COMMISSION ON SCIENCE AND TECHNOLOGY FOR DEVELOPMENT (CSTD)

Fifteenth Session
Geneva, 21 to 25 May 2012

Submissions from entities in the United Nations system and elsewhere on their efforts in 2011 to implement the outcome of the WSIS

Submission by

ITU

This submission was prepared as an input to the report of the UN Secretary-General on "Progress made in the implementation of and follow-up to the outcomes of the World Summit on the Information Society at the regional and international levels" (to the 15th session of the CSTD), in response to the request by the Economic and Social Council, in its resolution 2006/46, to the UN Secretary-General to inform the Commission on Science and Technology for Development on the implementation of the outcomes of the WSIS as part of his annual reporting to the Commission.

The Secretary-General

Geneva, 16 December 2011

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Mr Supachai Panitchpakdi
Secretary-General
UNCTAD
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CH-1211, Geneva 10
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Subject : ITU's contribution to the preparation of the Annual Report of the Secretary-General on Progress made in the Implementation of and Follow-up to the World Summit on the Information Society (WSIS) Outcomes at Regional and International Levels to assist discussion at the 15th session of the CSTD

Dear Mr Panitchpakdi, Dear friend,

This is with reference to letter MH/mp dated 1 November 2011 inviting ITU to contribute to the preparation of the Annual Report of the Secretary-General on Progress Made in the Implementation of and Follow-up to the World Summit on the Information Society (WSIS) Outcomes at Regional and International Levels to assist discussion at the 15th session of the CSTD.

ITU has the pleasure to submit a set of reports responding to the requirements of the CSTD Secretariat. In addition Annex One reflects review of recent decisions made by the ITU Membership relevant to the implementation of the WSIS outcomes. We request you to treat provided information as an input to the Annual Report of the Secretary General and the documents listed below as formal submissions to the CSTD. In this context we would request the CSTD Secretariat to make them available online as formal submissions to the 15th session of the CSTD:

1) ITU Contribution to the Implementation of the WSIS Outcomes (2010-2011) (www.itu.int/itu-wsis)
2) Outcome of the UNGIS Open Consultation on the Overall Review of Implementation of the WSIS Outcomes (WSIS+10) (http://www.ungis.org/ThematicMeetings/OpenConsultationProcessWSIS10.aspx)
3) Measuring the Information Society 2011 (http://www.itu.int/ITU-D/ict/publications/idi/2011/Material/MIS_2011_without_annex_5.pdf)
4) WSIS Forum 2011: Outcome Document http://groups.itu.int/wsis-forum2011/Agenda/OutcomeDocument.aspx
5) WSIS Stocktaking Success Stories 2011 (http://groups.itu.int/Portals/30/documents/WSIS/WSIS_ST_Success_Stories_2011_E.pdf)

Yours sincerely,

Dr. Hamadoun I. Touré

Annex One: ITU and WSIS

Annex One: ITU and WSIS

As stated in the Strategic Plan of the Union (2012-2015), adopted by PP-10, the implementation of the outcomes of the WSIS continues to be one of the top priorities of the International Telecommunication Union (ITU). At the policy level, ITU Plenipotentiary (PP-10) strengthened the Union's mandate in relation to the implementation of WSIS outcomes and agreed on the roadmaps, detailed plans to guide progress towards achieving the WSIS goals. In 2011, ITU Council Resolution 1332 reinforced the scope of work of ITU in the implementation of the WSIS outcomes up to 2015 and future activities beyond WSIS+10. Moreover, in follow up to 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 has requested the ITU Secretary General to initiate the preparatory process at the UN Chief Executives Board (CEB)), the ITU Council Resolution 1334 defined the strategic role of the ITU in this process.

In addition, a Council Working Group on International Internet-Related Public Policy Issues (CWG-Internet) was recently established as a separate group by 2011 Council Resolution 1336, in accordance with Resolutions 102 and 140 of the 2010 ITU Plenipotentiary Conference. CWG-Internet is limited to Member States, with open consultation to all stakeholders. Previously (2008-2011), this group functioned as the Dedicated Group as an integral part of WG WSIS, open only to all Member States, in accordance with Resolution 75 (WTSA, 2008), and Council Resolution 1282 (Mod. 2008).

Recognizing the scope of work of ITU on international Internet-related public policy matters, the CWG-Internet and its predecessor, the Dedicated Group, have been tasked to identify, study and develop matters related to international Internet-related public policy issues including those issues listed in 2009 Council Resolution 1305

At the operational level, ITU has been carrying out the tasks assigned by the WSIS Outcomes Documents, in particular, in its capacity as:

1) Leading facilitator (along with UNESCO and UNDP) in coordinating the multi-stakeholder implementation of the *Geneva Plan of Action,* hosting and organizing WSIS Forum series.
2) Sole facilitator of Action Lines C2 (Information and communication infrastructure), C5 (Building confidence and security in the use of ICTs) and C6 (Enabling Environment).
3) Co-facilitator of Action Lines C1, C3, C4, C7 and C11; and partner for AL C8 and C9.
4) Chair of the United Nations Group on Information Society (2011-2012).
5) Facilitator of the Partnership on Measuring ICT for Development.
6) Sole facilitator of the WSIS Stocktaking process.
7) Implementer of other relevant WSIS outcomes.

The three Sectors of the Union (Standardization, Radiocommunication and the Development Sector) and the General Secretariat have carried out major initiatives and activities that enhance the WSIS outcomes. Within ITU, the effective coordination of ITU's strategies and activities in relation to WSIS has been ensured by a WSIS Task Force chaired by the Deputy Secretary-General.

Visa D. BOGDAN:

International Telecommunication Union

World Summit on the Information Society

2011 ITU Contribution to the Implementation of the WSIS Outcomes

www.itu.int/itu-wsis

working together towards 2015

World Summit on the Information Society
Geneva 2003 Tunis 2005
Turning targets into action

ITU

ITU Contribution to the Implementation of the WSIS Outcomes

www.itu.int/itu-wsis

World Summit on the Information Society
Turning targets into action
2015

Background: This report reflects contributions from all Sectors and the General Secretariat on the activities implemented from PP-10 (October 2010) to Council-11 (October 2011) with reference to the WSIS implementation and follow-up. Information on ITU activities related to WSIS may be referred to at www.itu.int/itu-wsis

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I. Introduction

1. As stated in the Strategic Plan of the Union (2012-2015), adopted by PP-10, the implementation of the outcomes of the World Summit on the Information Society (WSIS) continues to be one of the priorities of the Secretary-General of the International Telecommunication Union (ITU).

2. At the **policy level**, PP-10 strengthened the Union's mandate in relation to the implementation of WSIS outcomes and agreed on the roadmaps for ITU's activities in its role as the sole facilitator for WSIS action lines C2, C5 and C6 in the implementation of WSIS up to 2015. Roadmaps are detailed plans to guide progress towards achieving the WSIS goals. The Dedicated Group on International Internet-related Public Policy Issues was created and tasked to identify, study and develop matters related to international Internet-related public policy issues. In 2009 ITU Council Resolution 1305 recognized the scope of work of ITU on international internet-related public policy matters, represented by topics listed in the resolution.

3. At the **operational level**, ITU has been carrying out the tasks assigned by the WSIS Outcomes Documents, in particular, in its capacity as:

   a) Leading facilitator (along with UNESCO and UNDP) in coordinating the multi-stakeholder implementation of the *Geneva Plan of Action*.

   b) Facilitator of Action Lines C2 (Information and communication infrastructure) and C5 (Building confidence and security in the use of ICTs); Upon the UNDP's request the ITU accepted to play the role of the Facilitator of Action Line C6 (Enabling Environment) on a temporary basis.

   c) Co-facilitator of Action Lines C1, C3, C4, C7 and C11; and partner for AL C8 and C9.

   d) Rotating chair of the United Nations Group on Information Society.

   e) Implementation of other WSIS outcomes.

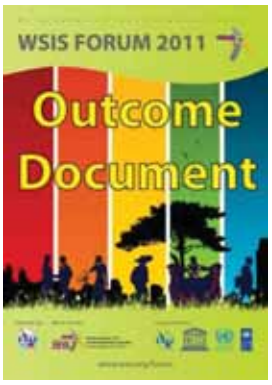
4. The **three Sectors** of the Union (Standardization, Radiocommunication and the Development Sector) and the General Secretariat have carried out major initiatives and activities that enhance the WSIS outcomes.

5. Within ITU, the effective coordination of ITU's strategies and activities in relation to WSIS has been ensured by a **WSIS Task Force** chaired by the Deputy Secretary-General.

6. This document is divided into 4 sections, following the introduction the second one provides an overview of the WSIS implementation activities undertaken since PP-10 by the ITU, the third section highlights forums, innovative initiatives and informs about the planned future activities to ensure the full implementation of the WSIS outcomes. The final section provides conclusions of the report.

II. Overview of ITU activities undertaken since PP-10 in the context of WSIS implementation

(a) Leading facilitator (along with UNESCO and UNDP) in organizing the multi-stakeholder implementation of the *Geneva Plan of Action*.



7. In 2011, ITU hosted the WSIS Forum 2011, from 16 to 20 May, which was jointly organized by ITU, UNESCO, UNCTAD and UNDP. This event built upon the tradition of the annual WSIS May meetings, and its new format is a result of open consultations with all WSIS Stakeholders. The five day forum comprised of high-level panels, WSIS Action Lines meetings, thematic workshops, and various platforms for networking and initiation of partnerships. The WSIS Forum 2011 Outcome Document is available at: http://groups.itu.int/wsis-forum2011/Agenda/OutcomeDocument.aspx

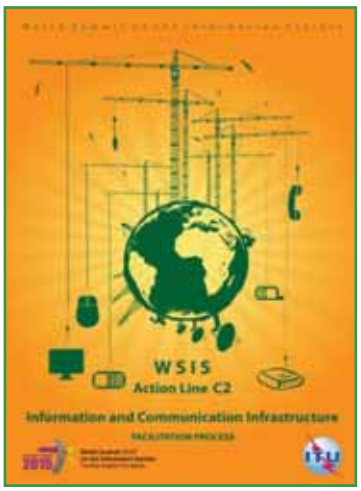
8. In line with Paragraph 109 of the Tunis Agenda, ITU, along with UNESCO and UNDP, plays a leading facilitating role in the implementation of the Geneva Plan of Action. The annual meeting of Action Lines Facilitators was held on 20th of May 2011 as an integral component of the WSIS Forum, with three main objectives: exchange of information among facilitators and other stakeholders; identification of issues that needed improvement; and discussion of the modalities of reporting and the overall implementation process.

9. With aim of ensuring inclusiveness in the preparatory process of the WSIS Forum 2011, in November 2010 the ITU facilitated amongst the organizers the launch of an Open Consultative Process on the thematic focus and format of the forum. Building upon this good practice of the open consultations a similar preparatory process for WSIS Forum 2012 was launched on 11 October 2011.

(b) Facilitator of the WSIS Action Lines C2, C5, C6

Action Line C2: Information and Communication Infrastructure

10. Within the framework of the existing resources and given mandate, as well as in line with the Geneva Action Plan the ITU carries out several activities with regard to the WSIS Action Line C2 Plan of Action. These are oriented toward six domains as follows (1) Promotion of National ICT-Strategies; (2) Harmonization of the ICT policies in different regions; (3) Development of regional and large-scale national initiatives; (4) Launch of global thematic ICT infrastructure initiatives; (5) Development of a virtual financing platform and (6) Deployment of an online tool for ICT development assessment.



The 6th Facilitation Meeting on Action Line C2 was held in Geneva on 16 May 2011 as an integral part of the WSIS Forum 2011. Based on proposals received during the WSIS multi-stakeholder open consultation process, the theme for the Action Line Facilitation meeting was "Broadband Infrastructure for connecting the unconnected". The Facilitation Meeting mainly discussed the following aspects, confirming the importance of sharing experiences and knowledge in order to expand the broadband connectivity in rural and remote areas: (1) Evolution of new telecom services in the next 10 years, (2) Importance of standardization for Broadband Wireless Access, (3) Importance of standardization for low cost, safe and efficient electrical supply, (4) Successful story of broadband infrastructure development, (5) Role of administration for providing broadband in rural and remote areas, (6) Cost effective Infrastructure and simplicity of network, (7) Social Impact of Broadband.

11. The Stocktaking Database is used as an effective tool for the exchange of information on the projects in relation to the implementation of Action Line C2. More information on WSIS Stocktaking can be found at WSIS Stocktaking Information System.

12. With the aim of mobilizing additional funds and new partnerships to attain the WSIS goals including the development of infrastructure ITU initiated the Connect Summit series in 2007. Building upon the success of its first Summit, Connect Africa, held in Kigali, Rwanda, in October 2007, 2007 that resulted in commitments of 55 billion US Dollars from various stakeholders, ITU organized the second Summit, Connect CIS with partners on 25-27 November 2009

13. In Minsk, Belarus, the Summit gathered 353 participants from 18 Member States (10 from CIS Region), including five Heads of State (Republic of Armenia, Republic of Belarus, Republic of Kazakhstan, Kyrgyz Republic and Republic of Tadjikistan) and Government and one First Deputy Prime Minister. The administrations of 10 countries from the region were represented, including 7 at the Ministerial level. Some 40 leading ICT companies, development banks, international organizations and other stakeholders participated in the Summit. The Presidents (Heads of State) addressed participants of the Summit in a special session entitled, "Leaders Statements and Summit Declaration: Towards a Sustainable Information Society ", in which each President (Head of State) outlined their vision for the Summit and pledged their full support to the Connect CIS Initiative. The Summit concluded with the Connect CIS Declaration.

14. Within the framework of the Connect the World initiative the ITU launched several initiatives relevant for the WSIS Action Line C2, including Wireless Broadband Partnership, Connecting Villages Initiative, Connect a School, Connect a Community.

15. Under the *Connect a School, Connect a Community* initiative to improve access to broadband in schools and to enable them to serve as community ICT centers, ITU implemented a project in the Americas Region that initiated development of an online toolkit to share best practices with ITU

Members on policies and regulation to promote school connectivity and low cost computing device programmes for schools. Through a related projected funded by the Kingdom of Saudi Arabia, the online platform for the toolkit and its repository of training materials for community ICT centres was finalized and three additional modules for the toolkit developed: providing ICT for indigenous peoples; using ICTs to promote education and job training for persons with disabilities'; and community ICT centres for the promotion of the economic and social empowerment of women. Ten sets of training materials are also available online for free access by community ICT centres, focusing on the digital inclusion of for rural users, indigenous peoples and women. The training materials for women have been tested in the Philippines and Bhutan.

16. ITU has provided advice to 3 Member States in developing national school connectivity plans (Mauritania, Tanzania and Nicaragua where ITU also connected five model schools with community ICT centres; Nicaragua now plans to connect several hundred schools in 2011 including with school-based community ICT centres) and is implementing projects, including in Mauritania, Niger and Tanzania, funded through a EUR 500'000 donation by France to equip and connect schools as community ICT centres. In addition, ITU is implementing a School Connectivity project of CHF1,000,000 for Comoros, Lesotho,, Sri Lanka, Sierra Leone and Tanzania. In order to facilitate building wireless broadband in the developing and the least developing countries in the Asia Pacific countries, ITU has implemented the "Master plan for wireless broadband in ASP" project since January 2011. The objective of this project is to assist the Asia and Pacific countries in developing their own wireless broadband master plan which will eventually provide access to broadband supported services and applications at rates that are affordable and comparable to those in developed countries. The project was funded by Korea and ITU. ITU has selected four beneficiary countries (Myanmar, Nepal, Samoa, Vietnam) and the experts have assisted to make the master plan for 4 countries.

17. Wireless Broadband Access Networks, ITU-McCAW Foundation-Partners: As a follow-up to the Connect Africa Summit, the ITU/Craig and Susan McCaw Broadband Wireless Network project for Africa is implementing Broadband wireless networks and developing ICT applications to provide free or low cost digital access for schools and hospitals, and for underserved populations in rural and remote areas in selected countries. The expected outcome of the project will include:

    - Deployment of Wireless broadband infrastructure for identified areas in selected countries in Africa;
    - Development of ICT applications
    - Training local experts on the operation of deployed wireless communication Network.
    - Development of national ICT broadband network plan for entire territory of the beneficiary countries.

18. The ITU continues to encourage the agencies responsible for development aid and assistance to attach importance to ICTs in the development process and to accord a high priority for resource allocation to this sector. To this end, ITU approaches potential donors to encourage them to join ITU's connectivity initiatives

19. The ITU organized (a) the Pacific ICT Ministerial Forum with the theme of "Connecting the Unconnected" in Tonga on 19-20 February 2009 preceded by a senior officials meeting on 17-18 February 2009. Several potential offers and projects were discussed that aimed to improve connectivity in the Pacific. The Forum adopted a Communique that aimed to make available and accessible to all the benefits of new technologies, especially Information and Communication Technologies to all. (b) the Tonga Declaration from the Pacific Regional ICT Ministers' Meeting in June 2010 in Tonga, which endorsed the Framework for Action on ICT for Development in the Pacific (FAIDP); (c) the recent Special Pacific Information and Communication Technology (ICT) Ministerial Forum Communiqué, Noumea, New Caledonia, 11 April 2011. For communiqué for the Pacific Islands please see: http://www.itu.int/ITU-D/asp/CMS/Events/2011/PacificMinisterial/Communique2011.pdf

20. The ITU successfully organized the Sub-regional Telecommunication Ministerial Forum for Cambodia, Lao PDR, Myanmar and Vietnam (CLMV) on 11-12 December 2009 in Vietnam with active participation from the business and government sector, such as the Australian Government, as well as sub-regional and global development partners. Focusing on the theme: "Towards an ICT-strengthened and connected CLMV Subregion", the Forum issued a Communiqué which called on ITU and concerned parties to plan and implement initiatives announced during the Forum focusing on capacity building, public private partnership and enabling policy and regulatory frameworks.

21. The ITU organized five ITU Regional Development Forums in 2009, and five in 2010 one for each Region, and developed training materials in close collaboration with TSB and BR, for bridging the standardization gap and fostering the implementation of Next Generation Networks and Broadband Networks for developing countries as well as for addressing the transition from Analogue to Digital Terrestrial Television Broadcasting in developing countries

22. In addition the ITU carries out several activities as implementer of the WSIS Action Line C2, through its programmes and projects, for instance:

- Connecting Remote/Outer Islands in the Pacific, ITU and Andorra Telecom;
- ICT Applications and Satellite Diversity: Pacific Island States, ITU;
- Rural Telecoms, ICT Services and Entrepreneurship Development, RSA-ITU-UPU. The project aims to activate the information market in rural and remote areas, using new technologies, and developing entrepreneurs at various levels of operation and services. We are currently working in Tanzania, Zambia and Mozambique. Post Offices are an integral part of this approach.;
- Feasibility Study on Digital Broadcasting Roadmap in Africa and Asia Pacific, ITU-Republic of Korea;
- Feasibility Study for the Implementation of Broadband Infrastructures in Africa and Asia Pacific, ITU and partners;
- Harmonization of policies and guidelines for the ICT market and human/institutional capacity building in the field of ICT in three regions (Sub-Saharan countries, Caribbean countries, Pacific Island States), European Commission;
- Implementation of the cooperation agreement signed between ITU and One Laptop Per Child (OLPC) to connect and educate children; and

- Under Special Assistance to LDCs, ITU provided assistance in establishing IXPs, for instance in Afghanistan and Haiti;
- A Telecom Network Planning Manual for evolving network architectures (versions 4 and 5) to be used to facilitate the planning of network architectures and the transition to the Next Generation Networks;
- ITU-D has made available a computer program to assist the Administrations of developing countries in performing their spectrum management responsibilities more effectively. This program is known as SMS4DC (Spectrum Management System for Developing Countries). The SMS4DC provides assistance on technical and regulatory procedures for managing spectrum allocated to the Land Mobile, Fixed and Broadcasting services, in full compliance with the relevant ITU recommendations. It includes the use of an open-source global digital terrain map. The software is designed for easy upgrade to accommodate revised ITU procedures and regulations. SMS4DC is intended to be a low-cost, entry-level spectrum management system; however, it is a very complex software tool with many technical features and functions.
- Direct assistance was provided to Mali, Georgia, Kyrgyzstan, Moldova, Bhutan and Nepal in planning the countries' broadband infrastructure by making use of appropriate planning tools.
- Guidelines for building Test Labs for conformance and interoperability of equipment and systems in developing countries are under finalization. They will be ready by the end of 2011
- Assistance to Serbia for reinstating their broadcasting network as requested by PP Resolution 126.
- Please see Annexure 1 for a list of all BDT Projects initiated since 30th September 2010 in the area of action line C2.

23. Furthermore, as mandated by its Membership within the framework of the Regional Initiatives, ITU develops a number of the large scale regional projects focusing on 28 regional initiatives facilitating development of the information and communication infrastructure in Africa, Arab, Asia-Pacific, Americas, Commonwealth of Independent States Regions and Europe. More information on these projects as well as the other projects can be found ITU-D Projects webpage.

24. In the implementation of Action Line C2, ITU continues to be at the forefront of providing global standards for telecommunication. Between the period 1 Nov. 2010 – 14 Sept. 2011, ITU-T approved 208 ITU-T Recommendations (123 Recommendations, 72 amendments/corrigenda and 13 Supplements) to ITU-T Recommendations.

25. ITU standardization activities related to Next Generation Networks (NGN) continues on signalling protocols for QoS resource control, security, multimedia services over NGN, fixed-mobile convergence, service level requirements and architectural framework to provide new services based on Internet Protocol Television (IPTV). A key ITU-T Recommendation outlining objectives and design goals for future networks was approved in May 2011. New elements including mobility, content delivery, access, for service providers and identity management services were added to a key NGN architecture Recommendation.

26. ITU-T Study Groups focused on several subjects directly relevant to ICT infrastructure development, including the following: transport and access networks; security; home networks, cloud computing; and emergency telecommunications. A Global Standards Initiative on Internet

of Things (IoT-GSI) will act as an umbrella for IoT standards development worldwide. Two draft Recommendations: IoT-overview and IoT-terminology are being developed.

27. New standards that will enable cost-effective smart grid applications such as distribution automation, smart meters, smart appliances and advanced recharging systems for electric vehicles were consented. In addition the first meeting of the FG Smart - Focus Group on Smart Grid was held.

28. WTSA-08 approved, among others, Resolution 76 on Conformance and Interoperability testing to help in increasing probability of interoperability as requested by developing countries. ITU-T organized four IPTV interop events (July, September, December 2010 and July 2011) and a home networking interop event was held in the week of 23-27 May 2011 in Geneva. An ITU Regional Seminar for the Africa Region on Conformance and Interoperability Testing Centre(s) was held in Accra, Ghana, 4-6 July 2011.

29. WTDC-10 approved Resolution 47 on enhancement of knowledge and effective application of ITU Recommendations in developing countries, including conformance and interoperability testing of systems manufactured on the basis of ITU Recommendations. A set of guidelines on building testing labs for conformance and interoperability of equipment and systems in developing countries is under development and will be published in early 2012. The guidelines will include the following topics: the process required for building testing labs; a site analysis (e.g. existing testing labs, knowhow); an economical analysis; financing opportunities; collaboration mechanisms; best practices; reference standards and ITU Recommendations. A questionnaire to collect information from ITU Members on the status of Conformance and Interoperability of Equipment and Systems was sent. Questionnaire and analysis of the received replies are available here.

30. Resolution 176 (Guadalajara, 2010) instructed the Directors of the three Bureaux to collect and disseminate information concerning exposure to electromagnetic fields (EMF), including on EMF measurement methodologies, in order to assist national administrations, particularly in developing countries, to develop appropriate national regulations. It asks the Director of the Telecommunication Development Bureau, in collaboration with the Directors of the Radiocommunication Bureau and Telecommunication Standardization Bureau to ascertain the requirement for, and as appropriate conduct, regional seminars and workshops in order to identify the needs of developing countries and to build human capacity in regard to measurement of EMF related to human exposure to these fields. The Bureaux have already taken concrete measures to move the work on this new Resolution forward within the framework of TU-T SG5 Questin 3/5, ITU-D Question 23/1 and ITU-R WP1/C with organizing workshops, starting development of Guidelines and measurement methods.

31. With regard to radiocommunications, some areas that are being actively studied are: wireless internet access (terrestrial and satellite broadband), emergency radiocommunications (to support disaster prediction, detection, mitigation and relief), remote sensing systems (for providing information on environment control and climate change) and digital broadcasting (to help bridge the digital divide).

Action Line C5: Building Confidence and Security in the use of ICTs

32. A fundamental role of ITU, following the World Summit on the Information Society (WSIS) and the 2006 ITU Plenipotentiary Conference, is to build confidence and security in the use of ICTs.

33. To facilitate discussions on work carried out in the area of cybersecurity under AL C5, the AL C5 Facilitation Meeting and a High-Level Panel on Cybersecurity were held during the WSIS Forum in May 2011. Moreover, this year, ITU in collaboration with the United Nations Department of Economic and Social Affairs and the Inter-Parliamentary Union, organized the Fourth Parliamentary Forum on **"The Triple Challenge of Cyber-Security: Information, Citizens and Infrastructure".** The Forum focused on the representative, law-making and oversight responsibilities of members of parliaments in the area of cyber-security.

34. The ITU Global Cybersecurity Agenda (GCA), launched in 2007, continues to provide the framework within which the international response to the growing challenges to cybersecurity can be coordinated and addressed in response to its role as Facilitator for ALC5.

35. Within the framework of the GCA, ITU has continuously strengthen the collaboration with IMPACT. As of today, 130 countries are already members of the ITU IMPACT and a wide range of activities have been built upon five strategic pillars of the GCA framework.

36. The complementary nature of existing ITU work facilitates the implementation of ITU-D, ITU-T, and ITU-R activities in this domain and the following actions have been undertaken and achievements have been reached out.

1) Legal Measures

37. Following the publications of the ITU-D *Understanding Cybercrime: A Guide for Developing Countries*, and the *Toolkit for Cybercrime Legislation* in May 2009, activities have been carried out to facilitate the international harmonization of different cybercrime laws. In May 2011, ITU and UNODC signed an MoU to collaborate globally on assisting Member States in mitigate the risks posed by cybercrime with the objective of ensuring secure use of Information and communication technologies. The MoU enable the two bodies to work together on technical assistance to be provided to Member States on cybercrime and Cybersecurity, making available the necessary expertise and resources to facilitate the establishment of legal measures and legislative frameworks at national level, within the principle of international cooperation, for the benefit of all countries in the world.

2) Technical and Procedural Measures

38. In order to identify cyberthreats and countermeasures to mitigate risks, ITU-T has developed an overview of security requirements, guidelines for protocol authors and specifications for IP-based systems. ITU-T also provides an international platform for the development of the protocols that protect current and Next Generation Networks (NGN). ITU-T's work on secure communication services reviews enhancements to security specifications for mobile end-to-end data communications and considers security requirements for web services and application protocols.

39. ITU-T Study Group 17 (SG17) is the lead study group on telecommunication security and identity management with its role being reinforced by WTSA-08 Res. 50 and 52. SG 17 is also working on the implementation of WTSA-08 Res. 58 to "Encourage the creation of national Computer Incident Response Teams, particularly for developing countries" and is following Resolution 130 of the Plenipotentiary Conference. Study Group 17 is developing security standards in the area of cybersecurity, anti-spam, identity management, X.509 certificates, information security management, ubiquitous sensors networks, telebiometrics, IPTV security, virtualization security towards cloud computing security, and security architecture and application security, often in cooperation with external SDOs and Consortia. SG17 is also working on an international trust framework for digital identity management, which is a fundamental building block to all cybersecurity, online commerce, and child online protection. Two new Recommendations that counter spam and other unsolicited communications though an interactive gateway system were approved. In addition the use and application of the extended validation certificates as put forward in a new Recommendation will provide enhanced security to Internet users. Two new draft Recommendations have been matured that address the security aspects of "ubiquitous sensors in networks". A suite of global technical standards (CYBEX) that provide a common framework for exchanging information on cybersecurity was approved. A workshop in December 2010, addressed security challenges and was held alongside an Identity Summit and a series of tutorials on relevant topics. ITU-T also saw new and ongoing security and identity management standardization work in the area of cloud computing and virtual service platforms.

40. ITU-R's work in radiocommunication standardization continues, matching the constant evolution in modern telecommunication networks. ITU-R established clear security principles for IMT-2000 (3G) networks. It has also issued recommendations on security issues in network management architecture for digital satellite systems and performance enhancements of transmission control protocol over satellite networks.

41. As part of ITU's collaboration with the International Multilateral Partnership Against Cyber Threats (IMPACT), the Global Response Centre (GRC) plays a pivotal role in realizing the GCA objective of putting technical measures in place to combat new and evolving cyberthreats.

3) Organizational Structures

42. Access to the ITU IMPACT Global Response Centre (GRC) has been provided to the nominated cybersecurity technical focal points of Member States

43. Watch and warning systems and incident response are essential in responding to cyber attacks. ITU-D, through its partnership with IMPACT, is working with Member States to identify their specific cybersecurity needs and to assist relevant national, regional and international organizations in implementing related activities.

In light with WTSA 08, WTDC 10 and PP 10 Resolutions, ITU has started to undertake activities aimed at facilitating the establishment of strategic structures with national responsibilities, such as Computer Incident Response Teams. Readiness assessments were undertaken in 24 countries, and the imp implementation phase will start within the Q2 2011. 20122and PP, 24 countries have been assessed

4) Capacity Building

44. Within the framework of GCA ITU facilitates the implementation and deployment of cybersecurity capabilities necessary to combat cyberthreats.

45. In line with its long tradition of public-private partnership, ITU has signed an MoU with Symantec. ITU will use Symantec's security intelligence, in the form of its quarterly Internet Security Threat Reports, to increase understanding of and readiness for cybersecurity risks.

46. By distributing this report – which captures data from across Symantec's Global Intelligence Network – to interested Member States, ITU aims to help better prepare governments in developing and developed nations alike to respond to the ever-growing risk from malware, cyber attackers and information thieves.

47. To assist Member States who wish to design or revise and review their national approach for Cybersecurity and Critical Information Infrastructure Protection (CIIP), ITU-D has developed the National Cybersecurity Strategy Guide The *guide* assists Member States in developing their national strategy by examining existing capacity for addressing challenges to cybersecurity and CIIP, identifying requirements and outlining a national response plan.

48. ITU-D is organizing regional cybersecurity forums for all ITU regions, using these as a capacity-building vehicle for different ITU-D programmes and activities as well as an operational platform for cooperation at the regional and international level

49. In order to build capacity, ITU, through IMPACT's Training and Skills Development Centre, conducts high-level briefings for the benefit of representatives of Member States, providing invaluable exposure and privileged private sector insight on latest trends, potential threats and emerging technologies:

    a) Trained over 200 cybersecurity professionals and practitioners.

    b) Deployed 155 training scholarships (SANS Institute & EC-Council) to 29 Member States globally.

    c) Trained 50 law enforcement officers worldwide on network investigation.

5) International Cooperation

50. The GCA is based on international cooperation and strives to engage all relevant stakeholders in a concerted effort to build confidence and security in the information society.

51. Further reinforcing ITU's efforts in this area, ITU's work and relations with IMPACT continue to gain momentum. ITU-IMPACT is the first cooperative global venture to make available cybersecurity expertise and resources to enable interested Member States to detect, analyze and respond effectively to cyberthreats. Of particular benefit to developing countries and smaller states without the capacity and resources to develop their own sophisticated cyber

response centres, the coalition also benefits technically advanced nations by providing them with a global snapshot of potential and real online threats.

52. At its 20th session, the High Level Committee on Programmes (HLCP) of the United Nations Chief Executive Board for Coordination (CEB) discussed the impact of cyber-crime and cyber-threats. HLCP requested to ITU, in collaboration with UNODC, to organize a meeting of focal points to examine the policy and technology issues together; the meeting took place 1 July 2011 with the participation of some 35 UN agencies.

53. The main objective of the meeting was to develop a harmonized policy framework for the UN system to combat cybercrime and ensure Cybersecurity, and elaborate a possible establishment of one stream of work under the CEB, or a dedicated working group on the policy issues. The summary of the meeting and related proposals was submitted to the HLPC for the September 2011 Session.

54. At the request of the Economic and Social Council of the United Nations, a briefing on Cybersecurity was held for Member States during the General Segment of the Council's meeting at UN Headquarters in New York in July, 2010. The briefing was conducted by the ITU Liaison office to the United Nations.

55. On the 26th September 2011, the Governement of Kenya (GOK) and the International Telecomunication Union (ITU) organized an high level Ministerial meeting. The goal of the Ministerial Forum was to provide a platform where Ministerial level participants and other senior experts can discuss issues of mutual interest around the opportunities and challenges to developing countries presented by information and communications technologies. The main topics discussed during the forum were: Broadband and cloud computing; Mobile Internet; and Cyber security and Privacy. The outcomes of the forum have been shared with the sixth IGF from 27th - 30th September 2011.

56. Moreover, during the ITU Telecom 2011, ITU is organizing a roundtable on “New and emerging cyber-threats, Critical Information Infrastructure Protection (CIIP)”. The table, composed by leading policy-makers from a number of countries, will represent an opportunity to share some of the experience gained from formulating domestic policy, and brings Ministers’ experience to bear on the best ways forward for designing policy frameworks and principles agreed at the global level.

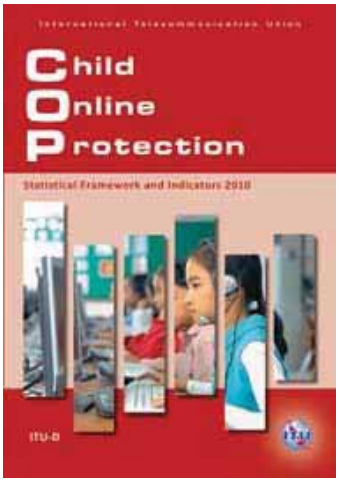
57. To enable information access, dissemination and online collaboration among stakeholders working in cybersecurity, the ITU Cybersecurity Gateway was revamped in 2010. The feedback received from Member States participating in ITU cybersecurity initiatives (such as IMPACT services) would be incorporated into the Gateway.

58. Within the framework of the GCA and in conjunction with multistakeholder partners and other UN agencies, ITU launched the Child Online Protection (COP) Initiative on 13 November 2008 as a multistakeholder effort aimed at bring together partners from all sectors of the global community to ensure a safe and secure online experience for children everywhere. The COP Initiative was presented to the ITU Council in 2008 and endorsed by the UN Secretary-General, Heads of States, Ministers and heads of international organizations from around the world.

59. At the Plenipotentiary Conference in 2010, Member States adopted new Resolution 179, ITU's role in child online protection (Guadalajara 2010), seeking to establish a mandate for ITU's work in this area and encourages ITU to continue its COP Initiative as a platform to raise awareness and educate stakeholders on this important issue.

60. In particular, this new Resolution requests the Council to maintain its Working Group on Child Online Protection (CWG-COP) in order to facilitate the membership's input and guidance on ITU's role in child online protection. Accordingly, the third CWG-COP meeting was held on 27 May 2011 and the fourth meeting is scheduled on 7 October 2011.

61. Resolution 179 also instructs the ITU Secretary-General to coordinate ITU activities with other initiatives at the national, regional and international levels, as well as bring this resolution to the attention of the UN Secretary-General with the aim of increasing the commitment of the UN system to child online protection. In line with this, ITU has entered into a new phase of concrete activities under the COP Global Initiative, which was launched by the ITU Secretary-General together with a new COP patron, *H.E. Laura Chinchilla*, President of Costa Rica, in November 2010. Through the COP Global Initiative, high-level deliverables such as *National strategy guidance, Interoperable technical standards, National hotlines, Raising awareness,* and *COP online platform*, were designed based on the five GCA/COP strategic pillars to be achieved by ITU and COP members in collaboration.



a) ITU has developed and distributed a survey questionnaire, carried out by ITU-D, which addressed a broad range of issues connected to policy and practice in the field of child online safety. This survey aimed to determine the current scope of national policy and legal frameworks related to child online safety across the world. As of September 2011, more than 90 Member States have replied to the detailed survey questions and the latest version of survey results is available at http://www.itu.int/ITU-D/CDS/gq/COP/display_graphs.asp

b) In line with this COP Survey, ITU-D released the Child Online Protection Statistical Framework and Indicators, in November 2010, which is the world's first attempt to provide the overall statistical framework related to the measurement of child online safety, with a particular emphasis on measures that are suitable for international comparison. The proposed structure of ITU's COP Statistical Framework and Indicators will enable Member States to assess the status of child online safety in their countries and identify aspects of child online protection that may require further effort.

c) The last ITU-T Telecommunication Standardization Advisory Group (TSAG) meeting in February 2011 invited ITU-T Study Group 17 (SG 17, Security) to examine security-related guidelines/standards on child online protection issues. Accordingly, at the special session for Child Online Protection during the SG 17 meetings in April and August 2011, the members agreed: to establish the *Correspondence Group on COP* and continue its research activity; to invite contributions from members of ITU-T SG 17 to its next meeting on the possible scope of activity in this area; and to discuss this issue at the next SG 17 meeting in February 2012.

d) In order to support and strengthen ITU's activities under the COP Global Initiative, the *COP Special Envoy* was created and *Ms Deborah Taylor Tate*, who is the WTISD Laureate in 2009, became the first COP Special Envoy in May 2011. COP Special Envoys are prominent individuals willing to contribute to ITU's efforts to raise awareness of the objectives and priorities of protecting children online and to do their utmost to support children's online safety.

e) ITU has been leading the discussion about protecting children online during the past WSIS Forums. At the WSIS Forum in 2011, ITU organized workshops and meetings on COP, including two thematic workshops: *New challenges to protect children online in the era of non-stop connectivity* and *Child Online Protection in Africa,* and *several knowledge exchanges meetings* with interested nations and stakeholders. The issue of child online protection was also one of major discussion points during the AL C5 Facilitation Meeting, High-Level Panel on Cybersecurity as well as the Fourth Parliamentary Forum on "The Triple Challenge of Cyber-Security: Information, Citizens and Infrastructure".

f) In addition, ITU is raising awareness on COP issues through the organization of workshops, forums, strategic dialogues and/or international/regional/national events. In 2011, ITU has been leading the discussion about child online safety by organizing *ITU Workshop for the CIS/Europe region "Integrated aspects of child online protection over the Internet" in Odessa, Ukraine* (February 2011), *Joint COP Workshops at the 6th Internet Governance Forum (IGF) in Nairobi, Kenya* (October 2011), "*COP Hands in Workshop: Call to Action" at ITU Telecom World, Geneva* (October 2011), and *ITU Workshop for the Arab region "Policy Advocacy and Capacity Building in Child Online Protection" in Muscat, Oman* (October 2011).

62. The last ITU-T Telecommunication Standardization Advisory Group (TSAG) meeting in February 2011 invited ITU-T Study Group 17 (SG 17) to examine security-related guidelines/standards on child online protection issues, including:

a) The development of interoperable standards and related recommendations to protect children online. The aim would be to develop a widely shared approach which could be promoted across the whole industry.

b) Evaluating what options and possibilities exist for real global coordinated and consistent action to protect children online. Attention should be given to the elaboration of those capabilities (e.g. watch and warning and incident management) that would facilitate the gathering of threats and information sharing among different players.

c) Identifying the commonalities that span the different industry sectors (broadcasters, Internet, mobile) with the purpose of developing Codes of Conduct, or code of practices to help ITU Member States collaborate more effectively with the private sector/industry.

d) Establish cooperative arrangements between government and the private sector/industry for sharing information and developing specific capabilities aimed at mitigating the risks and extending the potential of ICT usage by children.

63. Accordingly, at the special session for Child Online Protection during the SG 17 meetings in April and August 2011, the members agreed: to establish a *Correspondence Group on COP (April 2011);* inviting comments on the appropriate scope of the SG 17 in this area; to invite contributions from members of ITU-T SG 17 to its next meeting on the possible scope of activity in this area.

Action Line C6: Enabling Environment

64. Recognizing the strong commitment of ITU's work towards bridging digital divide in the area of the enabling environment, UNDP officially handed over the lead facilitation role on WSIS Action Line C6 to ITU in May 2008. 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 the ITU-D Programme 3: Enabling environment, in close collaboration with ITU-D Programme 2: Cybersecurity, ICT applications and IP-based network-related issues.

65. ITU organized the 4th WSIS Facilitation Meeting in May 2009 with the main task of identifying strategies for further implementation of this Action Line. Stakeholders reached a consensus that a platform for sharing best practices by all stakeholders can be a viable driver of WSIS implementation of the enabling environment for the years to come. For more detail see the WSIS C6 portal and the meeting report.

66. Following tradition, ITU organized the 6th meeting on WSIS Action Line C6 the 16th May 2011. The meeting was organized as an interactive panel discussion, involving multiple stake-holders including national governments, regulators, industry, civil society and international organizations. Discussions explored the advantages and challenges of cloud computing technology to governments, industry and other ICT stakeholders, focusing on how it can help companies especially SMEs to reduce their IT costs and governments to provide services to populations at lower costs. The panel addressed the challenges linked to the legal and regulatory issues of cloud computing which are very specific in terms of competition (oligopoly), interoperability, sovereignty, privacy and security.

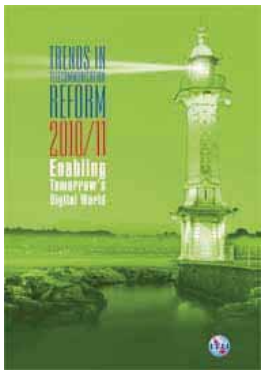
67. ITU continues to assist Member States and Sector Members in developing a pro-competitive policy and regulatory framework for telecommunications. More specifically, through Programme 3: Enabling environment, the ITU has undertaken numerous activities that foster the development of an enabling environment worldwide including information sharing, creation of tools for effective regulation, national and regional assistance, and creation of training materials and opportunities. Some of these ongoing activities include:

68. ITU-R continues to prepare for WRC-12, in particular, in relation to technical characteristics and spectrum resources for the provision of wireless broadband access.

69. The 10th edition of Trends in Telecommunications Reform 2009: Hands –on or hands-off? Stimulating growth through effective ICT regulation was published in 2010. The 11th edition of Trends in Telecommunication Reform 2010/11 focusing on Enabling Tomorrow's Digital World was published in March 2011.

70. The ICT Regulation Toolkit, developed by ITU in partnership with the World Bank/infoDev, assists regulators in developing effective regulatory frameworks by sharing information on key regulatory issues and best practices. In 2010, module 1: Overview: Regulating the

Telecommunications Sector and parts of module 2: Competition and Price Regulation were updated. The overall Module 2 and Module 6: Legal and institutional Framework are currently being enhanced.



71. The 10th *Global Symposium for Regulators (GSR)* The 10th Global Symposium for Regulators (GSR) was held from 10-12 November 2010 in Dakar, Senegal. The overall theme of the event was *Enabling Tomorrow's Digital World*. The GSR produced best practice guidelines which focused on enabling open access. . To better engage industry in the planning of future policy and regulatory reforms, the GSR was accompanied by the Global Industry Leaders Forum (GILF) on 9 November 2010.

72. *The 11th Global Symposium for Regulators (GSR).* The 11th Global Symposium for Regulators (GSR) was held from 21 to 23 September 2011 in Armenia city, Colombia. The theme of the event was *Smart Regulation for a Broadband World.* The GSR approved best practice guidelines on the theme: " regulatory approaches to advance the deployment of broadband, encourage innovation and enable digital inclusion for all''. To better attract the industry and the private sector in the policy and regulatory reform, the GSR was preceded by the Global Industry Leader Forum (GILF) on 20 September 2011 and by the meeting of the Regulatory Associations on 19 September 2011.

73. The Eleventh Forum on Telecommunication/ICT Regulation and Partnership in Africa (FTRA-2010) was held in Banjul, the Gambia from 12-14 July 2010.The theme of the FTRA-2010 was *Fiber Optic broadband and sharing the capacity and open access principles to achieve Connect Africa Goal 1. Partnership and regulatory challenges.*

74. The Twelfth Forum on Telecommunication/ICT Regulation and Partnership in Africa (FTRA-2011) was held in Kigali, Rwanda (Republic of), from 13 to 15 June 2011 under the theme of *Cloud computing, new development of ICTs*.

75. A series of regional regulatory and financial meetings, workshops, training events and direct assistance activities were organized in 2010 and 2011.

- ITU continues to maintain the World Telecommunication Regulatory Database, which can be accessed from the ICT Eye, as well as the TREG website and Global Regulators' Exchange (G-REX), a password-protected online discussion forum reserved for regulators and policy makers.ITU also manages the ICTdec regulatory decisions clearinghouse, a one-stop access point to decisions originating from ICT decision making bodies developed in partnership with the World Bank. A recent development of the ICTdec platform allows decision making bodies from around the world to upload directly their decisions in the database. The system is available in all six ITU working languages. Programme 3 maintains the Tariffs Policies database, which focus on trends related to pricing, cost and tariff models, analytical accounting, interconnection rates, and price control of different services, this can also be accessed from the ICT Eye.
- ITU undertook various capacity-building activities, training and seminars to promote an enabling environment. Through a project funded by the EC, ITU led an initiative to support an integrated ICT market in West Africa, resulting in the adoption of a harmonized ICT legal framework currently being transposed into national law by 15 West African States. Building on the success of the West Africa project, ITU and the EC continued implementation of new

projects to harmonize ICT frameworks and build capacity in the field of policy and regulation in sub-Saharan Africa, the Caribbean and the Pacific Island States. A number of trainings were carried out under the ITU Centre of Excellence Network initiative to ensure the enabling environment on policy & regulation and economic and finance issues in Asia and the Pacific.

- In 2010, three regional seminars on costs and tariffs were organized in coordination with the ITU-T Study Group 3 Regional Group meetings for Africa, Asia and Pacific and Latin American and the Caribbean.
- In June 2011 BDT Programme 3 organized in Geneva the Executive-level training for Heads of Regulatory Authorities: Strategic impact of cost modeling and dispute resolution mechanisms
- BDT Programme 3 has also supported the work of the ITU-D and ITU-T Study Groups on regulatory, economic and financial aspects of telecommunications.
- Together with ITU-T Study Group 3, BDT Programme 3 organized in September 2011 a two-days' Workshop on Taxation of Telecommunication Services and Related Products.
- Training courses were developed for experts from national regulatory authorities and operators on 3G mobile network cost modeling (Level I and Level II). These training workshops are being organized on a regional basis in coordination with the Centres of Excellence (CoE) under the ITU Academy programme.
- Under the category of research and development of tools, studies such as Case studies on the development of Next Generation Networks (NGN); and Mobile Termination Rates: To Regulate or not To Regulate have been prepared. During 2011, two studies on 1) taxation of telecommunications services and related products and 2) International Internet Connectivity are being developed and will be released in conjunction with related workshop organized jointly by BDT and TSB.
- Other Regional activities on Regulatory Reform and Market Environment addressed topics such as Market Analysis, Number Portability, Policy and Regulations for Newly Established Regulators, Policy Harmonization as well as on numbering planning and convergence of numbering.

76. ITU also assists its Members to develop policies and regulatory measures to ensure accessible ICTs in line with Article 9 of the United Nations Convention on the Rights of Persons with Disabilities (CRPD) ITU together with its partner G3ict launched an online toolkit to share best practices with policy makers and regulators on promoting accessible ICTs for persons with disabilities. (http://www.e-accessibilitytoolkit.org/) ITU has prepared a print version of this toolkit which was published in accessible PDF, Braille and DAISY format on the ITU website. http://www.itu.int/ITU-D/sis/PwDs/index.phtml. ITU has shared best practices and provided capacity building on the e-Accessibility toolkit in a series of events, including in the Africa, Asia-Pacific, Arab States and CIS regions. All presentations from these regional events are available at: http://www.itu.int/ITU-D/sis/PwDs/index.phtml. ITU will organize a meeting on Digital Inclusion for All in Singapore from 21-23 June that will address persons with disabilities and ageing societies. ITU will publish a report on "Making TV Accessible" in September that will be available on the Special Initiatives website and the e-Accessibility toolkit.

(c) Co-facilitator of Action Lines C1, C3, C4, C7, C11 and Partners for C8 and C9.

Action Line C1: The Role of Public Governance Authorities and all Stakeholders in the Promotion of ICTs for Development and Action Line C11: International and Regional Cooperation

77. In accordance with its mandate, the ITU continues to foster international and regional cooperation on a broad range of activities. ITU conducted several meetings, conferences and symposiums to provide a platform to broaden international dialogue on innovative means in harnessing ICTs for advancing development. For example, ITU organized the Global Symposium for Regulators and the 4th Global Industry Leaders Forum (September 21 – 23, 2011, Armenia City, Colombia), co-organized with Tunisia and UNCTAD the ICT4All Forum: Tunis+5 (Hammamet, Tunisia, November 2010), ITU Telecom World 2011 (Geneva, Switzerland, October 2011).

Action Line C3: Access to Information and Knowledge

78. ITU continues to promote universal access with equal opportunities for all, to scientific knowledge and the creation and dissemination of scientific and technical information. In 2010/11, ITU held numerous workshops, conferences and symposia, making extensive materials freely and widely available on the web. In addition, a number of online resources have been made available, including web-based information portals, practical ICT toolkits, and online databases, while existing resources were updated.

79. A workshop under the auspices of the World Standards Cooperation (WSC) was held to review and examine the standards needed for facilitating the development of accessible solutions around the world. To make audiovisual media accessible for persons with disabilities, an ITU-T Focus Group on Audiovisual Media Accessibility (FG AVA) was established recently and have had its first and second meeting in May and Sept. 2011 in Geneva. This will complement the ICT & telecommunication accessibility work currently carried out in the various ITU Study Groups, noticeably ITU-T Question 26/16 and ITU-D Question 20/1.

80. PP-10 created the academia membership and 23 members have joined ITU since. Building upon the success of the three Kaleidoscope events held in 2008 in Geneva, 2009 in Argentina and 2010 in India, the fourth Kaleidoscope conference will take place in Cape Town, South Africa, 12-14 December 2011. This year's conference, themed *"The fully networked human? – Innovations for future networks and services"*, attracted the submission of 84 academic papers from 28 countries. A committee of 118 international experts selected 31 papers for presentation at the conference.

81. ITU co-organized and actively participated in the 2011 WSIS Facilitation Meeting on Action Line C3, entitled Access to Information and Knowledge for Persons with Disabilities. The session was organized with co-facilitator UNESCO ITU shared the main activities of the Development and Standardization sectors in promoting international cooperation on accessible ICTs for persons with disabilities in line with the United Nations Convention on the Rights of Persons with Disabilities. The Handbook version of the ITU-G3ict e-Accessibility toolkit was also disseminated in this session.

82. ITU Members passed resolutions on promoting accessible ICTs for persons with disabilities at both our Plenipotentiary Conference and the World Telecommunication Development Conference. ITU has provided technical assistance to create accessible multi-purpose community telecentres (MCTs) for persons with disabilities in Burkina Faso, Ethiopia, Sri Lanka

and Mali and ITU is developing text-to-speech engines for local languages in Mongolia and Sri Lanka to enable screen readers for blind people to use the Internet

Action Line C4: Capacity-Building

83. Within the framework of its mandate as co-facilitator for Action Line C4 ITU organized 6th facilitation meeting of AL C4 which took place during the WSIS Forum 2011. The meeting provided an opportunity to discuss and debate the intersection of the topics "Leadership, Innovation and Capacity Building".

84. Additionally, ITU carries out several activities through its Human Capacity Building (HCB) programme, including regional and international trainings, workshops, e-learning toolkits, networks of experts etc. In 2011 ITU continued to organize a series of ITU Regional Human Capacity Development Forums, with objective to promote excellence in human capacity development in the information and communications technology (ICT) and telecoms sector in Africa (Anglophone Africa 3-5 August at Banjul Gambia, Francophone Africa 24-26 at Douala Cameroon). In 2011 ITU continued to promote *ITU Academy* as a common portal and platform (http://academy.itu.int) that allows for a single access point for ICT training opportunities whether delivered face-to-face, or through instructor or self-paced distance learning.

85. ITU organized many workshops and seminars since around the world, some in collaboration with all sectors, on implementation of relevant ITU decisions, bridging the standardization gap, standardization activity related to climate change, cybersecurity, NGN and accessibility.

86. In the first 3 quarters of 2011,, under the Centres of Excellence Network Initiative 69 training events were organized and 1640 participants trained. The events organized and the number of participants trained are shown below:

    2011

    - Centres of Excellence Network for the Americas region (CoE – AMS and COE-CAR): workshops and 13 distance learning courses, ~520 participants trained;
    - Centres of Excellence Network for the European region (CoE - EUR): 1 workshops and 1 distance learning courses, ~70 participants trained;
    - Centres of Excellence Network for the Arab region (CoE - ARB): 2 workshops and 2 distance learning course, ~90 participants trained:
    - Centres of Excellence Network for the CIS region (CoE - CIS): 4 workshops and 2 distance learning courses, ~300 participants trained;
    - Centres of Excellence Network for the Asia-Pacific region (CoE - ASP): 8 workshops and 1 on-line courses, ~280 participants;
    - Centres of Excellence Network for the African region (CoE - AFR): 17 workshops and 2 distance learning courses were organized and ~180 participants trained;
    - Centres of Excellence Network for Portuguese and Spanish speaking countries in Africa (CoE – AFR LSP): 10 workshops organized and ~200 participants trained.

87. In line with Action line C4(g), C6(l) and C7 (19), WSIS 2011 organized a briefing session on 16 May 2011 on Girls in ICT days to encourage more countries and companies to hold Girls in ICT Day events on the 4th Thursday of each April. This year events were held in countries around the world, including Colombia, the Dominican Republic, Germany and Serbia. BDT is developing a

Girls in ICT Portal to share information on mentoring, training, internship and scholarship programmes designed to encourage more young women and girls to enter careers in ICT. ITU and telecentre.org Foundation launched a joint "Telecentre Women Digital Literacy Campaign to train one million women to become digitally literate. More information about the campaign is available at http://www.itu.int/ITU-D/sis/Gender/digital_literacy.html.

Action Line C7: ICT Applications (eHealth, eEnvironment and eGovernment)

88. ITU is one of the co-facilitators together with UNESCO, UNDESA and Regional Commissions, ILO, ITC, FAO, UPU, UNEP, WMO, UNCTAD, WHO, etc. for the eight areas of ICT applications that are covered by WSIS Action Line C7. Within the framework of its mandate as co-facilitator for Action Line C7 ITU co-organized and participated in several facilitation meetings and thematic workshops which took place during the WSIS Forum 2011 such as the e-government workshop on "Greater Government Transparency and Citizen Engagement to Promote Effectiveness and Accountability in Public Service Delivery" jointly organized with UNDESA and WSIS C7 Facilitation meeting on e-Health jointly organized with WHO.

89. To build public awareness of the opportunities that ICT applications can bring especially to the government, health and environment sectors in developing countries, ITU has in addition to providing direct assistance to Member States also been developing scoping studies and implementation toolkits. ITU has conducted studies in the areas of e-government, e-environment and e-health and shared the findings through three main deliverables, scoping studies on *"Electronic Government for Developing Countries", "ICTs for e-Environment – Guidelines for Developing Countries, with a Focus on Climate Change"*, and *"Implementing e-Health in Developing Countries—Guidance and Principles"* respectively. The studies overview the available technologies, applications, trends and key players in each sector, addressing specific challenges faced by developing countries in implementing such e-projects and providing recommendations for future actions. Drawing from the lessons and recommendations highlighted in the scoping studies, ITU is currently developing toolkits in each of the three areas to assist developing countries in the creation and implementation of national e-health, e-environment and e-government strategies. Produced in a series of modules, the toolkits provide principles and suggest course of actions to guide policymakers through the different stages in the life-cycle of a national e-strategy.

90. ITU's role in relation to the use of ICTs for the protection of the environment (e-environment action line) was reinforced during PP10 with the approval of Resolution 182 (Guadalajara, 2010), "*The role of telecommunications/information and communication technologies on climate change and the protection of the environment*", which further defined the key action lines to be further developed by ITU in this subject over the upcoming years.

91. Key activities promoted by ITU since the approval of Resolution 182 has been the organization of the 5th ITU Symposium on ICTs, the environment and climate change (hosted by Egypt in Cairo on November 2010), as well as the participation of ITU in the 2010 United Nations Conference on Climate Change (hosted by Mexico in Cancun on December 2010).

92. In addition, in the past few months ITU has produced new reports on the role of ICTs in the protection of the environment and to address the challenges related with climate change. Key publications include the joint ITU-GeSI report "Using ICTs to tackle climate change", the ITU-T technology watch reports "ICT as an Enabler for Smart Water Management" and "Using Submarine Communications Networks to Monitor the Climate" or the discussion paper for the 2010 Global Symposium of Regulators "Climate Change and ICT regulation".

93. A new Recommendation ITU-T L.1400 (Overview and general principles of methodologies for assessing the environmental impact of ICT) was approved. ITU's one-size fits all universal charging solution (Recommendation ITU-T L.1000) was further improved to maximize the benefits for end users by extending its use to a wider variety of devices and making it even more energy efficient. A detachable cable with standardized end connectors will allow connection to devices including all mobile phones and other hand-held devices (including MP3/MP4 players, tablet computers, cameras, wireless headphones, GPS devices etc). This also means that it can be used for data transfer, avoiding an unnecessary duplicate cable and thus further reducing costs and e-waste.

94. To move forward the climate agenda, ITU has organized the 5th Symposium on ICTs, the Environment and Climate Change in Cairo on 2-3 November 2010. The symposium endorsed the "Cairo Roadmap on ICTs and Environmental Sustainability. The 6th Symposium will be held in Accra on 7-8 July 2011; ITU Green Standards Week will be held in Rome, 5-9 September 2011; and an ITU Workshop on Progressing the Climate Agenda through Green ICTs will be held in Seoul- Korea, 19 September 2011. ITU-GeSI Meeting on "Green Information and Communication Technologies (ICTs) for a Sustainable Future" held in New York. Director of ITU's Telecommunication Standardization Bureau, Malcolm Johnson, contributed three articles to the Guardian's Low carbon ICT blog in 2010. In April 2011, ITU-T launched a Green ICT Application Challenge.

95. ICTs can play a critical role in environmental protection and in helping countries to adapt to the effects of climate change. To this end, ITU-T SG5 is working on two new work areas: "Setting up a low cost sustainable telecommunication infrastructure for rural communications in developing countries" and on " Using ICTs to enable countries to adapt to climate change".

96. In addition to these activities, ITU has raised notably its profile in the co-facilitation of action line C7 e-environment by coordinating for WSIS Forum 2011, together with UNEP, WMO and the Basel Convention, a full day of activities around this action line. The "*e-environment day at WSIS Forum 2011*" included two thematic workshops on energy efficiency and e-waste, respectively, and an action line facilitation meeting focused around the theme of the use of ICTs for the promotion of sustainable development. The day also included a session for the releases of publications and several networking opportunities for the participants.

97. For the upcoming months ITU will continue taking an active role on this action line, in particular by following the request from the participants in WSIS Forum 2011 to prepare an input on behalf of the WSIS process that can be sent as a contribution to the upcoming 2012 United Nations Conference on Sustainable Development (UNCSD 2012 or Rio+20). Other action line facilitators will be invited to contribute to this effort to document lessons learned from the WSIS process in using the information society to promote sustainable development and poverty eradication.

98. In collaboration with partners such as the Australian Government (DBCDE) and in line with other ITU's activities particularly on ICT infrastructure development, ITU has undertaken activities aiming at developing ICT applications suitable for local communities and particular user groups such as multi-purpose community telecentres (MCTs), Persons with Disabilities (PwDs), and marginalized people.

99. Under the Asia-Pacific Regional Initiative on NGN Planning, Migration and Applications to address the need for capacity building in the Asia-Pacific region both from policy

makers/regulators and operators' perspective; a regional workshop on migration, technical, management, regulatory and security issues was organized in Tehran, Iran, in June 2009 attended by 54 delegates from 13 countries.

100. To facilitate national eHealth planning, ITU in collaboration with WHO are developing an "e-Health Roadmap development toolkit" that consists of a methodology and set of resources to guide country decision makers through a process by which a national e-Health roadmap can be elaborated.

101. The Broadband Commission sub-group on e-Health that brings many e-Health leaders together, seeks to showcase the potential impact of low-cost technologies in achieving the MDGs .

102. A report entitled Scaling e-Health services in step with ICT transformation was published to provide guidance to e-Health planners on which e-Health services can be deployed immediately with available infrastructure and which additional services can be added as the infrastructure is transformed.

103. A "Country Assessment and Feasibility study" was conducted in Nepal to identify potential scalable and sustainable Mobile e-Health (mHealth) services for improved health outcomes as a model for replication in other countries.

104. ITU in collaboration with WHO provided a background paper on Information and Communication Technology's contribution to accountability for women's and children's health to the Commission's on accountability for women and children's health that was set up by UN SG around the role that ICT could play to enhance accountability for resources and results for Women and Children's health to fulfil MDG 4 and 5.

105. A Forum on Health Information Systems (HIS) is organized by USAID, WHO, ITU, DFID, NORAD among others in Manila, Philippines, 13-16 June 2011 to strengthen and accelerate country-owned and country-led strategies for planning and managing national HIS and to share experiences on developing country-led strategies.

106. An Asia-Pacific Regional Forum on ICT Applications was held on 18-21 May 2011 in Bangkok, Thailand in collaboration with Ministry of Information and Communication Technology of Thailand (MICT) and ESCAP to advocate for ICT applications in all sectors and especially for promoting "Creative Economy".

107. A Regional meeting on e-Health for Asia Pacific region in Tokyo, Japan hosted by the Japanese Ministry of Internal Affairs and Communications MIC, 10-11 March 2011.

108. A report on "Mobile Government for responsive governments and connected society" was published to document the use mobile technologies to enhance government's performance, improve public service delivery, and engage citizens and civil society organizations in policy and decision making both in developed and developing countries.

109. The Broadband Commission sub-group on e-government will provide a report that will introduce a duplicable pilot case on e-Government services including a) Enabling environment, b) Stakeholders' role, c) e-Government applications and d) Network infrastructure.

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

110. ITU actively facilitates access to and use of ICTs by Indigenous Peoples to contribute to their digital inclusion, social and economic development and preservation of their heritage and cultural legacy through the use of ICTs. In line with this goal ITU Members adopted Plenipotentiary Resolution 184 (Guadalajara, 2010) regarding facilities to provide fellowships to indigenous persons seeking to attend ITU events, workshops, training etc.

111. The ITU actively participated in the 2011 WSIS Session on Action Line C8, on "ICT and education", presenting the related work developed by ITU, noting its leadership in developing a dedicated on-line training programme for indigenous communities .

112. During 2011, ITU jointly with regional Center of Excellence and Indigenous Fund for the Development of Indigenous Peoples in Latin America and the Caribbean- Fondo Indigena, will deliver three on-line training courses designed for 100 indigenous leaders on how to plan, develop and implement projects in their communities. Additionally, in relation to Action Line C8, Internationalized Domain Names (IDN) remains an issue for study in ITU-T Study Group 16 pending contribution from ITU membership.

Action Line C9: Media

113. Number of recommendations relevant to providing access to ICTs through terrestrial and satellite radiocommunication and broadcasting infrastructures have been established, and are under study currently, broadcasting infrastructures are particularly relevant in developing countries and/or underserved areas such as remote and sparsely populated areas.

114. Moreover ITU carried out various studies for Internet Protocol TV (IPTV) that will enable enhanced, media rich delivery of content to users around the world, as well as Next Generation Networks (NGN) to reduce international imbalances affecting the media, particularly as regards infrastructure and technical resources. ITU-T is also working to enhance accessibility features of audio-visual media through the FG AVA, and is organizing an IPTV Application Challenge to promote innovative IPTV applications. The IPTV Application Challenge will motivate experts across the broad IPTV ecosystem to develop original and creative IPTV applications based on ITU's suite of IPTV Recommendations.

115. ITU is in the process of implementing a project on Transition from Analogue to Digital Broadcasting aiming to assist the developing and least developed countries to smoothly shift to digital terrestrial broadcasting in all regions starting with the African Region, followed by Asia-Pacific, Central-Eastern Europe, CIS and the Caribbean ones.

(d) United Nations Group on the Information Society (UNGIS) (Para 103)

116. In April 2006, UNGIS was endorsed by the CEB. UNGIS 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 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.

117. In May 2011 ITU co-organized the Special Session at the IV UN Conference on LDCs, in Turkey. The session focused on Harnessing Information and Communication Technologies for Development.

118. In May 2011, within the framework of the WSIS Forum 2011, ITU hosted Seventh Meeting of UNGIS consisting of High Level Segment and Working Level Meeting. During this meeting ITU took over the Chairmanship of the Group, from UNESCO, and coordinates with the Vice-Chairs in order to ensure the implementation of the UNGIS Work Programme 2011-2013. The UNGIS Work Plan mandated ITU to follow up on several UNGIS activities, including, WSIS+10, RIO+20, UNDAF, Joint Initiative on Mobile for Development, Stocktaking Process, etc.

119. The WSIS outcomes and the UN General Assembly Resolution 60/252 decided 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 has requested ITU Secretary General to initiate the preparatory process at the UN Chief Executive Board (CEB). Consequently CEB tasked UNGIS to prepare, on the basis of an open consultation, an Action Plan to organize high-level meeting on the WSIS Review. The Action Plan would be presented to the CEB meeting in April 2012, and would take into consideration the strong support of the Commission on Science and Technology for Development served by UNCTAD.

120. The United Nations Group on the Information Society (UNGIS) held an Open Consultation Process on the UNGIS Overall Review of the Implementation of the WSIS Outcomes (WSIS +10) comprising of the following phases:

- Phase One: First Physical Meeting during the WSIS Forum 2011
- Phase Two: Online Consultation: www.wsis-community.org (15 June – 5 September 2011)
- Phase Three: Submission of Formal Contributions (15 June – 5 September 2011)
- Phase Four: Elaboration of the Draft Action Plan (By 15 September 2011)
- Phase Five: Second Physical Meeting (20 September 2011, 14:30 - 18:00, Room H, ITU Headquarters, Geneva, Switzerland)
- Phase Six: Presentation of the Outcomes: Action Plan (5 October 2011)

The results of the open consultation including all the **Formal Submissions received** and the draft **Plan of Action** are available at www.ungis.org

(e) Implementation of other WSIS outcomes

Emergency Telecommunications (Para 91 of TAIS)

121. ITU carried out various actions related to Emergency Telecommunications including:

- Disaster Relief: Assistance was provided to a number of countries. ITU has deployed satellite terminals for disaster relief operations in various countries such as Pakistan, Haiti, Indonesia, Malawi, Japan, among others.
- Direct Assistance to countries in the areas of policy, regulation, technology and designing of National Emergency Telecommunications Plans and drafting of Standard Operating Procedures, as well as disaster preparedness, early warning, dissemination of understandable warnings to those at risk, disaster relief/response and telecommunication network rehabilitation in the aftermath of disasters.
- Promotion of regional and international cooperation for easy access to, and sharing of, information for disaster management, climate change and exploring modalities to facilitate participation of all countries.
- Support countries with appropriate technologies for monitoring climate change, disaster prediction, detection and mitigation using remote sensing and Geographical Information Systems.
- Assist countries in considering the importance of environmentally sound disposal of ICT equipment.

122. ITU continues to define Recommendations in support of emergency communications specifying service definition, alert messaging, call prioritization for relief workers using multimedia and cable systems, telecommunications network management, and special functionality in signalling systems. ITU-T is continuing work on a Recommendation that defines service requirements for terrestrial mobile alerting broadcast capabilities and has begun work to provide guidelines for Member States who are in the process of selecting Message Identifier assignments to be used for such services. In addition work was completed on a document that provides an overview of standards development organizations (SDOs) and other industry organizations in support of emergency telecommunications. Also an ITU-T Recommendation indicating what features and mechanisms of a Next Generation Network (NGN) may be used to facilitate the requirements of emergency telecommunications was completed. Together with WMO, ITU held a Common Alerting Protocol (CAP) Implementation Workshop.

International Internet Connectivity (Para 77c.ii and 50d of TAIS)

123. BDT is providing assistance to East African Community (EAC) and South African Development Community (SADC) countries on the creation of national Internet Exchange Points (IXPs) and achieving efficient and cost effective Regional Internet connectivity.

124. Following a revised version of ITU-T Recommendation D.50, which was approved in 2008 by the World Telecommunication Standardization Assembly (WTSA), a supplement to Recommendation ITU-T D.50 was agreed which recommends how those involved in the provision of IIC negotiate and agree to bilateral commercial arrangements enabling direct international Internet connections.

Connect the World Initiative

125. Within the framework of the *Connect the World* initiative, launched by ITU in 2005, the Union dedicates significant efforts further development of this multi-stakeholder platform, with aim to help mobilize the financial, human and technical resources needed to implement outcomes of the World Summit on the Information Society (WSIS) and the World Telecommunication Development Conference (WTDC)

126. As part of this effort, ITU continues to organize high-level events known as *Connect the World* Summits (www.itu.int/partners) in each region where Members have expressed an interest. Building on the success of the first event *Connect Africa* held in 2007, Rwanda, ITU and the second *Connect CIS* Summit in Minsk, Belarus 2009, ITU intends to organize the Connect Arab States Summit in Doha, Qatar from 5-7 March 2012, with the aim to leverage the huge market potential, and to mobilize the human, financial and technical resources which would support the rapid move to a true information economy and society.

127. In 2010/11, BDT continued to work on four global *Connect the World* flagship initiatives. The aim of these initiatives is to build upon and strengthen promising projects that start in one region or with one industry partner, by providing an attractive, open platform and brand that can be promoted to additional partners globally and/or in various regions. Wireless Broadband Partnership, Connecting Villages Initiative, Connect a School, Connect a Community, ITU Mobile Health Initiative, ITU-IMPACT Collaboration on Cybersecurity.

World Telecommunication and Information Society Day

128. World Telecommunication and Information Society Day (www.itu.int/wtisd), celebrated each year on 17 May, marks the anniversary of the signature of the first International Telegraph Convention in 1865 which led to the creation of the International Telecommunication Union. This occasion was recognized as World Telecommunication Day in 1973. Following the World Summit on the Information Society (WSIS) in 2005 and the 2006 ITU Plenipotentiary Conference in Antalya, Turkey, 17 May was designated as World Telecommunication and Information Society Day (WTISD).

129. The World Telecommunication and Information Society Day endeavors to raise awareness of the possibilities that the use of the Internet and other ICTs can bring to societies and economies, as well as of ways to bridge the digital divide. ICTs are increasingly in demand to meet the Millennium Development Goals. In the rural context, ICTs provide enhanced opportunities to generate income and combat poverty, hunger, ill health and illiteracy. The theme of this year's WTISD, "**Better life in rural communities with ICTs**", aims to ensure that ICTs will contribute to a better future for our rural populations. As a means of bringing global attention to this theme, ITU will present the annual World Telecommunication and Information Society Award to eminent personalities who have contributed to connecting rural communities to the benefits of ICTs.

130. As a means of bringing global attention to this year's theme: "Better life in rural communities with ICTs", ITU presented the **annual World Telecommunication and Information Society Award** to eminent personalities who have contributed to connecting rural communities to the benefits of ICTs. The Award presentation ceremony was held on Tuesday, **17 May,** in ITU headquarters. The following personalities were awarded:

- President of Finland Tarja Halonen

- Telecommunication innovator Sam Pitroda
- CEO of Inveneo Kristin Peterson

131. The updated Resolution 68 (Rev. Antalya, 2006) invites Member States and Sector Members to celebrate the day annually by organizing appropriate national programmes with a view to:

- stimulating reflection and exchanges of ideas on the theme adopted by the Council
- debating the various aspects of the theme with all partners in society
- formulating a report reflecting national discussions on the issues underlying the theme, to be fed back to ITU and the rest of its membership

132. Accordingly, more than 30 national and international initiatives related to the celebration of the WTISD have been reported to the ITU. More information has been made available at http://www.itu.int/wtisd/2011/initiatives.html

Bridging the standardization gap (Paras 26g and 90 of TAIS)

133. ITU is working to implement PP-06 Resolution 123 on bridging the Standardization Gap between developed and developing countries.

134. In 2010, numerous ITU-T's study groups saw increased participation, especially from developing countries. The use of remote participation tools increased and 15 workshops were held in developing countries during the period covered by this document. Four handbooks were published (DSL Story, Converging networks, Optical Transport Networks from TDM to Packet and Object identifiers (OIDs) and their registration authorities).

135. As a follow up to improve the response rate to a previous study, the Tool for Assessing Standards Capability (TASC) questionnaire was sent out again to member states of the developing world that had not yet responded to the initial survey. A total of 34 responses were received.

136. An ITU tutorial on Standardization took place in Pune, India, 13 – 15 December 2010.

137. The voluntary BSG fund to help bridge the standardization gap was established in August 2007. The Fund was used, inter alia, for supporting more events taking place in developing countries. Contributors are Nokia Siemens Networks, Microsoft, Cisco and the Korean Communications Commission (KCC). Funds were also used to provide fellowships.

138. The following ITU-T regional groups meetings took place since PP-10:

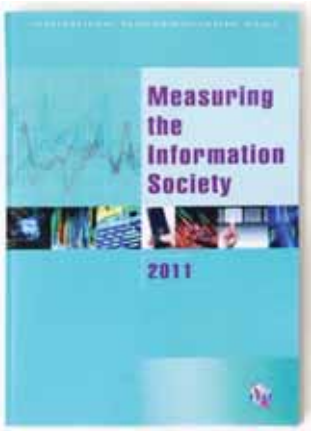
- SG 3 Regional Group for Africa (Botswana, May 2011);
- SG 3 Regional Group for Asia and Oceania (Thailand, March 2011);
- SG 3 Regional Group for Latin America and the Caribbean (El Salvador, February 2011).
- SG5 Regional Group for the Africa Region (Nairobi, Kenya, July 2010);
- SG 5 Regional Group for Latin America and the Caribbean (Buenos Aires, Argentina, December 2010);
- SG12 Regional Group of SG12 on QoS for the Africa Region (Nairobi, Kenya, July 2010).

Measuring the Information Society (paras 113-119 of TAIS)

139. ITU continues to monitor the development of the digital divide, through appropriate benchmarks and indicators. The ITU maintains the World Telecommunication/ICT Indicators Database, which is updated regularly, disseminated widely and which can be accessed online through the ICT Eye. To improve data availability and comparability, ITU works closely with its member states, particularly the Ministries in charge of telecommunication, regulatory agencies, and national statistical offices.

140. In 2010-11, more than 100 statistical indicators from over 200 economies worldwide were collected through four annual questionnaires. The data were disseminated through the website (ICT Eye on line portal), CD-ROM, electronic download and printed publications such as the 36th edition of the Yearbook of Statistics, and the 14th and 15th edition of the World Telecommunication/ICT Indicators (WTI) database. In October 2010, ITU published The World in 2010: ICT Facts and Figures featuring estimates for key ICT indicators for the current year.

