connectivity services for public institutions (schools, health centres, libraries).



In **Egypt**, *technical schools* have been modernized using ICT through a public-private partnership, the intention being to create a complete ICT-enabled education environment for technical education, targeting ten technical schools with a five-year programme, contributing to transforming them into national or international quality entities through ICT infrastructure; provide professional development in specialized ICT applications for teachers and students; enhance vocational skills;

develop game-based and interactive drama-based learning content; install and run virtual labs; establish a digital technical video channel in Arabic; set up a community portal; and promote the VCLC (vocational community learning centre) as a sustainability model.

In **Mauritius**, the Ministry of Information and Communication Technology is implementing a *school IT programme*. The Government of Mauritius will distribute tablet computers to Form IV students and educators in secondary schools in Mauritius and Rodrigues. The use of such technology will induce a paradigm shift in the teaching and learning process at secondary level and will improve students' learning by providing them with anytime, anywhere opportunities to become independent learners. The tablets will be loaded with relevant content and have access to Internet resources for enhanced teacher-student interaction. The expected outcomes are improved student pass rates and an increase in the completion rate of the first cycle of secondary education.

C2.3 Adequate and affordable ICT equipment and services

In **Switzerland**, Apprenticeship without borders has launched the *SolarNet Africa project*, which seeks to promote the dissemination of computer knowledge in schools of the target countries - **Guinea, Senegal and Togo**. The project consists in the establishment of computer rooms with Internet access and two solar panels, enabling the young pupils to access new technologies and thereby reducing the digital divide in Africa. The rooms will be used for digital training.

In **Uganda**, the *Log'el Project* is upscaling women-driven community-based solar phone-charging centres in Uganda. The project aims to enable more rural communities to access and enjoy a continuous energy supply to their mobile phones, for increased personal, social and business transactions. Specific project objectives are to ensure timely powering of more rural-based mobile phones for continuous and reliable use by their owners/users; increase awareness- raising among more key decision-makers, community

leaders and the public about the valuable role of solar phone-chargers in sustaining timely communication for rural communities; and enhance interaction and networking within rural communities, and between these communities and other stakeholders near and far.

In **Oman**, over 3 000 students in seven schools across Al Batinah South Governorate will become the beneficiaries of *improved learning methods supported by the use of IT*. This project will enable the procurement of 49 digital microscopes, seven Internet routers, 52 laptops and some 14 interactive boards. The equipment will be deployed in science laboratories at the seven schools, providing students with access to facilities that will enable them to understand better the often abstract, yet interesting, scientific theories and concepts taught in class.

In **Jordan**, the Jordan Education Initiative (JEI) has established a *one-to-one learning model*. Technology with 3G broadband connectivity ensures 24/7 access to educational resources. In May 2011, JEI launched successful pilots funded by Wireless Reach in two public schools in remote areas of Jordan, targeting 252 beneficiaries, to provide each student and teacher with a netbook and 3G connectivity. The beneficiaries received intensive personal development and continuous support from JEI on modern pedagogies, incorporating twenty-first century skills to foster effective ICT integration in education in order to build a knowledge economy.

In the **Democratic Republic of the Congo**, an organization called *Teach for Congo* aims to bridge the digital divide in the school system. As schools around the world are confronted with new challenges, and affordable access to new ICTs has become a priority for administrators and school sponsors, the *i-school* project offers an innovative business model by providing (fixed and mobile) computing-laboratory kits for primary and secondary schools. I-school computer lab kits are designed to serve different categories of schools. Thanks to the expertise of its engineers, i-school computer labs institutions can serve from 500 to over 3 000 students during a school year.

In the **United Arab Emirates**, the new *smart learning* initiative has transformed classrooms, as well as integrating teachers, students, parents and administrators on a single e-platform, revolutionizing the way in which education is provided in the country's public schools. The smart learning initiative, which forms part of UAE Vision 2021, is being introduced in four stages over a five-year period starting in 2012. The initial phase concluded with 18 schools covering students from Grades 6 to 9. When fully implemented, the initiative will have established new smart classes in all public schools, providing every pupil with a tablet PC enabled by high-speed 4G networks.

Also in **Rwanda**, the Ministry of Youth and ICT has introduced the *One Laptop per child (OLPC)* project, which aims at enhancing education through the introduction of technology in primary schools. It gives primary-school students early access to computer skills while expanding their knowledge on specific subjects like science, mathematics, languages and social sciences through online research or locally-hosted content. This is a fundamental step towards building a knowledge-based economy. Rwanda launched the OLPC programme in June 2008, and the target is to provide all students from Primary 1 to 6 with access to laptops. To date, more than 150 000 laptops have been distributed nationwide.

C2.4 International and regional cooperation

In the **CIS region**, the Regional Commonwealth in the field of Communications (RCC) is laying the foundations for the development and implementation of a regional telecommunication traffic exchange point. The main goals of the initiative are to improve the quality of

telecommunication services, secure international calling line identity presentation (CLIP) information, and increase the reliability and stability of communication networks in the RCC region, as well as creating the conditions for fair competition in the market.

In **Belarus**, the Giprosvyaz open joint-stock company has established an *advisory and methodological centre* to help RCC members during the transition from analogue to digital TV. The centre has been set up to assist RCC member states and neighbouring countries in elaborating and implementing agreed decisions on the transition from analogue to digital broadcasting in accordance with national plans for the introduction of digital broadcasting. This includes border areas between the States of Regions 1 and 3. The completion date is 2015.

In **Belgium**, the *UniversiTIC* programme contributes to the development of digital access in universities in the **Democratic Republic of the Congo** and **Burundi**, covering 100 000 students. The joint programme of cooperation between the Conseil interuniversitaire de la Communauté française - Commission universitaire pour le développement (CIUF-CUD) and the Flemish Interuniversity Council (VLIR) - Secretariat for University Development Cooperation (UOS) aims to provide and improve connectivity by deploying the Internet and intranet facilities and IT services needed to open up the universities and develop ICT-based teaching and scientific practices at the faculties. Beyond the hardware solutions, UniversiTIC contributes to creating sustainable development tools that support education and governance in institutions.

Action Line C3. Access to information and knowledge

In order to provide access to information and knowledge and build an inclusive information society, stakeholders continue to work on numerous activities.

- Enabling everyone, including people with disabilities, to benefit from ICTs by developing policies on e-accessibility
- Bringing ICTs to rural and underserved areas by establishing community centres, digital public libraries and other public access points that provide affordable or free-of-charge access and remove the barriers to bridging the digital divide
- Strengthening and promoting research and development, including research on the information society that facilitates accessibility of ICTs for all, and disadvantaged groups in particular¹⁷
- Raising society's awareness and encouraging the use of different software models, including proprietary, open-source and free software.

The United Nations Educational, Scientific and Cultural Organization (UNESCO) is the lead facilitator of Action Line C3: Access to information and knowledge, and in this capacity performs a range of activities.

- In line with WSIS Action Line C3, all stakeholders should benefit from access to information and knowledge, through the promotion of *accessibility of ICTs and information for all*, including disadvantaged, marginalized and other vulnerable groups.¹⁸
- In response to the WSIS outcomes and in support of the United Nations Convention on the Rights of Persons with Disabilities, UNESCO takes measures that facilitate *access to information and knowledge for persons with disabilities* using ICTs.
- The organization works in close cooperation with national and international partners. In 2012, UNESCO launched a report on *Accessible ICTs and personalized learning for students with disabilities*¹⁹, prepared in collaboration with Microsoft Corporation. It summarizes a multistakeholder debate on the challenges of, and practical solutions for, promoting personalization through technology for students, particularly those with learning difficulties and physical disabilities.²⁰

¹⁸ Geneva Plan of Action, § 3c)

¹⁹ <http://www.unesco.org/new/en/communication-and-information/resources/news-and-in-focus-articles/all-news/news/unesco-launches-report-on-accessible-icts-for-students-with-disabilities/>

²⁰ UNESCO contribution

¹⁷ Geneva Plan of Action, § 10

C3.1 Information access

In **Qatar**, the Supreme Council of Information and Communication Technology (ictQATAR) has taken a major step towards ensuring that all of Qatar experiences the full benefits of today's technology with the introduction of the country's first *e-Accessibility Policy*. This instrument aims to ensure that persons with disabilities in Qatar have equal access to the technologies that can enrich their lives, and covers a range of e-accessibility issues, including websites, telecommunication services, handsets, ATMs, government services, access to assistive technologies and digital content. The policy takes effect immediately and ictQATAR will oversee its implementation across sectors and monitor progress.

The blind and visually impaired community in **Qatar** will have access to the latest assistive ICTs as a result of a *Memorandum of Understanding (MoU)* between the Qatar Social Cultural Centre for the Blind, the Supreme Council of Information and Communication Technology (ictQATAR) and Mada (Qatar Assistive Technology Centre). The agreement will see the establishment of state-of-the-art computer labs, equipped with the latest assistive technology for the visually impaired, at the Qatar Social Cultural Centre in Doha. The equipment to be installed in the computer lab will include Braille output devices, which transfer any content that appears on a computer screen into a series of raised dots which can then be read by touching them, as well as Braille embossers, interactive smart boards, screen readers and new desktop computers.

As part of its efforts to increase the use of Assistive Technology in **Qatar** and the Arabic-speaking world, the Qatar Assistive Technology Centre, Mada, has launched the *Mada Reader/Writer*, a user-friendly software tool that supports the learning needs of people with different disabilities. The product was developed by Mada in conjunction with Sensory Software, a British-based assistive-technology manufacturer. The Mada Reader/Writer was developed as part of a programme to support assistive-technology manufacturers from around the world in providing the tools needed in Arabic.

Bulgaria has also joined and participated in the ITU project on *E-accessibility in Central and Eastern Europe* (Internet and digital television) for blind people and people with visual impairment problems, which is an integral part of the European regional initiatives adopted by Resolution 17 (Hyderabad, 2010) of the ITU World Telecommunication Development Conference, through the collaboration of experts from the Ministry of Transport and Communications and the Ministry of Education and Science. ITU has initiated this project to implement measures enabling the efficient use of information-society services by people with visual impairments, including those related to age. Innovative interactive ICTs designed to help people with special needs to perform daily tasks, including, for example, specialized hardware and software to simulate human reading aloud or alternatively interact with a Braille keyboard, have changed and eased the lives of countless

people of all ages suffering from visual impairments.

In **Egypt**, the Egypt Information and Communication Technologies Trust Fund (ICT-TF) has launched a programme supporting *e-learning for hearing and visually impaired students* in Egypt. The project provides better opportunities for deaf and blind students in the last two grades of primary school. ICT-TF, the Islamic Development Bank (IsDB) and the Ministry of Education have initiated this pilot for four schools, each provided with ICT infrastructure, Internet connectivity and ICT assistive tools such as Braille printers, mp3s and interactive boards. The core aim is to transform formal educational syllabuses in maths, science and IT subjects into interactive e-curricula using multimedia edutainment tools, with a view to future dissemination throughout all similar schools in Egypt and other Arab countries.



In **Algeria**, the Lions Club Association has introduced the *Circle of Light* initiative, which helps the blind and partially sighted. The first step, called “Light to Fingertips”, was taken at the city of Hamma public library, providing blind people with access to around 3 million scanned and audio books. The second step of the initiative, called “Audio Reading Circle”, helps Algerian blind unions to create their own cyberspace, providing them with more than 2 000 audio books. The Circle of Light is a network that will connect all these cyberspaces to the library in Hamma.

In **The Former Yugoslav Republic of Macedonia**, an organization called *Open the Windows* has launched a *project for e-accessible education – Phase 1*. This project introduced, for the first time in the country, assistive information technology in 21 mainstream primary schools, supporting the long-term efforts of the educational authorities to modernize education and make it more inclusive. Modern technologies were used to increase educational opportunities for over 200 students with disabilities and facilitate their active participation in school. Schools were provided with assistive hardware and software, and over 400 teachers were trained in using assistive technology in the instruction process. With the participation of all relevant national and local stakeholders, recommendations were publicized for systematic use of assistive technology across the educational system.



In **Japan**, the Ministry of Internal Affairs and Communications (MIC) has introduced the concept of *barrier-free information*, in order to enable everyone to take advantage of ICT, including older persons and persons with disabilities. MIC is promoting such policies as: support for the development and provision of communications and broadcast services for these groups; establishment and promotion of guidelines to enhance the development and provision of telecommunication equipment and services and web content that are easy to use for such groups. It has established the Research Society for the expansion of broadcasting adapted to persons with sight/hearing impairments in the digital broadcasting age, to be opened in January 2012, with the aim of contributing to policy planning and design to make broadcasting accessible to the visually/hearing impaired.

In **India**, an organization called Willager has introduced a project called *Ability*, the aims of which are to:

- Create multilingual sign-language learning tools on mobile and desktop devices
- Empower the family, friends and neighbours of specially able persons to include them in mainstream society

- Create capacity-building tools for specially able people to include them in society by means of education and unique mobile-based communication tools through institutes, government and public/private partnerships.

In **Uganda**, an organization called Hive Colab has launched a project on *ICT and innovation in Uganda*. With strong emphasis on bridging the digital divide and ICT accessibility, focusing on *women and marginalized societies*, this project aims to extend the applicability of creativity and innovation in ICT in areas of Uganda that have not been adequately reached and where rural creativity has not been exploited. This campaign, which will be implemented through capacity building and creation of innovation in Uganda, is designed to support achievement of the 2015 WSIS goals, in which rural creativity and innovation in sustainable solutions to enhance the use of technology and ICT for solving real-time challenges are considered as a key success factor.

In the **Republic of Korea**, the Asia Pacific Women's Information Network Centre has launched a project on *promoting the livelihood of rural women using ICT*, the objectives of which are to nurture rural women's capability to use ICT for their livelihoods; provide information on rural women's livelihood based on preliminary research; provide ICT training tools tailored to the needs of rural women in ASEAN; improve the ICT knowledge of ICT trainers in ASEAN; and provide a guideline for future applications of the project approach.

In **Malaysia**, the *eBario Knowledge Fair* is organized as a biennial conference and held in the remote and isolated village of Bario, in the central Borneo highlands of Sarawak, Malaysia. The conference showcases the use of ICTs for the development of rural and indigenous peoples. Organized by the eBario Telecentre and conducted in conjunction with the local community, it brings together international researchers, practitioners and policy-makers with the residents of Bario and other minority ethnic communities so that they can jointly assess and propose uses for ICTs for socio-economic development within remote rural communities, especially for indigenous peoples.



In **Colombia**, the Ministry of Information and Communication Technology has introduced a [Ciudadanía Digital \(digital citizenship\)](#) strategy within the Digital Citizenship Programme to promote access, use, dissemination, mass dissemination and adoption of ICT among public servants and the public education sector. The initiative aims to increase the levels of incorporation, adaptation and integration of the technologies required for achieving sustainable growth in Colombia and increasing productivity and competitiveness, while consolidating the quality of the Colombian education system. To date, 300 000 people have registered under the digital citizenship programme, and 700 000 registrations are expected by 2014.



In **Haiti**, the International Federation of the Red Cross (IFRC) is deploying mobile technology for the *Listening to the voice of Haitians* programme, which combines SMS messaging and interactive telephone-line technology to increase the two-way flow of information between Haitians and the Red Cross. SMS messages alerting people to health threats and emergencies are integrated with an interactive telephone line, enabling people to use their mobile phones to access the information they need on such matters as cholera prevention and disaster preparedness, and to

give feedback on Red Cross work through surveys using push-button technology. Launched at the end of May 2012, the interactive telephone line has received more than 750 000 calls.

In **Colombia**, a government *Computers to educate* (CPE) programme has been established, which is responsible for bridging the social and regional divides in Colombia by bringing ICTs to children in rural and remote zones and by training teachers with technology. The aim is to improve the quality of education in public schools. The programme also helps the environment by recycling obsolete computers. According to an impact evaluation, CPE reduces dropout rates, raises standardized test scores and increases the probability of children entering higher education. At the WSIS Forum 2012, it won the prize for best world programme in the category of “Access to information and knowledge”.

C3.2 Research and development

In **Switzerland**, the organization Research4Life has launched programmes focusing on *access to research in the developing world*. Research4Life's *Research in Health* (HINARI), *Research in Agriculture* (AGORA), *Research in the Environment* (OARE) and *Research for Development and Innovation* (ARDI) programmes provide researchers from over 6 000 institutions in over 100 developing countries/territories with free or low-cost access to 9 000 leading journals in health, agriculture, environment and technology. As a public-private partnership between over 200 scientific publishers and Cornell and Yale Universities, with assistance from WHO, FAO, UNEP and WIPO, and Microsoft, Research4Life's goal is to help attain six of the UN's eight Millennium Development Goals by 2015, reducing the scientific knowledge gap between industrialized countries and the developing world.



The Guglielmo Marconi University in **Italy** has introduced a project called *OportUnidad*, which explores the adoption of strategies and channels that embrace the principles of openness and reusability within the context of educational institutions. The project intends to foster the adoption and piloting of open educational practices (OEP) and open educational resources (OER) in **Latin America** as a bottom-up approach to developing a common higher education space. OportUnidad intends to facilitate access to university contents for everyone, thus overcoming the existing disparities in Latin America in the interests of more balanced and equitable socio-economic development in the region.

In the **Islamic Republic of Iran**, the Information Technology Organization (ITO) has conducted an *expert survey on the contribution of the IT industry* to the country's gross domestic product (GDP). The purpose of this research project is to investigate the drivers that push up the IT industry's share of GDP and determine the directions for future orientation of the industry. It is implemented through cooperation between more than 80 experts in four reference groups - academics, policy-makers, technology specialists and service providers. Following a broad survey, four questionnaires were designed and an electronic Delphi software system was developed to gather the views of the experts involved in the projects over the web. The data were discussed in a conference of experts.

In **Poland**, the Office of Electronic Communications has introduced the *telecommunication infrastructure inventory*, which aims to collect data on telecommunication infrastructure, presented on maps and in tabular form. The information collected is available to government and business entities, and serves as an analytical tool for the President of the Office of Electronic Communications, assisting her in determining the development orientations of the broadband access network, pinpointing areas requiring investment on account of coverage gaps and supporting telecommunication undertakings and local government units. The data collected help to identify which locations and technologies are profitable to invest in for enterprises, and in which cases it is necessary to support the new investments financially.²¹

In **Mexico**, the Secretariat of Communications and Transportation has launched an initiative for *world-class communications for education and research*. A high-capacity data-communications infrastructure in the largest cities will leverage Mexico's participation at the forefront of global scientific and technological development projects. The initiative will give Mexico's top national research and education network the opportunity to participate in cutting-edge applications, technology and innovation. In Phase 1, the high-capacity communications infrastructure is being deployed by private operators with dedicated symmetrical access speeds from 100 Mbit/s to 10 Gbit/s for Mexico's top 1 139 institutions, covering the first 40 cities. The project prompts private operators to expand their networks to areas where investment would not be profitable without government support.

At the **international** level, G3ict - The Global Initiative for Inclusive ICTs has published the second (2012) edition of the Convention on the Rights of Persons with Disabilities (CRPD) *Progress Report on ICT accessibility*, in cooperation with Disabled Peoples' International. The 2012 CRPD Progress Report includes the latest data on 52 countries representing 77.4 per cent of the world population. It offers disability advocates, governments, civil society and international organizations monitoring progress

in the implementation of the Convention by States Parties a unique benchmarking tool that collects data on country laws, policies and programmes pertaining to accessible and assistive ICTs around the globe. All results are cross-tabulated by region, level of income per capita and human development index to facilitate benchmarking by advocates and policy-makers.

In **Jordan**, the Ministry of Information and Communications Technology is undertaking *assessment of the economic impact of ICT* in Jordan, in a project that aims to evaluate the economic impact of ICT on diverse economic sectors in Jordan through the use of economic modelling and the study of different economic aspects. Work will include identifying the economic impact of ICT at the macro level in terms of productivity, labour productivity, efficiency, employment, research and development, and the main ICT aspects of the business environment. The project will make a significant contribution to identifying the specific areas of focus for which action plans are required in order to promote the positive economic benefits of ICTs and overcome the barriers to ICT dissemination in these sectors.

In **Egypt**, the Ministry of Communications and Information Technology (MCIT) has introduced the country's *ICT indicators* initiative. In September 2005, MCIT launched the first Arab ICT indicators portal, with the main goal of developing a knowledge-based source of accurate and reliable data for the entire community, from decision-makers to college students, incorporating all partners and stakeholders. The challenges that arise in terms of data verification and fine-tuning are addressed through continuous use of the most up-to-date international methodologies. Egypt's efforts prompted ITU to replicate the country's experience and develop the *Arab ICT Measurement* projects in 2010 and 2012. Furthermore, a geographic information system (GIS) application will be deployed to display indicators at the governorates level.

²¹ http://www.en.uk.gov.pl/files/?id_plik=137

In **Mexico**, the Centre for Scientific Research and Higher Education of Ensenada (CICESE) has instituted a *programme* in which participation in ITU as an academic entity is considered as the core element for integrating all CICESE's ICT initiatives and accelerating its transition to becoming a global player in the information society. As a research and development centre committed to excellence, CICESE's participation in the information society is a key feature for its academic programmes. With this in mind, and taking advantage of its 40 years of experience in the vanguard of telecommunication research and development in Mexico and Latin America, CICESE plans to strengthen its participation in ITU initiatives in order to maintain its leadership role. In the **Islamic Republic of Iran**, the Information Technology Organization (ITO) has implemented a national *ICT measurement* project, the aim of which is to define, measure and analyse the country's information-society indicators (42 indicators) as reflected in its fourth Development Plan, the Economist Intelligence Unit (EIU) e-readiness index and ITU's ICT Development Index (IDI) indicators. A web-based system, called *Indexometer*, has also been developed as a data-collection and management dashboard tool for facilitating the collection and dissemination of Iran's ICT statistics. The indicators cover the e-government, e-health, e-learning, ICT infrastructure and security sectors. The scope of the data collection encompasses 1 200 governmental organizations, 75 000 schools, 200 universities and other related institutions.

In the **Netherlands**, the International Institute for Communication and Development (IICD) developed recommendations for the Rio+20 United Nations Conference on Sustainable Development. IICD believes that the introduction and use of appropriate ICT solutions can and does contribute to socio-economic development, and helps to create opportunities for people to shape their own individual future and that of society around them. Its document contains a list of recommendations on how ICT can be used for sustainable development.

At the international level, the WorldWideScience (WWS) alliance has developed *WorldWideScience.org*, a global science gateway enabling the simultaneous searching of more than 80 national scientific databases containing

over 400 million pages, most of which are not covered by major commercial search engines. The WWS gateway allows users to find the exact information they need, via a single search, without having to know the scope of any particular national scientific database. Offering multilingual translations of both queries and search results in ten different languages, the gateway's coverage includes multimedia materials and scientific and numeric databases. The WWS alliance provides the multilateral governance structure. Its membership consists of WorldWideScience.org source owners and sponsors.

In **Japan**, with a view to maintaining and developing the vitality of the Japanese ICT industry and achieving sustained economic growth and employment creation, the Ministry of Internal Affairs and Communications (MIC) is promoting research and development efforts geared to social implementation and global deployment, based on the Comprehensive Strategy for the Rebirth of Japan (July 2012 Cabinet Decision), the fourth Science and Technology Basic Plan (August 2011 Cabinet Decision) and the Strategy for Active Japanese ICT (July 2012 Information and Communications Council Report). R&D themes to be addressed include the promotion of green innovation, promotion of life innovation and promotion of technical innovation liable to lead to a paradigm shift, recovery and restoration from the major East Japan earthquake, and safety improvement measures in preparation for disasters.

In **Colombia**, the National Spectrum Agency has implemented the *Spectrum Expert* programme, in order to strengthen national research on the radio-frequency spectrum and also provide information on the subject for the community and professionals involved in the ICT sector. Partnerships have been established between public and private entities to support the design, promotion and implementation of the programme's activities.

In **Bulgaria**, the D.A. Tsenov Academy of Economics conducted research and analysis on the capabilities of its communication infrastructure for migration to IPv6. The research focused on the Academy's readiness to implement IPv6, identifying possible problems

concerning the migration strategy. The major activities were acquiring its own IPv6 address space; developing laboratory configurations to experiment with scenarios without affecting the normal functioning of the network; analysing the migration capabilities of modern and legacy communication systems and devices; analysing the migration capabilities of the installed operating systems; and analysing the services deployed on all the Academy's servers and their compatibility with the new protocol stack. As a result of the project, each workplace was able to be fully connected with the IPv6 network.



In the **CIS countries**, the Regional Commonwealth in the field of Communications (RCC) has conducted a study on usage of the potential of telecommunication services. The main objective is to create a competitive environment in the electronic communications market in the region, providing access to networks and seamless network interconnection and, as a result, quality electronic communication services for users. The study will list ICT service markets liable to regulation by the State, analyse relevant markets, and identify networks and/or electronic communication services having a significant impact on the relevant markets. In future, it is planned to use the results of research to address issues relating to the harmonization of access control to network infrastructure, to ensure that service providers meet mandatory requirements for CIS markets.

In **Jordan**, the Ministry of Information and Communications Technology (MoICT) has created the ICT Information Database. This initiative aims

at developing a national database of information (ICTInfo) on key performance indicators in the ICT sector in Jordan, available online and regularly updated. The database currently includes 150 indicators that serve to measure ICT use (in households and enterprises), access and skills. ICTInfo is managed and maintained by the National Information Committee, whose membership comprises players from the sector, namely MoICT, the Telecommunication Regulatory Commission (TRC), the Information Technology Association (int@j), the National Information Technology Centre (NITC) and the Department of Statistics (DoS).

C3.3 Software and open access

In **Bulgaria**, the University of Plovdiv has launched a project called *COMPASS - Evaluation and Accreditation*, the purpose of which is to develop a universal software system for quality evaluation of various educational entities. The main challenge was to create a conceptual model supporting various procedures with heterogeneous participants (institutions, organizations, departments, users) taking part in a dynamic process with different and changing roles. The COMPASS software application was created in 2012. It supports modelling of objects, methodologies and procedures, as a prerequisite for its broad application in other fields. COMPASS has been tested with 11 procedures for self-evaluation and accreditation of universities, including in cooperation with the Bulgarian National Evaluation and Accreditation Agency.



In the **Islamic Republic of Iran**, several actions have been taken for the transition to open-source software. The server operating system has been produced and localized, with the aim of developing local applications using free/open-source software in the country to build secure local IT platforms. So far, the first local operating system server, called XAMIN, has been localized. A local repository of free/open-source application softwares is in operation in order to reduce traffic exiting the country. The facility is actually a hub between government, private sector and academic centres.

In **Canada**, the Inclusive Design Research Centre has introduced the *Floe* project, which provides the resources needed to enable inclusive access to personally relevant and engaging learning opportunities for the whole diverse range of learners and content producers. With the *Open Education Resource* (OER) community, Floe makes tools that help transform, augment and personalize the learning experience. The *Floe Inclusive Learning Handbook* provides educators and content creators with techniques for making content more inclusive. The Floe team is also developing web tools that allow learners to express their unique needs and preferences, save them to the cloud and then use them to find content that meets their learning needs.

In **Oman**, the *Oman KID software* was developed by the Research Council (TRC) of Oman in order to connect local academic and research organizations. It uses the standards-based Shibboleth software, which defines a common framework for access management that is being adopted by education and commercial sectors across the world. As an initiative to develop an open-source, standards-based solution to meet the access-management needs of research organizations for exchanging information about their users in a secure manner that protects privacy, the Oman Knowledge-ID Federation's KID system allows users to access all services available in the federation using their institution credentials. All schools, colleges, universities and research organizations, as well as anyone providing resources to the sectors, are eligible to join. TRC is using the system to build the national databases of researchers, publications, organizations and equipment. The Research Electronic Submission System (TRESS) is one of

the services provided to all KID holders to access the system and utilize its functionalities. The system also includes a grant-management system which enables researchers' and organizations' financial units to view, track and send requests using the web-based interfaces and forms.

C3.4 Community centres

In **Colombia**, the Ministry of Information and Communication Technologies has introduced the *Puntos Vive Digital* project, under which 800 digital access points will be created throughout the country, focusing on the lower strata and promoting the mass use of ICT nationwide through social inclusion and innovation. The digital access points will guarantee access to and use and appropriation of ICT services, with the aim of encouraging economic and social development and improving the welfare and quality of life of the Colombian population. Services provided include training in skills and facilitating online government. To date, 52 digital access points have been implemented and 800 are expected to have been established by 2014.

In **Mauritius**, the Ministry of Information and Communication Technology has regularly set up *computer clubs*, which contribute to the country's development by facilitating the democratization of ICTs in order to help alleviate poverty within the community through the use of ICTs and free access to broadband Internet. The scheme helps to break down the barriers to bridging the digital divide by fostering more democratic access for the whole community and promoting ICT for educational, personal and social development.

In **Pakistan**, the establishment of new *ICT labs/centres* continues to strengthen existing facilities in different cities nationwide.

In **Rwanda**, the Ministry of Youth and ICT has introduced the *e-citizen* concept in line with the Rwanda Vision 2020, as one of the solutions and systems for giving more than 10 million citizens access to knowledge and a wide range of information. Through decentralized entity web presence, telecentres, public kiosks and business development centres (BDCs), people can access public policies, learn about district development programmes and seek out business opportunities. Another knowledge-sharing

mechanism is the *Rwanda Education Commons* (REC), launched in 2008, which is expanding access to quality education by using ICT channels to provide teacher training centre personnel with a sustainable means of collaborative creation and of sharing a variety of educational contents, ranging from lesson plans to education policies.

In the **Dominican Republic**, the Community Technology Centres (CTC) programme is a strategic venture of the First Lady's Office working towards the aim of reducing the digital divide in the country. CTCs are places that provide access to the ICTs and to educational and cultural training programmes in rural areas in the country, with the objective of democratizing access to information and knowledge, caring for people as from six years old and offering programmes and activities for everyone, without exception.

In **Jordan**, the Ministry of Information and Communications Technology has established *knowledge stations* to increase access to and use of information technologies, especially in underserved or remote areas across the Kingdom. So far, 180 knowledge stations have been set up, with 100 per cent coverage in terms of governorates. They offer ICT training, soft-skills development and literacy programmes in underserved areas, for men, women and children.

In **Ecuador**, the Ministry of Telecommunications and the Information Society has established [*community information centres*](#), which are participation and development venues that guarantee inclusive access to ICTs for inhabitants from rural and marginal urban areas of Ecuador. The project introduces citizens to ICTs in order to reduce digital illiteracy and narrow the technology gap, encouraging the use of technology to improve quality of life and boost the productive development of communities. It also brings government closer through the use of online products and services. It is projected that some 725 community information centres will be in place by 2015.



In **Sudan**, the Gedaref Digital City organization (GDCO) is developing a Sudanese telecentre infrastructure. [*Sudan Telecentres*](#) are a win-win public-private partnership (PPP) for community development. The Sudanese Government has constructed a large number of universal access centres (telecentres) in schools and localities, while GDCO, with the support of its partners, especially the Eindhoven Digital City (DSE), has distributed 750 computers to equip telecentres and knowledge projects. This strong infrastructure improves community development and helps to bridge the digital divide. Telecentres are indeed one of the best tools for reducing the digital divide and connecting people.

In **Rwanda**, the Ministry of Youth and ICT has been introducing *business delivery service centres/telecentres*. The Government and the private sector have established more than 230 multipurpose community-service access points (CSAPs) and public-information kiosks (PIKs), providing affordable access to online content/services for citizens. Housed mainly in schools, universities, libraries, post offices, religious buildings and district offices, they offer ICT literacy training, business development training and other services. Rwanda aims to deploy more than 1 000 CSAPs over five years, up to the cell level, generating 4 000 new jobs for young people. This is complemented by a five-year ICT literacy and awareness campaign that will reach the majority of the population.

Also in **Rwanda**, an open space for IT entrepreneurs to collaborate and innovate, called *kLab* (knowledge lab), has been created in the capital, Kigali. It is a place where students, young entrepreneurs and innovators come to meet and work. The kLab provides a high-speed Internet connection, a stable power supply and a casual environment. It brings together like-minded innovators and gives them the resources they need to explore their ideas, learn from each other and develop innovative solutions. By creating an active vibrant community of experienced mentors and young innovators, the kLab is becoming the focal point for ICT innovations in the country. It also acts as a host for competitions, seminars, classes and other community-oriented events.



In **Indonesia**, the Association of Community Internet Centres (APWKomitel) has established a network of *village cybercafés* (also known as *wardes*) in rural districts. No fewer than 112 wardes in 112 districts in rural West Java and Banten Provinces have been equipped and supported, providing the local rural communities with access to the Internet, ICT and online media. The project is financed by the Global Partnership on Output-Based Aid (GPOBA) – World Bank, facilitated by the Indonesian ICT Ministry and Micronics Internusa PT as a member association. APWKomitel is the project operator.



In **Brazil**, the National Association of Digital Inclusion has launched a social digital inclusion initiative called *Pescadores online*, whose mission is to develop social digital inclusion in a small fishing village located in the north of the state of Paraíba, in the belief that education and knowledge are the most important tools in the construction of a better world. Over the past two years, a community computing centre has been built in the village with a free broadband connection, and large number of projects have been developed with the aim of teaching children, teens and adults how to use a computer to enable them to communicate and have access to information and knowledge.

In **Saudi Arabia**, the Islamic Development Bank (IsDB) has established an *ICT training and learning centre for women*. A computer lab containing 20 PCs, a student service centre and an Internet centre will be installed, as well as a training room to accommodate 30 trainees, for the delivery of workshops and training courses. In addition, 151 students will be trained in web design.

In **Mauritius**, the Ministry of Information and Communication Technology is setting up regional *computer clubs*. Computer clubs contribute to the country's development by democratizing access to ICTs and helping to alleviate poverty within the community through the use of ICTs and free access to broadband Internet, thus removing the barriers to bridging the digital divide.

In **Kenya**, the *Kenyan network of telecentres* (KenTel) is reinforcing telecentres in Kenya to achieve effective knowledge management and networking through capacity building. KenTel works with a number of partners to support the growth and sustainability of telecentres, which, since they offer the critically needed shared access in rural areas of Africa, have to be given the necessary support to enable them to offer quality and effective services that are sustainable and community owned.

In **Liberia**, the Liberia Chapter of the Internet Society has launched a programme on: *Inspiring ICT/Internet exposure for girls and young women in Liberia: unleashing the power of girls and young women through a community access centre*. The project seeks funding for the establishment of a community access centre, equipped with computers, printers, photocopiers, digital cameras, Internet access and other ICT facilities. It will offer a full range of learning, training and informal Internet/IT awareness education programmes. The project will be managed by Liberian female technology specialists who will serve as mentors and role models for young girls and women in Liberia. The objective is to resolve the problems that prevent Liberian women and girls from gaining access to the Internet and ICT.

In **Algeria**, the Ministry of Vocational Education and Training has created a *telecentre* with the aim of combating illiteracy among young people who live in isolated rural areas and remote areas of the south, including housewives and nomads. Several fixed and mobile telecentres have been put in place in these areas, providing these groups of people with a learning space where everyone can have access to information, training and Internet services, thanks to ICT facilities.

C3.5 Digital libraries and archives

In the **United States**, *Riecken community libraries* are promoting prosperity through access to information and technology. Open access to information and knowledge is critical to civic engagement and prosperity. Riecken Community

Libraries empower people by enabling them to access and use information and technology as tools for the future.

In **Saudi Arabia**, the Abdul Aziz Foundation for Research and Archives has launched the *digitization of historical resources* for electronic access. The project aims to digitize and catalogue all information resources within the King Abdulaziz Foundation, which include journals, manuscripts, pictures, audio materials, videos, microfilms and microfiches. The foundation will also implement a system for managing these materials and sharing information on the web. Through an Internet portal, users anywhere in the world who have access to the Internet will be able to search all those resources using advanced search options and techniques.

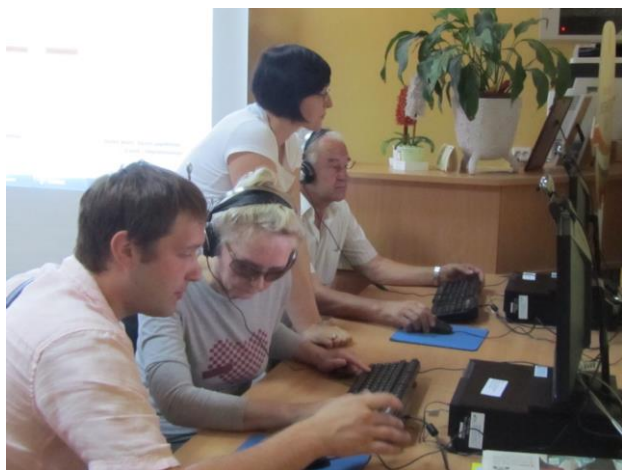
In **Oman**, the Ministry of Heritage and Culture has implemented the *digitization, indexing and archiving of ancient manuscripts* in an IT-based system. With digitized manuscripts, researchers and citizens can access the contents of these ancient books without physically touching and handling them. Manuscripts are first scanned in three major file formats and then indexed into the various categories. In a web-enabled environment, users can browse the manuscripts and view sample pages before downloading the whole book. Since the inception of the Digital Manuscript Library, the annual number of users has risen from 200 to more than 720.

Again in **Oman**, the *Hisn Ash'shumookh Library* was opened in order to serve as a new platform for researchers and scholars. The edifice crowns the Omani cultural scene, and reaffirms His Highness's keenness to disseminate knowledge and build bridges of cultural communication in the Sultanate.

In **Romania**, the George Baritiu Public Library has introduced *Digifolio*, a library support programme for meaningful, creative and applied learning. Today's young generation, often referred to as neo-millennials, digital natives or the Net generation, adapts to digital technologies and devices very quickly. Technological fluency and its application for creative and applied use is

considered to be one of the essential skills for success in the knowledge society. Therefore, students need to be equipped to becoming efficient knowledge workers and conscious citizens of the globe. In the Digifolio project, a partnership model has been created between public libraries and schools for developing children's digital competencies by using digital portfolios to ensure that they are actively involved in the educational process and make productive use of NICTs.

In **Lithuania**, the Lithuanian Library for the Blind has implemented a project entitled *Virtual Library for the Blind in 2011-2012*, consistent with the "Lithuanian Culture in the Information Society" activity. The project was the third priority in the operational programme, funded by the European Regional Development Fund and the State budget of the Republic of Lithuania. The goal of the project was to preserve and promote Lithuanian culture through improved access to electronic publications for persons with visual disabilities. From September 2012, library readers have access to DAISY books, audio material and digital documents through the electronic publication management information system which has been developed.



In **Serbia**, the [*Jaгодina Library*](#) addresses the problems of the rural population in its local community. It transforms village libraries into communication, information and education hubs that lead to economic and social changes in the community and beyond. Farmers connect, share

and grow. Five rural library branches offer the following facilities: Internet access and ICT training (sharing best practices, searching for useful information, not least state subsidies and incentives); agricultural lectures (enhanced agricultural production by applying advice from renowned experts); agricultural journals and literature; online marketplace – <http://www.agrolib.rs/pijaca/> (free registration and advertising, improved financial situation).

In **Kuwait**, in March 1998, the Awaqaf Public Foundation (KAPF) established the *Waqf information centre* (waqf means "charity"), which specializes in information services and supporting decision-making for all interested persons. The information centre consists of a specialized library that offers various kinds of services to researchers worldwide, as permitted by the regulations and policies governing such services. The library undertakes many projects, the most important being the Internet public access catalogue (IPAC), the cumulative waqf index, the waqf thesaurus and Who's Who in waqf. Future projects include the Waqf Atlas and the Waqf Dictionary.

In **Oman**, the Research Council (TRC) has created the *Oman Digital Academic Library (ODAL)* for the purpose of fostering creativity and providing access to knowledge for college and school students. It seeks to educate and train students, providing them with sound knowledge, and to facilitate access to all advances in existing and emerging technologies. To this end, TRC joined the Open Courseware Consortium (OCW), which is a global body of higher-education institutions and associated organizations providing its members with free and open high-quality university-level educational content. This conte

Action Line C4. Capacity building

Capacity building and ICT literacy are essential for building an inclusive information society. As stated in the Geneva Plan of Action, ICTs can contribute to achieving universal education worldwide, through delivery of education and training of teachers, and offering improved conditions for lifelong learning, encompassing people that are outside the formal education process, and improving professional skills.²²

Governments continue to develop national policies to ensure that ICTs are fully integrated in education and training at all levels. They stress the fact that it is important to create a critical mass of qualified and experienced ICT professionals through the establishment of public access points and local ICT training centres. In some countries, adult illiteracy is still an enormous challenge, particularly prevalent in rural and underserved areas. More and more, training is becoming available for women and girls, with the aim of engaging them with ICTs and increasing the number of women in ICT careers.

The United Nations and its specialized agencies continue to promote international and regional cooperation in the field of capacity building.

C4.1 ICT literacy

In **Qatar**, the Supreme Council for ICT (ictQATAR) has launched the *Digital inclusion project to foster Qatari women's ICT skills* as a key step towards developing ICT skills among Qatari women. This nationwide project, launched in partnership with the Al Fursan Centre, targets

various segments of the female population in Qatar, including households, working women and teachers. Throughout the project, participants are expected to boost their ICT skills and in particular connect more effectively with their families, workplaces and relevant educational institutions, especially schools, exploiting their newly developed ICT skills to the full in order to leverage their children's academic performance. The new project prioritizes Qatari values and traditions and stresses the availability of trained and qualified female Qatari trainers willing to share their vast knowledge and experience for the social good, especially in the light of ictQATAR's prior collaboration with the College of North Atlantic in Qatar (CAN-Q), whereby Qatari women are trained over the course of a three-week dedicated curriculum tailored to Qatari women's skills, expectations and knowledge, in 30-hour training programmes held as part of the project in select schools in Al Shamal, Al Khor, Smisma, Al Shahneya, Al Wakra and Al Wakeir.

In **Rwanda**, the Internet Society Rwanda Chapter organization has established *Internet facilities for remote and unprivileged communities*. Primary education in Rwanda goes up to nine years of age, at which time young pupils are considered to have acquired knowledge that can help throughout life. In this context, the Internet facilities project aims to promote self-education by establishing two ICT training centres in the remote areas of Lake Kivu and the District of Karongi. The training curriculum will focus on developing young people's computer skills and, consequently, their employment opportunities.

²² Geneva Plan of Action, § 11

In **Mexico**, the Ministry of Communications and Transport and the Department of Coordination of the Information Society and Knowledge has implemented the Digital Club, an initiative created to allow young people to develop ICT skills. The Digital Club operates as an online platform for the development of technological entrepreneurship capabilities. Its portal gives users more opportunities in the labour market with a high level of technical specialization, for example by developing their own technology-based businesses or working for technology companies.

The National Office of Electronic Government and Information of **Peru** has plans to hold ten *workshops on the deployment of the Digital Agenda 2.0* in ten regions, providing training for 600 citizens in the Apurimac, Ene and Mantaro River Valleys (VRAEM). Courses and content for the digital literacy programme in the VRAEM are implemented in coordination with the Ministry of Education of Peru.

The *Digital Citizenship* project implemented by the Ministry of Information and Communication Technologies aims at developing digital culture in **Colombia**. It provides training for employees and public school teachers across the country to certify their ICT skills, so that they can use them productively, boosting government competitiveness and productivity and also increasing the quality of education in all levels and in all areas.

The ministry is also conducting a series of social analyses in **Colombia**, which, once disclosed, will be useful for enabling parents and educators to understand the importance of helping young Colombians to develop values and criteria during their growth.

Again in **Colombia**, the ministry has introduced a social project called [*Redvolucion*](#), aimed at encouraging and inspiring community members to make significantly greater use of the Internet by stimulating education and training and promoting the use of ICTs to meet various everyday needs, thereby creating an emotional attachment with technology. The online portal is

equipped with a variety of ICT-related learning activities on an interactive multimedia web platform. Training is targeted at the lower strata of the population and is carried out by high-school students.

In **Pakistan**, the *E-Village Project* has introduced a programme on *Women's empowerment through the use of ICTs in rural areas*. Ten villages have been selected to benefit from training in basic ICT skills, English language and Internet skills, especially targeting women in these areas. The basic purpose of the training is to empower women to accede to available jobs requiring this type of skills set, raise their awareness about development in other parts of the world and enable them to earn their livelihood through low-tech jobs available through the Internet.

In **Lebanon**, Technology sarl has introduced the *Ikraa Initiative for ICT and language illiteracy eradication*, which automates ICT and Arabic language illiteracy eradication with the aim of freeing cities and countries from illiteracy in less than five years. It utilizes the Ikraa software program (www.learnaraby.com), which has been proven in field applications in Lebanon (2008), Egypt (2009) and Saudi Arabia (Jeddah) (Ikraa Initiative 2012) to eliminate illiteracy in people in various age brackets, and of both genders, in five working days or 35 hours, focussing in particular on women and illiterate school leavers.

In **Kazakhstan**, the National Information Technologies joint-stock company has introduced *computer literacy and e-government training seminars*. Free training courses are held on a regular basis. Depending on the level of knowledge, every citizen can attend a computer-literacy or e-government seminar. The seminars are held in cities, towns and villages. Thanks to the training courses that have been held, the level of computer literacy in Kazakhstan has risen to 51.7 per cent in 2012, and by the end of 2013 more than 200 000 people across the country will have learned how to obtain e-services and use e-government. Seminar attendees are awarded special certificates. The seminars are held in computer-equipped classrooms, thus enabling students to consolidate their knowledge through practical exercises.

In **Indonesia**, the Ministry of Communication and Information Technology has introduced an *Indonesia ICT Volunteer* project for eradicating ICT illiteracy. Indonesia ICT Volunteer is a programme initiated by government to harness the power of ICT volunteers dedicated to Indonesia's vision of Internet literacy by 2015. It seeks to eradicate ICT illiteracy through education, dissemination and advocacy, and by introducing the use of ICT. Activities focus on empowering communities to develop a knowledge-based society through training in computer literacy, Internet literacy, blogging, social media for business, etc. To date, the programme counts around 3 000 volunteers and beneficiaries in 85 cities throughout Indonesia. Their devotion as a self-reliance organization to help the community is their major vocation.

In the **Dominican Republic**, the First Lady's Office launched the *Get Ready to Compete* initiative. This basic and digital literacy programme for educationally backward young people and adults provides economic or productive educational activities. It encourages young people and adults who cannot read or write to become literate, and also to complete basic education and thereby improve their living conditions. In addition, it offers the opportunity to track their distance studies through a digital portal.

In **Indonesia**, the Ministry of Women Empowerment and Child Protection has introduced a *Gender mainstreaming in ICT development* programme. Under the government programme on the placement of new public ICT facilities (sub-district information centre), women's groups have been included as locations where such facilities are installed. While accessible to the community in general, the location has brought ICT facilities closer to women and the facilities are used as a means of accessing information, training and personal capacity-building tools. In training programmes provided for the general community, sessions have been allocated for women as well as men. This has increased the number of women who can use the Internet and the number of trainers who can serve as resources for further training in many regions.

In June 2012 in **Bangladesh**, Intel Corporation signed a memorandum of understanding (MoU) with Bangladesh Institute of ICT in Development (BIID) for *deployment of the Intel® Easy Steps Programme*, which offers adult learners the opportunity to achieve greater social and economic self-sufficiency through digital literacy. The Intel Easy Steps materials use adult learning techniques to teach practical and applicable skills to people with minimal computer knowledge. The programme is being carried out by Intel in Asia to address the digital literacy needs of government employees, as well as adults in rural communities, women, unemployed youth and other underserved populations. A government needs ICT-literate labour for a competitive workforce to fuel a competitive economy. The programme includes instructions on running Internet searches, using e-mail, using word processors for creating résumés and other documents, creating spreadsheets, and using multimedia tools to create brochures and posters for promoting small businesses. Thus, the trainees can develop literacy skills and immediately start applying them in their personal or professional lives. The content is also designed to be suitable for either formal or informal educational settings, including vocational training centres, employer training or shared-access centres. Similar MoUs have been signed in **India**, **Pakistan** and the **Philippines**. In India, the Digital Empowerment Foundation utilized the Intel Easy Steps programme to train participants in centres across the country, while the Ministry of Youth Affairs and Sports Government of India trained youth volunteers through its youth club network using the programme. In Pakistan, the Government of Sindh Ministry of IT used the programme to train government employees, while another semi-government organization - Lahore Electricity Supply Company (LESCO) - used Intel Easy Steps to increase the digital literacy of its employees. This programme promises new horizons for the economy of Bangladesh. It is hoped that successful implementation of this project will bring about radical reform in the country, helping many to achieve personal goals and seek new heights in the professional arena.

In **Congo**, the African Forum for the Promotion of New Technologies of Information and Communication has initiated a project training **and connecting rural people**. The project is connecting the villages of sub-Saharan Africa and training villagers to use ICT. : The project considers the need to promote the culture of peace through the New ICT as a guarantee of harmonious social integration and in addition, the importance of a need to educate the people on the merits of ICT and its positive impact on improving the conditions of life in our towns and villages.

In **Saudi Arabia**, the **Ministry of Communications and Information Technology** has launched a project of **disseminating Digital Culture and Knowledge Lectures**. This project aims to promote the use of ICT by all segments of society, with particular focus on youth, especially on secondary school students. Project goes along WSIS Action Lines, mainly to fulfill government's role in promoting ICT for sustainable development, establishing a solid ICT infrastructure, building confidence and security in ICT usage, and encouraging use of ICT to achieve benefits in all aspects of life. Project topics include identifying multiple uses of ICT, raising awareness of positive and negative aspects of using ICT, and highlighting importance of security, privacy and e-services.

C4.2 National policies

In **Jordan**, the Ministry of Information and Communications Technology has introduced the *Jordan capacity-building programme*. Training and capacity building is considered to be one of the most important operations performed under the e-government programme within the business pillar for the development of public-sector employees and for building the skills needed to deliver e-services to citizens commensurate with the technology used and applied in government institutions. In this regard, and to ensure adequate levels of well-trained employees to support and use systems and design e-solutions, a training and development strategy has been developed to determine the direction of e-government in terms of training required, target sectors of government employees and adequate mechanisms for

training. In the period 2003-2010, more than 13 500 government employees received training under the e-government programme on basic computer skills (ICDL, Cambridge, etc.) or specialized training on Microsoft, Cisco, Oracle and other technologies. The programme works in collaboration with all stakeholders in order to enhance skills development and knowledge transfer on an ongoing basis, thereby helping to support the implementation of electronic services. It has drawn up a directory of e-government units and held several training courses and workshops to raise awareness on the use of kits and standards and how to apply them.

In **Mauritius**, the Ministry of Information and Communication Technology has launched an *ICT skills development programme*, the aim of which is to promote training and work placement initiatives to cater for the increasing demand for manpower in the ICT/BPO industry. It is estimated that the ICT sector in Mauritius will require an additional workforce of 15 000 persons over the next few years. An *ICT Skills Development Unit* has thus been set up at the National Computer Board to manage the programme, under which ICT/BPO companies are encouraged to train unemployed young people possessing a diploma, degree or other approved qualification and to offer them a placement following the training.

In **Malta**, the Malta Communications Authority (MCA) has launched a learning programme called *ICTforAll*, which is aimed at encouraging more adults to use ICTs as part of their daily life. Over the past few years, MCA has partnered with a number of NGOs and local public bodies and jointly set up 19 centres (CTLCs) equipped with computers and Internet. Besides offering ICT access to the community, these centres also serve for training. MCA offers three subsidized training courses that take participants from basic use to more complex work- or lifestyle- related applications. In the past three years, about 1.5 per cent of the Maltese adult population has participated in this training.

In the **Dominican Republic**, the Dominican Telecommunications Institute launched the project *Women in the Internet*, whose main objective is to ensure that poor, young Dominican females have access to training opportunities and

to the upper levels of the different ICT industry areas, such as telecommunication networks, programming and multimedia. The programme contributes to reducing the digital, social and gender divide. At the end of the training course, the students are certified by Cisco as a Cisco Certified Networking Associate.

In **Mexico**, the Secretariat of Communications and Transport (SCT) and Department of Coordination of the Information Society and Knowledge are driving the *National Digital Inclusion* campaign to promote access to new technologies for young people and adults. This initiative seeks to close the digital divide by promoting access to and use of information technologies. The digital inclusion model proposed by SCT is based on the development of three basic skills: learning how to communicate via e-mail, learning how to find and use information on the Internet, and implementing an online government service.

In **Kuwait**, the Central Agency for Information Technology has initiated the **National Youth program (NYP)**. Vision of NYP is enabling youth to participate in the advancement of Kuwait's future vision and its strategic and developmental goals. Projects goals are 1. Creating communication channels between the political leadership and youth groups. 2. Identifying youth ambitions and aspirations and developing ways to enhance these ambitions. 3. Engaging youth and seeking their views in government programs. 4. Preparing and qualifying promising future youth leadership to proceed with the development process. 5. Encouraging youth initiatives and inciting them to innovation. 6. Bolstering the democratic and constitutional culture, reinforcing tolerance and diversity of views and opinions among youth.

C4.3 ICT for professionals and experts

In **Colombia**, the Ministry of Information Technology and Communications has implemented the *Virtual Academy for ICT managers*, consisting of a series of 16 free courses (tutored or self-trained) for human capacity building. The courses have been offered at least three times a year since 2010, training telecentre managers, librarians, ICT teachers and others responsible for Internet access centres, with the aim of strengthening their skills and knowledge in the use of ICT tools. The courses offered in various fields of ICT include digital creativity, social entrepreneurship, image-editing tools, digital marketing, digital literacy, ICT centres for children, seniors and people with disabilities, women in technology, and community and social networking and communication strategies. To date, 1 600 managers have been trained and 28 000 are expected to be trained by 2014.





In **Malaysia**, the University Sains Malaysia has introduced an *Android Workshop*. The university's National Advanced IPv6 Centre (NAv6) boasts a successful track record in delivering knowledge of Android programming to various participants from both industrial and academic backgrounds. The aim of the workshop is to spread knowledge about Androids and equip participants with mobile application programming skills. Moreover, the centre has been able to build an international community of developers: to date, NAv6 has trained more than 200 professional developers internationally.

In **Jordan**, the *Ministry of Information and Communications Technology* has introduced the *Bridge Initiative*, under which it is taking measures,

in cooperation with Jordanian universities and the Ministry of Higher Education, to influence and push forward the development of university ICT curricula in order to strengthen and complement the capacities of Jordanian ICT graduates and develop the necessary skills to bridge the gap between the higher-education output and market demand. The objectives of this initiative are to increase employment opportunities, support the ICT industry and attract foreign direct investment.

In **Colombia**, the Ministry of Information and Communication Technologies, within the ICT Training Programme, opened the *ICT Managers Virtual Academy*. Under this project, virtual training processes (with and without tutor) are implemented for the purpose of strengthening the profile and qualifications of telecentre managers, librarians, ICT teachers and others responsible for Internet access centres.

In the **United Arab Emirates**, the *e-Presence for SME Business Development* project was initiated as a management and training project for small and medium-sized enterprises, with the objective of securing an e-presence in the SME community that offers the following through the integration of four platforms for four audience layers: 1) SME Toolkit UAE, targeting all entrepreneurs within UAE - Information and training for SME entrepreneurs; 2) Website, targeting Emirati entrepreneurs - Information source, online membership registration; 3) Knowledge management system, targeting Khalifa Fund applicants and members - Limited- access premium-content area for SME-specific industry research; 4) Gateway, targeting Khalifa Fund members - Limited-access e-commerce platform with access to B2B deals, government tenders, applications for various support services.

In **India**, the *Network for Information and Computer Technology (NICT-Indore)*, as an implementing agency in collaboration with the State Bank of India, has established 753 kiosk

branches with two-dimensional socio-economic growth advantages for the local community. In the kiosks, the local young entrepreneur is trained as a Customer Service Point operator, thus providing an employment opportunity.



In **Portugal**, the project developed by the JP - Inspiring Knowledge company aims to deliver *ICT solutions purpose built for education*, with the objective of ensuring that children develop and leapfrog into the new global society.



In **Africa**, the *erp4school Africa* project was initiated in order to sustainably improve the ICT skills and employability of graduates from higher-education and training institutions, and to provide the labour market with employees skilled in the field of enterprise resource planning (ERP) in selected African countries. A marketable curriculum and learning/teaching programme will be adapted to the needs and environments of African higher-education and training institutions, thereby enhancing the IT and business resource pool in Africa in a way that quickly becomes self-sustaining.



In **Saudi Arabia**, the Islamic Development Bank (IDB) has introduced an initiative known as *ICT for developing the capacities of micro, small and medium enterprises (MSMEs) in rural areas*. Two projects, in **Bangladesh** and **Egypt**, yielded the following outcomes within one year: e-services and educational software on e-marketing, business management and accounting; 130 trained operators from 46 telecentres (master trainers); around 2 000 trained rural MSMEs; 56 community-awareness sessions to inform around 10 000 people about using ICT. The projects increased ICT usage by MSMEs: Internet usage (from 51 to 93 per cent), marketing (from 18 to 70 per cent), and ICT in daily business (from 50 to 75 per cent). A telecentre can train more MSMEs requesting more services, which makes the projects sustainable. IDB also plans to replicate the initiative in other countries.

In **Jordan**, the Ministry of Information and Communications Technology has established the *ICT Training Academy*. In an effort to bridge the gap between the output of higher-education institutions and the IT labour market's needs, the ICT Training Academy is an umbrella structure that will include available programmes offered by international training academies, universities and local centres in an integrated network. Its objective is to provide ICT graduates with further training in core, functional and advanced skills, with the objective of equipping the ICT industry and market with an experienced cadre commensurate with labour demand.

In the **CIS countries**, the Regional Commonwealth in the field of Communications (RCC) has conducted a study on usage of the potential of telecommunication services. The main objective is to create a competitive environment in the electronic communications market in the region, providing access to networks and seamless network interconnection and, as a result, quality electronic communication services for users. The study will list ICT service markets liable to regulation by the State, analyse relevant markets, and identify networks and/or electronic communication services having a significant impact on the relevant markets. In future, it is planned to use the results of research to address issues relating to the harmonization of access control to network infrastructure, to ensure that service providers meet mandatory requirements for CIS markets.

The fundamental objective of the *IPv6 training* organized in the **United Arab Emirates** is to get participants to recognize the importance of adopting this latest Internet protocol in their networks, build technical capacities to accommodate the applications and services, and ensure the switchover to the latest version within the coming years. The current version, IPv4, will soon be exhausted in terms of number resources.

In **Bulgaria**, the National Revenue Agency (NRA) has introduced an initiative for *improving information security* in the NRA. In 2012, a number of training courses were conducted aimed at enhancing the knowledge and professional skills of NRA management and officials in regard to ICT usage. The courses included discussions on improved working with

ICT, online privacy and ways and means of protecting personal data.

In **Pakistan**, the Pakistan Computer Bureau has introduced *training in open-source systems (Linux) for end users and system administrators*, the purpose of which is to promote the use of open-source software as an alternative to proprietary software, this being liable to yield massive revenue savings for the government while at the same time providing a more stable environment and secure operating system usage. About 10 000 staff from the public and private sectors have been trained under this project.

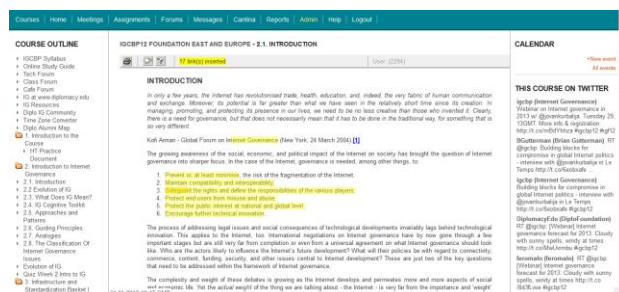
Secondly, the Pakistan Computer Bureau has introduced *computer education in 81 Federal Government (FG) model colleges and schools in ICT*. A total of 81 computer lecturers and 72 computer teachers have been recruited, and 81 selected high schools, higher-secondary schools and FG model intermediate colleges in **Pakistan** have been equipped with computer labs, in the interests of raising the standard of teaching in computer science at the secondary and higher-secondary school levels for 8 000 students.

Finally, the Pakistan Computer Bureau has introduced *training in IT for employees* of the Federal Government in **Pakistan**, its provinces and Azad Jammu and Kashmir (AJK). The goal is to enhance the efficiency of government employees by reducing delays, improving transparency, ensuring accountability and addressing public grievances in general, thereby fostering good governance. About 22 000 employees across the country have been trained in basic IT, and around 30 000 employees nominated by various government organizations have received in-house training.

In **Saudi Arabia** the *Technical and Vocational Training Corporation* has launched a project *Trainees' E-services*. The activity helps the trainees from the day one of applying by offering a transparent service till they get accepted, then they continue of using other services available on the system while studying till they graduate. The activity is an integrated community that can be used over PCs or smartphones as the mobility is dominant worldwide. It helps trainees in collaborating and sharing through the blackboard that is integrated with the services. It also helps tracking the attendance by connecting the smart

cards to the attendance system. The services are well consolidated in order to get the best out of it.

In **Malta** the **DiploFoundation** has introduced *the Internet Governance Capacity Building Programme (IGCBP)*. The programme offers training and support for the effective participation of stakeholders in the Internet governance policy processes. Through this programme, DiploFoundation trains and supports international institutions, governments, civil society and academic participants active in the IG process. Over the past 7 years, Diplo has empowered over 2000 participants and partners around the world, creating a ripple effect across the whole sector and the global policy process.



C4.4 International and regional cooperation

In **Belgium**, an organization called *Le Monde des Possibles* has launched a project entitled *“Children’s Parliament”*, the purpose of which is to empower children and increase their active role in problem-solving through a children’s parliament. Practical training in civic education is developed, fostering capacity building in argumentative skills. Children will learn to propose legislation aimed at resolving issues involving unfairness and political incorrectness. Multiple digital exchanges, workshops and podcasts on topics and policies will be developed daily between schools in Gaza, Palestine and Liège, Belgium.

In **Italy**, the Electronic Information for Libraries (EIFL), within the *Public Library Innovation Programme* (PLIP), is building communities’ ICT skills in 23 developing and transition countries. More than 7 500 people in 23 countries in **Africa**, **Asia**, **Latin America** and **Europe** have benefited from ICT training in local libraries. The new

competencies thus acquired are helping women and girls, subsistence farmers, young people, persons suffering from ill-health, the unemployed and many other disadvantaged groups to find jobs, do better in school, live more healthily, improve farming methods and become socially and economically included. Since 2010, EIFL-PLIP has been supporting sustainable information access and learning opportunities for communities in developing countries, thereby enabling them to enjoy better lives.

The United Nations Department of Economics and Social Affairs (UNDESA) continued to strengthen the technical capacity of the United Nations Public Administration Network (UNPAN) Online Training Centre (OTC) with a *governance and public administration learning content-management system* comprising 12 interactive and 11 pdf-based capacity-building courses on various topics in public administration and management in a multilingual environment. During 2012, the interactive courses were delivered to 719 participants from around the world, as against 890 participants in the previous year.

Likewise, OTC’s *Strategic Intelligence* course was launched in December 2012, covering topics such as intelligent research networks and next-generation knowledge management, the importance of cross-generational knowledge flows, intergenerational knowledge transfer, pillars of knowledge retention and trends in social networking. Strategic Intelligence was developed in collaboration with the Graduate School of Management and Technology, University of Maryland.²³

The United Nations Educational, Scientific and Cultural Organization (UNESCO), in cooperation with other stakeholders, has implemented capacity-building activities and tools such as the *Media and information (MIL) curriculum for teachers* and *Mobile-phone literacy targeting women and girls*, which contribute to empowering people towards building information/knowledge societies, as envisioned in the WSIS outcomes.²⁴

²³ UNDESA contribution

²⁴ UNESCO contribution

Global ICT Forum on ICT Human Capacity Development was held in Cape Town, South Africa, 22-25 October 2012. The Forum was hosted by the Department of Communications, in collaboration with the Telkom Centre for Learning, and the National e-Skills Initiative of South Africa. It was held at the Cape Town International Conference Centre. The theme of 2012 even was **“Digital Inclusion: Preparing Human Capital for the Knowledge Based**

Economy.” The objective of the Forum was to discuss the capacity building challenges of transitioning to digital broadcasting and address how these challenges can be met. The Forum was an opportunity for countries and organisations to showcase initiatives undertaken in this regard, such as the e-Skills initiative in South Africa, and the m-Powering Initiative was launched by the Director of the BDT within ITU.²⁵

²⁵ <http://academy.itu.int/>

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

Confidence and security play an essential role in the information society. Governments, in cooperation with the private sector, are working to prevent, detect and respond to cybercrime and misuse of ICTs by: developing guidelines that take into account ongoing efforts in these areas; considering legislation that allows for effective investigation and prosecution of misuse; promoting effective mutual assistance efforts; strengthening institutional support at the international level for preventing, detecting and recovering from such incidents; and encouraging education and raising awareness. Thus, the projects reported on in this chapter showcase how stakeholders are contributing on an ongoing basis to building confidence and security in the use of ICTs²⁶.

Being the lead facilitator for Action line C5 (Building confidence and security in the use of ICTs), the International Telecommunication Union (ITU) has made available to the international community a global platform for dialogue, coordination and cooperation. During the 2012 WSIS Forum, ITU organized a *Facilitation Meeting on Action line C5* and a *High-Level Panel on Cybersecurity*.

The ITU *Global Cybersecurity Agenda* (GCA) provides the framework within which the international response to the growing challenges to cybersecurity can be coordinated and addressed. Within this framework, the Union has continued play a key role in the global

community, through partnerships and initiatives. *ITU IMPACT* has provided cybersecurity services and capabilities to 146 countries and, together with the United Nations Office on Drugs and Crime (UNODC), ITU is assisting Member States in properly addressing cybercrime.