141. The 2011 edition of the ITU report *Measuring the Information Society* was launched in September 2011. The report features two key benchmarking tools to measure the Information Society: the ICT Development Index (IDI) and the ICT Price Basket (IPB). The IDI captures the level of ICT developments in 152 economies worldwide and compares progress made during the past two years. The IPB combines fixed telephone, mobile cellular and fixed broadband Internet tariffs for 165 economies into one measure and compares these across countries, and over time. The report also presents the latest global market trends, takes a closer look at broadband and analyses the digital divide among Internet users.

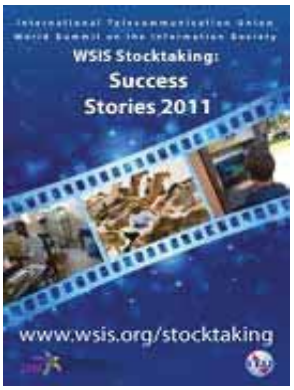


142. In November 2010, a new ITU report on Child Online Protection: Statistical Framework and Indicators was launched, providing a comprehensive framework and indicator for measuring different aspects related to child online safety, which can be compared internationally.

143. ITU is an active member of the Partnership on Measuring ICT for Development and together with UNCTAD and ECLAC, one of the three members of its Steering Committee. During 2010-2011, a core set of indicators on e-government was finalized, which will be added to the Partnership core list of ICT indicators developed in 2005 and updated in 2010. A new Task Group on Measuring the WSIS Targets was launched during the WSIS Forum 2010. Under the leadership of ITU, the Task Group developed and published in May 2011 (at the WSIS Forum) "Measuring the WSIS Targets. A Statistical Framework". The Framework includes a concrete list of indicators to monitor the 10 WSIS targets, which range from connecting villages, schools, and health centers to developing online content and providing people with ICT access. It is the first comprehensive framework for a set of measurable indicators for each of the ten WSIS targets and serves as a practical tool for policy makers and data producers in developing countries to monitor and assess information society developments, especially in view of the overall WSIS review in 2014. During the WSIS Forum 2011, the Partnership organized two sessions on "Measuring the ICT sector for policy analysis" presenting case studies from five countries (Brazil, Cameroun, Egypt, India and Malaysia). The Partnership contributed to a paper on measuring ICT Impact for the UN Commission on Science and Technology for Development (CSTD) in 2010-11

PARTNERSHIP ON MEASURING ICT FOR DEVELOPMENT

and ITU participated in the CSTD session in May 2011 discussing this topic. The resulting CSTD resolution on the WSIS implementation and follow up, which was adopted by the UN ECOSOC in July 2011, endorses the work of the Partnership and calls on the Partnership to further its work on measuring the impact of ICT.



144. To enhance the capacities of national statistical offices (NSOs) in developing countries to collect and disseminate ICT statistics, during 2010-11 ITU co-organized technical workshops and trainings at the country and regional level to exchange experiences and discuss methodologies, definitions, survey vehicles and data collection efforts related to ICT indicators. In this context, the ITU Manual for Measuring ICT Access and Use by Households and Individuals has been translated in to the five official languages of the Union and serves countries as a practical tool for collecting ICT household statistics. The ITU training course on ICT household statistics was delivered in 2011 in Suva, Fiji, for countries of the Pacific region, and in Amman, Jordan, for countries of the Arab region.

145. The 8th World Telecommunication/ICT Indicators Meeting (WTIM) took place in Geneva from 24-26 November 2010. The meeting attracted more than 250 participants from over 80 member states, public and private companies and regional and international organizations. The meeting focused on seven main topics: measuring the impact of ICT, ICT household statistics, infrastructure and access Indicators (especially broadband), e-government indicators, measuring the WSIS targets, child online safety and ICTs and climate change.

Maintaining the WSIS Stocktaking Database (Para 120)

146. Pursuant to the outcomes of the Tunis Agenda (Para 120) ITU continues to work on the WSIS Stocktaking (www.wsis.org/stocktaking) as a valuable tool for assisting the WSIS follow-up, beyond the conclusion of the Tunis phase of the Summit.

147. The WSIS Stocktaking process was initiated in 2004, during the Tunis phase of WSIS and, with time, it has become an effective tool for the exchange of information on projects and initiatives related to the implementation of the 11 Action Lines. As of September 2011, over 5,187 entries have been registered at the WSIS Stocktaking Database. The majority of the entries were submitted by governments, representing 58 per cent of total entries. Please note that one entry may contain information on more than one project. Following Para 120, the ITU Membership is encouraged to continue to contribute information on their activities to this public database. All countries are invited to gather information at the national level with the involvement of all stakeholders, to contribute to the stocktaking process. Information collected until March 2012 will constitute the basis for the next edition of the WSIS Stocktaking Report 2012 to be released at the WSIS Forum 2012.

148. WSIS Stocktaking Platform, launched in February 2010, transformed static database into a unique portal to highlight ICT-related projects and initiatives in line with WSIS implementation. The platform offers stakeholders exciting and interactive networking opportunities via Web 2.0 applications. In the framework of the WSIS Stocktaking Platform, all types of stakeholders can benefit from “the global events calendar”, “the global repository”, “case studies” components

and others that tend to extend networking and create partnerships in order to provide more visibility and add value to projects at the local, national, regional and international levels. As of September 2011 WSIS Stocktaking Platform attracted 2718 members, from 143 countries.

149. With the aim of engaging the partners in the exchange of knowledge a series of online interviews with key WSIS stakeholders have been conducted since 2010. All interviews are available at www.wsis.org/stocktaking

150. Following the recommendations of WSIS stakeholders and the ITU membership, with the aim of highlighting ICT-related projects and initiatives in context of WSIS implementation and follow-up, the electronic Version 1.1 of WSIS Stocktaking: Success Stories (http://www.wsis.org/stocktaking) was launched during the WSIS Forum 2011. The Success Stories publication provides examples of WSIS Implementation projects and facilitates transfer of experience and knowledge at global level. The publication aggregates several voluntary contributions from around the world that were collected from active members of the WSIS Stocktaking Platform during the period 2010–2011, and illustrates the key lessons drawn from the management of these projects. By sharing these case studies, stakeholders are intending to facilitate transfer of knowledge, experiences and models for project implementation. Success Stories 2011 aim at encouraging other stakeholders to share their experiences of the WSIS implementation.

151. Within the framework of the WSIS Forum 2011, a special interactive session on the WSIS Stocktaking process was held, with the aim of discussing real needs of the WSIS process and ways to address them through the WSIS Stocktaking related activities. The following present some of recommendations:

- Create a mechanism to evaluate and reward stakeholders for their efforts on the implementation of WSIS outcomes. WSIS Project Prizes 2012 (www.wsis.org/stocktaking/prizes) are an immediate response to the requests expressed by WSIS stakeholders during the WSIS Forum 2011. This is an opportunity for all stakeholders to provide worldwide visibility to their projects and be recognized internationally. Engaging with the international community, there will be opportunities to extend professional networks, to facilitate the creation of partnership and financing opportunities, to be referenced in the WSIS Process and highlighted in the **WSIS Stocktaking Report on Success Stories 2012** (the previous version of the publication is available at www.wsis.org/stocktaking).

- Maintain the WSIS Stocktaking platform in order to leverage the activities of stakeholders at the national, regional and international levels and endorse the contributions;
- Gain the support of member states in drawing the attention to the WSIS process and WSIS Stocktaking;
- Continue to promote WSIS Stocktaking as an effective tool for assisting with the follow-up of the WSIS Process, beyond the conclusion of Tunis phase of the Summit;

- Develop plan of action towards 2015 in order to ensure that WSIS Stocktaking assists efficiently overall review of the implementation of the WSIS Outcomes;
- Ensure effective coordination with CSTD Secretariat in order to ensure that the WSIS Stocktaking assists WSIS Follow-up in most effective way as requested by Tunis agenda;
- Develop framework for analytical evaluation of the progress in the WSIS implementation, considering qualitative measurement methodologies;
- Building upon Success Stories 2011 publication, consider detailed evaluation of the WSIS implementation, e.g. at the country level;
- Ensure timely elaboration of the WSIS Stocktaking Report 2012.

Internet Governance Forum

152. ITU actively participated in the 5th IGF in September 2010 (Vilnius, Lithuania). Three Dynamic Coalition meetings were organized or co-organized by ITU aimed at raising awareness of ITU initiatives in the areas of Internet and Climate Change, Accessibility and Disability, and Child Online Safety. ITU provided funds for the participation of 33 experts from developing countries (through financial assistance from the government of Canada). ITU continued this level of participation at the 6th IGF held in Nairobi, Kenya from 27-30 September 2011. ITU organized or co-organized meetings in partnership with other members of Dynamic Coalitions in areas that were previously listed.

153. In addition, ITU co-hosted a High-level Ministerial Forum with the Government of Kenya on 26th September 2011 just prior to IGF 2011 to discuss issues related to opportunities and challenges to developing countries presented by ICTs. The meeting, a round table discussion of Ministers, focused on the three topics: Mobile Internet, Cybersecurity and Privacy, and Boasting access to Broadband and Cloud Computing. The Ministerial forum was attended by Ministers from all over the world. Also invited were high level representatives from intergovernmental organizations, the private sector, technical and civil society communities.

III. Forums, innovative initiatives and future actions

(a) Forums

WSIS Forum

154. WSIS Forum 2011 was held from 16- 20 May 2011 in Geneva, Switzerland. The Forum provided structured opportunities to network, learn and to participate in multi-stakeholder discussions and consultations on WSIS implementation. The Forum was hosted by ITU and jointly organized by ITU, UNESCO, UNCTAD and UNDP. The Forum took place at the ILO Conference Center. This event built upon the tradition of annual WSIS May meetings, and its new format is the result of open consultations with all WSIS Stakeholders.

155. The Forum has attracted more than 1150 WSIS Stakeholders from more than 140 countries. Several high-level representatives of the wider WSIS Stakeholder community graced the Forum, more than 20 Ministers and Deputies, several Ambassadors, CEOs and Civil Society leaders contributed passionately towards the programme of the Forum. Among participants there were more than 80 members of parliament, as well as several C-level representatives of the private sector and civil society. Remote participation was an integral com ponent of the WSIS Forum over 1000 stakeholders followed and contributed to the outcomes of the event in a remote manner from all parts of world. Onsite networking was facilitated by the imeetYouatWSIS online community platform. More than 250 on-site participants have actively used the tool prior and during the event which has facilitated in fruitful networking leading to win-win partnerships.

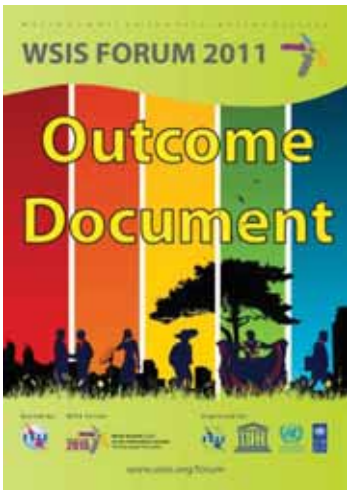
156. Action Line Facilitators from various UN agencies, regional commissions, the private sector, governments and civil society not only reported and assessed their own efforts towards WSIS implementation and follow-up, but also shared their future plans to achieve the targets set in the WSIS Outcome documents. Programme of the Forum consisted of more than 100 sessions structured in 12 different types of meetings in 6 parallel streams.

- 5 High Level Sessions and Dialogues
- 17 Interactive Action Line Facilitation Meetings
- 4 Interactive Sessions
- Action Line Facilitators Meeting
- 25 Thematic Workshops
- 6 Country Workshops
- 25 Briefings and Publication Releases
- 3 Meetings of the UN Group on the Information Society including Open Consultation on the Overall Review of the Implementation of the WSIS Outcomes
- IGF Open Consultation Meeting and MAG

- Parliamentary Forum on Shaping Information Society
- 15 Exhibition Stalls
- Several Knowledge Exchanges

157. To learn more details on the sessions the ITU membership is invited to consult the Forum website, www.wsis.org/forum or the Programme Brochure made available prior to the meeting at http://groups.itu.int/wsis-forum2011/Agenda.aspx.

158. On 20 May 2011, WSIS Forum 2011 the Secretariat released a Draft Outcome Document, a compilation of reports submitted by all session organizers. The WSIS Forum 2011 Outcome Document is available at: http://groups.itu.int/wsis-forum2011/Agenda/OutcomeDocument.aspx



Dedicated Group on International Internet-related Public Policy Issues

159. The Dedicated Group on international Internet-related public policy issues was established as an integral part of WG WSIS, open only to all Member States, in accordance with Resolution 75 (WTSA, 2008), and Council Resolution 1282 (Mod. 2008). It is tasked to identify, study and develop matters related to international Internet-related public policy issues, to disseminate its outputs throughout ITU's membership, and to contribute to the work of WG - WSIS on international Internet-related public policy issues within the mandate of ITU pursuant to the relevant resolutions of the Plenipotentiary Conference (Antalya, 2006) and Council Resolutions (C08-1282, C09-1305). Res. 140 (Rev. Guadalajara, 2010) requests the Council to modify Resolution 1282 adopted by the Council at its 2008 session to establish a working group of the Council for the Dedicated Group on international Internet-related public policy issues, open only to Member States with open consultation to all stakeholders. Accordingly, the Dedicated Group is a forum for all governments, on an equal footing, to discuss public policy issues pertaining to topics listed in Resolution 1305. These topics could potentially fall under several Action Lines:

  - AL C2: Availability, affordability, reliability, and quality of service, especially in the developing world
  - AL C5: Combating Cybercrime, Dealing effectively with spam, Issues pertaining to the use and misuse of the Internet, Respect for privacy and the protection of personal information and data, Protecting children and young people from abuse and exploitation
  - AL C6: International public policy issues pertaining to the Internet and the management of Internet resources, including domain names and addresses

160. The Dedicated Group has held five meetings in till date. The fifth meeting of the Group was held on May 25, 2011.

(b) Innovative multi-stakeholder initiatives

The Global Cyber security Agenda (GCA)

As noted in Paragraph 32, in May 2007, ITU Secretary-General launched the GCA: a framework for international cooperation in cyber security. The GCA is made up of seven main strategic goals and builds upon the following five work areas or pillars: (1) Legal Measures; (2) Technical and Procedural Measures; (3) Organizational Structures; (4) Capacity Building; and (5) International Cooperation. It builds on existing national and regional initiatives to avoid duplication of work and encourage collaboration amongst all relevant partners. At the C5 Action Line Facilitation meeting during the WSIS Forum 2011 it was reiterated that within the overall framework of the cyber security agenda (GCA), international organizations such as IMPACT and ITU, are deploying joint services in order to harmonize at the international level different national approaches to better prepare countries to face cyber threats and solve cyber-attacks, through information sharing, awareness raising and trainings. The momentum generated by the GCA and the broad nature of this ITU initiative have resulted in interest from other stakeholders and opportunities for collaboration and cooperation. Specific initiatives already undertaken under GCA umbrella include:

International Multilateral Partnership Against Cyber-Terrorism (IMPACT) & ITU

The Government of Malaysia offered to make available the infrastructure of the International Multilateral Partnership Against Cyber-Terrorism (IMPACT) as the home of the GCA. IMPACT is backed by a USD 13 million infrastructure and has agreed to make its state-of-the-art global headquarters in Cyberjaya, Kuala Lumpur, available as one of the physical homes of ITU's Global Cyber security Agenda. As of today. ITU's relationship with IMPACT continues to gain momentum, with over 130 Member States now part of the ITU-IMPACT coalition. Within the overall framework of the cyber security agenda (GCA) ITU-IMPACT is the first cooperative global venture to make available cybersecurity expertise and resources to enable Member States to detect, analyze and respond effectively to cyberthreats. In particular, ITU IMPACT is deploying joint services in order to harmonize at the international level different national approaches to better prepare countries to face cyber threats and solve cyber-attacks, through information sharing, awareness raising and trainings.

- In this regard, in May 2011, WSIS stakeholder community during the WSIS Action Line C5 Facilitation Meeting re- confirmed the need to better coordinate at any level (National, Regional International), and through organizations such as ITU, ensuring harmonization of efforts and sharing of best practices to advance the work and build the necessary capacity.
- Cybersecurity Gateway
  - Gateway is a collaborative platform where civil society, academic institutions, industry, private sector, NGOs, governmental and international organizations can share information resource on national and international cybersecurity related initiatives.
- Child Online Protection Initiative (COP)

The COP Initiative is an international collaborative network based on a multi-stakeholder and multi-sectoral partnership for joint action to promote the online protection of children worldwide, through education and awareness-raising on e-safety, facilitating the development and use of appropriate technologies, including a framework for cooperation among relevant stakeholders in the protection of children online. A yearlong call for action was launched by ITU Secretary-General on 18 May 2009 to consider the year 2009- 2010 the child online safety year. Through the COP Initiative, ITU has drawn together members of existing initiatives and worked with them to develop initial sets of guidelines in 2009 for the different stakeholders. In line with the new Resolution 179 (Guadalajara,

2010), ITU is taking the next step to develop a cybersecurity strategy for child online safety, under the framework of the COP Global Initiative, delivering significant national and societal benefits.

- E*mphasizing* on the commitment of the ITU to connecting the world responsibly to ensure cybersecurity, enable cyberpeace, and protect children online, the ITU's role to facilitate the implementation of WSIS Action Line C5 *"Building confidence and security in the use of ICTs"* and the establishment of the Child Online Protection (COP) as a special initiative within the GCA framework of the ITU.

The Connect the World Initiative

161. As noted in Para 66, in 2005, ITU launched the *Connect the World* initiative to help mobilize the financial, human and technical resources needed to implement outcomes of the World Telecommunication Development Conference (WTDC) and the World Summit on the Information Society (WSIS).

162. As part of this effort, ITU is organizing high-level events known as *Connect the World* Summits in each region where Members have expressed an interest. These Summits bring together like-minded stakeholders to work together on concrete actions and projects to expand information and communication (ICT) networks and access as a means of spurring investment, employment and broader social and economic development.

Connect Africa Summit

163. The *Connect Africa Summit*, the first in the series, was held in Kigali, Rwanda in October 2007 and generated the level of financial commitment of more than 55 billion USD to be spent for the development of inclusive information society in Africa. As part of follow-up to *Connect Africa*, several actions by ITU and partners are under implementation. More information on them is available on at the Summit's website. In 2008, ITU launched two new partnerships, among others:

- ***Wireless Broadband****:* in the spring of 2008, BDT secured US$ 4 million from the Craig and Susan McCaw Foundation and added another US$2.4 million from the ITU ICT Development Fund to start wireless broadband projects. ITU is now working closely with the African Development Bank to build on this foundation to help meet the demand of Member States in the region, and has begun discussions with the Islamic Development Bank. Missions have been organized to a number of countries and concrete implementation is underway;
- ***Capacity Building****:* ITU is implementing ICT capacity building projects for Spanish and Portuguese speaking countries in Africa, including a centre of excellence, Internet Exchange Points (IXPs) and youth scholarships. The Government of Spain has provided financial support for each of these projects. The Government of Portugal has also assisted by providing financial support for the centre of excellence.

Connect CIS Summit

164. As the second regional event in the series, ITU organized the *Connect CIS Summit* with partners on 26-27 November 2009 in Minsk, Belarus. The Summit gathered some 353 participants from 18 Member States (10 from CIS Region), including five Heads of State (Republic of Armenia, Republic of Belarus, Republic of Kazakhstan, Kyrgyz Republic and Republic of Tajikistan) and Government and one First Deputy Prime Minister. The administrations of 10 countries from the region were represented, including 7 at the Ministerial level. Some 40 leading ICT companies, development banks, international organizations and other stakeholders participated in the

Summit. The Presidents (Heads of State) addressed participants of the Summit in a special session entitled, "Leaders Statements and Summit Declaration: Towards a Sustainable Information Society ", in which each President (Head of State) outlined their vision for the Summit and pledged their full support to the Connect CIS Initiative. The Connect CIS Summit concluded with the Connect CIS Declaration.

165. This Summit was organized in partnership with the Regional Commonwealth in the Field of Communications, the Commonwealth of Independent States Executive Committee, the World Bank, the European Bank for Reconstruction and Development, the European Investment Bank, the Islamic Development Bank, the United Nations Economic Commission for Europe and the United Nations Global Alliance for ICT and Development among others.

166. The overall objective of the *Connect CIS Summit* was to mobilize the human, financial and technical resources to support a rapid, region-wide transition to digital infrastructure and services, widely recognized as the engine of future economic growth and social and economic development. Priorities include rolling out broadband Internet, expanding rural connectivity, creating a policy and regulatory environment to support investment and new business models, enhancing ICT training and human capacities and stimulating locally relevant applications and services.

Global Flagship Initiatives

167. In early 2009, BDT launched four global *Connect the World* flagship initiatives. The aim of these initiatives is to build upon and strengthen promising projects that start in one region or with one industry partner, by providing an attractive, open platform and brand that can be promoted to additional partners globally and/or in various regions:

    1. *Wireless Broadband Partnership:* high-speed connectivity for developing countries, with extra capacity for public uses, including schools and hospitals. This global flagship initiative builds on the wireless broadband project in Africa mentioned above;
    2. *Connecting Villages:* low cost solutions for basic connectivity in rural areas;
    3. *Connect a School, Connect a Community:* partnership effort to promote broadband school connectivity to serve both students and the communities in which they live, with a special emphasis on groups with special needs; and,
    4. *ITU Academy Partnership:* training and courseware on cutting-edge ICT innovations in areas such as NGN and mobile.
    5. *ITU Mobile Health Initiative:* partnership effort to support developing countries making the best use of mobile technologies to assist patients and improve health services. The initiative will facilitate the launch of demonstration projects and provide capacity building to develop simple and cost-effective mobile applications that respond to critical national health priorities.

6. *ITU- IMPACT Collaboration:* to facilitate the deployment of solutions and services to address cyber threats at a global scale, together with ITU Member States and leading global partners from industry and academia.

168. Each of the flagship initiatives outlines clear roles for government, industry and other partners, with ITU playing a neutral brokering and expert role. These initiatives will enhance donor/partner recognition and ITU visibility globally and in the regions, as well as provide greater coherence in partner outreach.

Broadband Commission for Digital Development

169. In May 2010 ITU and UNESCO announced the establishment of a top-level Broadband Commission for Digital Development, with the aims of defining strategies for accelerating broadband roll-out worldwide and examining applications that could see broadband networks improve the delivery of a range of social services, from healthcare to education, environmental management, safety and other domains across society.

170. The establishment of the Broadband Commission in 2010 came five years after the WSIS, and ten years after the launch of the Millennium Development Goals (MDGs). Expanding broadband access in every country is key to accelerate attainment the MDGs by the target date of 2015. The Broadband Commission will therefore define practical ways in which countries – at all stages of development – can achieve this, in cooperation with the private sector.

171. The Broadband Commission for Digital Development believes that high-speed, high-capacity broadband connectivity to the Internet is an essential element in modern society, with wide economic and social benefits. Its mission is to promote the adoption of broadband-friendly practice and policies so that the entire world can take advantage of the benefits.

172. More specifically, the Broadband Commission wishes to demonstrate that broadband networks:

i) have the same level of importance as roads and electricity networks; and are basic infrastructure in a modern society;

ii) are uniquely powerful tools for achieving the MDGs;

iii) are remarkably cost-effective and can offer impressive rates of return-on-investment (ROI) for both developed and developing economies;

iv) underpin all industrial sectors and are increasingly the foundation of public services and social progress ;

v) must be coordinated nationally by governments in partnership with industry, in order to reap the full benefit of these powerful tools.

173. The Commissioners represent governments from around the world, relevant industries, international agencies and organizations concerned with development. The group is co-chaired by President Paul Kagame of Rwanda and Mr Carlos Slim Helú, Honorary Lifetime Chairman of Grupo Carso, with ITU Secretary-General Dr Hamadoun Touré and UNESCO Director-General, Ms Irina Bokova serving as joint vice-chairs.

174. To help advance its work, the Broadband Commission has issued two reports since its inception: the first presented to UN Secretary-General Ban ki-Moon in New York in the final quarter of 2010, and the second officially published during the Commission meeting in June 2011 at UNESCO HQ in Paris. In addition to the reports, the Commission has established a set of thematic working groups which will be operational until October 2011. Each of these groups has been tasked with presenting a deliverable to the Broadband Leadership Summit scheduled to take place during the opening two days of ITU Telecom World 2011, in late October in Geneva.

175. In addition to the annual meetings and working group activities, the Broadband Commission, at the bidding of H.E. President Paul Kagame of Rwanda, convened for a regional meeting in the Rwandan capital Kigali in September 2011. The purpose was to solicit feedback from regional constituents, including ministers and regulators, as well as members of the private sector. Several Broadband Commissioners were also present to offer expertise and guidance. Young people were given special attention at this meeting, and as many as 300 youths from the surrounding areas were deeply incorporated into the programme. This allowed them to mingle with high-level decision and policy makers, and also gave them an opportunity to voice their needs and concerns.

176. Looking ahead, the Broadband Commission will host the first major Broadband Leadership Summit on 24 – 25 October in Geneva. This unique event brings together key decision makers from almost all walks of life, in a bid to foster relationships which may result in services rollout. Expectations for the event are high, and the agenda promises to be both informative and enlightening.

Roadmaps for WSIS Action Lines C2, C5, C6

177. In line with its mandate and the WSIS outcome documents, the ITU continues to play a key role in the WSIS implementation and follow-up process, in particular, as the WSIS Action Lines Sole Facilitator for AL C2 (Information and Communication Infrastructure), AL C5 (Building Confidence and Security in the Use of ICTs), and AL C6 (Enabling Environment).

178. With the aim of strengthening the implementation mechanism, ITU Council 2009 agreed on the framework for roadmaps of ITU's activities in its role as the sole facilitator for the above mentioned WSIS action lines in the implementation of WSIS up to 2015. Roadmaps are detailed plans to guide progress towards achieving WSIS goals. They provide broad vision and detailed overview of the activities planned within the mandate of the Union. Direct links between the activities and the strategic goals and relevant resolutions, programmes and initiatives of the ITU are highlighted. The roadmaps include timeframes, expected results, impact on ITU's human and financial resources as well as list relevant partners. In 2011 the Roadmaps were updated and made available at the ITU portal for WSIS related activities www.itu.int/itu-wsis

179. Elaborated framework may serve as a template for the other WSIS Action Line moderators/facilitators to strengthen the implementation mechanism of WSIS process. It has been widely disseminated amongst the WSIS Action Line Facilitators, members of the United Group on the Information Society as well as WSIS stakeholders. The Roadmaps can be accessed at www.itu.int/itu-wsis

WSIS Stocktaking Portal

180. A revamped WSIS Stocktaking Platform has been launched in 2010 to foster the implementation of WSIS outcomes. The platform is based on a community-building approach offering fresh options for networking, collaborating and the exchange of information. It has also been enriched with new social networking tools, so the new platform can become a new portal for project managers in ICT development programmes and connect practitioners on the ground. www.wsis.org/stocktaking

(c) Future Actions

181. The following major ITU-WSIS related events and initiatives are planned for 2011-12:

- WSIS Forum 2012
- Follow up to the UNGIS Open Consultation on Overall Review of the Implementation of the WSIS Outcomes (WSIS+10)
- WSIS Project Prizes 2012
- Regional Human Capacity Building Forums
- Regional Development Forums
- Global Symposium for Regulators
- Global Human Capacity Development Symposium
- World Telecommunication Development Conference
- Plenipotentiary Conference
- TELECOM 2011

IV. Final conclusions

182. As presented above the ITU initiated, facilitated and implemented several activities related to the implementation of the WSIS outcomes. The three ITU sectors, ITU-R, ITU–T, ITU-D, and the General Secretariat played an active role in this process in their respective areas of expertise and brought out the complimentary role between the sectors with reference to WSIS. As the leading UN specialized agency focusing on ICTs, ITU organized several of these activities on its own and in partnership, highlighting and prioritizing the importance of multi-stakeholder collaboration. Participation from the governments, international organizations, civil society and private sector from all over the world was noted in all these efforts, which significantly contributed to the progress towards achievement of the WSIS goals.

183. All Member States, Sector Members and Associates are invited to participate actively in implementing WSIS outcomes, contribute to the WSIS stocktaking database maintained by ITU, and participate actively in the activities of WG-WSIS and in ITU's further adaptation to the information society; as well as to make voluntary contributions to the special trust fund set up by ITU in 2011 to support activities relating to the implementation of WSIS outcome.

ANNEXURE: 1

List of signed BDT projects since September 2010

	Project Number	Project Name	Signature Date
	AFRICA REGION		
1	9URT10003	SMS4DC Support Services for Tanzania	30 Sept. 2010
2	9RAF10083	Workshop related to guideline(s) on Open Access to Submarine cable (including licensing and interconnection associates frameworks) in West Africa	25 Oct. 2010
3	7GLO07066	Création d'un cyberespace et d'un centre de formation intégré pour les personnes handicapées au Mali	1 Oct. 2010
4	7BKF10007	Assistance du Burkina Faso pour la mise en œuvre du concept de e-Conseil des Ministres	22. Nov. 2010
5	9RAF10084	Connecter une école, connecter une communauté en Afrique subsaharienne	23 Dec. 2010
6	9URT11004	Connect a School, Connect a Community in Tanzania	15 May 2011
7	9ANG11006	Support to Telecommunications Sector in Angola	20 June 2011
8		Connecter une école, connecter une communauté au Niger	9 August 2011
	ASIA AND PACIFIC REGION		
9	9THA10011	Seminar on Universal Service Obligation in Thailand	11 Oct. 2010
10	9THA10012	Licensee Monitoring and Compliance Framework	29 Nov. 2010
11	9RAS10036	Master Plan For Wireless broadband in Asia and the Pacific	26 Nov. 2010
12	9RAS10037	CLMV Subregional Workshop on IP/NGN Technologies and Services	23 Nov. 2010
13	9RAS11039	ITU NBTC Training Program 2011	27 April 2011
	AMERICAS REGION		
14	9CHI10012	Agreement between ITU and SUBTEL relating to the loan of satellite telephones	9 May 2011
15	9RLA11009	AMS CoE Regional Project: Management of capacity building activities	9 May 2011
16	9COL10035	Preparing some titles of a Spectrum Management Manual	End of 2010
	GLOBAL		
16	7GLO11068	International Telecommunication Union –School Connectivity in Five ITU Member States	20 May 2011
	3GLO07-059	Spectrum management assessment for developing countries	30 September 2011

www.itu.int/itu-wsis

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UNITED NATIONS GROUP ON THE INFORMATION SOCIETY (UNGIS)

Open Consultation on the Overall Review of the Implementation of the WSIS Outcomes (WSIS +10)

Introduction

This report has been prepared by the United Nations Group on the Information Society (UNGIS) on the basis of an open consultation process on the overall review of the implementation of the WSIS outcomes (WSIS +10).

It documents, firstly, contributions by WSIS stakeholders on the possible process leading to the WSIS review at the UN General Assembly in 2015. The full contributions of all WSIS Stakeholders including governments, the private sector, civil society and intergovernmental organizations, which were submitted during the series of physical and online consultations from 20 May to 5 September 2011, are annexed to this report.

Secondly, based on these consultations, this report includes a Draft Plan of Action on the overall review of the implementation of the WSIS outcomes (WSIS +10). Several versions of the Draft Plan of Action were developed, published and discussed at one physical meeting and also online, from 19. September until 5. October 2011, with the invitation to all stakeholders to contribute.

Background

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 has requested ITU Secretary General to initiate the preparatory process at the UN Chief Executives Board (CEB). Consequently CEB tasked UNGIS to prepare, on the basis of an open consultation, an Action Plan to organize high-level meeting on the WSIS Review. The Action Plan would be presented to the CEB meeting in April 2012, and would take into consideration the strong support of the Commission on Science and Technology for Development served by UNCTAD

Open Consultation Process on the UNGIS Overall Review of the Implementation of the WSIS Outcomes (WSIS +10)

Building upon the outcomes of this meeting and the open and inclusive multistakeholder WSIS spirit, the following Open Consultation process is being followed:

Phase One: First Physical Meeting during the WSIS Forum 2011

Phase Two: Online Consultation : www.wsis-community.org (15 June – 5 September 2011)

Phase Three: Submission of Formal Contributions (15 June – 5 September 2011)

Phase Four: Elaboration of the Draft Action Plan (By 15 September 2011)

Phase Five: Second Physical Meeting (20 September 2011, 14:30 - 18:00, Room H, ITU Headquarters, Geneva, Switzerland)

Phase Six: Presentation of the Outcomes: Action Plan (5 October 2011)

Draft Plan of Action

Proposed Expected Final Outcomes of the Overall Review Process (WSIS+10)

1. **Evaluation and Assessment Reports** (adaptations possible in the lead-up to 2015)
    - WSIS+10 Progress Report (Quantitative Focus)
      (Initial Coordination by Partnership on the Measuring ICT for Development during the WSIS Forum 2012)
    - Review Reports by Action Line Facilitators (11 Action Lines)
      (Template to be prepared by WSIS Action Line Facilitators' Meeting during the WSIS Forum 2012)
    - Self-evaluation National Review Reports
      (Draft template to be prepared during WSIS Action Line Facilitators' Meeting of the WSIS Forum 2012)
    - WSIS+10 Stocktaking Report
      (International Telecommunication Union)
    - IGF Secretariat Report
    - UNGIS Review Report
    - Contributions to the MDG Process
2. **Possible forward looking outcome setting an agenda beyond 2015**

Proposed Preparatory Process and Meetings within the Framework of the Overall Review up to 2015

Preparatory process will include virtual working methods as an integral part of the overall review.

2012:

- **May: Start of Preparations for the WSIS+10 Review** during the WSIS Forum 2012, Geneva (2 days) to define
    - preliminary indications for the scope of the possible forward looking outcome, setting agenda beyond 2015
    - templates for the reports of the lead facilitators on the Action Lines
    - templates for the national self-evaluation reporting on the implementation of the WSIS outcomes

- **May: Report on the outcomes of the UNGIS Consultations on the WSIS+10 Review** to the 15th Session of the Commission on Science and Technology for Development (CSTD)

- **October/December: UN General Assembly**

2013:

- **February/March: Multi-stakeholder Event for the WSIS+10 Review** (title to be decided)
  (3 days event, hosted by UNESCO in Paris, with a high-level component)
  - Review of emerging trends in the Information Society
  - Development of recommendations of relevance to the forward looking outcome.

- **May**: **Preparations to the WSIS+10** during WSIS Forum 2013
  (Geneva, 2-3 days)
  - Agreement on outline of the forward looking outcome
  - Discussion on text

2014:

- **May**: **Preparations to the WSIS+10** during WSIS Forum 2014
  (Geneva, 2-3 days)
  - Finalization of the forward looking outcome

- **June/July: High-Level Meeting on the Overall Review (WSIS+10)**
  (Location to be determined based on hosting proposals)
  - Presentation of all review reports
  - Adoption of the forward looking outcome

2015:

- **Report on the outcomes of the Overall Review Process** to the 18th Session of CSTD

- **UN General Assembly** to endorse the forward looking outcome.

- **Contribution to MDG Review Process**

Phase One: First Physical Meeting during the WSIS Forum 2011

*Note: The Draft Executive Summary of Statements is available in **Annexure I***

The first physical meeting of the UNGIS Open Consultations on the Overall Implementation of the WSIS Outcomes (WSIS+10) was held on 20 May 2011, on the concluding day of the WSIS Forum 2011. More than 150 high-level representatives from the WSIS Stakeholder community took a proactive role in this first meeting of the UNGIS Open Consultation Process.

As the UNGIS Chair for 2011-2012, **Dr Hamadoun Touré, Secretary-General, ITU**, provided a brief background on the UNGIS Open Consultation Process. This was initiated when the 2010 Plenipotentiary Conference of ITU (Guadalajara, Mexico) adopted Resolution 172 on the Overall Review of the Implementation of the WSIS Outcomes, in line with the Tunis Agenda and the UN General Assembly Resolution 60/252, which decided to conduct an overall review of the implementation of the Summit outcomes in 2015. The ITU Plenipotentiary Resolution 172 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 has requested the ITU Secretary-General to initiate the preparatory process at the UN Chief Executive Board (CEB). Consequently the CEB tasked UNGIS to prepare, on the basis of an open consultation, an Action Plan to organize a high-level meeting on the WSIS Review. The Action Plan would be presented to the CEB meeting in April 2012.

Dr Touré highlighted that 2015 is not only the year set for achieving the WSIS Goals but also will be the review year for the MDGs at the MDG Summit. As it will be difficult to have two major events since one will most likely over shadow the other, 2014 is considered as a logical year for the WSIS Final Review meeting. The results of the meeting will also feed into the MDG review event in 2015.

Dr Touré invited all present to participate in the first physical meeting of the Open Consultations and put forth four themes that helped stir discussions:

1. Objectives, goals, possible outcomes.
2. Type of meeting to be held.
3. Type of preparatory process to be proposed.
4. Timeline.

Dr Indrajit Banerjee, Director, Knowledge Societies Division, UNESCO, reiterated that UNESCO, then UNGIS Chair, welcomed and supported the decision of the CEB and invited all stakeholders present to participate actively in the open consultations.

Dr Mongi Hamdi, Head Science Technology and ICT Branch, Division on Technology and Logistics (DTL), UNCTAD, highlighted that UNGIS has proven to be a successful mechanism for interagency coordination and invited all stakeholders to express their views on the overall WSIS review in 2014.

Mr Gherardo Casini, Head, Office of the United Nations Department of Economic and Social Affairs in Rome and Secretary to the Board, Global Centre for ICT in Parliament, informed all present that UNDESA was appointed as the rotating Vice-Chair of UNGIS for the year 2011-2012 and expressed commitment of UNDESA to the UNGIS Open Consultation process.

The UNGIS Chair and Vice-Chairs invited all stakeholders to activate their networks and help ensure that the UNGIS Open Consultation Process (WSIS+10) turns into a fully inclusive process respecting the voice of each stakeholder, enabling UNGIS to build a plan of action which addresses real needs.

Phase Two: Online Consultation: www.wsis-community.org (15 June – 1 September 2011)

Note: The summary of the WSIS Knowledge Communities Discussion is available in ***Annexure II***

The online consultation was carried out from 15 June to 5 September 2011 on the WSIS Platform of Communities. The Stakeholders expressed their view points through an online discussion and video messages.

Questions asked for the online discussion:
How would you like to see the WSIS +10 review conducted?

1. Objectives, goals, possible outcomes
2. Type of meeting to be held
3. Type of preparatory process to be proposed
4. Timeline
5. Other comments

Questions asked for the video message:
Followed by 30 second brief statement on the major contribution brought by ICT for development, please address the following:

1. What are your expectations for the outcome of WSIS Review 2015, and concrete proposals in this regard?
2. What are your views on the progress made in implementing the WSIS outcomes?

Eleven written comments and seven video messages have been submitted. The newly introduced video message format enhanced interactions and facilitated the exchanges of ideas amongst stakeholders. Our records in fact show that those videos were watched about 600 times.

People generally consider WSIS as the best framework for setting a global vision and agenda for building an inclusive Information Society towards/beyond 2015 and highly appreciated its multistakeholder participation format[1]. It is clear that stakeholders would like to see the overall review process to be also inclusive, open and participatory. They attached the importance to applying a bottom-up approach: some proposed organizing consultations at country level[2] and to ensure participation of all the stakeholders and pointed out that the consultation should go beyond UN agencies and traditional WSIS participants[3]. Financial support would be required to support participants from developing countries[4]. In terms of the format of a possible review event, some proposed a non-formal meeting[5] and its outcome to be a concrete evaluation and assessment[6], which will provide us with practical solutions[7]. Furthermore, a few stakeholders

[1] European Broadcasting Union; Mr Tim Unwin; Ms Malia Nobrega ; Mr Tapio Varis; APC; Indigenous ICT taskforce; Mr Fathi Essalmi
[2] Bangladesh NGOs Network for Radio and Communication
[3] ISOC Senegal
[4] APC
[5] Teressa Torreseca; EUROLINC
[6] ISOC
[7] Mr Tim Unwin

said that existing mechanisms such as the WSIS Forum[8] and the IGF[9] should be integral parts of the review process. The full listing of submitted comments is available at http://www.wsis-community.org/pg/groups/15325/ungis-wsis-10-open-consultation-at-the-wsis-crowd-towards-knowledge-societies/.

The WSIS Knowledge Communities (www.wsis-community.org) site was launched at the WSIS Forum 2009 as UNESCO's unique contribution to the implementation of the World Summit on the Information Society (WSIS)'s outcomes. Over 2400 people have now joined the online platform and continue to discuss and exchange ideas and experiences to advance towards the 2015 WSIS goals. For more information, please send an e-mail to wsiscommunity-invitation@unesco.org or visit www.wsis-community.org.

[8] Mr Ahmed Eisa
[9] ISOC ; APC

Phase Three: Submission of Formal Contributions

Note: Find below a summary of all the Formal Submissions received from WSIS Stakeholders from the period of 15th June to 5th September 2011. Complete submissions are available in ***Annexure III***

Questions asked:

1. Please provide objectives, goals and possible outcomes of the Overall Review of the Implementation of the WSIS Outcomes.
2. Please indicate what type of meeting(s) should be held within the framework of the Overall Review of the Implementation of the WSIS Outcomes.
3. Please describe the type of preparatory process that might be proposed for the Overall Review of the Implementation of the WSIS Outcomes.
4. Please provide a timeline for the Overall Review Process and all proposed meetings.
5. Please provide other comments, if any.

Introduction

In the true multi-stakeholder spirit of the WSIS, the Open Consultation on the Overall Review received several well thought out submissions. These will provide a good foundation for the draft plan of action.

Stakeholders were of the opinion that the WSIS +10 Review should aim to discuss not only achievements but also shortages, challenges and identify solutions and best practices providing recommendations for further actions as appropriate. While acknowledging the significant achievements made, stakeholders highlighted that the implementation of the WSIS outcomes vary between action lines, regions and countries, hence it could be concluded that the achievements and shortfalls are variable. This points to the necessity to conduct a complete review on the international, regional and national levels in order to assess completely the outcomes and shortfalls of the implementation process.

Several stakeholders expressed that the Review should have a strong link to Millennium Development Goals (MDGs), directing the main focus on development, pointing out that it is important to consider that the MDGs will also be reviewed in 2015. The MDG process, with its target year of 2015, should be able to benefit from the findings of the WSIS+10. The Review should provide assessment on how the implementation of WSIS commitments and the use of ICTs have supported the achievement of the MDGs and sustainable development. Special consideration should be taken in the least developed countries, the poorest and the most marginalized groups of society.

All the submissions received echoed the sentiment that development of the ICT sector in the past years has introduced new technologies and challenges that make it necessary for the international community to tackle them as new themes. Stakeholders submitted that it is evident that some of the technologies, challenges, and themes that the international community deemed important in 2005 have lost their importance in recent years, while others have gained prominence. The fast pace development of digital and information technologies and their applications together with the ever expanding communication needs and the new innovative services is ongoing all over the world, in all continents, in all societies and

throughout the whole economy; there has not been such a development in the history when a new technology has penetrated so much in everyday life of all stakeholders.

Objectives, goals and possible outcomes of the Overall Review of the Implementation of the WSIS Outcomes

The following list includes examples of points made in the submissions related to Objectives, goals and possible outcomes

1) Complete Review of WSIS Outcome Documents at international, regional and national levels :
   - Horizontal Review: should include a revision of the implementation of the themes, action lines and targets.
   - Vertical Review: should focus on the implementation of the WSIS outcomes internationally, regionally, and nationally
2) Develop a new negotiated text
3) Reconfirm that WSIS Plan of Action should continue beyond 2015
4) Revise themes and identification of new challenges and gaps, vis-à-vis the new technologies and challenges that have emerged
5) Set new targets/goals based on the evaluation made with use of existing mechanisms, e.g. reports by facilitators of the action lines
6) Initiate training and capacity building initiatives that will facilitate the implementation of the WSIS Goals
7) Focus on regional meetings for identifying areas of regional cooperation
8) Develop funding mechanisms for implementation- connecting donors
9) Elaborate National evaluation reports
10) Align the WSIS Review with National ICT policies
11) Document best practices and encouraging replication of successful project
12) Take stock of all success stories, elaborating e.g. 2015 Golden Book of Achievements
13) Rank at National / Regional / Global levels
14) Set clear measurement criteria
15) Assess how the Tunis agenda has changed the development paradigm
16) Prepare a global report which bases its findings on the contributions received from different regions and stakeholder groups.
17) The United Nations Regional Commissions could be tasked to contribute to the review from the perspective of their respective regions. Possible regional report should be commensurable and be based on clear indicators.
18) Civil Society Report related to the 2003 Civil Society declaration (e.g. GIS Watch)

Type of meeting(s) could be held within the framework of the Overall Review of the Implementation of the WSIS Outcomes

The following list includes examples of points made in the submissions related to the types of meetings that should be held

1) Summit in 2014 for the review process (Level: Heads of States)
2) High Level Meeting (Level: Minister Level)

3) Preparatory meetings could be organized in the context of existing mechanisms, such as the Regional Meetings by Regional Commissions, WSIS Forum, Internet Governance Forum, CSTD

4) Only existing meetings like WSIS Forum should be used for overall review purposes and reporting.

5) Steering committee meetings

6) A non-formal meeting providing practical solutions

Type of Preparatory Process:

The following list includes examples of points made in the submissions related to the preparatory process:

1) Physical meetings must be limited, a preparatory process should be launched largely by way of electronic means (remote participation)

2) Avoid a cumbersome process including meetings such as "PrepCom".

3) Multilingual electronic spaces for the collection of information, dialogue, etc.

4) Objective should not be to attract high level participation, but rather to engage relevant experts from all stakeholder groups and regions in fruitful discussions including reaching out to technology communities.

5) Regional preparatory meetings should convene to consolidate regional inputs.
6) Consultations should be carried out at country level and participation should go beyond UN agencies and traditional WSIS community.

7) All stakeholders should be part of the preparatory process in a similar fashion as was implemented in both phases of the WSIS.
8) There should be flexibility to establish working groups that could facilitate the work of the preparatory committee. Such working groups may focus on specific hotly debated new themes and/or to prepare the texts that serve as the basis for negotiations on some of those issues.
9) The process should benefit from clear co-ordination mechanism within the United Nations framework.
10) Establish expert meetings to review the WSIS Action Lines and propose revisions which should be approved by the main official delegates in the main High Level Meetings during Overall Review of the Implementation of the WSIS Outcomes.
11) Launch call for papers, which will feed into a meeting.

12) Workshop Style meetings are suggested for more impactful outcomes.

13) Build Virtual Societies
14) Use UN Regional offices as temporary Internet access points for remote participation.
15) Use Youth Forums- youth in the area of ICTs
16) Use online preparatory process planned keeping in mid the infrastructure in Africa.

17) Aim is to avoid overlaps, heavy bureaucracy and long negotiations.
18) Not a lengthy preparatory process
19) UNESCO has offered to host a meeting in 2013
20) India has offered to host a meeting in 2014

Timeline for the Overall Review Process and all proposed meetings

The following list includes examples of points made in the submissions related to the timeline:

1) Revisit this question on 5th October and proceed based on available Plan of Action
2) Preparatory review process 2012, 2013, 2014
3) Final Review meeting: 2014 (including to avoid collision with MDG Review)
4) Preparatory/Steering committee (e.g. to convene 3 times), regional meetings, working groups in 2011 or 2012
5) Comprehensive review and country ranking 2013
6) Final report should be compiled in 2015

Others

The following list includes examples of other points made in the submissions:

1) The preparatory process should be held in an Open, Inclusive, Transparent, Multi-stakeholder and Participatory manner.
2) Consider holding the preparatory meetings in 6 UN Languages as and when possible
3) Sensitive to human and financial resources- best use of limited resources
4) Effective preparatory process

Phase Four: Elaboration of the Draft Action Plan

A Draft Plan of Action built on the Interim Results of Open Consultation Process was presented to the WSIS Stakeholders for further comments and submissions online at www.ungis.org . This Draft Plan of Action is available in Annexure IV

Phase Five: Second Physical Meeting (20 September 2011)

The second physical meeting was held on the 20th of September 2011 from 14:30 -18:00 at ITU Headquarters, Geneva.

Please find below links to all the relevant documents and information for the document:

- Agenda
- Webcast
- Adobe Connect Virtual Meeting Room
- Presentation (ITU)
- Presentation (UNESCO)

Comments Received till 3 October 2011

During the 2nd physical meeting it was requested that the Draft Plan of Action is left open for comments till 30th September 2011. All comments received from 20th September till 3 October are available in Annexure VI.

International Telecommunication Union

Measuring the Information Society

2011

International Telecommunication Union

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Foreword

I am pleased to present the 2011 edition of *Measuring the Information Society*. Each year, this publication features the latest *ICT Development Index (IDI)* and *ICT Price Basket (IPB)* – two benchmarking tools to monitor information society developments worldwide. While the IDI captures progress made in regard to ICT infrastructure, use and skills, the IPB is a powerful tool in monitoring the affordability of ICT services and in explaining why some countries have moved faster than others in their ICT development. The report also takes an in-depth look at broadband development and presents new data on subscriptions, speed and bandwidth. An analysis of Internet user statistics reveals some of the key challenges and opportunities that need to be addressed to bring more people online in developing countries.

Over the past two years, the world has witnessed continuous growth of ICT services and uptake worldwide. All 152 economies included in the IDI have improved their scores, confirming the continuous spread of ICTs and the growing global information society. While most of the leading IDI countries are still from the developed world, it is encouraging to see that the most dynamic performers are developing countries. The majority of these are middle-income countries, however, and most of the least developed countries remain at the bottom of the index. The report shows that while ICT and income levels are closely related, income constraints can be overcome by strong policy measures. A number of countries have succeeded in reaching higher IDI levels than would be expected given their income levels. This should encourage all countries to proactively promote ICT policies and create an enabling environment that allows the sector to grow.

The affordability of ICT services is key to bringing more people into the information age. Our latest IPB compares 2008 and 2010 tariffs for fixed-telephony, mobile-cellular telephony and fixed-broadband Internet services at global and regional levels, and highlights the difference in prices between developed and developing regions. Covering 165 economies, it is the only price basket to monitor the affordability of ICT services worldwide. The results show that ICT prices continue to fall, in particular fixed-broadband prices, which dropped by more than 50 per cent over the past two years. While this is extremely encouraging, broadband is still too expensive in many developing countries, where it costs on average more than 100 per cent of monthly income, compared with 1.5 per cent in developed countries. Countries without affordable broadband access run the risk of falling behind in the global information society, and I hope that this report will prompt policy-makers to look into ways of lowering ICT prices.

The ICT for development debate is witnessing an obvious shift: the focus is no longer on the mobile-cellular miracle, but on the need for high-speed broadband Internet access. The report shows that wireless-broadband Internet access is the strongest growth sector, with prepaid mobile broadband mushrooming in many developing countries and Internet users shifting from fixed to wireless connections and devices. The emergence of new mobile devices, such as smartphones and tablet computers, is accelerating this process, but they are still too expensive in developing countries and there is a need to develop more affordable models and products. Furthermore, the availability of bandwidth and capacity will increasingly determine the use and beneficial impact of ICTs. As this report shows, a digital divide is unfolding between those with high-speed/capacity/quality access (as is the case in many high-income countries) and those with lower speed/capacity/quality access (as is the case in many low-income countries). While the potential development impact of bringing people from developing countries online via wireless access is enormous, high-end users from the business sector and public and private organizations continue to rely on high-speed fixed-broadband connections. Policy-makers should act swiftly to facilitate the spread of broadband and ensure that broadband services are fast, reliable and affordable.

The policy focus is often on enhancing ICT infrastructure and access. The full ICT development impact will only be felt, however, once people are using the technologies effectively. As more and more countries collect Internet user data, they provide valuable insights into who is currently online. The report shows that the Internet usage

divide runs along gender, education, income and age lines, and there are significant differences between people living in rural and urban areas of developing countries. A promising way of bringing more people from developing countries online is by targeting the younger generation. Social networking and user-created content has become one of the main online activities in which young people especially are actively engaging. Given that 47 per cent of the population in developing countries are under 25 years of age, there is an incredible potential in terms of increasing the number of Internet users. Providing Internet access in schools starting at primary level is key – once students have started using the Internet they will strive to continue to do so irrespective of their age, gender, income or final school qualification.

To ensure that the information society will be truly global and inclusive, much needs to be done to bring its benefits to the poorest in our societies. This means that future policy action needs to address issues that are related not only to access, but also to:

- price;
- bandwidth;
- speed and quality of service;
- skills;
- content and language; and
- applications targeted to low-end users.

In order to effectively monitor trends and assess progress, there is need for continuous development of reliable indicators. Measuring the Information Society is a key contribution to this process. I trust that the data and analysis provided will be useful to policy-makers, the ICT industry, academia, market analysts and others who are monitoring global ICT developments.

Brahima Sanou
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Acknowledgements

The 2011 edition of *Measuring the Information Society* was prepared by the ICT Data and Statistics Division within the Telecommunication Development Bureau of ITU. The team included Susan Teltscher (Head of Division), Vanessa Gray, Esperanza Magpantay, Doris Olaya, Ivan Vallejo and Sonya Buracond (during her internship at ITU). Christoph Stork (consultant to ITU) provided substantive inputs to Chapter 5 of the report. Olivier Poupaert, Nathalie Rollet, and Ekaterina Bonacheva (during her internship at ITU) contributed to the data collection and Michael Minges (consultant to ITU) compiled and prepared the data set on international Internet bandwidth. Helpful comments and suggestions were received from Martin Adolph (ITU/TSB) and Sergio Buonomo (ITU/BR), as well as colleagues in the ITU Regional Office for Asia and the Pacific. The work was carried out under the overall direction of Cosmas Zavazava, Chief a.i., Project Support and Knowledge Management Department, Telecommunication Development Bureau.

The report includes data received from Eurostat, the United Nations Population Division and Wireless Intelligence, as well as purchasing power parity conversion factors received from the World Bank and fibre-optic access data provided by the Fiber-to-the-Home Council, which is greatly acknowledged.

ITU also appreciates the cooperation of countries that have provided data included in the ICT Development Index and ICT Price Basket.

The report was edited by the ITU English Translation Section, led by Anthony Pitt. The desktop publishing was carried out by Nathalie Rollet, and the cover was designed by Simon de Nicola. Administrative support was provided by Herawasih Yasandikusuma.

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Chapter 1. Introduction

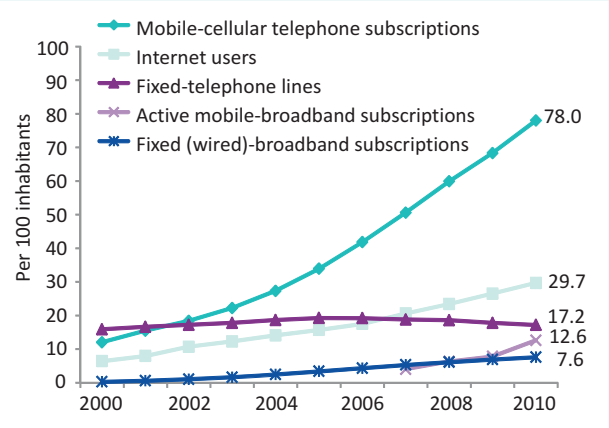
Over the past year, the world has witnessed continuous growth in ICT services and uptake worldwide. As post-2008-crisis data become available, they confirm the sustained growth of the telecommunication and Internet market overall, albeit with some notable variations.

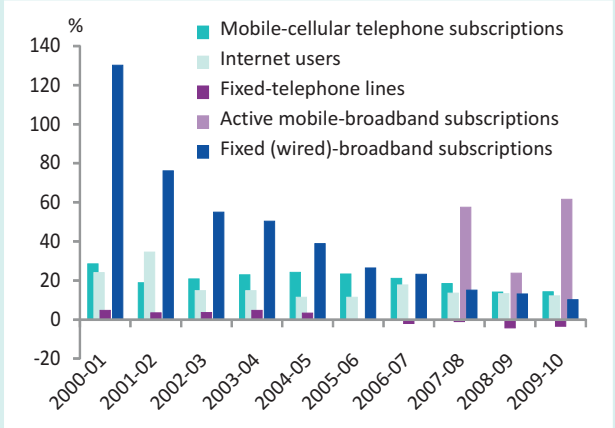
Fixed telephony continues to decline, as it has done since 2005, especially in developed countries, where a saturated fixed-line market has been overtaken by mobile-cellular telephony. Today, in developed countries, mobile-cellular telephony has reached saturation levels, too, recording penetration rates of over 100 per cent and a growth of only one per cent during the past year. In developing countries, by contrast, growth in mobile subscriptions is still buoyant, at 20 per cent, with no sign of a slowdown, thus confirming the continuation of the "mobile miracle"(Charts 1.1 and 1.2).

Policy-makers and investors have been directing considerable attention towards the diffusion of broadband networks. Available data show that fixed-broadband subscriptions have more than doubled over the past five years. The developing countries' share is increasing rapidly, but there is still a huge divide when it comes to fixed-broadband access. While fixed-broadband penetration in developed countries had climbed to almost 24 per cent by end 2010, and growth is slowing, suggesting that saturation levels are being reached, it stands at only 4.2 per cent in developing countries, with major differences among countries and regions (Chart 1.3).

Wireless-broadband Internet access remains the strongest growth sector. Indeed, the single most dynamic ICT development over the past year has been the surge in mobile-broadband subscriptions (Charts 1.1 and 1.4). Wireless-broadband access, including prepaid mobile broadband, is mushrooming in developing countries, and Internet users are shifting more and more from fixed to wireless connections and devices. The potential development impact of bringing people from develop-

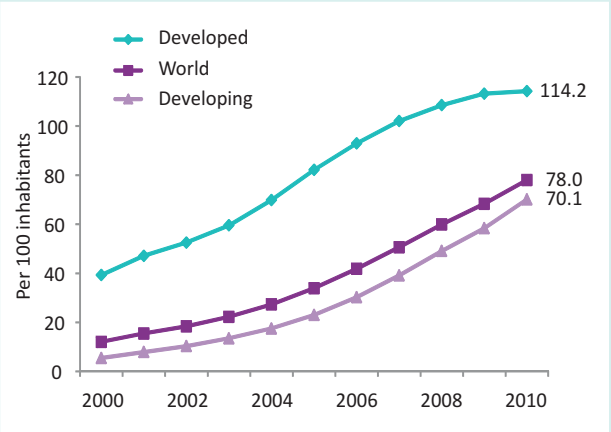
Chart 1.1: Global ICT developments, 2000-2010, penetration (left) and annual growth (right)

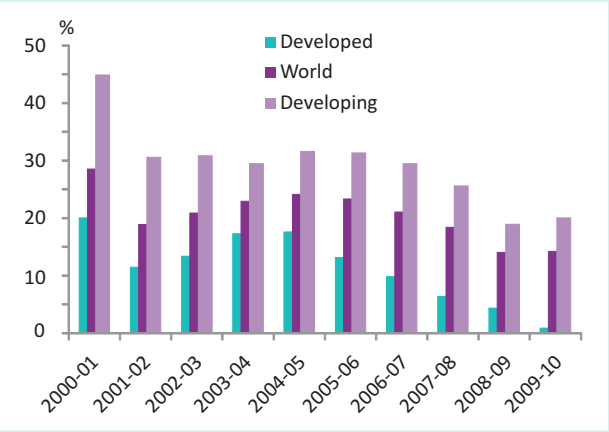




Source: ITU World Telecommunication/ICT Indicators database.

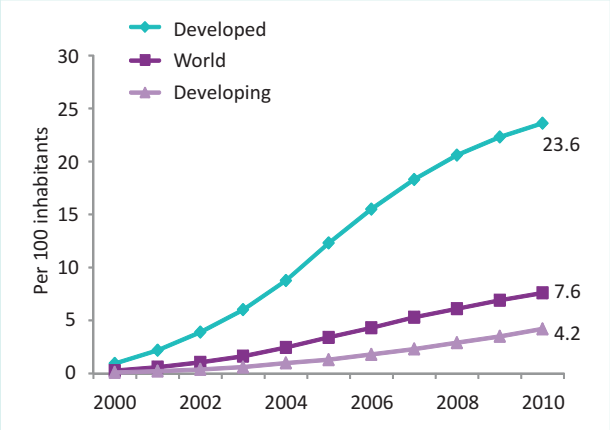
Chart 1.2: Mobile-cellular subscriptions, 2000-2010, world and by level of development, penetration (left) and annual growth (right)

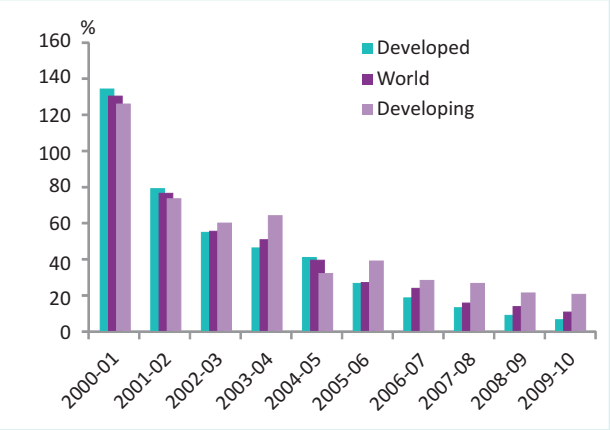




Source: ITU World Telecommunication/ICT Indicators database.

Chart 1.3: Fixed-broadband subscriptions, 2000-2010, world and by level of development, penetration (left) and annual growth (right)



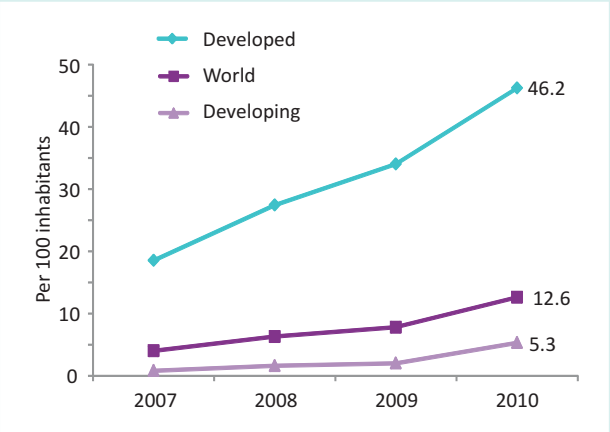


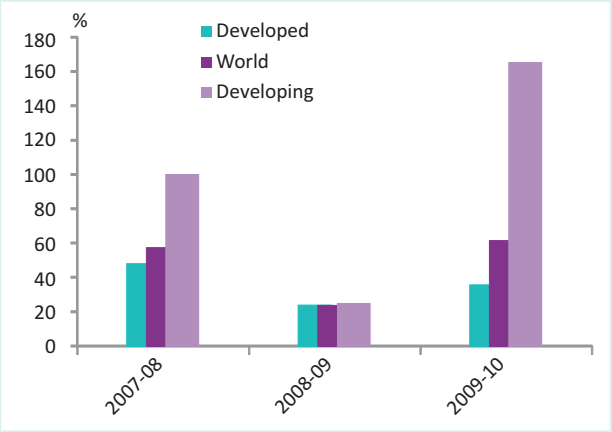
Source: ITU World Telecommunication/ICT Indicators database.

ing countries online via wireless access is enormous, and policy-makers are aware of the need to act swiftly in order to facilitate this process.

Mobile Internet – at broadband speeds – was practically non-existent at the time when the Millennium Development Goals (MDGs) were set in 2000, and was in its infancy when the World Summit on the Information Society (WSIS) concluded in 2005. At the same time, the mobile revolution – including the emerging mobile-broadband Internet – is a key enabler for the achievement of internationally agreed development goals. The recognition of ICTs as a tool to generate income and employment, to provide access to business and health information and to enable e-learning and facilitate e-government is now well established. This is why the Broadband Commission for Digital Development was launched in 2010, with the mission to promote the adoption of broadband-enabling policies, especially in developing countries.[1] The Commission thus complements other development processes by advocating the role of broadband in accelerating achievement of the MDGs.

Chart 1.4: Mobile-broadband subscriptions, 2007-2010, world and by level of development, penetration (left) and annual growth (right)





Source: ITU World Telecommunication/ICT Indicators database.

In the run-up to 2015 – which is in less than five years' time – a strong interest, and an urgency to act, can be observed in the international community to work towards the international development goals. ITU's WSIS mid-term review in 2010 has shown that good progress has been made in terms of connecting people via mobile technologies (ITU, 2010a). Mobile-cellular network coverage already stands at nearly 90 per cent of the population, and there is every chance it will rise to almost 100 per cent by 2015. Similarly, basic radio and TV services are widely available, and could reach the majority of the world's population by 2015, provided that the lack of electricity and broadcast content are properly addressed.

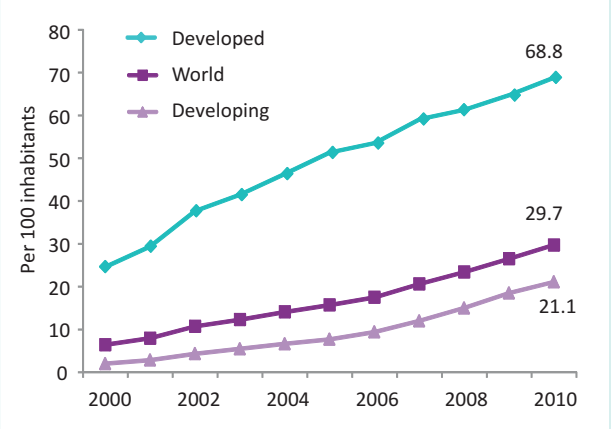
Most remarkably, the number of Internet users has doubled over the past five years and there are now more than two billion Internet users worldwide. Growth rates in developing countries are high, and absolute numbers are driven by large countries such as China, Brazil, India, Nigeria and the Russian Federation. By end 2010, around 30 per cent of the world's population was online – up from around 12 per cent in 2003 and six per cent in 2000 (Chart 1.5). Good progress has also been made in bringing Internet access to central governments, research and scientific institutions and to some extent schools, hospitals, museums, libraries and archives, at least in the major cities of developing countries. The proportion of households with access to the Internet is growing steadily, especially in the developing countries (Chart 1.6), where around 16 per cent of households had access to the Internet at end 2010, as against 66 per cent in developed countries.

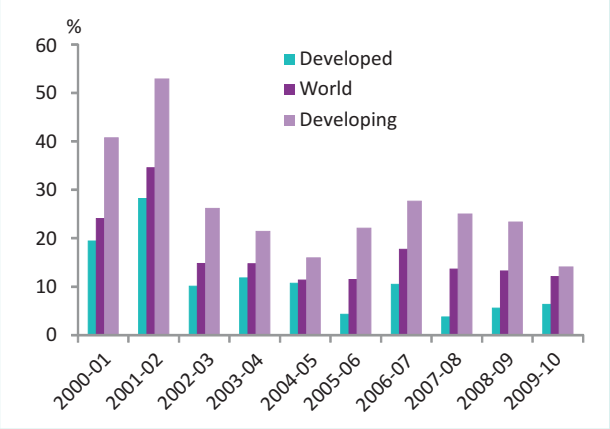
Besides the role of ICTs in achieving development goals, recent events such as the Arab spring and the publication of confidential political information on the Internet have demonstrated the power of communication and connectedness and enormously increased political interest in the information society. The spread of ICTs in societies where communication and access to information has hitherto been very limited is making ICTs an even more powerful tool than ever.

Social networking and user-created content are now among the main online activities, in which young people especially (who constitute the majority of the population in developing countries) are actively engaging – yet another manifestation of the continuous transformation towards information and digital societies where, eventually, most of social and working life will have a strong online component.

Despite these encouraging trends, as at end 2010, 70 per cent of the world's population (and nearly 80 per cent of the developing countries' population) were not yet using the Internet, and even fewer via a broadband connection. In most developing countries, households, schools, hospitals and other public institutions located outside the major urban areas are not yet connected to high-speed Internet.

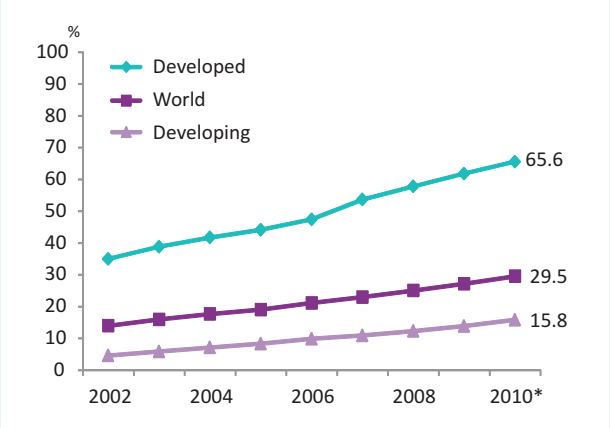
Chart 1.5: Internet users, 2000-2010, world and by level of development, penetration (left) and annual growth (right)

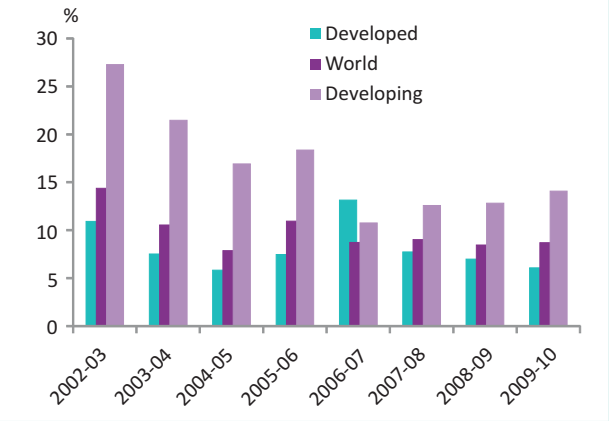




Source: ITU World Telecommunication/ICT Indicators database.

Chart 1.6: Households with Internet access, 2002-2010, world and by level of development, penetration (left) and annual growth (right)





Note: * Estimates.
Source: ITU World Telecommunication/ICT Indicators database.

The revolution experienced through the mobile telephone needs to be replicated to bring people online. The emergence of new mobile devices (such as smartphones and tablet computers) is certainly accelerating this process, but they are still too expensive in developing countries and there is a need to develop more affordable models and devices. Furthermore, the use and hence the beneficial impact of ICTs will increasingly be determined by the availability of bandwidth and capacity. A digital divide is unfolding between those with high-speed/capacity/quality access (as is the case is many high-income countries) and those with lower speed/capacity/quality access (as is the case in many low-income countries).

To ensure that the information society will be truly global and inclusive, much remains to be done to bring its benefits to the poorest in our societies. This means that

future policy action needs to address issues not only of access, but also of price, bandwidth, speed and quality of service, skills, content and language and applications targeting low-end users. To assess progress will require continuous monitoring based on reliable indicators. This publication is a key contribution to this process.

Overview of this publication

The main objective of this report is to inform policy-makers, investors and analysts about the main developments in the diffusion and uptake of ICTs, both globally and at the country level. By providing a comprehensive analysis of key ICT indicators, it constitutes a major input to the policy debate, especially in developing countries.

The report features two ICT benchmarking tools: the *ICT Development Index (IDI)* and the *ICT Price Basket (IPB)*. The latest results for these two metrics will help policy-makers monitor trends, identify areas for policy action and benchmark their ICT developments against other markets.

This is the third edition of the *Measuring the Information Society* report. Whereas the 2009 and 2010 editions were released in March, it was decided to change the production schedule as from this edition and to release the report in September. This decision was taken in response to views expressed by the readership, who are keen for the report to feature more recent data (the reference date is December of the previous year). This edition will thus feature the IDI and IPB for the two years 2010 and 2008, as well as detailed end-2010 data for a range of ICT indicators.

The data used in the report are primarily statistics collected by ITU, complemented by data received from the United Nations Population Division (population statistics), the UNESCO Institute for Statistics (UIS) (statistics on literacy and school enrolment), the World Bank (data on GNI per capita and PPP dollars), Wireless Intelligence (data on mobile broadband) and Research ICT Africa (household survey data on Africa).

Chapter 2 features the main results for the latest ICT Development Index (IDI), comparing the years 2010 and 2008. After introducing the main objectives and methodology of the IDI, it goes on to analyse the IDI at the global level, highlighting key performers and most dynamic countries (i.e. those with highest growth rates), especially among the developing countries. It also looks at the relationship between the IDI and GNI per capita, and presents IDI results by level of development and by groups of countries with different IDI levels and incomes. This is followed by an analysis of the three IDI sub-indices: the access sub-index, the use sub-index and the skills sub-index, also highlighting key performers in each case. Finally, IDI results are presented for six regions, briefly describing the main findings. The entire chapter is supplemented by concrete country examples highlighting best practices and distilling lessons learned.

The results for the second key benchmarking tool, the ICT Price Basket (IPB) are presented in Chapter 3. First, the main purpose of the IPB is explained, along with an overview of the IPB methodology. This is followed by an analysis of the main results for the IPB, comparing 2010 and 2008 tariffs. While the IPB is determined as a percentage of GNI per capita, data are also shown in USD and PPP dollars. The chapter highlights countries recording the highest decrease in prices, especially in developing countries. It also looks at the correlation between the IPB and the IDI, identifying outliers. Thereafter, each IPB sub-basket is analysed in turn: the fixed-telephone sub-basket, the mobile-cellular sub-basket and the fixed-broadband sub-basket. The results are shown at the global level, by level of development, as well as across different regions, in terms of GNI per capita, USD and PPP dollars. The chapter also introduces mobile-broadband tariffs, with examples, notably for prepaid wireless-broadband tariffs in developing countries, as well as a comparison with fixed-broadband tariffs.

In view of the continuous decline of narrowband connections and the shift towards broadband Internet, Chapter 4 takes a closer look at the different broadband speeds, broadband quality and (international) Internet bandwidth available in countries/regions, and how these factors impact on broadband uptake in both developed and developing countries. The chapter highlights recent national broadband policies, and makes suggestions on how policy-makers could further enhance broadband in developing countries.

Finally, Chapter 5 looks beyond access and connectivity and provides a more in-depth analysis of Internet users and usage, based on data available from household individual surveys. It presents the main characteristics of the majority of Internet users today, and identifies the main divides along dimensions such as gender, age, educational background, income and urban/rural location. It also looks at some of the key emerging activities, especially those related to social networking. The chapter

discusses how, in the light of those divides, more people can be brought online, making the information society more inclusive. A large part of the analysis focuses on African countries, drawing on the results of user surveys carried out by Research ICT Africa.

The publication ends with a list of references, three methodological annexes and country-level statistical tables featuring the data used in the IDI and IPB

Endnotes

[1] For more information on the Broadband Commission for Digital Development, see http://www.broadbandcommission.org/.