Within the framework of the GCA, the *Child Online Protection* (COP) initiative brings together partners from all sectors of the global community to ensure a safe and secure online experience for children everywhere. In 2010, ITU COP, under the patronage of the President of Costa Rica, H.E. Laura Chinchilla, launched the *COP Global Initiative* with high-level deliverables to implement the COP guidelines.

Moreover, ITU has recently drafted a *Child Online Protection National Strategy Guide*, in keeping with its commitment to a progressive and holistic approach. The document aims to present a model for developing a national strategy that mitigates online risks to children and promotes cyberspace as a non-threatening environment.

In addition, ITU is working with different partners to facilitate the establishment of *COP National Frameworks* all over the world. This high-level process will consist of five phases: assessment, definition of country plans, finalization of country plans, implementation, and monitoring and evaluation.

²⁶ Geneva Plan of Action, § 12 b)

Legal measures

As part of ITU-D Programme 2, on Cybersecurity, ICT applications and IP-based network-related issues, ITU is assisting Member States in *understanding the legal aspects of cybersecurity* in order to harmonize their legal frameworks.

Technical and procedural measures

In order to identify cyberthreats and countermeasures to mitigate risks, ITU has developed an overview of security requirements, guidelines for protocol authors and specifications for IP-based systems. ITU has been studying and standardizing Recommendations in the area of cybersecurity, anti-spam, identity management, security certificates, information-security management and others.

Organizational structure

The absence of institutional structures to deal with cyberincidents and attacks which result in fraud, the destruction of information and/or dissemination of inappropriate content is a genuine problem in responding to cyberthreats. ITU is working with Member States to provide concrete assistance in addressing this global menace.

Capacity building

ITU facilitates the implementation and deployment of cybersecurity capabilities necessary to combat cyberthreats.

International cooperation

The ITU Global Cybersecurity Agenda (GCA) is founded on international cooperation, and strives to engage all relevant stakeholders in a concerted effort to build confidence and security in the information society.

The purpose of the *Cybercrimes Law* in **Oman**, issued by Royal Decree in 2011, is to ensure the prevention, detection and investigation of cybercrimes. The law ushers in a new era for Oman, where a truly e-enabled, digital society is evolving. It is a major milestone in the implementation of the national IT strategy by the Information Technology Authority of Oman.

Also in **Oman**, the *National Information Security Centre (CIS)* is the lead body in government information security, with responsibility for implementing the *National Information Security Strategy*. CIS seeks to develop and promote effective solutions to safeguard all government end customer operations, data integrity and security. It works with government entities to secure information systems against attacks and interruptions countrywide. The centre is currently offering a full range of security services, including secured communication, web-portal protection, secure Internet access, end-point security, consultancy, assessment and society outreach. Since its establishment, CIS has successfully secured more than 250 government websites and portals.

In **Colombia**, the Ministry of Information and Communication Technology has introduced a project, known as *En TIC Confío* ("I trust in ICTs") (<http://www.enticconfio.gov.co>), for the purpose of developing and consolidating the *National Policy on Responsible Use of ICT*, promoting confidence and security in ICT usage, and stipulating content uses for the productive, creative, safe, respectful and responsible use of ICT in the interests of improving the quality of life for all. The programme focuses on guardians and children in the educational community, and to date has reached 70 000 people through interactive conferences. Future goals include attaining 11 million hits with messages for the responsible use of ICT by 2014.

In **Turkey**, the Information and Communication Technologies Authority (ICTA) has launched the *Safer Internet Service*, an Internet service provider (ISP)-level content filtering system which has its own black and white lists. SIS provides two alternatives: the Family Profile, based on blacklists, which also gives users the option of whether or not to block any or all of three categories of service, namely social networks, chat and online gaming; and the Child Profile, which is based on whitelists. Users may opt into the service, change their profile or totally opt out of SIS via SMS, through their ISP call centre or online. ICTA also collaborates with the Ministry of Education and NGOs to raise awareness in regard to the Internet.

In **Peru**, the National Register of Identity and Civil Status (RENIEC) provides a *Biometric Verification Service (BVS)* which has access to a database of more than 20 million fingerprints. It was developed in a web and client server environment and is being used by almost all notaries, the judiciary, the national police and prosecutors in Peru. The database helps to ensure the secure identification of citizens engaged in economic transactions or in need of authentication of identity. This system forms part of the modernization of Peruvian government organizations and contributes to the legal certainty of all civil acts performed by citizens.

In **Egypt**, the *Cybercrime and Data Networks Unit* has been established within the Ministry of the Interior's General Department for Information and Documentation. The department has initiated several ways to report a cybercrime, the most effective of which is the hotline 108. All reports received are handled in full confidentiality. Statistics show that, of the 1 912 reports filed in 2010, 1 378 (72 per cent) were received over the hotline. Officers receive regular training courses on the latest mechanisms for combating cybercrime. The *Risks associated with the unsafe use of Internet* curriculum was added as a core topic for officers at all security institutes. Police officers contribute to cybercrime-awareness campaigns conducted by NGOs or government institutions, especially where crimes involving children are concerned, where it is essential to be able to distinguish between the child as a victim and as an unintentional offender. The department seeks to keep up with and adopt the latest cybercrime-tracking technologies. In 2010, the Ministry of Communications and Information Technology and the Ministry of Interior, in cooperation with the International Centre for Missing and Exploited Children (ICMEC), took important steps towards application of the *Child Exploitation Tracking System (CETS)*, a new technology developed by Microsoft that helps police institutions devise methods to cope with the constantly changing nature of online child exploitation crimes. Full adoption of the system is still in the pipeline.

Also in **Egypt**, in January 2011, TE Data and Link.net introduced the *Net Clean System*, a well-known global tool using advanced technology, and operating in compliance with the vision and objectives of the Internet Watch Foundation (IWF), to block child pornography websites.

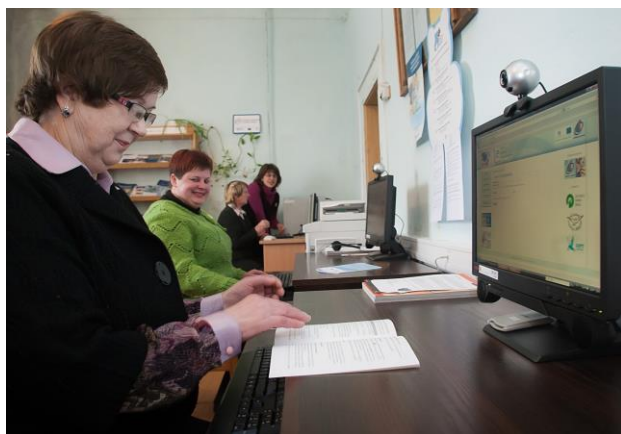
Again in **Egypt**, in 2008, TE Data (which is the main ISP in the country, with nearly 60 per cent of the market) introduced the *Family Internet* tool, which is made available free of charge to its customers. Family Internet provides parents and guardians with a technology tool that can block sites displaying indecent or inappropriate content. When a customer subscribes to this service, they are allocated a username and password to enable them to censor any pornographic or other indecent online content.

In **China**, in 2012, the Internet Network Information Centre (CNNIC) launched its *Secure Domain Name System (SDNS)*, which provides the vast netizen community with a cost-free, secure Internet access resolution service for end users. Since the Chinese domain name system is a multi-hierarchy and large-scale system with a dispersed management structure, attacks on domain name resolution servers pose a growing threat to Internet system security. A highly efficient, secure and stable recursive resolution service is of great significance for the normal operation of various Internet applications. SDNS can further effectively optimize netizens' experience by improving the Internet access resolution speed and minimizing unexpected DNS interruptions or hijacking.

In **Japan**, the Ministry of Internal Affairs and Communications (MIC), as the ministry in charge of information and communication, one of the critical infrastructures, is actively promoting measures for information security in order to create an environment in which people are able to use ICT networks with ease. Such measures include implementing the *Proactive response against cyber-attacks through international collaborative exchange (PRACTICE)* project, promoting measures for smartphone security, promoting sharing of information between telecommunication operators, promoting the privacy-protection-aware application of personal data, enhancing public education and awareness-

raising activities, and researching and developing information-security technologies.

In **Lithuania**, *Langas i ateiti* (LIA) is a Lithuanian non-profit initiative launched in 2002 by socially responsible private companies. LIA's mission is to promote Internet use in Lithuania by encouraging society to use e-services, thereby helping to raise living standards and boosting Lithuania's competitiveness. Its areas of activity are free public Internet access and large-scale ICT training projects promoting safe Internet usage. LIA has won numerous national and EU awards in recognition of its successful implementation of ICT training projects of benefit to society.



In **Egypt**, the National e-Safety Working Group started its activities in October 2009, with the aim of activating a *national strategy for protecting and empowering children online*, rooted in the belief that empowerment is the key to online protection. The group works on preventive, protective and corrective mechanisms addressing children, parents and educators. To this end, it pursues a number of objectives, including dissemination and awareness-raising on safe Internet usage in the home, educational institutions and NGOs; evaluation of the current situation of child online safety, and recommendations for the adoption of new, specific policies tailored to Egyptian society and adapted to the latest technological developments; creation of a safe environment for children online; and working with similar regional and international organizations active in the same field.

Also in **Egypt**, the Ministry of Communications and Information Technology, in collaboration with civil-society organizations, the private sector and other governmental institutions, has worked

to raise awareness of the importance of *Internet safety* and *digital citizenship* within the framework of the National e-Safety Working Group. Two working groups were established to operate in seven governorates, strategically selected geographically in order to cover different social classes, representing rural and urban areas, with different educational levels.

In **Bahrain**, the Telecommunications Regulatory Authority (TRA) has developed *SafeSurf*, an online safety tutorial in five languages (Arabic, English, Urdu, Malayalam and Bengali), aimed at helping parents/carers understand the benefits and risks of the Internet. In 2013, TRA will launch a media campaign releasing SafeSurf to parents/carers via Flash and HTML5. Following the release, it will conduct a state-of-the-nation review study on online safety in 2014, to look deeper into online safety and child protection online within the Kingdom.

In the **United Arab Emirates**, following the first phase of the awareness campaign on how to prevent Internet threats, the *Emirati Cybersecurity Advisor* provides tips and guidance on cyberthreats in the interests of fostering a safe cyberculture in UAE, the objectives being to enhance IT-security standards and practices in UAE and institute mechanisms for protecting IT information.

Egypt took the initiative of launching the *Amanak Arab Internet Safety Portal* in 2010, in collaboration with international ICT companies and international organizations and institutions: Microsoft, IkeepSafe, Childnet International. The portal, which is open to all Arab countries, is a melting pot containing comprehensive information and resources about the importance of safe use of the Internet for various groups in the Arab community (children, adolescents, young people, parents and educators, with the help of legislators and law enforcers). Egypt promoted the site by contacting the communications ministries of Arab countries as well as some Arab organizations engaged in ICT. Currently, Bahrain, Sudan and Palestine are participating in the portal. Amanak.org offers educational videos and tips on how to deal with online risks, as well as competitions, games and practices recommended by international non-governmental organizations experienced in the

Internet safety field. The site also focuses on capacity building to encourage users to broadcast their content.

Egypt has also submitted an *Arab regional project on Internet safety* that was approved by the Arab Council for ICT ministers in 2009. The project had a duration of two years, with an estimated cost of EGP 2.5 million. The Arab e-safety project focused on: developing and adopting safety tools, capacity building for experts and trainers, developing educational curricula, disseminating awareness programmes, harmonization of policies and legal measures, enhancing cooperation at the Arab level and internationally, and creating safety content suitable for different categories and segments.

In the **CIS** countries, *Transboundary trust space* (TTS) was established by the Regional Commonwealth in the field of Communications (RCC) in order to ensure the interoperability of organizations' information systems and enable agencies to operate through a single unified platform. Organizational and legal aspects include creation of the concept for the development and adoption of draft documents for the coordination

and audit activities of TTS participants in different types of TTS architecture implementation. The concept includes formation of a nomenclature algorithm for legal, organizational and technological documents, as well as recommendations for the content of such documents.

In **Hungary**, the Ministry of Foreign Affairs organized the *Budapest Conference on Cyberspace*, bringing together leaders from governments and industry, the Internet technical community, civil society and young people from around the globe. With over 600 participants from over 60 countries, the conference fostered global dialogue and reinforced the willingness and readiness to focus on creating and safeguarding a reliable and secure cyberspace.

In **France**, Together against Cybercrime International (TaC) implemented a project resulting in the initiative of a *sociological research survey on the use of ICTs by vulnerable children and youth*. The outcome of the survey will be a fully developed research framework available for implementation in all interested countries.

Action Line C6. Enabling environment

Integration in the information society can yield many social, economic and environmental benefits. In order to facilitate this process, governments and other agencies recognize the importance of creating an enabling environment with transparent and non-discriminatory policies and regulation.

Acknowledging the strong commitment of the International Telecommunication Union (ITU) to bridging the digital divide in the area of the enabling environment, the United Nations Development Programme (UNDP), in May 2008, officially handed over the lead facilitation role on WSIS Action Line C6 to ITU. Since then, ITU has been acting as the sole facilitator for this action line, building upon its regular work carried out within the framework of ITU-D Programme 3: Enabling environment, in close collaboration with ITU-D Programme 2: Cybersecurity, ICT applications and IP-based network-related issues. The Union organized the sixth meeting on WSIS Action Line C6 on 15 May 2012, during the WSIS Forum.

ITU has undertaken numerous activities that foster the development of an enabling environment worldwide, including information-sharing; the creation of tools for effective regulation; national and regional assistance; and the creation of training materials and opportunities. Examples of these ongoing activities include:

- The 12th *Global Symposium for Regulators* (GSR-12), held in Sri Lanka in October, on the theme “Why regulate in a networked society”, which approved best-practice guidelines on regulatory approaches to foster access to digital opportunities through cloud services.
- The 13th *Forum on Telecom/ICT Regulation and Partnership in Africa* (FTRA), held in Gabon in June, which focused on analogue-to-digital television migration - sharing experiences, migration strategies and digital dividend.
- ITU-D also continued to collect and analyse *regulatory trends and practices*, and *tariff policies*.
- Various regulatory publications were released, including the annual *Trends in Telecommunication Reform* report, a new series of thematic reports and country case studies on *broadband* (developed jointly with the secretariat of the Broadband Commission for Digital Development).
- The *ITU Broadband Atlas*, an interactive online 3D data visualization tool, allows simple and user-friendly visualization of broadband penetration.
- The joint [ITU-infoDev ICT Regulation Toolkit](#), which features insightful and up-to-date analysis and information on key regulatory issues, as well as best practices, assists regulators in the design of effective and enabling regulatory frameworks.
- *Regional workshops on costing issues* were organized in collaboration with ITU-T.
- The *Global Regulators’ Exchange* (G-REX) continued to offer regulators the opportunity to share experiences, as did the TREG *Regulatory Knowledge Centre* and the *Regulatory Blog*.

- The *ICTEye* and *ICTDec* portals were redesigned to be more interactive.

(More information is available at www.itu.int/itu-wsis/docs/WSIS2011-ITU_Contribution.pdf)

ITU also assists its members in developing policies and regulatory measures for *accessible ICTs*, in line with Article 9 of the United Nations Convention on the Rights of Persons with Disabilities (CRPD). Together with its partner G3ict, the Union has launched an online toolkit to share best practices with policy-makers and regulators on promoting accessible ICTs for persons with disabilities (www.e-accessibilitytoolkit.org/).²⁷

The United Nations Conference on Trade and Development (UNCTAD) has also undertaken a number of activities in regard to Action Line C6.

In **East Africa**, as part of the programme for the harmonization of cyberlegislation in the five States of the East African Community (EAC), supported financially mainly by the Government of **Finland**, UNCTAD has continued its support to EAC. The UNCTAD *TrainForTrade* platform was used to deliver the distance-learning modules of the training course on the *Legal aspects of e-commerce* to various groups of stakeholders (including judiciary and lawmakers). Following the *Training of technical tutors* in Nairobi in February 2012, the trainers helped deliver, from May to June 2012, a distance-learning course on the legal aspects of e-commerce to an audience of 43 policy- and lawmakers in **Kenya** and **Rwanda**.

A new study, entitled *Harmonizing cyberlaws and regulations: the Experience of the East African Community*, reflects the joint work carried out by UNCTAD and the EAC Task Force on Cyberlaws since 2007 in support of EAC's e-government and e-commerce strategies for accelerating regional integration. The study documents the status of cyberlegislation in the region and identifies best legislative standards to ensure cyberlaw harmonization.

In **Latin America** and the **Caribbean**, a workshop on *cyberlaw harmonization* was organized with the support of TrainForTrade in Paraguay (February 2012), as a continuation of the activities carried out in Latin America since 2007. Twenty-eight participants from 15 member countries of the Latin American and Caribbean Economic System participated in the workshop, following up on an e-learning course held a year earlier on *Legal aspects of electronic commerce*. In addition, at the request of the Permanent Missions of **Cuba** and **Ecuador** in Geneva, UNCTAD organized (together with ITC and the Friedrich Ebert Stiftung) a two-day seminar on *E-commerce, SMEs and development* in February 2013, aimed at raising Latin American delegates' and government experts' awareness of the development dimension of e-commerce.

In **South-East Asia**, UNCTAD, together with the Association of South-East Asian Nations (ASEAN) secretariat, launched a *comprehensive review of e-commerce legislation harmonization* in the region, in support of implementation of the ASEAN ICT Master Plan 2015. A first joint workshop was organized in Cebu, **Philippines** in November 2012.²⁸

C6.1 Policy, regulatory and legal reforms and Internet-related law and governance

In **Latvia**, the *Personal Electronic Identification Law* was approved. To receive electronic services, individuals use different methods to confirm their identity: e-ID cards, e-signature and i-bank identification tools. The right to use e-ID cards as identification tools is defined in the Personal Identification Documents Law, and e-signature in the Electronic Document Law. There is thus no unified legal framework that regulates the usage of different identification tools in an electronic environment. For this reason, in order to define the legal status of a person's electronic identification, the Personal Electronic Identification Law was drawn up. The identification process applies only to

²⁷ ITU contribution

²⁸ UNCTAD contribution

individuals (excluding legal persons). Two forms of identification are foreseen: “qualified electronic identification” and “high-security qualified electronic identification”. The Law has yet to be approved by the Cabinet of Ministers and Parliament.

Germany’s international cooperation agency (Gesellschaft für Internationale Zusammenarbeit GmbH - GIZ), on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ), has implemented a series of projects to promote enabling environments in a number of countries.

- **Albania** – *Investment and export promotion*

The overall target of this project is to improve the international competitiveness of Albanian companies in, among others, the IT/software sector. The project focuses on strengthening associations, clusters and chambers, and lends support to the development of a national export strategy, facilitating its implementation in the fields of export promotion, international branding, clusters and cooperation, ability to export, quality of enterprises and export-oriented investments.

- **Namibia** – *Support to Namibian regulatory authorities in regard to universal access*

At the request of the Ministry for Information and Communication Technologies, Germany is supporting Namibia in the design and implementation of policy and regulatory activities. Better regulation will help provide the population, especially those living in remote areas, with affordable access to the Internet. Accordingly, workshops have been conducted on universal access policy, and implementation of the policies is being supported.

- **Namibia** – *Partnership for economic growth*

This project seeks to improve the basic conditions for private-sector and employment growth, especially in the northern regions of Namibia, by supporting the adaptation of regulations governing branchless banking and mobile money.

- **Palestine** – *Development of the private IT sector*

The programme aims at developing an enabling environment for Palestinian enterprises to boost the competitiveness of local companies. With a focus on the ICT sector, the project will, in cooperation with relevant institutions (associations, ministries and universities), facilitate the development and implementation of strategies and support programmes.

In the **CIS region**, issues of *legal approximation* are considered within the framework of cooperation between the CIS Inter-parliamentary Assembly (IPA) and the Regional Commonwealth in the field of Communications (RCC). In this context, the CIS RCC-IPA Council of Experts, set up in 2002, has adopted more than 13 model laws. Future steps include the implementation of these model laws by RCC communication administrations and parliaments of CIS states as a regulatory framework for building the information society.

In **Indonesia**, the Ministry of Law and Human Rights has established the *National Legal Documentation and Information Network*, bringing together 760 members of legal bureaux of ministries, non-ministry state institutions, regional provinces, cities and districts, university faculty law libraries and other legal documentation and information institutions. Furthermore, to date, 75 per cent of the network is linked to the National Legislation Training Agency of the Ministry of Law and Human Rights Affairs/BPHN portals (www.bphn.go.id). The network will help provide guidance in the efforts being made to create a trustworthy, transparent and non-discriminatory legal, regulatory and policy environment.

In **Qatar**, the Supreme Council for ICT (ictQATAR) and the Ministry of Justice have launched *Al Meezan*, Qatar’s first official legal portal for all the country’s regulations dating back to 1961. Al Meezan constitutes a crucial step in the implementation of an open-access policy in the State of Qatar, to ensure government transparency and widespread access to all legal documents, making them available for all citizens,

residents and government agencies as well as internal and external investors through a single, credible one-stop shop. The portal, which contains a comprehensive glossary of legal terms in Arabic and English, has been designed in accordance with W3C's global guidelines for web accessibility to ensure that all users, including persons with disabilities, can access the documents it contains; for instance, audio access to Qatar's legislation is supported, thus catering for users with hearing disabilities.

In **Pakistan**, the Software Export Board (PSEB) is an apex body of the Government of Pakistan with the mandate of promoting the Pakistani IT Industry in local and international markets. PSEB supports the IT industry through a series of projects and programmes in infrastructure development, human/intellectual capital development, company capacity building, international marketing and promotion of innovation and technologies. The organization makes every possible effort to facilitate the task of IT companies operating in Pakistan and solicits international IT companies to consider the incentives being offered by the Government. There are more than 1 500 IT companies registered with PSEB, possessing expertise in custom software development, ERP, financial solutions, mobile content, document management, enterprise computing and BPO.

C6.2 Small and medium-sized enterprises

In line with the Geneva Plan of Action, governments, in collaboration with stakeholders, are encouraged to formulate conducive ICT policies that foster entrepreneurship, innovation and investment, and with particular reference to the promotion of participation by women.²⁹

Governments recognize the economic potential of ICTs for small and medium-sized enterprises (SMEs) and continue to work towards investment opportunities for this type of concern.

Recently, governments have been setting up incubators and innovation centres to provide essential financial resources and help for new

companies. This kind of entity empowers entrepreneurs to develop their ideas through the use of ICTs.

The projects described below demonstrate how ICTs are important for SMEs.

In **Rwanda**, *kLab* (knowledge lab) promotes, facilitates and supports the development of innovative ICT solutions by nurturing a community of entrepreneurs and mentors. To this end, kLab brings together like-minded innovators and gives them the resources they need to explore their ideas, learn from one another and develop innovative solutions. The knowledge lab is a technology space in which ambitious entrepreneurs can confer and develop their trailblazing ideas into successful businesses. It acts as a focal point for the development of ICT solutions in Rwanda, bringing together experienced mentors and young innovators. It also acts as a host for competitions, seminars and other community-led events.

In **Qatar**, the *Digital Incubation Centre* (DIC) was created in order to provide an effective support system that promotes Arabic digital content by planting great ideas and nurturing them with infrastructure, finance and intellectual support. It gives new companies essential resources and help with the commercial registration process, as well as expert training and counselling throughout. It provides a space that is both physical (in the form of an actual office or workstation) and intellectual. DIC can empower entrepreneurs to develop their ideas to their full potential, with the tangible goal of bringing the entrepreneurial business to maturity.

In **Algeria**, the National Agency for the Development and Promotion of Technology Parks has developed a *support programme for young innovators in the field of ICT*, to encourage and back people with projects in the ICT field by hosting them in the incubators of the technology parks created by the national agency, in particular the Sidi Abdellah (Algiers) and Ouargla (southern Algeria) cyberparks. The agency also helps and supports start-ups developing innovative projects in the field of ICT. Records show 52 project-holders in the Sidi Abdellah incubator, launched in May 2010, and 16 project-holders in Ouargla, resulting in the creation of 13 ICT companies.

²⁹ Geneva Plan of Action, § 13 I)

In **Mexico**, the Secretariat of Communications and Transportation (SCT) has formed *Club Digital*, providing mass open online ICT courses. Through an innovative web-based learning model, the Club Digital initiative aims to promote entrepreneurship among young people in order to foster technological project development. The platform contributes to the creation of an enabling environment for the use and appropriation of ICTs. Its contents, provided by SCT and its technological partners and entrepreneurship specialists, can be accessed at no cost. The participation of ICT partners promotes the appropriation of cutting-edge tools that facilitate Club Digital users' SMB entrepreneurial skills.

In the **United Arab Emirates**, *Silicon Oasis Founders* (SOF), a technology incubation centre wholly owned by the Dubai Silicon Oasis Authority (DSOA), has been established in Dubai Silicon Oasis (DSO), an integrated free zone technology park. SOF was set up with a strategic commercial ambition and long-term vision to position itself as a leading incubator supporting high-potential technology ventures in the seed phase. It focuses on fostering local entrepreneurial talent in information technology, Internet, e-commerce technology and mobile. The centre's expertise will help emerging entrepreneurs refine their business proposals, execute plans and accelerate growth. New businesses will receive guidance and assistance in the form of services such as business set-up support, workspace facilities, networking opportunities with other IT professionals, videoconferences and business consultancy, as well as financial, technical and marketing mentorship.

In **Bulgaria**, the Small and Medium Enterprises Promotion Agency (BSMEPA) has established a *National Export Portal*, with the following general objectives:

- Strengthening and expanding the presence of Bulgarian companies in European and world markets, and effective use of the advantages of the single European market
- Supporting a database of Bulgarian companies with export potential
- Access to information and services
- Company matchmaking
- Market research, economic analysis and reports
- Up-to-date trade and market information from Bulgarian commercial and economic offices abroad
- Promotional events
- Seminars and information days
- Export strategies and policies for the priority economic sectors
- Funding sources.

Germany has implemented a number of SME projects through its international cooperation agency (Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH), on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ):

- **Central America** - *Programme for sustainable economic development*

The overall target of this programme is to improve the political and institutional conditions in the interests of promoting the trade and technology capacity of innovative SMEs in **El Salvador, Guatemala** and **Honduras**. A major thread is increasing the competitiveness of the IT sector by strengthening national associations and clusters. To ensure the effectiveness and sustainability of the project, a systemic approach was developed, including specific measures for cluster promotion, export promotion, capacity building and training, as well as the development of an IT-industry barometer for monitoring and evaluating the performance of the IT industry.

- *Promotion of competitiveness and growth of SMEs and of the microfinance sector.*

One of the goals of this project is to improve the competitiveness of SMEs in the ICT sector. To promote the ICT sector, ICT SMEs' access to public tendering has to be facilitated through the implementation of a more transparent and efficient system of public procurement for the ICT sector. Awarding of public contracts to local ICT SMEs will strengthen the local economy.

- *Economic development and employment promotion programme*

This programme aims to increase the competitiveness of SMEs in, among others, the IT sector. At the political level, it will support the implementation of measures building on the outcomes of public-private dialogue. The project will also facilitate clusters, company foundations and promotion of SMEs, and seek to improve advisory services to SMEs by strengthening national associations and chambers.

Action Line C7. ICT applications: Benefits in all aspects of life

ICT applications can support sustainable development in different sectors such as public administration, business, education and training, health, employment, environment, agriculture and science within the framework of national e-strategies.³⁰ This chapter illustrates how ICT applications can maximize social and economic benefits for society.

C7.1 E-government

The United Nations Department of Economic and Social Affairs (UNDESA) is the lead facilitator for Action Line C7: E-government. The following activities were undertaken by UNDESA in the period 2012-2013.

The *United Nations E-government Survey 2012* found that many countries have put in place e-government initiatives and ICT applications for their populations, in order to further enhance public-sector efficiencies and streamline governance systems to support sustainable development. Among the leading proponents of e-government, innovative technology solutions have gained particular recognition as a means of revitalizing sluggish economic and social sectors.

The overall conclusion which emerges from the 2012 survey in today's recessionary world climate is that, while service delivery remains important, governments must increasingly begin to rethink in e-government – and e-governance – terms, placing greater emphasis on establishing institutional linkages, strengthening government capacity and fostering comprehensive participation of citizens between and among the tiered government structures in a bid to create synergy for inclusive sustainable development. An important aspect of this approach is

broadening the scope of e-government, fully embracing the citizen engagement component, thus enabling government to play a transformative role towards cohesive, coordinated and integrated processes and institutions through which such sustainable development takes place.

As in the past, alongside the seventh *Facilitation Meeting* for Action Lines C1, C7 (e-government) and C11 of the Geneva Plan of Action and the Tunis Agenda, held on 17 May 2012, and in cooperation with ITU, UNDESA organized a thematic workshop on *Future government: A global perspective in connection to open government data and citizen engagement* in Geneva on 16-17 May 2012, during the 2012 WSIS Forum. The facilitation meeting served as an enabling platform for WSIS outcomes, where an international and multidisciplinary group of experts and national practitioners (including public officials, academia, civil society and private-sector stakeholders) were able to share their experiences and exchange practices, including in the area of e-government. The workshop sessions took an in-depth look at the main global trends, policies, strategies, action plans and case studies on open government data for greater transparency and citizen engagement, to promote effectiveness, efficiency and accountability in public management and to contribute to WSIS and MDG implementation at the international, regional and national levels.

³⁰ Geneva Plan of Action, § 14

UNDESA also organized *regional workshops* providing a forum for countries to exchange ideas, learn from each other, and form e-government networks among countries. These included: the *Global E-government Forum* in Seoul, Republic of Korea, on 18-19 October 2012, and a workshop on *E-government: From policy to practice*, on 26-27 June 2012 in New York, United States, both of which were organized by UNDESA in cooperation with the United Nations Project Office on Governance (UNPOG); a workshop on *Leadership capacity development for improved delivery of public services in Africa using ICT*, in Addis Ababa, Ethiopia, from 23 to 25 July 2012; and a workshop on *The next stage in open government data: Using data for transparency, accountability and collaboration*, held in Cape Town, South Africa from 10 to 12 October 2012. The substantive discussions and inputs from the participants underlined the importance of strengthening leadership in the design and promotion of “whole-of-government” approaches (WGA), i.e. integrating institutions and coordinating their actions to better serve citizens in a demand-driven and client-oriented manner, associated with the implementation of e-government strategies through collaborative government approaches, including partnerships within government institutions and with external partners, such as the private sector and civil society. In this process, a balance needs to be struck between the desirability of open government and civic engagement and the need for security of personal, private and governmental data.

UNDESA has continued to strengthen its *partnerships* with international institutions and other stakeholders to develop a coherent *e-government support mechanism*, including: partnership with the Government of **Colombia** on *e-government development in Latin America*; partnership with multilateral development banks for *e-procurement*; partnership with several universities to develop the *UN E-Government Survey*, as well as Boston University to provide *training for chief information officers (CIOs) and*

senior e-government officials. To date, Boston University has delivered four CIO courses (two in **Saudi Arabia** and one each in **Brunei Darussalam** and **Qatar**). Discussions are currently under way for a similar course in **Bahrain**.

The *Measurement and Evaluation Tool for E-government Readiness (METER)* is a ready-to-use interactive web-based tool to help governments monitor and identify areas for further development within the national e-government environment. A sixth pillar on marketing has been added as a result of inputs from Member States.

Since 2006, UNDESA has been publishing the *Compendium of innovative e-government practices*. This publication contains a compilation of case studies of innovative e-government solutions, services and applications with elements of transferability and adaptability. In 2012, Volume IV of the Compendium was finalized, and the case studies in all the volumes are available and searchable through the online database established within the *United Nations Public Administration Network (UNPAN)*.³¹

Under the Geneva Plan of Action, governments are called upon to develop national e-government initiatives and services, at all levels, adapted to the needs of citizens and business, to achieve a more efficient allocation of resources and public goods.³²

There are numerous examples of projects, initiatives and other activities that have been launched to enable government agencies to share information securely at higher speeds and more cost effectively. This kind of activity includes, but is not limited to, the development of *workflow and integrated document management systems, call systems, e-government web-portals, information networks, federal government data centres, intranets, online government strategies and programmes*, etc. All these activities are linking all government entities/municipalities/agencies nationwide, thereby enhancing the delivery of a range of e-services at the national level.

³¹ UNDESA contribution

³² Geneva Plan of Action, § 15b)

Examples of governments actively implementing e-government strategies and other e-government related programmes are cited below.

In the **United Arab Emirates**, Emirates eGovernment announced an *E-government Plan 2012–2014* and the initiatives for 2012. Successful implementation of the *Federal E-government Strategy 2012-2014* will help in improving UAE's global competitiveness and enhancing the country's e-transformation, as confirmed in the recently released biennial UN E-government Survey 2012.

Saudi Arabia launched the *e-government programme* in 2005 to begin the modernization and transformation of government administration and enhance service delivery to public and commercial stakeholders. Good progress was made during the first five years, and over 780 government services are now available online. The *National E-government Strategy* and second *Action Plan (2012-2016)* provide a comprehensive roadmap which includes detailed specifications of the work required across all government agencies, an approach to building required capabilities and skills, and the measurement of progress. It also covers the development of m-government services, service transformation and e-participation.

In **Mauritius**, the *E-government Strategy* aims to review actual needs and recommend appropriate e-government solutions in terms of suitable information systems as well as hardware, system software and communication facilities for more effective, secure and efficient delivery of government services to citizens and businesses. The strategy will focus on: re-engineering and integrating service delivery; cooperation between all levels of government so as to provide integrated and secure services across organizational boundaries and administrative layers around the national identity card, public key infrastructure and e-payment; simplification of administrative procedures for citizens and businesses; and back-office integration and protection of personal data.

In **Bulgaria**, the Ministry of Economy, Energy and Tourism's *Sector Strategy for E-government for 2012-2015* is developed in accordance with the

Common Strategy for E-government in the Republic of Bulgaria 2011-2015, which sets the framework and defines national strategic objectives for the accelerated establishment and development of e-government. It forms part of the national efforts to contribute to a series of regional initiatives within the European Union in the area of e-government, in particular the Digital Agenda for Europe and the European E-government Action Plan 2011-2015. The sector strategy presents the mission, vision and objectives of the ministry with a view to the rapid development of e-government and more effective use of public bodies' information resources to modernize and transform the work of the public administration so that it meets the needs and expectations of citizens and business operators.

In **Colombia**, the *Online Government Strategy* is a set of technical, regulatory and public policy provisions aimed at building a more efficient, more transparent and more inclusive State and providing better services with the collaboration of society as a whole through the use of ICT, with the ultimate goal of boosting competitiveness and improving the quality of life and the prosperity of all Colombians.

In **Azerbaijan**, the *E-government State Programme* considers a range of actions geared to the effective use and development of existing potential in Azerbaijan; modernization of the ICT sector from the organizational, legal, technical and HR standpoints; formation of the ICT industry; attracting new investments in the ICT field and expanding business, adhering to the principles of a free market and healthy competition; the implementation of projects of social importance; and ensuring Azerbaijan's transition to the information society.

In **Saudi Arabia**, since 2006, responsibility for measuring governmental agencies' transition to e-government in terms of their initiatives and services has been entrusted to Yesser (*Saudi E-government Programme*), on a yearly basis. To this end, Yesser provides and follows up comprehensive methodological reports, applying international best practices as the foundation for the design of a comprehensive measurement

framework to provide decision-makers with direct measurements of the progress of work across government agencies as well as performance indicators directly related to meeting the objectives of the *E-government initiative*.

In **Latvia**, the Ministry of Environmental Protection and Regional Development has introduced the *Electronic Government Development Plan for 2011-2013*. The plan is a short-term development planning document setting out 192 actions which aim to boost e-government, strengthen state policy and complement regulatory actions in a wide range of domains (e.g. e-skills, broadband access, e-identification, e-procurement, e-invoice, e-justice, e-health, mobility and social security). Activities are being implemented within the framework of projects funded by the European Regional Development Fund, the European Social Fund, the Latvian and Swiss cooperation programme funds, and the national budget.

Kuwait Government Online is the official portal of **Kuwait**. It provides citizens, businesses and visitors with information and e-services such as e-payment of governmental fees and making queries about government services and applications. The portal design is compliant with the latest standards related to accessibility, usability, performance and security (such as the W3C Web Accessibility Guidelines). The portal also includes a section dedicated to IT literacy containing IT awareness material (such as videos) to increase the level of digital knowledge.

In **Japan**, on the basis of the *Outline of the Basic Policy for Advancing E-government (IT Strategic Headquarters Decision - August 2011)*, aimed at making administrative services more convenient and improving the efficiency and transparency of administrative management, the Government of Japan is promoting open government and the online use of administrative procedures, as well as the consolidation and aggregation of government information systems, by constructing the *Government Shared Platform*, which will employ cloud-computing technologies.

Some governments are adopting an eco-efficiency technology solution by implementing government electronic systems for document and workflow management and creating government networks. Examples of this kind of activity are given below.

In **Peru**, the *National Register of Identity and Civil Status* (RENIEC) has introduced an *Integrated Workflow and Document Management System* (IWDMS). The IWDMS is a technology-based solution, unique within the Peruvian government institutions. It enables integration and interoperability of documents generated by an organization. It was developed on the basis of a workflow approach capable of showing all related documentation, allowing any type of document preparation and responding promptly to requests, as well as monitoring and control. It is an eco-efficient technology solution that has been successfully transferred to key institutions and Peruvian government organizations.

In **Bulgaria**, the Bulgarian Institute of Metrology (BIM) has carried through the implementation of a multifunctional system for documentation and workflow and interconnectivity between government institutions using advanced technologies. The web-based system covers all BIM users working with documents that report and perform assigned tasks. The system supports documents in a central database and provides a high level of security and data protection using modern cryptographic algorithms. It ensures interconnectivity by providing automatic electronic exchange of documents between related communication systems in government institutions. Remote access to the system is possible over encrypted channels outside the BIM local network used by authorized senior staff. The system offers the possibility of extending its scope to cover the activities of other related structures.

After implementing the *public key infrastructure*, the Government of San Luis province in **Argentina** launched a project that provides an ID to all its citizens, guaranteeing them a *digital identity* and hence allowing them to sign digital

and electronic documents. It also implemented a *document management system* offering large-scale digital signature (www.docu.sanluis.gov.ar) which complements the citizens' portal (www.puntano.net), allowing residents to carry out transactions within the framework of certain government services using digital signature. The next step will involve beginning to open up public data, following data publication standards, in order to understand and facilitate participatory forums to create new services that leverage the value of public data.



In **Morocco**, the Ministry of the Interior has implemented an *electronic desk for ordering administrative documents* - *Watiqa.ma*, which allows users to apply for administrative documents remotely over the Internet and receive them physically, by registered mail, at the address of their choice. The first service currently available is the ordering of documents from the civil registry - copy of birth certificate and a full extract from the registry. In January 2012, the scheme started with the city Rabat on a trial basis. The next two steps are the expansion (in progress) to all the municipalities of the Kingdom (six cities are in the pipeline) and extension to other administrative documents.

In the **Islamic Republic of Iran**, the *Central System for Exchanging Information* is a software system that operates as a secure central hub infrastructure for integrating the software systems and databases of organizations throughout the country. The system acts as a central switch: rather than communicating with other organizations to obtain certain information, organizations communicate with a central switch, which thus acts as a database for the country's organizations.

In the **United Arab Emirates**, the *Adaa* system was developed in order to provide an effective institutional performance management mechanism. It serves all the different levels of the organization, making it highly integrated and comprehensive. Moreover, it can also be accessed from anywhere and on the go, for example via mobile and laptop devices. It is designed as an electronic platform to support strategic decision-making in the federal entities, in addition to providing briefing reports to the leadership on progress towards achieving UAE's Vision 2021. The new system promotes and supports internally the process of management and follow-up of the strategic and operational plans, and reports on progress.

Also in the **United Arab Emirates**, the *Government Service Bus* (GSB) is ushering in a new era of technological advancement within Dubai E-government, allowing the integration of systems, data and services among all government departments and entities so as to exchange information and complete public transactions. It also spares customers the inconvenience of moving from one government department to another for stamps, approvals and other information that may be required. Currently in use by 15 government departments and entities, GSB offers a common infrastructure that enables these departments to integrate their electronic services in a well-secured, reliable environment, while at the same time verifying user identity.

In **Kuwait**, the Central Agency for Information Technology (CAIT) has established the *Kuwait Information Network* (KIN), which represents one of the fundamental e-government projects in the State of Kuwait and operates as the official governmental network. CAIT has accomplished KIN phase I since 2009, and has declared it to be the official government network, enabling government agencies to share information securely at higher speeds and more cost effectively. This shared network has contributed to improving the delivery of information and the development of e-government projects. KIN phase II focuses on utilizing, expanding and enhancing the existing network to serve more customers in both the governmental and private sectors so as to leverage its benefits.

In **Pakistan**, the Electronic Government Directorate under the Ministry of Information Technology has established a *Federal Government Data Centre and Intranet*. The scope of the project is to provide basic IT infrastructure to 34 federal government ministries/divisions, connect 55 federal government entities with the central data centre using a secure metropolitan area network (MAN), and establish a secure data centre for the provision of e-services to those ministries/divisions. The basic IT infrastructure has been provided to 34 federal government ministries/divisions, and interconnectivity between 55 ministry/division locations and the primary site has been achieved using a dedicated MAN comprising approximately 72km of optical fibre ring.

In **Algeria**, an *intranet network* has been established in order to provide electronic mailing and tools to facilitate the follow-up of oral and written questions from parliamentarians. In addition, the network enables the monitoring of draft laws and orders.

In **Oman**, the Information Technology Authority has established the *Oman Government Network* (OGN), a nationwide telecommunication infrastructure interconnecting government agencies that are spread over the country's entire 309 500 km² of surface area, which encompasses a diverse range of topography. The network is the

backbone of e-government connection systems linking all government entities/municipalities across the country, enhancing the delivery of a range of e-services provided to citizens and businesses. Having been designed to cater for the verified and potential demand for convergence and the technological advances of a digital society, this network service has the capability of supporting data, voice and video over the same infrastructure.

Under the Geneva Plan of Action, stakeholders continue to implement e-government strategies focusing on applications aimed at innovating and promoting transparency in public administrations and democratic processes, improving efficiency and strengthening relations with citizens.³³

In order to strengthen relations with citizens, governments are working on launching government portals to facilitate citizens' access to information. Such portals provide information on government activities and services available in the country, as well as more specific public services such as police, post, notary and others. To enhance citizens' inclusion, many countries are establishing call centres to provide a responsive service to all enquiries or complaints formulated by the public.

Examples of this kind of activity are given below.

In **Oman**, the new *Oman Post website* was launched in accordance with the Royal Directives of His Majesty Sultan Qaboos to stimulate the role of e-government in different spheres of life in the Sultanate, including the postal sector. The Oman Post website pursues the government's drive to provide all its services under the umbrella of e-government in all sectors. The website offers various types of information and service to users, such as the history of the postal services in Oman, postal services provided by Oman Post, government services, corporate services and postal tools. Moving with the changing times, Oman Post, the state postal authority, has introduced the *E-Post initiative*, the first of its kind in the world. Both digital and printed mail will converge to one unique digital address, and each individual, whether national or expatriate, will be given a unique identity for life,

³³ Geneva Plan of Action, § 15a)

free of charge. This identity will offer people convenience and hassle-free transactions, and will also move with the person to whichever part of the country he or she is living in.

Also in **Oman**, the Official *E-Government Services Portal* (www.oman.om), known for short as *Omanuna*, serves as the gateway to services and information from the government in the Sultanate of Oman. Portal users have access to e-services, supported by the necessary information and guidelines on using the different services. The portal has been designed with the user's needs in mind. It offers a singly entry point to government services, at any time, from anywhere, with secured and integrated services. The process is transparent. In addition, the portal has a common look and feel, making it easy to browse and identify the requirements at a glance.

In **Jordan**, *SMS Gateway* is one of the services provided by the e-government programme for government entities. The SMS service is one of the most intensively used channels, and the most prevalent among the various segments of Jordanian society.

The *Jordan E-Government Portal* was launched on the Internet in 2006 as the official e-government website (www.Jordan.gov.jo). It is intended to constitute the focal point and a unified, comprehensive gateway for citizens, businesses and government, enabling them to reach information in which they are interested. The e-government portal is designed to facilitate interaction of citizens, residents and businesses with government agencies, thereby increasing the level of transparency of the latter's services and procedures. It also increases both trust in government performance and the volume of readily available and relevant information. The portal's content includes: government services; governmental agencies list; e-services; "Enquiry" service.

In **Kazakhstan**, the *E-government Portal* is a single resource providing citizens with all necessary information and public services online. The available services are relevant for citizens in a whole host of key situations: doing business, founding a family, childbirth, retirement, mortgages, etc. By integrating government services and optimizing service delivery processes, the E-government Portal helps citizens save time

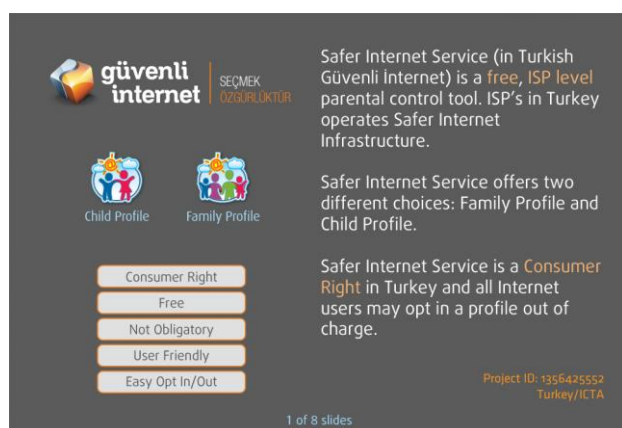
and money. For example, the process of online business registration takes no more than one day, as against about a month previously. Some 60 per cent of socially significant services are now available, and 100 per cent will be offered online by the end of 2013.

In **Austria**, the Danube University Krems has developed an *Open Government Data Portal*. Open Government Data has well agreed benefits: better image of administration; strengthening political processes by more informed citizens; supporting new business models by lowering the entry barrier for start ups; and fostering creativity and innovation to meet the challenges of a digital society. However, on the way to Open Government Data Austria, new challenges in trans-federal cooperation had to be met, which will ultimately improve the effectiveness and efficiency of administration as a whole. There will be new ways of faster and more informal ways of consensus finding; incorporation of citizen feedback loops; true cross-agency interoperability; and integrated information management.

In **Islamic Republic of Iran**, a *Public Communication Center SAAMAD.IR* has been established. The new structure was designed and implemented with the aim of facilitating the communication with the government for following the issues: problems and complaints in network and layer form and in national, organizational, provincial and county level. The purpose is also too facilitate the public access to government, the process to meet the demands of people submitted to lower levels (county, province) and the centre changed to a high monitoring centre of public communication. People can provide ideas, designs, suggestions, complaints, criticism and requests by phone 111, and communicate with the local Governor.

In **Turkey**, the *SMS judicial information system* provides an outstanding service for the citizens and lawyers which enables them to receive SMS messages containing legal information such as on-going cases, dates of court hearings, the last change in the case and suits or department claims against them. Therefore, the citizens and lawyers can be instantly informed by SMS about any kind of legal event related to them without going to courts. A cooperation agreement has

been signed with the GSM operators in order to establish this system that makes it possible to send SMS to the concerning parties mobile phones. This system aims to automatically inform all related parties of cases when any legal event, data or announcement (which has to be sent parties) realized by the judicial units such as courts, public prosecutor offices and enforcement offices. Sending a SMS does not replace official notification as it provides information to the parties so that they can take necessary measures in time without delay in order to prevent loss of legal rights.



In **Pakistan**, the *Electronic Government Directorate* under the Ministry of Information technology has developed *Government of Pakistan (GoP) Web Portal*. The whole environment of GoP (www.pakistan.gov.pk) web portal has recently been revamped to cater for the large volume of public visits. 2,555,000 visits in current year has been received by the portal. A part of its natural move towards interactive and transactional phases, EGD is incorporating citizen-services gateway to the citizens. The identification of these citizen services will be initiated in the 2012-2013 year and subsequently small projects will be launched for development and deployment of these citizen services in next five years.

In **Mexico**, the Secretary of Communications and Transport (SCT) and the Coordination of the Information Society and Knowledge launched the *e-Mexico System*. It aims at increasing the coverage of digital content and services in the country, focusing on reducing the digital divide. It offers citizens digital content and services

designed to strengthen and support social welfare programs of the Federal Government, especially related to learning, health, economy and government. The content offered by the e-Mexico System presents a portal platform (www.emexico.gob.mx) which has more than 31,000 content and consists of 14 thematic sites. To date, the platform has been deployed more than 1 million pages and it has more than 170 thousand registered users.

In **Algeria**, *SIDJILCOM* was created to serve as portal for companies legal information. *SIDJILCOM* is the official portal of National Center Commercial register, which provides and diffuses legal information regarding Algerian companies and merchants. Information is provided on how start business in Algeria, and also specific services to professionals are offered. The portal is interactive and dedicated to both national and international operators.

In the **United Arab Emirates**, the Telecommunication Regulatory Authority has implemented *Ana Electroni*, which means "I am an e-user", a large-scale promotional campaign programme designed to educate the public about government e-services in UAE and encourage them to take up e-services. The campaign is aimed at demonstrating how e-services save the public time, effort and money as compared with traditional over-the-counter services. The campaign will build confidence in the use of e-services and promote new services designed to enrich the user experience. The programme is a national promotion drive to foster the adoption and use of e-services.

With the introduction of the *National E-governance Plan* in **India**, a multistakeholder CSC project (*Nagrik Suvidha Kendra*) has been initiated. The project brings ICT-enabled government services right down to the local government (gram panchayat) level, providing citizens with services in the areas where they live, reducing the need for them to travel to district headquarters. It provides an integrated rural kiosk placing a huge portfolio of services at the disposal of underprivileged communities in rural areas. The range of services encompasses

microbanking, agricultural information and knowledge and government services, including payment of telecommunication and other utility bills.



In **Peru**, the National Register of Identity and Civil Status (RENIEC) has launched the *Electronic Registration Certificate*, a digital product supporting birth, marriage and death registration. It is useful for avoiding fraudulent alteration, ensuring the integrity of information recorded and reducing the processing time for copying or consulting data. This product is developed and supported entirely on the basis of ICT, feeding the innovation process within Peruvian organizations.

In **Kazakhstan**, the National Information Technologies joint-stock company has launched an *E-notary Information System*. This unified information system is designed to improve the control of notarial activities and optimize notaries' business processes. Besides the core task of registering notarial activity in an electronic register, E-notary can be used to verify the authenticity of documents, retrieve property and real-estate data, keep records of succession and access e-services. This is made possible through integration with state databases and the e-government web portal. E-notary is used by all notaries. The number of integrated information sources is constantly growing, thus further enhancing the system.

In order to improve monitoring and transparency in dealing with legal cases in **Algeria**, the Ministry of Justice has deployed *electronic kiosks* in each jurisdiction to enable citizens to access information about the status and progress of their case in real time, through electronic counters over the Internet via the website of the Ministry of Justice. This website also provides citizens with legal information of general interest, as well as services for issuing documents such as criminal records.

In **Egypt**, development of an *automated system for Egyptian notarization offices* began in 2002 as a pilot project in four offices. The success of the pilot, yielding advantages in terms of reduced transaction times and improved work flows and work environment, has resulted in the project being extended.

In **Jordan**, the *National Contact Centre for Government Services* (NCC) was established as a focal contact point to provide support for the different government entities through various channels. It operates according to best-practice technical specifications and security measures. The centre responds to all enquiries, complaints and suggestions submitted by the public and users of e-government transactions. It serves all citizens, businesses and government institutions that utilize electronic services.

The *Qatar Government Call Centre* (QGCC) is a professional gateway that supports national government projects in **Qatar**. It was established in 2009 to support ictQATAR's various initiatives (iGov, KNET, e-learning, etc.). QGCC is enabling the government to achieve the key strategic objectives of improving customer inclusion, enhancing service quality and increasing operational efficiency. It offers all Qatar government agencies the option of establishing their own service support line(s) via a unique model of technology, human resources and insourcing provision.

In **Oman**, the *Muscat Contact Centre*, a state-of-the-art 24-hour call centre (1111) for the Muscat municipality was launched 7 April 2012 under the auspices of its chairman, Sultan bin Hamdoon al Harthy. The centre provides faster services and keeps up with the continuous progress in municipal work, so as to upgrade the services delivered to the public and beneficiaries, in conjunction with the Samatel telecommunication company. People are at liberty to call to register a complaint in respect of any problem relating to roads, electricity, water supply, permits, etc. For each complaint, the Contact Centre issues a ticket number to the caller for further follow-up. Customers can also send their feedback, complaints or suggestions by e-mail

A number of initiatives have been launched, in the countries reported on below, to enable users and citizens to submit information and enquiries related to traffic, police and immigration issues.

In **Saudi Arabia**, which suffers one of the highest death rates due to traffic accidents, the Ministry of the Interior has created an automated traffic control and management system, known as *Saher*, which has resulted in a 32 per cent decline in traffic fatalities as well as a 16 per cent drop in the number of traffic accidents. In short, the system saves lives and public funds every day.

In **Lithuania**, the *ePolicija* portal is a website where everyone can easily find all manner of information relating to Lithuanian police electronic services. The portal enables users to:

- submit an anonymous or authorized incident report to the police (<https://www.epolicija.lt/report-anonymous>);
- track (via the portal, SMS or e-mail) incident report status changes and manage relevant information;

- check out the crime statistics in different regions of Lithuania (<https://www.epolicija.lt/en/statistics>).

The purpose of the project is to create interactive, user-friendly and easily accessible electronic police services for the public. No fewer than 30 new police services are currently under construction.



In **Pakistan**, the Federal Investigation Agency (FIA) is the lead federal government law-enforcement agency, coordinating with the entire police infrastructure in Pakistan. In order to combat the increasing crime rate efficiently, it is vital for FIA to be connected effectively to its zonal offices, so that information may be updated as and when required. The main e-services are: a *visa-on-arrival system* for visa issuance to foreigners at ports; an *illegal immigrants database management system*, and a *criminal/terrorist database* (look-up system).

In **Oman**, the Royal Oman Police (ROP) has launched a *mobile application* that will enable the public to access various e-services on Android devices. The initiative will contribute to mobile governance, and has been launched with the rapidly increasing mobile-phone penetration in Oman in mind. The application, which can be used anywhere in the country, enables users to enquire about traffic offences, check the status of visa applications, locate nearby police stations, and also make emergency calls to 9999. The app will provide the latest news from ROP in areas such as accidents, announcements and crime, as well as information on various services provided by the law-enforcement agency, such as procedures, required documents, service locations and fees. It also features frequently asked questions and ROP telephone directory information.

In **Lithuania**, *Traffic Information System* is the first national Road Traffic Information System developed in the Baltic countries in 2011 aims to collect and store traffic data, to inform travelers about road and traffic conditions, traffic problems, road repair works, traffic volumes as well as traffic management measures implemented on the roads. All information is processed and provided to drivers on the web site trafficinfo.lt. The obtained information facilitates in organizing road maintenance works, improves road safety, improves the quality of works and contributes to save costs. Traffic data are collected from road weather stations, cameras, the Emergency Response Centre, the Police Department, road maintenance enterprises and drivers.

In **Saudi Arabia**, *Geographic Information System* was developed by National Information Center in order to implement **the Incident Management System (IMS)** base on GIS at Jeddah City Security Patrol emergency Command and Control Center. The IMS consists of several applications consuming NIC geodatabase to automate incident handling procedures at the command room and in other relevant departments, including call taking, unit dispatching, field record logging, reporting and analyzing. The IMS is full of functionalities and services, such as automatic caller location identification, automatic vehicle tracking and spatial analysis. IMS is handling large number of calls serving more than 3.5 million people in Jeddah governorate and it has resulted in reducing criminal activities.

Violation Verification & Processing Center



In **Rwanda**, the *E-immigration* system works as a virtual office operating round-the-clock, enhancing interaction between clients and service provider while eliminating physical presence at offices. As a result, it reduces the number of days to obtain a service, at low cost, and has contributed to the country's economy by making it easy for tourists to travel to Rwanda. The benefits of the e-immigration project are enormous both for Rwandan citizens and for the global community.

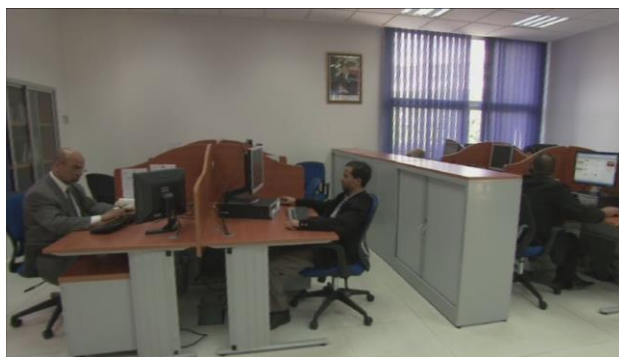
In **Morocco**, the Directorate of Land Planning has launched the *Internal Migration Data Observation and Collection System* (SOCDM), designed to collect internal migration data on the population while providing other useful information for local government and sector policy management. The system entails the

computerization of administrative certification, integrating data on internal migration. Thus, a citizen wishing to obtain an administrative certificate can fill in a form containing information on their identity and possible migration, which will feed into a database on internal migration. The system has been put in place in the Rabat region, under a partnership between the ministry, the regional council and the United Nations system. Following the success of the operation, it has been decided to broaden the system to cover all regions of Morocco.

Examples of activities implemented and developed by national and other agencies in order to automate administrative services for citizens may be found below.

A regional *virtual office* has been established in **Ukraine**. The ultimate goal of the e-services virtual office is to provide a single point of access for citizens and business entities to all administrative services and permits in the Dnipropetrovsk region, with uniform standards of quality. The virtual office is a complete solution in the automation of administrative services. The technologies introduced include personal account, SMS mailing and digital signature

In **Morocco**, the *IDARATI* (meaning "my administration" in Arabic) programme was set up to help citizens and other users of the administration to carry out administrative procedures. It uses three channels: web portal (Service-Public.ma), mailing and phone calls. The latter two channels are supported by the Administrative Guidance and Call Centre.



In **Saudi Arabia**, the Ministry of Social Affairs, in collaboration with the Global Goodness project, is developing an Internet portal known as the *Comprehensive Charity Initiative* (CCI), where everyone in society without distinction can

review all private bodies in Saudi Arabia that are supervised by the Ministry of Social Affairs to obtain relevant information about donations and moral support.

In **Kazakhstan**, the National Information Technologies joint-stock company has instituted a *Blog platform*, which is a tool that allows citizens to communicate with the government, and the government, in turn, to respond quickly and efficiently to citizens' issues. Users can submit a question or file a complaint to any state body, concerning any life situation - health, education, legislation and so on. The Blog platform has already established itself as a popular communication and cooperation tool, and around 60 000 questions and feedback posts from citizens were received in 2012. Appeals and responses are conducted in three languages: Kazakh, Russian and English.

In **Morocco**, the *e-Parliament* project, initiated and developed by staff of the Multimedia Content Network (MCN), was developed in order to facilitate instantaneous accessibility to legislative activities and legal information for parliamentarians and citizens. The project, which is compatible with the International Parliamentary Union (IPU) "Guidelines for parliamentary websites", has been completed in the "Chambre des Conseillers" and is still ongoing in "Chambre des Représentants".

Germany's international cooperation agency (Gesellschaft für Internationale Zusammenarbeit - GIZ), on behalf of the Federal Ministry for Economic Cooperation and Development (BMZ), has been working on the implementation of a number of projects:

- *E-governance in municipal administration in Bangladesh*

In selected cities in **Bangladesh**, the implementation of optimized service delivery and local data management systems (DMS) will be piloted, and training offered. Services and information will be made accessible to citizens directly, through one-stop service centres. The DMS will help to develop demand-driven services and to promote sustainable pro-poor urban development. Instruments for active communication and citizen surveys will be provided in order to support municipal

administrations in communicating more easily and efficiently with their citizens.

- *Good governance and inclusion*

The overall target of the project is to improve governance, especially regarding transparency, effectiveness, democratic inclusion and subsidiarity. To reach that target, the project seeks to strengthen the citizen's control of the state. Therefore, in the field of public investment a prototype of a national information system for public construction projects was validated that provides a tool for the effective control of public activities.

- *Decentralization and development of local authorities*

The target of this project is to support local authorities in promoting the population's participation in local development processes, and in providing services of sufficient quality. In cooperation with the EU, the project could implement digitization of the administration by installing a network within the ministry and in six prefectures. Moreover, a study was conducted to assess the requirements of harmonized accountancy software at the local level. As a next step, harmonization of the different softwares currently in use is planned.

- *Accounting software for improved subnational governance*

The target of this project is for subnational governments to comply with principles of good governance. To attain this objective, the project has supported the development of an accrual accounting software and conducted several training courses on its use. Moreover, an information management system for the financial management of town development funds has been developed and fully implemented.

- *Good governance in urban areas*

The overall target of this project was for the urban population to have access to demand-driven and effective public services that are based on transparent municipal decision mechanisms. For this purpose, the piloting of innovative and new management and control mechanisms at the local level were supported, including the digitization of administrative processes in different sectors.

In **Australia**, *Gov 2.0 Radio* (G2R) is a popular international free resource focusing on "connected government and public innovation" and providing an integrated learning platform built around podcast interviews delivered via a website, iTunes, Twitter, Facebook and other social channels. With over 1.5 million downloads, it reaches government practitioners, civic leaders and public innovators worldwide, discussing how to leverage their knowledge, skills and resources for a more connected public sphere. G2R supports the WSIS e-government action line by promoting good practice and sharing of knowledge, leading to greater capacity and transparency in public administrations, more participatory democratic processes and improved citizen relations.



In **Malta**, the DiploFoundation has released a book entitled *An Introduction to Internet Governance*. The book provides a comprehensive overview of the main issues and actors in the field of Internet governance through a practical framework for analysis, discussion and resolution of significant issues. It has introduced diplomats and government officials to this emerging field of global policy, and is used by others from civil society, academia and the business sector to learn and reflect on the Internet governance issues, from the legal, social, linguistic and economic perspectives. Now in its fifth edition, the book is a living project, and has been translated into several languages.

The Ark Earth Foundation (AEF) promotes a *knowledge economy for sustainable community development*. AEF pulls together ICT Web 3 technology and value theory to simplify the complexities of ecological, economic,

humanitarian and sociological challenges. PC, online and mobile applications enable communities to engage in open governance and capitalize on absorptive capabilities to increase foreign direct investment (FDI) potential. Rapidly deployable local modules can be connected to national or international modules for integration and data sharing. AEF ethically empowers local communities and institutions while building capacity through assessment, open education resources, value modelling and capital investment. This improves public services while reducing poverty and corruption.

The excellent motivation factor for governments and entities involved in the e-government process is the recognition of efforts. Number of countries initiated and continues to hold regularly the awards excellence programs related to e-government:

In **United Arab Emirates**, the *16th Dubai Government Excellence Programme (DGEP) Awards* were held at the Dubai World Trade Center on 9 April 2013. The Dubai Government Excellence Programme (DGEP) was established in order to encourage and improve the performance of Dubai's government sector.³⁴

In **Oman**, the Award Ceremony *Sultan Qaboos Award for Excellence in eGovernment 2012* was held on 3rd December 2012 at the Sultan Qaboos University Cultural Centre

C7.2 E-business

The United Nations Conference on Trade and Development (UNCTAD) is the lead facilitator for Action Line C7: E-business.

As the organization responsible for organizing the *Facilitation Meeting* on e-business at the WSIS Forum 2012, UNCTAD prepared jointly with the International Trade Centre (ITC) an interactive session during the WSIS Forum 2012 to allow participants to interact with leading thinkers and practitioners on the topic of *promoting the domestic ICT sector*.³⁵

For the first time, a *joint survey of national IT/software associations* was undertaken by UNCTAD and the World Information Technology and Services Alliance (WITSA) to explore the barriers and opportunities they face.³⁶

The *UNCTAD website on Measuring ICT for Development* (<http://measuring-ict.unctad.org>) provides information on the development of ICT statistics and indicators worldwide in support of ICT policies and the information economies in developing countries. The website is a useful tool for tracking progress in ICT measurement, particularly by national statistics offices and international organizations, and promoting dialogue between practitioners of ICT statistical work on best practices, experiences and methodology. It contributes to WSIS follow-up and implementation and supports the work of UNCTAD on measuring the information economy and the work of the Partnership on Measuring ICT for Development.

With the help of new Swedish funding, UNCTAD's *capacity-building activities* in the area of measuring ICT are set to grow further in the period 2013-2015. This will involve the development of new indicators for measuring gender and ICT, trade in ICT services and ICT-enabled services.

One of UNCTAD's contributions to the work of the Partnership on Measuring ICT for Development is a programme to enhance the availability of *business ICT data for policy-makers*. UNCTAD collects annual data from national statistics offices from around the world on *core business ICT indicators* covering: (i) trade in ICT goods, (ii) the use of ICT in enterprises, and (iii) the ICT-producing sector. Thanks to UNCTAD's capacity-building activities in the area of measuring ICT, there has been a gradual improvement in the availability and quality of ICT indicators related to the use of ICTs by enterprises. The number of developing countries conducting surveys of ICT use by enterprises is increasing, and the quality of the data supplied is

³⁴ <http://dubai.ae/en/Lists/Topics/DispForm.aspx?ID=32&category=businesses>

³⁵ UNCTAD contribution

³⁶ UNCTAD contribution

improving. For the first time, UNCTAD has now published all related data online through UNCTADStat (<http://unctadstat.unctad.org>).