Chapter 2. The ICT Development Index (IDI)

2.1 Introduction

The ICT Development Index (IDI) is a composite index combining 11 indicators into one benchmark measure that serves to monitor and compare developments in information and communication technology (ICT) across countries. The IDI was developed by ITU in 2008 and first presented in the 2009 edition of *Measuring the Information Society* (ITU, 2009). It was established in response to ITU Member States' request to develop a "single index" and publish it regularly. This section briefly describes the main objectives, conceptual framework and methodology of the IDI.[1]

The main objectives of the IDI are to measure:

- The *level and evolution over time* of ICT developments in countries and relative to other countries.
- Progress in ICT development in *both developed* and *developing countries*: the index should be global and reflect changes taking place in countries at different levels of ICT development.
- The *digital divide*, i.e. differences between countries with different levels of ICT development.
- The *development potential* of ICTs or the extent to which countries can make use of ICTs to enhance growth and development, based on available capabilities and skills.

Conceptual framework

The recognition that ICTs can be a development enabler, if applied and used appropriately, is critical to countries that are moving towards information or knowledge-based societies, and is central to the IDI's conceptual framework. The ICT development process, and a country's transformation to becoming an information society, can be depicted using the following three-stage model (Figure 2.1):

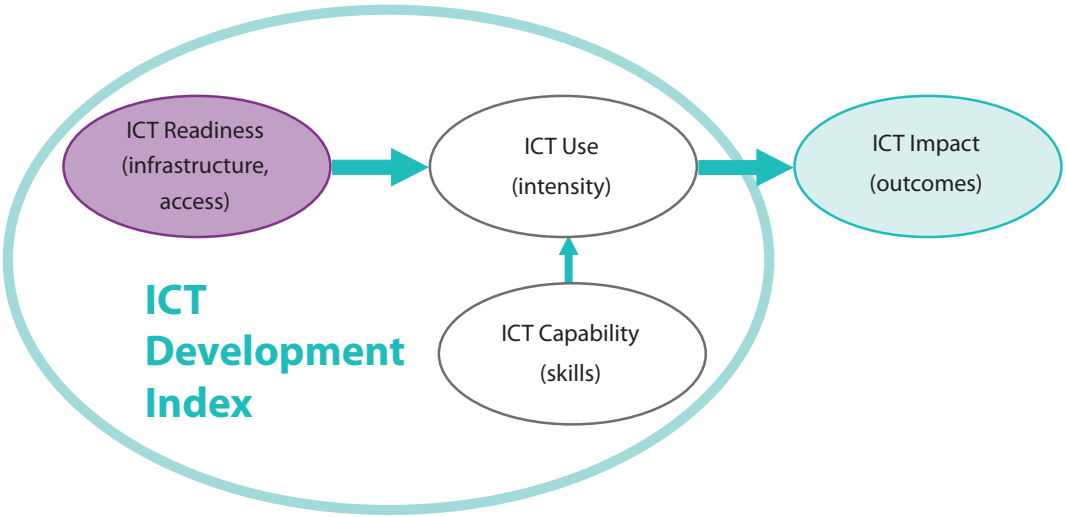
- stage 1: *ICT readiness* (reflecting the level of networked infrastructure and access to ICTs)
- stage 2: *ICT intensity* (reflecting the level of use of ICTs in the society)
- stage 3: *ICT impact* (reflecting the result/outcome of efficient and effective ICT use).

Advancing through these stages depends on a combination of three factors: the availability of ICT infrastructure and access, a high level of ICT usage and the capability to use ICTs effectively. Accordingly, the first two stages listed above correspond to two major components of the IDI: *ICT access* and *ICT use*.

Reaching the final stage, and maximizing the impact of ICTs, crucially depends on the third component of the IDI: *ICT skills*. ICT (and other) skills determine the effective use that is made of ICTs, and are critical to leveraging the full potential of ICTs for socio-economic development. Economic growth and development will remain below potential if economies are not capable of exploiting new technologies and reaping their benefits. Therefore, the IDI includes a measure of the capability to use ICTs effectively.

A single indicator cannot track progress in all three components (access, usage and skills) of the ICT development process, thus requiring the construction of a composite index such as the IDI. The IDI aims

Figure 2.1: Three stages in the evolution towards an information society



Source: ITU.

to capture the evolution of the information society as it goes through its different stages of development, taking into consideration technology convergence and the emergence of new technologies.

Based on this conceptual framework, the IDI is divided into the following three sub-indices:

- *Access sub-index*: This sub-index captures ICT readiness, and includes five infrastructure and access indicators (fixed-telephony, mobile telephony, international Internet bandwidth, households with computers, and households with Internet).

- *Use sub-index*: This sub-index captures ICT intensity, and includes three ICT intensity and usage indicators (Internet users, fixed (wired)-broadband, and mobile broadband).

- *Skills sub-index*: This sub-index captures ICT capability or skills as indispensable input indicators. It includes three proxy indicators (adult literacy, gross secondary enrolment and gross tertiary enrolment), and therefore is given less weight in the computation of the IDI compared with the other two sub-indices.

The choice of indicators included in each of the three sub-indices reflects the corresponding stage of transformation to the information society. Therefore, the indicators in each sub-index may change over time to reflect technological developments related to ICTs, and as more and better data become available. For example, what was considered basic infrastructure in the past – such as fixed-telephone lines – is fast becoming less relevant in the light of increasing fixed to mobile substitution. Similarly, broadband is currently considered an advanced technology, characterizing intense Internet use, and is therefore included in stage 2 (as an indicator in the use sub-index). However, in the future it may become essential and be moved to stage 1 (as an indicator in the access sub-index), while another, new technology may appear in stage 2.

Methodology

The IDI includes 11 indicators (Figure 2.2). A detailed definition of each indicator is provided in Annex 1.

Selection of the indicators was based on:

- The relevance of a particular indicator for contributing to the main objectives and conceptual framework of the IDI. For example, the selected indicators need to be relevant to both developed and developing countries, and should reflect – as much as possible – the framework's three components described above. In this context, the recommendations made by experts in relation to

the development of the single index were taken into consideration.[2]

- Data availability and quality. Data are required for a large number of countries, as the IDI is a global index. There is relative paucity of ICT-related data, especially at the household level, in the majority of developing countries. In particular, the three indicators included in the skills sub-index should be considered as proxies until data directly relating to ICT skills become available for more countries.

- The results of various statistical analyses. The statistical associations between various indicators were examined, and principal components analysis (PCA) was used to examine the underlying nature of the data and to explore whether the different dimensions are statistically well-balanced.

While the basic methodology has remained the same since the IDI was first published, minor adjustments are being made each year.

Given the dynamic nature of the ICT sector and related data availability, the types of indicators to be included in the IDI and its sub-indices are under regular discussion in ITU, in consultation with experts.[3] A major consideration is eventually to replace some of the subscription-based (supply-side) data with more data based on national household surveys (demand-side indicators). For example, in the case of mobile-cellular subscriptions, around half of the countries included in the IDI have surpassed the 100 per cent penetration mark.[4] Much of this is due to multiple SIM card holders – which can vary significantly across countries – and therefore an indicator reflecting the actual number of individuals using a mobile phone would be preferable. It is expected that within a couple of years such an indicator will become widely available and could replace mobile-cellular subscriptions.

Another key indicator that is in the throes of major changes at the moment is wireless-broadband access. Box 2.1 provides more information on how this year's IDI has been adapted to take those changes on board.

Box 2.1: The challenges of measuring mobile broadband

As more and more countries launch 3G networks, and at the same time mobile devices designed to go online at high speed (e.g. smartphones, tablet computers) become increasingly popular, data that accurately reflect such developments are needed. In the past, ITU statistics measured mobile-broadband access primarily through its indicator "mobile-cellular subscriptions with access to data communications at broadband speeds". This indicator measures the potential of mobile-cellular subscriptions to access, for example, 3G networks (and the Internet), but it does not reveal how many subscriptions have actually been actively used for data transfer. In other words, the indicator only captures "potential" broadband access rather than active usage. During the past couple of years, more and more countries (especially OECD countries) report that all of their mobile subscriptions are by now 3G enabled. At the same time, many countries no longer report subscriptions with potential access, but rather the number of active broadband subscriptions (i.e. those that have been used for data connections). As a result, data have become incomparable across countries, with some countries reporting potential access, others active usage and yet others none at all.

In anticipation of these developments, ITU revised the definition of wireless-broadband subscriptions in 2010 and started to collect new indicators in the same year.[5] The new indicators include satellite broadband subscriptions, terrestrial fixed wireless-broadband subscriptions and terrestrial mobile wireless subscriptions. For the purpose of this edition of the IDI, the latter of the three, terrestrial mobile wireless subscriptions, has been used.[6] *Terrestrial mobile wireless subscriptions* include (a) *standard mobile subscriptions with use of data communications at broadband speeds* (i.e. mobile-cellular subscriptions with advertised data speeds of 256 kbit/s or greater and which have been used to set up an Internet data connection) and (b) *dedicated mobile data subscriptions at broadband speeds* (i.e. subscriptions to dedicated data services over a mobile network which are purchased separately from voice services, either as a standalone service – e.g. using a data card such as a USB modem/dongle – or as an add-on data package to voice services requiring an additional subscription).

The reporting on those two new indicators is still very patchy. Therefore, ITU has complemented the data using private data sources (from *Wireless Intelligence*).[7] While the values of the new indicator are generally lower than those of the previous one, they are consistent across countries and – most importantly – are more meaningful since they look at actual data connections to broadband networks rather than potential connections.

The IDI was computed using the same methodology as in the past, applying the following steps (Figure 2.2 and Annex 1):

- *Preparation of the complete data set.* This step includes filling in missing values using various statistical techniques.
- *Normalization of data.* This is necessary in order to transform the values of the IDI indicators into the same unit of measurement. The chosen normalization method was the distance to a reference measure (or goalpost). The reference values were either 100 or obtained through a statistical procedure.
- *Rescaling of data.* The data were rescaled on a scale from 1 to 10 in order to compare the values of the indicators and the sub-indices.
- *Weighting of indicators and sub-indices.* The indicator weights were chosen based on the PCA results. The access and use sub-indices were given equal weight (40 per cent each). The skills sub-index was given less weight (20 per cent), since it is based on proxy indicators.

This chapter presents the IDI results for 2010 in comparison with 2008. It should be noted that the 2008 IDI values have changed from those published in the previous edition of this report as a result of:

- *Country data revisions.* As more accurate data become available, countries provide ITU with revised statistics for previous years, which have been taken into consideration. This also allows ITU to identify inconsistencies and revise previous estimates.

Figure 2.2: ICT Development Index: indicators and weights

ICT access	Ref. value	(%)
1. Fixed-telephone lines per 100 inhabitants	60	20
2. Mobile-cellular telephone subscriptions per 100 inhabitants	180	20
3. International Internet bandwidth (bit/s) per Internet user	280'377*	20
4. Percentage of households with a computer	100	20
5. Percentage of households with Internet access	100	20

40

ICT use	Ref. value	(%)
6. Percentage of individuals using the Internet	100	33
7. Fixed (wired)-broadband Internet subscriptions per 100 inhab.	60	33
8. Active mobile-broadband subscriptions per 100 inhab.	100	33

40

ICT skills	Ref. value	(%)
9. Adult literacy rate	100	33
10. Secondary gross enrolment ratio	100	33
11. Tertiary gross enrolment ratio	100	33

20

ICT Development Index

Note: * This corresponds to a log value of 5.45, which was used in the normalization step.
Source: ITU.

- *Updates of population data.* Population statistics are regularly revised by the United Nations Population Division (UNPD), including for previous years. The data included in this report reflect the latest updates (March 2011).

- *Updated data on international Internet bandwidth.*

- *Definitional changes to the indicator on mobile-broadband.* With the rapid increase of wireless-broadband access and use, the indicator is undergoing constant review. This version of the IDI includes mobile-broadband subscriptions with active use, in contrast to the previous version of the IDI which included mobile-cellular subscriptions with access to broadband networks (i.e. potential use). Box 2.1 provides more insights on the revisions of this indicator.

- *Differences among countries included in the IDI.* Since the IDI is a relative measure, the calculation of the IDI value depends on the values of the other countries included. In each new edition, some countries are excluded and others added based on data availability. Overall, this version of the IDI includes 152 countries/economies as compared with 159 in last year's edition.

The remainder of the chapter is structured as follows. Section 2.2 presents the IDI results at the global level. It highlights some of the top performers, as well as the most dynamic countries in terms of changes in IDI value and rank. It also looks at the relationship between a country's IDI score and its income level, presents IDI results by level of development (developed/developing countries) and by groups of countries with different IDI levels.

Section 2.3 analyses the three sub-indices (access, use and skills), providing additional insights into areas of high/low ICT growth, in order to identify areas requiring further attention from policy-makers and private stakeholders.

Finally, section 2.4 presents a regional analysis of the IDI. It shows IDI results for six regions (Africa, Americas, Arab States, Asia and the Pacific, Commonwealth of Independent States (CIS) and Europe), as well as a comparative analysis of the six regions.

2.2 Global IDI analysis

Overall results

The IDI is presented on a scale from 1 to 10 in order to compare values and benchmark progress. Between 2008 and 2010, all 152 countries included in the IDI improved their scores, which confirms the continuous spread of ICTs and the growth of the information society worldwide. Overall, the average value of the IDI increased from 3.62 to 4.08, i.e. by 0.46 points. The sub-indices values also increased. However, an interesting observation can be made: in the past (2002-2007), the access sub-index used to be the one with the strongest growth; between 2007 and 2008, both the access sub-index and the use sub-index grew equally; now, the use sub-index has overtaken the access sub-index as the one that grew most between 2008 and 2010 (Table 2.1). This tallies with the conceptual framework on which the IDI is based: countries are moving through stages as they develop their information societies, from ICT readiness to ICT intensity and on to ICT impact. Most countries have advanced considerably on ICT access –

Table 2.1: IDI changes, 2008-2010

	IDI 2008			IDI 2010			Change in average value 2008-2010
	Average value*	Min.-Max.	Range	Average value*	Min.-Max.	Range	
IDI	3.62	0.79 - 7.80	7.01	4.08	0.83 - 8.40	7.57	0.46
Access sub-index	4.05	0.80 - 8.77	7.97	4.53	0.87 - 9.06	8.19	0.48
Use sub-index	1.75	0.01 - 6.92	6.91	2.37	0.01 - 7.85	7.84	0.62
Skills sub-index	6.49	1.36 - 9.80	8.44	6.58	1.44 - 9.89	8.45	0.09

Note: * Simple averages.
Source: ITU.

the access sub-index has now reached a value of 4.53. At 2.37, the use sub-index is still relatively low, but has increased considerably over the past two years as more and more people are using broadband and the Internet. The skills sub-index changes little, and has the highest average value, given that many countries have already reached rather high literacy and education levels.

There are huge differences between countries when it comes to ICT development, with an IDI value of 0.8 for the country ranking at the bottom and 8.4 for the country ranking at the top of the IDI. Also of concern is the observation that the range has actually increased for both the IDI and two of its sub-indices (access and use). In other words, the difference between the country at the top and the country at the bottom has increased, with relatively more progress being made at the top and almost no progress being made at the very bottom. The range of the skills sub-index has remained stable, but it is also the largest range of all three sub-indices.

Selected top IDI countries

Table 2.2 presents the IDI results and country rankings for both years (2010 and 2008). Except for the Republic of Korea and Hong Kong (China), all economies in the top ten are from Europe. They include four Nordic countries (Sweden, Iceland, Denmark and Finland), as well as Luxembourg, Switzerland, the Netherlands and the United Kingdom. The Republic of Korea, Sweden and Iceland (the top three) have surpassed the IDI eight-point mark. While overall the differences between the top countries are rather small, it is noteworthy that both the Republic of Korea and Sweden have very high values not only in absolute but also in relative terms, and the value difference between them and the following top countries is quite high. In other words, the performance of those two countries is indeed outstanding.

Looking at the top thirty, apart from the United States and Canada, all are from Europe (22 countries) or East Asia/Pacific. They largely correspond to the world's high-income economies, given the strong correlation between the level of ICT development and GDP (see below).

The following section highlights the performance of selected top countries.

The **Republic of Korea** tops the IDI 2010, as it did in 2008.[8] The Republic of Korea has been a leader in terms of ICT diffusion and uptake for many years. The country has made ICTs an engine of economic growth and implemented policies allowing it to become an "IT powerhouse". By creating a competitive and dynamic regulatory environment, the Republic of Korea has become an inclusive information society, and a number of government-driven initiatives – including the *Giga internet pilot project*, which includes the construction of 100 Mbit/s broadband networks in rural areas – are helping it to meet future demands.[9] The Republic of Korea tops the IDI use sub-index (see section 2.3). It has the highest mobile-broadband penetration worldwide (91 per cent) and very high fixed-broadband penetration (36.6 per cent). It also excels when it comes to households with Internet connections (almost 97 per cent of all households). In addition, it stands out on the skills sub-index, with very high performance on all three indicators (secondary and tertiary school enrolment and adult literacy).

Sweden ranks in second place, also unchanged from 2008. It displays very high performance on all three sub-indices. With 90 per cent of the population using the Internet, Sweden is among the top five countries online, along with Iceland, Norway, the Netherlands and Luxembourg. Moreover, the country is among the world's top ten in commercial fibre-to-the-home (FTTH) penetration.[10] Such extensive fibre deployments have been achieved through a successful public-private strategy that has involved both private operators and local authorities.[11] Mobile-broadband penetration is among the highest in the world (after the Republic of Korea and Japan). Recent data show that in Sweden there are now almost as many mobile-broadband subscriptions as fixed-broadband, and that mobile data traffic continues to grow strongly, with an increase of just over 90 per cent in the last year.[12] This indicates that mobile-broadband uptake and usage is matching that of fixed broadband.

Iceland has moved up four places in the IDI 2010 compared with 2008, to third place. With 95 per cent of the population online, Iceland has the highest Internet-user penetration of all countries and shows clear signs of crisis recovery. Iceland also has the highest fixed-line penetration worldwide, followed by Hong Kong (China), Malta, the Republic of Korea and Switzerland. The proportion of households with computers is highest in Iceland, at 93 per cent, and 92 per cent of households have Internet connections. The strong IDI improvements are due to the uptake of mobile broadband, which did not exist in 2008, but reached a penetration level of 45 per cent in 2010. The country was among the last to assign 3G frequencies in Europe, the process having been delayed until 2007. Despite the delay, the issuance

Table 2.2: ICT Development Index (IDI), 2010 and 2008

Economy	Rank 2010	IDI 2010	Rank 2008	IDI 2008
Korea (Rep.)	1	8.40	1	7.80
Sweden	2	8.23	2	7.53
Iceland	3	8.06	7	7.12
Denmark	4	7.97	3	7.46
Finland	5	7.87	12	6.92
Hong Kong, China	6	7.79	6	7.14
Luxembourg	7	7.78	4	7.34
Switzerland	8	7.67	9	7.06
Netherlands	9	7.61	5	7.30
United Kingdom	10	7.60	10	7.03
Norway	11	7.60	8	7.12
New Zealand	12	7.43	16	6.65
Japan	13	7.42	11	7.01
Australia	14	7.36	14	6.78
Germany	15	7.27	13	6.87
Austria	16	7.17	21	6.41
United States	17	7.09	17	6.55
France	18	7.09	18	6.48
Singapore	19	7.08	15	6.71
Israel	20	6.87	23	6.20
Macao, China	21	6.84	27	5.84
Belgium	22	6.83	22	6.31
Ireland	23	6.78	19	6.43
Slovenia	24	6.75	24	6.19
Spain	25	6.73	25	6.18
Canada	26	6.69	20	6.42
Portugal	27	6.64	29	5.70
Italy	28	6.57	26	6.10
Malta	29	6.43	31	5.68
Greece	30	6.28	30	5.70
Croatia	31	6.21	36	5.43
United Arab Emirates	32	6.19	32	5.63
Estonia	33	6.16	28	5.81
Hungary	34	6.04	34	5.47
Lithuania	35	6.04	35	5.44
Cyprus	36	5.98	43	5.02
Czech Republic	37	5.97	37	5.42
Poland	38	5.95	41	5.29
Slovak Republic	39	5.94	40	5.30
Latvia	40	5.90	39	5.31
Barbados	41	5.83	33	5.47
Antigua & Barbuda	42	5.63	38	5.32
Brunei Darussalam	43	5.61	44	4.97
Qatar	44	5.60	48	4.50
Bahrain	45	5.57	42	5.16
Saudi Arabia	46	5.42	55	4.13
Russia	47	5.38	49	4.42
Romania	48	5.20	46	4.67
Bulgaria	49	5.19	45	4.75
Serbia	50	5.11	47	4.51
Montenegro	51	5.03	50	4.29
Belarus	52	5.01	58	3.93
TFYR Macedonia	53	4.98	52	4.20
Uruguay	54	4.93	51	4.21
Chile	55	4.65	54	4.14
Argentina	56	4.64	53	4.16
Moldova	57	4.47	64	3.57
Malaysia	58	4.45	57	3.96
Turkey	59	4.42	60	3.81
Oman	60	4.38	68	3.45
Trinidad & Tobago	61	4.36	56	3.99
Ukraine	62	4.34	59	3.83
Bosnia and Herzegovina	63	4.31	63	3.58
Brazil	64	4.22	62	3.72
Venezuela	65	4.11	61	3.73
Panama	66	4.09	67	3.52
Maldives	67	4.05	66	3.54
Kazakhstan	68	4.02	72	3.39
Mauritius	69	4.00	70	3.43
Costa Rica	70	3.99	69	3.45
Seychelles	71	3.94	65	3.56
Armenia	72	3.87	86	2.94
Jordan	73	3.83	73	3.29
Azerbaijan	74	3.78	83	2.97
Mexico	75	3.75	74	3.26
Colombia	76	3.75	71	3.39

Economy	Rank 2010	IDI 2010	Rank 2008	IDI 2008
Georgia	77	3.65	85	2.96
Albania	78	3.61	81	2.99
Lebanon	79	3.57	77	3.12
China	80	3.55	75	3.17
Viet Nam	81	3.53	91	2.76
Suriname	82	3.52	78	3.09
Peru	83	3.52	76	3.12
Tunisia	84	3.43	82	2.98
Jamaica	85	3.41	79	3.06
Mongolia	86	3.41	87	2.90
Iran (I.R.)	87	3.39	84	2.96
Ecuador	88	3.37	88	2.87
Thailand	89	3.30	80	3.03
Morocco	90	3.29	100	2.60
Egypt	91	3.28	92	2.73
Philippines	92	3.22	95	2.69
Dominican Rep.	93	3.21	89	2.84
Fiji	94	3.16	90	2.82
Guyana	95	3.08	93	2.73
Syria	96	3.05	96	2.66
South Africa	97	3.00	94	2.71
El Salvador	98	2.89	101	2.57
Paraguay	99	2.87	97	2.66
Kyrgyzstan	100	2.84	99	2.62
Indonesia	101	2.83	107	2.39
Bolivia	102	2.83	102	2.54
Algeria	103	2.82	105	2.41
Cape Verde	104	2.81	103	2.50
Sri Lanka	105	2.79	106	2.41
Honduras	106	2.72	104	2.42
Cuba	107	2.69	98	2.62
Guatemala	108	2.65	108	2.39
Botswana	109	2.59	109	2.25
Uzbekistan	110	2.55	110	2.22
Turkmenistan	111	2.50	111	2.15
Gabon	112	2.42	112	2.10
Namibia	113	2.36	114	2.06
Nicaragua	114	2.31	113	2.09
Kenya	115	2.29	116	1.74
India	116	2.01	117	1.72
Cambodia	117	1.99	120	1.63
Swaziland	118	1.93	115	1.80
Bhutan	119	1.93	123	1.58
Ghana	120	1.90	118	1.68
Lao P.D.R.	121	1.90	119	1.64
Nigeria	122	1.85	125	1.54
Pakistan	123	1.83	121	1.59
Zimbabwe	124	1.81	128	1.49
Senegal	125	1.78	129	1.46
Gambia	126	1.74	122	1.59
Yemen	127	1.72	127	1.49
Comoros	128	1.67	130	1.44
Djibouti	129	1.66	124	1.56
Côte d'Ivoire	130	1.61	132	1.43
Mauritania	131	1.58	126	1.50
Angola	132	1.58	136	1.31
Togo	133	1.57	134	1.36
Nepal	134	1.56	137	1.28
Benin	135	1.54	138	1.27
Cameroon	136	1.53	133	1.40
Bangladesh	137	1.52	135	1.31
Tanzania	138	1.51	141	1.23
Zambia	139	1.50	131	1.44
Uganda	140	1.49	140	1.24
Madagascar	141	1.45	142	1.20
Rwanda	142	1.44	143	1.18
Papua New Guinea	143	1.38	139	1.24
Guinea	144	1.31	144	1.16
Mozambique	145	1.30	146	1.10
Mali	146	1.26	145	1.11
Congo (Dem. Rep.)	147	1.17	147	1.04
Eritrea	148	1.09	148	1.03
Burkina Faso	149	1.08	149	0.98
Ethiopia	150	1.08	150	0.94
Niger	151	0.92	152	0.79
Chad	152	0.83	151	0.80

Source: ITU.

Box 2.2: Internet access a legal right in Finland

Finland continues to be an impressive top ICT country. It ranks fifth in the IDI (gaining seven places over the past two years) and shows dynamic changes of seven per cent and 35 per cent in the access and use sub-indices, respectively. The country has a history of being an early adopter of new technologies and forward-looking policies. It was the first country in the world to launch a commercial GSM network, and one of the first countries to trial mobile payments and license 3G services. In 2009, it became the first country in the world to make high-speed Internet access a legal right.[14]

The improvement in the IDI access sub-index results from the substantial increase in international Internet bandwidth of 150 per cent – from 200 000 Mbit/s to 500 000 Mbit/s. In addition, Finland features as one of the top five countries in the use sub-index (ranked fourth) thanks to efforts undertaken to improve high-end user access. Finland's regulator FICORA has mandated a law assigning 26 operators to provide a broadband connection to customers in their coverage areas, making Finland the first country to take this measure. This is part of Finland's updated universal service obligation (USO). ISPs are obliged to provide subscribers with at least a 1 Mbit/s connection as of July 2010 and committed to providing 2 Mbit/s and 100 Mbit/s services by 2012 and 2015, respectively.[15] For those zones to be covered by USO, FICORA envisages a fixed-broadband monthly charge ranging from USD 42 to USD 57,[16] which compares with a USD 35 monthly charge in commercially available offers measured by the fixed-broadband sub-basket in the 2010 ICT Price Basket. Finland comes ninth out of the top ten countries with the lowest mobile-cellular sub-basket in the 2010 ICT Price Basket.

Growth in mobile-broadband Internet subscriptions (where penetration increased from 24 to 78 per cent between 2008 and 2010) is the main contributor to the increase in the use sub-index. Mobile operators continue to develop new mobile-broadband networks and solutions to support FICORA's regulation. In 2010, new 4G technology (LTE) was launched in some of Finland's major cities (Turku and Espoo, by TeliaSonera and Elisa, respectively), gaining new subscribers with early delivery in UHF bands. More recently, Finnish telco DNA acquired Welho's business operations, deploying an improved network and new service plans attracting mobile-broadband Internet subscribers. DNA fully upgraded its broadband network to a maximum bandwidth of 200 Mbit/s and also modified the terms of service to offer non-fixed commitments. DNA will follow in 2011 and roll out its LTE network while simultaneously extending HSPA+ technology to serve Finland's rural areas. Finland and the other high-income Nordic countries are leaders in Europe when it comes to mobile-broadband deployment.

of 3G licences and the refarming of other bands to allow 3G services have facilitated the entrance of the new player, Nova. The new entrant has brought competition into the mobile market, traditionally dominated by the incumbent Siminn and Vodafone. This has been the case especially in the mobile-broadband segment, where by the end of 2010 Nova had secured the biggest market share.[13] Such an increase in mobile-broadband competition together with its late launch may explain the rapid growth of the service in the country.

Among the top thirty countries, the one whose performance improved most over the two year-period is **Finland**, which moved up seven places in the IDI, to rank fifth in 2010. Despite the continuous decrease in its fixed-line network over the past two years (from 31 to 23 per cent penetration), the country significantly increased international bandwidth as well as mobile-broadband uptake (from 24 to 78 percent penetration) (see Box 2.2).

Switzerland moved up one place to eighth in the IDI 2010. The country has one of the highest fixed-broadband penetration rate worldwide (38 per cent) and a very high proportion of households with computers and Internet access (86 per cent each). According to the Swiss Federal Communications Commission, the number of homes and businesses served by fibre had reached 250 000 by the end of 2010, representing approximately eight per cent of households.[17] Mobile broadband, on the other hand, is still emerging and, with 44 per cent penetration, Switzerland lags behind many of the top performers (rank 25th globally).

New Zealand moved up four places to 12th. International Internet bandwidth per Internet user increased significantly during the past two years (from 9 700 to 19 300 Mbit/s/user), but other key indicators such as mobile broadband, Internet access at home and Internet usage, as well as skills, all increased, too. New Zealand's

government has made broadband *"a vital component of New Zealand's economic growth, productivity improvements and the government's wider strategy to increase New Zealand's global competitiveness"*. To upgrade the country's broadband infrastructure, it has earmarked a total of NZD 1.5 billion, including 300 million to improve rural broadband connectivity.[18]

Another country among the top performers that improved significantly is **Austria**, which moved up from 21st to 16th place. This is mainly due to sharp increases in the numbers of mobile-telephone and mobile-broadband subscriptions, as well as international Internet bandwidth. Indeed, regulation and uptake of mobile broadband in Austria is a very unique case. According to customer surveys, some 76 per cent of residential mobile-broadband customers use it on a standalone basis, and in most cases from a fixed location.[19] Together with the wide coverage of HSDPA networks and the high penetration of mobile broadband in the country, this has led the regulator to conclude that it is a substitute for rather than a complement to fixed broadband. So far, Austria is the only EU country where fixed-mobile broadband substitution has been proven, which highlights the importance of detailed ICT data for adapting regulation to technological changes and customers' usage of technology.

The **United States** kept the same position (17th place) over the two-year period. The relatively low mobile-cellular and household Internet access penetration rates (85 per cent as against more than 100 per cent for most European countries, and 71 per cent compared with between 85 and 90 per cent in Europe, respectively) have already been discussed in last year's edition of this report (ITU, 2010b). Indeed, the United States went down three places on the IDI access sub-index (from 20th to 23rd). On the other hand, mobile broadband is increasing rapidly in the country, and penetration rates rose to 54 per cent at the end of 2010, compared with 26 per cent at the end of 2008.

Most dynamic countries

The previous section has shown that the top IDI performers (both for 2008 and 2010) are largely dominated by developed countries. Over the same time period, however, a number of developing countries have made significant progress in terms of ICT diffusion and uptake. It is therefore useful to identify the most "dynamic" IDI countries – or countries with the largest change in IDI ranking and IDI value in both absolute and relative terms (see Table 2.3). This section takes a closer look at those countries, highlights their key performance indicators and identifies selected best practices that resulted in the outstanding/above-average IDI results achieved. The "spider" charts (Figure 2.3) illustrate the normalized values, and changes between 2008 and 2010, in each of the 11 indicators included in the IDI for those countries.

Table 2.3: Most dynamic countries (top ten) – changes between IDI 2010 and 2008

Change in IDI ranking			Change in IDI value (absolute)			Change in IDI value (%)		
IDI 2010 rank	Country	IDI rank change 2008-2010	IDI 2010 rank	Country	IDI value change 2008-2010	IDI 2010 rank	Country	IDI % change 2008-2010
72	Armenia	14	46	Saudi Arabia	1.29	72	Armenia	31
90	Morocco	10	44	Qatar	1.11	46	Saudi Arabia	31
81	Viet Nam	10	52	Belarus	1.08	115	Kenya	28
74	Azerbaijan	9	21	Macao, China	1.01	81	Viet Nam	28
46	Saudi Arabia	9	47	Russia	0.96	52	Belarus	28
77	Georgia	8	36	Cyprus	0.96	74	Azerbaijan	27
60	Oman	8	5	Finland	0.94	60	Oman	27
36	Cyprus	7	27	Portugal	0.94	90	Morocco	26
5	Finland	7	3	Iceland	0.94	57	Moldova	25
57	Moldova	7	60	Oman	0.93	44	Qatar	25

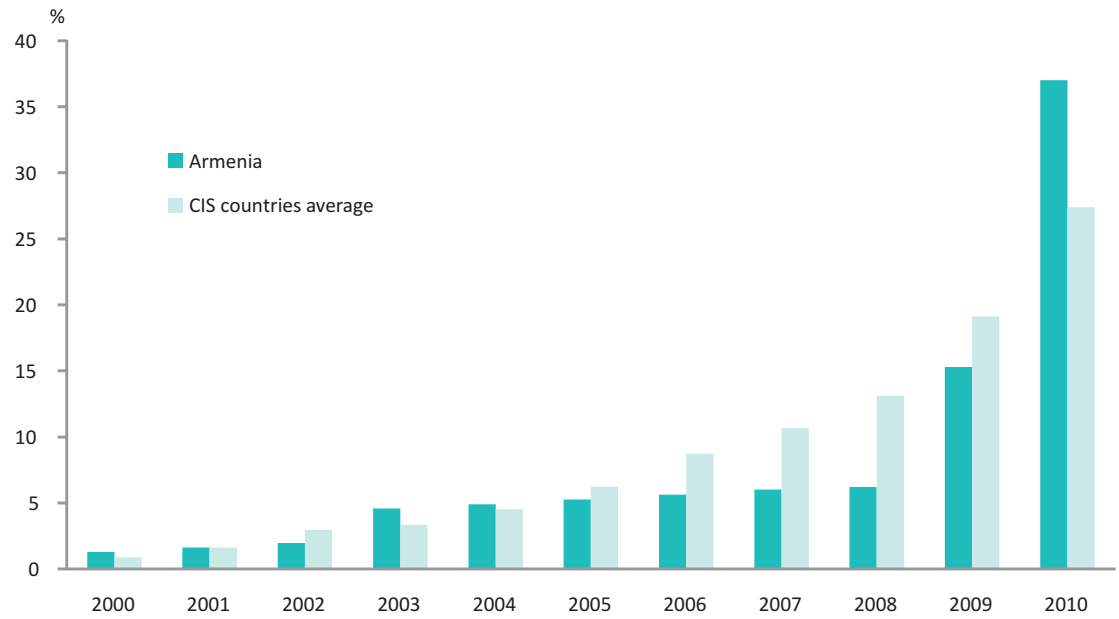
Source: ITU.

Box 2.3: Armenia's surge in Internet use

Since 2008, Armenia has increased its IDI unit value by 31 per cent and moved up from rank 86 to 72. Armenia progressed in the access sub-index, by 26 per cent, and in the use sub-index, moving up 44 places to 82 in this category. International Internet bandwidth and mobile-cellular subscriptions contribute to this year's higher access sub-index, Internet bandwidth in Armenia having increased tenfold from 1 083 Mbit/s to 10 547 Mbit/s. This is reflected in the higher use of Internet in the country compared with neighbouring countries' Internet penetration rates: Armenia (37 per cent), Azerbaijan (36 per cent), Georgia (27 per cent), the Islamic Republic of Iran (13 per cent) and the CIS average (29 per cent) (Chart Box 2.3). The country is almost on a par with Turkey's Internet penetration rate of 40 per cent. Furthermore, mobile broadband increased from no subscriptions in 2008 to about five per cent penetration rate in 2010.

Fixed-broadband penetration is around three per cent but there are positive signs for growth in Armenia's broadband sector. The Ministry of Economy of Armenia plans to build and expand a mixture of fibre-optic, WiMAX and satellite technologies working to develop the country's high-speed broadband network at a cost of approximately USD 24 million.[20] The country's main operator ArmenTel has extended its 3G footprint, deploying additional 3G base stations in new regions so as to improve coverage, and will introduce VDSL technology to deliver higher capacity. As a result, next year could see a further growth in mobile-broadband subscriptions in Armenia.

Chart Box 2.3: Internet users per 100 inhabitants, 2000-2010



Source: ITU World Telecommunication/ICT Indicators database.

The country that improved most in terms of rankings is **Armenia**, which moved up 14 places between 2008 and 2010, reaching 72nd place and increasing its IDI value by 31 per cent. This impressive growth is based on improvements in both the access and use sub-indices. For example, mobile penetration increased from 75 to 125 per cent (reaching levels above the developed-country average), and household access to computers and Internet rose significantly, also leading to an increase in Internet usage. In addition, both fixed- and mobile-broadband services – almost non-existent in 2008 – are now available and growing in usage (see Box 2.3).

Azerbaijan has made similar improvements to Armenia, leading to a jump of nine places in the rankings, to 74th place in the IDI 2010, and increasing its IDI value by

Box 2.4: Kenya – Africa's fastest growing Internet market

Kenya is one of Africa's fastest growing Internet markets, showing a 0.55 IDI value increase as compared with the world average of 0.46 and the African average of 0.23. This improvement is a result of the 37 per cent increase in the access sub-index due to the large growth in mobile-cellular subscriptions and a high increase in the country's Internet bandwidth capacity. The use sub-index jumped 19 places to a value of 1.05, and compares very favourably with the African countries' average of 0.44.

Mobile-cellular tariffs have come down considerably due to increasing competition between providers in Kenya. The 2010 ICT Price Basket results show a substantial decrease in the mobile sub-basket, in both absolute (-14 per cent) and relative (-46 per cent) terms. New entrant Airtel sparked a price war and initiated fierce competition in the Kenyan market last year by reducing voice-call rates by half and cutting prices of sms charges (in local currency) from KES 3 to KES 1 (USD 0.03 to USD 0.01). Other operators, such as Safaricom and Telkom Kenya, expectedly followed suit, making further cuts to their mobile rates. The cheaper calling rates captured new subscribers in under-penetrated market segments and made cellphone services more affordable. A recent halt to any further tariff reductions was announced in May 2011 by the Communications Commission of Kenya (CCK) and President Kibaki in order to evaluate the impacts and economic profitability of the price wars.[21] The presence of Airtel will still exert an effect as it continues to roll out its 3G network this year and double the amount of 2G stations already deployed. CCK also confirmed authorization of mobile-number portability, which will add user flexibility to change between service providers.

In addition, several initiatives were taken to increase Internet bandwidth. Last year, Verizon Business, a unit of US Verizon Communications, expanded its IP network coverage in Kenya to serve Verizon's business customers. This was in alliance with Gateway Business Africa, in an effort to provide better connectivity in the eastern parts of Africa and other developing regions.[22] Another network extension in Kenya is the Lower Indian Ocean Network (LION) project. In consortium with Africa Coast to Europe (ACE), this project involves the construction of undersea cables in the Indian Ocean providing broadband Internet service between Europe and South Africa. The entire network project is expected to be completed by 2012. The second phase of the project has started and will increase bandwidth capacity up to 1.28 Tbit/s.[23]

The efforts to enhance networks and mobile-market competition have already started to produce an effect by increasing the number of Internet users, including those connecting to the Internet via mobile networks. In December 2010, Kenya reached 10.2 million Internet users, a penetration rate of about 26 per cent.

27 per cent. While mobile broadband was still almost zero at the end of 2010, fixed-broadband penetration had increased from close to zero to more than five per cent, most likely as a result of big price drops (of almost 90 per cent) in the fixed-broadband sub-basket during that time period (see Chapter 3).

Among the CIS countries, **Belarus** ranks second after the Russian Federation, reaching 52nd place worldwide and improving its IDI value by 28 per cent. This is primarily due to improvements in the use sub-index thanks to very high growth in Internet users and in fixed and mobile-broadband subscriptions.

Georgia moved up eight places to 77th place in 2010. It improved on both ICT access and use. Indeed, apart from fixed-line penetration, the country made significant advances on all the indicators included in the two sub-indices, as well as on the skills sub-index. Mobile-broadband penetration has climbed to 18.8 per cent by the end of 2010 (up from nine per cent in 2008), the highest among CIS countries.

Kenya stands out in terms of relative IDI change, with an increase in value of 29 per cent (compared with an average of 14 per cent for all countries included in the IDI). Kenya has significantly increased its international Internet bandwidth, mobile-cellular and mobile-broadband penetration and number of Internet users (see Box 2.4). It is one of the top ten countries with the highest relative drop in ICT prices (see Chapter 3), which is likely to have led to an increase in mobile subscriptions and Internet usage.

Moldova moved up seven places to 57th in the IDI 2010 and increased its IDI value by 25 per cent. The country doubled its international bandwidth per Internet user, and household access to Internet grew from 16 to 34 per cent. Similarly, fixed- and mobile-broadband and Internet usage increased substantially during the two-year period.

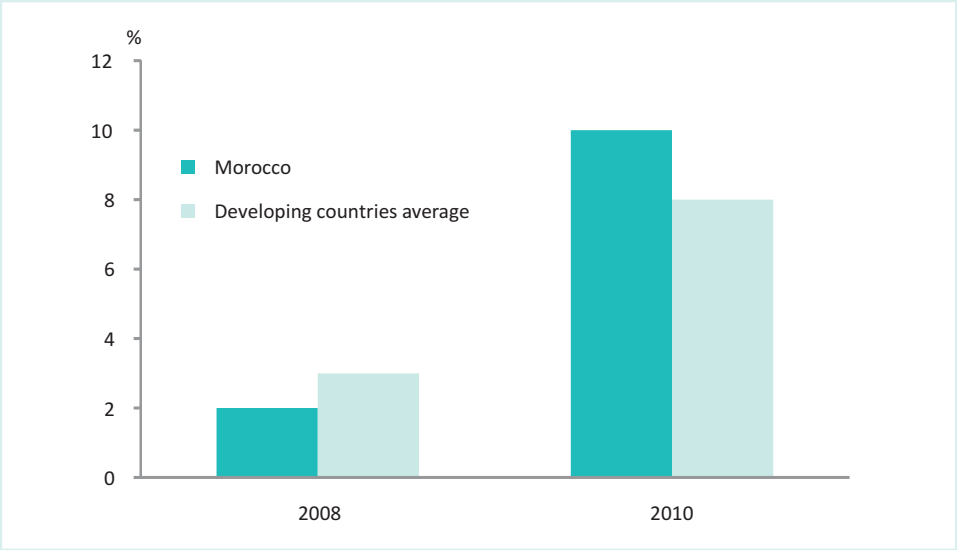
Box 2.5: Mobile Internet in Morocco

Morocco improved its ranking by ten places, attaining an IDI value of 3.29 as compared with the average IDI in developing countries of 3.19. This improvement is a result of increases of 62 per cent in the use sub-index and 27 per cent in the access sub-index during the past two years. The significant progress in the access sub-index – moving the country up seven places – was due to the almost threefold increase of international Internet bandwidth, from 25 130 Mbit/s to 75 000 Mbit/s. Internet user penetration increased by almost 50 per cent, mainly due to mobile broadband. Within two years of 3G mobile-broadband services being introduced in Morocco, mobile-broadband penetration jumped from 2.3 per cent in 2008 to ten per cent in 2010 (Chart Box 2.5). This trend is expected to continue, with mobile broadband to grow faster than fixed broadband. Fixed-broadband penetration remains flat, recording one per cent growth from 2008 to 2010, whereas mobile-broadband penetration, which represents 76 per cent of total broadband subscriptions, grew from two to ten per cent. Morocco has three operators sharing the mobile-broadband Internet market, thus creating a more competitive sector, and mobile-broadband prices have come down substantially and are today competitive with fixed-broadband prices (see Table 3.8 in Chapter 3). The fixed-broadband ADSL market is dominated by incumbent operator Maroc Telecom, which holds a monopoly.

Moroccan incumbent Maroc Telecom continues to develop the fibre-optic backbone network, which will link Morocco with West African countries. In 2010, Maroc Telecom reached 60 per cent completion in the first phase of plans to roll out the fibre-optic backbone network. Maroc Telecom plans to also deliver mCommerce solutions to the growing mobile-broadband market and in view of the growing demand for mobile financial transactions.[24]

Moroccan telecommunication regulator ANRT has set a 65-70 per cent reduction target for voice-termination interconnection tariffs on fixed and mobile calls between 2010-2013 for Morocco's mobile operators. ANRT has also set a 24-40 per cent end reduction target for asymmetric interconnection tariffs for 2013. The measure is intended to further stimulate competition in the fixed and mobile markets in the interests of end users.[25]

Chart Box 2.5: Mobile-broadband subscriptions per 100 inhabitants, 2008, 2010



Source: ITU World Telecommunication/ICT Indicators database.

Another country that made impressive strides is **Morocco**, moving up ten places to 90th in the latest IDI. Internet access at home increased significantly, as did broadband penetration, contributing to an overall growth in the number of Internet users. Fixed-broadband prices in Morocco fell by 40 per cent over the two-year time period (see Box 2.5 and Box 3.4 in Chapter 3).

Oman moved up eight places (to 60th) and increased its IDI value by 0.93 or 27 per cent. While the country improved on almost all of the indicators, Internet user penetration increased significantly over the past two years, mainly due to mobile broadband coupled with an increase in public Internet access (see Box 2.6).

Qatar also recorded above-average improvements in ICT access and use, moving up four places and increasing its IDI value by 1.11. Ranking 44th, Qatar now comes second among the Arab countries, after the United Arab Emirates (ranked 32nd). Internet-user penetration has grown from 38 to 69 per cent, which is close to the developed-country average (of 71 per cent) and way above the Arab States' average of 25 per cent. Similarly, household access to computers and Internet has increased substantially over the two-year period.

The Russian Federation has improved its IDI value by 0.93 (around twice the global average improvement of 0.46) and moved up two places to 47th. The country has improved its performance on both ICT access and use. In particular, international Internet bandwidth has increased significantly over this period on account of several submarine and transnational network infrastructure projects. For example, the operator Rostelecom doubled its Internet link capacity with Far East Telecom, up to 7.3 Gbit/s.[32] The Russia-Japan Cable Network project was also launched, linking the two countries through an undersea cable system.[33] Recently, Rostelecom and China Telecom announced an agree-

Box 2.6: Oman's success in connecting schools to the Internet

Oman moved up eight places in the global IDI country ranking. The growth in the number of Internet users and mobile-broadband subscriptions contributed to a jump of 24 places in the use sub-index. The number of Internet users per 100 inhabitants increased impressively from 20 to 63 in the space of only two years. Popular use of Internet cafes and the younger generation participating in social media activities and blogging contributed to driving the growth in Internet users.[26] The Sultanate has decided to invest in ICTs for education, and the Ministry of Education has implemented a number of policies to connect the country's schools with ICTs, to improve ICT skills and to integrate ICTs in the curriculum.[27] The government's telecommunication regulatory authority ITA plans to connect all schools to the Internet and to provide all students and teachers with laptops.[28] These initiatives are part of the government's eOman project, which aims at creating a knowledge-based economy and society.[29]

Fixed-broadband Internet subscriptions in Oman are still fairly low, at two per cent, but more growth is evident in mobile broadband with a penetration rate of 11 per cent (up from six per cent in 2008).

Oman's mobile sector is now highly competitive, with five resellers entering the market in 2010. Omantel is the main operator along with new provider Nawras. The introduction of resellers is the result of the government's efforts to create a more competitive telecom sector for the saturated market (166 per cent mobile-penetration rate). The mobile-cellular sector reached 4.6 million subscriptions in 2010, a 43 per cent increase from 2008. The new entrants' tariff rates vary, but in general they are relying on low costs and discount plans as their business model.[30] This may prompt future adjustments in price plans from the two main Omani providers next year. With the already high penetration rate, we may also expect a slower rate of growth in the following years for Oman's mature market.

Unlike in the mobile market, Oman's fixed-line sector is a duopoly of Omantel and Nawras, which recently acquired licences for fixed lines and international gateway. Although there has been a 12 per cent decrease in fixed lines since 2008, Nawras' launch of commercial fixed-line services last year may mitigate a future decline in the fixed-line sector.

For 2011, the Europe to India (EIG) and Gulf Bridge International (GBI) submarine cable projects are important to note. Omantel, which is part of the EIG consortium, announced partial activation of the undersea cable early this year, and this will enhance capacity between the Middle East and Asia and Europe with a full cable system up to 3.84 Tbit/s.[31] Omantel has also concluded an agreement to launch this year the GBI cable system, connecting the Gulf countries to Europe and Asia using a submarine fibre cable ring. On account of its geographic location, the country remains a global hub for these projects and will benefit in terms of international broadband traffic capacity when the full networks are completed.

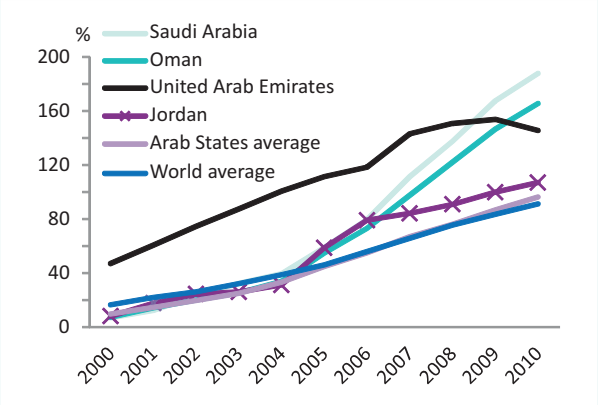
Box 2.7: Mobile-cellular penetration reaching top levels in Saudi Arabia

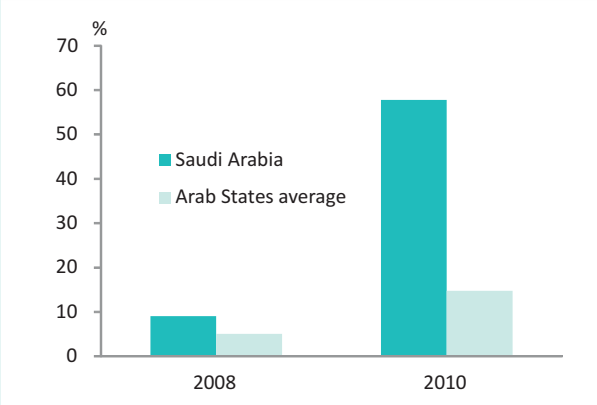
Among developing countries, Saudi Arabia experienced the highest IDI percentage value increase (31 per cent, as compared with the developing country average of 15 per cent). Saudi Arabia moved up eight places in the access sub-index and ten places in the use sub-index. Underlying the access sub-index increase was the important progress in international Internet bandwidth, which grew from 20 000 Mbit/s to 317 940 Mbit/s, and in mobile-cellular subscriptions, which grew from 138 to 188 per 100 inhabitants (Chart Box 2.7). Internet user penetration stands at 41 users per 100 inhabitants, and fixed-broadband subscriptions showed a 36 per cent increase, along with a large increase in mobile-broadband subscriptions. It is no surprise that the jump in mobile-broadband subscriptions is the main reason behind the increase in the use sub-index. Saudi Arabia's mobile-broadband penetration grew from nine per cent in 2008 to 58 per cent in 2010 (Chart Box 2.7). The expat customers and younger age groups are an influential part of this subscription base. This shows that there is still much room for potential growth in the Saudi Arabian broadband market.

The Saudi Arabian mobile sector is one of the more competitive markets in the region, with the three largest Middle Eastern regional players having a presence in the country (STC, Etisalat and Zain). Mobily is pushing an extensive mobile-broadband network after winning the GSM/3G licence in 2004, and has future plans to provide WiMAX service to the 20 cities it covers. Fixed-telephone line penetration remains steady, with 4 165 750 lines in 2010 and a penetration rate of 15 per cent (one per cent year-on-year growth).

Under the National Communications and Information Technology Plan (NCITP) initiatives, the Government of Saudi Arabia has launched several projects, especially in the e-business segment, with the aim of facilitating access to the Internet and improving its performance.[35]

Chart Box 2.7: Mobile-cellular subscriptions per 100 inhabitants, 2000-2010 (left) and active mobile-broadband subscriptions per 100 inhabitants, 2008 and 2010 (right)



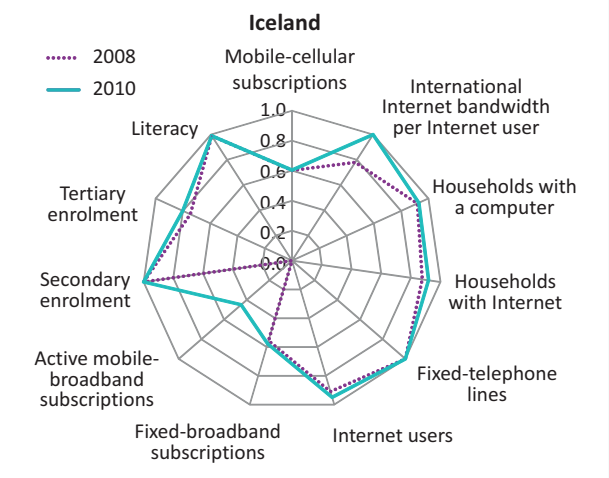


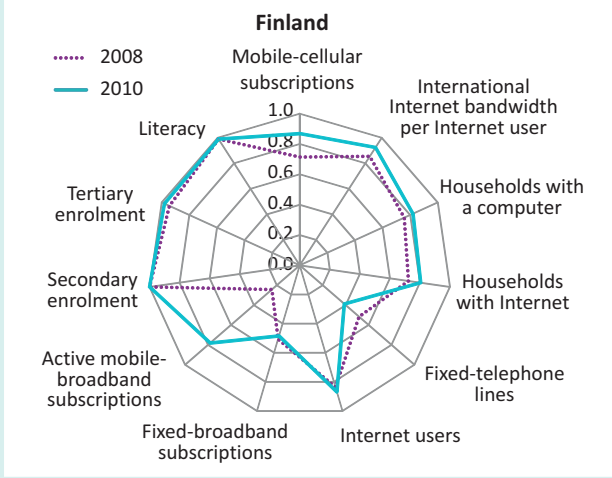
Source: ITU World Telecommunication/ICT Indicators database.

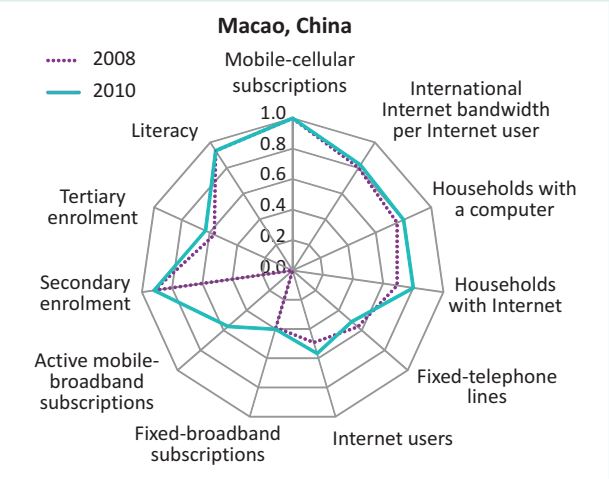
ment to further expand Europe-Asia traffic, with the first phase planned to increase total capacity by 200 Gbit/s.[34] This will serve to increase transit bandwidth in the Russian Federation for traffic between Europe and Asia through the Transit Europe-Asia (TEA) project. At the same time, Internet access at home, broadband penetration and Internet usage have all increased substantially.

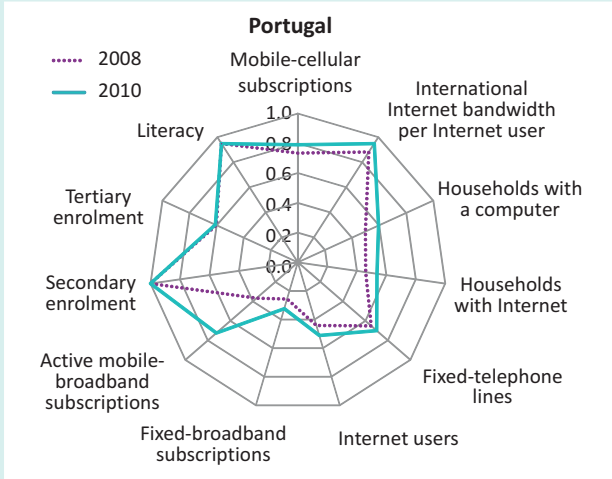
Saudi Arabia jumped nine places to 46th place. The country now has the third highest mobile-cellular penetration worldwide (almost 186 per cent), after Macao (China) and Hong Kong (China). Saudi Arabia is the country that has improved most of all countries in terms of its IDI value (an increase of 1.29, or 31 per cent). Box 2.7 provides more insights into the country's remarkable progress in ICTs.

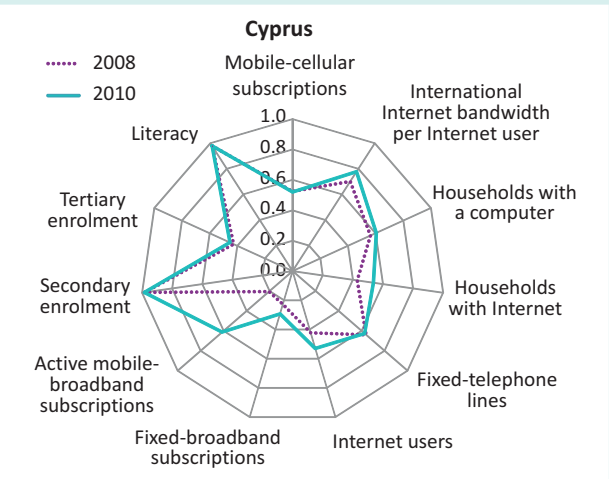
Figure 2.3: Spider charts, selected dynamic countries, 2010 and 2008*











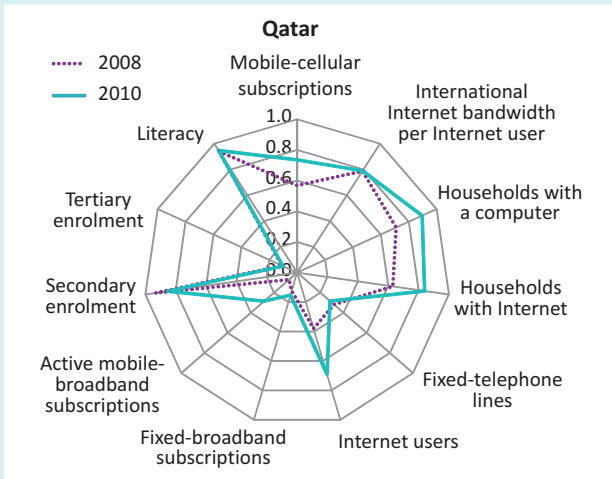
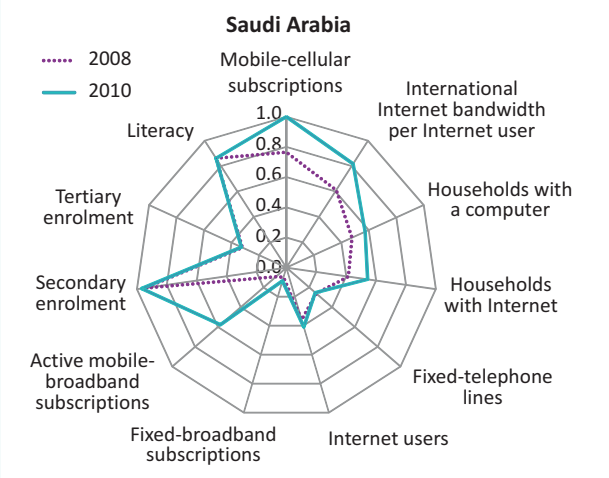
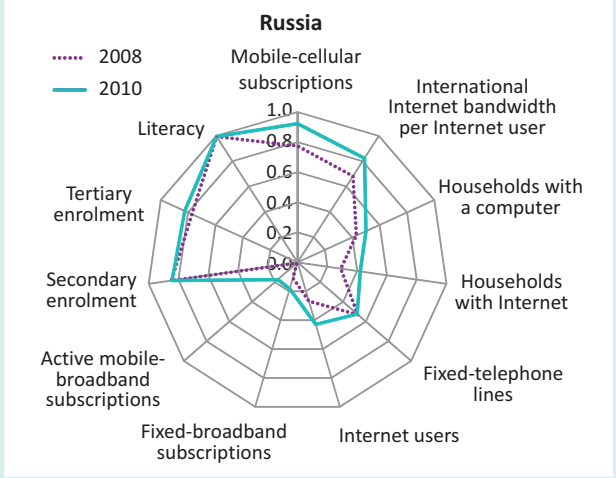
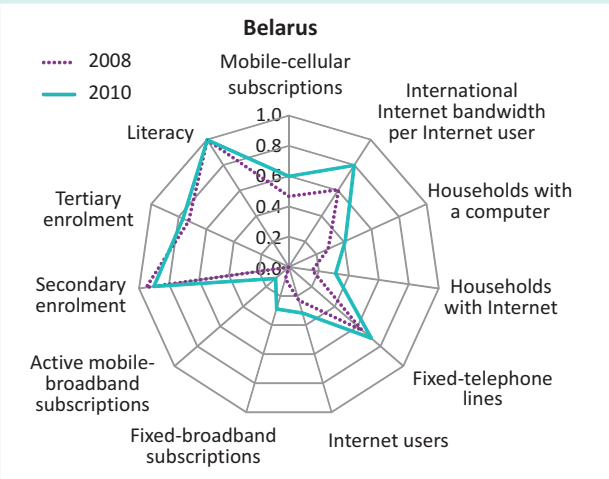
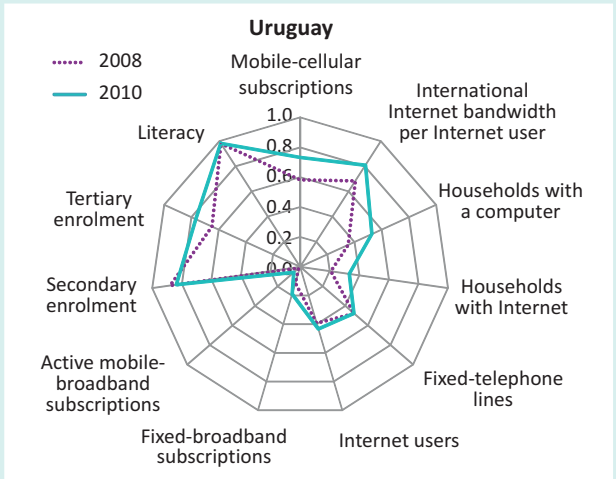


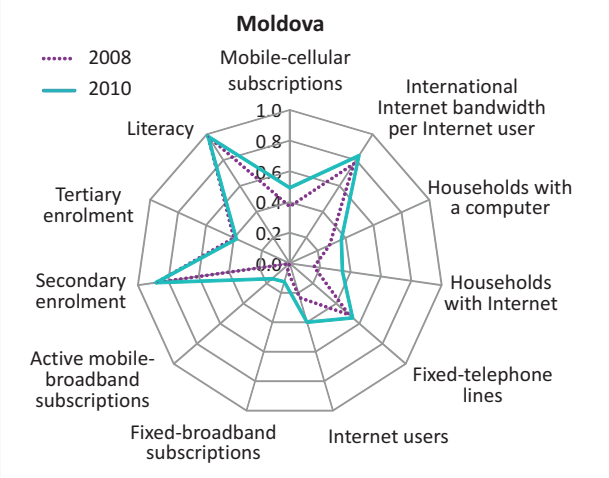
Figure 2.3: Spider charts, selected dynamic countries, 2010 and 2008* (continued)











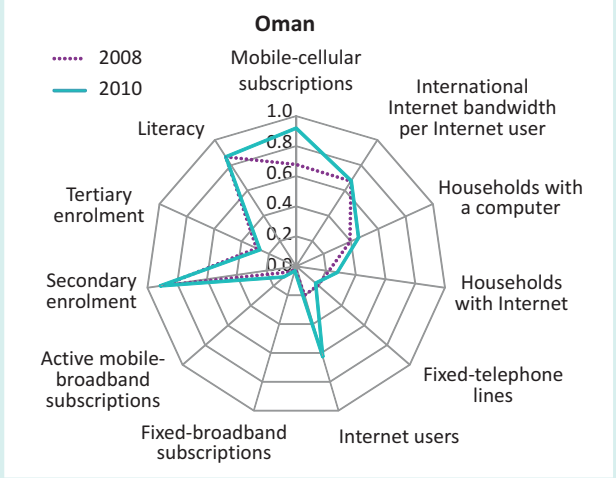
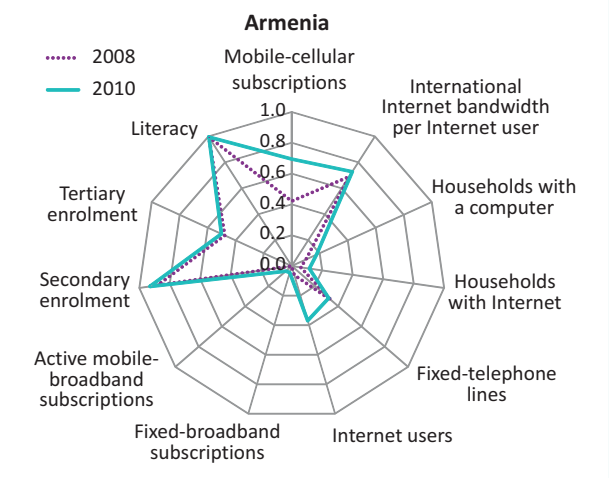
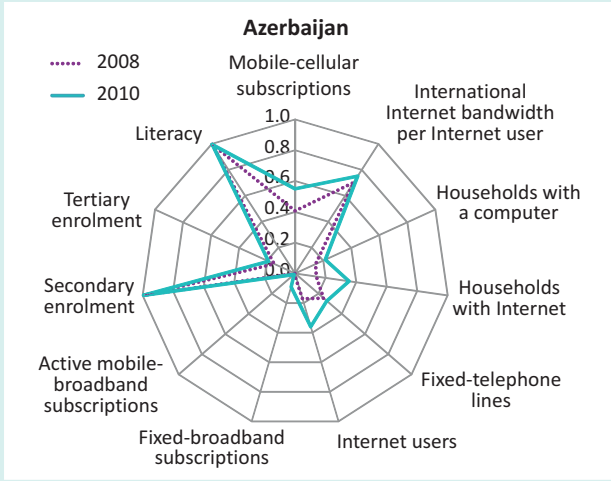
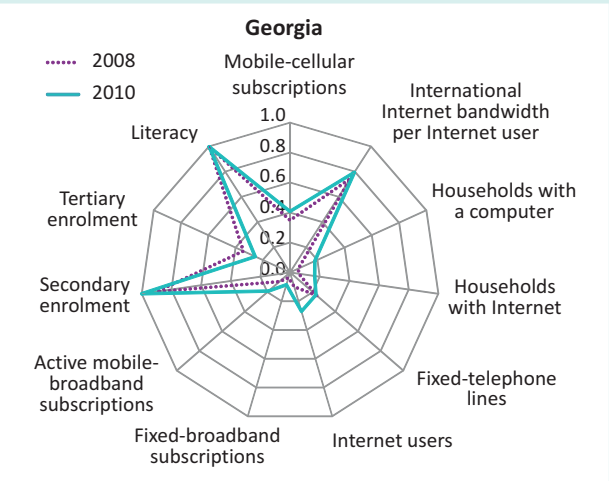
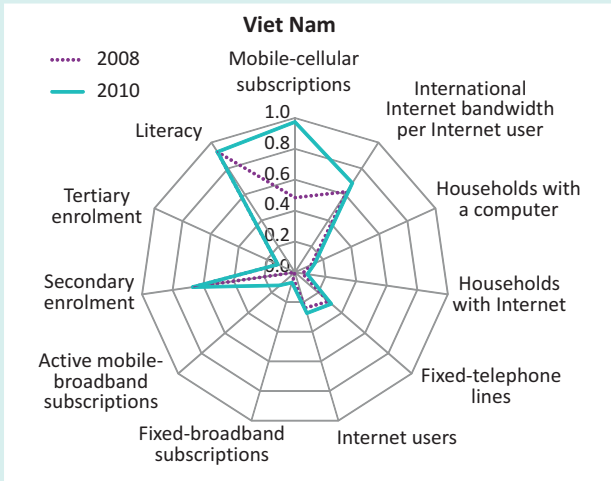


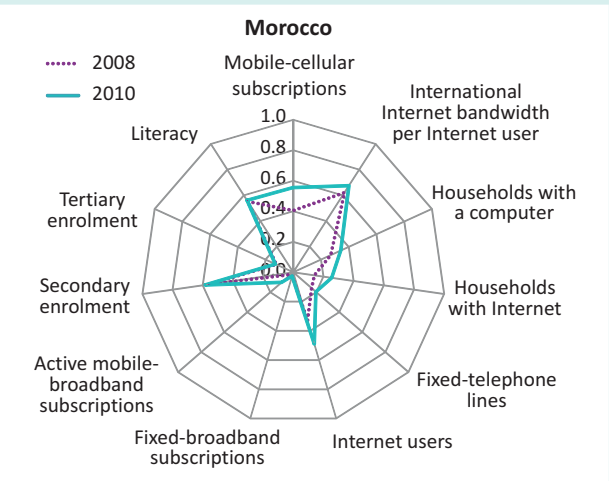
Figure 2.3: Spider charts, selected dynamic countries, 2010 and 2008* (continued)

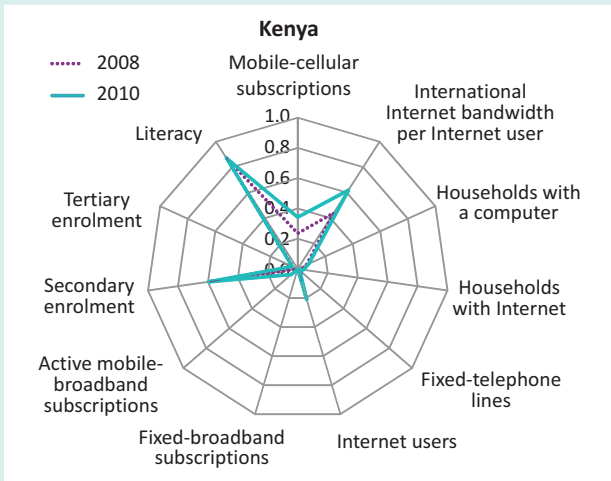












Note: *These charts show normalized values of the indicators included in the IDI.
Source: ITU.

Viet Nam (ranked 81st) increased its IDI value by 28 per cent, rising ten places. Its already relatively high mobile-phone penetration in 2008 (87 per cent) climbed to 175 per cent by the end of 2010. This puts the country in eighth place worldwide in terms of mobile-cellular penetration. Household access to computers and the Internet, on the other hand, is still relatively low. Mobile broadband was practically non-existent in 2008, and has reached 13 per cent in 2010. This is likely to increase Internet usage in the near future (see Box 2.9 in section 2.3).

IDI by level of development

A key objective of the IDI is to monitor progress in countries at different levels of development and to identify the differences between those countries – i.e. the digital divide. The nature of the digital divide has changed significantly over the past ten years. Developing countries have made enormous progress in telecommunications, and access to mobile networks is almost ubiquitous today in terms of population coverage. There is still a huge divide when it comes to Internet access, however, and even more in terms of broadband Internet. The gap has been growing during the past few years, but mobile-broadband access is expected to narrow the gap in the near future. The focus of the digital divide will increasingly shift towards the bandwidth, speed and quality of Internet (or broadband) connections and major differences among countries can be observed in this regard (see Chapter 4).

Charts 2.1 to 2.4 compare the IDI and its sub-indices between developed and developing countries.[36] Overall, IDI values in developing countries are about half those of developed countries in 2010, but relative growth in developing countries is stronger. The access sub-index has continued to grow at higher levels than the use sub-index in developing countries, whereas growth in the access sub-index in developed countries is relatively low, indicating that most developed countries have reached saturation levels and have moved from stage 1 (ICT readiness) to stage 2 (ICT use) within the IDI conceptual framework (Figure 2.1). Developing countries, on the other hand, are still building their ICT access levels, at least partly, although some of them have moved to stage 2 and have become intense ICT users. Accordingly, the use sub-index shows stronger growth, in relation to the previous period, although it still registers rather low absolute levels for developing countries on average.

The skills sub-index shows relatively little movement, which reflects the high level of achievement in de-

Chart 2.1: IDI by level of development*

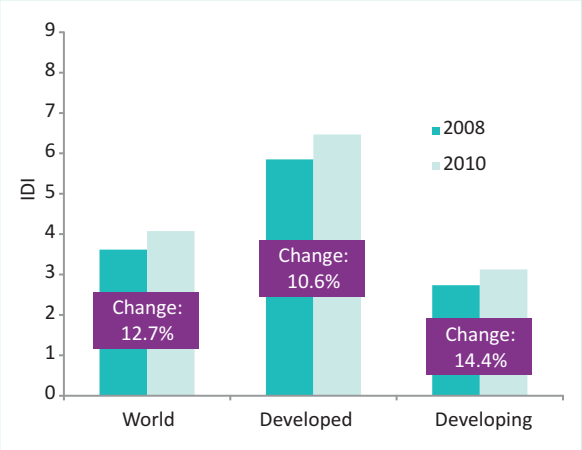


Chart 2.2: IDI access sub-index by level of development*

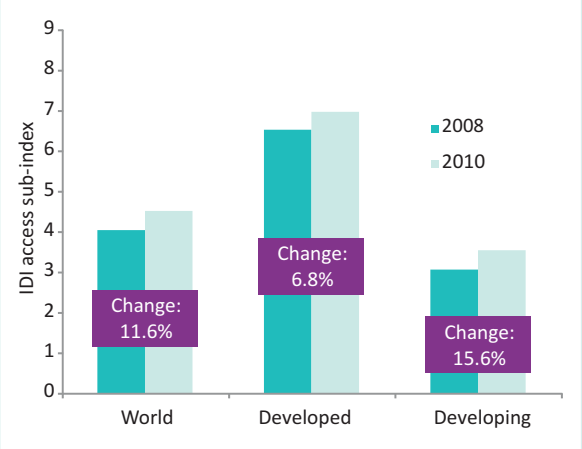
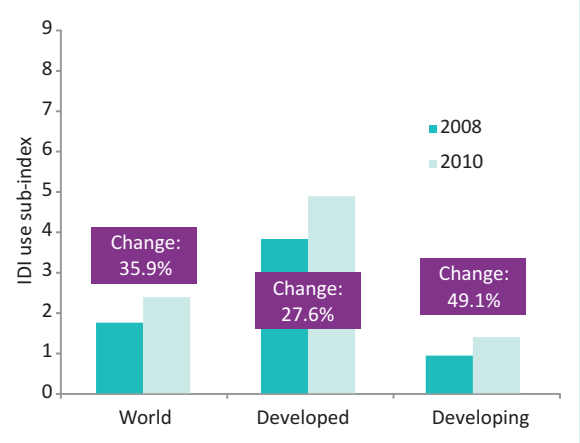
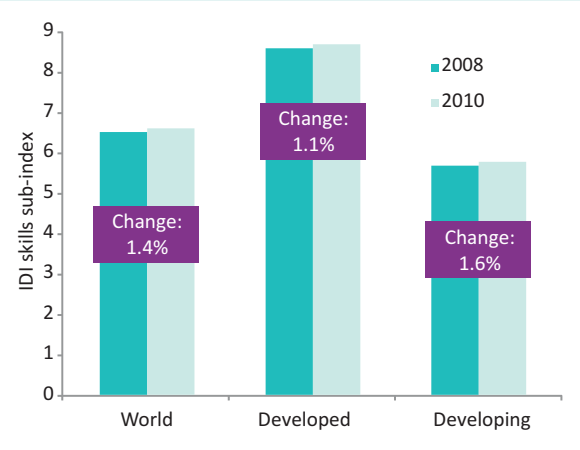


Chart 2.3: IDI use sub-index by level of development*



Note: *Simple averages
Source: ITU World Telecommunication/ICT Indicators database.