During the relevant period covered by this report, UNCTAD provided *technical advice to a workshop of the Statistical Conference of the Americas* in July 2012 to develop a module for enterprise surveys in **Latin America** and the **Caribbean** on ICT use by businesses. In October 2012, ITU and UNCTAD organized a joint training workshop in Geneva for selected officials from the **Islamic Republic of Iran**. Work on measuring ICT and electronic commerce was addressed in the context of several other international meetings in Geneva (WSIS Forum), Bangkok (World Telecommunication/ICT Indicators Meeting) and Paris (OECD Working Party on Indicators for the Information Society meeting).³⁷

Various initiatives and projects were implemented by governments and other stakeholders in the interests of efficient business management and economic growth stimulation. Automated finance systems, trade registers, ICT-based solutions, unified and secure payment gateways and procurement portals are all examples of electronic solutions and tools to increase economic growth, develop trade, attract foreign investment and boost job creation.

In the **United States**, Cognizant Technology Solutions has proposed and implemented a new *cloud-based Bring Your Own Device* (BYOD) mechanism that uses different access controls for different devices. This approach allows access to applications, services and other enterprise resources anytime, anywhere, with bandwidth and priority of service that matches enterprise business objectives. The expectation is that the cloud-based BYOD policy presented will focus the design of all new efficient cloud platforms where the enterprise BYOD policies are deployed successfully.

In **Egypt**, the Ministry of Finance is aiming to *automate financial units nationwide* and connect major financial units with their affiliates. This project, which began in 2005, will increase efficiency and effectiveness through the provision

of tools for calculating cash flows, thereby speeding up the process of extracting the State's final balance sheet.

In **Bulgaria**, from early 2012, the Bulgarian National Statistical Institute (NSI) launched a *short-term business statistics online information system* aiming to facilitate data transfer between enterprises and NSI. The system integrates all monthly and quarterly business statistical surveys, which provide the necessary information for elaboration of the short-term indicators required by EU regulations, as well as other important indicators such as investments, production and sales in respect of main industrial products. The information collected by means of these surveys also serves as the primary source for the compilation of some quarterly macroeconomic indicators.

In **Kuwait**, the Central Agency for Information Technology has introduced an *E-tendering system*, reflecting the Kuwait National Petroleum Company's (KNPC) interest in the application of the concept of electronic portals and electronic transactions to serve the business sector. It constitutes an electronic business channel between the government and its oil sector, represented by the business and private sector in Kuwait and worldwide. This system has a key role to play in economic and social development, through the use of information technology to enable secure and easy access to the electronic tendering system for all users, regardless of their geographic location.

In **Indonesia**, the Ministry of Cooperatives and Small and Medium Enterprises developed the *Operational Data Store* (ODS) to integrate data from cooperatives from all provinces in Indonesia, as well as several official websites for providing information and data in relation to CSMEs and promoting the development of SMEs: (www.depkop.go.id; www.smeccda.com; www.smescoindonesia.com; www.indonesia-products.biz; www.danabergulir.com). A UPL and an e-procurement or online tender-based system have been established by some ministries in order to make government procurements simpler, transparent and results-oriented. The

³⁷ UNCTAD contribution

data-integration activities pursue several objectives, namely to provide affordable access to the results of studies on cooperatives and SMEs; train CSMEs in building their managerial and entrepreneurial capacity and skills, particularly in relation to ICT applications; provide an e-procurement/online tender-based system at the ministry in order to make government procurement simpler, transparent and results-oriented; and promote and support cooperatives and SMEs in moving into e-business in order to enhance their competitiveness and business performance.

In **Algeria**, the *trade-register computer network* was created in order to maintain the trade register, organize all legal publications required to communicate changes in the legal situation of traders and business assets, and maintain the public register of sales and/or pledges.

In 2012, the National Statistical Institute (NSI) of **Bulgaria** began introducing *electronic devices (tablets)* as an additional advanced data-collection tool for information on consumer prices and product characteristics. Automatic communication with the existing consumer-prices information system eliminates numerous steps from the survey process, thus helping NSI to reduce costs, increase data quality and facilitate the work of interviewers. The main outcomes of the project are: easier, multipurpose price collection and data processing; faster price collection; and more reliable and better-quality data. The project has been carried out under the grant agreement signed between NSI and Eurostat.

In **Saudi Arabia**, the Ministry of Commerce and Industry (MCI) has developed the *A'amaly MCI e-services portal*, built from the ground up to meet the expectations of clients, however diverse their needs may be, bearing in mind the ultimate mission to provide a dynamic electronic experience for today's businesses. Thanks to an extensive range of online interactive services, clients no longer have to visit the ministry for day-to-day transactions. The services have been electronically linked with several other agencies and departments to ensure an integrated electronic experience for clients. MCI currently has more than 100 government-to-business (G2B) e-services.

In **Peru**, the **Electronic** National Register of Identity and Civil Status (RENIEC) has implemented a *National Identity Card (DNI)*, which enables more secure identification of Peruvians and supports interoperability with services such as banking, education, health and taxation, among others. DNI also helps to streamline processes such as electronic transactions and cost reduction, in addition to those associated with public and private services on the Internet, facilitating round-the-clock accessibility. This technology innovation contributes to administrative simplification and traceability of electronic transactions.

In **Oman**, the *Integrated State Finance System (ISFS)* implemented by the Ministry of Finance (MoF) is designed for use in maintaining the accounts, budget estimates, journal entries and variances of the various government organizations, and in preparing the financial accounts at the end of the financial year for the Sultanate of Oman, MoF being responsible for financial management, control and accounting for all ministries. The system covers the State budget, the State's final accounts and the five-year development plan. It is fully integrated with all stakeholders in real time, manages around 20 000 to 25 000 accounts and controls over 1 million transactions each year.

In **Pakistan**, the Electronic Government Directorate under the Ministry of Information Technology is introducing an *Online tracking system for cargo handling, freight wagons and locomotives*. Pakistan Railways uses approximately 26 000 freight wagons and 100 locomotives for the transportation of cargo. Under the proposed project, it is planned to establish an ICT-based solution to track the locomotives and freight wagons so as to enable Pakistan Railways to manage its cargo handling business efficiently.

In **Kuwait**, *Tasdeed*, implemented by the Ministry of Finance, is the official government electronic payment system (gateway) for the e-collection of government fees. It is designed to facilitate and automate the e-payment of fees through e-services via the official portal of the State, government agency portals and other channels (e.g. kiosks); offer a unified and secure payment gateway enabling government agencies to use e-

payment in their e-services; and create a statistical database for non-oil revenue data.

In the **United Arab Emirates**, the Department of Economic Development (DED) in Abu Dhabi has started the process of issuing *electronic trade licences*, whereby all clients will be required to submit the necessary documents in electronic format. The project is aimed at accelerating the issuance process and moving towards fulfilment of the Emirate's ultimate goal of evolving to an e-government. To ensure smooth processing of trade licences, DED is seeking to draw up an awareness plan via a variety of communication channels, primarily different media outlets, in order to inform clients about dealing with customer service centres when enquiring about the necessary documents for their transactions.

In **Peru**, the *Digital Certification Infrastructure* (PKI) uses sophisticated ICTs for information functions: legal security, records, processing and data storage. The service has been configured as an innovative strategy that increase Peru's competitiveness while at the same time promoting electronic transactions between government, private organizations and citizens, speeding and securing information processes, introducing efficient social programmes, bringing more services to the population and hence reducing costs and time-frames.

In the **United Arab Emirates**, *Supply2Dubai* is the official *procurement portal* of the Dubai Government (www.supply2dubai.gov.ae), launched to act as the single online destination for all suppliers engaged in business with the government. Over 1 000 procurement professionals from 33 departments access the portal to advertise upcoming tender opportunities, to search, select and evaluate suppliers, and to award contracts. The entire process is managed online, providing buyers and prospective suppliers with the most efficient, effective and transparent means of interaction with government entities. Supply2Dubai is further evidence of the Dubai Government's commitment to advanced technologies that simplify and improve its interactions with businesses and citizens. Through e-procurement, the Dubai Government delivers on its promise of accessibility, transparency and equal opportunity for the award of public contracts, cultivating an

increasingly dynamic, competitive and innovative supply chain for the provision of goods and services to its departments.

In **Ghana**, *Mfinance* is a multi-user client-server desktop application that works in a LAN (local area network) or over the Internet. The software enables a microfinance institution to maintain all information about its clients, employees, accounts, loan applications and approvals, loan repayments, payroll, etc. It also allows detailed searching and the generation of reports on all information stored in the system. Records can be easily searched and the results exported. It is a secured and role-based application, which means users can only access forms assigned to them.

In **Oman**, the *Ministry of Tourism* has launched a smartphone application, *I-Tour Guide*, which can guide adventure-seekers to 30 geotourism sites in the Governorate of Muscat. To facilitate user access to the various destinations, the app includes maps of Muscat, of the geological sites and of the paths to be followed, while at the same time providing rich information about each site. I-Tour Guide is a digital app that can be downloaded onto smartphones in four languages: Arabic, English, German and French.

In **Saudi Arabia**, the *Financial and Administrative Resources Information System* (FARIS) uses leading-edge ICTs to achieve optimum use of administrative and financial resources in the Ministry of Education (MoE) by transforming it into a digital society that enables it to carry out administrative and financial processes in accordance with best standards and practices applied in government bodies. The implementation of FARIS will serve to:

- Eliminate costly and inflexible legacy processes and replace them with a single integrated enterprise resource planning (ERP) tool for all functions in all entities
- Establish one single integrated and centralized data source for all 650 000 MoE employees Standardize processes and reduce duplication across diverse departments, through the integration of financial HRMS and SCM modules and, in some areas of SCM, the introduction of systems to replace manual operations

- Improve visibility and control of MoE resources
- Reduce paper and thus operate in a more environmentally friendly manner.

FARIS processes payroll for more than 650 000 employees in 46 different payrolls. This is the largest payroll being processed in the Middle East, with 86 diverse and decentralized databases being brought together into a single centralized and unified database.

In **Oman**, the Government Tender Board (GTB), in collaboration with the Information Technology Authority (ITA), has initiated an *e-tendering system* that will create a centralized, state-of-the-art procurement management system and processes. This will help to increase the efficiency, transparency and accuracy of government procurement process, resulting in considerable cost savings. E-tendering will make it possible for government entities to prepare, float, evaluate and award tenders online. It will also provide contractors, suppliers and consultants with an online mechanism for purchasing tenders, submitting offers, and registering (and renewing their registration) with GTB.

Also in Oman, the *e-Transactions Law*, issued in 2008 by royal decree, aims to legalize the use of electronic transactions. In addition, it will promote business and boost the community's confidence in the use of such transactions.

In **Latvia**, the *e-procurement system* was developed in order to enable state and municipal authorities to purchase standard goods and services electronically. Regulations issued by the Cabinet of Ministers on 28 December 2010 lay down the obligation for public institutions to provide procurement via the e-procurement system (www.eis.gov.lv). The system offers several advantages: faster procurement processing; better organization of procurement activities for state and municipal institutions; the possibility of combining orders so as to conserve state budget resources; and transparency, openness and accessibility to information about the procurement process. To develop the e-procurement system in order to achieve further efficiency gains and administrative economies, it is planned to add e-reference, e-auction and e-tender functionalities, over and

above the existing e-catalogue functionality. Also, with a view to establishing a dynamic procurement system, virtual suppliers' profiles and a qualified list of suppliers' functionalities will be incorporated.

In **Lebanon**, *Soukorjuwan* (www.soukorjuwan.com) is an *online mall with e-shops*, developed with the aim of empowering women through an affordable e-commerce platform where they can manage their e-shops and trade online.

In **Kazakhstan**, the *e-licence information system*, developed for the online issuing of licences and permits, also simplifies the process of obtaining licences and permits by automatically retrieving the required data from integrated state agency information systems. Thanks to the single registry of electronic licences, users can obtain information about the status of companies' licences and permits and check their authenticity. Since 2012, all electronic licences throughout Kazakhstan without exception have been issued by e-licence, which greatly simplifies the process, especially for entrepreneurs from distant regions of the country.

In the **United Arab Emirates**, the *Electronic Commodities Monitoring System* (ECMS) was developed in collaboration with a variety of stakeholders to monitor commodity prices in the market and act as a disaster-reduction mechanism. Its main objectives are to investigate the causes of commodity shortages, support decision-making in the area of risk and disaster reduction, facilitate strategic planning to ensure preparedness and response capability, and enable efficient implementation of the prevention, avoidance and/or reduction of losses resulting from price hikes or supply shortages in the global market.

An **Omani** project, *One-Stop-Shop*, won a WSIS Project Prize in 2012 in the category of e-business. The creation of this system arose out of a conviction on the part of the government that it is important to attract investment in all economic fields, by providing support to investors and businesspeople, regardless of nationality, and eliminating all obstacles that limit the work of the business sector. The idea of establishing a system with the participation of several government bodies thus emerged, in order to help investors

complete business in one place quickly, efficiently and at the lowest cost. This one-stop-shop system includes the provision of e-business services to the business sector through modern technology, comprising more than 60 fully automated e-services in various ministerial sectors (e.g. trade, industry, minerals). The application of a one-stop-shop system offers many benefits, including: transparency and clarity of the electronic documentary cycle of applications, approvals and fees; accurate statistics on the volume of received transactions, completed transactions and lead times both in general and for each transaction from first receipt until completion; full information on the volume of investment in the Sultanate; the use of digital documents instead of paper documents - many paper documents are dispensed with since the system relies on information entered by and retrieved direct from the client, and circulated as an electronic document between system nodes. Since its creation, there has been an influx of requests and transactions submitted through the One-Stop-Shop, exceeding the expected volume and representing an unprecedented increase.

In **Algeria**, the *Algerian hazard warning network* has implemented an online system in order to: better manage the risks associated with consumer products (industrial and food); ensure collaboration between the various institutional entities and the Regional Bureau for the Middle East, North Africa, Eastern Europe and Central Asia (ODC); and manage information between different departments.

In the **United Arab Emirates**, *Takamul* is an innovation-support programme which will focus on increasing the number of international patents granted from the Emirate of Abu Dhabi by conducting a series of patent-awareness workshops and providing legal and financial support for international patent filing. Patents are an important part of the innovation lifecycle as they facilitate the technology transfer process.

In **Qatar**, the Supreme Council of ICT (ictQATAR) has developed *Platform Doha*, which empowers the community at the local level by building awareness and creating networks in global digital

gaming and entertainment. Platform Doha will open the doors to this industry, giving participants a greater insight into the opportunities available in digital gaming and entertainment. The development of a sustainable new business sector is the ultimate achievement of this industry in any territory, region or country. The population can take the lead in creating their own digital content and mapping out their own digital stories, rather than being content to remain a consumer of someone else's vision.

C7.3 E-health

In line with the Geneva Plan of Action, stakeholders should encourage the adoption of ICTs to improve and extend healthcare and health-information systems to remote and underserved areas and vulnerable populations, recognizing women's roles as health providers in their families and communities.³⁸

Many governments see the need to enhance healthcare systems at the national level and to put in place policies on e-health as a priority. Various types of initiative are undertaken in order to raise awareness about health issues, create integrated public health systems and databases and build the capacity of the health sector.

The World Health Organization (WHO), as the main facilitator for the e-health component of Action Line C7, has been working on a range of activities for the period 2012-2013.

In 2012, the *WHO Global Observatory for eHealth* completed its six-volume set of publications based on the 2009 global survey. Selected volumes have been translated into Arabic, French, Spanish, Portuguese, Russian and Chinese. The Observatory also launched a new online *national e-health policies resource* providing the full texts of country policies. This resource will grow as countries increasingly develop e-health plans as part of their national health system planning: see <http://www.who.int/goe>.

The *HINARI Access to Research in Health* programme, set up by WHO together with major publishers, enables developing countries to gain access to one of the world's largest collections of

³⁸ Geneva Plan of Action, § 18e)

biomedical and health literature. As of 2012, nearly 30 000 information resources in more than 30 languages have been available to health institutions in 116 countries, areas and territories, benefiting many thousands of health workers, educators, policy-makers and researchers. HINARI was the first of what has become the *Research4Life partnership*, comprising programmes led by WHO, FAO, UNEP and WIPO.

WHO's multilingual initiatives to make health knowledge available include the *Global Health Library*, which brings together national and regional initiatives so as to increase access to information and evidence on health, as well as to provide the support necessary to increase the visibility of scientific and health information produced in developing regions. Through a network of librarians, the initiative connects local, national, regional and international information on health. The WHO *ePORTUGUESe* programme improves access to health information through its extensive network and outreach activities, including webinars and social media, for health professionals and institutions in Portuguese-speaking countries.

Public health reporting is formally addressed through the revised *International Health Regulations* (IHR). These regulations commit all countries to collectively applying agreed rules for the prevention and management of public health risks. Country preparedness includes developing eight core capacities, as well as capacities at points of entry and capacities in relation to four relevant hazards (zoonotic, food-safety, chemical, and radiological and nuclear); a monitoring tool tracks progress in the development of these national capacities.

Both WHO and ITU have recognized the importance of collaboration for e-health in their global resolutions, which encourage countries to develop national strategies. To that end, both organizations have collaborated in the development of a *National E-Health Strategy Toolkit*, as a comprehensive guide that all governments, ministries, departments and agencies can adapt to suit their own circumstances and goals. Launched in 2012, by 2013 the toolkit will be available in six languages,

along with national and regional training materials and workshops to support its implementation.

In collaboration with WHO, the WSIS stocktaking on e-health will further report on validated e-health projects from countries willing to share their experience and good practices. WHO and ITU are developing a *joint repository of selected e-health projects* that demonstrate the effective use of ICT for health. The initial focus is on e-health projects related to women's and children's health, to support the United Nations Commission on Information and Accountability for Women's and Children's Health. The collection will subsequently be further expanded to include other e-health topics.

The WHO *Global Forum on Health Data Standardization and Interoperability* in 2012 was attended by 200 participants from 54 countries representing governments, standards development organizations, UN agencies, academic and research institutions, donors and implementing partners. The forum identified key issues and next steps to move forward in data and systems interoperability in support of healthcare delivery in countries.³⁹

Governments and other entities continue to develop and implement national policies, programmes and plans on e-health.

Germany's international cooperation agency (Gesellschaft für Internationale Zusammenarbeit GmbH - GIZ), on behalf of the Federal Ministry for Economic Cooperation and Development (BMZ), and in cooperation with the private sector, has initiated a programme on *Strengthening healthcare systems in Africa*. The overall aim of the programme is to reinforce the efficiency and commitment of private-sector initiatives in the healthcare and social-security sectors that will contribute to stronger public healthcare in **Ghana** and other **African countries**. For this purpose, the project will establish an interactive web portal through which private-sector actors in the areas of health and social security can exchange information and experiences.

Similarly, GIZ, on behalf of BMZ, has instituted a project in **Indonesia** focusing on *Strengthening*

³⁹ WHO contribution

health information systems policy. Since decentralization, Indonesia's health-information system (HIS) has been in disarray, with all districts developing their own systems and information no longer flowing smoothly to policy-makers at central level. GIZ, on behalf of BMZ, has provided the Ministry of Health with technical assistance to strengthen HIS governance with a view to improving the situation. The programme operates in areas such as information systems development, institutional capacity building and promoting the use of information for evidence-based decision-making.

The Government of **Mauritius** is implementing an *e-health system* across all public health outlets in Mauritius and Rodrigues, based on the *E-health Plan* published in 2009. The software solution has been designed to provide seamless integration of various healthcare services to citizens, businesses and other users. The e-health system will assist the Ministry of Health and Quality of Life, healthcare centres and other relevant stakeholders in managing information and delivering services using ICTs, in the realm of clinical services, administrative services and awareness and information dissemination to the public.

In the **United States**, the Asian Liver Center at Stanford University has launched *Know HBV: Online interactive training tool for healthcare providers*. This online interactive training course focuses on a blood-borne disease and major global public health threat - viral hepatitis. It strengthens critical skills of healthcare providers towards combating the virus and thus preventing liver cancer. A pilot project and subsequent analyses demonstrated its effectiveness in increasing knowledge, as well as high user satisfaction. Doctors and nurses who have undergone this training are now equipped to prevent transmission of the virus, prevent and control infections and promote safe clinical practices. In high-prevalence countries such as China and India, millions of transmissions - and subsequent liver cancer - will be prevented, and lives saved.

In the **United Arab Emirates**, the Emirate of Sharjah has announced that it has been accepted into the World Health Organization's *Healthy Cities* project, becoming the first emirate in the

UAE to participate in the programme. Sharjah's participation comes as part of its efforts to boost its environmental, social, cultural and economic potential and to position the emirate on the global map. Experts from WHO will help Sharjah in achieving its goals and meeting the programme's criteria. Sharjah's achievements will single it out as a role model for cities in the Arab world.

In **Indonesia**, the Ministry of Health has launched an *E-health programme*. The goal is to promote collaborative efforts of governments, planners, health professionals and other agencies, with the participation of international organizations, for creating reliable, timely, high-quality and affordable healthcare and health-information systems. In addition, the project aims to promote continuous medical training, education and research through the use of ICTs, while respecting and protecting citizens' right to privacy.

In **Oman**, the Ministry of Health is working on the digitization of interactions and processes among and within Ministry of Health institutions. All the most important healthcare institutions, all the tertiary and secondary healthcare institutions and most primary healthcare institutions use IT tools for all their internal processes, both medical and non-medical. Patient referral from institution to institution is managed by IT tools, inter-institution appointment or investigation requests are sent electronically, and the processes and replies are likewise electronically managed. Health programme managers are also using IT tools to assist them managing their day-to-day work. A data warehouse has been created to gather all important information indicating the operational status of primary healthcare institutions all over Oman, with the facility to drill down to any clinician working on a specific day or even treatment on a particular patient.

Germany's GIZ, on behalf of BMZ, has initiated a programme providing support for the health sector in **Pakistan**. To improve the capacity of Pakistan's health sector in terms of the delivery of effective, efficient, customer-oriented and financially reasonable healthcare services, the project develops human resources and helps to embed the requirements for the implementation of demand-oriented human resources

management. To this end, the project will support the establishment of a management information system for effective and efficient control of human resources.

GlZ, on behalf of BMZ, is also providing technical assistance to the Ministry of Health and Family Welfare (MoHFW) of **Bangladesh** for the adoption of low-cost ICT solutions aimed at strengthening the national health-information system in line with the country's *Digital Bangladesh* vision. The primary objective is to develop a sustainable system through the development and implementation of information systems, individual and institutional capacity building, improvement of health-information system governance, and promoting the use of information for evidence-based decision-making. The programme promotes the adoption of free and open-source software such as DHIS2 and OpenMRS.

In **Mauritius**, the Ministry of Information and Communication Technology is working on the implementation of an e-health plan. An *E-health Plan 2009-2015* has been drawn up to harness ICT in public health services. The recommendations outlined in the plan are geared to the overriding objective of improving the healthcare provided to all citizens, through the definition of an appropriate ICT strategy based on enhanced work processes in the Ministry of Health and Quality of Life, its departments and health agencies. An *e-health system* is currently under implementation, with the aim of computerizing all health services in hospitals, area health centres and community health centres.

In **Kuwait**, the *Dasman Diabetes Institute* has been established. The institute's website aims to increase awareness in order to prevent, control and mitigate the impact of diabetes and related conditions in Kuwait through effective research, training, education, treatment and health-promotion programmes, and thereby improve quality of life for the population. The institute complies with national and international regulatory standards for research on human subjects. National regulatory standards include

the laws of the State of Kuwait, rules and regulations of the Ministry of Health, and the Dasman Diabetes Institute's own policies and guidelines.

In **Pakistan**, the Electronic Government Directorate under the Ministry of Information Technology has launched an *E-Services for the Ministry of Health* project, in Islamabad, with the aim of equipping the Ministry of Health with basic ICT infrastructure and automating its business processes/agency-specific applications. The main services are: free medical treatment request system; notice-of-compliance (NOC) issuance system; statistical system for health-related facilities; drug manufacturing licence management system; drug registration, import/export system. Hardware and LAN are in place and a software application has been developed and deployed. The project will be closed in this financial year, its mandate having been completed.

As stated in the Geneva Plan of Action, ICTs serve to alert, monitor and control the spread of communicable diseases, through the improvement of common information systems.⁴⁰

For efficient and integrated management of medical services, stakeholders are developing a variety of tools such as digital medical records, databases and other information systems.

In **Argentina**, the University of La Punta has established *digital medical records* (HCD), which in 2013 will become a reality for the inhabitants of the province of San Luis, enabling them to go to any public or private medical centre and have all their data and medical history stored. The solution will equip San Luis with a safe, reliable, organized and up-to-date digital medical records storage and management system.

In **Pakistan**, the Electronic Government Directorate under the Ministry of Information Technology has created the *Hospital Management Information System*. The scope of the programme includes the installation of networking facilities and deployment of a health management information system (HMIS) at the following hospitals: Pakistan Institute of Medical

⁴⁰ Geneva Plan of Action, § 18c)

Sciences, Islamabad; CDA Hospital, Islamabad; Sheikh Zyed Hospital, Lahore; Jinnah Postgraduate Medical Centre, Karachi; and Children's Hospital Complex, PIMS, Islamabad. The main services are patient registration and inpatient and outpatient department (OPD) management. Software applications have been functional at PIMS, Islamabad and CDA Hospital, Islamabad since June 2007 and December 2007, respectively.

In **Saudi Arabia**, the Ministry of Health (MoH) launched the *Online Toxicology Analysis Request and Result* (OTARR) system, a multipurpose, multi-integrated toxicology resource - portal, laboratory information management system (LIMS) and interactive voice response (IVR) - freely available online. The main aim of OTARR is to improve efficiency and effectiveness at poison control centres (PCCs) through faster toxicology analysis, the establishment of essential guidelines and request forms in relation to diagnosis and management of patients suffering from poisoning, the provision of a robust electronic toxicology database for planning future preventive measures, and meeting all the needs of PCCs in terms of the smooth and secure submission of analytical requests, receipt of toxicology information, reception and analysis of samples, transmission of documentation and dissemination of results to and from all the hospitals and institutions involved.

The Saudi MoH has also developed the *Health Electronic Surveillance Network* (HESN), a comprehensive, integrated public health information system that helps public health professionals work together for the efficient management of individual cases, outbreaks, immunizations and vaccine inventories. The unique features of the network are that it protects public health through the prevention, detection and management of occurrences of communicable disease and enables collaboration (interoperability). The network follows industry standards (Health Level (HL)7 messaging and Systematized Nomenclature of Medicine (SNOMED)), and the HESN solution is organized into six major components, namely: communicable disease case management; outbreak management; immunization management; family health materials/vaccine

inventory management; notifications management; and work management.

Germany's GIZ, on behalf of BMZ, has launched a *Multisectoral HIV/AIDS Control* programme, aimed at improving the implementation of national HIV/AIDS mainstreaming policy. To support and improve the communication function within its partner, the National Aids Council, the project helps with the systematic collection of bibliographical data for a database. Access to information is facilitated through an Internet platform and through the establishment of media centres at local level.

Another initiative launched by the Ministry of Health in **Saudi Arabia** is the *Electronic Referral System*, a process of redirecting the referred patient back to the initiating unit once the reason for referral has been resolved. For the referral process to be streamlined and operate smoothly, easy communication between the different hospitals and parties involved in the process is crucial. Accordingly, the electronic referral system aims to automate the referral submission and approval process between government hospitals and related agencies. Referral requests are submitted and classified according to their type (ER, life-threatening, outpatients, inpatients). The system also provides online tracking and monitoring of the status of referral requests.

In **Pakistan**, **Germany's GIZ, on behalf of BMZ**, has launched the *Federally Administered Tribal Areas (FATA) Development Programme*. The programme's aim is to improve services delivered in the sectors of education, health and livelihood. In the health sector, the project seeks to set the prerequisites for the implementation of adapted management. Therefore, the FATA public health authority will be supported in implementing a computer-based information management system for the management of healthcare professionals.

In the **Russian Federation**, the Rostelecom open joint-stock company has established the *O7.Medicine* online service. O7.Medicine is an integrated information system based on Rostelecom's national cloud platform (o7.com). The service uses a software-as-a-service (SaaS) model, designed for healthcare and medical purposes, to control epidemiologic situations in

the regions and reduce the risks of population loss. Major components comprise: e-medical records, e-medical registration office, centralized medical image archives, and automation modules for medical institutions and healthcare authorities. O7.Medicine will enable the provision of high-quality, professional and accessible medical care for the entire population of the country, enabling citizens to make doctors' appointments in good time, get access to medicines and obtain remote medical advice from a doctor where necessary.

In the **United Arab Emirates**, the Dubai Corporation for Ambulance Services has embarked on a project with a view to implementing an *Electronic Patient Care Records* (ePCR) solution. The system will enable services to operate more efficiently by entering and maintaining data from electrocardiographs and other medical devices in the ePCR. Data are stored permanently in the ePCR database, enabling prompt hospital notification and receipt of cardiac patient records as well as the monitoring and auditing of patient-care reports, thus contributing to improving pre-hospital emergency processes.

Many countries' e-health policies and plans are increasingly focusing on maternal and child health. As a result of effective implementation of the projects reflected below, there has been a significant decrease in maternal and infant mortality rates.

Oman has been recognized internationally for its achievements and its contribution to public service, with its Ministry of Health (MoH) being named as an esteemed recipient of the prestigious *United Nations Public Service Award* (UNPSA) in 2012. The winners were honoured at the 2012 UNPSA Awards Ceremony and Forum held from 25 to 28 June in New York City, United States. The MoH won second place, for its *Reduce Childhood Mortality Rate: Infants and Children under 5 years of Age* project, in the category "Promoting gender-responsive delivery of public services". The UNPSA programme recognizes the achievements and contributions of public service institutions which lead to a more effective and responsive public service administration in countries. With its *Mother and Child* system, the

Omani MoH is providing holistic primary care for pregnant women (pre- and post-natal care) at all medical centres and towards birth at the tertiary hospital. The records are made available throughout pregnancy by recording the patient history for mothers and children, and then integrating it in the *Childhood Illnesses* system. Thanks to this scheme, Oman succeeded in reducing the maternal mortality rate in childbirth from 22 per 100 000 live births in 1995 to 13.4 in 2009, and the infant mortality rate from 20 per 1 000 live births in 1995 to 9.6 in 2009.

In **Egypt**, a *Regional Centre for Women's Health* has been established in Alexandria. This project has facilitated better health services for women in Alexandria by establishing modern healthcare facilities and administration systems at the regional centre, which provides professional and specialized services in women's healthcare and specialized consultations through telemedicine facilities. The centre has created a digital health file for every patient, containing personal information, disease history, medicines prescribed and number of visits, and the records are linked to the person's national ID number. A digital research library has also been set up at the centre, making it possible to host national and international conferences. The project's scope also included the signing of an agreement with the University of California, Davis, for remote medical consultations.

In **Rwanda**, the Ministry of Health has established a *Community Health Information* (CHI) system (*Rapidsms*). Registering and reporting pregnancies in the system helps to determine the number of women due for delivery in a specific time period, predict birth dates and enable health centres and facilities to plan ahead and be well prepared in terms of resources. Maternal and child health indicators are available online, offering summary statistics and mapping, which are useful for health surveillance. Monitoring of maternal weight helps in the gathering of information about mothers' nutritional status. The system also registers and reports complications during the post-natal period (up to 45 days after delivery), making it possible to determine how many women delivered with complications and potentially identify contributing factors.

In the **Philippines**, the Molave Development Foundation has launched a *Ligtas Buntis* initiative, an *e-health system for maternal healthcare*. The system enhances the recording and reporting of health data, and supports behaviour change. It addresses current challenges, especially the recording and reporting of health data, the provision of health messages to pregnant women and the need to make greater use of maternal health services, thereby reducing morbidity and mortality rates. Through this system, it has been possible to increase facility-based births by 30 per cent and improve access to health information and data, using a simple but effective application. This unique and innovative approach also focuses on behaviour change and capacity building for health workers, and contributes to attaining the MDGs.

Governments and other stakeholders are encouraging the adoption of ICTs in remote and underserved areas in order to improve healthcare through the deployment of electronic tools such as telemedicine.

In the **Russian Federation**, the National Telemedicine Agency has initiated the development and production of global and regional telemedicine systems, technologies and equipment. The *Comprehensive Telemedicine Systems* (CTS) project focuses on socially and economically effective means of exploiting innovative ICTs to make high-quality medical care accessible to the population, irrespective of location. The CTS project is based on a network of telemedicine centres, housed in existing fixed medical institutions countrywide, and connected with a system of multipurpose mobile telemedicine units (MTUs) equipped for lengthy periods of autonomous operation. MTUs are designed to offer a wide range of medical and social services to populations in rural, remote and inaccessible areas.