Chart 2.4: IDI skills sub-index by level of development*



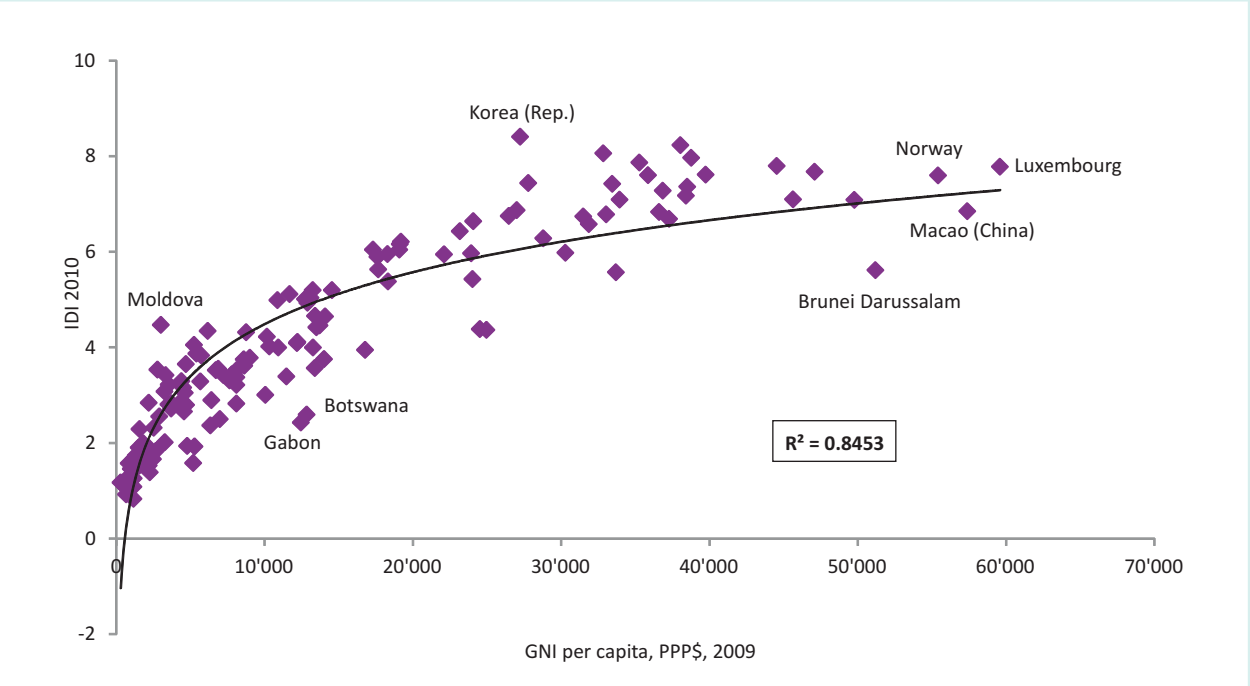
Note: *Simple averages
Source: ITU World Telecommunication/ICT Indicators database.

veloped countries as well as the nature of the proxy indicators employed. Since the sub-index is composed of school enrolment and literacy indicators, change and growth is much less dynamic than for ICT infrastructure market developments and ICT uptake in society, in particular in developing countries.

Comparing income and IDI levels

As is the case with many indicators related to socio-economic development, ICT indicators have a strong relationship with countries' national income levels. Chart 2.5 plots the IDI against gross national income (GNI) per capita (PPP$), which results in an R-squared value of 0.8, indicating a very strong relationship between the two variables. Accordingly, lower income levels correspond to lower IDI levels and vice versa, following a logarithmic curve. There are a number of countries that are relatively far away from the curve fitting the data. As in the past, IDI levels in the Republic of Korea (the top-ranked country) are much higher relative to its GNI per capita level. Other cases above the curve featuring a high IDI include Sweden, Iceland, Denmark and Finland. In those countries, factors other than income play an important role in driving ICT developments. These include strong ICT-targeted policies (including widely available broadband infrastructure) and a strong ICT sector. Towards the lower end of the curve, there are more countries that lie far below the curve. These are thus countries where

Chart 2.5: IDI and GNI per capita, 2010



Source: ITU.

Table 2.4: Country groups based on different IDI levels

Group	Number of countries	Population %	IDI 2010	
			minimum	maximum
High	33	15.0	6.16	8.40
Upper	33	11.2	4.09	6.04
Medium	43	37.8	2.59	4.05
Low	43	35.9	0.83	2.55
Total	**152**	**100.0**	**0.83**	**8.40**

Source: ITU.

ICT development would be expected to be higher given their levels of income. They include Botswana, Brunei Darussalam, Gabon, Oman and Trinidad and Tobago. In those countries, ICT has not been a key driver for development, and a shift in policies could have a significant positive impact on their ICT advancement.

One of the main advantages of producing a composite index such as the IDI is that countries can be grouped according to their levels of ICT advancement. Although the above illustrated the strong correlation between the IDI and national income, the relationship is not perfect and there are a number of countries lying above or below the trend line. The real digital divide between countries should be measured based on their different levels of ICT.

For this purpose, countries have been distributed among four groups based on their IDI levels (high, upper, medium and low).[37] Table 2.4 shows the distribution of the number of countries across the groups, their share in total population and their IDI ranges. Table 2.6 provides a full list of countries included in each group, and Figure 2.4 shows their geographic distribution. It is noteworthy, that some countries have succeeded in moving (up) from one group to another (Table 2.5). These countries have managed to increase their IDI values more than countries with previously similar IDI values.

The groups are composed as follows:

High (IDI values above 6.16): This group is composed of 33 economies, mainly from OECD member states as well as Croatia, Hong Kong (China), Malta, Macao (China), Singapore and United Arab Emirates. Economies in this group account for 15 per cent of the population covered by the IDI, and have high ICT access, use and skills values. Croatia and the United Arab Emirates advanced from the "upper" group (in 2008) to the "high" group in 2010.

Upper (IDI values between 4.09 and 6.04): This group is composed of 33 economies from Latin America, the Arab region and Eastern Europe. It also includes the Russian Federation and some Caribbean island states. Malaysia is the only South-East Asian country in this group. Countries in this group comprise 11 per cent of the population covered by the IDI, and have achieved an elevated level of ICT access, use and skills. Four countries (Bosnia and Herzegovina, Moldova, Oman and Panama) advanced from the "medium" (2008) to this "upper" group in 2010 by succeeding in improving their ICT levels more than countries with previously similar IDI values.

Medium (IDI values between 2.59 and 4.05): This group is composed of 43 economies from Latin America, the CIS region and the Arab States, accounting for 38 per cent of the population covered by the IDI. The group includes some large Asian countries (including China and Indonesia) and some African countries (Botswana, Cape Verde, Mauritius, Seychelles, South Africa), as well as the Islamic Republic of Iran. Countries in this group have on average achieved reasonable levels of ICT access, but are still relatively low in ICT usage. Botswana and Guatemala improved their IDI values sufficiently to advance from the "low" group in 2008 to the "medium" group in 2010.

Table 2.5: Advancement of countries between IDI groups (2008-2010)

Country	From IDI 2008 group	To IDI 2010 group
Bosnia and Herzegovina	Medium	Upper
Botswana	Low	Medium
Croatia	Upper	High
Guatemala	Low	Medium
Moldova	Medium	Upper
Oman	Medium	Upper
Panama	Medium	Upper
United Arab Emirates	Upper	High

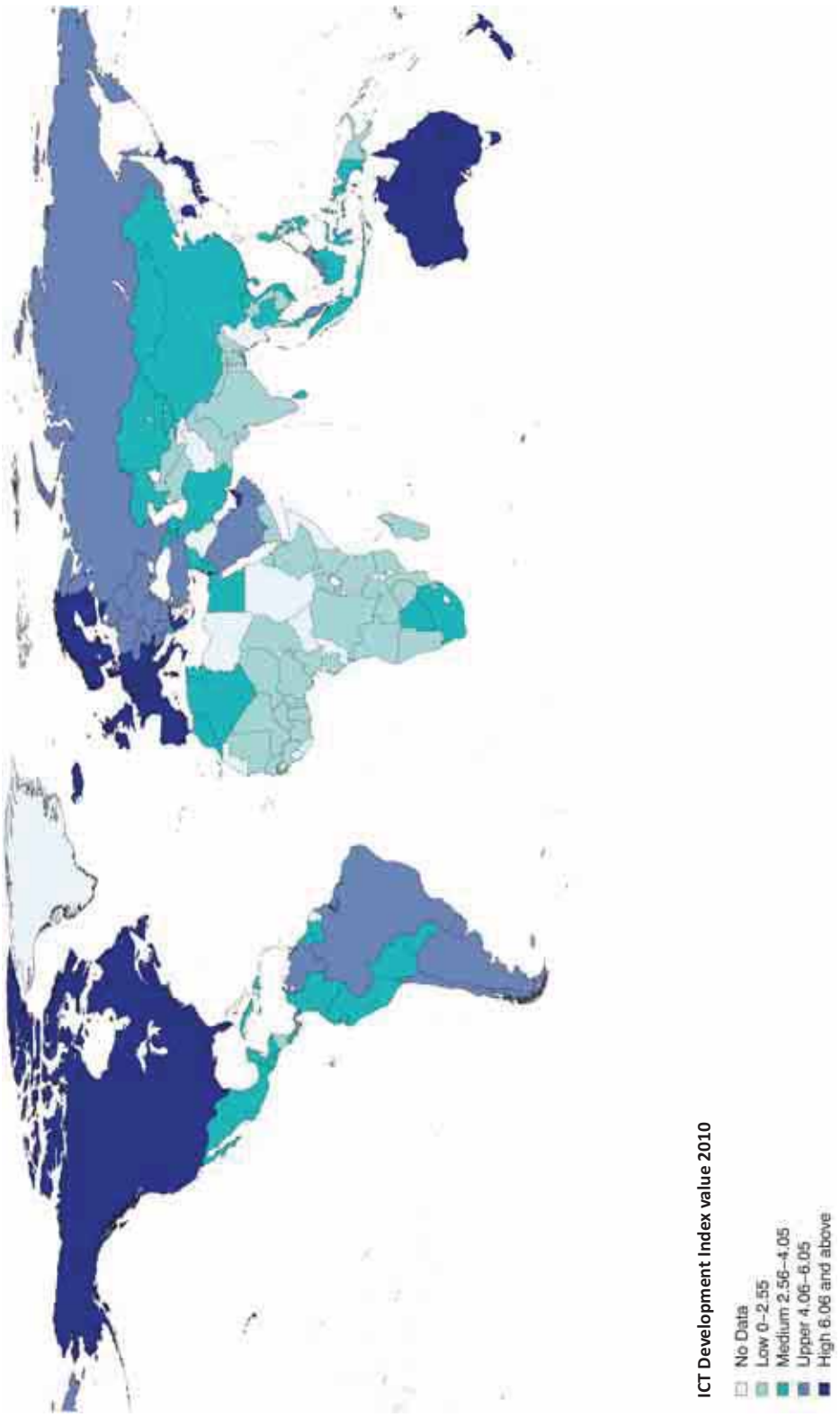
Source: ITU.

Low (IDI values below 2.55): This group is composed of 43 countries, mainly from Africa and South Asia (including India), including all of the least developed countries (LDCs) covered in the IDI. The group also includes non-LDCs such as Cote d'Ivoire, Ghana, Kenya, Namibia, Nicaragua, Nigeria, Turkmenistan, Uzbekistan and Zimbabwe. Countries included in this group account for 36 per cent of the population covered by the IDI and have on average very low levels of ICT access, use and skills, with some exceptions described earlier in this chapter. They are the countries that need the most attention from policy-makers and ICT investors.

Comparing the economies according to their IDI groups and income groups provides an additional perspective for some countries. The income groups were derived by grouping the economies using the same methodology applied to the IDI groupings, but using the 2009 GNI per capita (PPP$) values.[38] The income groups are: low (economies with GNI per capita (PPP$) of 4 570 or less), medium (4 571 to 14 090), upper (14 091 to 31 870), and high (31 871 or more).

Sixty-six per cent of economies are classified in the same group for both the IDI and income. Fourty-two economies (28 per cent) were in the IDI group above their income group (see Table 2.6). Some of these countries were mentioned in previous sections (such as the Republic of Korea, New Zealand, Moldova). Moldova, notably, which is classified as a country with low GNI per capita (PPP$), performed better in the IDI compared with other countries with similar income levels, and is classified in the IDI upper group. For nine countries (six per cent), including Bahrain, Brunei Darussalam, Gabon, Namibia and Turkmenistan, the reverse is true, i.e. they display lower IDI levels than their incomes would predict. In these countries, there are other barriers to ICT adoption and use that policy-makers need to address. These may include skills, awareness of the important benefits that ICTs can bring, improving ICT infrastructure in underserved areas and creating local content (including in local languages where people do not speak the more widely available Internet languages).

Figure 2.4: ICT Development Index value, 2010



Source: ITU.

Table 2.6: List of economies by IDI levels and income

High IDI (6.16-8.40)	Income	Upper IDI (4.09-6.04)	Income	Medium IDI (2.59-4.05)	Income	Low IDI (0.83-2.55)	Income
Australia	High	Antigua & Barbuda	Upper	Albania	Medium	Angola	Medium
Austria	High	Argentina	Medium	Algeria	Medium	Bangladesh	Low
Belgium	High	Bahrain	High	Armenia	Medium	Benin	Low
Canada	High	Barbados	Medium	Azerbaijan	Medium	Bhutan	Medium
Croatia	Upper	Belarus	Medium	Bolivia	Low	Burkina Faso	Low
Denmark	High	Bosnia and Herzegovina	Medium	Botswana	Medium	Cambodia	Low
Estonia	Upper	Brazil	Medium	Cape Verde	Low	Cameroon	Low
Finland	High	Brunei Darussalam	High	China	Medium	Chad	Low
France	High	Bulgaria	Medium	Colombia	Medium	Comoros	Low
Germany	High	Chile	Medium	Costa Rica	Medium	Congo (Dem. Rep.)	Low
Greece	Upper	Cyprus	Upper	Cuba	Medium	Côte d'Ivoire	Low
Hong Kong, China	High	Czech Republic	Upper	Dominican Rep.	Medium	Djibouti	Low
Iceland	High	Hungary	Upper	Ecuador	Medium	Eritrea	Low
Ireland	High	Latvia	Upper	Egypt	Medium	Ethiopia	Low
Israel	Upper	Lithuania	Upper	El Salvador	Medium	Gabon	Medium
Italy	Upper	Malaysia	Medium	Fiji	Low	Gambia	Low
Japan	High	Moldova	Low	Georgia	Medium	Ghana	Low
Korea (Rep.)	Upper	Montenegro	Medium	Guatemala	Low	Guinea	Low
Luxembourg	High	Oman	Upper	Guyana	Low	India	Low
Macao, China	High	Panama	Medium	Honduras	Low	Kenya	Low
Malta	Upper	Poland	Upper	Indonesia	Low	Lao P.D.R.	Low
Netherlands	High	Qatar	High	Iran (I.R.)	Medium	Madagascar	Low
New Zealand	Upper	Romania	Upper	Jamaica	Medium	Mali	Low
Norway	High	Russia	Upper	Jordan	Medium	Mauritania	Low
Portugal	Upper	Saudi Arabia	Upper	Kazakhstan	Medium	Mozambique	Low
Singapore	High	Serbia	Medium	Kyrgyzstan	Low	Namibia	Medium
Slovenia	Upper	Slovak Republic	Upper	Lebanon	Medium	Nepal	Low
Spain	Upper	TFYR Macedonia	Medium	Maldives	Medium	Nicaragua	Low
Sweden	High	Trinidad & Tobago	Upper	Mauritius	Medium	Niger	Low
Switzerland	High	Turkey	Medium	Mexico	Medium	Nigeria	Low
United Arab Emirates	High	Ukraine	Medium	Mongolia	Low	Pakistan	Low
United Kingdom	High	Uruguay	Medium	Morocco	Low	Papua New Guinea	Low
United States	High	Venezuela	Medium	Paraguay	Low	Rwanda	Low
				Peru	Medium	Senegal	Low
				Philippines	Low	Swaziland	Medium
				Seychelles	Upper	Tanzania	Low
				South Africa	Medium	Togo	Low
				Sri Lanka	Medium	Turkmenistan	Medium
				Suriname	Medium	Uganda	Low
				Syria	Medium	Uzbekistan	Low
				Thailand	Medium	Yemen	Low
				Tunisia	Medium	Zambia	Low
				Viet Nam	Low	Zimbabwe	Low

Source: ITU.

2.3 IDI breakdown by sub-indices

As described earlier, the overall ICT Development Index (IDI) is composed of the three sub-indices – covering ICT access, use and skills. Each of these sub-indices includes a certain number of indicators that help evaluate a country's development stage: five indicators to measure access and infrastructure developments, three indicators to gauge uptake and use of ICTs, and finally three indicators to understand the ability of people to make efficient use of ICTs. By looking at each one of the sub-indices separately, it is not only possible to assess a country's development status, but also to identify strengths and weaknesses in any of the three areas, and to adopt policies accordingly.

Among the IDI sub-indices, the greatest change took place in the use sub-index, which recorded a value change of 0.62 between 2008 and 2010, as against a value change of 0.48 in the access sub-index. This reflects the fact that many countries have reached saturation levels in terms of ICT readiness and are moving towards the ICT intensity and usage stage. The skills sub-index value changed by only 0.09 over the same period (see Table 2.1), reflecting the fact that school enrolment and literacy rates only change very gradually over time, particularly in comparison with ICT developments.

Access sub-index

The five indicators included in the access sub-index are: fixed-telephone subscriptions per 100 inhabitants, mobile-cellular telephone subscriptions per 100 inhabitants, international Internet bandwidth per Internet user, proportion of households with a computer, and proportion of households with Internet access at home. Together, these indicators measure the basic level of access and infrastructure development within a country, a key prerequisite for countries to join the information society. Not surprisingly, the top performers in the access sub-index, including Hong Kong (China), Iceland, Sweden and Denmark, also rank high on the overall IDI (Table 2.7).

Between 2008 and 2010, the greatest changes within the access sub-index have taken place in terms of the international Internet bandwidth per Internet user. Overall, international Internet bandwidth, which is a crucial building block in an increasingly data-intensive and high-speed information society, has increased from 29 000 Tbit/s to 59 000 Tbit/s globally, and operators worldwide have sought extra capacity to cater for an increasing number of Internet users. International Internet bandwidth has grown rapidly in all regions of the world, bringing down both wholesale and retail broadband prices. A number of new fibre-optic submarine cables in Africa, in particular, have made the headlines and substantially increased bandwidth capacity in that part of the world. Comoros, for example, was connected to a submarine cable for the first time in 2010, increasing bandwidth tenfold within the space of a few months. Madagascar received extra connectivity in early 2010[39] and has been able to increase international Internet bandwidth from 155 Mbit/s in 2008 to close to 2 Gbit/s by the end of 2010. Other countries that have invested substantially in international connectivity include Saudi Arabia, Viet Nam and Belarus, where BelTelecom's national broadband development strategy focused on investments in a high-speed broadband network including international connectivity.[40] All three countries rank in the list of top ten economies recording the greatest 2008-2010 change in the IDI access sub-index, both in terms of value and ranking (Table 2.8). Albania, the Russian Federation and Uruguay (see Box 2.8) also made considerable gains in international Internet bandwidth, which led to important changes in their access sub-index value and ranking.

A number of countries have also made impressive gains in terms of the number of mobile-cellular subscriptions, and by end 2010 a total of 79 countries (52 per cent of all those included in the IDI) have surpassed the 100 per cent penetration mark. A total of 128 countries have passed the 50 per cent mark. While many developed countries have reached saturation levels, in several developing countries, including India, Turkmenistan, Viet Nam and Zimbabwe, the number of mobile-cellular subscriptions more than doubled between 2008 and 2010. All of these countries now have mobile-cellular penetration rates well above 50 per cent, and Viet Nam stands out for having reached a penetration of close to 180 per cent by end 2010 (Box 2.9).

The level of ICT access by households remains very low in many developing countries and penetration rates tend to increase more gradually over time than for some of the other indicators, such as the bandwidth and mobile-cellular indicators. However, a number of countries have made important strides in connecting homes, thus helping them to achieve higher access sub-index levels. In Mongolia, data from the National Statistical Office show that the

Table 2.7: IDI access sub-index, 2010 and 2008

Economy	Rank 2010	Access 2010	Rank 2008	Access 2008
Hong Kong, China	1	9.06	1	8.77
Iceland	2	8.91	4	8.36
Luxembourg	3	8.80	2	8.42
Switzerland	4	8.70	6	8.28
Sweden	5	8.57	3	8.41
Germany	6	8.41	7	8.27
United Kingdom	7	8.36	9	8.02
Denmark	8	8.33	5	8.29
Netherlands	9	8.29	8	8.23
Korea (Rep.)	10	8.21	11	7.67
Singapore	11	8.14	12	7.65
Norway	12	7.88	10	7.71
Macao, China	13	7.88	13	7.63
France	14	7.75	17	7.25
Austria	15	7.68	15	7.34
Malta	16	7.64	21	7.03
Finland	17	7.61	18	7.13
Belgium	18	7.54	19	7.08
New Zealand	19	7.53	24	6.92
Ireland	20	7.45	14	7.39
Canada	21	7.43	16	7.29
Israel	22	7.30	23	6.93
United States	23	7.24	20	7.05
Australia	24	7.22	25	6.89
Slovenia	25	7.21	26	6.79
Portugal	26	7.14	33	6.45
Japan	27	7.14	22	6.98
Qatar	28	7.09	37	6.03
Croatia	29	7.05	31	6.51
Spain	30	6.98	28	6.67
Barbados	31	6.93	35	6.31
Italy	32	6.93	29	6.60
Estonia	33	6.91	32	6.50
Antigua & Barbuda	34	6.90	34	6.43
United Arab Emirates	35	6.76	27	6.78
Bahrain	36	6.73	30	6.55
Brunei Darussalam	37	6.51	40	5.91
Poland	38	6.49	43	5.79
Czech Republic	39	6.48	41	5.88
Lithuania	40	6.48	36	6.06
Russia	41	6.38	47	5.41
Greece	42	6.37	39	5.94
Saudi Arabia	43	6.37	51	5.06
Hungary	44	6.34	38	6.01
Serbia	45	6.32	45	5.59
Slovak Republic	46	6.16	42	5.79
Cyprus	47	6.13	44	5.71
Latvia	48	6.03	46	5.54
Bulgaria	49	5.77	48	5.40
Uruguay	50	5.75	56	4.61
Belarus	51	5.67	61	4.31
TFYR Macedonia	52	5.57	53	4.80
Montenegro	53	5.55	49	5.20
Romania	54	5.50	52	5.00
Maldives	55	5.45	55	4.61
Trinidad & Tobago	56	5.32	50	5.12
Argentina	57	5.26	54	4.79
Chile	58	5.17	57	4.49
Moldova	59	5.17	62	4.20
Oman	60	5.00	60	4.31
Turkey	61	4.97	58	4.44
Ukraine	62	4.79	59	4.40
Panama	63	4.75	70	3.85
Seychelles	64	4.71	65	4.07
Malaysia	65	4.70	63	4.19
Mauritius	66	4.65	66	4.02
Brazil	67	4.62	64	4.08
Kazakhstan	68	4.61	68	3.90
Costa Rica	69	4.60	69	3.88
Iran (I.R.)	70	4.60	73	3.69
Suriname	71	4.54	67	3.93
Viet Nam	72	4.39	88	3.11
Bosnia and Herzegovina	73	4.35	71	3.83
Jordan	74	4.32	75	3.65
Azerbaijan	75	4.28	81	3.28
Fiji	76	4.09	79	3.38
Armenia	77	4.07	84	3.22
Egypt	78	4.07	83	3.23
Morocco	79	4.05	86	3.19
Syria	80	3.96	77	3.54
Mexico	81	3.94	78	3.50
Albania	82	3.93	92	3.05
Colombia	83	3.91	72	3.77
Lebanon	84	3.89	89	3.08
China	85	3.86	76	3.61
Venezuela	86	3.83	74	3.66
Ecuador	87	3.80	85	3.20
Jamaica	88	3.80	80	3.29
Thailand	89	3.62	82	3.27
Peru	90	3.62	91	3.06
Mongolia	91	3.60	99	2.84
Tunisia	92	3.60	93	3.02
Georgia	93	3.56	98	2.89
El Salvador	94	3.53	90	3.08
Honduras	95	3.45	96	2.93
Guatemala	96	3.44	87	3.16
Algeria	97	3.34	103	2.57
Gabon	98	3.26	104	2.54
South Africa	99	3.15	94	3.00
Sri Lanka	100	3.15	102	2.66
Philippines	101	3.14	100	2.77
Indonesia	102	3.13	107	2.45
Botswana	103	3.12	106	2.50
Dominican Rep.	104	3.12	95	2.98
Guyana	105	3.11	101	2.66
Paraguay	106	3.03	97	2.92
Bolivia	107	2.84	108	2.44
Cape Verde	108	2.83	105	2.51
Turkmenistan	109	2.73	120	1.89
Namibia	110	2.69	109	2.26
Nicaragua	111	2.53	110	2.25
Cambodia	112	2.45	116	1.94
Pakistan	113	2.40	119	1.90
Kyrgyzstan	114	2.38	112	2.07
India	115	2.37	122	1.85
Côte d'Ivoire	116	2.36	115	1.97
Gambia	117	2.33	114	2.04
Mauritania	118	2.30	111	2.17
Senegal	119	2.28	117	1.94
Bhutan	120	2.24	124	1.78
Ghana	121	2.23	118	1.92
Benin	122	2.22	126	1.67
Lao P.D.R.	123	2.21	123	1.81
Kenya	124	2.17	130	1.58
Swaziland	125	2.11	121	1.87
Djibouti	126	2.10	113	2.05
Uzbekistan	127	2.08	125	1.75
Togo	128	2.00	132	1.52
Yemen	129	1.93	131	1.52
Bangladesh	130	1.91	135	1.45
Madagascar	131	1.89	141	1.32
Nigeria	132	1.87	133	1.51
Zimbabwe	133	1.86	149	1.08
Angola	134	1.86	127	1.64
Comoros	135	1.85	140	1.37
Mali	136	1.84	128	1.62
Papua New Guinea	137	1.78	137	1.43
Burkina Faso	138	1.76	129	1.59
Nepal	139	1.75	144	1.26
Guinea	140	1.67	134	1.46
Mozambique	141	1.67	139	1.40
Tanzania	142	1.64	148	1.11
Cameroon	143	1.64	136	1.44
Rwanda	144	1.61	145	1.24
Uganda	145	1.58	147	1.16
Niger	146	1.55	143	1.27
Zambia	147	1.54	138	1.43
Ethiopia	148	1.53	146	1.23
Cuba	149	1.39	142	1.28
Congo (Dem. Rep.)	150	1.07	152	0.80
Chad	151	1.03	150	1.01
Eritrea	152	0.87	151	0.82

Source: ITU.

Table 2.8: Top ten economies with the greatest 2008-2010 change in the IDI access sub-index, by absolute value change (left) and rank change (right)

IDI rank 2010	Access rank 2010	Country	Access value change 2008-2010
52	51	Belarus	1.36
46	43	Saudi Arabia	1.32
81	72	Viet Nam	1.28
54	50	Uruguay	1.14
44	28	Qatar	1.06
74	75	Azerbaijan	1.01
47	41	Russia	0.97
57	59	Moldova	0.97
87	70	Iran (I.R.)	0.90
66	63	Panama	0.90

IDI rank 2010	Access rank 2010	Country	Access rank change 2008-2010
81	72	Viet Nam	16
124	133	Zimbabwe	16
111	109	Turkmenistan	11
78	82	Albania	10
52	51	Belarus	10
141	131	Madagascar	10
44	28	Qatar	9
86	91	Mongolia	8
46	43	Saudi Arabia	8
72	77	Armenia	7

Source: ITU.

Box 2.8: The highest ranked IDI country from South America: Uruguay takes the lead

Uruguay is the top South American country in the IDI ranking (ranked 54th) in 2010. Uruguay achieved a 0.72 IDI value change from 2008, significantly above the world average value increase of 0.46 and higher than South America's average value increase of 0.39. This progress was attributable to achievements in both the access and use sub-indices. Uruguay's fixed-telephone line penetration rate stands at 29 per cent at end of 2010, and yet the country's mobile-penetration rate has climbed to a staggering 131 per cent (up from 105 per cent two years ago). The mobile market has made great strides, led by Ancel, the mobile arm of state-owned incumbent *Administración Nacional de Telecomunicaciones* (Antel). As the Uruguayan telecom market grows, newcomers are beginning to enter into Antel's space, and this could exert an influence in respect of tariff adjustments and competition in new areas for next year.

Uruguay has improved its access and use sub-index values by large magnitudes (by 1.14 and 0.53 as compared with the world averages of 0.47 and 0.63, respectively). Of the countries of the Americas, Uruguay showed the highest access sub-index increase in 2010, thanks to a large increase in its international Internet bandwidth. In a consortium with marine service provider IT Telecom and Alcatel-Lucent, Antel began deployment of the 250km submarine cable network last year. This undersea project is part of efforts to provide greater capacity to countries served by Antel and Telcom Argentina.[41]

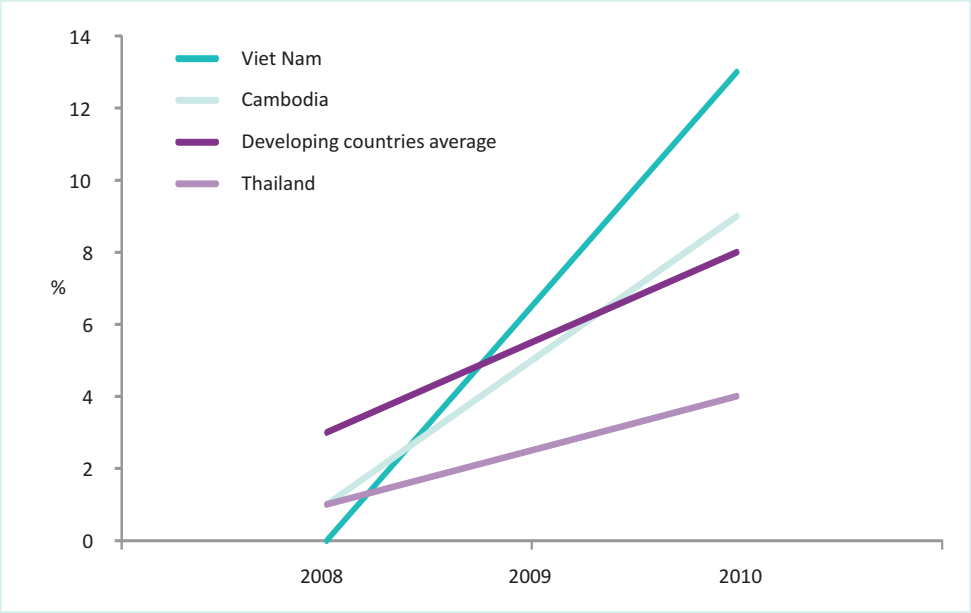
Internet use in Uruguay has also increased substantially over the last ten years and, in 2010, more than four out of ten people in Uruguay were using the Internet.[42] This is above the level in developing countries, where at present only 20 per cent of people are online, and also above the world average of 37 per cent. Future advances in technology will hopefully see an even larger Internet usage rate next year. Uruguay improved most on the household computers and Internet access indicators (from 35 to 53 per cent and from 21 to 33 per cent, respectively). Under its fibre-to-the-home (FTTH) roll-out plans, Antel is aiming to deploy connections to around 80 000 households by end 2011 and reach 200 000 households by end 2012.[43] It has also upgraded its HSDPA+ technology and is planning for the next future LTE technology.

Box 2.9: Government support for ICTs pays off in Viet Nam

Viet Nam moved up ten places to 81st position with an IDI increase from 2.76 in 2008 to 3.53 in 2010. This 28 per cent improvement in IDI value is mainly due to an increase in the IDI use sub-index, with 13 mobile-broadband subscriptions per 100 inhabitants, up from no subscriptions in 2008 (Chart Box 2.9). Viet Nam jumped 16 places in the access sub-index ratings in relation to 2008, with significant gains in mobile penetration and international Internet bandwidth per user. The official launch of 3G services at the end of 2009 has contributed to more than doubling mobile subscriptions in the last two years, from 87 to 175 per 100 inhabitants. According to telecom operator Vinaphone, the high-speed 3G availability of services such as mobile Internet games, multimedia, mobile-TV and online newspapers together with product introductions of iPhone and HTC products have all contributed to the country's mobile-broadband success. International Internet bandwidth rates rose from 50 064 Mbit/s to 134 420 Mbit/s. Viet Nam is now connected with three international gateways. The third Asia-America Gateway (AAG) opened in November 2009, connecting southern Asia to America by way of an undersea cable system network with an international transmission capacity of 500 Gbit/s.[44]

Government support has boosted the country's positive ICT direction and status. The National Assembly issued a Law on Telecommunications and a Law on Wireless Radio Frequency, which took effect in July 2010. The two laws aim to encourage all economic and private sectors to develop their telecommunication services, investments and infrastructure.[45]

Chart Box 2.9: Active mobile-broadband subscriptions per 100 inhabitants, 2008-2010



Source: ITU World Telecommunication/ICT Indicators database.

country has increased the proportion of households with Internet access at home from three per cent in 2008 to eight per cent by 2010. In 2010, more than 22 per cent of households had a computer, suggesting that there is scope to bring more people online at home. In Armenia, the proportion of households with Internet access has increased substantially over the last few years, mainly due to increased mobile-broadband access and, by the end of 2010, over one-third of homes were connecting to the Internet. At the same time, Armenia showed strong growth in terms of international Internet bandwidth. In Moldova, the number of households with Internet access at home more than doubled between 2008 and 2010, by when close to 35 per cent of households had an Internet connection. Increasing household ICT access was one of the targets set under the country's National Strategy on Information Society

Table 2.9: IDI use sub-index, 2010 and 2008

Economy	Rank 2010	Use 2010	Rank 2008	Use 2008
Korea (Rep.)	1	7.85	1	6.92
Sweden	2	7.55	4	5.92
Luxembourg	3	7.24	2	6.53
Finland	4	7.11	11	5.28
Japan	5	7.08	3	6.27
Denmark	6	6.85	5	5.76
Norway	7	6.60	8	5.55
Iceland	8	6.58	15	4.88
Australia	9	6.57	9	5.47
Hong Kong, China	10	6.46	13	5.14
United Kingdom	11	6.44	10	5.30
Netherlands	12	6.38	6	5.70
Switzerland	13	6.37	12	5.28
New Zealand	14	6.35	14	5.08
Singapore	15	6.03	7	5.59
Austria	16	5.99	19	4.45
United States	17	5.89	17	4.74
France	18	5.74	18	4.73
Israel	19	5.71	20	4.44
Germany	20	5.69	16	4.83
Spain	21	5.35	24	4.30
Portugal	22	5.19	29	3.55
Ireland	23	5.17	21	4.40
Belgium	24	5.16	23	4.32
United Arab Emirates	25	5.12	27	3.87
Macao, China	26	5.10	42	2.94
Italy	27	4.99	25	4.21
Canada	28	4.87	22	4.34
Cyprus	29	4.78	43	2.85
Slovenia	30	4.78	26	3.97
Malta	31	4.66	32	3.42
Greece	32	4.52	30	3.51
Slovak Republic	33	4.44	33	3.38
Croatia	34	4.33	39	3.03
Latvia	35	4.26	36	3.29
Hungary	36	4.26	34	3.31
Estonia	37	4.09	28	3.65
Czech Republic	38	4.03	31	3.47
Brunei Darussalam	39	4.01	38	3.05
Lithuania	40	3.97	41	2.95
Poland	41	3.84	40	2.98
Qatar	42	3.75	50	1.91
Antigua & Barbuda	43	3.62	35	3.30
Saudi Arabia	44	3.59	54	1.72
Barbados	45	3.48	37	3.22
Montenegro	46	3.46	49	1.94
Bahrain	47	3.22	44	2.75
Romania	48	3.20	46	2.43
Bulgaria	49	3.17	45	2.50
Malaysia	50	3.15	47	2.42
TFYR Macedonia	51	3.11	48	2.02
Bosnia and Herzegovina	52	2.67	61	1.43
Russia	53	2.62	63	1.27
Oman	54	2.55	78	0.92
Serbia	55	2.47	52	1.74
Turkey	56	2.46	56	1.59
Belarus	57	2.41	72	1.05
Chile	58	2.31	51	1.79
Uruguay	59	2.26	53	1.73
Moldova	60	2.26	76	0.96
Trinidad & Tobago	61	2.22	57	1.52
Venezuela	62	2.18	62	1.41
Argentina	63	2.16	60	1.44
Brazil	64	2.11	58	1.49
Morocco	65	2.05	64	1.27
Panama	66	1.97	59	1.45
Seychelles	67	1.92	55	1.60
Mauritius	68	1.91	66	1.19
Mexico	69	1.86	68	1.15
Georgia	70	1.81	83	0.76
Costa Rica	71	1.74	65	1.21
China	72	1.73	70	1.10
Colombia	73	1.71	71	1.07
Albania	74	1.69	79	0.91
Dominican Rep.	75	1.59	81	0.84
Viet Nam	76	1.57	77	0.93
Peru	77	1.56	67	1.17
Armenia	78	1.55	122	0.22
Azerbaijan	79	1.53	90	0.61
Jordan	80	1.52	80	0.90
Tunisia	81	1.52	73	1.04
Maldives	82	1.51	69	1.14
Philippines	83	1.49	96	0.51
Kazakhstan	84	1.44	92	0.60
Jamaica	85	1.37	74	1.02
Ukraine	86	1.35	91	0.61
Lebanon	87	1.29	75	1.01
Suriname	88	1.22	84	0.76
Egypt	89	1.20	87	0.68
Cape Verde	90	1.17	85	0.75
Ecuador	91	1.16	86	0.70
Guyana	92	1.08	88	0.64
Thailand	93	1.05	82	0.77
Nigeria	95	1.05	89	0.63
South Africa	96	1.04	97	0.50
Paraguay	97	0.95	93	0.56
Kenya	94	1.05	113	0.29
Mongolia	98	0.86	103	0.40
El Salvador	99	0.82	99	0.47
Kyrgyzstan	100	0.82	94	0.54
Uzbekistan	101	0.81	110	0.32
Sri Lanka	102	0.77	112	0.30
Bolivia	103	0.77	102	0.41
Syria	104	0.75	121	0.22
Indonesia	105	0.69	104	0.40
Senegal	106	0.65	106	0.38
Fiji	107	0.64	98	0.49
Pakistan	108	0.60	95	0.53
Guatemala	109	0.57	109	0.34
Honduras	110	0.56	108	0.34
Algeria	111	0.56	101	0.42
Bhutan	112	0.53	115	0.25
Angola	113	0.53	131	0.13
Cuba	114	0.51	100	0.43
Namibia	115	0.49	125	0.18
Nicaragua	116	0.48	120	0.23
Iran (I.R.)	117	0.47	107	0.36
Botswana	118	0.44	117	0.23
Uganda	119	0.44	114	0.27
Tanzania	120	0.44	111	0.31
Zimbabwe	121	0.42	105	0.39
Yemen	122	0.38	116	0.24
Cambodia	123	0.35	140	0.06
India	124	0.33	126	0.17
Gambia	125	0.32	119	0.23
Ghana	126	0.32	128	0.15
Rwanda	127	0.30	135	0.10
Swaziland	128	0.27	118	0.23
Djibouti	129	0.27	136	0.09
Lao P.D.R.	130	0.26	132	0.12
Gabon	131	0.25	123	0.22
Nepal	132	0.25	141	0.06
Zambia	133	0.23	124	0.19
Mauritania	134	0.21	129	0.15
Mozambique	135	0.19	144	0.05
Togo	136	0.18	127	0.16
Eritrea	137	0.18	130	0.14
Comoros	138	0.17	134	0.12
Cameroon	139	0.16	133	0.12
Bangladesh	140	0.13	137	0.09
Mali	141	0.13	145	0.05
Benin	142	0.12	139	0.06
Côte d'Ivoire	143	0.09	138	0.07
Madagascar	144	0.09	143	0.06
Turkmenistan	145	0.07	142	0.06
Chad	146	0.06	147	0.04
Burkina Faso	147	0.05	148	0.03
Papua New Guinea	148	0.05	146	0.04
Ethiopia	149	0.03	151	0.02
Guinea	150	0.03	149	0.03
Niger	151	0.03	150	0.02
Congo (Dem. Rep.)	152	0.02	152	0.01

Source: ITU.

Development (e-Moldova), which was launched in March 2005.[46]

Use sub-index

The three indicators included in the use sub-index are: Internet users per 100 inhabitants, fixed-broadband Internet subscriptions per 100 inhabitants, and active mobile-broadband subscriptions per 100 inhabitants. These indicators reflect ICT uptake and use, as well as intensity of use. The choice of these indicators highlights the importance attributed to high-speed access to the Internet. All of the top performers in the use sub-index (Table 2.10) rank in the top 15 in the overall IDI, suggesting that ICT use is closely correlated with ICT access and ICT skills and that high ICT usage levels cannot be achieved without the necessary infrastructure or human capacity.

The use sub-index was the IDI component showing the greatest changes between 2008 and 2010, reflecting the developments that have taken place in fixed-broadband but particularly mobile-broadband technologies, services and Internet uptake. The number of mobile-broadband subscriptions worldwide more than doubled between 2008 (when it overtook the number of fixed-broadband subscriptions) and 2010, and by the end of 2010 more than 150 economies had launched 3G mobile-broadband networks.

An analysis of the most dynamic economies in terms of the change in their use sub-index values and rankings between 2008 and 2010 (see Table 2.10) reveals that the countries that have registered substantial gains in the use sub-index are mostly those that have shown a sizeable increase in terms of mobile-broadband subscriptions. On the other hand, countries that have not yet commercially launched 3G or have very low mobile-broadband penetration rates – including Algeria, Bolivia, Eritrea, Gabon, the Islamic Republic of Iran, Kyrgyzstan, Togo, Yemen and Zimbabwe – have seen their use sub-index ranking fall.

Several economies which had not yet launched 3G commercially in 2008, such as, for example Iceland and Macao (China), or which had very low penetration levels at that time, including Kenya, Belarus and Moldova, have shown impressive growth in terms of active subscriptions. While Iceland and Macao (China) reached penetration levels of 45 and 56 per cent, respectively, mobile-broadband penetration levels in Kenya, Belarus and Moldova stood at 6, 12 and 15 per cent, respectively, by end 2010.

A group of European countries – Sweden Austria, Cyprus and Portugal – can also be highlighted for their achievements in terms of mobile-broadband penetration in 2010, by when penetration levels stood at between 67 and 84 per cent. At 84 per cent, Sweden has the third-highest mobile-broadband penetration in the

Table 2.10: Top ten economies with the greatest 2008-2010 change in the IDI use sub-index, by absolute value change (left) and rank change (right)

IDI rank 2010	Use rank 2010	Country	Use value change 2008-2010
21	26	Macao, China	2.16
36	29	Cyprus	1.93
46	44	Saudi Arabia	1.87
44	42	Qatar	1.84
5	4	Finland	1.82
3	8	Iceland	1.70
27	22	Portugal	1.65
2	2	Sweden	1.63
60	54	Oman	1.63
16	16	Austria	1.54

IDI rank 2010	Use rank 2010	Country	Use rank change 2008-2010
72	78	Armenia	44
60	54	Oman	24
115	94	Kenya	19
132	113	Angola	18
96	104	Syria	17
117	123	Cambodia	17
21	26	Macao, China	16
57	60	Moldova	16
52	57	Belarus	15
36	29	Cyprus	14

Source: ITU.

Table 2.11: IDI skills sub-index, 2010 and 2008

Economy	Rank 2010	Skills 2010	Rank 2008	Skills 2008
Finland	1	9.89	2	9.77
Korea (Rep.)	2	9.89	1	9.80
Slovenia	3	9.76	5	9.43
Cuba	4	9.64	3	9.70
Greece	5	9.59	4	9.59
Denmark	6	9.47	7	9.23
Ukraine	7	9.43	12	9.11
New Zealand	8	9.40	6	9.24
Lithuania	9	9.32	10	9.19
Iceland	10	9.30	11	9.11
Australia	11	9.21	9	9.19
United States	12	9.21	8	9.19
Poland	13	9.08	15	8.94
Hungary	14	9.03	23	8.72
Italy	15	9.02	19	8.86
Spain	16	9.01	16	8.93
Norway	17	9.01	13	9.06
Latvia	18	8.90	18	8.89
Sweden	19	8.89	14	8.99
Belarus	20	8.88	17	8.92
Russia	21	8.87	24	8.71
Canada	22	8.85	20	8.85
Czech Republic	23	8.80	34	8.40
Estonia	24	8.78	21	8.75
Belgium	25	8.75	22	8.72
Netherlands	26	8.71	25	8.64
Ireland	27	8.66	26	8.57
Japan	28	8.66	27	8.56
Uruguay	29	8.62	35	8.36
Romania	30	8.58	31	8.48
Slovak Republic	31	8.53	40	8.15
Venezuela	32	8.52	30	8.49
Portugal	33	8.52	29	8.49
Austria	34	8.50	32	8.45
France	35	8.43	33	8.44
United Kingdom	36	8.40	28	8.50
Argentina	37	8.38	36	8.34
Barbados	38	8.35	37	8.30
Israel	39	8.32	38	8.28
Chile	40	8.30	42	8.12
Croatia	41	8.27	43	8.07
Macao, China	42	8.27	44	8.05
Switzerland	43	8.22	41	8.14
Germany	44	8.17	39	8.17
Mongolia	45	8.14	45	8.02
Bulgaria	46	8.09	48	7.92
Armenia	47	8.08	52	7.84
Cyprus	48	8.05	46	7.95
Kazakhstan	49	7.98	47	7.95
Serbia	50	7.96	50	7.89
Bahrain	51	7.96	62	7.22
Hong Kong, China	52	7.92	49	7.91
Kyrgyzstan	53	7.80	51	7.87
Brazil	54	7.65	55	7.48
TFYR Macedonia	55	7.55	59	7.37
Malta	56	7.53	54	7.48
Bosnia and Herzegovina	57	7.53	58	7.38
Georgia	58	7.50	56	7.46
Moldova	59	7.49	53	7.53
Colombia	60	7.49	61	7.30
Jordan	61	7.47	60	7.36
Lebanon	62	7.47	57	7.42
Costa Rica	63	7.29	70	7.06
Peru	64	7.26	64	7.16
Azerbaijan	65	7.26	66	7.10
Turkey	66	7.21	77	6.96
Saudi Arabia	67	7.18	67	7.09
United Arab Emirates	68	7.18	79	6.88
Thailand	69	7.18	69	7.08
Montenegro	70	7.16	63	7.16
Mexico	71	7.14	74	6.99
Antigua & Barbuda	72	7.12	65	7.12
Singapore	73	7.08	68	7.08
Panama	74	7.02	75	6.99
Brunei Darussalam	75	7.01	78	6.93
Guyana	76	7.00	72	7.01
Uzbekistan	77	6.96	76	6.97
Tunisia	78	6.94	84	6.76
Ecuador	79	6.92	93	6.53
Bolivia	80	6.91	73	7.00
Turkmenistan	81	6.87	81	6.85
Mauritius	82	6.85	86	6.71
Philippines	83	6.83	80	6.88
Albania	84	6.83	71	7.04
Iran (I.R.)	85	6.81	87	6.69
Oman	86	6.81	83	6.79
Luxembourg	87	6.79	82	6.80
Trinidad & Tobago	88	6.75	88	6.67
Jamaica	89	6.74	85	6.72
Dominican Rep.	90	6.63	91	6.57
South Africa	91	6.61	92	6.57
Malaysia	92	6.57	90	6.58
China	93	6.55	95	6.42
Indonesia	94	6.50	98	6.25
Seychelles	95	6.45	94	6.45
Paraguay	96	6.39	97	6.32
Maldives	97	6.34	99	6.20
Qatar	98	6.33	89	6.60
Fiji	99	6.33	96	6.37
Algeria	100	6.32	102	6.06
Sri Lanka	101	6.12	100	6.11
Suriname	102	6.08	101	6.07
Cape Verde	103	6.03	103	5.98
Egypt	104	5.88	104	5.83
Botswana	105	5.83	106	5.79
Syria	106	5.82	105	5.79
El Salvador	107	5.74	107	5.73
Viet Nam	108	5.72	108	5.72
Honduras	109	5.58	109	5.55
Nicaragua	110	5.54	110	5.51
Namibia	111	5.46	111	5.44
Guatemala	112	5.24	114	4.95
Gabon	113	5.08	112	4.99
Kenya	114	5.01	113	4.96
Swaziland	115	4.90	115	4.81
India	116	4.66	116	4.54
Lao P.D.R.	117	4.56	118	4.33
Zimbabwe	118	4.50	117	4.50
Ghana	119	4.41	119	4.26
Cambodia	120	4.34	121	4.16
Comoros	121	4.31	120	4.23
Morocco	122	4.24	122	4.11
Bhutan	123	4.08	126	3.85
Cameroon	124	4.03	125	3.86
Yemen	125	3.97	124	3.95
Zambia	126	3.96	123	3.97
Nepal	127	3.78	127	3.77
Congo (Dem. Rep.)	128	3.65	128	3.55
Djibouti	129	3.56	130	3.50
Bangladesh	130	3.52	129	3.50
Togo	131	3.48	131	3.44
Uganda	132	3.42	134	3.34
Rwanda	133	3.40	139	3.22
Tanzania	134	3.40	135	3.32
Nigeria	135	3.39	132	3.43
Gambia	136	3.38	133	3.39
Eritrea	137	3.34	138	3.25
Madagascar	138	3.32	137	3.26
Papua New Guinea	139	3.27	136	3.27
Pakistan	140	3.16	140	3.12
Guinea	141	3.14	145	2.81
Côte d'Ivoire	142	3.13	141	3.05
Angola	143	3.12	142	2.99
Senegal	144	3.02	146	2.66
Benin	145	3.00	143	2.90
Mauritania	146	2.87	144	2.85
Mozambique	147	2.77	147	2.61
Mali	148	2.35	149	2.21
Ethiopia	149	2.29	148	2.23
Chad	150	1.99	150	1.91
Burkina Faso	151	1.78	151	1.67
Niger	152	1.44	152	1.36

Source: ITU.

world, just behind the Republic of Korea and Japan, which launched 3G services as far back as 2001-2002.

3G mobile-broadband networks and services have also made an important impact in a number of developing countries, including Angola, Armenia, Belarus, Cambodia, Ecuador, Kenya, Paraguay, Peru and Saudi Arabia, all of which have substantially increased mobile-broadband penetration rates over the 2008-2010 time period.

While fixed-broadband penetration rates remain very low in many developing countries, some economies have made good progress between 2008 and 2010. These include Armenia and Belarus, where fixed-broadband penetration rates increased from 0.2 and 5 per cent to 3 and 17 per cent, respectively. Both countries, which were also highlighted earlier for their achievements in terms of international Internet bandwidth growth, have seen a rapid rise in the number of Internet users over the same time period. Moldova has also managed to improve its use sub-index rank by no less than 16 places by not only making considerable progress in mobile broadband but also more than doubling the number of fixed-broadband subscriptions. These improvements are reflected in a large increase in the number of Internet users, and by end 2010 two out of five people in Moldova were online.

A number of developing countries highlight the impact that mobile-broadband services can have in bringing more people online. Morocco and Oman, for example, have substantially increased Internet user penetration – from 33 to 49 per cent in Morocco and from 20 to over 60 per cent in Oman – partly through the success of mobile broadband. While Oman more than doubled mobile-broadband subscriptions between 2008 and 2010, Morocco's even tripled. In Kenya, the number of fixed-broadband subscriptions grew only slightly between 2008 and 2010 (and actually decreased from 2009 to 2010), but mobile broadband grew at a very high rate, allowing many more Kenyans to go online. According to the country's regulatory authority, more than 25 per cent of the population in Kenya use the Internet, almost three times as many as in 2008.

Some of the countries that have effectively shown important value or ranking changes between 2008 and 2010 continue to lag behind in terms of their ICT use levels. In Cambodia, for example, despite an increase in the access sub-index above the world's average gain between 2008 and 2010, fixed-broadband penetration levels remain negligible and only just over one per cent of the population use the Internet.

Skills sub-index

The three indicators included in the skills sub-index are: adult literacy rate, gross secondary school enrolment, and gross tertiary school enrolment. These indicators are proxy indicators used to gauge a country's level of human capacity and its ability to absorb and take advantage of ICTs. More targeted indicators would be ones that measured countries' ICT literacy, but these are not (yet) available. For this reason, the skills sub-index is given less weight in the calculation of the overall IDI (20 per cent compared with 40 per cent for the other two sub-indices).

Changes in the skills sub-index are relatively small, particularly in comparison with the other two sub-indices, reflecting the fact that educational levels evolve only very gradually over time. A country's position in terms of the skills sub-index (Table 2.11) can nonetheless provide useful policy guidance, since the ability to use ICTs efficiently and effectively is crucial for countries to become globally competitive information societies. In particular, the importance and effect of human capital for the overall impact that ICTs have on social and economic development have been highlighted, and the World Summit on the Information Society (WSIS) recognized the need for countries to take active steps in investing in people and their skills. Two of the ten WSIS targets refer to connecting educational institutions and expanding ICT skills, and Action Line C4 is devoted to capacity building.[47]

2.4 Regional IDI analysis

A regional analysis of the IDI,[48] shows that the countries with the highest IDI rankings are from Europe and Asia. Apart from the United States (which ranks 17th on the IDI), all of the top 25 IDI economies are either European or from Asia-Pacific. This is illustrated in Table 2.12, which shows the top five countries within each region, as well as their position in the global ranking. The highest ranked countries from the Arab States and the CIS are the United Arab Emirates and the Russian Federation, ranked 32nd and 47th, respectively. Africa lags behind, with Mauritius being the highest ranked country in the region, but occupying only 69th place globally.

Table 2.12: The top five in each region and their ranking in the global IDI

Regional IDI rank	Europe	Global IDI rank	Asia & Pacific	Global IDI rank	Americas	Global IDI rank	Arab States	Global IDI rank	CIS	Global IDI rank	Africa	Global IDI rank
1	Sweden	2	Korea (Rep.)	1	United States	17	UAE	32	Russia	47	Mauritius	69
2	Iceland	3	HK, China	6	Canada	26	Qatar	44	Belarus	52	Seychelles	71
3	Denmark	4	New Zealand	12	Barbados	41	Bahrain	45	Moldova	57	South Africa	97
4	Finland	5	Japan	13	Uruguay	54	Saudi Arabia	46	Ukraine	62	Cape Verde	104
5	Luxembourg	7	Australia	14	Chile	55	Oman	60	Kazakhstan	68	Botswana	109

Source: ITU.

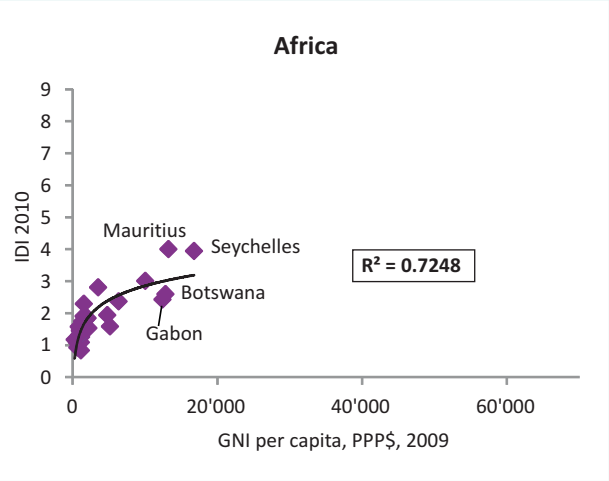
To highlight differences in ICT levels *within* each region, it is also interesting to look at the difference in the global rankings separating the top five countries of the region. Again, Europe and Asia-Pacific stand out because there is relatively little difference between the global rankings of their top five. In both the Arab States and the CIS, some 20 places separate the top-ranked and fifth-ranked countries. A much larger gap (of 38 places) is visible in the Americas, where the regional top five range from a global rank of 17 (United States) to 55 (Chile). Africa, where 40 places separate Mauritius from Botswana, is the region with the greatest global ranking difference between the top five countries.

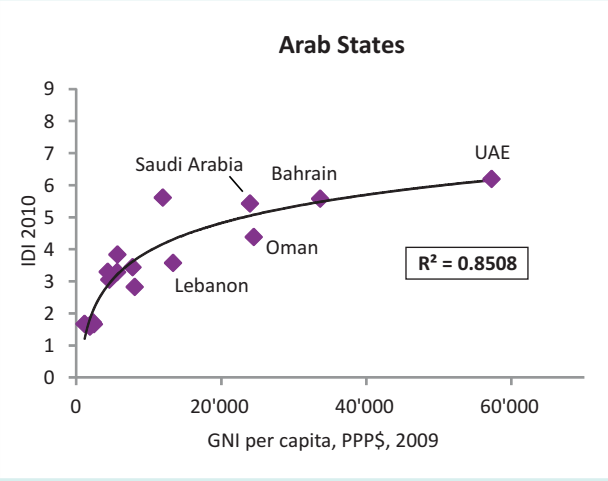
A comparison of regional ranges that includes all IDI countries (see Table 2.13) highlights that by far the largest regional IDI value ranges in both 2008 and 2010 – calculated by deducting the lowest value from the highest value – are found in Asia and the Pacific. The Americas has the second highest 2010 range in countries' IDI values, followed by Europe and the Arab States, which share the same range figure. Africa and the CIS have relatively smaller range values. While these findings do not refer to the level of ICT development of the regions, they point to the variations in ICT development within each region, which are often linked to differences in income levels, but can also be the result of national policies and other factors (such as skills or geographic and population characteristics).

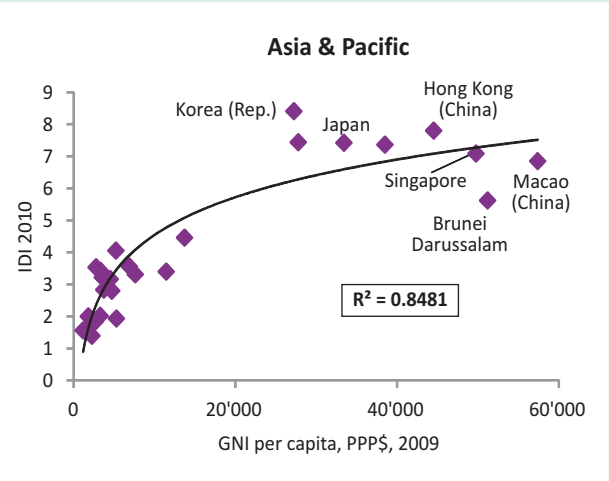
It is also interesting to analyse the change in ranges over time, since these help to understand whether countries within the regions are developing in the same direction, and at similar speeds (see Table 2.13). A 2008 and 2010 comparison of range differences shows that ranges increased somewhat in all regions, suggesting that regional differences are increasing. However, in Europe, for example, the difference is negligible, suggesting that European countries are moving at similar speeds, which is certainly also the result of a common set of policies and directives set by the European Union, for example through the Digital Agenda.[49] The largest increase in IDI ranges between 2008 and 2010 can be observed in the CIS, followed by Africa, where countries with relatively lower ICT levels are not catching up as fast as their counterparts in other regions.

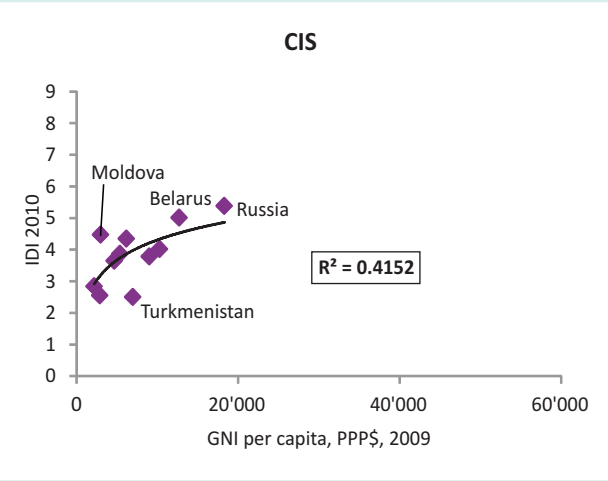
There is a strong link between regional ICT developments, on the one hand, and income levels – as measured by GNI per capita – on the other, as shown in Chart 2.6, which plots IDI and GNI per capita values against each other. The CIS is the region with the lowest R-squared value – indicating a relatively weaker linkage between income levels and ICT development. This is mainly because the region only includes a total of 11 countries and because it has two main outliers: Moldova and Turkmenistan. While Moldova is doing relatively better in terms of ICT development than its income level would suggest, Turkmenistan lies well below the trend line, suggesting that, given its income level, it should have a much higher IDI value. The distribution of countries is relatively homogeneous along the trend line for Africa (except for Mauritius and Seychelles) and for Europe. The Americas, the Arab States and Asia and the Pacific show a different pattern, with a cluster of relatively low-income countries at one end and some few(er) high-income economies at the other end. In the Arab States region, the United Arab Emirates, Bahrain and Saudi Arabia stand out for their high income and ICT development levels, while in the Americas region the United States and Canada are well

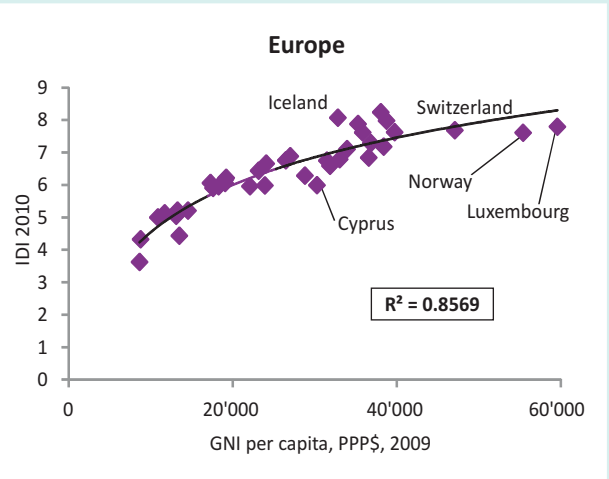
Chart 2.6: IDI and GNI per capita, by region, 2010

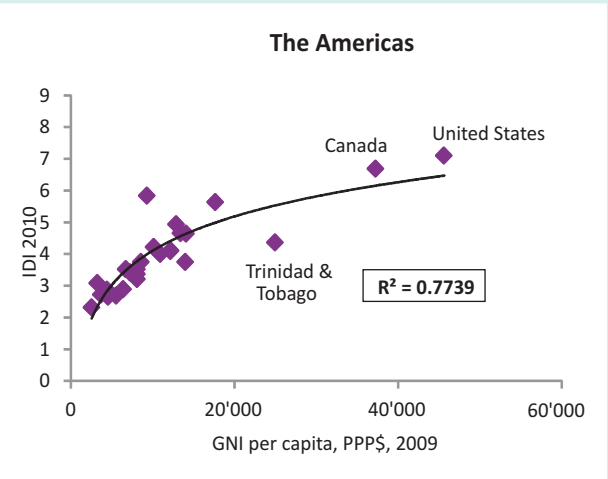












Note: The R-squared value of a logarithmic regression provides a measure of how well the trendline approximates the real data points. It varies from 0 to 1, the latter being the value obtained by a perfect fit of the data points. In the case of a regression between IDI and GNI per capita, the higher the R-squared value, the stronger the link between IDI and GNI per capita, as expressed by a logarithmic curve.

Source: Regions in these charts are based on the ITU/BDT Regions, see: http://www.itu.int/ITU-D/ict/definitions/regions/index.html.

Table 2.13: IDI ranges, 2010 and 2008

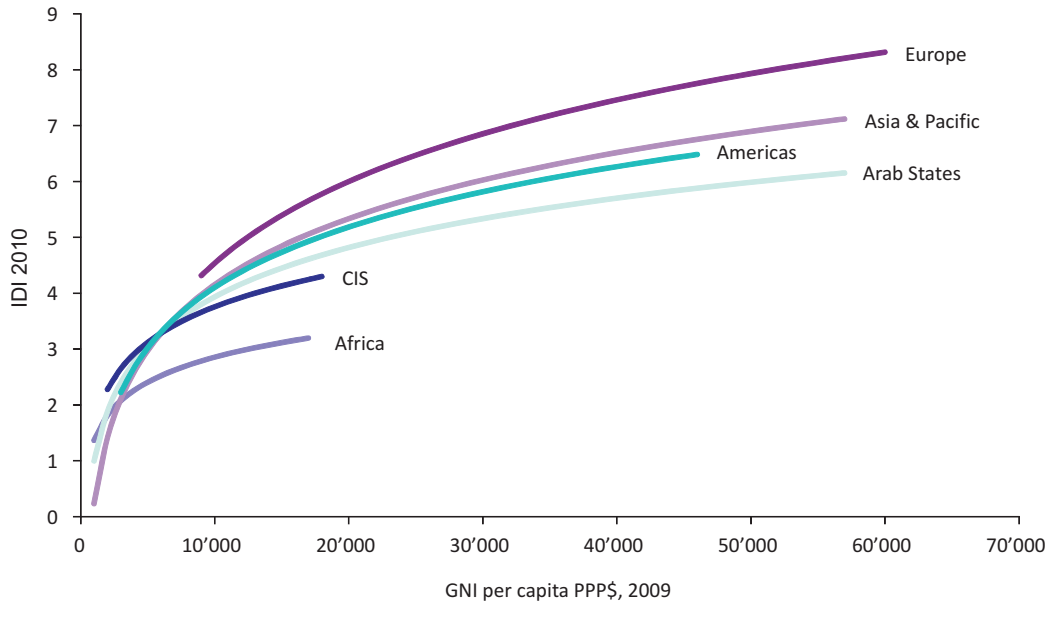
	2010			2008			Difference range 2008-2010
	Max.	Min.	Range	Max.	Min.	Range	
Asia & Pacific	8.40	1.38	7.02	7.80	1.24	6.56	0.46
The Americas	7.09	2.31	4.78	6.55	2.09	4.46	0.32
Europe	8.23	3.61	4.61	7.53	2.99	4.54	0.07
Arab States	6.19	1.58	4.61	5.63	1.50	4.14	0.47
Africa	4.00	0.83	3.16	3.43	0.80	2.62	0.54
CIS	5.38	2.50	2.88	4.42	2.15	2.27	0.61

Source: ITU.

ahead in terms of both their IDI and GNI per capita values. In Asia and the Pacific, a number of economies, including Hong Kong (China) and Singapore, display both high income and high IDI levels, but a few other economies, including the Republic of Korea, Japan, New Zealand and Australia, have higher IDI levels than their income level would predict.

Chart 2.7 plots on a single chart the relation between IDI and GNI per capita in each region. The CIS and Africa have the weakest relation between the two variables, being especially weak in Africa. This is seen in the chart where the curves of both regions are below the rest. For instance, a country with GNI per capita of PPP$ 10 000 in Africa will tend to have a lower IDI than a country with the same income from any other region. To a lesser extent, this also applies to CIS countries. This finding highlights the importance of effective ICT policies and efficient investment, which may make the difference in terms of achieving increased ICT development with the same (or similar) economic resources.

Chart 2.7: IDI and GNI per capita, by region



Source: ITU.

The countries with high income and high IDI appear at the other end of the chart. Of all regions which are home to countries with high GNI per capita, the Arab States has the weakest relation between income and IDI. Indeed, the Arab States' curve lies below those for the Americas, Asia and the Pacific and Europe. This means that, for instance, a country with a GNI per capita of PPP$ 40 000 in the Arab States will tend to have a lower IDI than a country with the same income in the Americas, Asia and the Pacific or Europe. This suggests that, given their economic resources, the Arab States possess a high potential for further ICT development, at least to reach the ICT performance of countries with similar incomes in other regions. To achieve this objective, effective ICT policies will play a crucial role.

Africa

In 2010, Africa remains the region with the lowest IDI values, with countries ranking between 69th (Mauritius), and 152nd (Chad) in the overall IDI (see Table 2.14). Mauritius, the Seychelles and South Africa have the highest IDI values in the region, of between 3 and 4 (as compared with a maximum of 8.4 achieved by the Republic of Korea). These are also the only three African countries that rank within the top 100 in the 2010 IDI.

At the same time, IDI values for all African countries increased between 2008 and 2010. Mauritius and Kenya recorded the highest value increase over this period, and Angola, Senegal and Zimbabwe managed to move four places up the IDI rankings. Zambia, which has not yet launched 3G commercially, and which continues to have a relatively low mobile-cellular penetration rate (below 38 per cent at end 2010), fell eight places in the overall IDI rankings in relation to 2008.

As highlighted in section 2.3 (as well as in Chapter 4), Africa has made great progress in international Internet connectivity over the 2008-2010 time period. Many African countries have doubled or tripled their international bandwidth capacity; some have witnessed a tenfold increase. If accompanied by effective policy measures that ensure competitive access to the newly available bandwidth, this increase may have a positive impact on broadband affordability – one of the major issues in the region.

Additionally, a number of African countries, including Rwanda, Senegal, Tanzania and Zimbabwe, have increased their mobile penetration rate by over 30 per cent. While all countries saw an increase in the number of households with a computer and with Internet access at home, penetration rates remain very low. Except for Angola, Gabon, Mauritius, Nigeria, Seychelles and South Africa, all countries have less than five per cent of their households connected to the Internet.

Value changes in the different sub-indices show that Africa continues to make more progress in the access sub-index than in the use sub-index, suggesting that the region is still at an early stage of ICT development, with infrastructure developments the key drivers of ICT growth. Most African countries still have very low fixed-broadband penetration rates, and only four countries (Cape Verde, Mauritius, Seychelles and South Africa) have a broadband penetration rate of above one per cent. Fixed-broadband growth is hampered by a very limited number of fixed-telephone lines and by the absence of cable networks. Unless these issues are addressed, the region's broadband development will largely depend on its ability to leverage the potential of mobile-broadband technologies and services and therefore on the policy decisions taken on some key issues such as spectrum, planning, licensing and investment promotion.

Some African countries displayed relatively strong growth in the use sub-index. Progress in Mauritius and South Africa was driven by strong increases in the number of active mobile-broadband subscriptions, and both countries have achieved mobile-broadband penetration rates of above 15 per cent. Angola and Nigeria were able to improve in the area of ICT use through a significant rise in the number of Internet users.

Arab States

The differences in income levels of the countries of the Arab States are reflected in differences in IDI values and rankings. The high-income economies of the Gulf Cooperation Council (GCC), including the United Arab Emirates, Bahrain, Qatar and Saudi Arabia which all figure in the top 50 of the global IDI, have achieved relatively high ICT levels and rank at the top of the regional IDI (see Table 2.15).

It is noteworthy that while fixed (wired) infrastructure and access remain relatively limited in the region, many countries have taken advantage of mobile technology and leveraged mobile-broadband services to bring more

Table 2.14: IDI – Africa

Economy	Regional rank 2010	Global rank 2010	IDI 2010	Global rank 2008	IDI 2008	Global rank change 2008-2010
Mauritius	1	69	4.00	70	3.43	1
Seychelles	2	71	3.94	65	3.56	-6
South Africa	3	97	3.00	94	2.71	-3
Cape Verde	4	104	2.81	103	2.50	-1
Botswana	5	109	2.59	109	2.25	0
Gabon	6	112	2.42	112	2.10	0
Namibia	7	113	2.36	114	2.06	1
Kenya	8	115	2.29	116	1.74	1
Swaziland	9	118	1.93	115	1.80	-3
Ghana	10	120	1.90	118	1.68	-2
Nigeria	11	122	1.85	125	1.54	3
Zimbabwe	12	124	1.81	128	1.49	4
Senegal	13	125	1.78	129	1.46	4
Gambia	14	126	1.74	122	1.59	-4
Côte d'Ivoire	15	130	1.61	132	1.43	2
Angola	16	132	1.58	136	1.31	4
Togo	17	133	1.57	134	1.36	1
Benin	18	135	1.54	138	1.27	3
Cameroon	19	136	1.53	133	1.40	-3
Tanzania	20	138	1.51	141	1.23	3
Zambia	21	139	1.50	131	1.44	-8
Uganda	22	140	1.49	140	1.24	0
Madagascar	23	141	1.45	142	1.20	1
Rwanda	24	142	1.44	143	1.18	1
Guinea	25	144	1.31	144	1.16	0
Mozambique	26	145	1.30	146	1.10	1
Mali	27	146	1.26	145	1.11	-1
Congo (Dem. Rep.)	28	147	1.17	147	1.04	0
Eritrea	29	148	1.09	148	1.03	0
Burkina Faso	30	149	1.08	149	0.98	0
Ethiopia	31	150	1.08	150	0.94	0
Niger	32	151	0.92	152	0.79	1
Chad	33	152	0.83	151	0.80	-1
Average (simple)			1.81		1.57	

Source: ITU.

people online. Most of the countries in the region saw a decline in the number of fixed-telephone lines, and penetration levels remain low, even in the GCC countries. As a consequence, fixed-broadband penetration levels also remain relatively low, at 2.5 per cent, compared with eight per cent globally and over four per cent for developing countries worldwide. By the end of 2010, half of the countries in the region had achieved a mobile-cellular penetration of above 100 per cent and both the United Arab Emirates and Saudi Arabia had achieved mobile-broadband penetration levels of 58 per cent. However, a number of countries, including Yemen, Comoros and Djibouti, but also Algeria and Lebanon, had not yet launched commercial 3G services, effectively falling behind in an area where most other countries in the region, but also globally, have made great progress over the last few years.

The United Arab Emirates tops the regional list and is ranked 32nd, globally. It has attained a high level of mobile-cellular penetration (over 145 per cent by end 2010) and mobile-broadband penetration (over 58 per cent) and a relatively high proportion of households connected to the Internet (65 per cent). At 78 per cent, it has by far the highest percentage of the population using the Internet in the region. On the other hand, both fixed-telephone penetration and fixed-broadband penetration levels remain low (at around ten per cent) compared with other high-income economies, which effectively limits the country's ability to bring high-speed Internet access to larger parts of the population, as well as to businesses and homes. Although the country has a relatively high fibre-to-the-home/business penetration rate,[50] these subscriptions provide speeds that are below what operators in some other high-income economies are

Table 2.15: IDI – Arab States

Economy	Regional rank 2010	Global rank 2010	IDI 2010	Global rank 2008	IDI 2008	Global rank change 2008-2010
United Arab Emirates	1	32	6.19	32	5.63	0
Qatar	2	44	5.60	48	4.50	4
Bahrain	3	45	5.57	42	5.16	-3
Saudi Arabia	4	46	5.42	55	4.13	9
Oman	5	60	4.38	68	3.45	8
Jordan	6	73	3.83	73	3.29	0
Lebanon	7	79	3.57	77	3.12	-2
Tunisia	8	84	3.43	82	2.98	-2
Morocco	9	90	3.29	100	2.60	10
Egypt	10	91	3.28	92	2.73	1
Syria	11	96	3.05	96	2.66	0
Algeria	12	103	2.82	105	2.41	2
Yemen	13	127	1.72	127	1.49	0
Comoros	14	128	1.67	130	1.44	2
Djibouti	15	129	1.66	124	1.56	-5
Mauritania	16	131	1.58	126	1.50	-5
Average (simple)			3.57		3.04	

Source: ITU.

now offering. In 2010, some 65 per cent of the United Arab Emirates broadband subscriptions provided speeds of between 256 kbit/s and 2 Mbit/s, and 35 per cent speeds between 2 and 10 Mbit/s. Higher-speed subscriptions were not available.

The Arab States region also contains a number of low-income economies, including Comoros, Djibouti, Mauritania and Yemen, all of which occupy low positions in the regional as well as in the global IDI rankings. These disparities are reflected in a large variation in IDI values in the region, which ranged from 6.19 in the United Arab Emirates to 1.58 in Mauritania. Both Mauritania and Djibouti fell five places in the 2010 IDI rankings in relation to 2008, with relatively little progress in most areas, including international Internet bandwidth and fixed telephony. Djibouti is one of the few countries in the world that has a mobile-cellular penetration of below 20 per cent.

During the period 2008 to 2010, Morocco, Oman and Saudi Arabia, on the other hand, registered the highest rank increase. These three countries are also among the most dynamic countries in the global IDI (see section 2.2). Morocco and Oman substantially increased the number of Internet users, together with the number of active mobile-broadband subscriptions, while Saudi Arabia made important progress in international Internet bandwidth, and in terms of the number of mobile-broadband subscriptions, which increased from 2 million to almost 16 million between 2008 and 2010. By 2010, Qatar was leading the region in terms of the proportion of households with a computer and Internet, allowing the country to gain four places in the global rankings.

Asia and the Pacific

The Asia and the Pacific region stands out for featuring some of the world's leaders in ICT development. These include the Republic of Korea and Hong Kong (China), which came first and second in the regional IDI rankings, as well as a number of other economies, including New Zealand, Japan, Australia, Singapore and Macao (China) (see Table 2.16). In contrast to these ICT champions, this highly diverse region is also home to a number of low-income economies with low ICT levels, including Papua New Guinea, Bangladesh and Nepal. IDI values in the region range from a low 1.4 to a high 8.4.

In terms of the access sub-index, Viet Nam and the Islamic Republic of Iran showed the highest increase between 2008 and 2010. Viet Nam more than doubled both its number of mobile-cellular subscriptions and its international Internet bandwidth. The percentage of households with Internet access increased from below five to over eight, and the country gained ten places in the sub-index rankings in relation to 2008. Despite strong progress in terms of international Internet bandwidth

and household ICT access, the number of Internet users in the Islamic Republic of Iran grew less than in other countries, and by 2010 fixed-broadband penetration remained below one per cent. Mobile-broadband services had not been launched, and the country dropped three places in the rankings overall.

A number of economies with high ICT levels, such as Japan and Hong Kong (China), showed the lowest increases in the access sub-index, suggesting that saturation levels have been reached. Other high-income economies, including Macao (China) and New Zealand, made strong progress in household ICT access, and by end 2010 around four out of five of their households had a computer and Internet access. Both economies also made substantial improvements in terms of mobile-broadband subscriptions and were able to improve their overall IDI rankings.

While many of the countries with the highest fixed-broadband penetration rates also had the highest mobile-broadband penetration rates, there are some exceptions. In Indonesia and the Philippines, for example, mobile-broadband access is becoming a substitute for fixed-broadband access, which remains very limited due to the limited fixed-telephone infrastructure. While the growth in mobile-broadband subscriptions is a positive development that testifies to the demand for high-speed Internet access, mobile-broadband technologies do not have the same capacity as fixed-broadband networks and therefore are not generally able to provide the same type of speed as fixed networks, especially fibre, but also xDSL and cable. Governments must therefore pay special attention to monitoring and boosting fixed-broadband networks.

In developed countries, too, mobile-broadband services are increasingly popular, particularly when fixed access is not available. In New Zealand, for example, mobile-broadband penetration increased from 44 to 66 per cent by end 2010, and a Statistics New Zealand survey showed that *"a quarter of Internet users in 2009 used mobile phones or wireless hotspots to access the Internet while they were away from home"*.[51]

Table 2.16: IDI – Asia and the Pacific

Economy	Regional rank 2010	Global rank 2010	IDI 2010	Global rank 2008	IDI 2008	Global rank change 2008-2010
Korea (Rep.)	1	1	8.40	1	7.80	0
Hong Kong, China	2	6	7.79	6	7.14	0
New Zealand	3	12	7.43	16	6.65	4
Japan	4	13	7.42	11	7.01	-2
Australia	5	14	7.36	14	6.78	0
Singapore	6	19	7.08	15	6.71	-4
Macao, China	7	21	6.84	27	5.84	6
Brunei Darussalam	8	43	5.61	44	4.97	1
Malaysia	9	58	4.45	57	3.96	-1
Maldives	10	67	4.05	66	3.54	-1
China	11	80	3.55	75	3.17	-5
Viet Nam	12	81	3.53	91	2.76	10
Mongolia	13	86	3.41	87	2.90	1
Iran (I.R.)	14	87	3.39	84	2.96	-3
Thailand	15	89	3.30	80	3.03	-9
Philippines	16	92	3.22	95	2.69	3
Fiji	17	94	3.16	90	2.82	-4
Indonesia	18	101	2.83	107	2.39	6
Sri Lanka	19	105	2.79	106	2.41	1
India	20	116	2.01	117	1.72	1
Cambodia	21	117	1.99	120	1.63	3
Bhutan	22	119	1.93	123	1.58	4
Lao P.D.R.	23	121	1.90	119	1.64	-2
Pakistan	24	123	1.83	121	1.59	-2
Nepal	25	134	1.56	137	1.28	3
Bangladesh	26	137	1.52	135	1.31	-2
Papua New Guinea	27	143	1.38	139	1.24	-4
Average (simple)			4.06		3.61	

Source: ITU.

By end 2010, only Papua New Guinea and the Islamic Republic of Iran had not commercially launched 3G networks, but Bangladesh, Bhutan, Lao P.D.R. and Nepal all had penetration rates of below 0.5 per cent. Although both India and China launched 3G services in 2009, their mobile-broadband penetration rates remain very low (below one and two per cent, respectively). In comparison with India, however, China has been able to grow its fixed-broadband network, which reached a penetration rate of 9.4 per cent by end 2010, as against less than one per cent in India. China also ranks comparatively high in terms of fibre-to-the-home/business connections, and by February 2011 it had a higher percentage of homes connected to fibre than France or Italy.[52] This has helped China to make great progress in terms of bringing more people online, and between 2008 and 2010 the country recorded one of the highest growth rates in the region in terms of the number of Internet users. At end 2010, more than one in three Chinese were online, as against one in ten Indians. Another country that has made great strides in terms of Internet users is the Philippines, where an estimated one quarter of the population was using the Internet by end 2010. Both China and the Philippines have made headlines for their active use of social media, and according to one survey the Philippines had the highest social networking usage in the region in 2010.[53]

Commonwealth of Independent States

Most of the CIS countries fall in the *medium* group of the global IDI and only the Russian Federation is in the top 50, or *upper* level IDI group (see section 2.2). Kyrgyzstan, Uzbekistan and Turkmenistan have the lowest IDI values in the region and they made relatively little progress between 2008 and 2010, particularly compared with the Russian Federation, Belarus, Moldova, Armenia, Azerbaijan and Georgia. Based on these diverging developments, the CIS witnessed the largest increase in IDI ranges over the period from 2008 to 2010.

Azerbaijan, Belarus, Moldova and the Russian Federation made the greatest progress in terms of the IDI access sub-index, and all four countries substantially increased household ICT access. Azerbaijan, Belarus and Moldova more than doubled their international Internet bandwidth, and the Russian Federation increased its Internet bandwidth from 300 000 Mbit/s to over 1.8 Tbit/s. During the same time period, Armenia increased its mobile-cellular penetration from 75 to 125 per cent.

Armenia, Belarus, Moldova and the Russian Federation registered strong growth in both fixed- and mobile-broadband subscriptions, and by end 2010 Internet penetration in these countries reached between 32 and 43 per cent. In Georgia, which more than doubled fixed- and mobile-broadband subscriptions, 27 per cent of the population were online. Turkmenistan remained the only country in the region without commercial 3G services. It also displayed a negligible fixed-broadband penetration level and only 2.2 per cent Internet user penetration. Although Ukraine launched 3G services commercially as early as 2007, the market has not shown much growth, and by end 2010 mobile-broadband penetration had only reached four per cent. While the country has a competitive mobile market and several mobile operators, only one operator holds a 3G licence.

Table 2.17: IDI – CIS

Economy	Regional rank 2010	Global rank 2010	IDI 2010	Global rank 2008	IDI 2008	Global rank change 2008-2010
Russia	1	47	5.38	49	4.42	2
Belarus	2	52	5.01	58	3.93	6
Moldova	3	57	4.47	64	3.57	7
Ukraine	4	62	4.34	59	3.83	-3
Kazakhstan	5	68	4.02	72	3.39	4
Armenia	6	72	3.87	86	2.94	14
Azerbaijan	7	74	3.78	83	2.97	9
Georgia	8	77	3.65	85	2.96	8
Kyrgyzstan	9	100	2.84	99	2.62	-1
Uzbekistan	10	110	2.55	110	2.22	0
Turkmenistan	11	111	2.50	111	2.15	0
Average (simple)			3.85		3.18	

Source: ITU.

Europe

Countries from Europe rank high on the IDI, and eight out of the top ten countries on the global IDI are European. Over 85 per cent of the European countries figure in the top third of the global IDI, and the lowest ranked country in the region (Albania) occupies 78th place on the global IDI. Europe is also the region with the lowest range difference in IDI values, so countries are improving their ICT levels at similar speeds. As discussed in (ITU, 2010b), this is largely due to the adoption of a harmonized legal and regulatory framework and common technological platforms among EU member states. *"As early as 2002, all Member States agreed on the implementation of a harmonized regulatory framework, addressing key regulatory bottlenecks, such as network interconnections, open access, unbundling, spectrum policy and universal service"*.[54]

There is a clear shift from access/infrastructure improvements to progress in the use and uptake of ICTs. Only three European countries (Albania, Serbia and the Czech Republic) showed a greater value increase in the access sub-index. By end 2010 all European countries, with the exception of Bosnia and Herzegovina, Cyprus and Turkey, had reached more than 100 per cent mobile-cellular penetration. The largest differences continue to exist in household ICT penetration levels. While in the vast majority of European countries more

Table 2.18: IDI – Europe

Economy	Regional rank 2010	Global rank 2010	IDI 2010	Global rank 2008	IDI 2008	Global rank change 2008-2010
Sweden	1	2	8.23	2	7.53	0
Iceland	2	3	8.06	7	7.12	4
Denmark	3	4	7.97	3	7.46	-1
Finland	4	5	7.87	12	6.92	7
Luxembourg	5	7	7.78	4	7.34	-3
Switzerland	6	8	7.67	9	7.06	1
Netherlands	7	9	7.61	5	7.30	-4
United Kingdom	8	10	7.60	10	7.03	0
Norway	9	11	7.60	8	7.12	-3
Germany	10	15	7.27	13	6.87	-2
Austria	11	16	7.17	21	6.41	5
France	12	18	7.09	18	6.48	0
Israel	13	20	6.87	23	6.20	3
Belgium	14	22	6.83	22	6.31	0
Ireland	15	23	6.78	19	6.43	-4
Slovenia	16	24	6.75	24	6.19	0
Spain	17	25	6.73	25	6.18	0
Portugal	18	27	6.64	29	5.70	2
Italy	19	28	6.57	26	6.10	-2
Malta	20	29	6.43	31	5.68	2
Greece	21	30	6.28	30	5.70	0
Croatia	22	31	6.21	36	5.43	5
Estonia	23	33	6.16	28	5.81	-5
Hungary	24	34	6.04	34	5.47	0
Lithuania	25	35	6.04	35	5.44	0
Cyprus	26	36	5.98	43	5.02	7
Czech Republic	27	37	5.97	37	5.42	0
Poland	28	38	5.95	41	5.29	3
Slovak Republic	29	39	5.94	40	5.30	1
Latvia	30	40	5.90	39	5.31	-1
Romania	31	48	5.20	46	4.67	-2
Bulgaria	32	49	5.19	45	4.75	-4
Serbia	33	50	5.11	47	4.51	-3
Montenegro	34	51	5.03	50	4.29	-1
TFYR Macedonia	35	53	4.98	52	4.20	-1
Turkey	36	59	4.42	60	3.81	1
Bosnia and Herzegovina	37	63	4.31	63	3.58	0
Albania	38	78	3.61	81	2.99	3
Average (simple)			6.42		5.80	

Source: ITU.

than 50 per cent (and often more than 80 per cent) of households have a computer and Internet access at home, some countries in the region register relatively low levels, including Albania, Bosnia and Herzegovina and Montenegro, where only 12, 18 and 22 per cent of households have Internet access, respectively. Bringing ICTs to homes is an important step for countries to become information societies and to leverage the full benefits of ICTs.

With the exception of Albania, all European countries have launched 3G mobile-broadband services, and the number of subscriptions is growing rapidly, particularly in Austria, Cyprus, Finland, Portugal and Sweden, where penetration levels have attained 60 per cent or more. Fixed-broadband penetration levels have reached 38 per cent in Switzerland and the Netherlands – among the highest in the world – but still lie below 20 per cent in about one-third of the European countries.

As fixed- and mobile-broadband subscriptions increase, Internet user penetration in Europe continues to grow in most countries, and by end 2010 more than two in three people were online. While Internet user penetration is growing only slowly in those countries which already have high penetration rates (around 80 per cent), other countries are catching up. Both Croatia and France, for example, pushed up their Internet user penetration rates from around 70 to 80 per cent and from 50 to 60 per cent, respectively. In Cyprus, Internet penetration increased from 42 to 53 per cent.

The Americas

The only country from the Americas region that figures in the top 25 of the overall IDI is the United States, ranked 17th. Together, the United States and Canada – both high-income economies – stand out for their relatively high ranking compared with their regional counterparts. The Unites States position as a relative outlier also increases the regional IDI range, which extends from 7.09 in the United States to 2.31 in Nicaragua, i.e. a range of 4.78.

While all countries in the region increased their IDI values between 2008 and 2010, a total of 21 countries (77.8 per

Table 2.19: IDI – Americas

Economy	Regional rank 2010	Global rank 2010	IDI 2010	Global rank 2008	IDI 2008	Global rank change 2008-2010
United States	1	17	7.09	17	6.55	0
Canada	2	26	6.69	20	6.42	-6
Barbados	3	41	5.83	33	5.47	-8
Uruguay	4	54	4.93	51	4.21	-3
Chile	5	55	4.65	54	4.14	-1
Argentina	6	56	4.64	53	4.16	-3
Trinidad & Tobago	7	61	4.36	56	3.99	-5
Brazil	8	64	4.22	62	3.72	-2
Venezuela	9	65	4.11	61	3.73	-4
Panama	10	66	4.09	67	3.52	1
Costa Rica	11	70	3.99	69	3.45	-1
Mexico	12	75	3.75	74	3.26	-1
Colombia	13	76	3.75	71	3.39	-5
Suriname	14	82	3.52	78	3.09	-4
Peru	15	83	3.52	76	3.12	-7
Jamaica	16	85	3.41	79	3.06	-6
Ecuador	17	88	3.37	88	2.87	0
Dominican Rep.	18	93	3.21	89	2.84	-4
Guyana	19	95	3.08	93	2.73	-2
El Salvador	20	98	2.89	101	2.57	3
Paraguay	21	99	2.87	97	2.66	-2
Bolivia	22	102	2.83	102	2.54	0
Honduras	23	106	2.72	104	2.42	-2
Cuba	24	107	2.69	98	2.62	-9
Guatemala	25	108	2.65	108	2.39	0
Nicaragua	26	114	2.31	113	2.09	-1
Average (simple)			3.89		3.50	

Source: ITU.

cent) in the Americas region dropped in the IDI rankings. This makes the region the least dynamic region over the 2008-2010 period, with the largest number of countries with a negative rank change. For a number of countries this decline can be attributed to relatively slow progress in the use sub-index, and in particular in terms of mobile-broadband subscriptions. By 2010, Canada, for example, had a much lower mobile-broadband penetration rate (15 per cent) than the United States (54 per cent) and many other high-income economies. Barbados, which ranked third on the regional IDI but fell eight places in the overall IDI rankings, had not yet launched 3G mobile-broadband services commercially. Four other countries (Antigua and Barbuda, Trinidad and Tobago and Cuba) did not offer mobile-broadband services, and in general countries' mobile-broadband penetration levels remained low, with only two countries exceeding a penetration of 15 per cent. Fixed broadband, too, is still very low in the region. There are four countries where at end 2010 penetration remains below one per cent, namely Bolivia, Cuba, Nicaragua and Paraguay; and only three countries, namely Barbados, Canada and United States, have penetration levels of between 20 and 30 per cent. Antigua and Barbuda, Chile, Trinidad and Tobago and Uruguay have surpassed the ten per cent mark.

Especially in the Dominican Republic and Trinidad and Tobago, but also in Paraguay, there was a high increase in the number of Internet users but not in the international Internet bandwidth. Increasing the Internet bandwidth capacity is necessary if countries want to bring more people online, at high speed and with a suitable quality of service.

Between 2008 and 2010, Chile and Brazil registered the greatest improvements in their IDI values, mainly due to changes in the access sub-index. Both countries showed strong growth in the number of mobile-cellular subscriptions (surpassing the 100 per cent penetration rate), doubled their international Internet bandwidth, and connected more households with ICTs. In Chile, the number of households with Internet access climbed from 27 to 35 per cent.

Other countries that witnessed strong progress in terms of ICT access and infrastructure were Costa Rica and Ecuador. Costa Rica increased its mobile-cellular penetration from 42 to 65, more than doubled international Internet bandwidth and increased the percentage of households with Internet access from 15 to 24 per cent. Ecuador tripled international Internet bandwidth and by end 2010 had connected 12 per cent of homes, compared with seven per cent two years earlier.

In respect of the use sub-index, Argentina, the Dominican Republic and Mexico achieved the highest value increases, due mainly to an increase in mobile-broadband subscriptions and Internet users. While the number of fixed-broadband subscriptions in Argentina and Mexico increased only slightly, mobile-broadband services grew rapidly. Argentina and Mexico increased their mobile-broadband penetration rates from 2 per cent to 13 and 8 per cent, respectively. Between 2008 and 2010, Mexico increased its number of Internet users from 22 to 31 per cent.

Endnotes

1 The reader is also advised to consult the 2009 edition of *Measuring the Information Society*, which provides more information on the development of the IDI concept and methodology. Annex 1 to this report describes the methodology in more detail.

2 Between 2007 and 2008, ITU maintained an online discussion forum with more than 100 participants on the preparation of the "single index".

3 In 2011, the ITU Expert Group on Telecommunication/ICT Indicators (EGTI) has opened a discussion item on the IDI on its online forum.

4 ITU (2010b), Chapter 2, Box 2.1, provides more insight on the need to improve data quality through household ICT statistics.

5 The revision was part of the overall review of the ITU's infrastructure indicators, and was carried out through its Expert Group on Telecommunication/ICT Indicators (EGTI). The revised definition is harmonized with the OECD definitions of wireless broadband. For more information, see http://www.itu.int/ITU-D/ict/handbook.html.

6 So far, very few data are available for satellite broadband subscriptions and for terrestrial fixed wireless-broadband subscriptions. It is hoped that they can be added in the future.

7 Wireless Intelligence is part of GSM Media LLC, a wholly owned subsidiary of GSMC Limited, the organization behind the GSMA Mobile World Congress and GSMA Mobile Asia Congress, see https://www.wirelessintelligence.com/about/.

8 Note that, due to some changes in the data used for the IDI (see section 2.1), the top rankings are not the same as those published in previous editions of the MIS report.

9 See Korea Communications Commission (2010).

10 See latest data from FTTH Council: http://www.ftthcouncil.org/node/1425.

11 By the end of 2011 Sweden had roughly 150 independent fibre networks, the most notable being Stokab, owned by the city of Stockholm. For more information, see BEREC (2011), and Stokab's website (http://www.stokab.se/).

12 See the press release from the Swedish Post and Telecom Agency: http://www.pts.se/en-gb/News/Press-releases/2011/For-the-first-time-we-are-spending-more-money-on-mobile-services-than-on-fixed-services/.

13 See Post and Telecom Administration in Iceland (2011).

14 See the document from the Ministry of Transport and Communications of Finland available at: http://www.lvm.fi/c/document_library/get_file?folderId=913424&name=DLFE-10509.pdf&title=Questions%20and%20Answers.%20Access%20to%20a%20minimum%20of%201%20Mbit%20Internet%20(16.10.2009).

15 See the press release from FICORA available at: http://www.ficora.fi/en/index/viestintavirasto/lehdistotiedotteet/2010/P_27.html. Under its USO, Finland will be the only country in the world that legally requires Internet access as a basic right.

16 See http://www.ficora.fi/en/index/viestintavirasto/lehdistotiedotteet/2010/P_27.html.

17 See Swiss Federal Communication Commission (2011).

18 See http://www.med.govt.nz/templates/StandardSummary____40551.aspx.

19 See pages 5 and 6 of the European Commission's letter of withdrawal of serious doubts and comments in response to the proposal of wholesale broadband access regulation in Austria (Case AT/2009/0970). Available at Circa: http://circa.europa.eu/Public/irc/infso/ecctf/library?l=/sterreich/registeredsnotifications/at20090970/at-2009-0970_acte-withdr/_EN_1.0_&a=d.

20 See http://www.itu.int/ITU-D/ict/newslog/Ministry+Reveals+High+Speed+Broadband+Network+Plan+Armenia.aspx.

21 See http://www.businessdailyafrica.com/Corporate+News/-/539550/1176762/-/rp4s11/-/index.html.

22 See http://www.itnewsafrica.com/2010/10/verizon-to-extend-african-footprint-with-gateway-business/. Verizon Business has agreement with Gateway Business to leverage their network presence and extend coverage of the Verizon MPLS network to 14 African countries by using interconnection points between the companies' networks.

23 See http://www.itnewsafrica.com/2010/03/mauritius-completes-first-phase-of-lion-cable-project/.

24 See http://wirelessfederation.com/news/24359-maroc-telecom-launches-mobile-service-mobi-cash-morocco/.

25 See http://www.itu.int/ITU-D/ict/newslog/Morocco+To+Cut+Call+Termination+Rates+By+6570+Over+3+Years.aspx.

26 See Gulvady (2009).

27 See Ministry of Eduction, Sultanate of Oman (2008).

28 See http://www.ita.gov.om/ITAPortal/MediaCenter/NewsDetail.aspx?NID=341.

29 Information Technology Authority, Sultanate of Oman (2008).

30 See http://maxwellsci.com/print/ajbm/v2-94-109.pdf.

31 See http://main.omanobserver.om/node/42153.

32 See http://www.telegeography.com/products/commsupdate/articles/2010/07/20/rostelecom-doubles-internet-capacity-for-far-east-telecom/.

33 See http://www.submarinenetworks.com/systems/asia-europe-africa/rjcn/rjcn-ready-for-service.

34 See http://www.itar-tass.com/en/c154/159007_print.html.

[35] See Que *et al.* (2010).

[36] The developed/developing country classifications are based on the UN M49, see: http://www.itu.int/ITU-D/ict/definitions/regions/index.html.

[37] The 152 economies included in the IDI were grouped into four categories (high, upper, medium, and low) based on the 2010 IDI values. The countries were grouped by locating the position of the average IDI value (of 4.08) among all IDI values. The average value was thus placed after the 86th country, which resulted in 66 countries above the average and 86 below. The 66 countries above the average were then classified into two equal groups (high and upper). The 86 countries below the average were also divided into two equal groups (medium and low).

[38] The 152 economies were grouped into four categories (high, upper, medium and low) based on their 2009 GNI per capita, PPP$ values. The countries were grouped by locating the position of the average GNI per capita (PPP$) value (of 14 401) among all GNI per capita (PPP$) values. The average value was thus placed after the 103rd country, giving 49 countries above the average and 103 below. The 49 countries above the average were then classified into two equal groups (high and upper). The 103 countries below the average were also divided into two equal groups (medium and low).

[39] See http://www.gov.mu/portal/site/Mainhomepage/menuitem.a42b24128104d9845dabddd154508a0c/?content_id=b15f3e8d30497210VgnVCM1000000a04a8c0RCRD and http://www.pcworld.com/businesscenter/article/193025/lion_cable_links_madagascar_mauritius_reunion.html.

[40] See http://www.e-belarus.org/news/201101271.html.

[41] See http://www.alcatel-lucent.com/wps/portal/!ut/p/kcxml/04_Sj9SPykssy0xPLMnMz0vM0Y_QjzKLd4w3MfQFSYGYRq6mpEoYgbxjgiRIH1vfV-P_NxU_QD9gtzQiHJHR0UAAD_zXg!!/delta/base64xml/L0lJayEvUUd3QndJQSEvNElVRkNBISEvNl9BX0U4QS9lbl93dw!!?LMSG_CABINET=Docs_and_Resource_Ctr&LMSG_CONTENT_FILE=News_Releases_2009/News_Article_001776.xml.

[42] This is in part due to Plan Ceibal, a plan aiming at connecting schools, pupils and teachers around the country. See also Chapter 5, Section 5.3 and www.ceibal.org.uy.

[43] See http://www.telecoms.com/28953/uruguays-antel-hoping-to-connect-80k-homes-with-fibre-by-year-end/.

[44] See http://www.vnpt.com.vn/en/News/NewsEvents/View/tabid/219/newsid/11007/seo/10-outstanding-events-of-VNPT-in-2009/Default.aspx.

[45] See http://www.vnpt.com.vn/en/News/NewsEvents/View/tabid/219/newsid/10938/seo/3G-appearance-tops-ICT-events-of-the-year/Default.aspx.

[46] See Government of Republic of Moldova (2005).

[47] See ITU (2003).

[48] The regional analysis is based on the ITU/BDT regional classification. For a complete overview of the ITU/BDT regions, see: http://www.itu.int/ITU-D/ict/definitions/regions/index.html.

[49] See http://ec.europa.eu/information_society/digital-agenda/index_en.htm.

[50] See the last graph at: http://www.ftthcouncil.org/node/1425, according to which the UAE has over 30 per cent of homes connected to a fibre connection.

[51] See http://www.techday.co.nz/netguide/news/kiwis-go-unplugged/17158/.

[52] See http://www.ftthcouncil.org/en/newsroom/2011/02/10/global-ftth-councils-latest-country-ranking-shows-further-momentum-on-all-fiber-.

[53] See press release from ABS-CBNnews available at: http://www.abs-cbnnews.com/lifestyle/04/08/10/filipino-internet-users-most-engaged-social-media-survey.

[54] See ITU (2010b), page 33.

Chapter 3. The ICT Price Basket (IPB)

3.1 Introduction

ICT services have to be affordable if people are going to use them. As with other goods or services, the price of a phone call, an sms or an Internet connection influences how many people will use information and communication technologies (ICTs), and how often. It is therefore important that any analysis of the information society should not only consider and understand such factors as ICT infrastructure, awareness or skills, but also take into account the cost and affordability of services.

ITU's ICT Price Basket (IPB) is a composite basket based on the price for fixed-telephony, mobile-cellular telephony and fixed-broadband Internet services, and computed as a percentage of average income levels. As a comprehensive benchmarking tool, the IPB monitors the cost of ICT services and provides a useful indication of how affordable services are across countries, and over time. It also provides information on global and regional trends in ICT tariffs, and points to the difference in prices between developed and developing regions. The IPB, which covers a total of 165 economies, remains the only price basket to track and benchmark the affordability of ICT services worldwide.[1]

The ICT Price Basket is published together with the ICT Development Index (IDI), thereby highlighting the link between ICT prices, on the one hand, and ICT diffusion/access and use, on the other. Since the affordability of telecommunication and ICT services is expected to have a major influence on ICT uptake, the IPB is an explanatory variable in the IDI. Conversely, over time higher levels of ICT access and use may bring down prices, with operators leveraging economies of scale. Additionally, lower prices are often the result of increased liberalization and competition, leading to higher levels of ICT uptake.

The price of ICT services in a given country depends on a number of factors, including the level and degree of competition, different measures of regulatory intervention, market size, operators' costs for providing services, and profit margins. While this chapter addresses some of these factors when analysing or explaining price developments, it does not provide a detailed analysis of price trends at the country level. Rather, it focuses on global and regional trends, and on the differences between developed and developing countries, highlighting selected economies that have made progress in making ICT services more affordable.

The mobile-cellular market remains the fastest growing telecommunication service market in history (see Chapter 1). While growth in the developed countries, where saturation levels of well above 100 per cent penetration in mobile-cellular subscriptions have been achieved, is modest, the developing countries continue to register double-digit growth in the number of subscriptions. By the end of 2010, there were 5.3 billion mobile-cellular subscriptions worldwide, compared to 4 billion at the end of 2008. Over the same period, the mobile-cellular market has witnessed major price reductions, and between 2008 and 2010 the mobile component of the ICT Price Basket dropped by 21.8 per cent. Most mobile-handset manufacturers are eager to enter smartphone markets in order to capture *high-end* users, and operators are investing in high-speed mobile networks to increase their data-revenue shares. At the same time, there is a parallel trend, particularly in the developing markets, to seize low-end market segments. In 'price-sensitive' India, for example, a large number of mobile operators are competing for low-income customers by decreasing mobile-cellular tariffs, and offering cheaper, more affordable, handsets.[2] Chinese manufacturers are increasingly betting on low-cost smartphones, for people with average incomes, at home as well as abroad.[3]

As access to mobile-cellular services is becoming more affordable, prices for fixed-broadband Internet access are also falling.[4] Between 2008 and 2010, the fixed-broadband component of the ICT Price Basket dropped by no less

than 52.2 per cent, driven mainly by significant price reductions in developing countries, where broadband services were, and in some cases remain, very expensive. The spread and popularity of mobile-broadband services has stimulated (inter-modal) competition and put pressure on operators to lower prices.

Research carried out on the IPB also suggests that more and more broadband subscribers are getting greater speeds, often for the same price. In comparison with 2008, several of the 2010 entry-level broadband plans provide several times the required minimum speed of 256 kbit/s, not only in developed countries but also, increasingly, in many developing countries.[5] While this trend cannot be taken into consideration for the calculation of the ICT Price Basket – which is based on entry-level broadband plans – it means that customers actually get faster and better services for their money.

Objectives of the ICT Price Basket

The main objective of the ICT Price Basket is to provide information on the cost and affordability of ICT services across countries and regions. As a price benchmarking tool, it will help policy-makers take informed policy decisions. Prices are presented in absolute terms, both in USD and purchasing power parity (PPP) adjusted. However, the IPB value and ranking is based on the relative cost (or affordability) of ICT services within a country, as it is computed as the percentage of average income.[6] As the IPB is calculated annually, it serves as a tool allowing policy-makers to evaluate the evolving cost and affordability of ICT services in their country and to benchmark them against those in other countries. This information will put national prices into perspective, and provide a starting point for looking into ways of lowering prices – for example, by introducing or strengthening competition, or by reviewing specific tariff policies.[7] It will further allow policy-makers to evaluate the impact that specific projects and policies, such as the licensing of additional operators, the introduction of mobile number portability (MNP) or the liberalization of international gateway services, will have on prices.

This chapter will first provide an overview of the methodology of the ICT Price Basket, and present some of its strengths and weaknesses. Next, it will present the overall IPB, which combines relative fixed-telephone, mobile-cellular and fixed-broadband prices into one single value and ranks countries accordingly. The latest (2010) IPB, which is based on 2010 tariffs, will then be compared with the 2008 IPB.

The results of the IPB are linked to countries' broader ICT development and trends, as captured by the ICT Development Index (IDI). This chapter will therefore examine the link between ICT prices, on the one hand, and ICT uptake, on the other, and discuss the significance of the IPB as an explanatory variable. While both the IPB and IDI data refer to 2010, it is important to recognize that the link between a given change in price and ICT uptake will depend on the country and the magnitude of the price change. In the majority of cases, a given change in prices is likely to have a gradual and often delayed impact on the uptake of services.

In a next step, the IPB is broken down into its three sub-baskets, thus recognizing the importance of each of the services and access methods.[8] The presentation of absolute and relative (USD and PPP$) values for each sub-basket independently will allow policy-makers to identify the relative cost of each ICT service. The sub-basket results will also be presented by region and by level of development, and highlight some of the differences in the cost of ICT services that exist across the world.

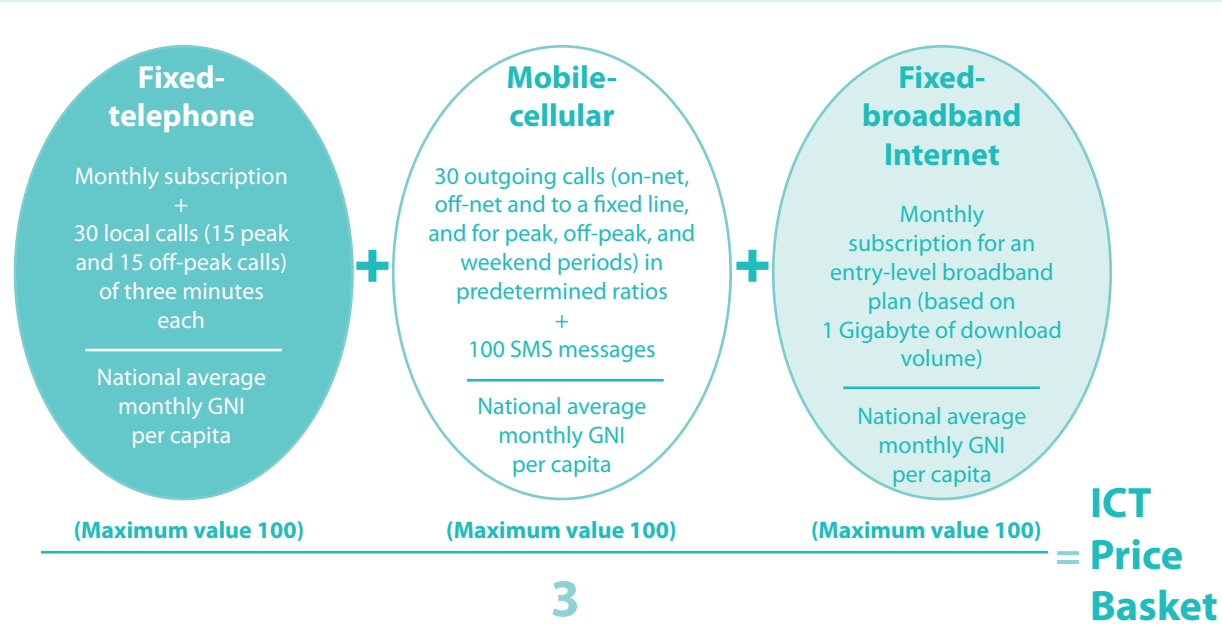
Finally, and in view of the expansion of the mobile broadband market, the chapter will present a comparison of mobile-broadband prices with fixed-broadband prices.

3.2 ICT Price Basket methodology

The ICT Price Basket is a composite basket that includes three tariff sets, referred to as sub-baskets: fixed-telephony, mobile-cellular telephony and fixed-broadband Internet services. The IPB is the value derived from the sum of the price of each sub-basket (in USD) as a percentage of a country's monthly GNI per capita[9] divided by three (Figure 3.1). For this exercise, the cost of each sub-basket as a percentage of the monthly GNI per capita is capped at a maximum value of 100, so the final price basket value may vary between a theoretical 'zero' (tariffs represent 'zero per cent of average monthly GNI per capita', and all three services are for free) and 100 (the price of all three sub-baskets is equal to, or exceeds, the monthly GNI per capita). This means that the IPB gives equal weight to each of the three ICT service components. Based on the IPB value, countries are ranked from 1 to 165 (the total number of countries included in the 2010 ICT Price Basket).

Data for the three ICT services are collected through the *ITU Tariff Indicators Questionnaire*, which is sent out to all ITU Member States/national statistical contacts.[10] For all countries that did not reply to the questionnaire, prices are gathered directly from national operators' websites,

Figure 3.1: ICT Price Basket methodology



Note: 1) In countries where no mobile prepaid offers are available, the monthly fixed cost (minus the free minutes included, if applicable) of a postpaid subscription is added to the basket. In the 2010 IPB this is the case for only one country (Liechtenstein).
2) 30 outgoing calls are equivalent to a total of 50.87 minutes. For more details on the OECD/Teligen methodology, see Annex Table 2.1
3) For monthly-fixed broadband Internet plans that limit the amount of data transferred by including caps below 1 Gigabyte, the cost for additional bytes is added.
Source: ITU.

in local currencies, and converted into United States dollars.[11] The only reason for any of ITU's 192 Member States not being included in the ICT Price Basket is the unavailability of one or more of the tariffs used to compute the IPB.

It is important to note that there has been a methodological change in the computation of the ICT Price Basket's mobile-cellular sub-basket, so the values in this report are not strictly comparable with those published in the previous IPB (ITU, 2010b). This change in methodology is due to an update in the OECD low-user basket, which ITU has adopted. In particular, the new (2009) OECD low-user basket includes *more* calls and *more* sms, so the overall value of the latest IPB will be higher.

Given the increasing number of countries launching 3G networks and the growing number of people that access the Internet over a mobile-cellular network, it is expected that mobile-broadband prices will eventually be included in the IPB. While national and international efforts to track mobile-broadband uptake and usage are on the rise, the harmonization of indicators to track mobile-broadband uptake is still in its early stages. Comparing mobile-broadband prices remains challenging, for a number of reasons (see Section 3.5).

Fixed-telephone prices

The fixed-telephone sub-basket represents the cost of local fixed residential telephone services. It refers to the traditional fixed-telephone line and does not refer, for example, to prices for managed VoIP. The sub-basket includes the monthly subscription fee charged for subscribing to the public switched telephone network (PSTN), plus the cost of 30 local calls of three minutes each to the same (fixed) network (15 peak and 15 off-peak calls). See Annex 2 for more information on the fixed-telephone sub-basket methodology.

Mobile-cellular prices

The mobile-cellular telephony sub-basket is largely based on, but does not entirely follow, the 2009 methodology

of the OECD low-user basket.[12] This basket gives the price of a standard basket of monthly mobile usage in USD determined by the OECD for 30 outgoing calls per month (on-net, off-net, to a fixed line and for peak and off-peak times) in predetermined ratios, plus 100 sms messages.

As stated above, the current IPB's mobile-cellular sub-basket methodology has changed from the previous IPB – published in ITU (2010b) – insofar as OECD has revised, and ITU has adopted, its methodology. While the previous (2001) OECD low-user basket methodology included only 25 calls and 30 sms, the revised (2009) OECD methodology includes 30 calls and 100 sms. Since the updated mobile sub-basket methodology includes more calls and more sms, it will be relatively more expensive than the previous mobile sub-basket and, consequently, increase the IPB value. For this reason, the latest IPB is not strictly comparable with the previous IPB.

The mobile-cellular sub-basket used in the IPB is based on prepaid tariffs. Prepaid tariffs (as opposed to postpaid tariffs) were used since they represent the dominant payment method in the majority of countries and because they are often the only payment method available to low-income users, who may not qualify for a postpaid subscription. By end 2010, 71 per cent of all mobile subscriptions worldwide were prepaid. See Annex 2 for more information on the mobile-cellular sub-basket methodology.

Fixed-broadband Internet prices

The fixed-broadband Internet sub-basket is calculated on the basis of the price of the monthly subscription to an entry-level fixed-broadband plan. For comparability reasons, the fixed-broadband sub-basket is based on a monthly usage of (a minimum of) 1 Gigabyte (GB). For plans that limit the monthly amount of data transferred by including caps below 1 GB, the cost of additional bytes is added to the sub-basket. Refer to Annex 2 for more details on the fixed-broadband Internet sub-basket methodology.

Calculating the three price sub-baskets

The sub-baskets for fixed-telephony, mobile-cellular telephony and fixed-broadband Internet tariffs are presented as follows:[13]

- In USD, using the average annual UN operational rate of exchange.
- In international dollars (PPP$), using purchasing power parity (PPP) conversion factors instead of market exchange rates. The use of PPP exchange factors helps to screen out price and exchange-rate distortions, thus providing a measure of the cost of a given service taking into account the purchasing power equivalences between countries.[14]
- As a percentage of countries' monthly GNI per capita (Atlas method[15]), latest available data, capped at 100 per cent. This implies that the lower the percentage, the lower the relative cost of the service. The value of the sub-baskets is only capped at 100 per cent for the purpose of calculating the overall ICT Price Basket so that a very high relative price of, for example, fixed-broadband services does not distort the overall IPB. In reality, a sub-basket value could exceed 100 per cent, meaning that the price of the service in question would exceed the average monthly GNI per capita. This is the case in some countries for the fixed-broadband service.

Strengths and weaknesses of the IPB

The main strength of the ICT Price Basket is that it provides a fair international comparison of absolute and relative prices for ICT services over time. As a benchmarking tool, it further raises awareness of the important influence that ICT prices have on ICT development, and allows governments to identify and evaluate policies.

Like any benchmarking tool that covers a large number of countries and reduces a complex reality into one single value, the IPB has its shortcomings. Detailed research on ICT prices has shown that pricing policies and plans across countries and even operators vary as much as prices themselves. Therefore, the need to harmonize prices and make them comparable across countries leads to some distortions, and tariffs may not always reflect what the majority of people are actually paying. Since the IPB includes a very large number of countries (165), including the large majority of the world's developing nations, it is based on entry-level offers and packages, as this is what low-income subscribers are most likely to use. It should be noted, however, that entry-level services tend to be more expensive, since operators can leverage economies of scale and will offer relatively cheaper tariffs for a guaranteed amount of consumption and revenues.

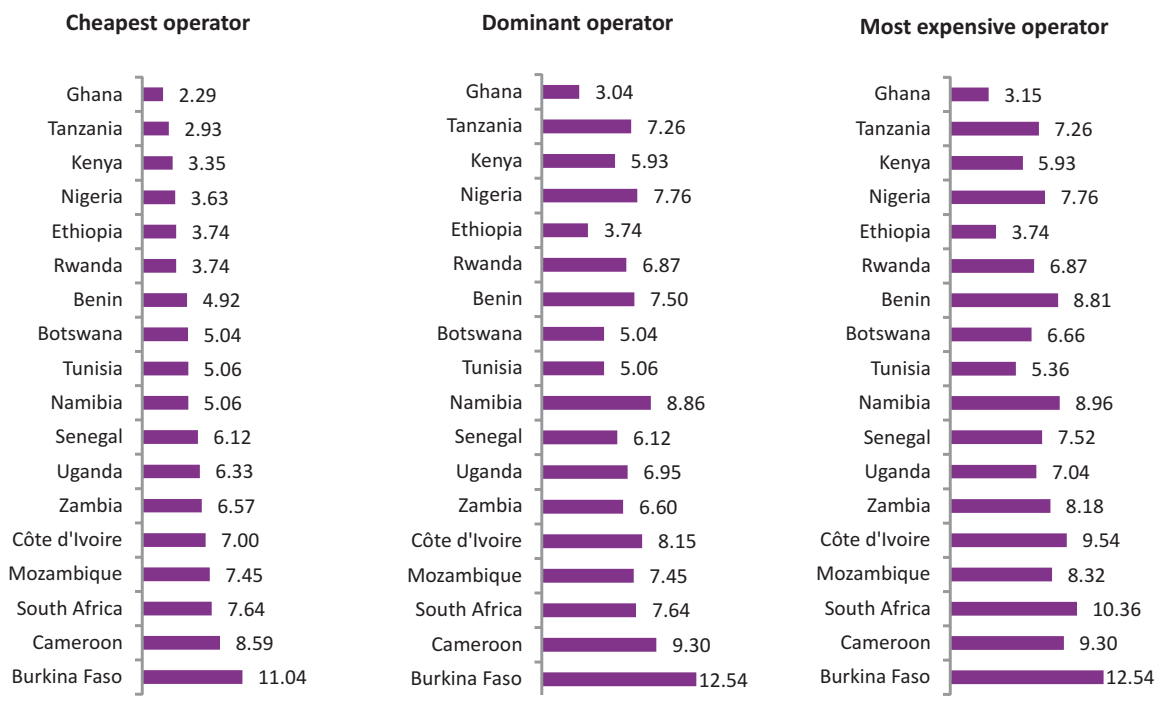
Box 3.1: Competitive pressure and mobile-cellular prices in Africa

A recent price comparison between mobile prepaid cellular services in 18 African countries showed that, even in a liberalized and competitive market environment, prices for mobile-cellular services can vary noticeably between operators. The study, carried out by *Research ICT Africa*, found that, in six countries, the dominant operator was also the cheapest operator. In eight countries, the dominant operator was actually the most expensive operator, although in most cases the difference in price was less than 30 per cent (Figure Box 3.1).

Two exceptions are Tanzania and Nigeria, where the cheapest operators are over 50 per cent cheaper than the dominant operator. Both countries have very dynamic and competitive mobile markets and are home to more than five operators each, with several smaller operators trying to gain market shares. In Tanzania, one of these relatively new and small operators, Benson Informatics, is also the cheapest operator. The company, which started out as a technology consultancy and Internet service provider, launched its mobile services at the end of 2008, but despite low prices, by end 2010, held only 0.01 per cent of the country's market share. Nigeria's cheapest mobile operator, Starcomms, provides CDMA services but is limited to around 30 major cities and 175 towns across the country. By end 2010, it had around 1.8 million mobile-cellular subscriptions, representing about 1.4 per cent in Nigeria's 90 million subscription market. One of the reasons that smaller/new operators may find it difficult to gain market share is because their off-net prices have to be competitive with the large operator's on-net prices. Since most of the calls of smaller operators are likely to terminate on another operator's network, off-net tariffs must be kept low; otherwise it is in the customers' interest to stay with the (or a) dominant operator, particularly in a market where mobile-termination rates, which tend to favour dominant operators, are high.

While the relatively lower prices of these two operators could further increase competition and force other operators to adjust (i.e. lower) their own prices, their very limited market shares suggest that currently only few people benefit from their low tariffs.

Figure Box 3.1: Cheapest prepaid mobile-cellular prices, in USD, selected African countries



Note: Prices in this graph are based on the 2006 OECD methodology and on the cheapest mobile prepaid product available, presented in USD. They may differ from the tariffs presented in the IPB, which is based on the 2009 OECD methodology.
Source: Stork and Lumingu, 2010. See also http://www.tcra.go.tz/publications/telecomStatsDec10.pdf, and http://allafrica.com/stories/201008061127.html.

Therefore, the IPB does not necessarily show the cheapest offers and options available, for example for high-end users. More sophisticated packages and offers, which include more minutes/bytes/sms, or bundled packages that combine several services, are also not taken into consideration.

The IPB is based on the dominant market player in terms of the number of subscriptions within each ICT service. It does not represent an average of several operators or packages. Since one of the assumptions in an increasingly competitive ICT market is that operators are adjusting their prices to competitors, tariffs should not in theory differ substantially between operators. Reality, however, shows that, in some countries, there are relatively important price disparities, which the IPB does not take into account[16] (Box 3.1).

Nor does the IPB take into account special offers that are limited to a certain time-period, since they are not likely to be representative over time. In some cases, *special offers* are advertised all year round, although the operator reserves the right to cancel the offer at any time. Furthermore, the IPB does not necessarily consider the main type of service or plan to which most users are subscribing. For example, the mobile-cellular sub-basket is based on prepaid tariffs, even in countries such as, for example, Japan and the Republic of Korea, where the large majority of subscriptions are postpaid. In other countries, most subscribers may chose a subscription package that includes a large number of call minutes or sms, which reduces the price of the call or sms, but for comparability reasons these cannot be considered (Box 3.2).

While these shortcomings need to be taken into consideration, most of them only apply to a limited number of countries,[19] and so the overall potential of the IPB as a powerful benchmarking tool is not jeopardized.

3.3 ICT Price Basket results and analysis

The results of the 2010 and 2008 ICT Price Baskets are presented in Table 3.1. Countries are ranked according to their 2010 IPB value, which is based on the relative prices for fixed-telephony, mobile-cellular telephony and fixed-broadband Internet services.[20]

A number of findings can be highlighted. First, there are important differences in relative ICT prices among

Box 3.2: Prepaid services: not always more expensive than postpaid subscriptions

Prepaid is the subscription service of choice for the majority of today's mobile-cellular subscribers: by the end of 2010, around 70 per cent of the world's mobile-cellular subscriptions were prepaid. Prepaid services usually do not tie customers to a contract or a monthly subscription fee and therefore often promise greater freedom of use and choice of operators. They protect mobile operators from unpaid bills, since services are paid for in advance. On the other hand, prepaid services do not necessarily cost the same (price per minute, or per sms), since they do not provide operators with a fixed revenue stream, and flexibility and freedom are usually sold at a higher price – at least, per minute. Using the example of the Republic of Korea, a comparison was carried out to show how prepaid and postpaid tariffs compare in terms of the IPB's mobile-cellular sub-basket:

The Republic of Korea, like a number of other countries, has very few prepaid subscriptions – less than 1.5 per cent. Although the price per minute and per sms for prepaid services is more expensive (KRW 288 instead of KRW 108 for calls, and KRW 22 instead of KRW 20 per sms), a comparison that takes into account the monthly subscription charge (KRW 12 000 for postpaid customers only) reveals that the prepaid basket (at USD 14.4) is actually cheaper than the same basket using the postpaid tariffs (which would amount to USD 16.7).

The example from the Republic of Korea shows that, for low-end users, prepaid services are more interesting than postpaid services, and that the choice of prepaid services for the IPB does not necessarily disadvantage countries. What may penalize countries that display intensive use of ICT services is the fact that the IPB is based on an *entry-level* or *low-user* basket. Operators in developed countries, in particular, offer relatively cheap (per minute) prices for high-end users. For example, in the United States, a fixed monthly subscription of USD 39.99 gives subscribers 450 minutes of free calls, which translates into only USD 0.09 per minute, compared to the USD 0.25 that customers pay when they subscribe to the entry-level prepaid plan.[17] In Austria, a EUR 8.80 monthly subscription comes with 1 000 free minutes of calls, which effectively brings down the per-minute price to EUR 0.009, compared to EUR 0.07 for the prepaid tariff.[18]

the 165 economies included in the IPB, pointing to an important price divide. The values vary from a low 0.2 in Monaco, to a high 71.6 in Niger. This compares to a similar range (but between different countries than in 2010) of between 0.3 and 77.1 in 2008, suggesting that important differences persist between the countries with the lowest and highest relative ICT prices.

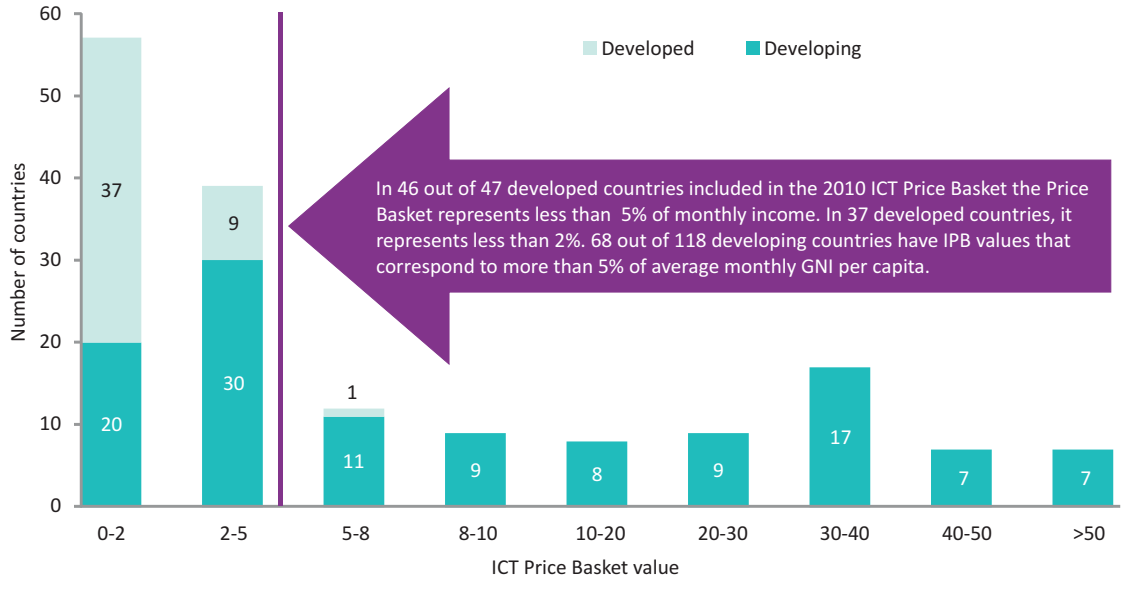
All of the economies ranked at the top of the IPB have high gross national incomes per capita, including many small economies, such as Macao (China), Monaco, Liechtenstein, Hong Kong (China) and Singapore. With the exception of the United Arab Emirates, all economies in the top ten are from Europe and Asia and the Pacific.

It is also important to point out that the countries ranked at the top of the IPB have very similar IPB values. Twenty-eight countries have an IPB value of below one and, as shown in Table 3.1, many share the same value, with only the second decimal place making the difference. This suggests that those countries ranked at the top of the IPB have all achieved relatively low prices that make ICT services generally affordable to their citizens.

On the other hand, all of the countries with the highest relative ICT prices are low-income countries from Africa. The most expensive relative prices were observed in Niger, Malawi, Zimbabwe, Madagascar, Togo, Burkina Faso, Rwanda, Comoros, Mozambique and Mali. Indeed, there seems to be an almost inverse relationship between the relative price of ICT services and income levels. A regression analysis, comparing income levels and IPB ranks, indicates an R-squared value of 0.86, confirming that relatively high-income countries pay relatively little for ICT services, while low-income countries pay relatively high prices. Exceptions include the Russian Federation, Costa Rica, Lithuania and Mauritius: contrary to what is observed above, ICT prices in these countries are lower than the income levels would suggest. Kiribati, Swaziland and Lesotho, on the other hand, have ICT prices above what their income levels would suggest.

Not surprisingly, a similar trend can be observed in terms of development status, which is linked to income levels. In 46 out of 47 developed countries, the IPB value does not exceed five per cent of monthly per capita income. In 37 of them, it represents less than two per cent of monthly incomes. Higher values (above eight, indicating that prices are relatively high) for the IPB, on the other hand, are found only in developing countries (Chart 3.1). The map in Figure 3.2 illustrates the global differences in ICT prices.

Chart 3.1: ICT Price Basket by level of development, 2010



Source: ITU.

Table 3.1: ICT Price Basket and sub-baskets, 2010 and 2008

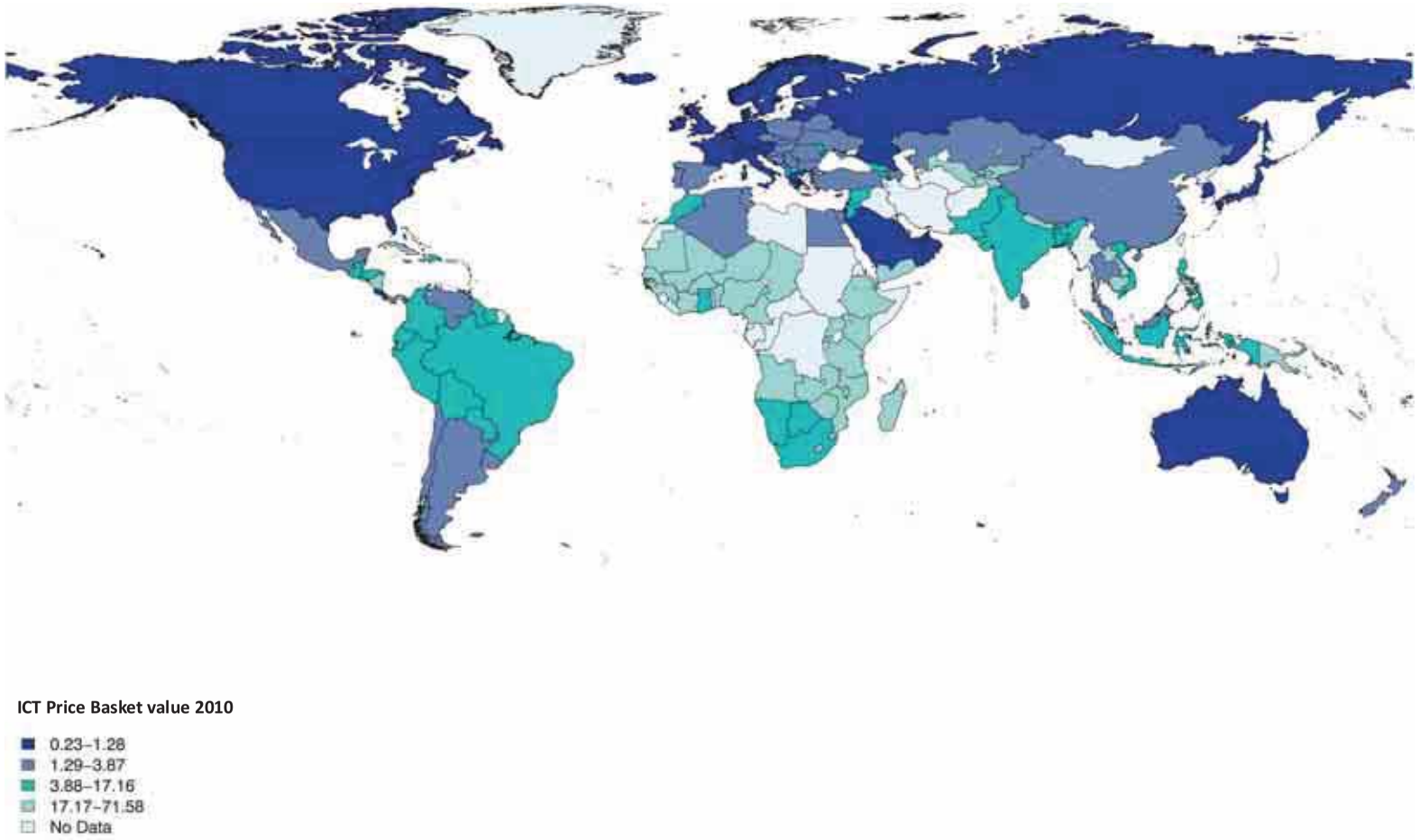
Rank	Economy	ICT Price Basket		Fixed-telephone sub-basket as a % of GNI per capita		Mobile-cellular sub-basket as a % of GNI per capita		Fixed-broadband sub-basket as a % of GNI per capita		GNI per capita, USD, 2009 (or latest available year)
		2010	2008	2010	2008	2010	2008	2010	2008	
1	Monaco	0.2	N/A	0.1	N/A	0.3	N/A	0.3	N/A	203'900
2	Macao, China	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.3	35'360
3	Liechtenstein	0.4	N/A	0.3	N/A	0.2	N/A	0.5	N/A	113'210
4	Hong Kong, China	0.4	0.3	0.3	0.3	0.1	0.1	0.7	0.6	31'420
5	United Arab Emirates	0.4	0.4	0.1	0.1	0.2	0.2	0.8	0.8	57'340
6	Singapore	0.5	0.4	0.3	0.2	0.3	0.2	0.9	0.7	37'220
7	Luxembourg	0.5	0.5	0.4	0.4	0.4	0.4	0.6	0.6	76'710
8	Norway	0.5	0.5	0.5	0.5	0.3	0.3	0.7	0.7	84'640
9	Iceland	0.5	0.7	0.5	0.5	0.5	0.5	0.7	1.1	43'430
10	Denmark	0.6	0.5	0.6	0.6	0.2	0.2	0.9	0.6	59'060
11	Austria	0.6	1.1	0.7	0.7	0.4	1.2	0.7	1.5	46'450
12	United States	0.6	0.5	0.3	0.4	0.8	0.8	0.5	0.4	46'360
13	San Marino	0.6	N/A	0.6	N/A	0.6	N/A	0.5	N/A	50'670
14	Finland	0.6	0.7	0.4	0.5	0.3	0.7	0.9	0.9	45'940
15	Sweden	0.6	0.6	0.6	0.5	0.4	0.8	0.8	0.7	48'840
16	Switzerland	0.7	0.8	0.5	0.6	1.0	1.2	0.6	0.7	65'430
17	Netherlands	0.7	0.9	0.6	0.7	0.8	1.0	0.8	0.9	48'460
18	Bahrain	0.7	0.7	0.2	0.2	0.7	0.7	1.3	1.3	25'420
19	United Kingdom	0.7	0.8	0.6	0.7	0.9	1.0	0.7	0.7	41'370
20	Germany	0.7	0.8	0.8	0.8	0.4	0.4	1.1	1.0	42'450
21	Canada	0.8	0.8	0.6	0.9	1.0	0.9	0.7	0.6	41'980
22	Cyprus	0.8	0.7	1.1	1.1	0.3	0.4	0.9	0.7	26'940
23	Australia	0.8	1.1	0.8	0.7	0.8	1.2	1.0	1.4	43'770
24	Belgium	0.9	0.9	0.8	0.9	1.1	1.1	0.7	0.8	45'270
25	Ireland	0.9	0.9	0.7	1.0	1.0	0.9	0.9	0.9	44'280
26	Korea (Rep.)	0.9	0.8	0.3	0.3	0.9	1.1	1.5	1.0	19'830
27	Israel	0.9	N/A	0.7	N/A	1.6	N/A	0.4	N/A	25'790
28	Italy	0.9	1.0	0.9	0.9	1.0	1.2	0.9	0.8	35'110
29	France	1.0	1.2	0.7	0.8	1.4	1.6	0.8	1.0	42'620
30	Trinidad & Tobago	1.1	1.2	1.4	1.5	0.9	1.1	0.9	1.0	16'700
31	Latvia	1.1	1.7	1.0	1.1	1.0	1.4	1.2	2.5	12'390
32	Russia	1.1	1.3	0.8	0.8	1.2	1.6	1.3	1.7	9'340
33	Costa Rica	1.1	1.2	1.3	0.9	0.6	1.1	1.3	1.7	6'260
34	Japan	1.1	1.1	0.8	0.6	1.8	1.5	0.7	1.0	38'080
35	Greece	1.1	1.3	1.0	1.1	1.6	1.8	0.8	1.0	29'040
36	Saudi Arabia	1.1	1.5	0.6	0.6	1.0	1.1	1.8	2.7	17'700
37	Lithuania	1.2	1.5	1.4	1.5	1.0	1.4	1.1	1.5	11'410
38	Brunei Darussalam	1.2	N/A	0.5	N/A	0.7	N/A	2.3	N/A	26'740
39	Oman	1.2	1.1	0.9	0.7	0.6	0.7	2.1	2.1	17'890
40	Slovenia	1.2	1.4	0.9	1.0	1.1	1.1	1.7	2.1	23'520
41	Malta	1.3	1.6	0.9	1.0	1.6	2.2	1.3	1.5	16'680
42	Bahamas	1.3	N/A	0.9	N/A	1.0	N/A	2.0	N/A	21'390
43	Spain	1.3	1.5	1.0	1.1	2.0	2.2	1.0	1.0	32'120
44	Portugal	1.4	1.5	1.4	1.5	1.3	1.3	1.4	1.6	21'910
45	Croatia	1.5	2.0	1.5	1.6	1.5	2.5	1.6	1.8	13'720
46	Estonia	1.6	2.1	1.0	1.1	1.9	2.2	1.8	3.1	14'060
47	Mauritius	1.6	2.3	0.9	1.0	1.1	1.3	2.7	4.6	7'250
48	Venezuela	1.6	4.3	0.2	0.9	2.7	5.6	1.9	6.2	10'090
49	New Zealand	1.6	1.4	1.5	1.4	2.1	1.7	1.3	1.2	27'260
50	Kazakhstan	1.7	N/A	0.4	N/A	2.5	N/A	2.3	N/A	6'920
51	Poland	1.8	2.4	2.0	2.6	1.5	2.0	1.8	2.5	12'260
52	Malaysia	1.8	1.9	0.8	0.8	1.2	1.6	3.3	3.3	7'350
53	Azerbaijan	1.8	9.9	0.6	0.8	1.7	2.2	3.1	26.7	4'840
54	Maldives	1.9	2.2	1.2	1.3	1.7	2.1	2.8	3.0	3'970
55	Romania	1.9	2.2	1.9	2.0	3.1	3.5	0.7	1.0	8'330
56	Belarus	2.0	N/A	0.3	N/A	1.7	N/A	3.9	N/A	5'560
57	Czech Republic	2.0	2.2	1.9	2.1	1.9	2.5	2.2	2.0	17'310
58	Hungary	2.1	2.6	2.0	2.6	2.4	3.0	1.9	2.2	12'980
59	Slovak Republic	2.1	2.2	1.5	1.7	2.8	2.9	1.9	2.0	16'130
60	Serbia	2.1	3.3	1.1	1.0	2.3	2.5	3.1	6.4	6'000
61	Uruguay	2.2	2.8	1.8	1.9	2.4	3.1	2.6	3.5	9'010
62	Panama	2.3	2.1	2.2	1.7	1.6	1.7	3.0	2.9	6'570
63	Sri Lanka	2.4	7.3	3.0	3.5	1.1	2.6	3.0	15.7	1'990
64	Mexico	2.4	3.0	2.5	2.5	2.3	2.3	2.3	4.2	8'960
65	Tunisia	2.5	3.1	0.8	1.0	3.2	4.3	3.4	4.1	3'720
66	St. Kitts and Nevis	2.5	N/A	1.4	N/A	1.8	N/A	4.3	N/A	10'150
67	Antigua & Barbuda	2.5	N/A	1.4	N/A	2.2	N/A	4.0	N/A	12'130
68	Montenegro	2.6	2.8	1.4	1.9	3.0	2.8	3.3	3.8	6'650
69	Ukraine	2.6	4.6	1.3	1.5	3.2	5.2	3.2	7.1	2'800
70	Qatar	2.7	2.7	0.9	0.9	1.8	1.7	5.5	5.5	12'000
71	Algeria	3.0	3.5	1.5	1.3	3.4	4.4	4.0	4.8	4'420
72	Lebanon	3.0	3.8	1.5	1.8	4.1	5.7	3.4	4.0	8'060
73	China	3.1	3.7	1.5	1.5	2.0	2.3	5.9	7.4	3'650
74	Argentina	3.2	3.5	0.6	0.8	4.9	3.4	4.1	6.3	7'550
75	Bosnia and Herzegovina	3.3	3.7	2.4	2.4	3.9	4.8	3.7	3.8	4'700
76	Barbados	3.4	3.8	2.6	2.4	2.6	2.6	5.0	6.4	9'330
77	Seychelles	3.5	2.8	1.3	1.1	2.3	1.9	6.8	5.5	8'480
78	Egypt	3.5	4.4	1.7	2.0	4.1	5.6	4.6	5.5	2'070
79	Bhutan	3.6	14.7	2.0	2.2	2.7	3.6	6.2	38.3	2'030
80	Turkey	3.7	N/A	2.3	N/A	6.0	N/A	2.6	N/A	8'720
81	Chile	3.7	4.1	3.2	3.1	3.0	3.2	5.0	6.0	9'470
82	Bulgaria	3.7	4.4	2.5	2.9	6.1	7.2	2.7	3.1	6'060
83	Thailand	3.9	3.7	2.8	1.9	2.8	3.4	6.0	5.8	3'760

Table 3.1: ICT Price Basket and sub-baskets, 2010 and 2008 (continued)

Rank	Economy	ICT Price Basket		Fixed-telephone sub-basket as a % of GNI per capita		Mobile-cellular sub-basket as a % of GNI per capita		Fixed-broadband sub-basket as a % of GNI per capita		GNI per capita, USD, 2009 (or latest available year)
		2010	2008	2010	2008	2010	2008	2010	2008	
84	Jordan	3.9	4.4	2.9	3.1	3.2	3.4	5.7	6.7	3'980
85	Botswana	3.9	3.5	3.6	3.2	2.5	2.4	5.7	5.0	6'260
86	Grenada	4.0	3.8	2.6	2.4	3.1	3.2	6.3	6.0	5'580
87	India	4.1	4.6	3.3	3.7	3.4	3.9	5.6	6.4	1'180
88	Jamaica	4.2	6.0	3.0	2.6	3.1	3.6	6.5	11.9	4'590
89	Albania	4.3	7.7	1.9	1.3	7.7	12.6	3.2	9.2	4'000
90	TFYR Macedonia	4.4	5.1	3.3	3.9	6.4	7.4	3.5	4.1	4'400
91	Dominican Rep.	4.4	5.1	4.1	3.1	4.1	4.7	5.0	7.6	4'550
92	St. Vincent and the Grenadines	4.6	6.7	2.6	2.5	3.5	4.5	7.9	12.9	5'130
93	Colombia	4.7	4.9	1.4	1.3	4.1	4.4	8.5	8.8	4'990
94	Fiji	4.7	6.0	2.4	2.8	5.9	7.8	5.7	7.3	3'840
95	Suriname	4.8	N/A	0.6	N/A	3.3	N/A	10.6	N/A	4'760
96	Brazil	4.8	6.8	3.4	4.2	8.5	9.2	2.5	6.9	8'040
97	Ecuador	4.8	N/A	4.3	N/A	4.2	N/A	6.1	N/A	3'970
98	St. Lucia	4.9	6.5	2.7	2.6	5.1	4.7	6.8	12.2	5'190
99	South Africa	5.3	4.5	5.2	4.2	4.8	4.5	5.7	4.9	5'760
100	El Salvador	5.3	5.5	3.6	3.9	3.4	5.6	8.9	7.1	3'370
101	Moldova	5.4	10.8	1.5	1.8	9.7	12.0	5.0	18.5	1'560
102	Armenia	5.9	7.0	1.6	1.8	3.4	5.2	12.5	14.0	3'100
103	Dominica	6.0	6.6	2.6	2.7	3.5	5.1	11.7	12.0	4'900
104	Paraguay	6.1	10.2	3.6	4.0	4.6	5.3	10.1	21.4	2'250
105	Indonesia	6.7	7.2	2.9	3.0	4.6	5.4	12.6	13.2	2'050
106	Guatemala	6.9	8.0	2.5	2.7	3.6	4.2	14.7	17.1	2'650
107	Syria	7.1	N/A	0.6	N/A	9.9	N/A	10.8	N/A	2'410
108	Viet Nam	7.9	12.2	3.2	3.2	7.0	9.9	13.5	23.5	930
109	Pakistan	8.0	10.0	4.0	4.5	3.0	3.8	17.1	21.7	1'000
110	Honduras	8.3	N/A	4.2	N/A	5.9	N/A	14.7	N/A	1'800
111	Georgia	8.4	10.4	1.1	1.3	5.5	6.8	18.7	23.0	2'530
112	Guyana	8.5	17.7	2.1	2.1	7.8	10.3	15.7	40.6	1'450
113	Tonga	8.8	14.7	2.3	2.2	4.0	3.8	19.9	38.1	3'260
114	Philippines	9.2	9.5	9.0	8.7	5.9	5.5	12.8	14.3	2'050
115	Micronesia	9.3	9.3	4.5	3.9	4.4	4.4	19.2	19.5	2'500
116	Peru	9.5	9.9	4.2	4.6	12.4	14.3	12.1	10.8	4'200
117	Morocco	9.6	12.5	9.2	11.1	14.3	17.2	5.1	9.2	2'770
118	Cape Verde	10.8	12.6	3.3	2.3	16.6	19.4	12.6	16.2	3'010
119	Namibia	11.9	7.5	4.3	3.7	4.8	4.9	26.7	13.7	4'270
120	Bangladesh	12.6	36.4	2.8	3.1	4.2	6.0	31.0	123.8	580
121	Samoa	12.7	N/A	5.1	N/A	7.5	N/A	25.7	N/A	2'840
122	Ghana	15.5	26.2	7.3	4.5	7.4	10.8	31.8	63.1	1'190
123	Belize	16.3	16.6	6.3	7.5	10.0	10.0	32.8	32.3	3'740
124	Bolivia	17.2	18.7	17.5	19.0	8.3	9.1	25.7	28.0	1'630
125	Angola	18.0	24.7	5.3	7.3	6.2	8.1	42.7	58.8	3'750
126	Nicaragua	20.9	24.2	5.4	5.8	15.8	27.4	41.4	39.4	1'000
127	Timor-Leste	21.5	N/A	8.4	N/A	7.9	N/A	48.3	N/A	2'460
128	Senegal	22.7	28.7	11.8	20.4	14.6	16.4	41.6	49.2	1'040
129	Mauritania	23.4	38.0	22.5	18.2	18.3	18.6	29.4	77.1	960
130	Djibouti	24.7	40.4	7.7	8.1	14.0	13.1	52.3	111.6	1'280
131	Nepal	26.4	28.9	8.5	9.7	7.3	12.6	63.4	64.5	440
132	Nigeria	27.2	44.1	14.1	10.3	13.9	22.0	53.5	692.1	1'190
133	Kyrgyzstan	27.3	N/A	1.7	N/A	4.9	N/A	75.3	N/A	870
134	Côte d'Ivoire	27.4	37.4	22.0	26.7	15.3	30.8	45.0	54.7	1'070
135	Uganda	30.2	61.8	22.8	34.9	31.8	50.4	35.9	374.9	460
136	Tanzania	31.4	57.0	21.1	28.1	23.2	43.1	50.0	174.4	500
137	Chad	32.5	43.2	37.0	41.2	34.1	59.1	26.3	29.3	540
138	Kenya	33.1	49.8	22.4	18.0	17.0	31.5	59.9	261.2	760
139	Uzbekistan	34.8	N/A	1.2	N/A	3.3	N/A	218.2	N/A	1'100
140	Tajikistan	34.9	N/A	1.5	N/A	3.2	N/A	621.4	N/A	700
141	Cuba	35.8	36.5	0.1	0.1	7.3	9.3	379.0	380.6	5'550
142	Vanuatu	35.9	41.5	18.8	11.8	10.7	12.7	78.3	209.3	2'620
143	Lesotho	36.0	30.7	15.9	13.6	29.6	25.2	62.4	53.2	980
144	Yemen	36.8	37.4	1.2	1.0	9.2	11.0	134.9	281.6	1'060
145	Lao P.D.R.	38.0	38.6	5.5	6.4	8.6	9.5	190.5	435.5	880
146	Swaziland	38.1	37.3	2.4	2.1	11.7	10.0	424.9	805.7	2'470
147	Benin	38.5	50.2	14.4	17.5	20.9	33.1	80.2	172.3	750
148	Cameroon	38.8	48.7	15.2	15.0	20.2	31.1	80.8	185.7	1'190
149	Ethiopia	39.5	44.2	3.5	6.3	14.9	26.5	1070.8	2721.4	330
150	Guinea	39.5	42.2	5.2	9.6	13.4	17.1	2594.6	2823.5	370
151	Kiribati	39.6	N/A	7.6	N/A	11.3	N/A	251.2	N/A	1'830
152	Cambodia	40.1	44.5	14.5	15.7	13.2	17.6	92.5	177.3	610
153	S. Tomé & Principe	40.7	43.3	8.7	12.2	13.4	17.8	300.4	316.2	1'140
154	Zambia	41.3	52.9	29.8	33.0	20.8	25.8	73.3	108.8	970
155	Papua New Guinea	42.8	43.1	4.6	4.3	23.7	25.1	142.5	150.9	1'180
156	Mali	43.0	50.1	15.0	18.7	25.5	31.7	88.4	109.8	680
157	Mozambique	46.6	71.8	33.7	55.0	46.2	60.4	59.8	311.9	440
158	Comoros	49.1	53.7	13.8	17.9	33.5	43.2	534.5	690.8	870
159	Rwanda	56.9	58.1	34.4	21.2	36.3	53.1	224.5	267.6	460
160	Burkina Faso	58.5	62.6	25.6	24.6	49.9	63.2	194.2	4466.2	510
161	Togo	61.5	72.2	30.1	35.0	54.3	81.5	451.5	539.9	440
162	Madagascar	65.4	71.6	52.1	49.9	44.1	65.0	259.0	327.8	420
163	Zimbabwe	66.2	N/A	30.2	N/A	68.3	N/A	1353.2	N/A	360
164	Malawi	69.7	66.8	18.2	15.4	91.0	85.0	2408.0	4880.7	280
165	Niger	71.6	77.1	41.3	47.4	73.4	83.9	210.5	241.6	340

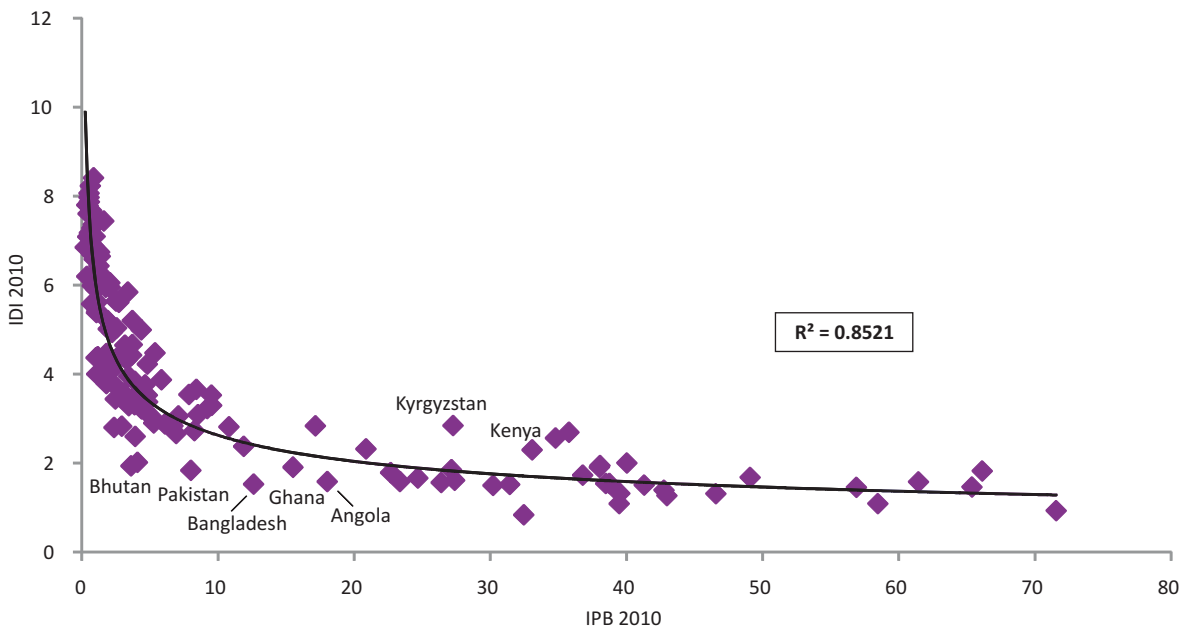
Note: N/A: Not available.
Source: ITU.