In **India**, **Germany's GIZ**, on behalf of **BMZ**, has instituted the *Indo-German Social Security Programme*, consisting of social security schemes. Rashtriya Swasthya Bima Yojana (RSBY) is a health insurance for households in need (i.e. below the poverty line). The scheme is set up to rely entirely on an electronic system and the use of smart cards. The smart card serves as a means of identification, and contains biometric data of

the beneficiaries and information on the household's budget. In case of hospitalization, the card identifies the beneficiary and at the same time authorizes the hospital to file a claim with the insurance company. As a contingency for connectivity problems, the system allows the information to be saved offline and the system to be updated once the hospital goes back online.

In **Algeria**, the National Agency for the promotion and development of technology parks has developed the *RT.DZ Télémédecine platform*. The RT.DZ project is a telemedicine platform that has been developed in partnership between the Ministry of Health and the Ministry of Post and ICT in order to improve patient care in remote areas of southern Algeria. The network has connected 12 hospitals in the south with five of the most important university hospital centres in the north. Launched in November 2012, it provides remote diagnostics equipment that helps specialists provide assistance to local doctors in reviewing the cases of patients with an emergency or complication.

In **Pakistan**, the Electronic Government Directorate under the Ministry of Information Technology has initiated a project introducing *telemedicine services for rural areas of Pakistan*. The telemedicine project is designed to provide cost-effective means of obtaining consultations, advice and treatment from specialist doctors based in large rural/remote areas of Pakistan. The main services involved are remote patient consultations, including remote health check-ups. Three telemedicine centres have been launched, at the Holy Family Hospital in Rawalpindi, the Jinnah Postgraduate Centre in Karachi and the Mayo Hospital in Lahore. These telemedicine centres are connected with twelve rural hospitals. So far this year, 1 500 patients in rural areas have benefited from the remote consultation facility with specialists. The three centres will be transferred to the Provisional Government in 2012-2013, since the scope of the project has been fulfilled. All the necessary equipment is deployed and all the modules developed are providing fully electronic interaction with major hospitals.

Experts Group Meeting on "*M-Health: Towards Better Care, Cure and Prevention in Europe*" was held from 25-26 September 2012 in Geneva,

Switzerland. The main aim of this meeting was to share, amongst European administrations, the best practices in the implementation of ICT applications, including e-health, while addressing an urgent need to focus on challenges (policy, regulatory, technical and business related) arising from a rapid growth of the mobile health services.⁴¹

C7.4 E-employment

Stakeholders continue to work on national e-employment policies and programmes in order to provide an instrument for self-employment and new opportunities through the use of ICTs.

In line with the Geneva Plan of Action, e-employment applications are being developed in order to raise productivity, growth and well-being through investment in ICTs and human resources. One of the most important factors is cost optimization.⁴² Teleworking is becoming an efficient tool empowering citizens, particularly women and persons with disabilities, to enter the workforce. Countries are promoting early intervention programmes such as internships and training courses for young people.

In **India**, a networking site, *Emoptune*, has been developed with the aim of bridging the global digital divide by enabling villagers in the third world to demonstrate their skills. Emoptune ("Employment + Opportunity") allows users to perform three main functions: upload any problem to the world to be solved by experts, build a digital Emoptune résumé that can be used to gain employment, and make money by resolving problems in their local area. The website describes the functions in full. An Android app has been developed and an iPhone app is in the final stage of development. A mobile version of the site takes advantage of the built-in video camera in mobile phones.

In **Romania**, the Octavian Goga Cluj County Library has introduced a programme called *Public libraries can help you find a job*, which won the "Innovative library services and programmes" contest organized by the International Research

and Exchanges Board (IREX). The project, launched on 1 March, 2011, was implemented in two main stages: 28 librarians were trained in using this new service, and the service was then rolled out in the county. A total of 111 training sessions were held, attended by 433 people, of whom 32 subsequently found a job.



In **Poland**, the Office of Electronic Communications (UKE) has launched a project facilitating *internships for girls in ICT companies*. The project seeks to address the problem of low rates of participation of women in the ICT sector. The initiative is associated with the *Girls in ICT Day* held in 2012. The President of UKE took steps to encourage talented girls to take an interest in IT companies through internships. The aim of the project is to bring women closer to employment in the ICT sector. Through cooperation with technical universities, a range of actions such as competitions, information sessions with employees or study visits to corporations dealing with ICTs are being implemented to motivate girls to choose ICT courses.

In **Japan**, it is believed that *teleworking* can improve business efficiency, while maintaining a healthy balance between an individual's work and personal life, by exploiting ICTs to establish a home office, etc. Teleworking is also expected to contribute to resolving various social issues, such as ensuring equal opportunities and treatment between men and women in the employment environment; contributing to a more gender-equal society; addressing issues associated with

⁴¹ <http://www.itu.int/ITU-D/eur/ri/ehealth/mhealth/>

⁴² Geneva Plan of Action, § 19b)

the declining birth rate and ageing population; and reducing the burden on the environment. It is also anticipated that teleworking will contribute to the creation of business continuity plans (BCP) and electricity saving in the event of a large-scale disaster or pandemic. With this in mind, the Government of Japan has developed the *Action Plan to double the teleworking population*, promoting and familiarizing people with telework with the aim of multiplying the number of teleworkers by two and encompassing 20 per cent of the active population by 2010. Under the new ICT Strategy (May 2010), the IT Strategy Headquarters Decision has set the goal of increasing the number of teleworkers based at home to 7 million by 2015.

In **Bulgaria**, an *integrated information system* for the Ministry of Labour and Social Policy (MLSP) has been established with the purpose of improving services in the ministry, optimizing cost for citizens. This entails integrating systems used in the National Employment Agency, the Social Assistance Agency, the Agency for Persons with Disabilities, the General Labour Inspectorate Executive Agency and the State Agency for Child Protection into a single MLSP system hosting complete profiles (files) of natural and legal persons using the services of the secondary administrators of budget appropriations.

In **Saudi Arabia**, the Human Resources Development Fund has introduced *Taqat Online*, which is a national web portal that aims to provide employment support services to more than 2 million jobseekers by bringing them together with local employers via a best-in-class and user-friendly job-matching engine. Saudi jobseekers can create professional profiles and search available jobs that match their skills and education. Employers can post job openings and search for suitable candidates for specific jobs. The system is also used by recruitment offices and agents to prospect for candidates in the national jobseeker database and match them with employers' predefined criteria.

The Human Resources Development Fund has also created a *National E-training Programme for Jobseekers*, which aims to utilize user-friendly and reliable web technologies in offering direct training courses to more than 1.5 million jobseekers across the Kingdom of Saudi Arabia, with a total of 6 million training sessions per month. Participation in the programme is based on a predefined schedule of learning and online assessment (approximately 25 minutes per week). The programme seeks to assist jobseekers in developing both soft and interpersonal skills that will boost their employability and readiness to enter the job market

In **Colombia**, the Ministry of Information and Communication Technology has launched a *Teletrabajo* (teleworking) initiative. This telecommuting initiative is designed to support the Ministry of Labour and other government agencies in the implementation of Law 1221 of 2008, establishing rules to promote and regulate telework as tool for job creation and self-employment through the use of ICTs. Benefits of telework include promoting effective use and appropriation of ICT, innovation, social inclusion of vulnerable persons and sustainable mobility, along with improved productivity and quality of life of workers and reduced fuel consumption and greenhouse gas emissions. The following activities have been developed: first Telework Fair in Colombia, linkage to 15 entities in the

Alliance for Telecommuting, and publication of the Colombian Telework White Paper.

In **Qatar**, the Supreme Council for ICT (ictQATAR) has introduced the *TumuhaTEC and TEDxYouth@Doha Join Forces to Inspire Youth* programme, a partnership which is committed to inspiring Qatar's youth to pursue careers in ICT. The two organizations offered a range of interactive ICT workshops to Qatar's youth for a period of ten months. The workshops aim to encourage young people to improve their basic skills in ICT fields, such as photography, graphic design and gaming. Since 2011, TumuhaTEC's activities have included facilitating ICT internships and scholarships with key employers throughout Qatar, organizing educational and awareness activities, and hosting ICT workshops to provide

young people with real hands-on experience of ICT. TEDx was created in the spirit of TED's mission: "Ideas worth spreading". The programme is designed to give communities, organizations and individuals an opportunity to stimulate dialogue through TED-like experiences. To enable young people to be part of this exciting initiative, Tumuhatec has offered a number of ICT-related student internships with TEDxYouth@Doha's vibrant young team. The roles vary from handling the social media channels and assisting in the development of the TEDxYouth@Doha website to working alongside the team's photographers and videographers.

In **Oman**, the Ministry of Manpower (MoMP) has developed the *E-employment System*. MoMP is the Omani body responsible for recruiting private-sector manpower. The state-of-the-art e-employment system it has created serves to receive online job applications, integrate the information with the government entities concerned and match applications with vacancies. It also keeps all recruited manpower data, and tracks manpower movement, training and development, job status, social benefits and other aspects. It also encompasses national manpower working in neighbouring countries. The system saves time, effort and resources, and provides faster and more dynamic services. Over 1.7 million records are currently maintained in the system.

In **Lithuania**, the Lithuanian Labour Exchange has launched a project for the *development of new e-services for jobseekers and employers*. The project provides jobseekers with a range of e-services. They have the opportunity to pre-register with the labour exchange via the Internet, create electronic individual employment action plans and review recommendations issued by the labour exchange (with job offers). They can also interact with dedicated labour exchange specialists or alter appointment times with the labour exchange directly from home. The project offers services not only to jobseekers, but also to employers.

In **Jordan**, the Ministry of Information and Communications Technology (MoICT) has introduced the *Graduate Internship Programme* (GIP), which is an ambitious initiative spearheaded by MoICT to provide internship and

employment opportunities to recent graduates for a year in cooperation with the private sector. The purpose of this programme is to hone recent graduates' soft and technical skills and increase their employability. It is funded half by the government, half by the private sector. Between May 2009 (the launch of GIP) and September 2011, a total of 984 graduates have been enrolled in the internship programme, 960 of whom were employed by private-sector companies while 24 were dismissed. No fewer than 292 interns were subsequently offered permanent employment with the companies where they worked, while 274 interns found employment opportunities elsewhere. The life-skills training programme provided as part of GIP benefited 500 graduates. The GIP portal, www.GIP.gov.jo, contains 593 companies registered in the database, of which 261 have signed contracts with the Ministry of Labour to benefit from the opportunities under the programme.

In **Mauritius**, the Ministry of Information and Communication Technology has introduced an *E-Work Permit* project. An e-work permit plan has been elaborated to define an appropriate ICT strategy for improving the work processes of the Ministry of Labour, Industrial Relations and Employment (MLIRE), with emphasis on productivity, quality and service delivery. The e-work permit plan has reviewed MLIRE's work processes and recommended appropriate ICT solutions in terms of hardware, system and application software and communication facilities. The implementation of the e-work permit plan is in progress.

In the **United Arab Emirates**, the *National Human Resources Information System* (NHRIS) is a platform that allows national jobseekers, employers, career guidance providers and training providers to interact effectively in order to enhance the employment and career prospects of UAE national jobseekers by providing productive and rewarding employment opportunities and reducing the obstacles to employment, especially in the private sector. NHRIS will also support the decision-making process relating to national human resource development and emiratization by providing timely and accurate information about national jobseekers and employment demand in UAE in

general. This will facilitate decision-making on careers, education and training.

In **Kuwait**, the Central Agency for Information Technology has established an *E-employment system*, which facilitates the process of applying for a job in the governmental sector. Its government-to-consumer (G2C) e-service supports online submission of job applications, online tracking of applications and online notification of the status of the application by SMS.

In **Qatar**, ictQATAR introduced the *Modern Office Project* (MOP) in 2011. Several companies participated in the MOP for Qatar pilot involving both female and male teleworkers, some of them with disabilities. The pilot, which ended in October 2012, was genuinely successful for both employers and employees, who experienced the benefits of empowering women and people with disabilities to enter the workforce.

In **Pakistan**, the Electronic Government Directorate under the Ministry of Information Technology has established *online recruitment for the Federal Public Services Commission* (FPSC). A fully functional *online recruitment system* has been deployed to enable online management of applications for positions advertised by FPSC for general recruitment and central superior services (CSS) exams. The system automatically receives online applications, allocates seats according to the quota system, keeps a record of candidates' results and posts interview schedules online. A needs analysis has been initiated for the development of software for examination systems, the income tax offices examination, the section officers examination, the survey of Pakistan, the northern areas competitive examinations and computer-based psychological tests. The IT infrastructure and network will be deployed in five examination halls and software deployment will be completed.

C7.5 E-learning

The United Nations Educational, Scientific and Cultural Organization (UNESCO) is the lead facilitator for Action Line C7: E-learning, and has conducted a number of activities in this regard.

In partnership with the Commonwealth of Learning (COL), and supported by the William and Flora Hewlett Foundation (**United States**), UNESCO organized the *World Congress on Open Educational Resources* (OERs)⁴³ in June 2012 at UNESCO headquarters in Paris. Preceded by six regional forums, the congress unanimously approved the *2012 Paris OER Declaration*⁴⁴, which calls on governments to “openly license all educational materials produced with public funds”.

Through its Bangkok Office, UNESCO has organized a workshop to assist **Indonesia** to develop its *National ICT Standards for Teachers*, the first draft of which has been completed.

UNESCO has been sustaining and broadening the regional high-level policy dialogue mechanism to facilitate North-South knowledge sharing on ICT in education. The third *Asia-Pacific Regional Ministerial Forum* was convened in Bangkok in September 2012, and the launch of the first *African Ministerial Forum on ICT in Education* has been confirmed and planned with the African Union, the African Development Bank, Intel and other partners.

UNESCO has completed regional reviews on *mobile policies and the use of mobile technologies for teachers' development* in **Asia, Africa, Europe, Latin America** and **North America**, and five working papers will be published. The *mobile technologies for teachers' development* project, also run by UNESCO, has seen progress in each of the four implementation countries, namely **Senegal, Nigeria, Mexico** and **Pakistan**. Training workshops, content development workshops and

⁴³ <http://www.unesco.org/new/en/communication-and-information/events/calendar-of-events/events-websites/world-open-educational-resources-congress/open-seminar-and-exhibition/speakers-and-presentations/thursday-21-june/>

⁴⁴ <http://www.unesco.org/new/index.php?id=64395&L=0>

actual pilot implementation have started in some places.⁴⁵

UNESCO has launched the *Mobiles for Reading* project, which will conduct a multi-country survey in 2013 with a view to gaining a better understanding of how people are using mobile phones to read stories, and how these devices can support literacy development.

In **Mexico**, the Ministry of Communications and Transport opened the *Capacinet* portal, which pursues the following objectives:

- 1) Develop socially relevant content and applications which promote training, the production and distribution of learning tools and standards and technology platforms, in order to meet the demands of different social groups
- 2) Promote the use of technologies for capacity building
- 3) Open up training opportunities via the Internet for the rural and urban populations
- 4) Promote digital literacy
- 5) Strengthen Mexican capacity at the personal, professional and community levels.

In **Kazakhstan**, the National Information Technologies joint-stock company has established an *E-learning information system*. The system, which involves all participants in the educational process, was developed to enhance the quality of educational services and provide access to education for all students, regardless of location and income. It automates management of the whole educational process (compiling plans, lesson schedules, electronic schoolbooks, marking records), collects data and statistics, and supports reporting. The project is being implemented in two phases. Some 50 per cent of educational institutions will be connected to the system by 2015, and 90 per cent by 2020. It covers the entire state organization of secondary, technical and professional education.

In **Kuwait**, Kuwait University utilizes a *blackboard learning management system* (LMS) to enhance

the teaching/learning process through e-learning. The system transforms the Internet into an effective environment for the acquisition of educational experiences. The blackboard saves time and effort on the part of both student and instructor. It is an effective element in the educational process, in terms of encouraging innovation and collaboration. It also provides a secure and safe, synchronous and asynchronous communication channel between student and instructor, anywhere and at any time through the Internet.

In **Algeria**, the Ministry of Vocational Education and Training has launched an *e-learning programme*. In order to make vocational training and retraining more accessible and profitable for young people and provide them with more training opportunities, the ministry has launched a development centre for educational resources and interactive multimedia. This centre will have an e-learning platform for better online dissemination of digital educational content designed by professionals, and also new programmes for the benefit of young people all over the country. The project's objectives are to improve and modernize remote vocational training.

In **Oman**, the Ministry of Higher Education, represented by the Higher Education Admission Centre (HEAC), is encouraging students who have completed their general education to enrol in universities and colleges through its website, which gives the students an account enabling them to select and modify their choices of higher-education institutions.

In **Bulgaria**, in 2012 the National Revenue Agency (NRA) developed a *new information system for e-learning*, based on the Moodle platform, over which distance learning for NRA's officials is being provided. The system's functionalities include designing and conducting e-courses, multimedia materials, e-learning evaluation and management, creation and maintenance of an e-library and the preparation and distribution of electronic

⁴⁵ UNESCO contribution

newsletters. In 2013, it is planned to improve the system so as to gradually expand the range and number of e-learning courses. This will serve to reduce the costs of conducting courses and upgrade the quality of the professional training received by NRA's officials.

C7.6 E-agriculture

This subchapter covers activities related to e-agriculture, which is the sector that involves the use of ICTs to improve agriculture, animal husbandry, fisheries, forestry and food security, in order to provide ready access to comprehensive, up-to-date and detailed knowledge and information, particularly in rural areas.⁴⁶ Work focuses particularly on providing easy access to comprehensive and up-to-date information within these areas.

Activities relating to the e-agriculture component of Action Line C7 are underpinned by the global *e-Agriculture Community*. Conceived in 2006, and established in 2007 by a multistakeholder group of organizations that believe in the critical role of ICT in agricultural development, *e-Agriculture*, which is facilitated by FAO, acts as a catalyst for networking and knowledge sharing about the role of ICT in sustainable agriculture and rural development. It now has over 10 000 registered members from 170 countries who have shared over 600 information resources and 2 500 news items and events, as well as expressing their viewpoints through blogs. Some 16 online forums on important topics identified by the community have brought together 50 000 participants, who have made some 3 000 discussion posts, producing trilingual policy briefs for each forum. Online activities, which reach tens of thousands of individuals every year, are complemented with face-to-face events. Partnerships and collaborations come from both the private sector and development organizations.

In 2012, the e-Agriculture Community continued to examine the evolving role of ICT in support of rural and agricultural development, and the challenges faced in shaping scaled, sustainable information service models. Many of the topics prioritized during the year are issues identified in

the *ICT in Agriculture Sourcebook* (www.ictinagriculture.org), including the role of ICT in areas such as agricultural marketing, "green growth", data collection and evaluation, agricultural innovation systems, and producer organizations.

Critical issues are, and will continue to be, addressed through discussion forums, policy briefs and case studies.⁴⁷

In **Pakistan**, the *Food, Agriculture and Livestock Information Repository* (FALIR) system was deployed to provide real-time information on agricultural produce yields, prices, pest infestation, etc., to various stakeholders, including the farmer community and policy planners. In addition, the latest state-of-the-art techniques like remote sensing and geographical information systems (GIS) are being used to develop crop forecasting models. FALIR is a comprehensive database management system (DBMS) with a number of key components: agricultural statistics (yield management); agritrade and business; market intelligence database; natural resources; credit and fiscal policy.

In **Ghana**, to promote the integration of Ghanaian cashew farmers into the value chain, farmer-based organizations are being equipped with *ICT applications supporting transparent transaction processes in cashew sales*. A mobile application facilitates improved logistical coordination, bulk selling, produce traceability and access to market information. As a result, product labelling (e.g. "organic" or "fair trade") and information on farmers' past deliveries made available to the selling stations enhance the farmers' creditworthiness. In the future, mobile-payment facilities through these applications will further simplify transaction processes. The project is being implemented in cooperation with the private sector, mainly SAP research.

In **Egypt**, knowledge management (KM) plays a vital role in increasing efficiency through the re-use and sharing of experiences and know-how. The ICT Trust Fund has developed an *agriculture KM expert system* using open-source software with artificial intelligence to increase farmers'

⁴⁶ Geneva Plan of Action, § 21a)

⁴⁷ FAO contribution

productivity and support their decision-making processes in relation to relevant produce (tomato, onion, pomegranate). This project interconnects agro-enterprises, academic experts and farmers into one vibrant network that has over 300 specialized websites: www.aradina.net. Knowledge management has an impact in terms of improving productivity and tackling food-security problems. Replication to important agriculture and livestock problems is the future trend.

The **Netherlands** Technical Centre for Agricultural and Rural Cooperation (CTA), in partnership with

national and international development agencies, organized a series of five-day training events (based on cost-sharing) designed to raise awareness and stimulate the adoption of *Web2.0 and social media learning opportunities* in the context of development work. By end 2012, approximately 1 500 people (31 per cent of them women) had been trained in **Benin** (3), **Burkina Faso** (1), **Cameroon** (2), **Ethiopia** (3), **Fiji** (4), **Ghana** (3), **Kenya** (5), **Madagascar** (2), **Mauritius** (2), **Nigeria** (4), **Rwanda** (5), **South Africa** (2), **St. Lucia** (1), **Tanzania** (3), **Gambia** (2), **Senegal** (3), **Trinidad and Tobago** (3) and **Uganda** (5).



In **Switzerland**, ICVolunteers has developed the *AgriGuide*, a multidimensional tool for sustainable agriculture and natural resources management. It provides smallholder farmers with practical information on food and cash crop management to enable them to ensure sustainable agricultural production. The crops listed are cultivated in many African countries, more specifically in Senegal and Mali. The originality of the *AgriGuide* is that it consists not only of written text, but also of multimedia components such as videos and illustrations in local languages, adapted to a low-literacy context where oral and visual communication is necessary to create a dialogue (on issues such as pesticide overuse and herding practices).



In **Indonesia**, the Ministry of Agriculture has launched an *E-Petani Portal*, which is designed to facilitate the work of agribusiness actors, especially farmers and extension workers, traders and government, who can use it to obtain information needed in performing their daily activities in the agribusiness sector. Several application systems have been developed, such as an agricultural statistics database, a database on agricultural export/import, an agricultural price information system, an agricultural multimedia portal, a cyberextension portal and an integrated cropping calendar. Trial operation of E-Petani by a private company has been conducted, and a business plan for public-private partnership has been prepared.

In **Niger**, the Tech-Innov company has introduced *horticultural remote irrigation*, a technological process that allows a horticulturist to manage and operate a farm's irrigation system remotely, from anywhere and at any time, over a mobile phone. The system is also equipped with a small weather station that collects climatic data

(temperature, humidity, wind speed and direction, solar radiation, daily rainfall) in real time and sends it to the irrigator by SMS. The system also evaluates the volume of water consumed and the duration of irrigation, and sends this information to the irrigator, again by SMS.

In **Uganda**, Action Africa Help International has established a *Farmer Records Management System (FRMS)*, a web application/database which it is using under its EU-funded *Livelihoods* project. The system stores farmer information and records. It is being used to monitor inputs given to farmers and to analyse the performance of key inputs like seeds and animals (goats and cattle). It monitors increases in production, quality of technology deployed, animal tracking and production forecasting. It also helps management in decision-making.

In **Egypt**, the Ministry of Communication and Information Technology has carried out *automation of the agricultural land registration system*. The aim was to develop an automated agricultural land registration system and digitized cadastral maps. The project was conducted in two phases. In the first phase, launched in 2007, a headquarters for a set of real-estate offices was established in Giza, linked to land-registry offices in two governorates, and actions included the digitization of maps and the creation of databases for real-estate documents and their integration into a geographical information database. The result was a database of 5 million real-estate documents and digitization of a total of 138 000 maps in 19 governorates. In 2012, during the second phase of the project, the sites were established for the remaining governorates.

In the **Democratic Republic of the Congo**, Infogroup International has created *Mobile Agribiz*, a mobile application that helps farmers decide when and how to plant crops and how to select the best crops for a given location using climate and weather data, and connects them to market. In **Algeria**, the Algerian Space Agency has launched a project to use *ICT to combat the effects of climate change*. The project is using satellite imagery to produce maps covering areas of 19 provinces (wilayas) in Algeria's steppe zone, where floodwaters are used to irrigate the arid and semi-arid areas (spate irrigation technique,

exploiting runoff water rich in sediment and nutrients, which is very good for agriculture).

C7.7 E-environment

In line with the Geneva Plan of Action, governments, in cooperation with other stakeholders, are encouraged to use and promote ICTs as an instrument for environmental protection and the sustainable use of natural resources.⁴⁸

The safe disposal and recycling of discarded hardware and components used in ICTs are key elements in programmes for sustainable production and consumption. Recently, governments have deployed serious efforts in order to raise awareness about consumption behaviour and climate-change issues.

Projects are aimed at reducing energy consumption through, *inter alia*, systems for tracking and evaluating environmental changes, and ICT solutions for renewable energy and resource monitoring systems and networks, as reflected in this subchapter.

In the **Netherlands**, the International Institute for Communication and Development (IICD) has developed the *Bits4Green* project. Several big Dutch enterprises have committed their support to this new IICD initiative. The Bits4Green programme focuses on reducing energy consumption and e-waste in developing countries, with donations from Dutch and international IT entrepreneurs.

In **Algeria**, the Ministry of Post and Information and Communication Technology has introduced a *national register of institutions and environmental classes*. An environmental information system for the management of industrial establishments has been established. The register contains environmental data for dissemination and for the evaluation of potential environmental impacts.

For **Central America**, a project has been launched by **Germany's** international cooperation agency (Gesellschaft für Internationale Zusammenarbeit GmbH - GIZ), on behalf of the Federal Ministry for

Economic Cooperation and Development (BMZ), on *Development of renewable energy and energy efficiency in Central America*. The project target is to promote strategies for the more widespread introduction of renewable energy and energy efficiency. To improve the exchange of information on energy issues at regional level, an Internet platform and a newsletter were established. The weekly newsletter provides information about energy issues in general (it is the only forum of its kind in the region) and on the advancement of programmes. The newsletter already reaches more than 8 000 subscribers.

In the **Middle East and North Africa (MENA) region**, GIZ, on behalf of BMZ, has developed a project on a Network of demonstration activities for sustainable integrated wastewater treatment and re-use in the MENA region - SWIM Sustain Water Med, aimed at improving the sustainable management of wastewater treatment and re-use in four southern Mediterranean countries. The main focus is on the demonstration and dissemination of innovative and cost-effective approaches. The project website plays a major role in this endeavour, offering an interactive information-exchange platform not only for project teams across the region but also for policy-makers and the wider public. The website thereby serves as a catalyst and a link between lessons learned in the field and water users and policy-makers across the Arab world.

In **Serbia**, the overall goal of the project on *Municipal waste and wastewater management*, developed by GIZ on behalf of BMZ is to improve municipal services in Serbia in regard to waste and wastewater and ensure compliance with EU regulations. To implement national law at the local level, the management capacity of municipal administrations will be enhanced. To that end, the project supports the development of a national database on waste and wastewater management in all municipalities, which will serve both local and national government for planning purposes. Additionally, it supports an online benchmarking platform to enable municipalities to assess and compare their waste

⁴⁸ Geneva Plan of Action, § 20a)

and wastewater management status. This will be used by stakeholders to identify problems and bottlenecks, and foster appropriate solutions.

In **India**, the *Indo-German Environment Partnership* programme (IGEP) is applying ICT tools for knowledge management and capacity building. The programme's objective is to ensure that decision-makers at national, state and local levels use innovative solutions to improve urban and industrial environmental management and develop an environment and climate policy that targets inclusive economic growth decoupled from resource consumption. IGEP is successfully exploiting ICT to manage knowledge, share information with stakeholders, promote brand identity and maintain an online database of training, experts, training materials and training modules. This fosters the creation of a knowledge pool and the networking of institutions, as well as

a consumer advisory network that makes people critically aware, involved and organized in respect of the environment, and encourages them to practise sustainable consumption.

The regional programme on *transboundary water management* in the **Southern African Development Community (SADC)** seeks to improve personal, institutional and organizational capacities at three geographical levels of intervention, namely: regional (SADC), transboundary river basins, and national and local (municipal) agencies and organizations. It also aims to strengthen integrated (holistic) transboundary water management. Against this multidimensional backdrop, the programme supports the implementation of an information management system and is hosting several websites for coordination.

In **Algeria**, the following projects have been implemented in relation to environmental issues:

- The *SAMASAFIA* project establishes a **network of air-quality monitoring stations** for the purpose of monitoring levels of air pollution in cities.
- The *Algerian Biodiversity Information Exchange Centre* provides global inputs to facilitate effective implementation of the national strategic plan for biodiversity 2011-2012.
- The *geographic information system* (GIS) was launched in order to serve as a tool of urban management and provide a multisectoral database enabling local actors to know their territories and make decisions for the implementation of their urban planning policy programmes or projects.

In **Oman**, the *Green Initiative* undertaken by the Information Technology Agency (ITA) envisions building a green IT community within ITA, promoting green IT by adopting industry best practices to create a green IT ecosystem. This will help to cut pollution, encourage recycling and create an environmentally-friendly computing society and working space. The main mission of the Green Initiative is to usher in an environment for green computing and ensure responsible use of energy and other resources. In June 2012, this initiative won the coveted Oman Green Guardian Award, which is the ultimate recognition for institutions, companies and individuals in the Sultanate of Oman having demonstrated a commitment towards responsible consumption and sustainable growth. The award honours and

celebrates their vision in leading the way to a cleaner, greener tomorrow.

In **Egypt**, a project has been initiated for the *Development of environmental monitoring units in Cairo Governorate*, comprising two main elements: a) establish a new environmental monitoring unit in each district, responsible for monitoring and reporting the performance of the hygiene companies working in that district; b) set up a new central department in the Cairo Governorate, responsible for receiving reports from the monitoring units and dealing with the hygiene companies.

In the **United States**, Cognizant Technology Solutions has launched *Rebabre* - a *Green IT toolkit* for enterprises and residential users to "go green" democratically. The purpose of this

project is to empower individual consumers and employees to remotely control their workstations and appliances, which could enable major enterprises as well as residential areas to “go green democratically”. It also thrusts nature/green awareness and social/nature responsibility onto the individual users, while improving the accuracy and capacity of energy management. Rebabre is a comprehensive, intelligent and easy-to-use green IT toolkit which makes it possible to monitor and manage the energy consumption of various consumer appliances. Appliances such as lighting, fans, HVAC systems, servers and desktop devices, etc., are primary targets for this tool. Rebabre can be customized to a given operating environment.

In **Kuwait**, the *Beatona* (“our environment”) project aims to create awareness and share authentic content and valued scientific information in a user-friendly manner. It is supported by a group of committed specialists who work together to ensure compliance with global data-integration and information-sharing standards. The Kuwaiti *Environmental Monitoring Information System* (one of the components of the Beatona site) is a system initiated by Kuwait’s Public Environment Authority with the aim of establishing, building and maintaining a comprehensive geo-environmental database for Kuwait along with an enterprise-level GIS system for accessing, updating and analysing the environmental data.

The United Nations Environment Programme (UNEP) Secretariat of the Basel Convention (SBC) continues to lead work in the control of transboundary movements of hazardous wastes and their disposal.

The secretariat handles overall coordination of *e-waste Africa*, a comprehensive programme aiming to enhance the environmental governance of e-waste and create favourable social and economic conditions for partnerships and small businesses in the recycling sector in **Africa**. The initial phase of the programme consists of the E-waste Africa project and complementary activities triggered by the project and implemented by partner organizations. Following completion of the E-waste Africa project, follow-up activities are expected to be carried out in

support of countries in the region seeking to tackle e-waste issues.

A very substantial amount of work has been carried out in a very short space of time under the *Partnership for Action on Computing Equipment* (PACE). Five reports/guidelines and an overall guidance document were finalized and approved by the PACE Working Group. Two sets of guidelines were evaluated by 16 private companies to take into account practical experience, and were revised accordingly. A number of waste surveys were completed based on country proposals received from five regions, and a first pilot project has been launched in **Jordan** on the collection and management of used and end-of-life computing equipment from informal sectors.

International collaboration to promote *environmentally sound management of e-waste* was strengthened with the signing of an agreement between SBC and the International Telecommunication Union (ITU) aimed at protecting the environment from the adverse effects of e-waste. The ITU-SBC collaboration seeks to collect and recycle hazardous materials by introducing safeguards in the management of waste electrical and electronic equipment (WEEE), or e-waste. Developing countries are expecting a surge in e-waste, with mobile-phone waste expected to grow exponentially. Sharp increases in e-waste have until now not been matched with policy and regulatory mechanisms, nor with infrastructure to cope with the influx in developing countries. Currently, only 13 per cent of e-waste is reported to be recycled, with or without safety procedures. The question of e-waste as an emerging telecommunication policy and regulatory issue has received recognition at the highest level in ITU. Key examples of ITU’s activities in this area include:

- The adoption of *Recommendation ITU-T L.1000* (“Universal power adapter and charger solution for mobile terminals and other ICT devices”), which dramatically reduces production and cuts the waste produced by mobile chargers.
- The adoption of *Recommendation ITU-T L.1100*, which sets forth the procedures to be employed when recycling rare

metal components found in ICT equipment.