Figure 3.2: ICT Price Basket value, 2010



Note: This map shows countries according to their ICT Price Basket value grouped in quartiles.
Source: ITU.

Chart 3.2: Relationship between the ICT Development Index and the ICT Price Basket



Source: ITU.

Similarly, a comparison of the IPB results with the IDI results (see Chapter 2) shows that countries with relatively high ICT prices have relatively low levels of ICT access and use. Conversely, more people access and use ICTs in countries where ICT services are relatively affordable and almost all of the countries listed in the top 25 of the IDI also rank within the top 25 of the IPB. The close link between ICT prices and uptake is illustrated in Chart 3.2, which plots the results of the IPB against those of the IDI. The comparison also shows that in 69 out of 70 countries where the IDI value is above four (up to a maximum of 8.4, achieved by the Republic of Korea), the IPB value is below five. These findings underline that prices and affordability are an important factor for ICT uptake. Some countries, including Bhutan, Pakistan, Bangladesh, Ghana and Angola, have IDI values that are relatively low in relation to ICT prices, suggesting that in these countries other barriers to higher ICT development levels need to be addressed. These include challenges related to rolling out infrastructure and providing access in more remote and rural areas, making available relevant online content, and increasing educational levels and skills. Some other countries, including Kyrgyzstan and Kenya, lie somewhat above the IDI/IPB trend line, suggesting that despite relatively high prices, they have achieved relatively high ICT development levels.

Comparing the 2010 and 2008 ICT Price Baskets shows that over the last two years there has been an important overall drop in ICT prices for the 143 economies that were included in both years. Prices have come down by an average of 18.3 per cent, with the IPB falling from 15.2 in 2008 to 12.4 in 2010. The biggest decrease was in fixed-broadband Internet services, where prices have come down by no less than 52.2 per cent. This compares with a decrease of 21.8 per cent in mobile-cellular services and 6.8 per cent in fixed telephony, over the same two-year period (Table 3.2).

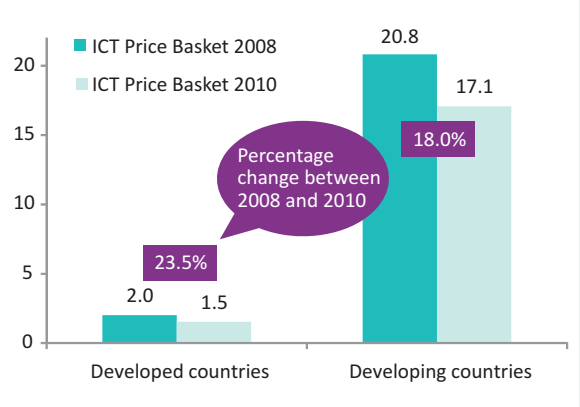
A comparison between developed and developing economies shows that the percentage change (drop) in prices between 2008 and 2010 was somewhat greater in developed countries, where prices have decreased by 23.5 per cent, compared to 18.0 per cent in developing countries (Chart 3.3). While this would suggest that there is a risk of the price divide widening and that developing countries are falling further behind, it must be noted that the percentage change in developing countries would be much higher if the sub-baskets were not capped at a maximum of 100 per cent (i.e. the monthly price for a sub-basket cannot exceed the monthly average GNI per capita). This means that the drop in prices is not fully reflected in the IPB for those countries that actu-

Table 3.2: ICT Price Basket and sub-baskets (averages), 2010 and 2008*

	2008	2010	Average 2008/2010 value decrease	
			Absolute	Percentage
ICT Price Basket	15.2	12.4	2.8	18.3
Fixed-telephone sub-basket	6.2	5.8	0.4	6.8
Mobile-cellular sub-basket	11.0	8.6	2.4	21.8
Fixed-broadband sub-basket	165.0	78.9	86.1	52.2

Note: *Simple averages. Discrepancies may be due to rounding. Both the 2008 and the 2010 averages are based on the 143 economies for which data are available for both years.
Source: ITU.

Chart 3.3: ICT Price Basket by level of development, 2010 and 2008



Source: ITU.

ally exceed the 100 per cent maximum for one of the sub-baskets. This is the case for 19 developing countries, where the fixed-broadband sub-basket exceeds 100. For more information on the sub-baskets and the percentage changes between developed and developing regions, see section 3.4.

Between 2008 and 2010, the steepest fall in the IPB in relative terms was observed in countries from different regions, and with varying income levels. Relative prices decreased by over 50 per cent in Azerbaijan, Bhutan, Sri Lanka, Bangladesh, Venezuela, Guyana, Uganda and Austria (Table 3.3, left). The top ten countries with the greatest IPB value drop are countries with high IPB values and, apart from Bangladesh, all are from Africa (Table 3.3, right). For countries in both groups, there was a steep drop in the fixed-broadband prices, and for several countries, including Azerbaijan, Bhutan, Benin, Kenya, Sri Lanka, Tanzania and Uganda, mobile tariffs also came down considerably.

3.4 IPB sub-basket results and analysis

The ICT Price Basket is calculated on the basis of three distinct price components – fixed telephony, mobile-cellular telephony and fixed-broadband Internet services – which each include different subscription and usage charges, such as the monthly subscription and a certain number of calls and text messages (Figure 3.1). The composition of each sub-basket is based on a *minimum* usage level, intended to reflect first and foremost user patterns of low-income subscribers. The results of the IPB are therefore an indication of relative prices and do not, for example, show what high-end users typically pay. Since the overall IPB value hides differences in the absolute and relative prices of each of the three distinct services, it is useful to look at each component/sub-basket separately.

Since the three sub-baskets refer to very different services which each have their own pricing structures and particularities, and despite the fact that they are all based on entry-level plans, they are not strictly comparable. Both the fixed and the mobile-cellular telephone sub-baskets include 30 voice calls, but the former includes the monthly subscription, whereas the latter, based on prepaid services that do not include a monthly subscription, includes 100 sms. The fixed-broadband sub-basket

Table 3.3: Ten economies with the greatest 2008-2010 decrease in the ICT Price Basket, by relative change (in %, left) and absolute value change (right)

2010 Rank	Country	IPB 2010	IPB 2008	Relative change 2008-2010 (%)	Value change 2008-2010
53	Azerbaijan	1.8	9.9	81.7	-8.1
79	Bhutan	3.6	14.7	75.4	-11.1
63	Sri Lanka	2.4	7.3	67.4	-4.9
120	Bangladesh	12.6	36.4	65.2	-23.7
48	Venezuela	1.6	4.3	62.9	-2.7
112	Guyana	8.5	17.7	51.6	-9.1
135	Uganda	30.2	61.8	51.1	-31.6
11	Austria	0.6	1.1	50.4	-0.6
101	Moldova	5.4	10.8	49.8	-5.4
136	Tanzania	31.4	57.0	44.9	-25.6

2010 Rank	Country	IPB 2010	IPB 2008	Value change 2008-2010	Relative change 2008-2010 (%)
135	Uganda	30.2	61.8	-31.6	51.1
136	Tanzania	31.4	57.0	-25.6	44.9
157	Mozambique	46.6	71.8	-25.2	35.1
120	Bangladesh	12.6	36.4	-23.7	65.2
132	Nigeria	27.2	44.1	-17.0	38.4
138	Kenya	33.1	49.8	-16.7	33.6
130	Djibouti	24.7	40.4	-15.7	38.9
129	Mauritania	23.4	38.0	-14.6	38.4
147	Benin	38.5	50.2	-11.7	23.3
154	Zambia	41.3	52.9	-11.6	21.9

Source: ITU.

is very different again, in that it refers to an Internet connection which, although based on a minimum 1 GB of volume, (often) provides unlimited access to the Internet. Not surprisingly, it is the most expensive sub-basket of the three, at more than nine times the value of the mobile-cellular and 13 times the value of the fixed-telephone sub-basket.

Besides important variations in relative and absolute ICT prices between the different ICT services, absolute prices also vary between countries. For example, prices for the fixed-telephone sub-basket range from as little as USD 0.3 in Cuba to USD 41 in Vanuatu. For the same amount of monthly mobile calls and sms, people in Hong Kong (China) pay USD 1.4, while Brazilians pay USD 57.1. The greatest variations are for a monthly fixed-broadband connection, for which Romanians pay USD 4.8, compared with over USD 1 750 that Cubans need to pay.

The following section presents the results of each of the three sub-baskets and highlights the key changes that have taken place between 2008 and 2010. Prices are presented as a percentage of GNI per capita, in absolute USD and in PPP$. It is important to note that the individual sub-baskets, which were capped at a maximum of 100 (in cases where the sub-basket exceeds the average monthly GNI per capita) in the calculation of the overall IPB, were not capped for this presentation and analysis at the sub-basket level, so that they may exceed 100. This is to show the actual (high) price of ICT services in some countries.

Fixed-telephone sub-basket

Fixed-telephone prices as a percentage of GNI per capita

In 2010, the average fixed-telephone sub-basket, which includes the price of the monthly subscription plus 30 local calls – half peak and half off-peak – of three minutes each, corresponded to 5.8 per cent of monthly GNI per capita. This is about two-thirds the price of the mobile-cellular sub-basket, and only seven per cent of the fixed-broadband sub-basket. The fixed-telephone price sub-basket decreased on average by 6.8 per cent in relation to 2008, which is the smallest percentage change of all three sub-baskets (Table 3.2).

The results for the fixed-telephone sub-basket are presented in Table 3.4. Unlike in the overall IPB, the top ten economies with the lowest relative prices in 2010 are very diverse in terms of income level, development status and region. The list includes Cuba, the United Arab Emirates, Monaco, Venezuela, Bahrain, Singapore, Belarus and the Republic of Korea. For a number of countries, there are substantial differences between their overall IPB rank and their fixed-telephone sub-basket rank, and fixed-telephony prices are relatively cheap, compared to mobile and broadband services. It should be noted that the fixed-telephone sub-basket does not include the price of the (one-time) connection charge, which is relatively high in a number of countries, including in the United Arab Emirates (about USD 49) and Finland (over USD 100). In some countries, citizens

Table 3.4: Fixed-telephone sub-basket, 2010 and 2008

Rank	Economy	Fixed-telephone sub-basket as % of GNI capita		Value change	Relative change (%)	Fixed-telephone sub-basket, USD	Fixed-telephone sub-basket, PPP$	GNI per capita, USD, 2009 (or latest available year)
		2010	2008	2008-2010				
1	Cuba	0.1	0.1	0.0	-27	0.3	N/A	5'550
2	United Arab Emirates	0.1	0.1	0.0	-19	4.1	4.7	57'340
3	Monaco	0.1	N/A	N/A	N/A	21.2	N/A	203'900
4	Venezuela	0.2	0.9	-0.7	-79	1.7	3.6	10'090
5	Bahrain	0.2	0.2	0.0	2	4.8	5.9	25'420
6	Singapore	0.3	0.2	0.0	17	8.2	10.4	37'220
7	Belarus	0.3	N/A	N/A	N/A	1.3	3.5	5'560
8	Macao, China	0.3	0.3	0.0	0	8.4	12.3	35'360
9	Liechtenstein	0.3	N/A	N/A	N/A	29.0	N/A	113'210
10	Korea (Rep.)	0.3	0.3	0.0	3	5.3	7.7	19'830
11	Hong Kong, China	0.3	0.3	0.1	20	8.5	12.2	31'420
12	United States	0.3	0.4	-0.1	-24	12.8	12.8	46'360
13	Kazakhstan	0.4	N/A	N/A	N/A	2.4	3.7	6'920
14	Luxembourg	0.4	0.4	0.0	-4	27.0	22.7	76'710
15	Finland	0.4	0.5	0.0	-5	16.8	13.9	45'940
16	Iceland	0.5	0.5	0.0	-5	16.5	16.2	43'430
17	Norway	0.5	0.5	0.0	-6	32.7	22.3	84'640
18	Brunei Darussalam	0.5	N/A	N/A	N/A	11.7	16.6	26'740
19	Switzerland	0.5	0.6	-0.1	-16	29.4	20.0	65'430
20	Suriname	0.6	N/A	N/A	N/A	2.2	3.0	4'760
21	Canada	0.6	0.9	-0.3	-35	19.4	16.7	41'980
22	Netherlands	0.6	0.7	-0.2	-25	22.4	20.1	48'460
23	Denmark	0.6	0.6	0.0	1	27.8	19.3	59'060
24	Argentina	0.6	0.8	-0.2	-24	3.8	7.6	7'550
25	San Marino	0.6	N/A	N/A	N/A	25.6	N/A	50'670
26	United Kingdom	0.6	0.7	-0.1	-9	21.0	22.1	41'370
27	Azerbaijan	0.6	0.8	-0.1	-19	2.5	4.9	4'840
28	Saudi Arabia	0.6	0.6	0.0	0	9.2	14.8	17'700
29	Syria	0.6	N/A	N/A	N/A	1.3	2.4	2'410
30	Sweden	0.6	0.5	0.1	28	25.5	20.8	48'840
31	Austria	0.7	0.7	-0.1	-8	25.3	22.5	46'450
32	Ireland	0.7	1.0	-0.3	-27	26.3	22.5	44'280
33	Israel	0.7	N/A	N/A	N/A	15.7	15.7	25'790
34	France	0.7	0.8	-0.1	-11	26.6	23.0	42'620
35	Australia	0.8	0.7	0.0	5	27.6	20.5	43'770
36	Germany	0.8	0.8	0.0	-2	27.0	25.5	42'450
37	Russia	0.8	0.8	0.0	6	6.2	12.9	9'340
38	Tunisia	0.8	1.0	-0.2	-18	2.5	5.8	3'720
39	Belgium	0.8	0.9	-0.1	-11	31.4	27.5	45'270
40	Japan	0.8	0.6	0.2	33	26.4	20.2	38'080
41	Malaysia	0.8	0.8	0.0	2	5.1	9.4	7'350
42	Mauritius	0.9	1.0	-0.1	-13	5.1	9.3	7'250
43	Italy	0.9	0.9	0.0	-2	25.6	24.6	35'110
44	Oman	0.9	0.7	0.2	29	13.1	15.5	17'890
45	Qatar	0.9	0.9	0.0	0	9.1	11.9	12'000
46	Bahamas	0.9	N/A	N/A	N/A	16.3	N/A	21'390
47	Slovenia	0.9	1.0	-0.1	-7	17.9	21.6	23'520
48	Malta	0.9	1.0	-0.1	-10	12.8	40.0	16'680
49	Latvia	1.0	1.1	-0.2	-15	10.1	14.3	12'390
50	Greece	1.0	1.1	-0.1	-10	23.8	25.5	29'040
51	Estonia	1.0	1.1	-0.1	-10	11.5	17.2	14'060
52	Spain	1.0	1.1	-0.1	-10	27.0	29.2	32'120
53	Cyprus	1.1	1.1	-0.1	-6	23.8	26.3	26'940
54	Georgia	1.1	1.3	-0.2	-19	2.3	4.7	2'530
55	Serbia	1.1	1.0	0.1	9	5.4	12.3	6'000
56	Uzbekistan	1.2	N/A	N/A	N/A	1.1	2.8	1'100
57	Yemen	1.2	1.0	0.2	15	1.1	2.6	1'060
58	Maldives	1.2	1.3	-0.1	-8	4.1	4.7	3'970
59	Ukraine	1.3	1.5	-0.2	-13	3.0	7.4	2'800
60	Seychelles	1.3	1.1	0.1	13	9.1	17.9	8'480
61	Costa Rica	1.3	0.9	0.4	49	6.9	10.9	6'260
62	St. Kitts and Nevis	1.4	N/A	N/A	N/A	11.6	15.4	10'150
63	Lithuania	1.4	1.5	-0.1	-6	13.1	20.7	11'410
64	Portugal	1.4	1.5	-0.2	-10	25.3	29.9	21'910
65	Trinidad & Tobago	1.4	1.5	-0.1	-8	19.5	31.4	16'700
66	Antigua & Barbuda	1.4	N/A	N/A	N/A	14.2	20.6	12'130
67	Montenegro	1.4	1.9	-0.5	-25	7.8	16.6	6'650
68	Colombia	1.4	1.3	0.1	6	5.9	9.1	4'990
69	Algeria	1.5	1.3	0.2	15	5.4	11.2	4'420
70	Croatia	1.5	1.6	-0.2	-10	17.0	24.5	13'720
71	Moldova	1.5	1.8	-0.3	-19	1.9	4.1	1'560
72	New Zealand	1.5	1.4	0.1	8	34.1	31.6	27'260
73	Tajikistan	1.5	N/A	N/A	N/A	0.9	2.6	700
74	Slovak Republic	1.5	1.7	-0.2	-12	20.4	29.8	16'130
75	Lebanon	1.5	1.8	-0.2	-13	10.3	16.4	8'060
76	China	1.5	1.5	0.1	5	4.7	8.4	3'650
77	Armenia	1.6	1.8	-0.2	-11	4.2	8.0	3'100
78	Kyrgyzstan	1.7	N/A	N/A	N/A	1.2	3.4	870
79	Egypt	1.7	2.0	-0.3	-16	2.9	7.3	2'070
80	Uruguay	1.8	1.9	-0.1	-5	13.3	16.7	9'010
81	Czech Republic	1.9	2.1	-0.3	-13	26.8	37.6	17'310
82	Albania	1.9	1.3	0.6	41	6.4	15.1	4'000
83	Romania	1.9	2.0	-0.1	-3	13.3	26.2	8'330

Table 3.4: Fixed-telephone sub-basket, 2010 and 2008 (continued)

Rank	Economy	Fixed-telephone sub-basket as % of GNI capita		Value change	Relative change (%)	Fixed-telephone sub-basket, USD	Fixed-telephone sub-basket, PPP$	GNI per capita, USD, 2009 (or latest available year)
		2010	2008	2008-2010				
84	Hungary	2.0	2.6	-0.7	-26	21.2	33.7	12'980
85	Poland	2.0	2.6	-0.6	-25	20.2	33.4	12'260
86	Bhutan	2.0	2.2	-0.2	-10	3.4	9.4	2'030
87	Guyana	2.1	2.1	0.0	2	2.6	5.1	1'450
88	Panama	2.2	1.7	0.5	28	12.0	22.4	6'570
89	Turkey	2.3	N/A	N/A	N/A	16.8	27.6	8'720
90	Tonga	2.3	2.2	0.1	6	6.4	8.3	3'260
91	Bosnia and Herzegovina	2.4	2.4	-0.1	-2	9.3	18.4	4'700
92	Fiji	2.4	2.8	-0.3	-11	7.8	10.4	3'840
93	Swaziland	2.4	2.1	0.4	18	5.0	8.7	2'470
94	Bulgaria	2.5	2.9	-0.5	-15	12.5	27.4	6'060
95	Guatemala	2.5	2.7	-0.1	-5	5.6	9.7	2'650
96	Mexico	2.5	2.5	0.0	2	18.9	31.2	8'960
97	St. Vincent and the Grenadines	2.6	2.5	0.0	1	10.9	18.7	5'130
98	Barbados	2.6	2.4	0.2	10	20.2	33.3	9'330
99	Dominica	2.6	2.7	-0.1	-4	10.7	18.6	4'900
100	Grenada	2.6	2.4	0.3	11	12.3	17.0	5'580
101	St. Lucia	2.7	2.6	0.1	5	11.6	20.3	5'190
102	Bangladesh	2.8	3.1	-0.3	-10	1.3	3.4	580
103	Thailand	2.8	1.9	1.0	51	8.8	16.8	3'760
104	Jordan	2.9	3.1	-0.2	-7	9.5	12.6	3'980
105	Indonesia	2.9	3.0	0.0	-1	5.0	7.8	2'050
106	Sri Lanka	3.0	3.5	-0.6	-16	4.9	11.1	1'990
107	Jamaica	3.0	2.6	0.4	15	11.6	19.4	4'590
108	Viet Nam	3.2	3.2	-0.1	-2	2.4	7.3	930
109	Chile	3.2	3.1	0.1	3	25.0	33.7	9'470
110	TFYR Macedonia	3.3	3.9	-0.6	-16	11.9	30.2	4'400
111	Cape Verde	3.3	2.3	1.0	44	8.3	10.5	3'010
112	India	3.3	3.7	-0.3	-9	3.3	9.1	1'180
113	Brazil	3.4	4.2	-0.8	-19	23.0	26.0	8'040
114	Ethiopia	3.5	6.3	-2.7	-44	1.0	3.2	330
115	Botswana	3.6	3.2	0.4	13	18.7	39.2	6'260
116	El Salvador	3.6	3.9	-0.2	-6	10.2	19.8	3'370
117	Paraguay	3.6	4.0	-0.3	-9	6.8	13.2	2'250
118	Pakistan	4.0	4.5	-0.4	-10	3.3	9.8	1'000
119	Dominican Rep.	4.1	3.1	1.0	31	15.5	28.9	4'550
120	Peru	4.2	4.6	-0.4	-9	14.6	26.4	4'200
121	Honduras	4.2	N/A	N/A	N/A	6.3	12.7	1'800
122	Namibia	4.3	3.7	0.5	14	15.1	19.6	4'270
123	Ecuador	4.3	N/A	N/A	N/A	14.1	27.8	3'970
124	Micronesia	4.5	3.9	0.6	15	9.4	11.7	2'500
125	Papua New Guinea	4.6	4.3	0.3	8	4.5	8.4	1'180
126	Samoa	5.1	N/A	N/A	N/A	12.0	16.3	2'840
127	South Africa	5.2	4.2	1.0	24	25.0	38.2	5'760
128	Guinea	5.2	9.6	-4.3	-45	1.6	5.0	370
129	Angola	5.3	7.3	-2.0	-27	16.5	27.2	3'750
130	Nicaragua	5.4	5.8	-0.3	-6	4.5	11.8	1'000
131	Lao P.D.R.	5.5	6.4	-0.9	-14	4.0	9.3	880
132	Belize	6.3	7.5	-1.3	-17	19.6	31.7	3'740
133	Ghana	7.3	4.5	2.8	61	7.3	10.4	1'190
134	Kiribati	7.6	N/A	N/A	N/A	11.5	18.2	1'830
135	Djibouti	7.7	8.1	-0.3	-4	8.3	15.9	1'280
136	Timor-Leste	8.4	N/A	N/A	N/A	17.3	28.3	2'460
137	Nepal	8.5	9.7	-1.2	-12	3.1	8.0	440
138	S. Tomé & Principe	8.7	12.2	-3.4	-28	8.3	14.5	1'140
139	Philippines	9.0	8.7	0.3	3	15.3	29.3	2'050
140	Morocco	9.2	11.1	-1.8	-16	21.3	35.7	2'770
141	Senegal	11.8	20.4	-8.6	-42	10.3	19.3	1'040
142	Comoros	13.8	17.9	-4.0	-23	10.0	16.6	870
143	Nigeria	14.1	10.3	3.8	37	14.0	27.9	1'190
144	Benin	14.4	17.5	-3.1	-18	9.0	19.3	750
145	Cambodia	14.5	15.7	-1.2	-8	7.4	20.1	610
146	Mali	15.0	18.7	-3.6	-19	8.5	15.4	680
147	Cameroon	15.2	15.0	0.2	1	15.0	30.8	1'190
148	Lesotho	15.9	13.6	2.4	17	13.0	20.8	980
149	Bolivia	17.5	19.0	-1.5	-8	23.7	59.5	1'630
150	Malawi	18.2	15.4	2.8	18	4.3	11.9	280
151	Vanuatu	18.8	11.8	7.0	60	41.0	59.9	2'620
152	Tanzania	21.1	28.1	-7.0	-25	8.8	25.5	500
153	Côte d'Ivoire	22.0	26.7	-4.8	-18	19.6	31.9	1'070
154	Kenya	22.4	18.0	4.4	24	14.2	30.8	760
155	Mauritania	22.5	18.2	4.3	24	18.0	40.1	960
156	Uganda	22.8	34.9	-12.1	-35	8.8	24.8	460
157	Burkina Faso	25.6	24.6	0.9	4	10.9	26.4	510
158	Zambia	29.8	33.0	0.9	3	24.1	32.9	970
159	Togo	30.1	35.0	-4.9	-14	11.0	23.0	440
160	Zimbabwe	30.2	N/A	N/A	N/A	9.1	N/A	360
161	Mozambique	33.7	55.0	-21.3	-39	12.4	32.6	440
162	Rwanda	34.4	21.2	13.2	62	13.2	28.5	460
163	Chad	37.0	41.2	-4.2	-10	16.7	37.5	540
164	Niger	41.3	47.4	-6.1	-13	11.7	23.7	340
165	Madagascar	52.1	49.9	2.2	4	18.2	43.7	420

Note: N/A: Not available.
Source: ITU.

benefit from particularly cheap, or even free, local calls, as is the case in Cuba and Singapore. Usually, very low local prices for calls are compensated by higher prices for long-distance or international calls. In some countries, such as the United States, fixed-telephone services have been subsidized to ensure that all customers, including rural and low-income customers, have basic telephone access. A discussion was launched recently in the United States on the possibility of moving from subsidized fixed telephony to subsidized broadband services.[21]

While fixed-telephone prices have gone down, or remained the same, in about two-thirds of all countries included in the IPB, prices have increased in the others. In some cases, for example Botswana and Mexico, changes to some degree reflect an increase in taxes; in others, the pricing structure has changed. In Senegal, for instance, the one-time installation charge (which is not taken into account in the calculation of the sub-basket) has increased substantially, while the monthly subscription price has decreased, thus yielding an overall decrease in the sub-basket. In Mozambique, local prices actually remained the same but a major change in the exchange rate has had a big impact on the USD value of the sub-basket.

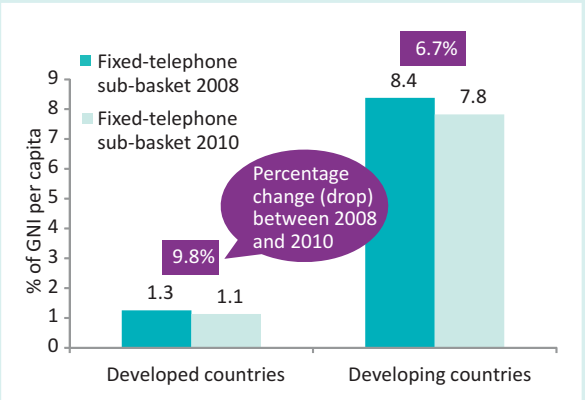
Fixed-telephone prices: the regional and development-level perspective

Between 2008 and 2010, only relatively modest price changes occurred in the fixed-telephone basket overall. Regionally, the Commonwealth of Independent States (CIS) and Europe, where prices dropped by 14 and 12 per cent, respectively, are the only regions with a double-digit decrease in the fixed-telephone sub-basket. Africa cut fixed-telephone prices by almost ten per cent, which could reflect a reaction to stiff competition from the mobile market. On the other hand, it must be noted that only very few Africans actually use fixed-telephone services, given the extremely low fixed-line penetration in Africa. In developed countries, the fixed-telephone sub-basket decreased by 9.8 per cent, compared to 6.7 per cent in developing countries (Chart 3.4).

A comparison of 2010 prices shows that Europeans and people living in the CIS countries pay the relatively lowest prices, since both regions have a fixed-telephone sub-basket value of 1.1. The sub-baskets in the Americas, Asia and the Pacific and the Arab States are relatively more expensive, but still correspond to less than five per cent of monthly national average incomes. In Africa, the region with the lowest income levels and by far the lowest fixed-line penetration rate (less than two per cent by end 2010), the sub-basket represented 17 per cent of monthly average incomes. This is 15 times the relative price in the developed countries, and more than twice the developing-country average (Chart 3.5).

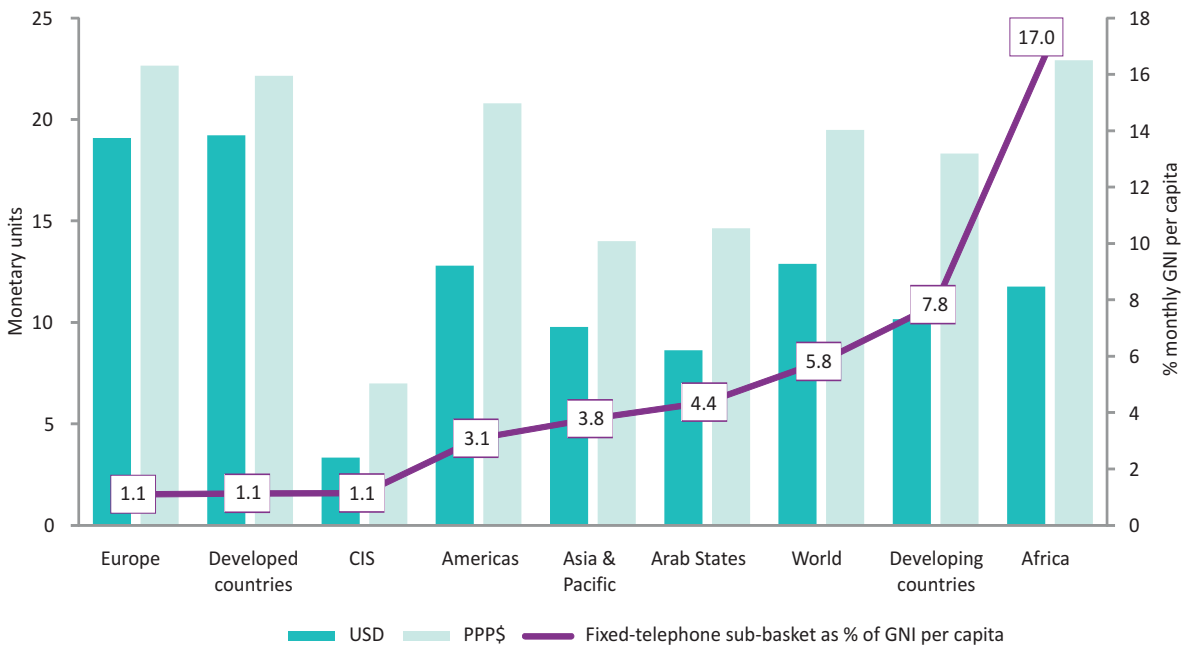
A large number of developing countries and particularly a lot of countries in Africa have a history of very low fixed-line penetration rates and high prices. In many countries, the number of fixed-telephone lines is either decreasing or stagnating. Both India and China, the two largest developing countries, have seen their number of fixed-telephone lines fall since 2006. For basic voice services, mobile telephony is increasingly complementing or, where fixed-line networks are limited, replacing the fixed-telephone line. While it is true that, currently, the fixed-telephone network continues to be an important access technology for fixed-broadband (DSL) access, the growing availability and popularity of mobile-broadband services is expected to further reduce the necessity for fixed-telephone lines. This assumption is borne out by the fact that in some countries it is increasingly difficult to obtain price information for basic fixed-telephone services on operators' websites. Both Afghanistan and Mongolia, for example, had to be excluded from the 2010 ICT Price Basket since it was not possible to obtain their fixed-telephone tariffs. In both countries, the number of fixed-telephone lines is very small – they both have fewer than 200 000 lines, suggesting that these may be primarily for enterprises or organizations. In Nauru, the fixed-telephone line network has been decommissioned, according to the regulatory authority.[22] Although this trend could suggest that, sooner or later, the fixed-telephone sub-basket

Chart 3.4: Fixed-telephone sub-basket by level of development, 2008 and 2010



Source: ITU.

Chart 3.5: Fixed-telephone sub-basket by region and by level of development, 2010



Note: In this chart, Cuba is not included in the USD/PPP$ values for the Americas region, since the PPP$ value for Cuba is not available.
Source: ITU.

should be removed from the IPB, fixed-telephone services remain important in a number of countries, and also for businesses and organizations.

Mobile-cellular sub-basket

Mobile-cellular prices as a percentage of GNI per capita

In 2010, the average mobile-cellular sub-basket, which includes the price of 30 outgoing calls – for peak, off-peak and weekend periods and to the same and other mobile and fixed networks – plus 100 sms, corresponds on average to 8.6 per cent of monthly GNI per capita.[23] The mobile-cellular sub-basket decreased by 21.8 per cent compared with 2008 (Table 3.2).

All of the top ten countries with the lowest mobile-cellular sub-basket are high-income economies, including Hong Kong (China), United Arab Emirates, Macao (China), Denmark, Singapore, Norway and Finland. Costa Rica stands out in that it has a relatively low GNI per capita but ranks 18th on the mobile-cellular sub-basket (Table 3.5). While Costa Rica is one of the few countries in the world with only one mobile operator,[24] the government has subsidized tariffs and prices have been kept low. Another country with relatively low income levels and relatively cheap mobile-cellular tariffs that stands out in the list among generally wealthier economies is Sri Lanka. The country ranks 38th on the mobile-cellular sub-basket (compared to 63rd on the overall IPB) and prices dropped by over 56.7 per cent between 2008 and 2010, one of the highest percentage changes over that period. Sri Lanka has a highly competitive mobile-cellular market, with five operators competing for a total of just over 20 million inhabitants. Other countries where mobile-cellular tariffs have decreased by over 50 per cent include Austria, Hong Kong (China), Venezuela, Finland and Côte d'Ivoire (Table 3.6, right).

The most expensive mobile-cellular tariffs in relative terms are found in low-income developing countries, and the top ten relatively most expensive countries are from Africa. They include Malawi, Niger, Zimbabwe, Togo, Burkina Faso, Mozambique, Madagascar and Chad. Nevertheless, the last five are included in the list of economies registering the greatest decrease in the mobile-telephone sub-basket in absolute value terms (Table 3.6, left), suggesting that mobile services are

Table 3.5: Mobile-cellular sub-basket, 2010 and 2008

Rank	Economy	Mobile-cellular sub-basket as % of GNI capita		Value change	Relative change (%)	Mobile-cellular sub-basket, USD	Mobile-cellular sub-basket, PPP$	GNI per capita, USD, 2009 (or latest available year)
		2010	2008	2008-2010				
1	Hong Kong, China	0.1	0.1	-0.1	-63	1.4	2.1	31'420
2	United Arab Emirates	0.2	0.2	0.0	0	8.6	9.9	57'340
3	Macao, China	0.2	0.2	0.0	0	5.7	8.3	35'360
4	Denmark	0.2	0.2	0.0	-11	9.8	6.8	59'060
5	Liechtenstein *	0.2	N/A	N/A	N/A	23.4	N/A	113'210
6	Singapore	0.3	0.2	0.0	6	8.1	10.4	37'220
7	Norway	0.3	0.3	0.0	-7	20.5	14.0	84'640
8	Monaco	0.3	N/A	N/A	N/A	52.6	N/A	203'900
9	Finland	0.3	0.7	-0.4	-51	13.1	10.8	45'940
10	Cyprus	0.3	0.4	-0.1	-13	7.7	8.5	26'940
11	Austria	0.4	1.2	-0.8	-69	13.9	12.4	46'450
12	Germany	0.4	0.4	-0.1	-18	13.1	12.3	42'450
13	Luxembourg	0.4	0.4	0.0	-3	25.8	21.7	76'710
14	Sweden	0.4	0.8	-0.3	-45	17.2	14.0	48'840
15	Iceland	0.5	0.5	-0.1	-14	16.6	16.3	43'430
16	San Marino	0.6	N/A	N/A	N/A	23.8	N/A	50'670
17	Oman	0.6	0.7	-0.1	-8	9.1	10.7	17'890
18	Costa Rica	0.6	1.1	-0.5	-44	3.4	5.3	6'260
19	Brunei Darussalam	0.7	N/A	N/A	N/A	15.7	22.4	26'740
20	Bahrain	0.7	0.7	0.0	7	15.0	18.7	25'420
21	Australia	0.8	1.2	-0.4	-36	27.7	20.5	43'770
22	Netherlands	0.8	1.0	-0.1	-15	33.2	29.8	48'460
23	United States	0.8	0.8	0.0	3	32.7	32.7	46'360
24	Trinidad & Tobago	0.9	1.1	-0.3	-22	12.1	19.6	16'700
25	Korea (Rep.)	0.9	1.1	-0.2	-18	14.4	21.0	19'830
26	United Kingdom	0.9	1.0	-0.1	-8	31.0	32.6	41'370
27	Saudi Arabia	1.0	1.1	-0.1	-13	14.1	22.7	17'700
28	Latvia	1.0	1.4	-0.5	-32	10.1	14.2	12'390
29	Canada	1.0	0.9	0.1	7	34.3	29.6	41'980
30	Bahamas	1.0	N/A	N/A	N/A	17.5	N/A	21'390
31	Ireland	1.0	0.9	0.1	16	37.3	31.9	44'280
32	Lithuania	1.0	1.4	-0.4	-26	9.6	15.3	11'410
33	Italy	1.0	1.2	-0.2	-15	29.8	28.7	35'110
34	Switzerland **	1.0	1.2	-0.2	-15	57.0	38.7	65'430
35	Slovenia	1.1	1.1	-0.1	-8	20.8	25.0	23'520
36	Belgium	1.1	1.1	0.0	1	40.2	35.3	45'270
37	Mauritius	1.1	1.3	-0.2	-13	6.8	12.4	7'250
38	Sri Lanka	1.1	2.6	-1.5	-57	1.9	4.3	1'990
39	Russia	1.2	1.6	-0.4	-25	9.2	19.2	9'340
40	Malaysia	1.2	1.6	-0.4	-25	7.5	13.7	7'350
41	Portugal	1.3	1.3	0.0	-4	22.9	27.1	21'910
42	France	1.4	1.6	-0.2	-14	48.6	42.1	42'620
43	Croatia	1.5	2.5	-1.0	-40	17.1	24.6	13'720
44	Poland	1.5	2.0	-0.5	-25	15.8	26.0	12'260
45	Panama	1.6	1.7	-0.1	-6	8.5	15.8	6'570
46	Malta	1.6	2.2	-0.7	-30	21.8	67.9	16'680
47	Israel	1.6	N/A	N/A	N/A	34.1	34.0	25'790
48	Greece	1.6	1.8	-0.2	-12	38.5	41.3	29'040
49	Azerbaijan	1.7	2.2	-0.5	-21	6.9	13.5	4'840
50	Belarus	1.7	N/A	N/A	N/A	7.9	21.8	5'560
51	Maldives	1.7	2.1	-0.4	-18	5.7	6.6	3'970
52	Japan	1.8	1.5	0.3	18	55.9	42.7	38'080
53	St. Kitts and Nevis	1.8	N/A	N/A	N/A	15.2	20.1	10'150
54	Qatar	1.8	1.7	0.1	6	18.4	24.1	12'000
55	Estonia	1.9	2.2	-0.3	-13	22.3	33.4	14'060
56	Czech Republic	1.9	2.5	-0.5	-22	28.1	39.4	17'310
57	China	2.0	2.3	-0.3	-14	6.0	10.8	3'650
58	Spain	2.0	2.2	-0.3	-11	53.2	57.6	32'120
59	New Zealand	2.1	1.7	0.4	24	47.2	43.6	27'260
60	Antigua & Barbuda	2.2	N/A	N/A	N/A	22.0	31.9	12'130
61	Seychelles	2.3	1.9	0.4	21	15.9	31.2	8'480
62	Serbia	2.3	2.5	-0.2	-7	11.6	26.4	6'000
63	Mexico	2.3	2.3	0.0	2	17.4	28.6	8'960
64	Uruguay	2.4	3.1	-0.8	-24	17.8	22.2	9'010
65	Hungary	2.4	3.0	-0.6	-20	25.7	40.9	12'980
66	Kazakhstan	2.5	N/A	N/A	N/A	14.4	22.8	6'920
67	Botswana	2.5	2.4	0.2	6	13.2	27.7	6'260
68	Barbados	2.6	2.6	0.0	-1	20.0	32.9	9'330
69	Venezuela	2.7	5.6	-3.0	-53	22.3	47.0	10'090
70	Bhutan	2.7	3.6	-0.9	-25	4.6	12.7	2'030
71	Thailand	2.8	3.4	-0.6	-18	8.7	16.5	3'760
72	Slovak Republic	2.8	2.9	-0.1	-3	38.2	55.8	16'130
73	Montenegro	3.0	2.8	0.2	7	16.5	35.0	6'650
74	Chile	3.0	3.2	-0.2	-7	23.7	31.9	9'470
75	Pakistan	3.0	3.8	-0.8	-22	2.5	7.4	1'000
76	Grenada	3.1	3.2	-0.1	-2	14.5	20.1	5'580
77	Romania	3.1	3.5	-0.4	-12	21.8	43.0	8'330
78	Jamaica	3.1	3.6	-0.4	-12	12.0	20.1	4'590
79	Tajikistan	3.2	N/A	N/A	N/A	1.8	5.4	700
80	Jordan	3.2	3.4	-0.3	-8	10.5	14.0	3'980
81	Ukraine	3.2	5.2	-2.0	-38	7.5	18.8	2'800
82	Tunisia	3.2	4.3	-1.1	-26	10.0	23.1	3'720
83	Uzbekistan	3.3	N/A	N/A	N/A	3.0	7.9	1'100

Table 3.5: Mobile-cellular sub-basket, 2010 and 2008 (continued)

Rank	Economy	Mobile-cellular sub-basket as % of GNI capita		Value change	Relative change (%)	Mobile-cellular sub-basket, USD	Mobile-cellular sub-basket, PPP$	GNI per capita, USD, 2009 (or latest available year)
		2010	2008	2008-2010				
84	Suriname	3.3	N/A	N/A	N/A	13.1	18.1	4'760
85	El Salvador	3.4	5.6	-2.2	-40	9.5	18.4	3'370
86	Algeria	3.4	4.4	-1.0	-23	12.5	26.0	4'420
87	India	3.4	3.9	-0.4	-11	3.4	9.3	1'180
88	Armenia	3.4	5.2	-1.8	-35	8.8	16.9	3'100
89	St. Vincent and the Grenadines	3.5	4.5	-1.1	-23	14.8	25.3	5'130
90	Dominica	3.5	5.1	-1.5	-30	14.5	25.1	4'900
91	Guatemala	3.6	4.2	-0.6	-15	7.8	13.7	2'650
92	Bosnia and Herzegovina	3.9	4.8	-0.9	-18	15.4	30.5	4'700
93	Tonga	4.0	3.8	0.2	6	11.0	14.4	3'260
94	Colombia	4.1	4.4	-0.3	-8	16.9	26.0	4'990
95	Lebanon	4.1	5.7	-1.6	-28	27.3	43.5	8'060
96	Egypt	4.1	5.6	-1.6	-28	7.0	17.9	2'070
97	Dominican Rep.	4.1	4.7	-0.6	-13	15.6	29.1	4'550
98	Ecuador	4.2	N/A	N/A	N/A	13.8	27.2	3'970
99	Bangladesh	4.2	6.0	-1.8	-30	2.0	5.2	580
100	Micronesia	4.4	4.4	-0.1	-2	9.1	11.3	2'500
101	Paraguay	4.6	5.3	-0.7	-13	8.6	16.5	2'250
102	Indonesia	4.6	5.4	-0.8	-15	7.8	12.2	2'050
103	Namibia	4.8	4.9	-0.1	-3	17.0	22.0	4'270
104	South Africa	4.8	4.5	0.4	8	23.3	35.5	5'760
105	Argentina	4.9	3.4	1.5	43	30.7	61.3	7'550
106	Kyrgyzstan	4.9	N/A	N/A	N/A	3.6	10.1	870
107	St. Lucia	5.1	4.7	0.4	9	22.2	38.8	5'190
108	Georgia	5.5	6.8	-1.3	-19	11.6	24.1	2'530
109	Fiji	5.9	7.8	-1.9	-25	18.8	24.9	3'840
110	Philippines	5.9	5.5	0.4	7	10.1	19.3	2'050
111	Honduras	5.9	N/A	N/A	N/A	8.9	17.8	1'800
112	Turkey	6.0	N/A	N/A	N/A	43.9	72.4	8'720
113	Bulgaria	6.1	7.2	-1.1	-15	30.6	67.1	6'060
114	Angola	6.2	8.1	-1.9	-24	19.2	31.7	3'750
115	TFYR Macedonia	6.4	7.4	-1.0	-14	23.4	59.2	4'400
116	Viet Nam	7.0	9.9	-2.9	-30	5.4	16.2	930
117	Nepal	7.3	12.6	-5.3	-42	2.7	6.9	440
118	Cuba	7.3	9.3	-2.0	-21	33.9	N/A	5'550
119	Ghana	7.4	10.8	-3.4	-31	7.4	10.6	1'190
120	Samoa	7.5	N/A	N/A	N/A	17.6	24.1	2'840
121	Albania	7.7	12.6	-4.8	-38	25.8	61.2	4'000
122	Guyana	7.8	10.3	-2.5	-25	9.4	18.9	1'450
123	Timor-Leste	7.9	N/A	N/A	N/A	16.1	26.4	2'460
124	Bolivia	8.3	9.1	-0.8	-9	11.3	28.3	1'630
125	Brazil	8.5	9.2	-0.7	-7	57.1	64.6	8'040
126	Lao P.D.R.	8.6	9.5	-0.9	-9	6.3	14.6	880
127	Yemen	9.2	11.0	-1.8	-17	8.1	19.5	1'060
128	Moldova	9.7	12.0	-2.3	-19	12.6	26.3	1'560
129	Syria	9.9	N/A	N/A	N/A	19.9	37.7	2'410
130	Belize	10.0	10.0	-0.1	-1	31.0	50.3	3'740
131	Vanuatu	10.7	12.7	-2.0	-16	23.3	34.0	2'620
132	Kiribati	11.3	N/A	N/A	N/A	17.3	27.2	1'830
133	Swaziland	11.7	10.0	1.8	18	24.2	41.5	2'470
134	Peru	12.4	14.3	-2.0	-14	43.2	78.2	4'200
135	Cambodia	13.2	17.6	-4.4	-25	6.7	18.3	610
136	Guinea	13.4	17.1	-3.7	-22	4.1	12.9	370
137	S. Tomé & Principe	13.4	17.8	-4.4	-25	12.7	22.2	1'140
138	Nigeria	13.9	22.0	-8.2	-37	13.7	27.4	1'190
139	Djibouti	14.0	13.1	0.9	7	14.9	28.8	1'280
140	Morocco	14.3	17.2	-2.8	-16	33.1	55.4	2'770
141	Senegal	14.6	16.4	-1.8	-11	12.7	23.8	1'040
142	Ethiopia	14.9	26.5	-11.6	-44	4.1	13.6	330
143	Côte d'Ivoire	15.3	30.8	-15.6	-50	13.6	22.1	1'070
144	Nicaragua	15.8	27.4	-11.6	-42	13.2	34.4	1'000
145	Cape Verde	16.6	19.4	-2.8	-14	41.6	52.3	3'010
146	Kenya	17.0	31.5	-14.4	-46	10.8	23.5	760
147	Mauritania	18.3	18.6	-0.4	-2	14.6	32.6	960
148	Cameroon	20.2	31.1	-10.8	-35	20.1	41.2	1'190
149	Zambia	20.8	25.8	-4.9	-19	16.9	23.0	970
150	Benin	20.9	33.1	-12.2	-37	13.0	27.9	750
151	Tanzania	23.2	43.1	-19.8	-46	9.7	28.1	500
152	Papua New Guinea	23.7	25.1	-1.4	-6	23.3	43.5	1'180
153	Mali	25.5	31.7	-6.2	-19	14.4	26.2	680
154	Lesotho	29.6	25.2	4.4	17	24.1	38.6	980
155	Uganda	31.8	50.4	-18.5	-37	12.2	34.5	460
156	Comoros	33.5	43.2	-9.8	-23	24.3	40.1	870
157	Chad	34.1	59.1	-25.0	-42	15.4	34.6	540
158	Rwanda	36.3	53.1	-16.8	-32	13.9	30.1	460
159	Madagascar	44.1	65.0	-20.9	-32	15.4	37.0	420
160	Mozambique	46.2	60.4	-14.2	-23	17.0	44.7	440
161	Burkina Faso	49.9	63.2	-13.3	-21	21.2	51.5	510
162	Togo	54.3	81.5	-27.2	-33	19.9	41.4	440
163	Zimbabwe	68.3	N/A	N/A	N/A	20.5	N/A	360
164	Niger	73.4	83.9	-10.5	-12	20.8	42.1	340
165	Malawi	91.0	85.0	6.0	7	21.2	59.6	280

Note: N/A: Not available. *Liechtenstein refers to postpaid plan. It has a monthly charge of CHF 9.90. ** In Switzerland, on-net calls and calls to fixed operators cost CHF 0.80 per hour. This was taken into account when calculating the mobile-cellular sub-basket.

Source: ITU.

Table 3.6: Ten economies with the greatest 2008-2010 decrease in the mobile-cellular sub-basket, by absolute value change (left) and relative change (in %, right)

Rank	Economy	Mobile sub-basket 2010	Mobile sub-basket 2008	Value change 2008-2010	Relative change 2008-2010 (%)
161	Togo	54.3	81.5	-27.2	-33.4
137	Chad	34.1	59.1	-25.0	-42.3
162	Madagascar	44.1	65.0	-20.9	-32.1
136	Tanzania	23.2	43.1	-19.8	-46.0
135	Uganda	31.8	50.4	-18.5	-36.8
159	Rwanda	36.3	53.1	-16.8	-31.6
134	Côte d'Ivoire	15.3	30.8	-15.6	-50.5
138	Kenya	17.0	31.5	-14.4	-45.9
157	Mozambique	46.2	60.4	-14.2	-23.4
160	Burkina Faso	49.9	63.2	-13.3	-21.0

Rank	Economy	Mobile sub-basket 2010	Mobile sub-basket 2008	Relative change 2008-2010 (%)	Value change 2008-2010
11	Austria	0.4	1.2	-69.4	-0.8
4	HK, China	0.1	0.1	-63.2	-0.1
63	Sri Lanka	1.1	2.6	-56.7	-1.5
48	Venezuela	2.7	5.6	-52.8	-3.0
14	Finland	0.3	0.7	-51.1	-0.4
134	Côte d'Ivoire	15.3	30.8	-50.5	-15.6
136	Tanzania	23.2	43.1	-46.0	-19.8
138	Kenya	17.0	31.5	-45.9	-14.4
15	Sweden	0.4	0.8	-44.9	-0.3
149	Ethiopia	14.9	26.5	-43.7	-11.6

Source: ITU.

becoming cheaper and more affordable. In others, for example in Niger, prices decreased relatively little compared to their African neighbours. In Malawi, a comparison of the 2008 and 2010 mobile-cellular sub-baskets actually suggests a slight increase in mobile-cellular tariffs. These are alarming developments, particularly in countries where the mobile-cellular penetration rate is still below 25 per cent, and among the lowest in the world. Other developing countries with relatively low mobile-cellular penetration rates and with a relatively small price decrease (or even a price increase) between 2008 and 2010 include Lesotho, Papua New Guinea, Mauritania and Djibouti.

Mobile-cellular telephone prices: the regional and development-level perspective

Africa and CIS were the regions recording the greatest decrease in mobile-cellular prices. Here, prices between 2008 and 2010 dropped by 25 per cent, compared with 18 and 15 per cent in Asia and the Pacific and the Arab States, respectively. Prices decreased by around 11 per cent in the Americas and 15 per cent in Europe, such that, by the end of 2010, the mobile-cellular basket corresponded to less than 10 per cent of monthly average incomes in all regions except Africa.

However, absolute and relative price differences in the mobile-cellular sub-basket are substantial between regions. While Europeans pay on average as little as 1.6 per cent of their monthly income for the mobile sub-basket, Africans average as much as 24.6 per cent. Mobile prices are more affordable in the CIS and Asia and the Pacific, where they correspond to 4.1 and 4.6 per cent of incomes, respectively, compared to 5.1 per cent in the Americas and 7.4 per cent in the Arab States.

The difference in relative prices also remains considerable between the developed and the developing countries. While people living in the developed countries pay on average two per cent of their monthly income for mobile-cellular services, those in developing countries average as much as 11.4 per cent (Chart 3.6).

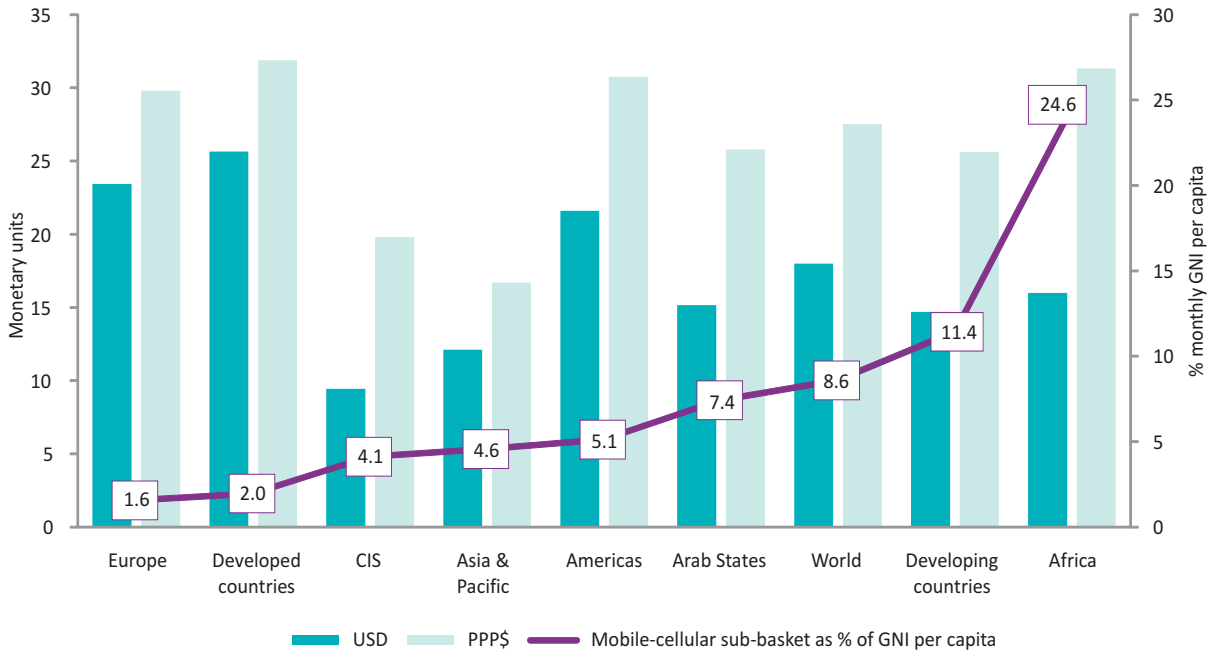
At the same time, a comparison between 2010 and 2008 shows that prices are decreasing faster in the developing world. Prices decreased by 22 per cent in developing countries, as against 19.1 per cent in developed countries (Chart 3.7).

Fixed-broadband Internet sub-basket

Fixed-broadband prices as a percentage of GNI per capita

In 2010, the average fixed broadband Internet sub-basket, which includes the price of a monthly subscription for an entry-level broadband plan based on 1 Gigabyte of download volume, cost 78.9 per cent of monthly GNI per capita. The fixed-broadband sub-basket decreased by 52.2 per cent compared with 2008

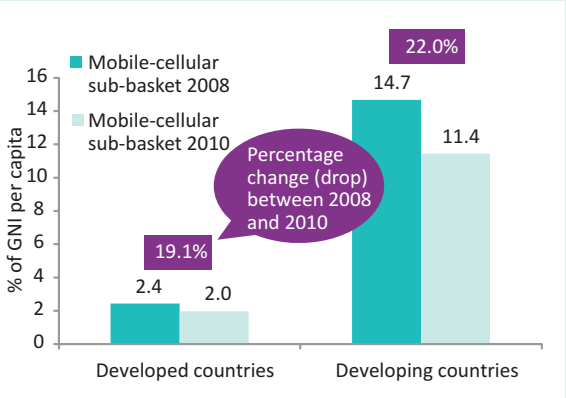
Chart 3.6: Mobile-cellular sub-basket by region and by level of development, 2010



Note: In this chart, Cuba is not included in the USD/PPP$ values for the Americas region, since the PPP$ value for Cuba is not available.
Source: ITU.

(Table 3.2), the largest decrease of all the sub-baskets. Although this shows that high-speed Internet access is becoming more affordable, it is still beyond the means of most people in the world.

Chart 3.7: Mobile-cellular sub-basket by level of development, 2008 and 2010



Source: ITU.

Inequalities in broadband prices are reflected in the different prices that people in developed and developing countries pay. While broadband Internet access represents 1.5 per cent of incomes in developed countries, the figure is 112 per cent in the developing countries (Chart 3.8).

The top ten economies with the cheapest relative broadband prices are all high-income economies, and include many of those ranked at the top of the overall IPB: Monaco, Macao (China), Israel, Liechtenstein, the United States and Austria. In a total of 31 countries (or 18 per cent), people pay an equivalent of one per cent – or less – of their average monthly GNI per capita for an entry-level broadband connection (Table 3.7).

On the other hand, the 2010 price data show that, in 19 countries, broadband prices correspond to more than 100 per cent of the monthly average GNI per capita, suggesting that high-speed fixed Internet access remains unaffordable for many citizens. Indeed, in Guinea, Malawi, Zimbabwe and Ethiopia the monthly price for an Internet connection is actually more than ten times the monthly average income, and in a total of 32 countries (20 per cent

Table 3.7: Fixed-broadband sub-basket 2010 and 2008

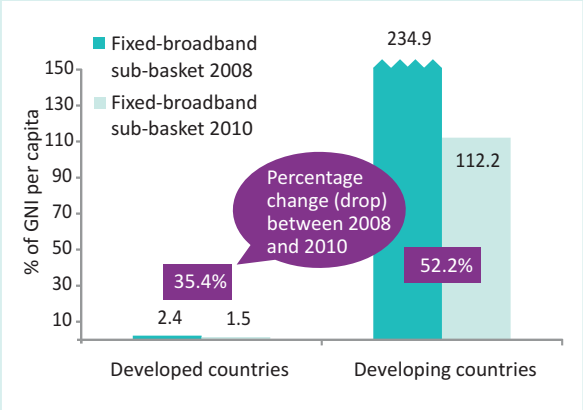
Rank	Economy	Fixed-broadband sub-basket as % of GNI capita		Value change	Relative change (%)	Fixed-broadband sub-basket, USD	Fixed-broadband sub-basket, PPP$	GNI per capita, USD, 2009 (or latest available year)
		2010	2008	2008-2010				
1	Monaco	0.3	N/A	N/A	N/A	45.9	N/A	203'900
2	Macao, China	0.3	0.3	0.0	-10	9.0	13.2	35'360
3	Israel	0.4	N/A	N/A	N/A	8.1	8.1	25'790
4	Liechtenstein	0.5	N/A	N/A	N/A	47.1	N/A	113'210
5	United States	0.5	0.4	0.1	37	20.0	20.0	46'360
6	San Marino	0.5	N/A	N/A	N/A	22.2	N/A	50'670
7	Luxembourg	0.6	0.6	0.0	-4	38.1	32.1	76'710
8	Switzerland	0.6	0.7	-0.1	-10	32.7	22.1	65'430
9	Belgium	0.7	0.8	-0.1	-16	24.8	21.8	45'270
10	Austria	0.7	1.5	-0.8	-55	26.2	23.3	46'450
11	Iceland	0.7	1.1	-0.4	-39	24.9	24.4	43'430
12	Norway	0.7	0.7	-0.1	-7	49.1	33.5	84'640
13	Romania	0.7	1.0	-0.3	-32	4.8	9.6	8'330
14	United Kingdom	0.7	0.7	0.0	-2	24.6	25.8	41'370
15	Japan	0.7	1.0	-0.3	-29	23.1	17.6	38'080
16	Hong Kong, China	0.7	0.6	0.1	23	19.1	27.3	31'420
17	Canada	0.7	0.6	0.2	28	26.2	22.6	41'980
18	Greece	0.8	1.0	-0.3	-25	18.9	20.2	29'040
19	Netherlands	0.8	0.9	-0.1	-10	32.9	29.5	48'460
20	France	0.8	1.0	-0.2	-18	30.1	26.1	42'620
21	Sweden	0.8	0.7	0.2	23	34.5	28.2	48'840
22	United Arab Emirates	0.8	0.8	0.0	0	40.6	46.8	57'340
23	Singapore	0.9	0.7	0.2	25	26.7	34.2	37'220
24	Ireland	0.9	0.9	0.0	1	32.9	28.1	44'280
25	Denmark	0.9	0.6	0.3	49	43.9	30.5	59'060
26	Italy	0.9	0.8	0.1	7	26.2	25.2	35'110
27	Trinidad & Tobago	0.9	1.0	-0.1	-8	12.5	20.3	16'700
28	Cyprus	0.9	0.7	0.2	30	20.6	22.7	26'940
29	Finland	0.9	0.9	0.0	2	35.4	29.1	45'940
30	Spain	1.0	1.0	-0.1	-7	26.2	28.3	32'120
31	Australia	1.0	1.4	-0.4	-30	36.9	27.3	43'770
32	Lithuania	1.1	1.5	-0.5	-30	10.3	16.3	11'410
33	Germany	1.1	1.0	0.1	8	39.4	37.1	42'450
34	Latvia	1.2	2.5	-1.2	-50	12.8	18.1	12'390
35	Bahrain	1.3	1.3	0.0	0	26.6	33.1	25'420
36	New Zealand	1.3	1.2	0.0	3	28.9	26.7	27'260
37	Russia	1.3	1.7	-0.4	-24	9.9	20.6	9'340
38	Malta	1.3	1.5	-0.1	-10	18.2	56.8	16'680
39	Costa Rica	1.3	1.7	-0.3	-19	7.0	11.0	6'260
40	Portugal	1.4	1.6	-0.2	-11	26.3	31.1	21'910
41	Korea (Rep.)	1.5	1.0	0.4	44	24.0	34.9	19'830
42	Croatia	1.6	1.8	-0.2	-10	18.2	26.3	13'720
43	Slovenia	1.7	2.1	-0.4	-17	34.2	41.1	23'520
44	Poland	1.8	2.5	-0.8	-30	18.0	29.7	12'260
45	Estonia	1.8	3.1	-1.3	-42	21.0	31.4	14'060
46	Saudi Arabia	1.8	2.7	-0.9	-33	26.6	42.9	17'700
47	Venezuela	1.9	6.2	-4.3	-70	15.9	33.6	10'090
48	Hungary	1.9	2.2	-0.3	-12	20.7	33.0	12'980
49	Slovak Republic	1.9	2.0	-0.1	-4	25.9	37.8	16'130
50	Bahamas	2.0	N/A	N/A	N/A	35.0	N/A	21'390
51	Oman	2.1	2.1	0.0	0	31.0	36.7	17'890
52	Czech Republic	2.2	2.0	0.2	8	31.2	43.8	17'310
53	Brunei Darussalam	2.3	N/A	N/A	N/A	50.5	71.8	26'740
54	Kazakhstan	2.3	N/A	N/A	N/A	13.2	20.8	6'920
55	Mexico	2.3	4.2	-1.9	-45	17.3	28.5	8'960
56	Brazil	2.5	6.9	-4.4	-64	16.9	19.1	8'040
57	Uruguay	2.6	3.5	-0.9	-26	19.3	24.2	9'010
58	Turkey	2.6	N/A	N/A	N/A	19.2	31.6	8'720
59	Bulgaria	2.7	3.1	-0.5	-15	13.4	29.5	6'060
60	Mauritius	2.7	4.6	-1.9	-41	16.4	29.8	7'250
61	Maldives	2.8	3.0	-0.2	-8	9.3	10.8	3'970
62	Sri Lanka	3.0	15.7	-12.7	-81	5.0	11.2	1'990
63	Panama	3.0	2.9	0.2	6	16.6	30.9	6'570
64	Serbia	3.1	6.4	-3.4	-53	15.3	34.8	6'000
65	Azerbaijan	3.1	26.7	-23.6	-88	12.5	24.4	4'840
66	Albania	3.2	9.2	-6.0	-65	10.7	25.4	4'000
67	Ukraine	3.2	7.1	-3.8	-54	7.6	19.1	2'800
68	Montenegro	3.3	3.8	-0.5	-13	18.4	39.0	6'650
69	Malaysia	3.3	3.3	0.1	2	20.5	37.4	7'350
70	Tunisia	3.4	4.1	-0.7	-18	10.5	24.2	3'720
71	Lebanon	3.4	4.0	-0.6	-14	23.0	36.6	8'060
72	TFYR Macedonia	3.5	4.1	-0.6	-15	12.8	32.6	4'400
73	Bosnia and Herzegovina	3.7	3.8	-0.1	-3	14.4	28.6	4'700
74	Belarus	3.9	N/A	N/A	N/A	18.1	49.7	5'560
75	Antigua & Barbuda	4.0	N/A	N/A	N/A	40.5	58.8	12'130
76	Algeria	4.0	4.8	-0.8	-16	14.8	30.7	4'420
77	Argentina	4.1	6.3	-2.3	-36	25.6	51.1	7'550
78	St. Kitts and Nevis	4.3	N/A	N/A	N/A	36.7	48.5	10'150
79	Egypt	4.6	5.5	-0.9	-16	8.0	20.4	2'070
80	Barbados	5.0	6.4	-1.4	-22	38.8	63.9	9'330
81	Moldova	5.0	18.5	-13.5	-73	6.5	13.6	1'560
82	Chile	5.0	6.0	-1.0	-17	39.4	53.1	9'470
83	Dominican Rep.	5.0	7.6	-2.6	-34	19.0	35.4	4'550

Table 3.7: Fixed-broadband sub-basket 2010 and 2008 (continued)

Rank	Economy	Fixed-broadband sub-basket as % of GNI capita		Value change	Relative change (%)	Fixed-broadband sub-basket, USD	Fixed-broadband sub-basket, PPP$	GNI per capita, USD, 2009 (or latest available year)
		2010	2008	2008-2010				
84	Morocco	5.1	9.2	-4.1	-44	11.7	19.6	2'770
85	Qatar	5.5	5.5	0.0	0	54.9	72.0	12'000
86	India	5.6	6.4	-0.8	-13	5.5	15.2	1'180
87	Botswana	5.7	5.0	0.7	13	29.7	62.4	6'260
88	Jordan	5.7	6.7	-1.0	-15	18.9	25.2	3'980
89	South Africa	5.7	4.9	0.8	16	27.4	41.9	5'760
90	Fiji	5.7	7.3	-1.6	-22	18.3	24.3	3'840
91	China	5.9	7.4	-1.5	-20	17.8	32.0	3'650
92	Thailand	6.0	5.8	0.2	4	18.9	35.9	3'760
93	Ecuador	6.1	N/A	N/A	N/A	20.2	39.7	3'970
94	Bhutan	6.2	38.3	-32.1	-84	10.5	29.1	2'030
95	Grenada	6.3	6.0	0.3	5	29.3	40.6	5'580
96	Jamaica	6.5	11.9	-5.5	-46	24.7	41.4	4'590
97	St. Lucia	6.8	12.2	-5.4	-45	29.3	51.1	5'190
98	Seychelles	6.8	5.5	1.3	23	48.1	94.3	8'480
99	St. Vincent and the Grenadines	7.9	12.9	-5.0	-39	33.6	57.7	5'130
100	Colombia	8.5	8.8	-0.3	-4	35.2	54.3	4'990
101	El Salvador	8.9	7.1	1.8	25	24.9	48.2	3'370
102	Paraguay	10.1	21.4	-11.3	-53	19.0	36.6	2'250
103	Suriname	10.6	N/A	N/A	N/A	42.1	58.2	4'760
104	Syria	10.8	N/A	N/A	N/A	21.6	40.9	2'410
105	Dominica	11.7	12.0	-0.3	-2	47.8	82.7	4'900
106	Peru	12.1	10.8	1.3	12	42.2	76.3	4'200
107	Armenia	12.5	14.0	-1.5	-11	32.4	61.7	3'100
108	Cape Verde	12.6	16.2	-3.6	-22	31.5	39.6	3'010
109	Indonesia	12.6	13.2	-0.5	-4	21.6	33.5	2'050
110	Philippines	12.8	14.3	-1.5	-10	21.9	42.0	2'050
111	Viet Nam	13.5	23.5	-10.1	-43	10.5	31.1	930
112	Honduras	14.7	N/A	N/A	N/A	22.1	44.3	1'800
113	Guatemala	14.7	17.1	-2.4	-14	32.5	56.9	2'650
114	Guyana	15.7	40.6	-24.8	-61	19.0	38.0	1'450
115	Pakistan	17.1	21.7	-4.7	-22	14.2	41.7	1'000
116	Georgia	18.7	23.0	-4.3	-19	39.4	81.7	2'530
117	Micronesia	19.2	19.5	-0.3	-2	40.0	49.8	2'500
118	Tonga	19.9	38.1	-18.2	-48	54.1	70.9	3'260
119	Samoa	25.7	N/A	N/A	N/A	60.8	83.1	2'840
120	Bolivia	25.7	28.0	-2.3	-8	35.0	87.7	1'630
121	Chad	26.3	29.3	-3.0	-10	11.8	26.6	540
122	Namibia	26.7	13.7	13.0	95	94.9	122.6	4'270
123	Mauritania	29.4	77.1	-47.7	-62	23.5	52.5	960
124	Bangladesh	31.0	123.8	-92.8	-75	15.0	38.7	580
125	Ghana	31.8	63.1	-31.3	-50	31.5	45.2	1'190
126	Belize	32.8	32.3	0.5	2	102.2	165.9	3'740
127	Uganda	35.9	374.9	-338.9	-90	13.8	39.0	460
128	Nicaragua	41.4	39.4	2.0	5	34.5	90.2	1'000
129	Senegal	41.6	49.2	-7.6	-15	36.1	67.9	1'040
130	Angola	42.7	58.8	-16.1	-27	133.4	219.7	3'750
131	Côte d'Ivoire	45.0	54.7	-9.7	-18	40.1	65.2	1'070
132	Timor-Leste	48.3	N/A	N/A	N/A	99.0	161.8	2'460
133	Tanzania	50.0	174.4	-124.4	-71	20.8	60.5	500
134	Djibouti	52.3	111.6	-59.3	-53	55.8	107.5	1'280
135	Nigeria	53.5	692.1	-638.6	-92	53.1	105.9	1'190
136	Mozambique	59.8	311.9	-252.1	-81	21.9	57.7	440
137	Kenya	59.9	261.2	-201.3	-77	37.9	82.6	760
138	Lesotho	62.4	53.2	9.2	17	51.0	81.6	980
139	Nepal	63.4	64.5	-1.1	-2	23.3	59.8	440
140	Zambia	73.3	108.8	-35.5	-33	59.3	81.0	970
141	Kyrgyzstan	75.3	N/A	N/A	N/A	54.6	154.6	870
142	Vanuatu	78.3	209.3	-130.9	-63	171.0	249.9	2'620
143	Benin	80.2	172.3	-92.1	-53	50.1	107.2	750
144	Cameroon	80.8	185.7	-104.9	-56	80.2	164.4	1'190
145	Mali	88.4	109.8	-21.4	-19	50.1	90.8	680
146	Cambodia	92.5	177.3	-84.8	-48	47.0	128.2	610
147	Yemen	134.9	281.6	-146.7	-52	119.2	285.8	1'060
148	Papua New Guinea	142.5	150.9	-8.3	-6	140.2	260.9	1'180
149	Lao P.D.R.	190.5	435.5	-245.0	-56	139.7	324.1	880
150	Burkina Faso	194.2	4466.2	-4272.0	-96	82.5	200.4	510
151	Niger	210.5	241.6	-31.1	-13	59.6	120.7	340
152	Uzbekistan	218.2	N/A	N/A	N/A	200.0	529.9	1'100
153	Rwanda	224.5	267.6	-43.1	-16	86.1	185.8	460
154	Kiribati	251.2	N/A	N/A	N/A	383.1	603.2	1'830
155	Madagascar	259.0	327.8	-68.8	-21	90.6	217.3	420
156	S. Tomé & Principe	300.4	316.2	-15.8	-5	285.4	499.1	1'140
157	Cuba	379.0	380.6	-1.7	0	1752.7	N/A	5'550
158	Swaziland	424.9	805.7	-380.8	-47	874.6	1502.7	2'470
159	Togo	451.5	539.9	-88.3	-16	165.6	344.9	440
160	Comoros	534.5	690.8	-156.3	-23	387.5	641.4	870
161	Tajikistan	621.4	N/A	N/A	N/A	362.5	1063.8	700
162	Ethiopia	1070.8	2721.4	-1650.7	-61	294.5	981.2	330
163	Zimbabwe	1353.2	N/A	N/A	N/A	406.0	N/A	360
164	Malawi	2408.0	4880.7	-2472.6	-51	561.9	1577.9	280
165	Guinea	2594.6	2823.5	-228.9	-8	800.0	2503.1	370

Note: N/A: Not available.
Source: ITU.