- Designing *e-waste management strategies* for environmental protection; publishing and disseminating *e-waste best practices*; and assisting countries in the drafting, adoption and implementation of *policies, laws, and regulations related to e-waste management*.

At the level of global environmental policy, the *Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal*, which came into force in 1992, is the most comprehensive environmental agreement on the management of hazardous and other waste. Nonetheless, many countries have not yet successfully transposed its provisions into their national legislation. Now, with the signing of the ITU-SBC Administrative Agreement, efforts between both the UN mechanisms involved will be leveraged, maximizing value at the global level and strengthening collaboration between telecommunication/ICT and environmental policy-makers for the global good. ITU and SBC have agreed to cooperate through regular dialogue and meetings; exchange of information, practices, experiences and materials; coordination of activities in areas of mutual interest, including the development of green ICT standards, international cooperation and capacity building; and execution of supplementary activities, projects and programmes.

For its part, ITU has pressed on with its activities to promote the use of ICTs to address climate change, reinforce environmental protection and promote sustainability within the ICT sector. Those activities have moved from a stage of awareness-raising to a new phase of implementation. In this regard, in addition to its

series of *ITU symposia on ICTs, the environment and climate change*, ITU has achieved significant progress in the approval of new *green ICT standards* in the context of ITU-T Study Group 5. Furthermore, it has led the organization of three editions of the *ITU Green ICT Application Challenge* and the publication of several new publications on e-waste, green ICT regulation, climate monitoring and smart water management, among others. Through its work, ITU is contributing to reducing the carbon footprint of the ICT sector, and laying the foundations to enable low-carbon development through the use of ICTs. At the country level, ITU has worked over the past years in the implementation of early-warning systems and provided support in the restoration of communications in areas affected by natural disasters.⁴⁹

C7.8 E-science

The United Nations Educational, Scientific and Cultural Organization (UNESCO) is the lead facilitator for Action Line C7: E-science. An overview of the recent activities implemented by UNESCO and other stakeholders in the field of e-science for the period 2012-2013 is given below.

UNESCO organized a two-day workshop in Harare (**Zimbabwe**) from 6 to 8 November 2012 to introduce countries in the region to a new survey⁵⁰ it had developed within a project to develop a *Global Observatory of Science, Technology and Innovation Policy Instruments* (GO→SPIN)⁵¹. SPIN is a revolutionary cluster of databases equipped with powerful graphic and analytical tools, accessible at the click of a mouse.

In order to assist developing countries in managing and protecting their natural and cultural heritage through the application of space technologies, UNESCO has established partnerships with several leading space agencies

⁴⁹ ITU contribution

⁵⁰ http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/SC/pdf/GO-SPIN_Survey_Harare.pdf

⁵¹ <http://www.unesco.org/new/en/natural-sciences/science-technology/sti-policy/global-observatory-on-policy-instruments/>

(ESA, DLR, CNES, USGS, etc.). As a result of such cooperation, various tools and awareness-raising materials have been elaborated, including, for instance, the publication *From Space to Place: an Image Atlas of World Heritage Sites on the 'In Danger' List*⁵², and the exhibition *Satellites and World Heritage Sites, Partners to Understand Climate Change*, which highlight the specific climate-change challenges facing World Heritage sites, as well as customized tools for the management of sites in **Africa** and **Mexico**.

In cooperation with the Sandwatch Foundation and other partners, UNESCO runs the *Sandwatch* project⁵³, which seeks to modify the lifestyle and habits of children, adolescents and adults on a community-wide basis and to develop awareness of the fragile nature of the marine and coastal environment. A global online Sandwatch database has been developed and will be formally launched in early 2013. This will allow Sandwatch practitioners in over 50 countries to share data on their observations, and to contribute to a coordinated global coastal monitoring effort that will generate new knowledge of beaches and coastal areas – including many lesser-known areas, in particular in small island developing states.⁵⁴

In **Malaysia**, the *Northern Lights Technology Videoconference* (NLTVC) has been established. Thanks to the use of video communication in the medical sector, geographical barriers are overcome and medical specialists can provide their skills and services from wherever they are in the world. The University Sains Malaysia's National Advanced IPv6 Centre has developed a conferencing platform that can accommodate various remote conferencing needs. This project aims to reduce travel and transform the way people communicate across geographic regions. It is also used as a platform for prisoners to communicate with their families living in different states.

In the **Russian Federation**, *Every Young Scientist Needs a Business Angel* (EYSNBA) has been created to provide a social network where young scientists (students) and technology entrepreneurs can discuss, publish and search for funding.

In **Oman**, the *Electronic Research Submission System* (TRESS) is an open-grant electronic submission system being developed by the Research Council (TRC) to process, issue and manage funds for research. Researchers from TRC-affiliated institutions have the privilege to use the TRESS platform. TRESS is also used by the people evaluating the research proposals submitted, such as the grant committee, peer reviewers and institutional focal points.

In **Egypt**, the Electronics Research Institute has developed the *National Project for Science and Technology*, which provides a complete, integrated, dynamic web-based solution linking all research centres and institutes into one unified database. The scientific research resources included are: HR, research projects, library, scientific equipment, software packages and services introduced to the community. The business intelligence layer is imposed for extracting quantitative and qualitative reports on key performance indicators. A four-level authentication system is established to organize data and report previews. The project supports decision-makers with accurate and timely information that enables effective planning and maximizes resource utilization/mobilization.

In the **United Arab Emirates**, the *Abu Dhabi Science Festival* is a strategic initiative undertaken by the Abu Dhabi Technology Development Committee (TDC) in the interests of engaging and inspiring the nation's youth with exciting hands-on science-related activities as part of a wider plan geared towards building a talent base in science, technology and innovation (STI). The 11-day festival attracted more than 120 000 visitors,

⁵² http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/SC/pdf/GO-SPIN_Survey_Harare.pdf

⁵³ <http://www.unesco.org/new/en/natural-sciences/science-technology/sti-policy/global-observatory-on-policy-instruments/>

⁵⁴ UNESCO contribution

an increase of 20 per cent over 2011. Over 20 000 students from 224 schools attended. Within the framework of collaboration with some of the leading universities in the UAE, 800 university students were recruited and trained as science communicators, this having proved to be a key factor in the festival's success.

In **Kuwait**, the *Nanoscopy Science Centre* (NSC) can offer high-resolution imaging of viral or biological specimens at an ultra-structural level (or even any material sciences investigation), observe the effects of experimental manipulations on cells and tissues, and examine fine structures for the presence, absence and quantification of known microbial or adventitious agents in specimens. *Electron microscopy* is vital in supporting process development and in research projects covering the full range of biological specimens; animal, plant and microbial studies; and various kinds of solid, semisolid and power materials from material sciences such as chemistry, earth sciences physics and engineering.



In **Argentina**, *All Robotics* is an educational project for students of primary level, offering practical material incorporating robotics technology as a teaching resource in the classroom. Teachers are trained to use this didactic tool in their daily classes. Boxes of technological assembly kits are provided to schools. The objectives of the project are to encourage learning and generate interest in science, stimulate fine motor skills and foster teamwork and decision-making. Indicative statistics: Students – 11 767 (2013: 41 000); Working kits – 1 114 (2013: 2 471); Schools - 217 (2013: 402); Teachers - 496 (2013: 926).



Action Line C8. Cultural diversity and identity

The United Nations Educational, Scientific and Cultural Organization (UNESCO) is the lead facilitator for Action Line C8: Cultural diversity. This chapter reports on some of the recent activities implemented by UNESCO and other stakeholders in relation to cultural diversity during the period 2012-2013.

With regard to cultural and linguistic diversity, in 2012 UNESCO continued to manage and monitor the implementation of its international standard-setting instruments, and in particular the *Convention on the Protection and Promotion of the Diversity of Cultural Expressions* (125 States Parties: the sixth ordinary session of the Intergovernmental Committee for this Convention was held in December 2012, examining the first quadrennial periodic reports on the effective results achieved); and the *Convention for the Safeguarding of Intangible Cultural Heritage* (148 States Parties: the seventh session of the Intergovernmental Committee for this Convention was also held in December 2012. Both these instruments recognize languages as vehicles of intangible cultural heritage, and provide for the implementation of numerous capacity-building, technical assistance and monitoring activities in the field, mobilizing important resources and multistakeholder participation worldwide.

In support of WSIS Action Line C8, and by implementing the UNESCO General Conference's *Recommendation concerning the Promotion and Use of Multilingualism and Universal Access to Cyberspace*, UNESCO has contributed to the promotion of multilingualism and the creation of

multilingual content on the Internet. In 2012, together with the Organisation for Economic Co-operation and Development (OECD) and the Internet Society (ISOC), it formulated concrete recommendations on *content development, connectivity and promotion of Internet access*. UNESCO and the European Registry of Internet Domain Names (EURid) prepared a second report focusing on the experience gained and lessons learnt in the *deployment of internationalized domain names (IDNs)*⁵⁵, pointing to a significant correlation between IDNs and local languages.⁵⁶

In **Latvia**, the National Library of Latvia (NLL) has established a *National Digital Library* to digitize newspapers and journals, in view of the poor physical state of these items, their historical and cultural value and the demand for them. NLL has digitized more than 3 million pages of newspapers and journals, more than 7 000 monographs published in Latvia and deemed to be of significant historic or artistic value, many hundreds of historic maps, and many thousands of historic posters, postcards, prints and other image materials, such as the "In Search of Lost Latvia" collection, which consists of more than 25 000 historic photos depicting the history of places and people in Latvia. The digitization project is being carried out in close cooperation with other Latvian memory institutions, as well as with experts in Latvian history and culture. NLL is also engaged in the preservation of digitally born cultural heritage, especially through the harvesting of web resources – it is currently selectively harvesting 3 000 Latvian

⁵⁵ http://www.eurid.eu/files/EURid_IDN_Report_2012.pdf

⁵⁶ UNESCO contribution

domains. To coordinate and strengthen digitization work in the cultural sector, NLL has initiated the development of national digital cultural heritage policy and developed a "digitization handbook" which serves as a *de facto* standard for digitization, a summary of best practice in digitization and a learning tool for Latvian cultural institutions.

In **Egypt**, the Internet Life Initiative has introduced a project on *Web literacy for the Arab world*. Internet Life is a social initiative that works on web literacy (net literacy) in Egypt. It provides tools to give people a better grasp of how to use the Internet professionally and how to integrate it in their practical life. It also seeks to convey the message that the Internet can have an impact on the course of Egypt's development. It provides young people with educational services in various areas (e-employment, e-learning, e-business, e-media, e-science) through online and offline activities. These activities will enhance Egypt's level of education, economy, innovation and communication with the world.

In **Tunisia**, the publisher Exhauss has launched an academic website, *Ibn Khaldoun*, complying with the Web 2.0 requirements. The site was created in the wake of the worldwide festivities celebrating the sixth centenary of the death of Ibn Khaldoun, an eminent Arab who is universally recognized as a genius of humanity. It responds to a genuine and frequently expressed desire on the part of the Tunisian and foreign academic world to see the emergence of an academic site respecting international scientific standards devoted to Ibn Khaldoun.

In **Lithuania**, the *Lithuanian Integral Museums Information System* (LIMIS) will automate stocktaking of museums holdings, aggregate the databases of Lithuanian museums into a common repository and comprehensively reflect Lithuania's preserved cultural heritage values worldwide. The development and implementation of LIMIS will facilitate research and the representation of museum collections for both the national and international communities; ensure the mobility of Lithuanian museum holdings; modernize the stocktaking of museum collections; improve the qualifications of museum specialists; and improve the availability of collections and museum inventory records for

public authorities. LIMIS will become an attractive virtual space for learning, cultural tourism, leisure and social integration.

In **Egypt**, the Centre for the Documentation of Cultural and Natural Heritage (CULTNAT), in collaboration with the National Library of Egypt, has begun the *digitization of historical maps and Arabic papyri*. By developing databases containing the digitized collections, the National Library can provide a better service for researchers and scholars. A bilingual catalogue of Arabic papyri was published, covering a collection of papyri that is being revealed for the first time.

In **Malaysia**, the eBario Sdn Bhd has established the *eBario Innovation Village*, operated by the eBario telecentre. The innovation village is a living laboratory and incubator for the conception, implementation and propagation of ICTs and renewable-energy applications to stimulate socio-economic development within Malaysia's rural and isolated indigenous minority communities. There are four flagship applications:

- 1) Radio Bario, Malaysia's first community radio station, which began broadcasting in October 2011
- 2) Low-cost aerial photography for community mapping using tethered weather balloons for making maps that support claims for indigenous land rights
- 3) ICTs that help to preserve and pass on traditional botanical knowledge
- 4) ICTs for recording, broadcasting and archiving oral history.



In the **United Arab Emirates**, the Ministry of Culture has introduced the *Arabic Language Charter*, which consists of a package of initiatives

to reinforce the status of the Arabic language in the community. The initiatives include promotion of the use of Arabic in public life, an advisory board chaired by the Minister of Culture to apply the principles of the Charter, and careful efforts to foster the development of the Arabic language. Further initiatives also focus on revival of the Arabic language for science and knowledge and highlighting the work of creators, including the launch of the Faculty of Translation and the Institute for teaching Arabic to non-native speakers. Furthermore, an electronic component is included, aiming to promote Arabic content on the Internet.

In **Chile**, the Directorate of Libraries, Archives and Museums (DIBAM) has introduced a network of libraries - *BiblioRedes*. Established in November 2002, the programme aims to transform people into agents of social and cultural development operating from public libraries and in cyberspace, and thereby overcome isolation thanks to the Internet and new digital technologies. It has been implemented in 412 public libraries and 18 regional laboratories throughout Chile, from Puerto Williams to Visviri, including the island territories. The programme has state-of-the-art computers with Internet access and offers free training in content and digital developments.

In **Colombia**, the Ministry of Information and Communication Technology has launched a project *En mi idioma* ("In my language"), which seeks to ensure the inclusion of indigenous communities in the technology and knowledge society through the use of ICT, primarily aimed at preserving and promoting the dissemination of indigenous Colombian languages and knowledge. Training in the use of ICTs, content generation and information publishing are supported by multiple international stakeholders. Active participation and empowerment of indigenous communities is a crucial aspect of the initiative, achieved through universal and equitable access, capacity building and knowledge sharing. The project is currently being implemented in seven indigenous communities in Colombia.

In **Indonesia**, the Association of Community Internet Centres (APWKomitel) has established *rural country border village cybercafés*. Participatory rural appraisal (PRA), ethnographic research and the installation of rural village

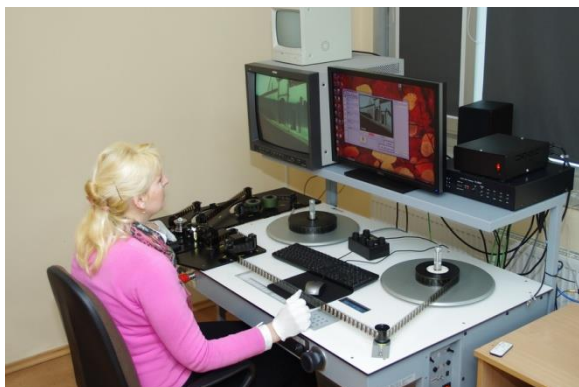
community cybercafés (also called *Wardes*) have been implemented in very remote locations in the highlands of Kalimantan, in the village of Long Bawan, the Krayan districts and the East Kalimantan province of Indonesia. Many villages, where the Lundaya tribe of Highland Borneo live, are inaccessible over land, sea or water, and can be reached only by Cessna plane, and the only public Internet centre is next to the Krayan Conservation Rain Forest, sponsored by the World Wildlife Fund (WWF), and providing information and technology to empower the Lundaya tribal society, which is self-sufficient thanks to rice and vegetable farming, salt mining and ecotourism.

In **Romania**, the Braila Public County Library has introduced a *Local History@Your Public Library* initiative. Five Romanian county libraries have established the first ever public national portal devoted to local history, under a project which was carried out in the space of a year. The project aims to get students interested in local history, provide teachers with the necessary electronic documents for educational purposes, and educate young people in a spirit of respect for the community's past and present. It consists of a database of digital objects grouped in several major areas of interest – history, personalities, geography, architecture, local traditions and customs – and can be replicated for any county in Romania



In **Lithuania**, the Lithuanian Central State Archive has launched an *e-cinema*. In May 2010, the Archive began implementing a 36-month project called *Lithuanian documentaries on the Internet* (e-cinema), financed from EU Structural Funds. The objective of the project is to preserve Lithuania's documentary heritage – 1 000 titles of Lithuanian documentaries created in the period

between 1919 and 1961 – through digitization, and to make it accessible to everyone via the Internet portal www.e-kinas.lt. National and foreign Internet users can view digitized Lithuanian documentary films online, and order digital copies of movies. Film descriptions are provided both in national languages and English.



Also in **Lithuania**, Vilnius University has initiated a project entitled *Orbis Lituaniae: Histories of the Grand Duchy of Lithuania*, the main objective of which is to start a dialogue and collaboration between research, education, public institutions and the community on the topic of cultural, linguistic, political and ethnical identity and/or diversity (in the region) from a historical perspective. This is achieved through the establishment of digital content (more than 120 000 scanned documents), tools (online software and integration with European resources), a collaboration model (based on creative industries), and the history of the region (portal with 700 histories). The resources have involved over 150 professionals (historians, art critics, philologists, heritage specialists, designers, programmers, etc.) and more than 12 institutions (universities, libraries, etc.). Plans for the future include an English version and a mobile application.

Again in **Lithuania**, the Martynas Mazvydas National Library of Lithuania has initiated development of the *Virtual Electronic Heritage System*. This project focuses on the creation of digital content and the development of a virtual system and software for preserving and accessing digital heritage. Ten different memory institutions are consolidated, and the long-term preservation of and access to heritage objects are ensured in line with the corresponding EU strategic texts. Features are the www.epaveldas.lt portal, e-services and a seamless digital collection of 108 000 heritage objects. Promoting national cultural identity and cultural and linguistic diversity by involving memory institutions representing the traditions of different regions of Lithuania is also one of the project objectives of the project, which functions through a centralized infrastructure for long-term preservation of digital content and integrated access via the portal. In addition, a partnership between memory institutions has been established, and the project's sustainability was confirmed in recent strategic documents in Lithuania

In the **United Arab Emirates**, a *UAEpedia* project has been instituted, with the objectives of promoting culture and unity among UAE citizens and strengthening their sense of belonging by providing a website that highlights the UAE history, geography, culture, heritage, folklore, etc. The aim is to provide information related to the UAE in one place and make it available to researchers, media people, scholars, students and anyone interested in learning about the country. In addition, the project contributes to enhancing national collaboration by opening the door to those wishing to enrich the encyclopaedia by adding new articles or editing the current ones, and by documenting the history and life of the people of UAE.

Action Line C9. Media

The United Nations Educational, Scientific and Cultural Organization (UNESCO) is the lead facilitator for Action Line C9: Media. This chapter gives an overview of recent activities implemented by UNESCO and other stakeholders for the period 2012-2013.

In cooperation with the World Press Freedom Committee (WPFC), UNESCO co-hosted a conference on *The media world after Wikileaks and News of the World* on 16 and 17 February 2012. Media experts and journalists exchanged views on these topical issues and discussed good practices in traditional professional journalism and citizen journalism in the digital era.

World Press Freedom Day was held in Tunis from 3 to 5 May 2012, and celebrated in more than 100 countries. In November, UNESCO convened the second *UN Inter-agency meeting on the safety of journalists and the issue of impunity*, and it contributed on press freedom to the Universal Periodic Review process.

UNESCO promoted media reform in conflict, post-conflict and transition situations (including, for example, eight **Arab States, South Sudan and Myanmar**).

In February 2012, the 56th meeting of the Bureau of the International Programme for the Development of Communication (IPDC) supported 85 projects in 62 countries in the amount of USD 2 170 180. Assessments based on the media development indicators were completed in four countries.

The *Media and Information Literacy (MIL) Curriculum for Teachers* (available in three languages and being translated into seven others)

is being tested at more than 20 teacher training institutions. The MIL UNITWIN university network organized the first *MIL and intercultural dialogue week* in **Spain**. User-generated content guidelines developed by UNESCO/CBA were translated in four languages.

The *Women Make the News* initiative, under the theme *Rural women's access to media and information*, was promoted in 40 countries. UNESCO held an international debate on gender and media at IPDC in March 2012. More than 20 public service broadcasters piloted UNESCO's gender-sensitive indicators for media.

Following the proclamation of 13 February as *World Radio Day* at the 36th UNESCO General Conference, UNESCO encouraged broadcasters to celebrate the date. UNESCO is supporting 32 radio stations in seven **sub-Saharan countries** in the use of ICTs, and is also mapping community media policies in 30 countries.

UNESCO hosted a conference of the *Orbicom network of UNESCO chairs in communication*, as well as panels at the Association for Education in Journalism and Mass Communication and the European Communication Research and Education Association.

Community Broadcasters Network is a project launched in the **Dominican Republic** by the First Lady's office. Through this project, some 70 per cent of community activities of local interest on subjects such as information, education, health, prevention, culture and computing are broadcast to radio listeners in the area, in accordance with the guidelines of the World Association of Community Broadcasters (AMARC) and the American Association of Community Broadcasters.

In **Ecuador**, the Latin American Association of Radio-Education has launched a project on Amazonian citizenship: a communication strategy for the democratization, rights and well-being (“buen vivir”) of the Amazonian people, aimed at improving communication and information processes by launching a multimedia platform and a mobile component (human and technological capital), which will provide facilities to create radio programmes, educate people in the use of ICTs and interconnect radio stations in the region. The programmes will be produced within the communities themselves (on topics they determine to be relevant), in order to give a voice to the Amazonian people. They will be transmitted through radio-production studios, previously installed in the border regions, and nationally, regionally and internationally using the signal of the Latin American Radio Education Association (ALER), in order to communicate the value of the Amazonian region.



In **India**, Video Volunteers have initiated a project to build a *Community Newswire Service*. Video Volunteers aims to democratize the media and empower and give a voice to marginalized communities. The organization trains communities to watch and produce news, take action and devise solutions to endemic problems. Over 100 people have been trained, and over 500 videos have been made and watched by over 300 000 people at outdoor screenings and by hundreds of thousands more online. Records exist showing that over 17 000 people have taken action after seeing the videos. Lack of connectivity in rural areas remains the biggest challenge, but Video Volunteers remain committed to growing their network to 645 correspondents – one in every district in India.

In **France**, a project entitled *Semantis* has been launched. Teachers confirm that the young poor display higher levels of motivation in IT workshops which generate multimedia digital content. Hence, young people are placed in a situation of co-construction of knowledge and practices with the result that, since what they are doing has more meaning for them, they become co-authors of their learning, and multipliers of messages within their communities. Faithfully pursuing the objectives of national and regional strategies, Semantis develops web radios in schools, thereby providing added value in terms of the creation both of digital content for children and of IT pedagogical tools for teachers.

In **Bangladesh**, the NGOs Network for Radio and Communication (BNNRC) is implementing a project on *Connecting, strengthening and pioneering voice through community radio in Bangladesh*, in line with WSIS Action Line C9. At present, 14 community radio (CR) stations are broadcasting 100 hours of programmes a day. As many as 536 young boys and girls are working as rural broadcasters in the 14 CR stations. A total of 125 from the rural community are involved in CR station committees and are trying to achieve ownership at the local level. The community radio is fast becoming an essential mass medium in the lives of the rural people.

In **Colombia**, the Ministry of Information and Communication Technologies has established the [Academia de Periodismo \(Journalists' Academy\)](#), which educates and trains journalists throughout Colombia in the strategic use of digital tools to enhance the performance and social responsibility of mass media in content production, ensuring their effective contribution to social, economic, cultural and political development. Coordinated development actions aim to promote awareness of the rights and obligations associated with the use of ICT to help improve governance, peace and quality of life for citizens. To date, 5 000 people have been trained under the initiative, and the goal is 10 000 by 2014.

In the **Islamic Republic of Iran**, Tarbiat Moallem University has launched a project on *encouraging traditional media*. To enable traditional media to take advantage of new technologies, a plan has been prepared to educate those people in rural

areas who have access to these technologies in order to enhance their skills, based on local culture.

In Algeria, the Government's General Secretariat has set up a *website* providing direct and free access to all the issues of official journals since 1962, referring to the Constitution, laws and the General Secretariat's annual activities. In addition, the website proposes a search engine for subject-based searching of all the texts published in the official journal, allowing multi-criteria and rapid access to legal information by ticking one or more boxes to display or print the texts sought in the national language or in French.

In the **Islamic Republic of Iran**, a public communication centre known as *SAAMAD.IR* has been established. The new structure was designed and implemented with the aim of facilitating communication with the government in regard to problems and complaints in network and layer form and at the national, organizational, provincial and county levels, as well as to facilitate the public's access to government, deal with requests people submit to lower levels (county, province), and make the centre into a high-level public communication monitoring centre. People can submit ideas, designs, suggestions, complaints, criticism and requests by phoning 111, and even communicate with the local governor.

In the **United Arab Emirates**, the Dubai Press Club (DPC) has launched the first digital initiative of its kind - the "*Agenda*" - which will host a series of virtual seminars, meetings, workshops and talk shows using the latest digital social networking applications. The first session of the *Agenda* was held on DPC's page on Google+. Citizens can participate in the session using Google Hangouts, a chat application that enables them to watch and interact with the proceedings of the event from anywhere using computers and Smartphones. The sessions are also presented on DPC's channel on YouTube and Twitter (#agenda).

In **Kuwait**, the Ministry of Information seeks to use modern technology to provide the latest tools and services for citizens and residents. The ministry *website* offers a variety of services, including online radio and television broadcasting, electronic media magazines, the official newspaper of the State of Kuwait (in electronic format) and the latest local and international news. The site saves citizens and residents time, and helps them keep abreast of the latest developments in society.

In **Nigeria**, the Federal Radio Corporation of Nigeria (FRCN), the country's pioneer broadcasting organization, has launched various ICT activities, projects and programmes, and has evolved through various stages of technology to become the largest radio network in Africa. FRCN has always kept up with and adopted emerging ICT facilities, transforming the corporation into a responsive radio catering for Nigeria's diverse needs. ICT activities and projects implemented by FRCN include the establishment of an ICT unit within the corporation; audio streaming on the Internet and on mobile devices; studio upgrade to digital; and use of VSAT for networking and outside broadcast.

In **Rwanda**, the Ministry of Youth and ICT has created the *Africa Digital Media Academy* (ADMA), a vocational training programme, initiated in March 2012 by the Workforce Development Authority (WDA) and Pixel Corps Ltd., which equips students with the necessary skills to work in all areas of the digital media industry. It prepares Rwandan students for production work needed in digital media. Through live, hands-on learning in the computer lab and production studio, along with distance learning provided by television experts in the United States, students are able to proceed at their own pace with support from the instructors. The emphasis is on student collaboration with the community as the foundation for effective learning.

Action Line C10. Ethical dimension of the information society

The United Nations Educational, Scientific and Cultural Organization (UNESCO), as the lead facilitator for Action Line C10: Ethical dimensions of the information society, is working in a range of areas. As part of its efforts to stimulate the global debate on the ethical dimensions of the information society and support international cooperation, UNESCO has initiated a reflection process for its Member States aimed at enlarging understanding, building consensus, identifying key areas of concern and pinpointing capacity gaps. The outcome of this process was a document on *UNESCO and the ethical dimensions of the information society*. In particular, the document provides approaches for:

- Building multistakeholder partnerships to raise awareness as to the ethical dimensions of the information society and strengthen action in this area
- Supporting capacity-building at national level
- Examining the ethical dimensions of access to and use of information
- Identifying research needs in this field.

The document was adopted by UNESCO's Executive Board at its 190th session as part of the strategic policy framework for guiding UNESCO's global cooperative actions. UNESCO is leading a research study on *Current and emerging ethical and societal challenges of the information society*, as part of the preparatory activities for the first WSIS + 10 Review Event at UNESCO headquarters in February 2013. The study seeks to explore:

- Ethical challenges of some current technologies
- Emerging technologies and their potential impacts
- Forward-looking approaches to managing technological and societal transformations.

This study will serve to identify issues and prioritize actions related to Action Line C10 in the post-2015 WSIS agenda. Its findings and recommendations will also be presented to, and feed into, the work of the World Commission on the Ethics of Scientific Knowledge and Technology (COMEST) on themes related to cyberethics and info-ethics. It is also anticipated that the study will be presented to and inform the debates of the upcoming 2013 World Social Science Forum (WSSF) on the theme of social transformation and the digital age.⁵⁷

In the **Dominican Republic**, the Dominican Institute of Telecommunications has launched an initiative to help ensure that children and adolescents in the Dominican Republic navigate in cyberspace safely, developing *responsible and ethical use of the Internet*, as a tool for building a real culture of knowledge, creativity and innovation.

⁵⁷ UNESCO contribution

In the **Netherlands**, the International Institute for Communication and Development (IICD) is providing an *online consulting service on domestic violence* in **Bolivia**. The project unites female victims of domestic violence in an online network, where they are completely anonymous, making them feel more secure about opening up and discussing their problems with other victims through computer programs such as Skype and via e-mail. Another aspect of the project is to develop and broadcast regular radio programmes and radio spots featuring stories of victims of domestic violence. To complement the above, three communication centres, run by women's organizations, have been set up in three different districts.

In **Portugal**, the iFlexi.com Lda company has developed the [*Talk Global citizenship platform*](#), which gives citizens from all over the world tools to enable them to talk about issues they consider to be important. It is being deployed in more than 20 countries in the course of 2013, and aims to become an effective instrument for direct democracy. The platform was launched in January 2013, and already has hundreds of citizens and organizations collaborating and creating a citizenship network that involves the citizens in the civic and social activities of the organizations. National versions of the website are also being created.

In the **Islamic Republic of Iran**, an *Intelligent classification of webpages* has been introduced, which uses structural features, text and video applications for diagnosis and identification of inappropriate pages. Criminal content in webpages includes means of penetrating systems, disclosure of countries' national secrets and images of child abuse. A keyword method is used, whereby heavy use of obscene words on a page results in it being blocked. The most effective way of identifying inappropriate material is the use of visual features in webpages.


In the **United Arab Emirates**, an initiative called *Amal* ("Hope") has been introduced, which aims to help Emiratis with special needs to familiarize themselves with specific business sectors by identifying the appropriate course of action, taking into consideration their disabilities, and providing counselling services as well as financial and non-financial support. The programme also

assists in setting up specialized workshops for UAE nationals with special needs, in collaboration with the Zayed Higher Organization for Humanitarian Care, Special Needs and Minor Affairs.

In **Indonesia**, a government *Healthy and Safe Internet* programme has been launched. Supported by all stakeholders, it is designed to raise awareness of the impact of the Internet and promote healthy and safe Internet use among students, teachers, parents and communities. The programme, which has been under way for four years and reached more than 500 schools throughout Indonesia, provides guidance and education on using the Internet wisely to improve knowledge and productivity, thereby introducing ethics into cyberspace in an effort to avoid misuse. Feedback has been positive, having regard to the significant value of the programme in saving children and fostering a better generation of Internet users in the future.



In **Mexico**, the Ministry of Communications and Transportation has launched a project called *Mujermigrante.mx*, promoting *human rights for migrant women*. ICTs help fulfil the government's moral obligation to defend human rights, particularly of vulnerable individuals and communities. At present, women represent 50 per cent of all migrants in Mexico. *Mujermigrante.mx* helps migrant women to use ICTs. The platform was created with the participation of more than 30 government and civil-society organizations. Through online, easy-to-understand web-enabled applications, videos, learning tools, chats and tutorials, it empowers women by granting access to information on human rights, health services, immigration support and government programmes. In the



next phase, the project will expand to support mobile devices.

In **Morocco**, the national children's rights watch centre - Observatoire National des Droits de l'Enfant (ONDE) – has been working on a project focusing on ICT applications in e-civil society, research and development, multisector partnership (MSP) and e-content development relating to the rights of the child. This includes the development of a children's rights portal in Morocco to promote knowledge and

understanding of children's rights and provide a forum for children's participation in society, and the creation of an e-civil society web network with a view to establishing a protective digital environment to shield children from exploitation, abuse and violence, empowering young people, and ensuring that all judicial practice, social events, government actions and policies are compatible with the Convention on the Rights of the Child. In addition, the programme features cyberprotection toolkits and programmes.

Action Line C11. International and regional cooperation

International cooperation among all stakeholders is vital for implementation of the WSIS outcomes. This chapter describes ICT projects that have been carried out in response to requests for international cooperation and assistance from developed countries and international financial organizations for infrastructure development projects.

In recent years, ICTs have consistently been included in the work programmes of many international and regional organizations in order to promote universal access and bridge the digital divide.