Chart 3.8: Fixed-broadband sub-basket by level of development, 2008 and 2010



Source: ITU.

of all countries included in the 2010 IPB) a broadband connection costs more than half of the average income. Most of the countries where broadband Internet access remains extremely expensive are low-income economies. Many are African LDCs, but the group also includes Zimbabwe, Tajikistan, Swaziland, Uzbekistan and Papua New Guinea. Not surprisingly, fixed-broadband penetration in these countries remains extremely low, below 0.5 per cent at end 2010.

Despite the fact that broadband prices remain prohibitively high in many developing countries, the IPB indicates that services are becoming more affordable over time, and that the price divide is shrinking. Indeed, the countries with the highest relative broadband prices are also the ones showing the greatest decrease in prices between 2008 and 2010. Impressive price cuts in absolute as well as percentage terms have taken place in a number of developing (and developed) countries. The number of countries where a broadband connection is more expensive than the average income dropped from 28 in 2008 to 19 in 2010.

In Burkina Faso and Nigeria, for example, the broadband sub-basket fell from 4 466 to 194 and from 692 to 54, respectively. All of the top ten countries with the greatest absolute value decrease in the fixed-broadband basket between 2008 and 2010 are low-income countries that had very high fixed-broadband values in 2008; all, with the exception of Lao P.D.R., are from Africa (Table 3.8, left). Burkina Faso leads in both the absolute and the percentage drop, and together with Nigeria and Uganda displays the largest price reductions in percentage values. Prices also dropped by over 70 per cent in Azerbaijan, Bhutan, Mozambique, Sri Lanka, Kenya, Bangladesh and Moldova (Table 3.8, right). Between 2008 and 2010, the broadband sub-basket value decreased by over 50 per cent in no fewer than 30 countries. These include countries from all regions and with varying development status, such as those already mentioned as well as Brazil, Austria, Serbia and Yemen.

In some countries, the average price for the monthly broadband subscription actually rose between 2008 and 2010. However, in almost all cases, this is because the

Table 3.8: Ten economies with the greatest 2008-2010 decrease in fixed-broadband prices, by absolute value change (left) and relative change (in %, right)

Rank	Economy	Broad-band sub-basket 2010	Broad-band sub-basket 2008	Value change 2008-2010	Relative change 2008-2010 (%)
160	Burkina Faso	194	4'466	-4'272	-96
164	Malawi	2'408	4'881	-2'473	-51
149	Ethiopia	1'071	2'721	-1'651	-61
132	Nigeria	54	692	-639	-92
146	Swaziland	425	806	-381	-47
135	Uganda	36	375	-339	-90
157	Mozambique	60	312	-252	-81
145	Lao P.D.R.	190	435	-245	-56
150	Guinea	2'595	2'824	-229	-8
138	Kenya	60	261	-201	-77

Rank	Economy	Broad-band sub-basket 2010	Broad-band sub-basket 2008	Relative change 2008-2010 (%)	Value change 2008-2010
160	Burkina Faso	194	4'466	-96	-4'272
132	Nigeria	54	692	-92	-639
135	Uganda	36	375	-90	-339
53	Azerbaijan	3	27	-88	-24
79	Bhutan	6	38	-84	-32
157	Mozambique	60	312	-81	-252
63	Sri Lanka	3	16	-81	-13
138	Kenya	60	261	-77	-201
120	Bangladesh	31	124	-75	-93
101	Moldova	5	18	-73	-13

Source: ITU.

Box 3.3: Fast, faster, the fastest: differences in broadband speeds, prices and data caps

The fixed-broadband sub-basket is based on an entry-level plan that offers a minimum speed of 256 kbit/s. While this standard measure is necessary to be able to compare prices across countries, there are major differences between countries and the advertised speeds in the 165 countries included in the IPB 2010 vary from the minimum of 256 kbit/s in the majority of countries, to 8 Mbit/s in Austria and France, 30 Mbit/s in Monaco and 50 Mbit/s in the Republic of Korea (see Table Box 3.3). This shows that there are major differences not only in the *price* for a basic fixed-broadband service, but also in terms of ***speed*** and ***quality***. Users in different countries will not share the same online experience, since the speed of the connection will have a major impact on download times, as well as on the quality of the experience.

A comparison of monthly caps that limit the amount of data that can be transferred within one month shows that, while many operators offer unlimited plans, others limit the amount of free data per month, which means that subscribers have to pay for data downloads that exceed this amount.

In addition to the difference in available speeds, the actual speeds at which customers are able to download data vary and can differ substantially from the speeds advertised by operators. A recent study by Ofcom, the UK regulatory authority, showed that *"Average download speeds remain less than half of 'up to' speeds advertised by some Internet service providers (ISPs), particularly for current generation copper-based ADSL services".*[25] The actual speed that a broadband connection delivers is affected by a number of factors, including how far away customers live from the telephone exchange, how many other people in the same area are using the same service at the same time, internal wiring and even the weather.[26] This highlights the need for regulators to carry out surveys and set standards in terms of broadband quality of service and speed.

Table Box 3.3: Fixed-broadband Internet prices, caps and speeds, 2010, selected economies

Country	Fixed-broadband monthly subscriptions (USD)	Fixed-broadband Internet monthly cap (GB)	Fixed-broadband Internet speed (Mbit/s)
India	5.5	1	0.256
Syria	21.6	3	0.256
South Africa	27.4	2	0.384
Pakistan	14.2	Unlimited	1
Australia	36.9	2	1.5
Belgium	24.8	15	3
Austria	26.2	Unlimited	8
France	30.1	Unlimited	8
Japan	23.1	Unlimited	12
Portugal	26.3	30	12
Monaco	45.9	Unlimited	30
Korea (Rep.)	24.0	40	50

Note: These fixed-broadband services refer to the entry-level subscriptions that ITU used in the 2010 IPB.
Source: ITU.

speed of the entry-level broadband package increased, so the higher price provides customers with a higher broadband speed (Box 3.3). In Panama and St Lucia, for example, the entry-level broadband plan in 2010 has an advertised speed of 1 Mbit/s, compared with 256 kbit/s two years earlier. In Australia, Sweden and Hong Kong (China), broadband speeds were increased to 1.5, 6 and 8 Mbit/s (from 0.256, 1 and 1.5 Mbit/s), respectively. Higher prices are more problematic when they refer to the same transmission speed in countries where prices are already very high and penetration rates low, as is the case in Guinea and Namibia.

Fixed-broadband prices: the regional and development-level perspective

Although fixed-broadband services are much more expensive in developing countries, it is in these countries that we see the greatest drop in prices. Between 2008 and 2010, fixed-broadband prices fell by 52.2 per cent

in developing countries, as against 35.4 per cent in developed countries.

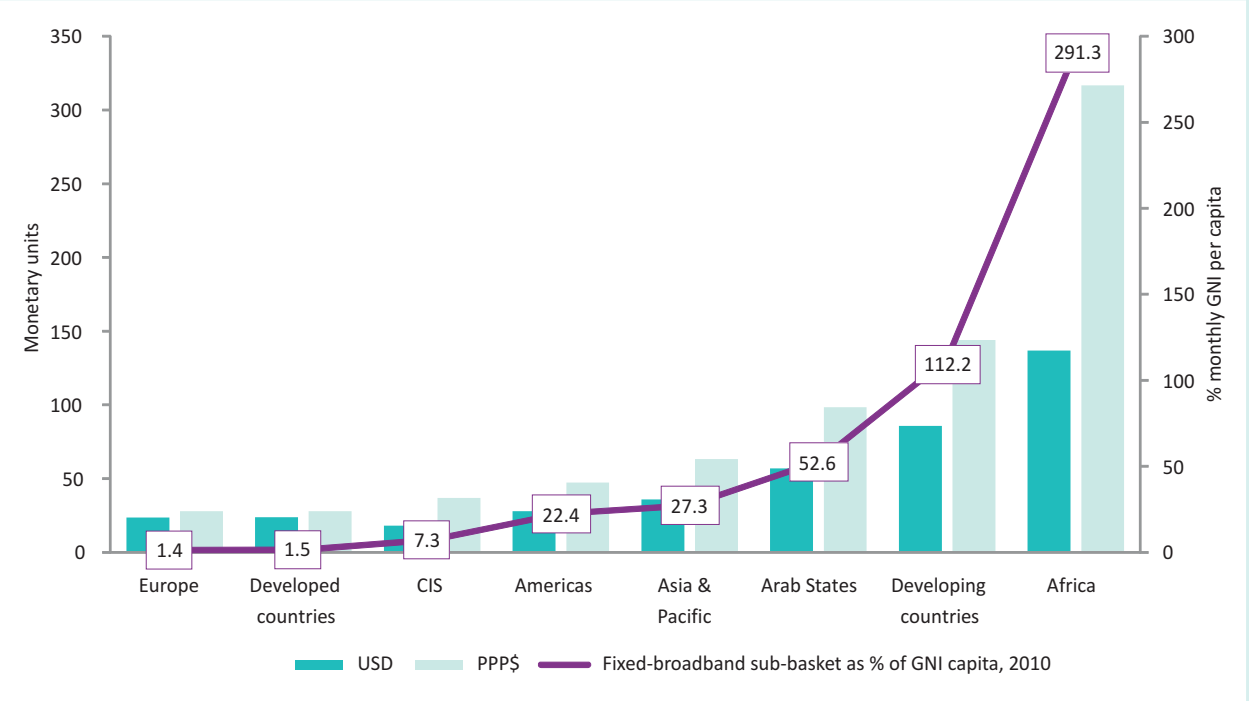
Prices for ICT services continue to decrease across the world's regions, but the greatest relative price drop between 2008 and 2010 occurred in Africa's fixed-broadband sub-basket, which fell by 55.2 per cent. The CIS witnessed a similar decrease (of 51.8 per cent) in broadband prices over the same period, followed by Asia and the Pacific (46.7%), the Arab States (34.7%) and Europe (18.0%). The Americas displays the most modest decrease in fixed-broadband prices, and was the only region where the decrease was below 10 per cent. Developing countries benefited from a higher price drop (52.2%) than developed countries (35.4%), suggesting that the broadband price divide is narrowing.

A positive development in terms of broadband prices is the increasing availability of 3G mobile-broadband networks and services, which creates additional competitive pressure on fixed-broadband operators. In Morocco, for example, two new mobile-broadband operators have exerted competitive pressure, and fixed-broadband prices have decreased by 44 per cent over the last two years (Box 3.4).

Another important factor for the provision and price of broadband services is the availability of sufficient international Internet bandwidth, particularly in countries and regions where most Internet traffic would exit the country/region, such as Africa. Since there are relatively few regional and national gateways, and only a limited amount of national or regional content, Africa, in particular, depends on international Internet bandwidth. ITU data show that a number of African countries have greatly increased international bandwidth capacity over the last few years. They include, for example, Kenya, where international bandwidth capacity has increased from 829 Mbit/s in 2008, to over 202 000 Mbit/s in 2010. Uganda and Tanzania, too, have considerably increased their international connectivity, and the construction and expansion of a number of submarine-cable systems, including Seacom[27] and Eassy[28], have played, and continue to play, an important role in bringing down end-user tariffs.[29]

Although Africa's fixed-broadband basket has dropped by over 50 per cent, the service remains prohibitively expensive, and in 2010 still represented almost three times the monthly average per capita

Chart 3.9: Fixed-broadband sub-basket by region and by level of development, 2010



Note: In this chart, Cuba is not included in the USD/PPP$ values for the Americas region, since the PPP$ value for Cuba is not available.
Source: ITU.

Box 3.4: Inter-modal competition in Morocco

By the end of 2010, Morocco had over 1.3 million dedicated mobile data subscriptions (using the mobile network via a modem/dongle), compared with fewer than 500 000 fixed-broadband subscriptions. While the former incumbent telecommunication operator Maroc Telecom holds close to 100 per cent of the fixed-broadband market, it holds only 40 per cent of dedicated mobile data subscriptions, a market it shares with two other operators – Wana and Medi Telecom. Fixed-broadband prices have come down by close to 40 per cent between 2008 and 2010 (from USD 19 to 12 for the monthly subscription), and the country has increased its Internet user penetration rate from 33 to 49 per cent. Since less than 0.1 per cent of all Internet subscriptions are narrowband, Internet users in Morocco are almost exclusively broadband users.

income. Broadband tariffs also remain very expensive in the Arab States and in Asia and the Pacific, where the fixed-broadband basket stood at 52.6 and 27.3, respectively (Chart 3.9).

The important price divide that separates the world's regions, particularly in terms of relative broadband prices, is highlighted in Chart 3.10. Substantial price drops are needed to make high-speed Internet access affordable and accessible to more people in Africa and in the other developing regions.

3.5 Comparing mobile-broadband prices – high speed, limited volume

By 2011, mobile broadband has become a market reality in the majority of the world's countries, with over 150 economies offering 3G services commercially (compared to 95 in 2007). For an increasing number of people in the world, mobile-broadband access to the Internet is not just complementing fixed-broadband access, but actually constitutes the only access to the Internet. ITU estimates

Chart 3.10: ICT price sub-baskets by region, 2008 and 2010

Source: ITU.

Box 3.5: Both USD and PPP adjusted prices highlight the high cost of fixed-broadband services in developing countries

For analytical purposes it is interesting not only to look at the affordability of ICT services but to also show and compare *absolute* US dollar values, as well as relative purchasing power parity (PPP) prices, which take into account the local buying power of a national currency.

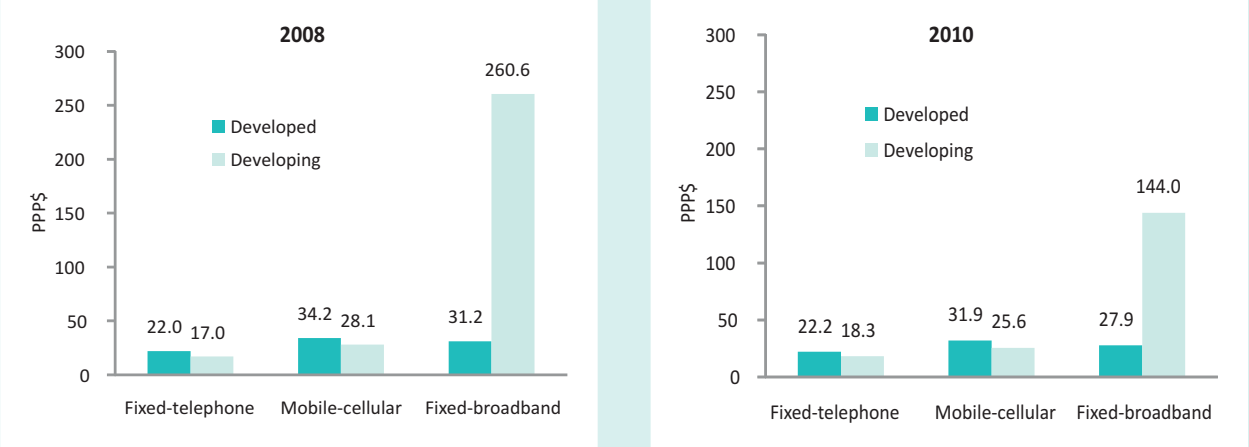
A comparison of the 2010 USD values shows that for both fixed-telephone and the mobile-cellular services, prices in USD values are on average higher in developed than in developing countries, reflecting lower income levels in the latter group. Fixed-broadband services, however, are on average much more expensive in developing countries – even in USD values – where the fixed-broadband sub-basket is on average more than three times as costly. Broadband prices for 2010 also stand out because they vary much more between countries, from as little as USD 4.8 in Romania to as much as USD 1 752 in Cuba. These findings suggest not only a sharp price divide in terms of broadband services but also point to the fact that broadband remains prohibitively expensive.

This finding is also upheld by the comparison of PPP prices: For both fixed-telephone and mobile-cellular tariffs, developed economies have higher PPP prices, reflecting the fact that salaries are higher and products and services cost more than in developing countries. But the gap in prices between developed and developing countries is smaller than in USD terms: In 2010, the fixed-telephone sub-basket cost on average PPP$ 22.2 in developed countries, compared in PPP$ 18.3 in developing economies. The mobile-cellular sub-basket in developed countries averaged PPP$ 31.9, compared with PPP$ 25.6 in developing countries.[30]

The situation is different for high-speed Internet access. First, in PPP$ terms, subscribers in developing countries pay more than those in developed countries. Second, a comparison of 2010 broadband prices shows that – in stark contrast to fixed-telephone and mobile-cellular prices – people in developing countries had to pay five times the price paid in developed countries. The relatively high price for broadband services in developing countries is further highlighted by comparing the price of the three sub-baskets with each other. In developed countries, the three sub-baskets vary between just PPP$ 22.2 and PPP$ 31.9, with *mobile-cellular* being the most expensive sub-basket. In developing countries, the sub-basket values vary between PPP$ 18.3 and PPP$ 144.0, with the *fixed-broadband* sub-basket being the most expensive sub-basket (Chart Box 3.5).

At the same time, between 2008 and 2010, fixed-broadband prices in developing countries have decreased considerably, in both PPP$ and USD, and much more markedly than the other ICT services. While comparisons show that the PPP$ prices for fixed-telephone and mobile-cellular services have changed little over time, they have come down by 45.5 per cent for broadband services. This compares with a much more moderate price decrease of 10.7 per cent for broadband services in developed countries.

Chart Box 3.5: ICT price sub-baskets by level of development, PPP$, 2008 and 2010



Source: ITU.

that, by the end of the first quarter of 2011, the number of mobile-broadband subscriptions had surpassed 1 billion – almost twice the number of fixed-broadband subscriptions, up from less than 200 000 four years earlier. New technological developments and progress, simplified and user-friendly billing methods and services and improvements in end-user devices (particularly smart phones) have finally made mobile broadband a reality. Many governments have responded to these changes by redefining broadband policies and adjusting targets. Given these developments, it is important to examine mobile-broadband prices, and ITU is considering adding a mobile-broadband sub-basket to the ICT Price Basket.

As opposed to 2G or 2.5G networks, the third generation of mobile telephony offers unprecedented bandwidth, allowing users to access the Internet and other high-bandwidth multi-media applications. This means that, besides basic voice and sms/mms services, it provides broadband access to the Internet, previously reserved for users of fixed-broadband technologies.

Mobile-broadband subscriptions refer to active mobile-cellular subscriptions that have access to data communications (the Internet) at broadband speeds. The term 'mobile broadband' covers different types of technologies, including WCDMA and CDMA 1xEV-DO. It refers to standard mobile subscriptions (used for data applications, including access to the Internet, via a mobile phone), but also to dedicated data services that use the mobile network and that are purchased separately from voice services, either as a standalone service (modem/dongle) or as an add-on data package to voice services, which requires an additional subscription.

The multitude of mobile-broadband subscriptions and access devices contributes to the difficulty of understanding and measuring the service, making price comparisons challenging. While the possibility of including a mobile-broadband sub-basket in the IPB has been raised, this will require further discussion and consultation. Since not all countries have launched 3G mobile-broadband services, the inclusion of a mobile-broadband sub-basket would also currently limit the number of countries in the IPB.

Given the importance of mobile-broadband access, particularly in countries where fixed-broadband access is limited, ITU has started to examine mobile-broadband prices for a limited number of economies. Prices for mobile-broadband services were collected directly from operators' websites during the first quarter of 2011. Price data were collected for both standard mobile subscriptions and dedicated data subscriptions (via a modem/dongle), and are based on plans that provide 1 GB of monthly download volume, which is in line with the fixed-broadband cap used to calculate the fixed-broadband sub-basket of the IPB.

This tariff collection exercise revealed that comparisons face a number of challenges. Operators do not always clearly label their different mobile-broadband services to show whether they refer to standard mobile subscriptions or to dedicated services. In many cases, mobile-broadband services for a standard mobile subscription are only available in combination with other services, such as voice or sms. Often, although services are advertised as including 'unlimited' data volumes, most operators actually limit upload and download volumes by reducing the speed after a certain volume has been exceeded. Many of them only provide this information in a footnote, far from clearly visible for customers, who need to make sure that they read the fine print. In some cases, the speed of mobile-broadband access is not indicated, which further adds to the difficulty of making comparisons. Finally, advertised speeds usually represent a maximum speed rather than an average, so users may end up with a much slower connection than they officially subscribe to and pay for.

A number of conclusions may be drawn based on the tariffs collected for some 20 economies from different regions and with varying development levels (Table 3.9):

- *People in developing countries pay relatively more:* Prices for a monthly subscription of 1 GB download volume vary considerably in USD, from about USD 4 in Viet Nam and Sri Lanka to over USD 40 in South Africa and Germany, and around USD 80 in Brazil. In relative terms, and compared to income levels, mobile-broadband prices are more expensive in developing than in developed countries, a finding that is in line with the results for the IPB's fixed-broadband tariffs. In India, Mali, Kenya and Brazil, the monthly price for mobile-broadband services exceeds ten per cent of the monthly GNI per capita. In all developed economies included in this analysis, prices correspond to less than two per cent (and most often even below one per cent) of the average income.

- *In about half the countries, 1 GB of data is cheaper over the mobile network:* A comparison of (postpaid) mobile-broadband and (postpaid) fixed-broadband subscriptions shows that in about half of the countries covered – Australia, Chile, Finland,

Germany, Kenya, Lithuania, Sri Lanka, United Arab Emirates and Viet Nam – the fixed-broadband 1 GB subscription is more expensive than the mobile-broadband subscription.

- *Mobile-broadband users get more for their money:* Based on 1 GB of data volume, and taking into account the (theoretical) speeds of the different packages, mobile-broadband users get more for their money, since the entry-level mobile-broadband (theoretical) speeds are much higher than those for fixed broadband. Except in Chile and Finland, mobile-broadband speeds far outstrip the speeds offered with the entry-level fixed-broadband subscription in all countries. It is important to note that a comparison based on unlimited plans would yield very different results, since many fixed-broadband packages are truly unlimited, whereas most mobile-broadband plans have a cap. One exception is Finland, where both the standard mobile-cellular broadband and the dongle packages offer truly unlimited data access.

- *Mobile-cellular broadband prices depend on the subscription type and cap size, not the end-device:* Different price packages for mobile-broadband services reveal that postpaid tariffs tend to be cheaper, usually because operators offer lower tariffs whenever they can count on a predetermined level of consumption and hence revenue, for instance when customers of postpaid subscriptions are tied to a contract for a minimum of either 12 or 24 months (which is often the case). The end-device that is used to access data, on the other hand, is not actually relevant to operators and there should not be any price difference between packages offered for mobile-cellular broadband users or for those that will access the Internet using a modem/dongle. Indeed, operators in a number of countries, including Morocco, India and Mali, offer the same package, regardless of the access device. If price differences exist, this is usually because of a difference in the data capacity that is included in the package, or because the offer is tied to an existing mobile-cellular voice subscription. In Canada and the United States, for example, the advertised price for the standard mobile-cellular data subscription is available *only* for customers that already have a Rogers/Verizon voice subscription. Operators may also offer different price packages to accommodate different usage patterns. For example, usage volumes tend to be lower for mobile-handset users, and dongle/modem packages often include a greater allowance/cap. In Germany, for example, T-mobile's mobile-broadband package for cell-phone users provides high-speed access until 200MB (after which speeds decrease to 64 kbit/s), while the dongle subscription includes 3 GB of data volume. In the Russian Federation, the price for the dongle subscription includes 2 GB, as against only 1 GB for the standard mobile-cellular data packages.

These findings suggest that, based on a limited (1 GB) amount of data volume, and in comparison with fixed-broadband offers, mobile-broadband packages are competitive in terms of price, and faster in terms of (advertised) speed. At the same time, the mobile-broadband market is still relatively nascent in most countries and expected to grow quickly over the next few years. Increasing economies of scale, inter- and intra-modal competition and further technological advances are likely to help the market mature further, by making services cheaper and faster. An important challenge that operators will need to address is the growing demand for transmission capacity, particularly if mobile-broadband access is to compete with fixed access. The fact that most operators' packages limit access by imposing caps and restricting usage volume highlights the current limitations of mobile-broadband networks – and the need to overcome them.

Table 3.9: Mobile-broadband and fixed-broadband monthly prices and speeds compared, selected economies, 2011

Country	Mobile-broadband								Fixed-broadband				
	Operator	Subscription type	Access type/ device	Monthly price for 1GB of download volume (USD)	Speed (Mbit/s)	Cap (GB)	Price per 100 Mbit/s in USD	Price as % of GNI per capita	Operator	Monthly price for entry-level subscription (USD)	Speed (Mbit/s)	Cap (GB)	Price as % of GNI per capita
Australia	Telstra	Prepaid	Standard subscription	40.6	21.0	1.0	4.06	1.1					
Australia	Telstra	Postpaid	Dongle	20.2	21.0	1.0	2.02	0.6	Telstra	36.7	1.5	2.0	1.0
Bahrain	Batelco	Prepaid	Dongle or standard subscription	26.7	21.0	1.0	2.67	1.3					
Belgium	Proximus Belgacom	Postpaid	Standard subscription	34.3	N/A	1.0	3.43	0.9	Belgacom	25.0	3.1	15.0	0.7
Brazil	Vivo	Postpaid	Standard subscription	81.3	1.0	1.0	8.13	12.1	Netcombo	16.9	0.5	N/A	2.5
Brazil	Vivo	Prepaid	Dongle	78.3	1.0	1.0	7.83	11.7					
Canada	Rogers	Postpaid	Standard subscription	30.6	21.0	1.0	3.06	0.9	Bell	26.2	2.0	2.0	0.7
Canada	Rogers	Postpaid	Dongle	35.7	21.0	1.0	3.57	1.0	Bell	26.2	2.0	2.0	0.7
Chile	Movistar	Postpaid	Dongle	33.8	4.0	1.0	3.38	4.3	VTR	39.4	6.0	Unlimited	5.0
Finland	Elisa	Prepaid	Dongle	27.2	1.0	Unlimited	N/A	0.7					
Finland	Elisa	Postpaid	Standard subscription	20.4	1.0	Unlimited	N/A	0.5	Elisa	35.6	1.0	Unlimited	0.9
Germany*	T-Mobile	Postpaid	Standard subscription	27.4	7.2	0.2	13.70	0.8	T-Home	39.4	2.0	Unlimited	1.1
Germany	T-Mobile	Postpaid	Dongle	41.1	7.2	3.0	1.37	1.2	T-Home	39.4	2.0	Unlimited	1.1
India	Airtel	Prepaid	Dongle or standard subscription	16.6	N/A	2.0	0.83	16.9					
Kenya	Safaricom	Prepaid	Standard subscription	24.5	N/A	1.5	1.63	38.7					
Kenya	Safaricom	Postpaid	Dongle	24.5	N/A	1.5	1.63	38.7	Orange	37.9	0.3	Unlimited	59.9
Lithuania	Omnitel	Postpaid	Standard subscription	7.6	7.2	1.0	0.76	0.8	Zebra	10.3	1.0	N/A	1.1
Lithuania	Omnitel	Prepaid	Dongle	15.5	7.2	3.0	0.52	1.6					
Mali	Orange	Prepaid	Dongle or standard subscription	20.7	N/A	1.0	2.07	36.6					
Mexico	Telcel	Postpaid	Dongle or standard subscription	24.9	N/A	1.0	2.49	3.3	Telmex	20.5	1.0	N/A	2.7
Morocco**	Maroc Telecom	Postpaid	Dongle or standard subscription	12.1	1.8	4.0	0.30	5.2	Maroc Telecom	11.7	1.0	Unlimited	5.1
Russia	Beeline	Postpaid	Dongle	17.1	7.2	2.0	0.86	2.2	Wplus	9.9	1.8	Unlimited	1.3
Russia	Beeline	Postpaid	Standard subscription	13.5	7.2	1.0	1.35	1.7	Wplus	9.9	1.8	Unlimited	1.3
South Africa	Vodacom	Prepaid	Dongle or standard subscription	41.3	N/A	1.2	3.44	8.6					
Sri Lanka	Dialog	Postpaid	Dongle or standard subscription	4.4	3.6	2.0	0.22	2.7	Sri Lanka Telecom	5.0	0.5	1.0	3.0
Turkey	Turkcell	Prepaid	Dongle or standard subscription	18.2	21.0	1.0	1.82	2.5					
United Arab Emirates	Etisalat	Postpaid	Dongle or standard subscription	39.5	21.0	1.0	3.95	0.8	Etisalat	40.6	0.3	Unlimited	0.8
United States	Verizon	Prepaid	Dongle	50.0	1.4	1.0	5.00	1.3					
United States	Verizon	Postpaid	Standard subscription	30.0	1.4	Unlimited	N/A	0.8	Bell South	20.0		Unlimited	0.5
Viet Nam	Mobifone	Prepaid/ Postpaid	Standard subscription	5.7	3.6	1.0	0.56	7.4					
Viet Nam	Mobifone	Postpaid	Dongle or standard subscription	3.8	7.2	1.3	0.29	4.9	FPT Telecom	10.45	3.1	Unlimited	13.5

Note: * The standard mobile-cellular data subscription is advertised as unlimited, but after 200 MB of volume downloaded the speed decreases to 64 kbit/s.
** After 4 GB the speed decreases to 512 kbit/s; after 10 GB the speed is reduced to 128 kbit/s; and after 16 GB, the speed is reduced to 64 kbit/s.

Source: ITU, from operators' websites.

Endnotes

[1] While many governments (usually telecommunication/ICT regulatory authorities) and several regional and international organizations, including OECD and the World Bank, collect and publish price data for selected telecommunication services, these are usually limited to a country, a region or a single telecommunication service. For different examples of prices that are being tracked, see Chapter 6 of ITU (2009).

[2] See, for example, http://www.techtree.com/India/News/Kobian_Unveils_Low-Cost_Mobile_Phones/551-114330-893.html and http://www.itu.int/ITU-D/ict/newslog/Multi+SIM+Mobile+Phones+Account+For+385+Of+Indian+Phone+Sales.aspx.

[3] See, for example, http://www.informationweek.com/news/mobility/smart_phones/showArticle.jhtml?articleID=225700597.

[4] Fixed broadband, as per the ITU definition in the World Telecommunication/ICT Indicators handbook, is defined as subscriptions to high-speed access to the public Internet (a TCP/IP connection), at downstream speeds equal to, or greater than, 256 kbit/s.

[5] The speed of the entry-level broadband plan provided by the operator used in the calculatation of the IPB has increased from 256 kbit/s in 2008 to 1 Mbit/s in 2010, in Jamaica, Slovenia, St. Lucia, Pakistan, Panama and Tunisia.

[6] Income levels are expressed as gross national income (GNI) per capita.

[7] While the ICT Price Basket is a useful tool for assessing the effects of different policies, it is important to remember that not all regulatory changes will have an immediate impact on prices. Certain policies may take some time before they result in any concrete change in tariffs. Others, such as the revision of interconnection charges, may have a more immediate impact.

[8] For more information on the choice of the three sub-baskets, refer to the section on *methodology*.

[9] World Bank, USD, Atlas method.

[10] The ITU Tariff Indicators Questionnaire has been sent to national statistical contacts once a year, since 2009. Before that, tariffs were collected as part of the regular (long) ITU World Telecommunication/ICT Indicators questionnaire.

[11] For this, the average annual UN operational rate of exchange was used.

[12] The mobile-cellular sub-basket refers to a 30-call basket, which is the entry-level basket of the 2009 OECD methodology (see OECD (2010a), pp. 13-14), but with the following differences: the 2009 OECD methodology is based on the tariffs of the two largest mobile operators. The ITU mobile-cellular sub-basket uses (only) the largest mobile operator's tariffs. Additionally, the ITU mobile-cellular sub-basket does not take into account calls to voicemail (which in the OECD basket represent 4 per cent of all calls).

[13] For the 2008 ICT Price Basket, 2008 PPP conversion factors, the 2008 UN conversion rate and 2008 GNI per capita data were used. For the 2010 IPB, 2009 values were used in all three cases, as 2010 data were not yet available.

[14] For example, if country A and country B have the same price in USD for any given ICT service, but in country A prices of other products are in general cheaper (in USD), then applying PPP exchange rates to the ICT service price in country A will make this service more expensive. This is because, compared to country B, in country A the same amount of USD (exchanged into national currency at market exchange rates) can buy more products or services. Therefore, the ICT service in country A is more expensive in terms of what could be bought with that amount in each country. The International Comparison Program (ICP) is the major global initiative to produce internationally comparable price levels. It is overseen by a Global Office housed in the World Bank and is implemented through the national statistical offices of 107 countries. Together with the OECD/Eurostat PPP data, it provides PPP data for all countries of the ICT Price Basket, except for the Bahamas, Cuba, Liechtenstein, Monaco, San Marino and Zimbabwe. For more information on PPP methodology and data, see http://www.worldbank.org/data/icp.

[15] The World Bank's Atlas method is used for the Bank's official estimates of the size of economies in terms of GNI converted to current USD. GNI takes into account all production in the domestic economy (i.e. GDP) plus the net flows of factor income (such as rents, profits and labour income) from abroad. The Atlas method smooths exchange-rate fluctuations by using a three-year moving-average, price-adjusted conversion factor. See: http://econ.worldbank.org/WBSITE/EXTERNAL/DATASTATISTICS/0,,contentMDK:20452009~pagePK:64133150~piPK:64133175~theSitePK:239419,00.html.

[16] The main reason the IPB does not take into account different packages from different operators is that it is not feasible for most countries to collect and compile price comparisons for several operators and packages.

[17] See: http://www.verizonwireless.com/b2c/store/controller?item=planFirst&action=viewPlanList&sortOption=priceSort&typeId=1&catId=323&sel=ind.

[18] See: http://www.bob.at/bigbob. Please note that customers need to pay a one-time charge of EUR 15 to be able to use the Big Bob tariff plan.

[19] For concrete examples of exceptions and concrete country examples, please refer directly to the sub-basket sections.

[20] Prices are relative in two ways: first, the IPB value, on which the ranking is based, is expressed as a percentage of countries' average monthly GNI per capita. Second, the value does not indicate how much citizens need to pay for all of the three ICT services. Rather, it represents an average relative cost, since the sum of the three ICT prices is divided by three. The value should therefore be seen as an indication of cost that is primarily used to compare and benchmark countries with each other.

[21] Financial Times, *Chief of FCC calls for internet subsidy*, 8 February, 2011, see: http://www.ft.com/cms/s/0/4605bf72-3318-11e0-9a61-00144feabdc0.html#axzz1G0o8Cx48.

[22] ITU World Telecommunication/ICT Indicators questionnaire 2011, response from Nauru's Ministry of Transport & Telecommunications.

[23] The 30 calls are distributed across the different networks (mobile and fixed), at different durations. In total, the 30 calls correspond to 50.87 minutes of calls. For more details on the call distributions and lengths in the OECD/Teligen methodology, see Annex Table 2.1.

[24] Costa Rica's mobile market was opened to competition in late 2010 with the assignment of two licenses. The (two) new entrants are expected to start operations at the end of 2011.

[25] See http://media.ofcom.org.uk/2011/03/02/average-broadband-speed-is-still-less-than-half-advertised-speed/.

[26] See http://www.uswitch.com/broadband/broadband-speeds/.

[27] See http://www.seacom.mu/index2.asp.

[28] See http://www.wiocc.net/eassy.htm.

[29] See allafrica.com, Uganda: Third Internet cable starts operation, 11 August, 2010, at: http://allafrica.com/stories/201008110372.html.

[30] The regional Tables 3.5, 3.6 and 3.9 show that all regions have higher PPP$ prices than USD prices. This is because every regional grouping used in the analysis includes a number of low or lower-income countries, where purchasing-power-parity adjusted dollars are usually higher than USD.

Chapter 4. Understanding broadband: addressing issues of capacity, speed and quality of service

4.1 Introduction

The ICT for development debate is witnessing an obvious shift: the focus is no longer on the mobile-cellular miracle, but is moving to the need for broadband Internet access. Ambitious policy-makers are trying to set the right regulatory stage while simultaneously calling upon investors, operators and device manufacturers to learn from and leverage the mobile success story. The goal is to roll out high-speed broadband networks and to make broadband Internet access widely available and affordable.

At the same time, there is a growing debate about the meaning and the impact of broadband. Ostensibly a simple term, "broadband" entails a number of complex issues – in terms of technologies, speeds and quality of service. In examining today's broadband developments, there is a growing need to go beyond analysing just the number of broadband subscriptions, which are defined as an Internet connection providing the user with a minimum downstream speed of 256 kbit/s (see Box 4.1). Other factors, relating to broadband speed and quality in particular, need to be taken into account to determine the uptake – and potential impact – of broadband. These issues are particularly relevant as there are signs that the world is facing a growing divide in terms of the speeds and quality that users are experiencing. This is partly due to increasing differences in the available national and international backbone infrastructure, and in the level of deployment of next-generation access networks (NGAs).[1] Both high-capacity backbone infrastructure and NGAs are necessary to meet current and future user needs for advanced broadband services.

While second-generation (2G) mobile-cellular services have been identified as a major development enabler, the potential of broadband Internet goes far beyond simple telephony and text messaging. A number of studies have highlighted that broadband is linked to overall economic development.[2] Broadband is also critical to achieving a number of other development goals, including the Millennium Development Goals (MDG). This is being advocated by the Broadband Commission for Digital Development, which has called upon leaders from the public and private sectors to address the importance of universal access to broadband networks, especially in the achievement of the MDG.[3]

Both the ICT Development Index (IDI) and the ICT Price Basket (IPB) recognize the importance of broadband Internet in the overall ICT development debate. The IDI includes several broadband-related indicators, including mobile-and fixed-broadband penetration, international Internet bandwidth and Internet use. One of the three IPB sub-baskets measures the cost and affordability of fixed-broadband access. These indicators were chosen to benchmark broadband developments because they are readily available and comparable for a large number of countries.

There are high expectations not only that broadband Internet access will become a key development enabler but also that it will be possible to replicate the mobile success story

Box 4.1: Defining broadband – a moving target

Although many national regulators and international organizations, including ITU and OECD, define broadband as a connection with downstream speeds greater than, or equal to, 256 kbit/s, there remains much debate as to how fast a connection should be to qualify as broadband, and national definitions vary.[4] The United States, for example, just recently redefined broadband as a *"transmission service that actually enables an end user to download content from the Internet at 4 Mbps and to upload such content at 1 Mbps over the broadband provider's network"*.[5] Some developing countries, for example Djibouti and Morocco, apply definitions of broadband that set a lower speed (128 kbit/s). However, most national broadband definitions are in line with the ITU/OECD definition.

Specifying a minimum speed for broadband is complicated by the fact that both technologies and services/applications evolve. On the technology side, there are improvements that allow the same technology to provide higher speeds over time, and maximum speeds attained by both DSL and cable services continue to rise. On the services and applications side, users are increasingly accessing data-intensive websites and services, which in theory would require a constant redefining of broadband, which remains a moving target from a user perspective.

Although it is obvious that both content and broadband technologies are evolving rapidly, one of the problems of changing the definition of broadband is that data are then no longer comparable over time, so time series would have to be discontinued. To acknowledge changes in the nature of the Internet (both in terms of content and technology), it seems more useful to analyse and benchmark countries according to broadband technologies, and/or speeds. ITU has collected fixed broadband subscription data by technology for many years, and in 2009 started gathering data by speed, with data collected for subscriptions providing speeds of 256 kbit/s to less than 2 Mbit/s, 2 Mbit/s to less than10 Mbit/s and 10 Mbit/s and above.

so as to make broadband ubiquitous. This is a prerequisite for moving towards the *Internet of Things*, i.e. a wholly connected environment where objects such as cars, energy grids or home appliances will automatically exchange information to improve their capabilities and efficiency.[6] This is starting to happen, with some 81 million machine-to-machine (M2M) mobile data connections worldwide in 2010, and a total of 294 million projected for 2015.[7] Further development and ubiquity of mobile-broadband networks will be necessary in order to achieve such a scenario, and to ensure that no country is left behind.

Another important reason which raises hopes that broadband will become a widespread development tool is the technological advancements made in mobile-cellular technologies themselves. The path from 2G to IMT-2000/3G and now to IMT-Advanced/4G mobile networks is expected to help overcome existing infrastructure barriers, and has already had a major impact on the availability and use of mobile-broadband Internet.

Rapid mobile-broadband developments in the developing countries and increasing reliance on mobile-broadband technologies to address the digital divide make the question of what constitutes broadband particularly pressing. As more and more people come to rely (solely) on mobile-broadband access, operators and regulators are facing a number of new challenges linked not only to the provision of services, but also in terms of backbone infrastructure and international Internet connectivity.

The main objective of this chapter is to look at recent developments in broadband across the world and to address some of the issues which need to be considered in order to understand the development potential of broadband. These issues are linked to the capacity, speed and quality of service that high-speed broadband networks deliver, all of which are affected not only by the national and international Internet backbone infrastructure but also by the broadband access technologies that connect the end user. A more in-depth analysis of broadband will not only highlight substantial differences in broadband services between countries and regions, but also point to the need for governments to identify appropriate measures and indicators to track the real broadband divide.

4.2 From narrowband to broadband

As highlighted in Chapter 1 of this report, the number of broadband subscriptions has increased substantially over the last ten years. While fixed broadband was the exclusive means of access for a high-speed Internet con-

nection until about 2005, the spread of 3G and higher speed mobile networks across the world has given an increasing number of people the possibility to connect through mobile-broadband networks. As both fixed- and mobile-broadband networks and subscriptions are growing, fewer people now rely on fixed-narrowband (usually dial-up) Internet access. The number of dial-up Internet subscriptions started to decrease rapidly in 2007 and, based on current trends, the "death of dial-up" is expected to play out over the next few years.[8] ITU data show that in Kenya, for instance, the number of dial-up subscriptions has plummeted from over 45 000 in 2001 to less than 7 000 in 2009. In 2006, over one-third (35 per cent) of households in the Czech Republic accessed the Internet over a narrowband/dial-up connection; only four years later in 2010, nine out of ten connections were broadband connections.[9] In most developed countries and in a number of developing countries, including Colombia and Senegal, dial-up subscriptions now represent less than ten per cent of all fixed Internet subscriptions.

Mobile broadband[10] has played an important role in the move from narrowband to broadband high-speed Internet access, and is expected to be instrumental in connecting millions of active people in the developing world. Indeed, the number of active mobile-broadband subscriptions overtook the number of fixed-broadband subscriptions in 2008, and by the end of 2010 more than 150 economies had launched mobile-broadband networks (Figure 4.1). Of these, 109 had launched either HSPA+, LTE and /or WiMAX.

Operators that have launched 3G services commercially continue to increase coverage. Available data suggest that while 2G population coverage still exceeds 3G population coverage in most countries, operators are eager to upgrade mobile networks so as eventually to offer mobile-broadband services to all customers. In Australia, 3G coverage is on a par with 2G coverage, with 99 per cent of the population covered. In Qatar and Malaysia, 100 and 95 per cent of the population are covered by a 2G network, compared with 95 and 81 per cent, respectively, for 3G. In Ghana, just over one-third of the population was covered by a 3G mobile-broadband signal by the end of 2010 (Table 4.1).

A comparison of the top 25 economies in terms of fixed- and mobile-broadband penetration rates shows that about half of them are included in both categories (Table 4.2). The two countries that were the first to launch 3G mobile-broadband networks – Japan and the Republic of Korea – today have the highest penetration rate of active mobile-broadband subscriptions. A number of smaller economies that have been able to reach very high fixed-broadband penetration levels, including Liechtenstein, Monaco, Switzerland, the Netherlands and Norway, are not included in the top 25 mobile-broadband list. In contrast, a number of countries from the Arab States region (including the United Arab Emirates and Saudi Arabia) have mobile-broadband penetration rates above 50 per cent, but relatively low fixed-broadband penetration rates (six, ten and two per cent, respectively).

A number of other developing countries have been able to leverage mobile-broadband technologies to overcome infrastructure barriers and to boost competition so as to provide high-speed Internet access to

Table 4.1: Percentage of the population covered by a 2G/3G network, selected countries, 2009 and 2010

	2G population coverage (%)		3G population coverage (%)	
	2009	2010	2009	2010
Australia	99	99	99	99
Belarus	99	100	59	67
Belgium	100	100	97	97
Brazil	97	100	55	67
Ghana	75	77	35	36
Malaysia	95	95	74	81
Qatar	100	100	95	95

Source: ITU.

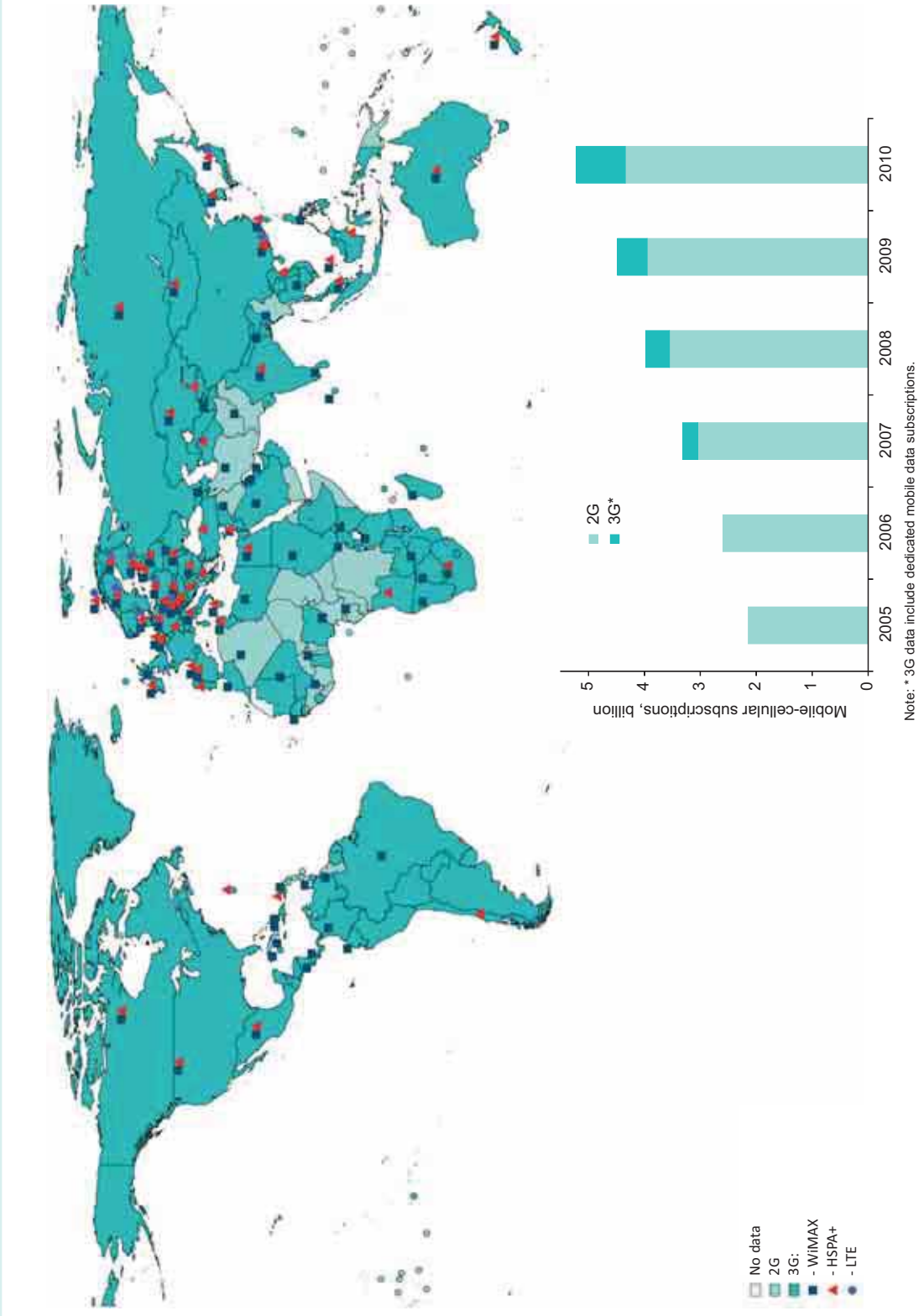


Figure 4.1: The rise of 3G: countries that offer 2G/3G services commercially, 2010

Source: ITU.

Table 4.2: Top 25 broadband economies, 2010

Fixed-broadband subscriptions per 100 inhabitants		Active mobile-broadband subscriptions per 100 inhabitants	
Liechtenstein	63.8	Korea (Rep.)	91.0
Dominica	47.1	Japan	87.8
Monaco	41.9	Sweden	84.0
Switzerland	38.2	Australia	82.7
Netherlands	38.0	Finland	78.1
Denmark	37.4	Hong Kong, China	74.5
Korea (Rep.)	36.6	Portugal	72.5
Iceland	34.6	Luxembourg	72.1
Norway	34.6	Singapore	69.7
France	33.9	Austria	67.4
Luxembourg	32.8	New Zealand	66.2
Germany	31.6	Kuwait	63.5
Sweden	31.6	Israel	62.2
Belgium	31.5	Brunei Darussalam	61.4
United Kingdom	31.4	Cyprus	61.3
Hong Kong, China	30.2	Italy	59.4
Canada	29.8	UAE	58.4
Finland	29.1	Greece	58.3
Andorra	28.9	Saudi Arabia	57.8
Malta	27.5	Macao, China	56.1
Japan	26.9	United Kingdom	56.0
United States	26.3	Spain	55.7
Israel	25.1	Denmark	54.7
New Zealand	24.9	United States	54.0
Singapore	24.7	Ireland	47.3

Source: ITU World Telecommunication/ICT Indicators database and Wireless Intelligence.

previously unconnected areas. For example, in Angola, Cambodia, Indonesia, Kenya, Namibia and Tajikistan, fixed-broadband penetration lies below one per cent, whereas the corresponding figure for mobile-broadband subscriptions stands at six to ten per cent. In South Africa, mobile-broadband services were launched as early as 2005 and operators have started competing for customers by introducing a large number of different mobile-broadband prepaid packages, including promotional offers.[11] Today, the country has a fixed-broadband penetration rate of 1.5, compared with a 16.6 per cent penetration in mobile broadband.

Mobile broadband also has the potential to assure seamless Internet connectivity for users when they travel across borders to other countries. Indeed, international roaming services have greatly evolved in recent years, improving the user's experience when accessing mobile-broadband services abroad. However, most often data roaming tariffs are prohibitively high, which greatly deters mobile-broadband usage when roaming (see OECD (2010b) and BEREC (2010)). In the second quarter of 2010, average mobile data roaming prices within the European Union were more than 25 times higher than the corresponding domestic average prices (BEREC, 2010). A growing number of mobile-broadband roamers suffer from so-called "bill shock", i.e. an unexpected increase in their monthly bill and, as a result, many travellers are disconnecting their smartphones or restricting data roaming use when abroad.

Some countries have adopted or are considering the adoption of consumer-protection measures to address the problem. The United States, for example, has discussed the Cell Phone Bill Shock Act of 2011[12] and the European Roaming Regulation was adopted by the European Union in 2009 (European Commission, 2009a). The latter is currently under revision with a view to setting a maximum cap for data roaming prices.[13] Given the international nature of the service, regulation of mobile-broadband roaming prices requires cooperation between countries, which can make regulation more difficult.

4.3 Broadband revisited: the importance of capacity, speed and quality

As the world moves from narrowband to broadband Internet access, it is important to understand the difference that broadband makes in terms of the applications and services that it can deliver. Since many of the opportunities to deliver broadband are ascribed to significant changes in wireless technologies, it is also necessary to identify new challenges in measuring mobile/wireless-broadband developments, and to understand differences between fixed- and mobile-broadband services. A closer look at broadband access technologies will highlight the key issues that affect the way the end user will experience broadband: capacity, speed and quality of service. At the same time, the access technology connecting the user is only one of the broadband building blocks that determine the broadband experience, and it is equally important to look at national and international backbone capacity. All of these are important for the 'broadband for development' discussion, since they directly and indirectly influence the potential impact of broadband.

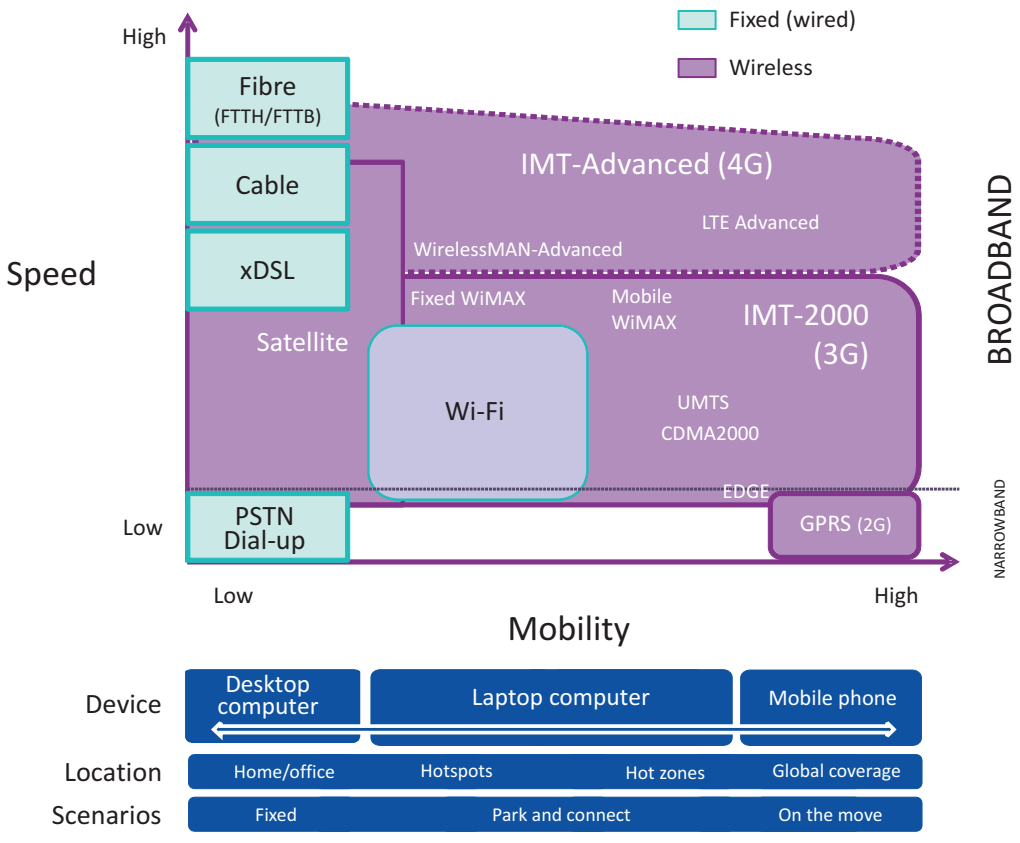
There are substantial differences in fixed- and mobile-broadband technologies, with huge variations in the speeds that these technologies can provide. For measurement purposes, in 2005 ITU set a minimum definition for broadband at 256 kbit/s. Today, this may be sufficient for using e-mail and other very basic services, but it is clearly inadequate for delivering data-intensive applications and services. Additionally, some applications may have requirements that involve other quality-of-service (QoS) parameters. The quality of a voice-over-IP connection, for example, will depend not only on the capacity of a broadband connection but more on the quality of the connection as measured by latency, packet loss and jitter.[14]

The type, quality and speed requirements also depend on the user, and an individual will have very different needs from those of a business or a large organization/institution. One person may also have varying broadband requirements, giving priority to a relatively low-speed, but mobile, broadband connection while 'on the move', yet preferring a higher-speed xDSL or cable connection at home.

Figure 4.2 provides an overview of the broadband technologies that can deliver access to the Internet, at various speeds, at different locations and via various devices. While the fixed (wired)-broadband technologies (xDSL, cable, fibre) provide the highest broadband speed but no mobility, currently available (IMT-2000/3G) mobile-broadband technologies lose out in terms of speed but afford users a higher degree of mobility.

IMT-Advanced/4G technologies, however, which are currently being developed and tested, promise much higher speeds, equal to those delivered over fixed broadband. While a number of operators have launched so-called 4G services, the speeds achieved by currently available "4G

Figure 4.2: Fixed (wired)- and wireless-broadband technologies – speed versus mobility



Source: ITU.

networks" are not in line with the ITU requirement that 4G should achieve a peak download speed of up to approximately 100 Mbit/s in a high-mobility environment (e.g. using a mobile phone) and up to 1 Gbit/s in a low-mobility one (e.g. local wireless access).

Developments in fixed-broadband networks are extending the fibre network from the core, and bringing it closer or direct to the end user. Cable networks are also being upgraded to DOCSIS 3.0, which enables connections at very high speeds, in line with those currently being provided by commercial fibre connections.[15]

The types of technologies and the speeds that they deliver matter because these factors also determine the quality of service and the user experience. In addition, more and more people are relying on a mobile-broadband *only* connection. Unlike in most developed countries, in developing countries mobile-broadband technologies are not complementing, but rather substituting, fixed-broadband connections, which are lacking in many areas of developing countries. In Kenya, for example, data from the Communications Commission of Kenya (CCK) show that only a very small percentage of the population today relies on fixed Internet access and *"Internet subscriptions through GPRS/EDGE and 3G networks […] accounted for 98.8 per cent of the total subscriptions"*. In Morocco, the total number of active mobile-broadband (3G) subscriptions has grown at over 21 per cent in the first quarter of 2011, compared with eight per cent for ADSL subscriptions (the main fixed-broadband technology in the country). As a result, the country's active mobile-broadband subscriptions now represent over 75 per cent of all Internet subscriptions. Data from the regulator also show that over 75 per cent of all active mobile-broadband subscriptions are 'data only' subscriptions (or dedicated mobile data subscriptions) that are usually used over a modem or dongle.[16]

Given these developments, it is essential to understand the speed and quality of service that mobile-broadband technologies can deliver in order to cater not only for individual users but also for businesses, government and other public or private organizations. These issues will help ascertain whether mobile broadband can truly replace fixed-broadband Internet access and deliver the same development potential.

User needs depend on the type of user (individual, business, organization) and on the type of service or application that the end user is accessing over the Internet. Table 4.3 highlights the importance of broadband speeds, and points to the limited user experience that someone with a 256 kbit/s connection (i.e. the minimum speed qualifying as broadband) will get. While it will already take five seconds to view the Google homepage, downloading a 5 MB music track will take over 2.5 minutes. A 20 MB video clip will take over ten minutes to download via a 256 kbit/s connection, compared with two seconds via a 100 Mbit/s connection. Clearly, a minimum broadband connection is not suited to accessing data-intensive sites or applications, or to watching videos, which requires much higher speeds to obtain a minimum of quality and reasonable download times.

Table 4.3: Time needed to download online content at different connection speeds

Content	Actual connection speed (hh:mm:ss)			
	256kbit/s	2Mbit/s	10Mbit/s	100Mbit/s
Google homepage (160 KB)	00:00:05	00:00:01*	00:00:13	00:00:00*
Music track (5MB)	00:02:36	00:00:20	00:00:04	00:00:00*
Video clip (20MB)	00:10:25	00:01:20	00:00:16	00:00:02*
CD / low-quality movie (700MB)	06:00:00	00:47:00	00:09:20	00:00:56
DVD / high-quality movie (4GB)	34:17:00	04:29:00	00:53:20	00:05:00

Source: ITU calculation.
Note: * Rounded values.

Broadband access technologies

One way of looking at the speed and quality of broadband access is from the angle of the technology used, since different technologies to which broadband users connect are each associated with maximum speeds. In terms of the last-mile access infrastructure, both fixed (wired) and wireless technologies providing a minimum of 256 kbit/s are considered as broadband, although major differences in speeds and quality exist, with fixed technologies providing higher access speeds than wireless technologies.

While the dominant fixed-broadband technology worldwide continues to be xDSL (accounting for about 65 per cent of the world's total),[17] cable modem and fibre optic are also important broadband technologies. Cable networks are practically non-existent in some regions of the world (particularly Africa), but remain an important and growing access technology in others, for example the Americas. In Canada and the United States (Chart 4.1), there are more cable than xDSL subscriptions; in Chile, nearly a half of all broadband connections are through cable; and in Panama and Colombia, they represent almost one-third of all fixed-broadband subscriptions. The advantage of having both xDSL and cable, as well as other fixed- and mobile-broadband technologies, is that it increases the level of competition based on independent networks.

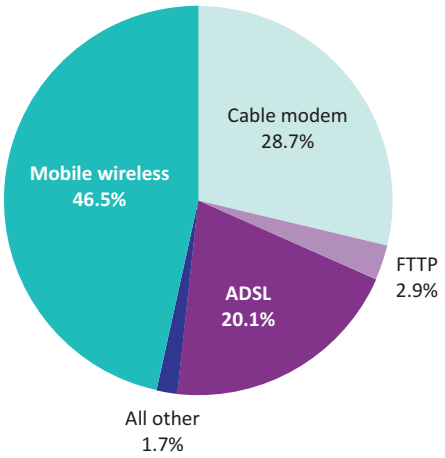
In Africa, where cable networks do not exist and where only few countries provide fibre access to the home or business, fixed-broadband services are delivered over the fixed-telephone network, through xDSL technology. The very limited availability of the fixed-telephone network, however, effectively limits the uptake of fixed-broadband services.

In an effort to bring an increasing amount of bandwidth and the highest speeds available directly to homes and businesses, many developed countries, and a growing number of developing countries, are promoting fibre deployments, which are superior in terms of the speeds and quality that they can deliver to the end user. Whereas in the Republic of Korea, Japan and some other countries FTTH/B penetration rates are relatively high, fibre connections remain the exception in most countries. Only 26 economies worldwide have more than one per cent of their households/buildings connected to a fibre-optic network. This list is led by a number of developed and developing economies from the Asia and the Pacific region, and includes countries such as Turkey, China, the Russian Federation and the United Arab Emirates (Chart 4.2).

Although FTTH/B broadband connections have the capacity to offer the highest speeds currently available, the actual speeds to which households and businesses subscribe can vary greatly and depend on user needs, as well as on the commercial offers available. At the same time, there are also differences in the speeds provided by different xDSL and cable technologies, with the result that a comparison of technologies *only* will not provide an exact picture of the situation.

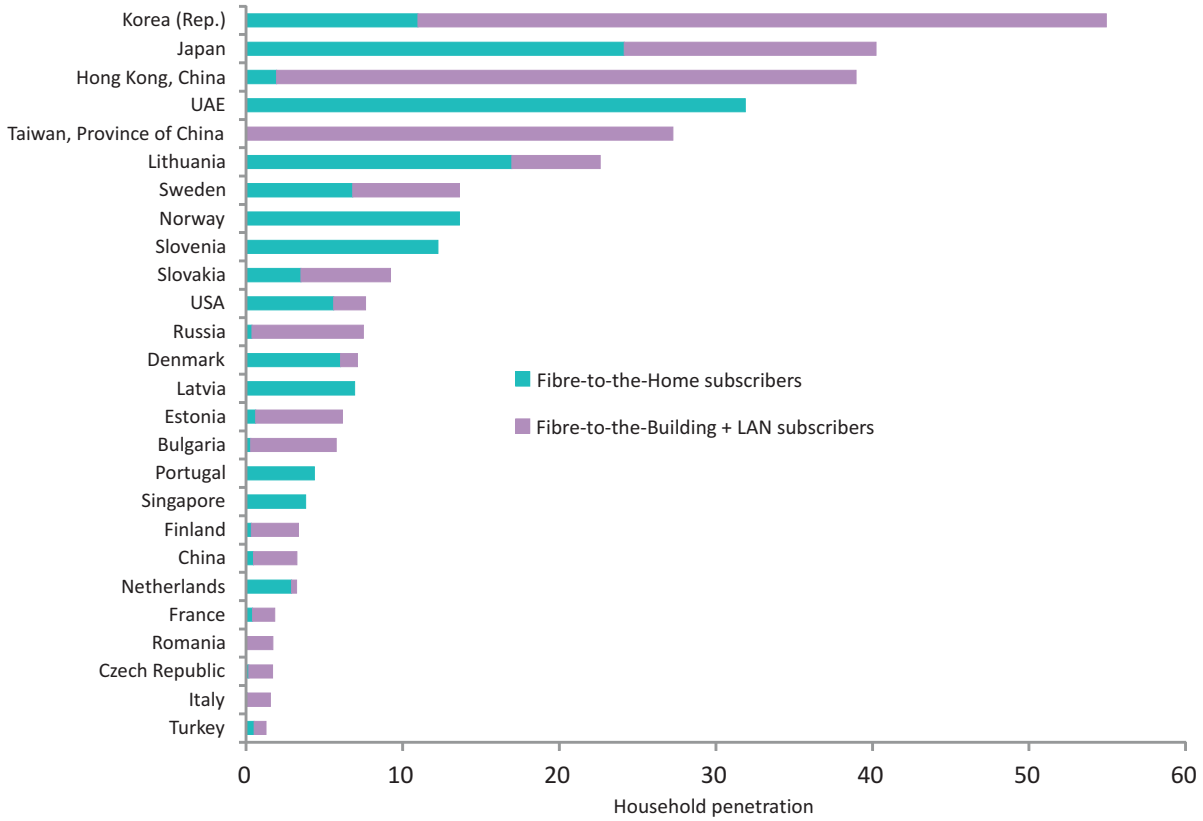
For developing countries, the most significant development in terms of access to broadband networks has been the progress made in wireless, and in particular mobile, broadband technologies and services. Third-generation (3G) mobile-broadband services have increased the choice for delivering high-speed Internet access to the end user and in many cases created additional facilities-based (inter-modal) competition.

Chart 4.1: Broadband subscriptions by technology, United States, June 2010



Source: FCC, from http://transition.fcc.gov/wcb/iatd/comp.html
Note: Although FCC has recently redefined broadband (see Box 4.1), data in this chart are based on the previous FCC definition of broadband as 200 kbit/s in at least one direction.

Chart 4.2: Economies* with the highest penetration of fibre-to-the-home/building + LAN



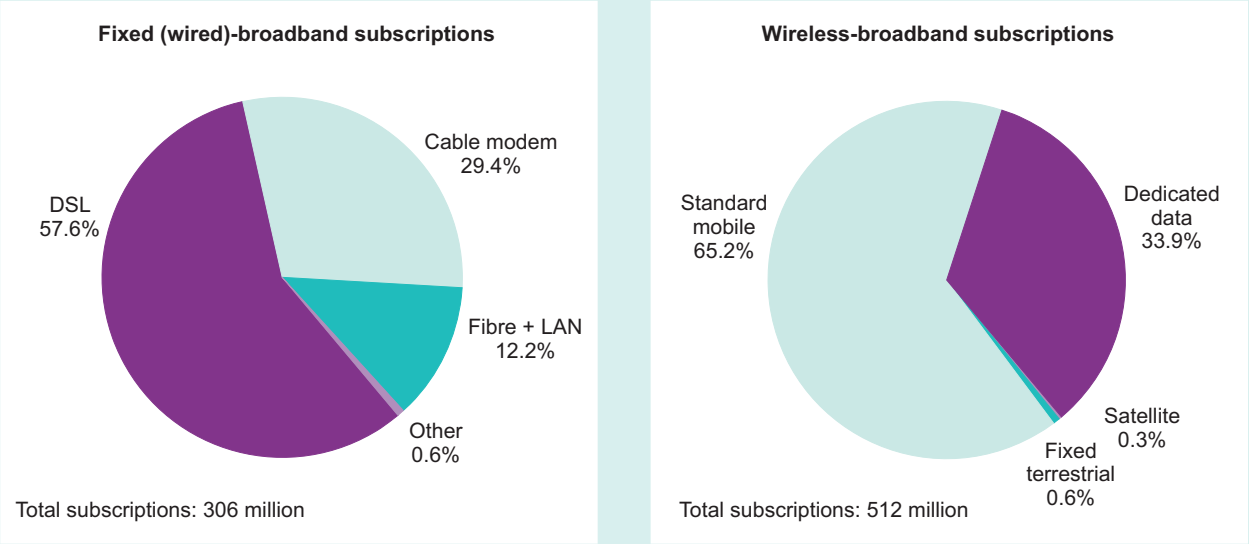
Note: * Economies with at least 200 000 households and with more than 1% household penetration.
Source: FTTH Council 2011.

In many countries, mobile operators have secured a considerable chunk of the broadband market. ITU data show that, by December 2010, active mobile-broadband subscriptions represented 56 per cent of all broadband subscriptions in the developing world. At the same time, OECD countries had 306 million fixed (wired)- and 512 million wireless-broadband subscriptions (Chart 4.3).[18] Almost two-thirds of active wireless-broadband subscriptions in OECD countries are mobile-cellular telephone subscriptions (standard mobile subscriptions) and one-third are dedicated mobile data subscriptions, usually using a modem/dongle (some 174 million, about the same number as DSL subscriptions).

There are a number of points that are worth mentioning when comparing fixed-broadband and mobile-broadband technologies and subscriptions. First, mobile-broadband technologies face a number of speed, capacity and quality challenges that are less of an issue for fixed technologies. While it is possible to duplicate and add a (theoretically) unlimited amount of wires, the quality and speed of mobile-broadband connectivity relies on a limited and shared resource – the radio-frequency spectrum. Although the wireless industry and regulators continue to make devices and network infrastructure more efficient, a limited amount of spectrum means a limited amount of bandwidth, and hence speed. The rapidly growing mobile-broadband market is facing a spectrum crisis, in which there is a risk of demand exceeding wireless network capacity (Box 4.2).

It should also be noted that while mobile broadband is able to overcome important infrastructure barriers, users still need to invest in relatively expensive handsets (or computers, netbooks, tablets, laptops, etc.) in order to be able to take full advantage of high-speed Internet

Chart 4.3: Broadband subscriptions in the OECD, by technology, December 2010



Note: For more information on the definition of wireless-broadband subscriptions, see OECD (2010c).
Source: OECD.

access and the services and applications it can deliver. In other words, mobile-broadband users face a similar cost barrier to fixed-broadband users.

The capacity and speed problems associated with wireless technologies are particularly challenging when mobile-broadband technologies are the *only* broadband access technology available to end users, which is increasingly the case in many developing countries, particularly outside urban areas. Mobile-broadband networks do not provide equal broadband speeds and capacities compared with fixed networks, and may help to reduce, but not overcome the broadband divide, at least as long as operators impose mobile-broadband caps. It also means that high-end users, particularly organizations and businesses, will continue to rely on fixed infrastructure or require fixed infrastructure if not yet available.

The qualitative differences between fixed- and mobile-broadband services have implications for the comparison of the number of fixed- and mobile-broadband subscriptions. The current capacity and speed of a mobile-broadband subscription does not match that of a fixed subscription, and mobile-broadband subscriptions almost always include data caps, unlike often 'unlimited' fixed-broadband offers. Comparisons between the total number of fixed and mobile subscriptions should therefore be made with caution. Similar caution must also be exercised when making comparisons between fixed-broadband penetration rates (all technologies included), since there are substantial qualitative differences between the different fixed technologies.

Finally, fixed- and mobile-broadband subscriptions cannot always be compared, insofar as one fixed-broadband subscription can easily be (and is often) shared by several people (at home, at work, at school, etc.) whereas mobile-broadband subscriptions – particularly standard mobile-cellular subscriptions – tend to be used by one person only. Dedicated data subscriptions, using a modem/dongle, can be more easily shared.

Broadband speeds

Another angle for understanding the potential impact of broadband and for measuring and analysing broadband developments is to look at broadband speeds. An increasing number of countries have started collecting fixed (wired)-broadband subscriptions broken down by (advertised) speed. ITU data show that major differences exist between countries (Chart 4.4). By the end of 2010, the Republic of Korea stood out in that it did not actually offer any broadband connection below 2 Mbit/s. In Bulgaria and Portugal, around

Box 4.2: The spectrum crisis: struggling to keep up the speed, capacity and quality of mobile services

One of the major issues arising from the rapid increase in mobile-broadband subscriptions and data traffic is the spectrum crisis,[19] a situation where demand exceeds the mobile-cellular network's capacity and which affects mobile operators that are unable to maintain the quality of data services. One example is the problems that smartphone customers have encountered in New York City, where a severely overloaded 3G network has led to dropped calls and slow data speeds.[20] There are a number of approaches now being adopted to deal with the fact that spectrum is a finite resource that can only accommodate a limited number of users and amount of data.

First, governments are looking into the effective and efficient use of frequencies that will provide mobile operators with sufficient spectrum. This also includes the use of spectrum from the «digital dividend» resulting from the switchover from analogue to digital television broadcasting,[21] or the refarming of bands to make them available for mobile-broadband services.