The United Nations Department of Economic and Social Affairs (UNDESA) is the main facilitator of Action Line C11: International and regional cooperation.

UNDESA, in partnership with the United Nations Economic Commission for Africa (UN-ECA), the International Telecommunication Union (ITU) and the United Nations Economic Commission for Latin America and the Caribbean (UN-ECLAC), presented the *Report on Measuring ICT for Development*, which included a list of globally comparable e-government core indicators, to the UN Statistical Commission at its forty-second session in March 2012. The Commission fully endorsed the set of indicators and requested that they continue to be reviewed in the light of rapid technological advances and widespread use of ICT technology.⁵⁸

The seventh Internet Governance Forum (IGF) was held at the Baku Expo Centre in Baku, Azerbaijan, from 6 to 9 November 2012. Two open consultations and Multistakeholder Advisory Group (MAG) meetings were held to set the agenda and themes of the Nairobi meeting as well as continuous online interactions. The main theme for the meeting was Internet governance for sustainable human, economic and social development. More than 1 600 delegates representing 128 countries attended the forum, with over 3 600 unique remote visitors from 52 remote communication hubs. Workshops, best-practice forums, dynamic coalition meetings and open forums allowed participants to delve into both complicated and frequently controversial issues in an open and inclusive manner. The topics addressed ranged from issues related to cybersecurity and child online protection, the rise of social networks and the use of 'big data' to various aspects of human rights as they relate to the Internet, among many others. A collective affirmation of the necessity of the multistakeholder model in handling Internet governance issues was continually stressed at the IGF consultations, at national and regional IGF meetings and during the annual forum. The IGF process is fulfilling its mandate to both reinforce and elevate the ongoing enhanced cooperation efforts of the multistakeholder Internet governance community. In the IGF process, governments are eager to listen to their civil society and business communities. Capacity and partnership building within the IGF community has also increased significantly.⁵⁹

⁵⁸ UNDESA contribution

⁵⁹ UNDESA contribution

The United Nations, its specialized agencies, regional organizations and other entities continue to foster international and regional collaboration in order to build the information society. In this regard, various activities were undertaken for the period 2012-2013.

The *WSIS Forum 2012* was held from 14 to 18 May 2012 in Geneva, Switzerland. The event attracted more than 1 300 stakeholders from over 140 countries, representing government, civil society and the private sector. Several high-level representatives, including more than 35 ministers and deputy ministers, ambassadors and chief executive officers of companies, as well as civil-society leaders, contributed passionately to the event. The WSIS Forum 2012 resulted in an *Outcome Document*, presented on the last day of the forum, which not only provides a summary of all the sessions held during the forum but also captures the outcomes and the way forward. The session summaries provide a particular focus and emphasis with a view to the WSIS+10 review process. The document also captures the aspect of emerging trends, and identifies the main emerging trends for a range of activities covering each action line, thereby providing a vision beyond 2015.

During the WSIS Forum 2012, ITU Secretary-General Dr Hamadoun Touré announced the 18 winners of the *WSIS Project Prizes* contest that was held for the first time. WSIS Project Prizes is a unique recognition of excellence in the implementation of WSIS outcomes. Submissions to the contest came from governments, international organizations, civil society, the private sector and individuals, reflecting the multistakeholder nature of the WSIS process. The winners' submissions were reflected in the *WSIS Stocktaking Success Stories 2012* report released during the WSIS Forum 2012.

The *UN Group on the Information Society* side event took place on 17 June 2012 at the United Nations Conference on Sustainable Development in Rio de Janeiro, Brazil. The side event, on *ICTs: the foundation of our sustainable future*, looked

at specific ICT applications and services that can assist in the transition towards a green economy, focusing on the key role that policies, regulations and international standards play in enabling and fostering the uptake of ICT applications.

The *Connect Americas* Summit was held Panama City, Panama, from 17 to 19 July 2012. The Summit was organized by ITU and hosted by the Government of the Republic of Panama. Connect Americas is part of ITU's *Connect the World* series, an ambitious initiative aimed at connecting the unconnected by the year 2015. The overall objective of Connect Americas is to mobilize the human, financial and technical resources required to close ICT gaps in the region. The Summit offered a venue for leaders from the public and private sectors, as well as international and regional financing and development agencies, to network face to face and forge new partnerships. Such summits are preceded by a preparatory process during which ICT development projects and project holders are identified, as well as partners and donors willing to contribute to the implementation of selected projects, with a view to enhancing the deployment of ICT networks, applications and services within the region in question.⁶⁰



The *ICT4All Forum 2012* was held from 17 to 20 September 2012, in Tunisia. This event brought together several ICT stakeholders to discuss, brainstorm, network and exhibit. It was organized by the Ministry of Information and Communication Technologies, under the high patronage of Mr Hamadi Jebali, Head of the Tunisian Government, and in partnership with ITU, UNCTAD, UNESCO, the African Union, the League of Arab States, the African Development Bank, the World Bank, ECA and ESCWA. The

⁶⁰ <http://www.itu.int/ITU-D/connect/americas/>

event hosted several parallel sessions, including the *Arab Regional Development Forum on Broadband in the Arab Region*, meetings on *WSIS follow-up* in the Arab States and Africa, the *North African IGF meeting*, *workshops/seminars on the Internet of Things*, run by the Research and Studies Telecommunication Centre and ITU, the FP7 European Project “*PROBE-IT*”, *Building capacities, actualities and perspectives*, run by the Centre for Information, Training, Documentation and Studies in Communications Technologies (CIFODE'COM), and *Empowering Arab Youth through ICT job opportunities*, run by the Arab ICT Organization under the patronage of the League of Arab States and in close cooperation with the Arab Labour Organization.⁶¹

The *Broadband Commission for Digital Development*, at its sixth meeting, held in New York, United States, on 23 September 2012, released its first-ever country-by-country snapshot of the state of broadband deployment worldwide. *The State of Broadband 2012: Achieving Digital Inclusion for All* report evaluates the roll-out of broadband around the world and tracks progress towards achieving the four advocacy targets set by the Commission in 2011 for boosting broadband affordability and uptake. It provides country rankings across up to 177 economies in terms of economic impact, penetration, national broadband policy and connecting people and dwellings. The report draws on ITU's extensive statistical evidence base, and is the result of close collaboration between the Broadband Commissioners. Based on interviews, contributions and supporting material from more than 20 experts and their organizations, it highlights the importance of public-private partnerships in accelerating change, and presents twelve recommendations from the Commission to speed up the roll-out and deployment of broadband in order to accelerate progress towards achieving the Millennium Development Goals (MDGs).

The tenth *World Telecommunication/ICT Indicators Meeting* (WTIM) took place from 25 to 27 September 2012, in Bangkok, Thailand. The meeting addressed, *inter alia*, the following topics:

- The national coordination of ICT statistics
- Measuring fixed and mobile broadband, including pricing, traffic and capacity
- Measuring progress towards achievement of the WSIS outcomes (jointly organized with the Partnership on Measuring ICT for Development)
- Revisions to the indicators on household ICT access and individual ICT usage
- Measuring gender-related ICT indicators
- Emerging issues such as measuring digital broadcasting, including IPTV
- Results of the work carried out by the Expert Group on Telecommunication Indicators (EGTI) since the ninth WTIM⁶²

The Regional Commonwealth in the field of Communications (RCC) has adopted a strategy of cooperation for construction and development of the information society for the **CIS region**. The main purpose of the project is to pool efforts and ensure effective interaction with ICT use for further development of the national economy and security, in order to improve the welfare of citizens. The main orientations for cooperation between the CIS member states for the construction and development of the information society set out in the Strategy-2015 are the development and implementation of modern ICT applications, e-government and e-health. The strategy was adopted by CIS Heads of Government on 28 September 2012.

ITU TELECOM World 2012 was held from 14 to 18 October 2012, in Dubai, United Arab Emirates. The event brought together industry

⁶¹ www.ict4allforum.tn

⁶² <http://www.itu.int/ITU-D/ict/wtim12/index.html>.

representatives and government leaders at the highest level to engage in five days of critical dialogue on networking, knowledge-sharing and the challenges defining the ICT sector, as well as the opportunities it offers. ITU TELECOM World 2012 was launched with a Leadership Summit, convening leaders of government and industry to debate the future of the telecommunication sector and the ways in which it needs to be protected, funded and communicated.⁶³



In **Colombia**, the Ministry of Information and Communication Technology has introduced a project entitled *No al hurto de celulares* (Say no to cellphone theft). With the introduction of smartphones, the transnational crime of cellphone theft has increased substantially, resulting in an international black-market trade industry. In October 2012, Colombia invited international stakeholders (government representatives, law-enforcement organizations and corporations) to take part in the first *World Forum Against Cellphone Theft*. The forum resulted in the signing of the Bogota Declaration, and set the framework for a comprehensive strategy and strategic alliance between national government and the mobile industry for the prevention of such transnational ICT criminality. See: <http://www.mintic.gov.co/index.php/hurto-celulares-inicio>.

In the **Islamic Republic of Iran**, the Information Technology Organization (ITO) prepared the *Regional Conference on WSIS-2015*, held on 4 March 2012, in Tehran. A WSIS workshop was held, also in Tehran, on 12 November 2012, in conjunction with the 14th Economic Cooperation Organization (ECO) Telecommunication Summit. The workshop was organized by ITO and Iran University of Science and Technology (IUST), to follow up the WSIS goals and prepare for WSIS-2015. Panellists proposed coordinated exchanges of experiences and knowledge, cooperation on joint projects, the organization of specialized courses and the holding of technical committees of contributors. The event comprised two sessions, in the first of which Iran's experiences were presented to ECO participants, with the second being devoted to an open discussion, in which the challenges for WSIS activities in 2013 were discussed by domestic IT managers.

For the fourth consecutive year, the *Measuring the Information Society* (MIS) report presents two authoritative benchmarking tools for monitoring information-society developments worldwide. The *ICT Development Index* (IDI) ranks 155 countries' performance with regard to ICT infrastructure and uptake. The *ICT Price Basket* (IPB) is a unique metric that tracks and compares the cost and affordability of ICT services in more than 160 countries globally. Both the IDI and IPB, especially when combined, are powerful measures for benchmarking and explaining ICT development differences among countries and within regions. The MIS report also features brand new data and analyses on revenue and investment in the ICT sector, and proposes a new methodology for measuring the world's telecommunication capacity.⁶⁴

⁶³ http://www.itu.int/net/pressoffice/press_releases/2012/80.aspx

⁶⁴ www.itu.int/ITU-D/ict/publications/idi/index.html.

ITU convened the *World Conference on International Telecommunications* (WCIT) in Dubai, United Arab Emirates, from 3 to 14 December 2012. This landmark conference reviewed the International Telecommunication Regulations (ITRs), the binding global treaty designed to facilitate international interconnection and interoperability of information and communication services, and to ensure their efficiency and widespread public usefulness and availability.⁶⁵



The United Nations Educational, Scientific and Cultural Organization (UNESCO) hosted a multistakeholder *WSIS+10 review* event at its headquarters in Paris from 25 to 27 February 2013.⁶⁶ This first WSIS+10 review event, with an analysis of trends and possible recommendations, was an integral part of the overall WSIS review process. Its outcomes will feed directly into the subsequent review meetings and into the United Nations General Assembly overall review in 2015. The results will also be reported to UNESCO's Executive Board and to the 37th session of the UNESCO General Conference (November 2013).⁶⁷

In **Australia**, the Asia-Pacific Network Information Centre (APNIC) has introduced the *Information Society Innovation Fund for Asia* (ISIF Asia), a grants and awards programme aimed at stimulating creative solutions for meeting ICT development needs in the Asia-Pacific region. Funds were allocated to 28 projects in 14

economies. The successful projects showcased innovation, cooperation and technical knowledge, plus potential for creating social change in their communities. Projects reflect current technical and social discussions, including relevant issues such as exploring the opportunity for developing economies to get ahead in the IPv6 challenge, and the deployment of wireless networks to serve isolated communities with cheaper and accessible communication services.



In **Switzerland**, the *European Dialogue on Internet Governance* (EuroDIG) was launched in 2008. Since then, EuroDIG has successfully organized five subsequent events - Strasbourg, 2008; Geneva, 2009; Madrid, 2010; Belgrade, 2011; and Stockholm, 2012, attracting more than 500 participants from all over Europe to date. The next EuroDIG is scheduled to be held in Lisbon, in June 2013. EuroDIG is a genuine multistakeholder initiative continuously mobilizing all stakeholder groups thanks to its open agenda-setting and programming and the fact that it provides an inclusive dialogue on European Internet governance issues.



In the **CIS region**, the Regional Commonwealth in the field of Communications (RCC) has instituted "standard procedures governing the preparation of ITU activities and to protect the region's interests", the main objective being to formulate and prepare the RCC communication administrations' common proposals and present them at ITU international events on behalf of RCC. The RCC countries' coordinated position and common proposals will be prepared and

⁶⁵ <http://www.itu.int/en/wcit-12/Pages/default.aspx>

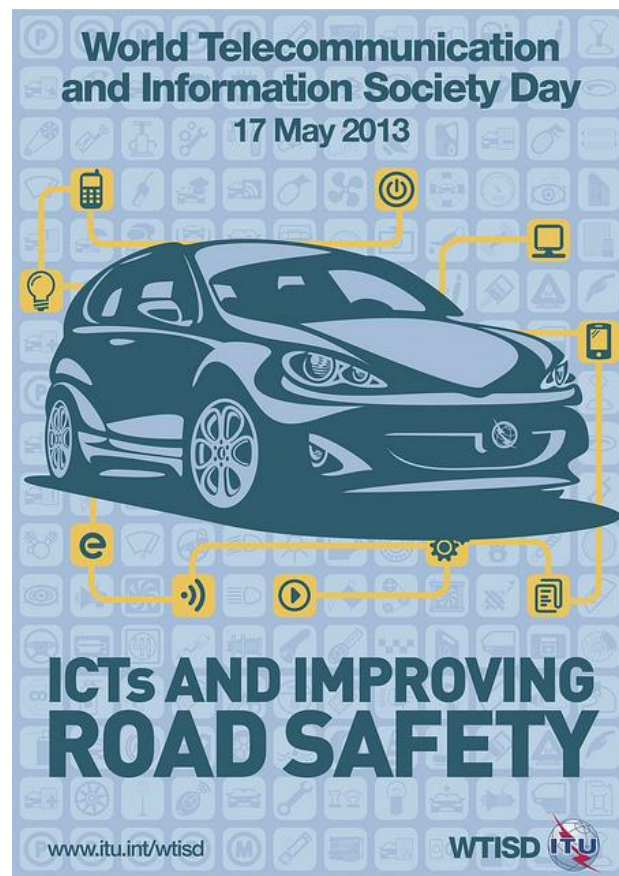
⁶⁶ UNESCO contribution

⁶⁷ <http://www.unesco.org/>

established in the form of research efforts on the themes covered in ITU's activities, including issues related to WSIS. Scientific and technical studies will be carried out and common proposals will be formulated on the basis of the various RCC administrations' proposals, as well as research and analysis of proposals from other regional organizations. The procedure for these activities is governed by the RCC's rules.

In **Qatar**, a regional and international Arabic digital content community-building initiative, *Taghreedat*, has been put in place. Currently representing a community of over 2 500 Arab volunteers residing in 31 countries around the world, of which 20 are Arab countries, Taghreedat aims to build an active community creating Arabic digital content that contributes directly and significantly to increasing the quality and quantity of Arabic content on the web. The concept of crowdsourcing will be employed to increase Arab users' contributions to enriching Arabic content on the web through both original content projects and projects geared towards localization and Arabization.

In the **Netherlands**, the Child Helpline International (CHI) organization has launched *Child Helplines and Telecoms*, a toolkit to assist child helplines with advocacy and lobbying for a free-of-charge telephone number. An innovative method using public-private partnerships has been established to systematize responses and provide services for children in crisis. Child helplines are instrumental in reducing violence against children. Since 2006, CHI and ITU have joined forces to encourage national telecom regulators to provide free-of-charge numbers for child helpline services. Since then, child helplines in 46 countries have been assigned free-of-charge numbers. To take this success even further, CHI has developed a practical toolkit to help more child helplines provide free access to their services for children.



The purpose of *World Telecommunication and Information Society Day* (WTISD), celebrated annually on 17 May, is to help raise awareness of the opportunities and benefits that the use of the Internet and other ICTs can bring for societies and economies, and of ways to bridge the digital divide. The date 17 May was chosen as it marks the anniversary of the signing of the first International Telegraph Convention and the creation of the International Telecommunication Union. The theme for WTISD-13 is “ICTs and improving road safety”⁶⁸

⁶⁸ <http://www.itu.int/en/wtisd/Pages/default.aspx>

The WSIS Stocktaking Report 2013 describes various ICT-related activities reported for the period May 2012 to May 2013 in response to ITU's official call for updates and new entries. The information has been submitted by a range of stakeholders, including governments, the private sector, international organizations and civil society. Core facilitators and other United Nations agencies have also contributed actively to the report in their respective areas of competence. The diverse activities reflected in the publication form an overall picture of the development of the information society, from which core global trends can be identified. The tremendous progress made has been achieved thanks to the fruitful multistakeholder collaboration that constitutes the foundation for successful implementation of national strategies. The common goal of all these strategies is to build an inclusive information society and bridge the digital divide. There is no doubt that ICTs are becoming more and more integrated in society, a case in point being Kazakhstan, where the national programme seeks to embed ICTs in all fields of economic activity and human life. It is important to highlight that, in developing their national strategies, governments continue to refer to the WSIS outcome documents.

Stakeholders are continuing to work together towards connecting rural and marginalized areas and providing access to the Internet. The network of telecentres (KenTel) in Kenya, multipurpose community-service access points (CSAPs) and public-information kiosks (PIKs) in Rwanda and community knowledge centres (CKCs) and women's community knowledge centres (WKC) in Oman are just a few examples of the structures being established to provide access to ICTs, information and ICT literacy training, while also generating new jobs.

Very significant progress has been made in the development of e-accessibility policies and other initiatives that make society more inclusive. Assistive technologies are being provided in schools, in the work environment and in other public places so as to enable persons with disabilities to access information. For instance, a number of countries, including Qatar, have taken major steps towards ensuring the introduction of e-accessibility policies, while others, notably Lithuania, have implemented initiatives that preserve and promote culture through improved access to electronic publications for persons with visual disabilities.

Infrastructure continues to be one of the crucial elements for providing connectivity, and many projects focus on providing free-of-charge Internet access by establishing, for example, free Internet access points (e.g. Moldova) or techno- or iparks (e.g. Mauritius), or by providing connectivity to public institutions (e.g. Egypt). Governments and other stakeholders continue to work and support initiatives and projects that foster ICT integration in schools, Jordan being a good example.

Incubators and innovation centres offer excellent platforms for young people to explore and share their ideas, innovate and become successful young leaders. For instance, the knowledge lab (kLab) project in Rwanda provides a space for the development of ICT solutions, bringing together experienced mentors and young innovators. The Digital Incubation Centre (DIC) in Qatar gives new companies essential resources and help with the commercial registration process, as well as expert training and counselling throughout. Silicon Oasis Founders (SOF) in the United Arab Emirates is a technology incubation centre established to help entrepreneurs refine their business proposals, execute plans and accelerate

growth, where new businesses will receive guidance and assistance in the form of services such as business set-up support, workspace facilities, networking opportunities with other IT professionals, videoconferencing and business consultancy, as well as financial, technical and marketing mentorship.

There are numerous examples of projects, initiatives and other activities that have been launched to enable government agencies to share information securely at higher speeds and more cost-effectively and also to ensure the link between governments and citizens. Indeed, many countries have established government portals, call centres and other similar initiatives.

There are a growing number of initiatives that focus on gender mainstreaming, providing relevant training and personal capacity-building tools. In the Dominican Republic, for instance, the purpose of the Women in the Internet project is to ensure that poor, young Dominican females have access to training opportunities and to the upper levels of the different ICT industry areas, such as telecommunication networks, programming and multimedia.

The activities reported also bring to light initiatives that have furthered several objectives within a single project, thus illustrating a multidimensional approach in achieving the WSIS targets.

It is important to emphasize that in the nine years since 2004, WSIS stocktaking has been playing a crucial role, and this role takes on even greater significance in the light of the WSIS+10 review process on the implementation of the WSIS outcomes. The ten-year reporting mechanism based on the WSIS stocktaking process has been carefully designed, administrations and action line facilitators have been provided with templates for reporting, and ITU has taken a lead role in organizing a series of virtual coordination meetings with action line facilitators.

On behalf of the entire team, we would like to thank all stakeholders who have contributed to the WSIS Stocktaking Database this year, and we encourage and urge stakeholders to continue to submit the latest - updated and new - information on a regular basis.

List of Abbreviations and Acronyms

ADMA	Africa Digital Media Academy	BWA	Broadband wireless access
AEF	Ark Earth Foundation	BYOD	Bring Your Own Device
AGORA	Research in Agriculture	CAN-Q	College of North Atlantic in Qatar
AGPR	Accountant General Pakistan Revenues	CAT	Computer Adaptive Testing
AJK	Azad Jammu and Kashmir	CBA	Commonwealth Broadcasters Association
AMARC	World Association of Community Broadcasters	CBD	Convention on Biological Diversity
ANRT	National Telecommunications Regulatory Agency	CEDAW	Convention on the Elimination of All Forms of Discrimination against Women
APCS	Automated passenger clearance system	CERT-MU	Mauritian Computer Emergency Response Team
APNIC	Asia-Pacific Network Information Centre	CETS	Child Exploitation Tracking System
APWKomitel	Asosiasi Pengusaha Warnet/Komunitas Telematika Association of Community Internet Center (ACIC)	CHI	Child Helpline International
ARDI	Research for Development and Innovation	CICESE	El Centro de Investigación Científica y de Educación Superior de Ensenada The Center for Scientific Research and Higher Education of Ensenada
ARN	Academic Research Network	CIS	Centre of Information Security
ASEAN	Association of South-East Asian Nations	CIUF-CUD	Interuniversity Council of the French Community - University Commission for Development
ASO	Analogue switch-off	CKCs	Community Knowledge Centres
ATVAM	Automated Traffic Violations Administering and Monitoring	CNES	National Centre of Space Research
B2B	Business-to-Business	CNNIC	China Internet Network Information Center
B2G	Business-to-Governments	COMEST	World Commission on the Ethics of Scientific Knowledge and Technology
BDC	Business Development Center	COMEX	Not an acronym .comEx
BDT	Telecommunication Development Bureau	COTS	Crime Occurrence Tracking System
BGP	Border Gateway Protocol	CP	Common proposals
BIID	Bangladesh Institute of ICT in Development	CPE	Computers to Educate
BIM	Bulgarian Institute of Metrology	CR	Community Radio
BNNRC	Bangladesh NGOs Network for Radio and Communication	CRPD	United Nations Convention on the Rights of Persons with Disabilities
BOT	Build, operate, and transfer	CSAI	Child sexual abuse images
BPO	Business Process Outsourcing	CSCs	Common service centres
BSS	Basic Safety Standards		
BVS	Biometric Verification Service		

CSS	Central Superior Services
CTA	Technical Centre for Agricultural and Rural Cooperation
CTS	Comprehensive Telemedicine Systems
CWP	Community Web Portal
DAE	Digital Agenda for Europe
DAISY	Digital Accessible Information System
DBMS	Astrogeology Science Center
DED	The Department of Economic Development
DHIS2	District Health Information Software 2
DIBAM	Directorate of Libraries, Archives and Museums
DLR	German Aerospace Center
DMS	Data management systems
DNie	Electronic National Identity Card
DNS	Domain Name System
DoS	Department of Statistics
DPC	Dubai Press Club
DPS	Digital Public Schools
DRC	Democratic Republic of Congo
DSO	Dubai Silicon Oasis
DSOA	Dubai Silicon Oasis Authority
DWDM	Dense Wave Division Multiplexing
EAC	East African Community
ECG	Electrocardiograph
ECMS	E-Commodities The Electronic Commodities Monitoring System
ECO	Economic Cooperation Organization
EESS	Earth Exploration-Satellite Service
EFA	Education for All
EGD	Electronic Government Directorate
EHENA	Exploit and Help Nature
EHR	Electronic health record
EHS	Electronic Health Solutions
EIFL-PLIP	Electronic Information for Libraries - Public Library Innovation Programme
EITI	Extractive Industries Transparency Initiative
EIU	Economist Intelligence Unit
ePCR	Project "Electronic Patient Care Records
EPITOME	Empowerment Programme for IT use: Outreach for Micro Entrepreneurship
ER	Electronic Referral
ERP	Enterprise resource planning
ESA	European Space Agency
EU	European Union

EuroDIG	European Dialogue on Internet Governance
EYSNBA	Every young scientist needs a business angel
FAAVM	Federal Association for the Advancement of Visible Minorities
FALIR	Food, Agriculture & Livestock Information Repository
FANA	Federally Administered Northern Areas
FAO	Food and Agriculture Organization of the United Nations
FATA	Federally Administered Tribal Areas
FCAW	The Federal Commission for the Advancement of Women
FDI	Foreign direct investment
FIA	Federal Investigation Agency
FMC	Fixedmobile convergence
FOSS	Free and Open Source
FRCN	Federal Radio Corporation of Nigeria
FTRA	Forum on Telecommunication/ICT Regulation and Partnership in Africa
G2B	Government to Business
G2G	Government to government
G3ict	Global Initiative for Inclusive Information and Communication Technologies
GCC	Gulf Cooperation Council
GDP	Gross domestic product
GIS	Geographical Information System
GIZ	Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ)
GLIN	Global Legal Information Network
GOI	Government of Indonesia
GoP	Government of Pakistan
GPOBA	Global Partnership on Output-Based Aid
GSB	Government Service Bus
GSM	Global System for Mobile Communications
GSR	Global Symposium for Regulators
GTB	Government Tender Board
HBV	Hepatitis B virus
HESN	Health Electronic Surveillance Network
HINARI	Research in Health
HIS	Health information system
HIV/AIDS	Human Immunodeficiency Virus / Acquired Immunodeficiency Syndrome

HL7	Health Level 7
HRDF	Human Resources Development Fund
HRMS	Human Resource Management Systems
IC3	Computing Core Certification
ICMEC	International Centre for Missing and Exploited Children
ICT	Information and communication Technologies
ICT	Islamabad Capital Territory
ICTA	Information and Communication Technologies Authority
ICT4D	Information and Communication Technology for Development
ICT-TF	ICT Trust Fund
IDB	Islamic Development Bank
IDI	ICT development index
IDN	Internationalised Domain Names
ID-SIRTI	Indonesian Security Incident Response Team on Information Structure
IFRC	International Federation of Red Cross
IGF	Internet Governance Forum
IHR	International Health Regulations
IICD	International Institute for Communication and Development
IMT-A	International Mobile Telecommunications-Advanced
IPDC	International Programme for the Development of Communication
IREX	International Research & Exchanges Board
IPAC	Internet Public Access Catalog
ISFA	Information Society For All
ISFS	Integrated State Finance System
ISIF Asia	Information Society Innovation Fund for Asia
ISMS	Information Security Management System
ISO/IEC	International Organization for Standardization (ISO) / International Electrotechnical Commission (IEC)
ISP	Internet Service Provider
IT	Information Technologies
ITA	Information Technology Authority
ITO	Information Technology Organization
ITU	International Telecommunication Union
ITU-R	Radiocommunication Sector of the ITU
IUST	Iran University of Science and Technology

IWDMS	Integrated Workflow and Document Management System
IWF	Internet Watch Foundation
IX	Internet Exchange
JADI	Jeddah (Saudi Arabia), Amman (Jordan), Damascus (Syria) and Istanbul (Turkey)
KAPF	Kuwait Awaqaf Public Foundation
KC	Knowledge Community
KM	Knowledge Management
KPI	Key performance indicators
KSA	Kingdom of Saudi Arabia
LAN	Local Area Network
LCD	Least developed country
LESCO	Lahore Electricity Supply Company
LIMIS	Lithuanian Integral Museums Information System
MAG	Multi-stakeholder Advisory Group
MAN	Metropolitan Area Network
MCIT	Ministry of Communications and Information Technology (Egypt)
MCN	Multimedia Content Network
MDG	Millennium Development Goal
MENA	Middle East and North Africa
METER	Measurement and Evaluation Tool for E-Government Readiness
MIC	Ministry of Internal Affairs and Communications (Japan)
MIL	Media and Information Literacy
MINAET	Ministerio de Ambiente, Energía y Telecomunicaciones Ministry of Environment, Energy and Telecommunications
MLSP	Ministry of labor and social policy
MoE	Ministry of Education
MoF	Ministry of Finance
MOFA	Ministry of Foreign Affairs
MoH	Ministry of Health
MoHFW	Ministry of Health and Family Welfare
MOI	Ministry of Interior
MoICT	Ministry of Information and Communications Technology
MOOC	Massive open online course
MOU	Memorandum of Understanding
MSMEs	Micro, Small and Medium Enterprises
MSP	Multi Sector Partnership
MSS	Ministry of Social Security
MTU	Mobile Telemedicine Units

NAS	National Academy of Sciences	PIN	Paradigm Initiative Nigeria
NAv6	National Advanced IPv6 Centre	PPP	Public private partnership
NBP2012	National Broadband Policy 2012-2020	PSEB	Pakistan Software Export Board
NCB	National Computer Board	QGCC	Qatar Government Call Center
NCC	National Contact Center	QR	Quick Response
NGA	Next-generation access	RCA	Royal Court Affairs
NGN	Next generation networks	RCC	Regional Commonwealth in the field of Communications
NGO	Non-Governmental Organization	RCN	Regional Cable Network
NHRIS	National Human Resources Information System	REC	Rwanda Education Commons
NICT	Network for information & computer technology	RENIEC	National Register of Identity and Civil Status
NITC	National Information Technology Center	RENIEC	National Register of Identity and Civil Status
NLL	National Library of Latvia	RIPE-NCC	European IP Networks - Network Coordination Centre
NOC	No Objection Certificate	ROP	Royal Oman Police
NRA	National Revenue Agency	RR	Radio Regulations
NSC	Nanoscopy Science Center	RS	Remote Sensing
NSI	National Statistical Institute	SA	Space Applications
NTIC	Nouvelles technologies de l'information et de la communication - New information and communication technology	SADC	Southern African Development Community
NWFP	North-West Frontier Province	SAP	Service access points
OARE	Research in the Environment	SCG	State Commission on Gambling
ODC	Regional Bureau for the Middle East, North Africa, Eastern Europe and Central Asia	SCM	Supply Chain Management
ODS	Operational Data Store	SIS	Safer Internet Service
OECD	Organisation for Economic Co-operation and Development	SISP	States Information System Project
OEP	Open educational practices	SME	Small and Medium-Sized Enterprises
OER	Open Educational Resources	SMS	Short message service
OJSCo	Open Joint Stock Company	SNOMED	Systematized Nomenclature of Medicine
OLPC	One Laptop per Child	SOF	Silicon Oasis Founders
ONDE	Observatoire National des Droits de l'Enfant National Child Law Observatory	STC	Saudi Telecom Company
OPAC	Operational Program Administrative Capacity	STS	Short-term business statistics
OpenMRS	Open Medical Record System	SWIM	Sustainable Water Integrated Management Programme
PACE	Partnership for Action on Computing Equipment	TCW	Telecentre Women Digital Literacy Campaign
PACEWG	Working Group for the Partnership for Action on Computing Equipment	TDC	Technology Development Committee
PCB	Pakistan Computer Bureau	TFYR	The Former Yugoslav Republic
PCC	Poison Control Center	TRA	Telecommunications Regulatory Authority
PIK	public information kiosks	TRC	The Research Council (Oman)
		TRC	Telecommunication Regulatory Commission
		TRESS	The Research Electronic Submission System

TTS	Trans-boundary trust space
UAE	United Arab Emirates
UKE	Office of Electronic Communications
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNDESA	United Nations Department of Economic and Social Affairs
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNODC	United Nations Office on Drugs and Crime
UNPACS	United Nations Public Administration Country Studies
UNPAN	United Nations Public Administration Network
UNPSA	United Nations Public Service Award
URL	Uniform Resource Locator
US	United States
USGS	Astrogeology Science Center
USO	Universal Service Obligation
VLIR-UOS	Flemish Interuniversity Council - Secretariat for University Development Cooperation

VoIP	Voice over Internet Protocol
VSAT	Very small aperture terminal
W3C	World Wide Web Consortium
WAM	Wakalat Anba'a al-Emarat / Emirates News Agency
WBS	Water Billing System
WCKC	Study and usage of the potential of the telecommunication services
WDA	Workforce Development Authority
WHO	World Health Organization
WIPO	World Intellectual Property Organization
WITSA	World Information Technology and Services Alliance
WMO	World Meteorological Organization
WRC	World Radiocommunication Conference
WSIS	World Summit on the Information Society
WSSF	World Social Science Forum
WTDC	World Telecommunication Development Conference
WTISD	World Telecommunication and Information Society Day
WWF	World Wildlife Fund
WWS	World Wide Science

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