Another way to overcome spectrum limitations is to distribute the burden on 3G mobile-broadband networks by offloading traffic to other networks, including WiFi hotspots and femtocells. More and more operators across the world are taking advantage of offloading and operators are working closely with handset and hardware manufacturers to provide users with a seamless connectivity experience between 3G mobile-broadband and WiFi networks.[22]

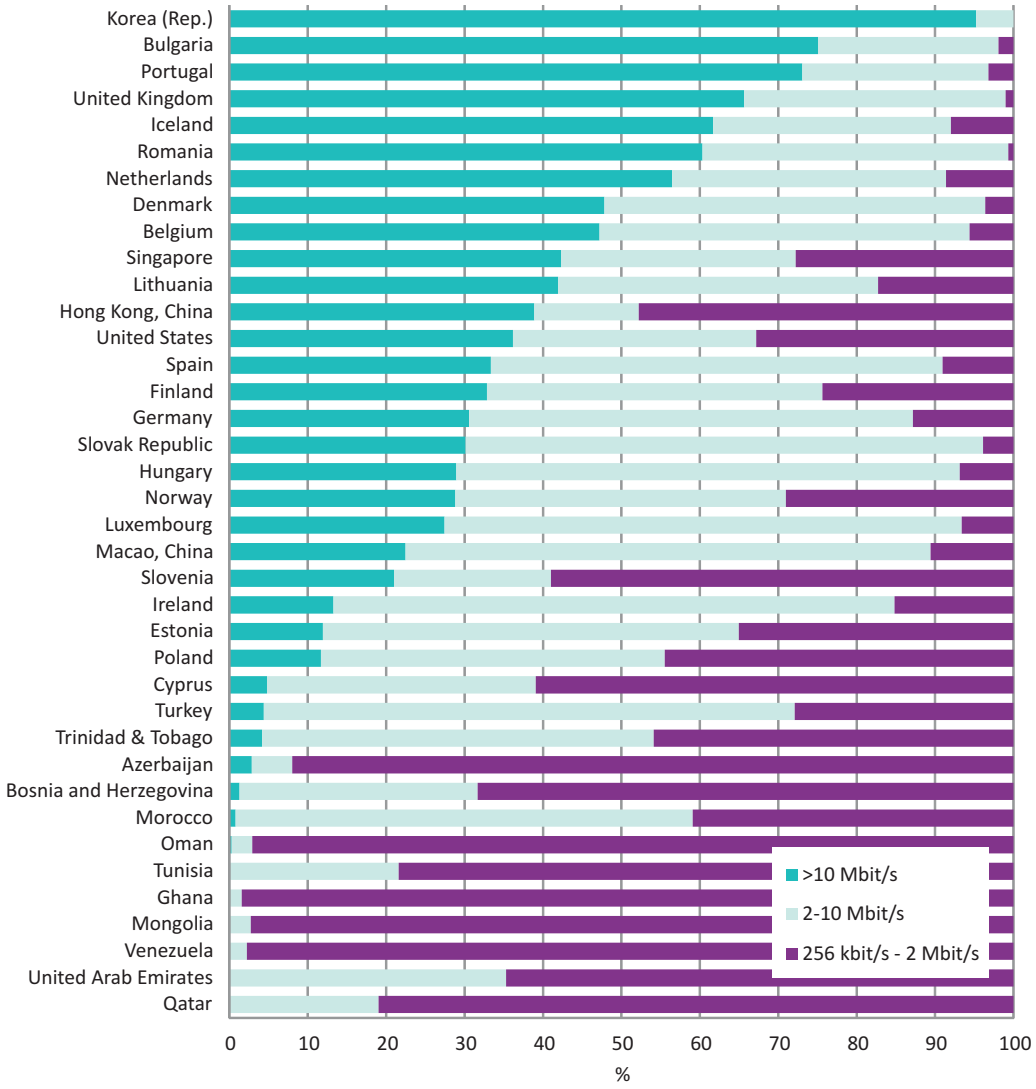
There are also a number of efforts to find innovative technological solutions to the spectrum crunch, such as the use of femtocells, as well as looking into regulatory mechanisms to overcome bottlenecks in mobile-broadband infrastructure.[23]

Finally, operators in developed and developing countries have been turning to metered data plans so as to be able to limit the amount of data transported over mobile-broadband networks. As opposed to fixed-broadband subscriptions, which often offer unlimited access to data, mobile-broadband subscriptions are typically capped. Once specified limits have been exceeded, users have either to pay extra costs, or to accept lower transmission speeds. Few operators around the world now offer truly unlimited 3G plans and some that did have been forced to change tariff schemes to deal with increased data flows and to protect their networks. In the United States, Verizon announced in June 2011 that it was going to end its USD 30 offer for unlimited data access.[24] In the Republic of Korea, Korea Telecom has ceased offering unlimited data plans to new customers.[25] While this approach can help operators deal with overloaded networks, it is not an ideal solution for all users, since it effectively limits the type and amount of services and applications that can be used, which will in turn discourage users from accessing data-intensive services. It seems like a particularly constraining solution for many people in developing countries, and in cases where mobile broadband is the only access technology available.

three-quarters of all fixed-broadband subscriptions provide speeds above 10 Mbit/s, and less than five per cent of all subscriptions have speeds of between 256 kbit/s and 2 Mbit/s. Romania, the United Kingdom, Denmark and Slovakia also have only very few subscriptions with speeds below 2 Mbit/s, and provide most of their broadband users with higher speeds. In Hong Kong (China) and Singapore, about 40 per cent of all fixed-broadband subscriptions provide speeds of above 10 Mbit/s, but only three to five per cent of subscriptions in Azerbaijan, Cyprus, Turkey and Trinidad and Tobago reach these speeds. Ghana, Mongolia, Qatar, Tunisia, the United Arab Emirates and Venezuela have almost exclusively 256 kbit/s to 2 Mbit/s connections.

Comparisons also show that there is a link between fixed-broadband penetration rates, on the one hand, and the speed of subscriptions, on the other, with countries with high penetration rates usually providing higher speeds. Countries that are at an early stage of providing broadband services tend to have mainly lower-speed connections. However, as more and more people use broadband Internet access, there are differences in the type and speed of broadband subscriptions, which highlights that it is not sufficient to compare just the total number of broadband subscriptions. Bulgaria and Portugal, for example, have a lower fixed-broadband penetration rate than many of their European neighbours,[26] but a very high share of very high-speed fixed-broadband connections. This is explained by the advanced stage of deployment of fibre and fast cable networks in these countries.[27] While in 2010 Germany and the United Kingdom had similar fixed-broadband penetration rates, 59 per cent of the United Kingdom's subscriptions were above 10 Mbit/s, compared with 30

Chart 4.4: Fixed (wired)-broadband subscriptions by speed, selected economies, 2010



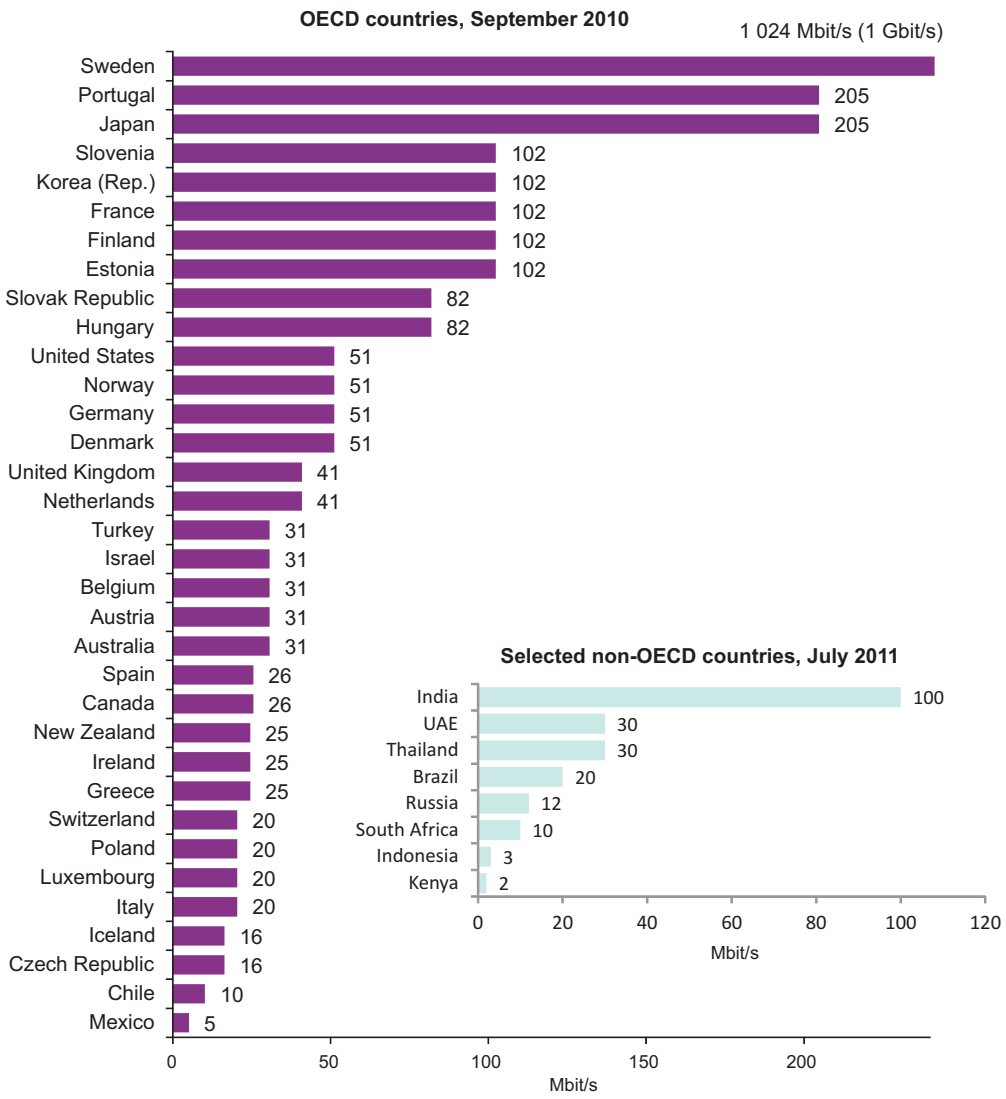
Note: Data from Iceland refer to ADSL connections only, which account for 87 per cent of the market. Norway's speed intervals refer to: 128 kbit/s to ≤ 2 Mbit/s; 2 Mbit/s to ≤ 8 Mbit/s; and > 8 Mbit/s. Data from the Netherlands represent 95 per cent of the total broadband subscriptions in the country, and do not include fibre subscriptions, nor data from the smallest operators.
Source: ITU World Telecommunication/ICT Indicators database.

per cent in Germany. Indeed, in the United Kingdom, 99 per cent of all subscriptions are above 2 Mbit/s.

OECD collects data on the fastest advertised broadband speeds (all technologies included) offered by incumbent fixed operators. September 2010 data show great disparities between countries (Chart 4.5). While in Sweden the fastest advertised speed is 1 Gbit/s, operators in Greece and New Zealand offer as a maximum 25 Mbit/s. In Mexico, the fastest available speed offered by the incumbent is 5 Mbit/s.

In developing countries, maximum advertised speeds tend to be lower than those in most OECD countries (Chart 4.5). Moreover, in some cases, although relatively fast fixed-broadband subscriptions are available, high prices make them unaffordable for a majority of the population. In September 2010, the

Chart 4.5: Fastest broadband speeds advertised by the incumbent telecommunication operator, Mbit/s, all technologies, OECD and selected non-OECD countries, 2010/11



Note: Data do not necessarily reflect the fastest advertised broadband speeds among all operators within the country. For instance, in Brazil cable-broadband provider Net is offering speeds up to 100 Mbit/s, but the incumbent Oi only offers speeds up to 20 Mbit/s.

Source: OECD for all OECD countries. For India, United Arab Emirates, Thailand, Brazil, Russian Federation, South Africa, Indonesia and Kenya, the source is ITU based on data obtained from the website of the largest fixed-broadband provider (in terms of subscriptions) in each country, except for those cases where tariffs were not clearly advertised on the incumbent's website. In particular, data are sourced from the following broadband providers' websites: Oi (Brazil), Wplus (Russian Federation), Telkom (Indonesia), TOT (Thailand), BSNL (India), Telkom/Orange (Kenya), Telkom (South Africa), Etisalat and Du (United Arab Emirates).

median price of a fixed Internet connection between 2.5 Mbit/s and 15 Mbit/s in OECD countries ranged from USD 21 to USD 69.[28] In July 2011, a fixed-broadband Internet connection above 2 Mbit/s cost more than USD 100 in the United Arab Emirates and Indonesia. In Kenya, the price of a 2 Mbit/s subscription was also above USD 100. This explains why in several developing countries, including in the United Arab Emirates, most broadband subscriptions offer relatively low speeds, even if higher speeds are available (Telecommunications Regulatory Authority of the United Arab Emirates, 2010). It also suggests that high prices severely limit the potential impact of broadband developments.

Finally, it is important to note that the actual speed experienced by fixed- and mobile-broadband customers may be much lower than the theoretical and advertised speed.

To truly grasp the potential impact that broadband Internet access can have, and to be able to compare countries, it is therefore important to track and measure actual speeds.

A recent Ofcom study revealed that actual speeds for fixed broadband were only half those advertised, especially for ADSL customers,[29] and FCC has come to the same conclusion in the United States.[30] Increasingly, regulators and operators are eager to monitor speeds and establish minimum standards. In Bahrain, for example, the Telecommunications Regulatory Authority publishes quarterly reports measuring average download and upload speeds for fixed connections.[31] A comparison of actual speeds achieved for a 2 Mbit/s connection between January and March 2011 showed that, during peak hours, the average connection speed was halved, to only 1 Mbit/s. The actual maximum speed achieved during off-peak hours was just above 1.5 Mbit/s (Chart 4.6).

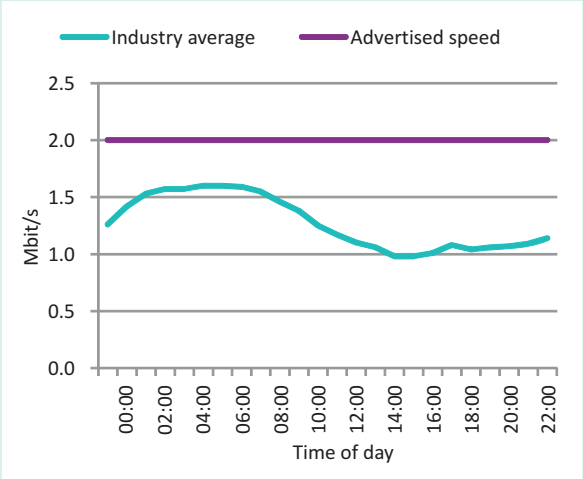
A number of regulators carry out surveys through, or provide links to, third-party applications for measuring speed and other quality aspects.[32] In addition, there are several organizations that publish average download speeds and additional quality metrics.[33] ITU is currently discussing the collection of new QoS indicators within the ongoing discussions of the Expert Group on Telecommunication/ICT Indicators (EGTI).[34]

Quality-of-service and speed tests are also increasingly becoming available for mobile-broadband services, and regulators in both developed and developing countries are scrutinizing speeds, coverage and quality of service. In the Philippines, where the regulator obliges broadband service providers to publish information on minimum speeds and reliability of fixed- and mobile-broadband services, mobile-broadband tests will be carried out to ensure that operators deliver at least 80 per cent of promised Internet speeds.[35] In Sri Lanka, the Telecommunications Regulatory Commission carried out field tests on mobile-broadband services and found that only 40-50 per cent of advertised speeds were achieved, and only under ideal conditions. Consequently, it issued a number of guidelines for mobile-broadband operators (Box 4.3).

Increasingly, regulators are putting pressure on operators and introducing new rules to ensure that consumers are able to make informed choices. In the United States, for example, a new bill is under discussion which would oblige mobile operators to provide detailed information on network coverage and reliability, speed, pricing and quality of service. In particular, the bill wants to set 4G standards so as to inform mobile-broadband users of what they are getting by paying for services advertised as 4G.[36]

In a survey published in early 2011, the United Kingdom Regulator, Ofcom, found that the average mobile-broadband speed was 1.5 Mbit/s (compared with an average fixed-line broadband speed of 6.2 Mbit/s). While mobile speeds could be as high as 2.1 Mbit/s, the speed and quality of service depend to a large extent on 3G network coverage. The regulator also highlighted that, given lower speeds and data caps, mobile broadband was not suitable for intensive users. The same study found that, in the United Kingdom, 17 per cent of the population was using mobile-broadband services, with seven per cent of broadband users relying solely on a mobile-broadband connection.[37] In developing countries, many users, including some businesses, rely solely on mobile-broadband access, and operators are adapting mobile-broadband offers and prices to meet demand. In South Africa, for example,

Chart 4.6: Average download speed for 2 Mbit/s packages, January-March 2011, Bahrain



Note: The average is based on a comparison of eight different 2 Mbit/s packages.
Source: Telecommunications Regulatory Authority of Bahrain.

Box 4.3: Sri Lanka Telecommunications Regulatory Commission's (TRCSL) guidelines on advertising mobile-broadband speeds

Following speed tests which revealed that actual mobile-broadband speeds were far below advertised speeds, Sri Lanka's TRCSL concluded that consumers were being misled by false marketing campaigns. To protect customers, the regulator, in May 2011, issued a number of guidelines, including:

- Broadband packages should not be advertised without describing the specific delivery technology used.
- The speed advertised must be realistic and achievable. The achievable speed must be incorporated in the package and not the theoretical upper limit.
- If operators are advertising speeds above 3.6 Mbit/s in 3G HSAP or in any future technology, the majority (over 75 per cent) of towers should be capable of supplying the particular speed to the subscribers.
- Operators are allowed to advertise any realistic speed above 3.6 Mbit/s by location. In this case, maps and other genuine and correct information must be supplied to customers.

Source: ITU adapted from TRCSL, May 2011.

mobile-broadband operator Cell C recently started offering a range of new mobile-broadband packages, including up to 20 GB of data volume at speeds up to 21.6 Mbit/s, aimed at high-end users.[38]

Backbone infrastructure

To bring more people online at high speed, all the building blocks of broadband access need to be in place and adequate bandwidth must be offered for individuals, homes and businesses.

Sufficient access to international Internet bandwidth is a necessary requirement for delivering data-intensive applications and services through a high-speed Internet connection. A competitive bandwidth market, including the liberalization of international Internet gateways and the promotion of multiple international connections, is also important to guarantee reliable connectivity and to bring down ICT service prices that consumers pay.

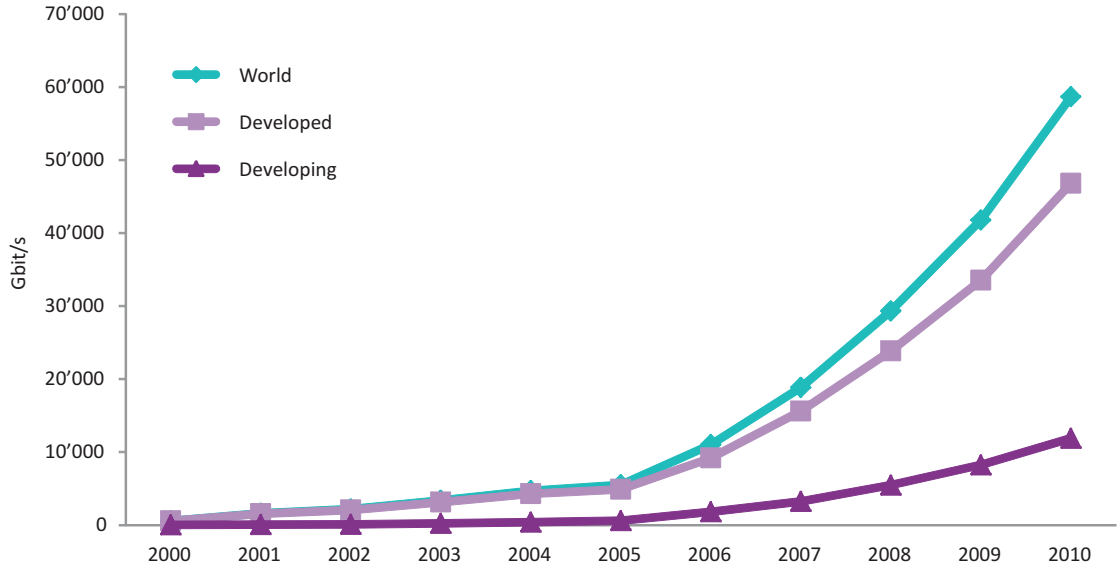
As highlighted in Chapter 2, international Internet bandwidth has increased tenfold over the last ten years and particularly between 2008 and 2010, when it almost doubled from 29 000 Gbit/s to 59 000 Gbit/s (Chart 4.7). Growth over that two-year period was somewhat stronger in developing countries (54 per cent) compared with developed countries (49 per cent), and between 2005 and 2010 developing countries increased their share of total international Internet bandwidth from 11 to 20 per cent.

A large number of new submarine cables have been built over the last two years, allowing many countries, for example in Africa, finally to join the information society by providing them with necessary international connectivity (Box 4.4).

A regional comparison of international Internet bandwidth per Internet user shows that, while all regions in the world have substantially increased Internet bandwidth per user since 2005, there are great disparities between regions. Europe, in particular, stands out for its very large amount of bandwidth capacity. In 2010, the average European Internet user enjoyed almost 80 000 bit/s of bandwidth, as against 1 000 bit/s for the average African Internet user. Internet users in Asia and the Pacific and the Arab States had on average around 11 000 bit/s at their disposal, compared with 24 000 and 27 000 in the Commonwealth of Independent States and the Americas, respectively. These figures point to an important bandwidth divide (Chart 4.8).

Annex 4 to this report provides national data on international Internet bandwidth per Internet user and shows that major differences exist not only between regions, but also between countries across the world. In 2010, international Internet bandwidth per Internet user ranged from a high of 683 000 bit/s per Internet user in Hong Kong (China) to 111 bit/s in Nigeria. While Canadian Internet users enjoy on average 54 000 bit/s, Mexico's and Peru's online population averages less than 10 000 bit/s. If we exclude Canada and the United States, international Internet bandwidth per Internet

Chart 4.7: Total international Internet bandwidth (in Gbit/s), by level of development, 2000-2010



Source: ITU World Telecommunication/ICT Indicators Database.

Box 4.4: Africa joins the global information society

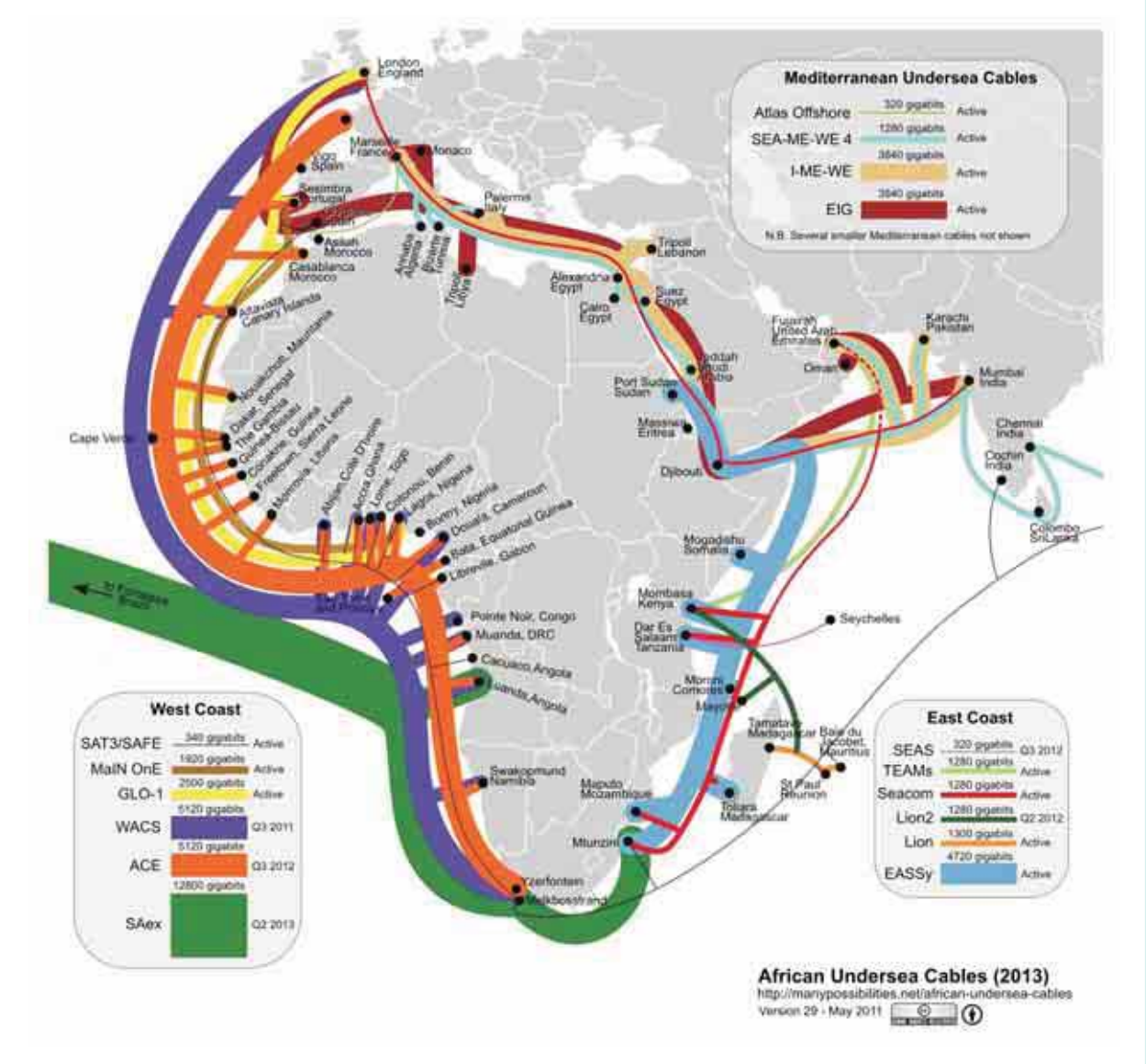
Africa is an excellent example of how international Internet bandwidth has helped many of the world's poorest nations to come a step closer to joining the information society. Between 2005 and 2010, international Internet bandwidth in Africa increased from 3 500 to 82 000 Mbit/s, with the greatest growth rate registered between 2009 and 2010. This is mainly the result of a number of new and competing submarine cables that went live in 2010. These include the 10 500 km EASSy cable, which connects Africa to the rest of the world and runs from South Africa to Sudan, with landing points in nine countries and further connections to at least ten landlocked African countries which thus no longer depend solely on satellite access to the Internet.[39] EASSy also provided Comoros with its first submarine fibre connection to the Internet, and the country's international Internet bandwidth increased from 15 Mbit/s in 2009 to 166 Mbit/s a year later.

New submarine cables bringing extra bandwidth to Africa include Main One, Glo One and LION. The West African Cable System (WACS), which will run from South Africa to the United Kingdom, with 15 landing stations on the west coast of Africa, is expected to go live in 2011.[40] Other major international connections such as ACE and SAex are planned over the next few years and will provide Africa's Internet users with increased capacities and speeds (see Figure Box 4.4).

New international Internet connectivity has not only increased bandwidth capacity in coastal countries but has effectively allowed Africa's landlocked developing countries to benefit through cross-border backhaul routes.[41] New national fibre backbone networks have further improved national connectivity and expanded terrestrial transmission networks on the African continent from 466 000 km in July 2009 to 646 000 km by the first quarter of 2011.[42] With this, it is estimated that, by early 2011, 4.4 per cent of Africa's population lived within a 25 km range of a submarine cable landing station, while 31 per cent lived within 25 km of an operational fibre node. Some African countries have managed to cover a very high proportion of their population. In Senegal, for example, over 25 per cent live within a 25 km range of the submarine cable which lands in Dakar, and Sonatel's fibre backone reaches 72 per cent of the population. In Gabon, Gabon Telecom's 3 000 km national fibre backbone is expected to bring some 80 per cent of the population within range (25 km) of the network, effectively bringing more and more people within reach of high-capacity backbones.[43]

Even though new submarine cables are providing African countries with access to more and cheaper international Internet bandwidth, Africa still lags far behind other regions in terms of the bandwidth available to Internet users. For Africans to benefit from the continent's increased connectivity, operators must acquire greater amounts of international Internet bandwidth, expand and improve core networks, and make network access infrastructure available, as well as affordable.

Figure Box 4.4: Africa's current and planned undersea cables

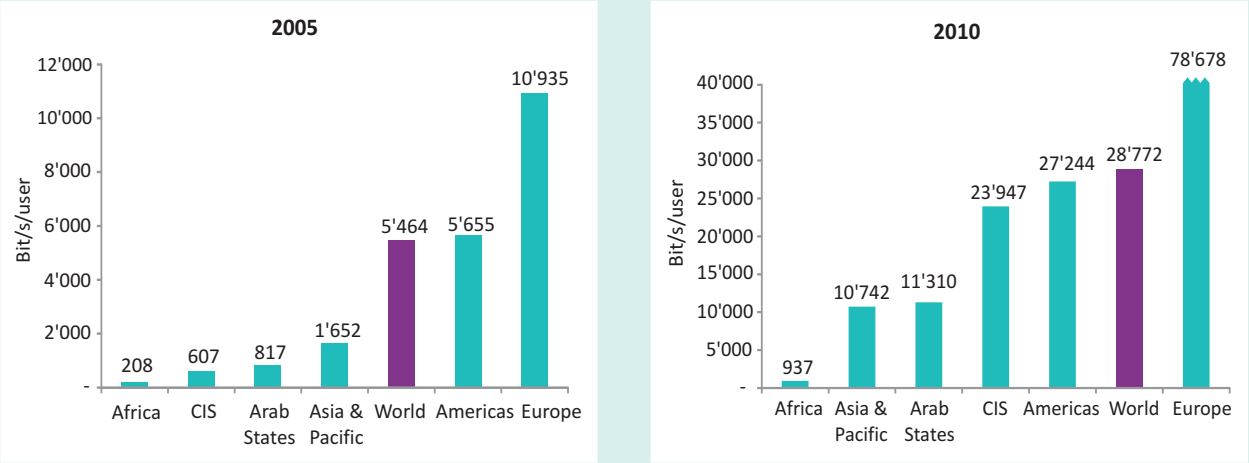


Source: Steve Song, http://manypossibilities.net/african-undersea-cables/.

user in the Americas drops from over 27 000, to less than 13 000 bit/s.

A shift from voice to data traffic has had important implications not only for international Internet connectivity but also in regard to the type of national backbone infrastructure needed. First of all, data traffic (created through increased use of the Internet) relies much more on international connectivity than voice traffic, but also requires a different kind of national backbone infrastructure, since Internet and particularly broadband networks call for high-capacity networks, typically based on fibre-optic cables. Many mobile operators which have effectively become Internet service providers by offering mobile-broadband services are playing an increasingly important role in expanding core networks.[44] Realizing the importance of a functioning and high-capacity national backbone, many developed and developing countries in the world have been reviewing their backbone strategies and ensuring an upgrade of national backbone networks. For example, Costa Rica's new National Broadband Strategy, which was unveiled in

Chart 4.8: International Internet bandwidth (bit/s per user), by region, 2005 and 2010



Source: ITU World Telecommunication/ICT Indicators database.

June 2011, includes plans to expand broadband networks to more rural areas of the country.[45] Other examples of countries that are either planning or already rolling out national broadband – primarily fibre-optic – networks are India,[46] Australia,[47] Thailand,[48] Poland,[49] Argentina[50] and Uruguay.[51] Many governments set concrete targets for backbone deployment, often measured in terms of km of fibre-optic cables, or in terms of the number of cities/localities or households connected.

According to ITU research, as at early 2011 over 70 countries worldwide have formulated a national broadband plan. While there is often a mix of access network technologies, many governments also include targets for deployment of fibre-to-the-home.

Growing and reliable backbone networks are not only allowing operators to transport an increasing amount of data and voice traffic, but are also creating new demand by reducing wholesale (backbone) and retail broadband prices and by providing operators with incentives to attract new customers so as to make their network investments profitable.

4.4 Conclusions and recommendations

The last five years have seen great progress in the spread and uptake of broadband technologies and services. Broadband Internet access is becoming more widely available, more affordable and faster. New undersea cables and an extension of national fibre core networks are increasing national and international Internet bandwidth, and a growing number of countries are deploying fibre directly to the home/business. More and more countries in the world have launched 3G services, and mobile broadband is addressing an important infrastructure barrier, and allowing more people to come online.

With the decline of narrowband (and based on the definition of broadband as a 265 kbit/s connection to the Internet), almost all Internet users are expected to be broadband users in the near future. At the same time, this chapter has shown that there are major differences in broadband connections, which vary not only in terms of the underlying technology but also in terms of the speed, capacity, price and quality of service they provide. For example, while mobile-broadband services help increase coverage and offer mobility, currently deployed mobile networks and providers usually only allow limited data access, at lower speeds, which makes them unsuitable for intensive users, and in particular for businesses and institutions. In many developing countries, fixed-broadband services are limited to urban areas, and unlimited and very high-speed Internet access remains very expensive. These disparities and issues need to be captured and addressed, in order to track the broadband divide and ensure that users are able to benefit from the potential of broadband.

Governments can take a number of steps to maximize the impact that broadband exerts, and to help understand and measure the broadband divide:

- Developing countries, in particular where fixed-broadband infrastructure is limited, need to identify broadband policies that leverage the potential of mobile (wireless) technologies. At very least, this means that governments that have not yet done so should allocate and assign 3G spectrum in order to allow operators to launch 3G services.

- To increase the capacity and speed of mobile-broadband services, governments need to efficiently allocate and regulate spectrum. User demand for mobile broadband is growing, and more spectrum is needed to meet this demand. Many governments have not yet allocated the 'digital dividend' spectrum in the 700-800 MHz band which can be freed up from the switchover to digital television, and in the 2.5-2.6 GHz band, which ITU has identified as the 3G extension band. Refarming the 900 MHz and 1 800 MHz spectrum, mainly used for 2G networks, can also help increase spectrum availability for mobile-broadband services.

- The limitations of mobile-broadband networks in terms of capacity and speed need to be taken into consideration, and fixed-broadband technologies, in particular fibre-optic networks, need to be deployed in order to build reliable backbone infrastructure and to cater for data-intensive users (businesses, organizations) and urban areas where Internet users are concentrated. Governments need to review the progress made in terms of privatizing and liberalizing all the building blocks of broadband Internet access, particularly in countries where prices are high and penetration rates remain low.

- Policy-makers need to create an enabling regulatory environment that fosters investment in both fixed- and mobile-broadband networks. To that end, all players (public and private) should face equal and predictable conditions, in order to stimulate competition and private investment in areas that are economically profitable. Governments should leverage the investment made by operators in lucrative areas to extend broadband coverage to other (usually rural and remote) areas, either by promoting public-private partnerships or by directly supporting strategic public investment in broadband networks. Public initiatives need to be carefully designed in order to avoid crowding out private investment. Governments should include the promotion of broadband in the specifications of universal service funds so as to bring high-speed Internet access to underserved areas and to connect more vulnerable groups.

- Governments should set clear targets and monitor progress. To this end, they need to measure developments in fixed- and mobile-broadband subscriptions, 3G-mobile coverage, international Internet bandwidth and fibre-optic backbone infrastructure.

- Policy-makers need to monitor and survey the quality of fixed- and mobile-broadband services, including the difference between advertised and real speeds. Regulators should encourage operators to provide consumers with clear information on coverage, speeds, prices (including data roaming charges) and quality of service, and set QoS standards.

Endnotes

1 Next-generation access (NGA) is a term commonly used to refer to FTTx deployments, as well as to the upgrade of cable networks to DOCSIS 3.0. According to the European Commission's definition, NGA networks are *"wired access networks which consist wholly or in part of optical elements and which are capable of delivering broadband access services with enhanced characteristics (such as higher throughput) as compared to those provided over already existing copper networks. In most cases NGAs are the result of an upgrade of an already existing copper or co-axial access network,"* see European Commission (2010).

2 See Booz & Company (2009), World Bank (2009), McKinsey (2009) and ITU (2011).

3 For more information on the Broadband Commission for Digital Development, see http://www.broadbandcommission.org/.

4 Although under Recommendation ITU-T I.113, broadband is defined as a transmission capacity that is faster than primary rate ISDN at 1.5 or 2.0 Mbit/s, ITU collects end-user data on the number of broadband subscriptions based on a definition of 256 kbit/s, which is in line with the OECD definition.

5 See Federal Communications Commission (2010).

6 ITU's Telecommunication Standardization Sector (ITU-T) is leading several standardization initiatives to promote the development of the Internet of Things. For more information, see http://www.itu.int/en/ITU-T/techwatch/Pages/internetofthings.aspx.

7 M2M figures sourced from Berg Insight, see http://www.berginsight.com/ShowReport.aspx?m_m=3&Id=112.

8 In early 2007, an article in the Economist suggested that it would take a long time for dial-up to die, see: http://www.economist.com/node/8766073. Since then, the number of broadband subscriptions has grown rapidly and dial-up is decreasing in most countries of the world.

9 See Czech Statistical Office (2011).

10 The term "mobile-broadband subscriptions" refers to standard mobile subscriptions with use of data communications at broadband speeds, and dedicated mobile data subscriptions. The term "wireless-broadband subscriptions" includes these subscriptions, plus terrestrial fixed wireless and satellite subscriptions. This distinction between 'wireless broadband' and 'mobile broadband' has been adopted by ITU based on the OECD definition of wireless broadband (OECD, 2010c).

11 According to most mobile operators, promotional offers *"are well below cost, which makes them unsustainable in the long run"*. See: http://www.balancingact-africa.com/news/en/issue-no-555/internet/test-of-article-with/en.

12 See the full text at: http://www.opencongress.org/bill/112-s732/text.

13 See Article 12 in the European Commission´s proposal for the new Roaming Regulation (European Commission, 2011a).

14 See, for example, the LirneAsia's Quality of Service Experience reports, which include latency, packet loss and jitter among the parameters analysed: http://lirneasia.net/wp-content/uploads/2009/03/broadband-qose-february-2009-v2.pdf.

15 In a recent trial in the United Kingdom, Virgin Media has been capable of reaching download speeds of up to 1.5 Gbit/s through DOCSIS 3.0 cable technologies. This gives an example of the potential speeds that can be delivered through DOCSIS 3.0. For more details, see: http://mediacentre.virginmedia.com/Stories/Virgin-Media-delivers-world-s-fastest-cable-broadband-2131.aspx.

16 See Communications Commission of Kenya (2010) and Agence Nationale de Réglementation des Télécommunications du Maroc (2011).

17 See Point Topic (2011).

18 "Wireless-broadband subscriptions" refer to standard mobile and dedicated data subscriptions (both of which are included in the ITU term "mobile broadband") and to fixed terrestrial and satellite subscriptions. This distinction between 'wireless broadband' and 'mobile broadband' has been adopted by ITU based on the OECD definition of wireless broadband (OECD, 2010c).

19 See, for example http://www.businessinsider.com/spectrum-crisis-2013-2011-5 and http://www.cellular-news.com/story/49594.php?s=h.

20 See http://www.nytimes.com/2009/09/03/technology/companies/03att.html.

21 For more information on the digital dividend and ITU's work in this area, see: http://www.itu.int/net/itunews/issues/2010/01/27.aspx and http://www.itu.int/net/itunews/issues/2010/08/34.aspx.

22 See http://www.tmcnet.com/ngnmag/features/articles/160918-cellular-carriers-onboard-with-wi-fi-offload.htm.

23 See, for example, the use of multiband digital repeaters in Male, the capital of the Maldives, at: http://www.cellular-news.com/story/49664.php?s=h, as well as the UK regulator Ofcom's ruling on spectrum trading, at: http://media.ofcom.org.uk/2011/06/20/mobile-spectrum-trading-given-go-ahead/. Secondary markets for spectrum trading are encouraged at a European level by Article 9b of the EU Better Regulation Directive (European Commission, 2009b). See also Onyeije Consulting LLC (2011).

24 See http://www.macworld.com/article/160639/2011/06/verizon_unlimited_data.html.

25 http://wirelessfederation.com/news/84746-korea-telecom-no-longer-to-offer-unlimited-data-tariffs-south-korea/.

26 For a detailed analysis of fixed broadband penetration and speeds in Portugal compared to other EU countries, see European Commission (2011b).

27 See recent data from ANACOM, the Portuguese regulator: http://www.anacom.pt/render.jsp?contentId=1072290.

28 See www.oecd.org/sti/ict/broadband.

[29] To a much higher extent than broadband access technologies based on cable and fibre, ADSL is affected by the distance between the end user and the exchange, with the speed decreasing as distance increases.

[30] See http://media.ofcom.org.uk/2011/03/02/average-broadband-speed-is-still-less-than-half-advertised-speed/ and http://transition.fcc.gov/Daily_Releases/Daily_Business/2010/db0813/DOC-300902A1.pdf.

[31] See Telecommunications Regulatory Authority of Bahrain (2011).

[32] In Thailand, a recent survey carried out by the Telecommunications Consumer Protection Institute (TCI), which operates under the National Telecommunications Commission (NTC), and the Thai Webmaster Association showed that on average customers can download at 71 per cent of the advertised broadband speeds and upload at only 10 per cent. See: http://www.telecompaper.com/news/thai-customers-baffled-by-isp-use-of-up-to-in-speed-claims. The Federal Communications Commission in the United States has a consumer broadband webpage where tests can be run to test speed, latency and jitter. See: http://www.broadband.gov/qualitytest/about/.

[33] To measure more than just speed and better understand the quality of services, LirneAsia has developed a Broadband Quality of Service Experience (QoSE) benchmarking methodology, and has tested fixed- and mobile-broadband services in a number of Asian countries and compared results with the United States and Canada. The measure is based on different technical criteria (including speed, packet loss and availability) and helps to objectively measure the quality of a broadband connection. It found that major differences existed not only in terms of the advertised and actual speeds but also in other QoS measures, see: http://lirneasia.net/wp-content/uploads/2009/03/broadband-qose-february-2009-v2.pdf. Also, Ookla's Net Index provides average download speeds for 170 economies (June 2011). See: http://www.netindex.com/download/allcountries. Akamai compiles performance data for a number of economies. See: "Network Performance Comparison" at: http://www.akamai.com/html/technology/dataviz2.html.

[34] See the EGTI online discussion forum at: http://www.itu.int/ITU-D/ict/ExpertGroup/default_group.asp.

[35] See http://wirelessfederation.com/news/74333-ntc-to-launch-broadband-test-equipment-philippines/.

[36] See http://eshoo.house.gov/index.php?option=com_content&view=article&id=1009:rep-eshoo-introduces-legislation-to-improve-consumer-information-on-4g&catid=51:2011-press-releases.

[37] See Ofcom (2011).

[38] See http://www.telecompaper.com/news/cell-c-offers-bigger-mobile-broadband-bundles.

[39] See http://www.eassy.org/.

[40] See http://www.itu.int/net/itunews/issues/2010/08/38.aspx.

[41] See, for example, Maroc Telecom's project to build a regional fibre-optic network: http://www.telegeography.com/products/commsupdate/articles/2010/02/26/maroc-telecoms-first-phase-of-regional-fibre-backbone-60-complete/.

[42] See http://www.africabandwidthmaps.com/?p=2058.

[43] See http://www.africabandwidthmaps.com/?p=1735.

[44] See, for example, Venezuela's mobile operator Digicel's fibre optic plans: http://www.telegeography.com/products/commsupdate/articles/2011/06/22/digitels-fibre-expanding/.

[45] See: http://www.casapres.go.cr/web/index.php?option=com_content&view=article&id=903:acuerdo-social-digital-hacia-una-sociedad-digital-inclusiva&catid=57&Itemid=92.

[46] See Telecom Regulatory Authority of India (2011).

[47] See Parliament of Australia (2011).

[48] http://www.futuregov.asia/articles/2011/feb/21/thailand-lay-down-strategies-connect-government/.

[49] See Ministry of Regional Development of Poland and European Commission (2007).

[50] More information on the different public initiatives within the "Plan Argentina Conectada" related to fibre-optic deployment is available at Presidencia de la Nación Argentina (2010), and on the website: http://www.argentinaconectada.gob.ar/.

[51] See http://www.antel.com.uy/antel/institucional/sala-de-prensa/eventos/eventos-2010/importantes-anuncios-al-presentar-la-nueva-estrategia-de-la-empresa.

Chapter 5. Increasing Internet use: the role of education, income, gender, age and location

5.1 Introduction

The previous chapters of this report have provided important insights into the development of various ICT infrastructures and technologies, including broadband Internet, as well as countries' progress in improving them. Much less is known about the *usage* and the *users* of those technologies. Answers to questions such as who is on the Internet (and who is not), and what they do online, are crucial for policy-makers, businesses, organizations and anyone wanting to reach out to communicate and interact with potential customers, citizens, members and other users of new technologies. Detailed information on the age, the gender and the income levels of Internet users, for example, is not only vital for companies designing their online marketing and e-commerce strategies, but is also important for governments seeking to adapt e-government applications and services. Information on Internet users can moreover point to potential barriers that prevent or discourage people from going online, and thereby help policy-makers address and overcome them.

Most countries in the world have detailed and historic supply-side ICT data, relating to aspects such as telecommunication infrastructure, tariffs or subscriptions to services. There are by contrast relatively little demand-side ICT data available, on aspects such as usage of ICTs by individuals, households, businesses, governments, institutions, etc. Nevertheless, an increasing number of countries are now collecting data on ICT use through national surveys, and are producing more reliable and comparable ICT user data, especially concerning individuals and business use. In view of the growing number of Internet users in the world, and the potential impact of Internet use, more attention is now being given to the users of the technologies. In particular, ITU has focused its research on the use of ICTs by households and individuals, while other organizations have been concentrating more on other important users and drivers of ICTs, such as businesses, which are not covered in this report.[1]

Thus, the research reported in this chapter focuses on use of the Internet by individuals. As the chapter will show, the higher rates of usage by people with relatively higher incomes and higher levels of education, in particular in developing countries, suggest that there is ample scope for increasing Internet usage by addressing the skills barriers to Internet use and affordability of the Internet. Both these issues are covered in detail in Chapters 2 and 3 of this publication. The ICT Development Index (IDI) recognizes the role that skills play in the development of the information society through the inclusion of the skills sub-index, and the ICT Price Basket (IPB) provides an important source for understanding the relative price of Internet access.

The observation that Internet use is particularly popular among younger generations suggests that there is great potential for bringing more people online in developing countries, where populations tend to be younger than in developed countries. Governments can exploit the fact that younger people tend to go online easily because the Internet offers relevant content, in the form of educational material and information, and recently largely through social-networking sites and other user-created content. Available data suggest that Internet use tends to be more common among people who are currently in

Chart 5.1: Percentage of countries collecting data on Internet usage, total and by region

Note: Refers to countries which have collected data on the number of Internet users through official national household surveys.
Source: ITU World Telecommunication/ICT Indicators database.

school, so providing Internet access in schools and improving school enrolment may therefore greatly increase Internet take-up in developing countries.[2]

Whereas people with higher incomes tend to use the Internet at home or work, public Internet access facilities play an important role for low-income groups. This is especially true of commercial Internet access facilities (e.g. Internet cafés), which as analysed in this chapter, are the most common location for Internet use in Africa and are widely used in Latin America.

This chapter closely examines and compares Internet user characteristics and behaviour in developed and developing countries, with particular emphasis on Africa. Based on the latest available data, it presents differences in Internet usage according to educational levels, income, location (urban/rural areas), gender and age, and looks at other relevant parameters such as computer or mobile-telephone use. Lastly, it analyses the main activities people engage in on the Internet, with special focus on social networking. Based on the analysis of the data, recommendations are made on how to bridge the digital divide that separates those who are online from those who are not.

As previously mentioned, data on ICT usage are limited, and therefore the analysis in this chapter relies on a limited but representative group of countries that have ICT user statistics. Data were obtained from countries based on national household surveys conducted between 2008 and 2010, and are in line with the core ICT indicators that have been internationally agreed upon under the framework of the *Partnership on Measuring ICT for Development*.[3] Since 2005, ITU has been compiling demand-side data collected through household surveys, and an increasing number of countries are reporting them. Despite the progress made, data are still limited for some regions (Chart 5.1), and full harmonization is not always possible, which makes comparisons and benchmarking challenging (see Annex 3 for more details on the methodological issues of demand-side data). To fill some of the gaps, data collected by ITU have been complemented by data from household surveys conducted by Research ICT Africa (RIA)[4] in 17 African countries at the end of 2007 and beginning of 2008.

5.2 From voice to data traffic

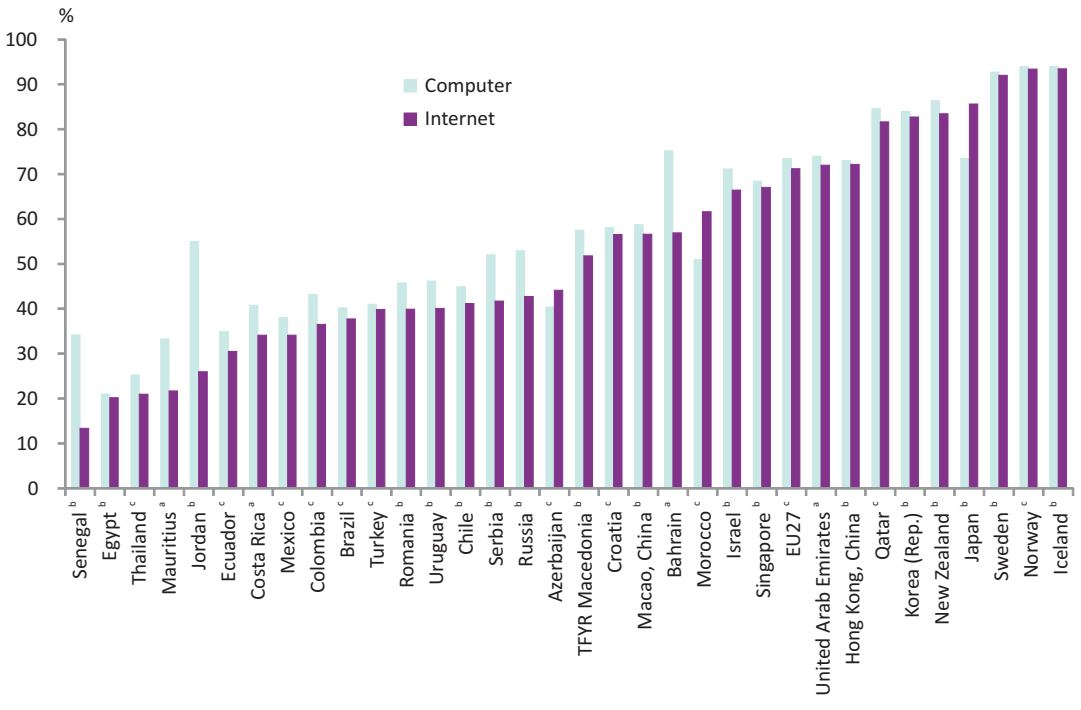
It is useful to compare use of the Internet with use of other key ICTs, in particular computers[5] and mobile-cellular telephones, so as to understand possible bottlenecks constraining the spread of Internet use, and identify the potential Internet user market. Official data on the level

of computer usage are particularly interesting, since Internet and computer use are often linked, and because computer usage provides an indication of ICT skills in a country. Mobile penetration levels, on the other hand, do not necessarily provide any indication in regard to ICT skills levels (since fewer skills are needed to use a mobile phone than to use a computer or the Internet), but offer some indication of the demand for ICTs.

In high-income countries, computer and Internet user penetration rates are noticeably similar. In many countries, including Iceland, Norway, Sweden and the Republic of Korea, there is only a relatively small difference between the percentage of the population using a computer and using the Internet (Chart 5.2). In lower-income countries, the discrepancy between computer and Internet user penetration is often greater. In Jordan, for example, around 55 per cent of people used a computer in 2009, compared with only 26 per cent who used the Internet. In Senegal, computer user penetration in 2009 was more than twice as high as Internet user penetration. In these countries, policy-makers should try to identify bottlenecks to higher Internet user penetration levels, which may include high prices for Internet access, lack of awareness of the benefits of using the Internet, or lack of relevant content. Since more people are using computers than the Internet, ICT skills do not seem to be the main barrier, at least not for those already using a computer.

In Azerbaijan, Morocco and Japan, more people use the Internet than use computers, which can be explained by the prevalence of Internet access through mobile devices. In Japan, for instance, 77 per cent of all Internet users use the mobile phone and Personal Digital Assistants to access the Internet. As smartphone penetration increases in developing countries – where ICT infrastructure has been a major impediment to higher ICT levels – we can expect similar developments in the near future, with

Chart 5.2: Percentage of individuals aged 15 to 74* using Internet and computer, latest available year



Notes: [a] 2008; [b] 2009; [c] 2010.
* For most countries that collect ICT usage data broken down by age, information was harmonized to compare (only) the age group 15-74. Exceptions are Colombia (5+), Morocco (12-65) and the United Arab Emirates (15+), as well as some countries where the lower limit of the age range is higher than 15 years of age (see Annex Table 3.1).
EU27 refers to the 27 members of the European Union.
Source: ITU World Telecommunication/ICT Indicators database.

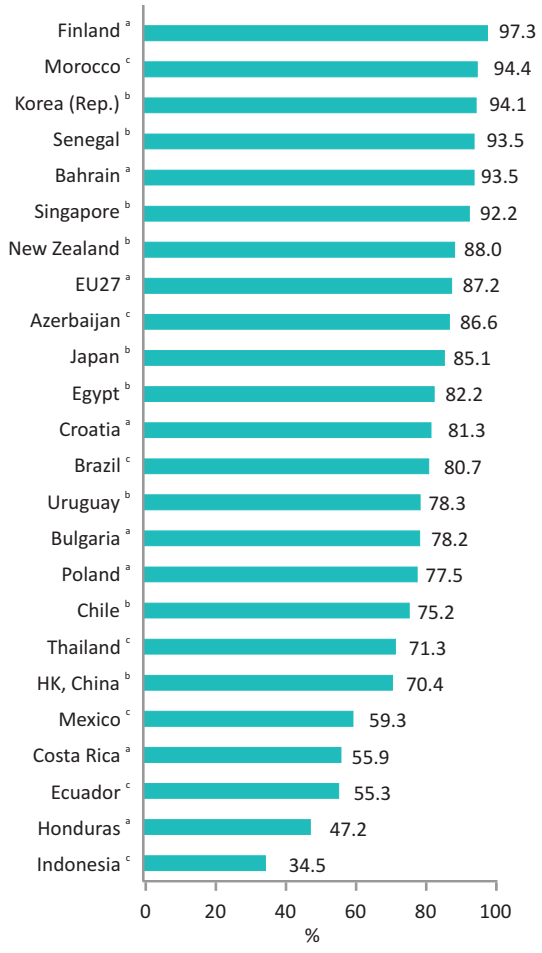
more people accessing the Internet via a mobile phone than via a computer. This also implies that, in the near future, Internet user penetration levels are likely to exceed computer usage levels.

Since a growing number of users are accessing the Internet through a mobile phone, an analysis of available data on mobile usage can provide further insights into present and future Internet use. Data show that both developed and developing countries have reached relatively high levels of mobile-phone use (Charts 5.3 and 5.4). Even in some of the poorest countries in Africa, including Benin and Côte d'Ivoire, mobile-phone ownership in 2007 had already exceeded 30 per cent.

It is clear that mobile-phone usage is much higher than Internet usage in both developed and developing countries. Within the European Union, for example, even the countries with the lowest mobile-phone user penetration, Portugal and Romania, exceeded 77 per cent in 2008,[6] when Internet user penetration levels stood at 44 and 32 per cent, respectively. In a number of developing countries, including Egypt, Senegal and Thailand, where fewer than one in four people used the Internet, mobile usage rates exceeded 70 per cent (Chart 5.2 and Chart 5.3).

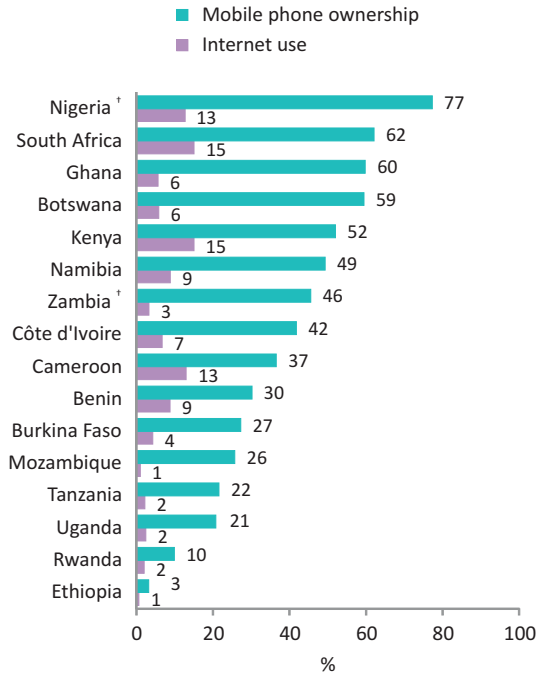
In those developing countries where Internet user penetration levels remain low because of a lack of fixed Internet

Chart 5.3: Percentage of individuals aged 15 to 74* using a mobile phone, latest available year



Note: [a] 2008; [b] 2009; [c] 2010.
* For most countries that collect ICT usage data broken down by age, information was harmonized to compare (only) the age group 15-74. Exceptions are Morocco (12-65) and some countries where the lower limit of the age range is higher than 15 years of age (see Annex Table 3.1).
Source: ITU World Telecommunication/ICT Indicators database.

Chart 5.4: Percentage of individuals aged 16 or older owning a mobile phone and using the Internet, selected African countries, 2007/2008*



Note: * Surveys were conducted between August 2007 and April 2008 (most countries having finished already in 2007).
† Not nationally representative, but extrapolation was adjusted to reflect the national level.
Source: Research ICT Africa (RIA).

infrastructure, there is enormous potential to expand the use of the Internet via mobile networks and phones, particularly as competition increases and prices decline. An additional barrier to increased Internet use through mobile phones which needs to be addressed is taxation of handsets. By reducing handset taxation in developing countries with heavy taxation regimes, mobile-broadband adoption could be further promoted (Katz *et al.*, 2010).

A recent example of good practices is Kenya, where a combination of large price reductions and 3G rollout has resulted in significant increases in mobile Internet penetration (see also Box 2.4 in Chapter 2). The number of mobile Internet subscriptions grew from about 3.2 million at the end of September 2010 to nearly 4.7 million at the end of 2010 – an increase of 46.8 per cent in the space of just three months.[7] Thanks to this, the gap between Internet and mobile-phone use has been narrowed, and the Communications Commission of Kenya estimates that, by end 2010, over one-quarter of Kenyans were using the Internet, as against 15 per cent in 2008.

Comparing Internet usage in the developed world with that in the developing world, it is clear that the digital divide is to a large extent an Internet divide: whereas demand for voice communication has largely been addressed through mobile telephony, demand for data services is the current major challenge.

5.3 Education matters

Data on Internet use by level of education show that Internet usage is much higher among people with higher levels of education. A higher educational level generally also implies higher income and greater computer literacy, both of which are important factors that drive Internet use.

Chart 5.5 shows Internet usage rates according to level of education attained, for a number of developed and developing economies. In all countries, without exception, people having attained higher (secondary or tertiary) educational levels use the Internet more than those with a lower level of education. People with a tertiary education are particularly likely to be online, with Internet user penetration rates in this group exceeding 50 per cent in most countries for which data are available. In many developing countries, including Brazil and Senegal, over 80 per cent of people with a tertiary education are online. Internet use among people with upper secondary educational levels are also relatively high, persistently exceeding national averages. Only in countries with very high overall Internet user penetration levels, such as Norway and Iceland, are Internet use levels similar across all levels of education.

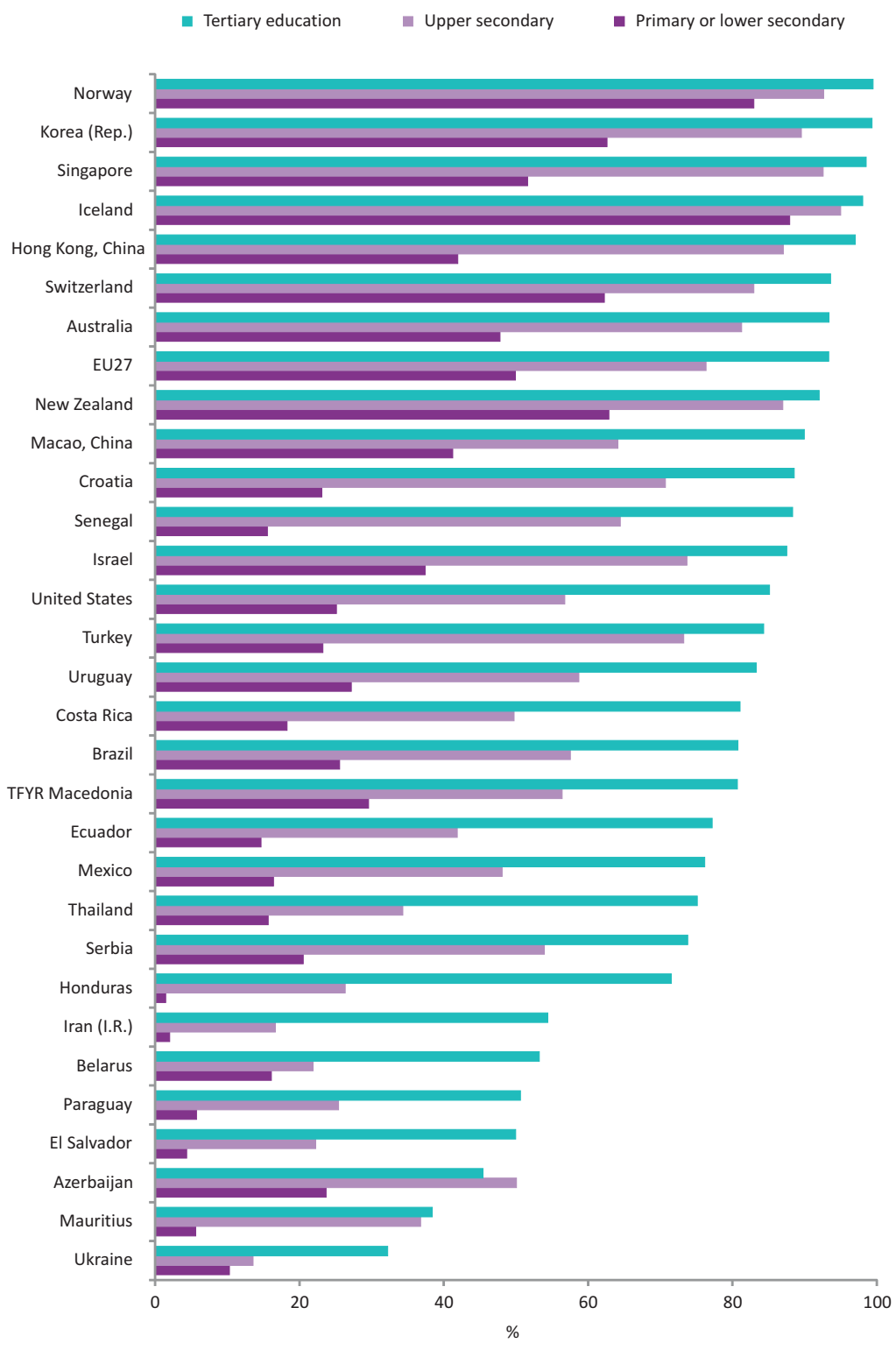
Data suggest that in some developing countries the differences in Internet usage between more and less educated people are even more marked. Indeed, they are striking in a number of countries, such as for instance the Islamic Republic of Iran, Honduras and Paraguay, where over 50 per cent of people having attained tertiary education used the Internet, as against fewer than six per cent of those with primary or lower secondary education. On the other hand, and in addition to the cases of Norway and Iceland already cited, more than 60 per cent of persons having attained primary or lower secondary education were Internet users in the Republic of Korea, Switzerland and New Zealand, and more than 90 per cent of those having attained tertiary education.

Overall, it is important to keep in mind that, in developing countries, the proportion of adults reaching high education levels is relatively low. In Thailand and Brazil, for example, only around ten per cent of the adult population have completed tertiary education. The proportions are even lower in lower-income countries such as Senegal or El Salvador, where only about five per cent of the adult population have completed that level of education. In contrast, in countries such as New Zealand or Norway, this proportion is around 39 per cent.[8]

Additionally, the distribution of incomes seems to play a role, and the difference in Internet usage rates between people with different educational levels appears to be particularly pronounced in countries where incomes are less equally distributed. In El Salvador, the proportion of Internet users among people with tertiary education in 2009 was 11 times higher than among people with primary or lower secondary education. While El Salvador had a Gini coefficient of 49.7 in 2009, Norway, where Internet usage levels vary relatively little between people with different levels of education, had a Gini coefficient of 25.8, indicating a relatively equal distribution of incomes.[9]

Available data for Africa suggest that in this region there is a very strong link between level of education and level of Internet use. Hardly any Africans with only a primary education were using the Internet in 2007/2008, but the majority of those with a tertiary education were online (Chart 5.6). At the same time, there are quite considerable differences in Internet user penetration rates even among

Chart 5.5: Percentage of individuals* using the Internet, by highest educational level attained, latest available year (2008-2010)



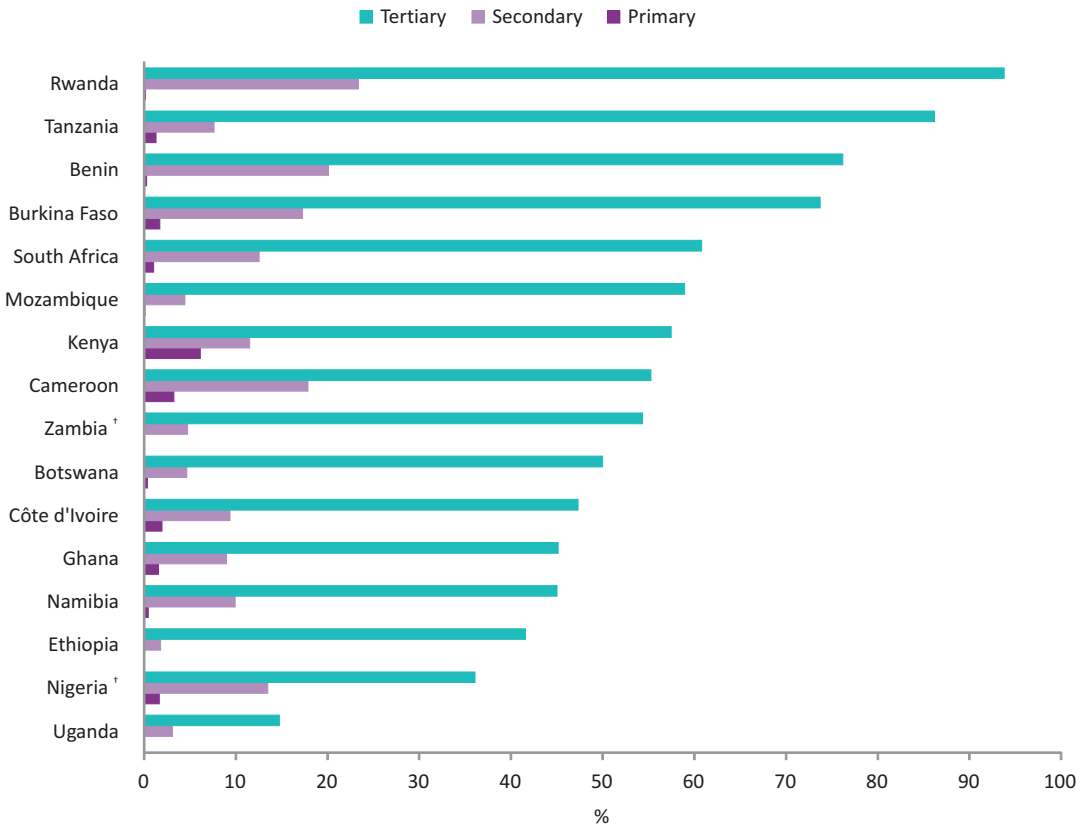
Note: * Age scope varies across countries, see Annex Table 3.1.
Source: ITU World Telecommunication/ICT Indicators database.

the more highly educated population, ranging from over 90 per cent in Rwanda to less than 20 per cent in Uganda. Rwanda has made ICTs a key development priority, and the country has a number of projects to connect schools and universities, and to equip students with computers and laptops.[10] These efforts contribute to bringing more students online, even if the overall Internet user penetration rate in Rwanda remains very low (at just over three per cent in 2007, and less than eight per cent by 2010). Another major barrier in the country that prevents bringing more people online is the low school attendance: gross enrolment ratios[11] in Rwanda remained very low in 2010, at 26.7 and 4.8 per cent, respectively, for secondary and tertiary education.

Closely related with differences in levels of education, income inequalities are also a major factor for Internet uptake.[12] Table 5.1, which includes information on income levels in Africa, suggests that one of the key determinants of Internet access is income (or the price of ICTs). In Botswana, for example, only two per cent of the first three quartiles in terms of disposable income access the Internet. In comparison, for people earning in the top quartile, Internet use stood at 19 per cent. Comparisons between countries show that this finding holds true for all countries surveyed in Africa.

Indeed, data on income and educational levels in Africa point to a strong link between how much money people earn and how educated they are. People with tertiary education have a much higher monthly income compared with those who only have a secondary or primary education. Data from RIA (Chart 5.7) show that in South Africa and Namibia, for instance, people with a tertiary education earn more than ten times as much as people with a first

Chart 5.6: Percentage of individuals aged 16 or older using the Internet, by highest educational level attained, selected African countries, 2007/2008*



Note: * Surveys were conducted between August 2007 and April 2008 (most countries having finished already in 2007).
† Not nationally representative, but extrapolation was adjusted to reflect the national level.
Source: Research ICT Africa (RIA).

Table 5.1: Percentage of individuals aged 16 and older using the Internet, by income, selected African countries, 2007/2008*

	Lowest three disposable income quartiles	Top disposable income quartile
Benin	6	16
Botswana	2	19
Burkina Faso	2	10
Cameroon	10	25
Côte d'Ivoire	4	14
Ethiopia	0	3
Ghana	5	8
Kenya	9	32
Mozambique	1	3
Namibia	4	25
Nigeria †	10	22
Rwanda	1	4
Senegal	9	14
South Africa	7	38
Tanzania	1	4
Uganda	1	7
Zambia †	1	13

Note: * Surveys were conducted between August 2007 and April 2008 (most countries having finished already in 2007).
† Not nationally representative, but extrapolation was adjusted to reflect the national level.
Source: Research ICT Africa (RIA).

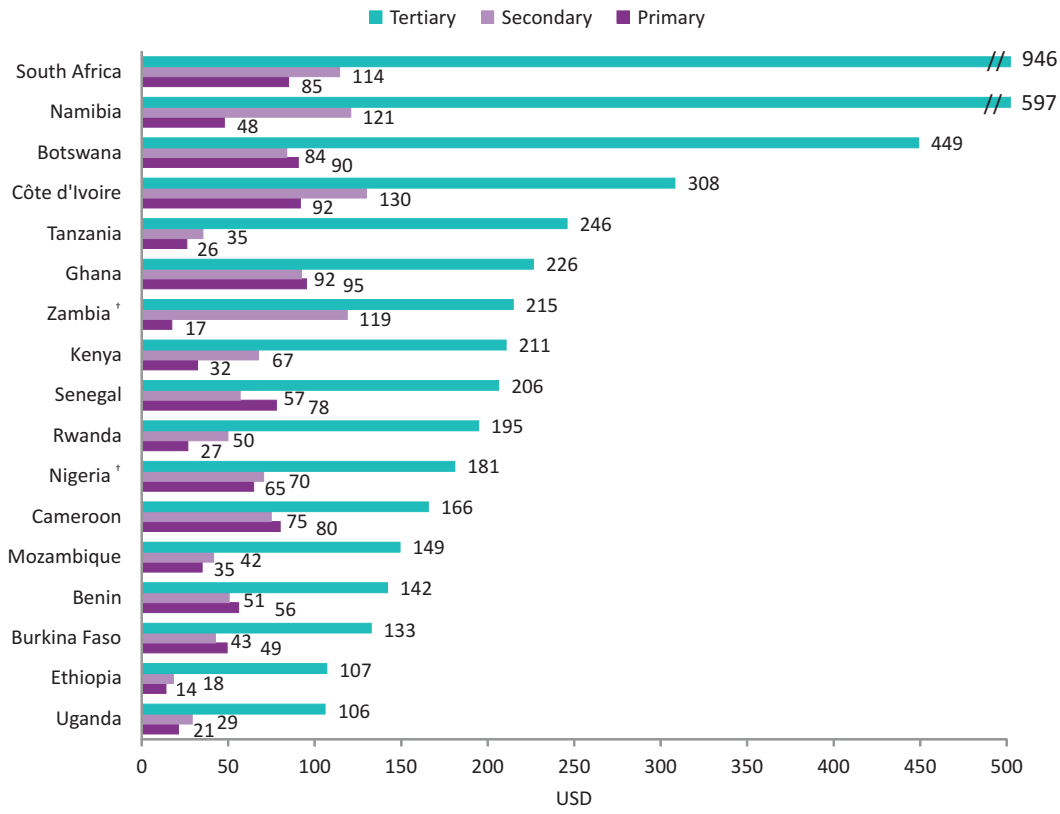
degree. In all other African countries for which data are available, a tertiary education also clearly pays off, and allows people to earn at least twice as much (and often many times more) as people with a primary or secondary education. So far, Internet use in Africa seems to remain the preserve of the highly educated and wealthy elite, in other words those who can afford to use the Internet and who have the necessary skills to do so.

Data from developed countries – where educational levels seem to be less decisive for Internet use – suggest that here, too, affordability plays a key role in increasing Internet use. One of the reasons for the Internet being used more evenly across educational categories in developed countries is that Internet access and usage is cheaper in both absolute and relative terms. At end 2010, unlimited high-speed broadband access in the United States, the United Kingdom and Japan cost less than USD 30 per month, compared with Namibia where it cost over USD 90 for an unlimited 256 kbit/s ADSL.

Based on these findings, there are a number of key trends in the Internet market in developing countries that are likely to narrow the Internet user divide in the short and medium term. First, the spread of mobile Internet access, including mobile-broadband access, will not only address important infrastructure barriers but also help overcome the skills barrier by allowing people to access the Internet via their handsets. The skills needed to use a mobile phone are relatively simple, and since many people today already own and use a mobile phone they have acquired some basic ICT skills, which will make it easier for them to go online.

Second, more and more operators are providing prepaid mobile (broadband) Internet services, which can lower the income barrier. Like in the mobile-cellular market, prepaid Internet services have been introduced so as to allow low-income customers to purchase a limited amount of time or data volumes to access the Internet. That way, people can recharge their airtime to use the

Chart 5.7: Average monthly income of individuals aged 16 or older, by highest educational level attained, selected African countries, 2007/2008*, USD



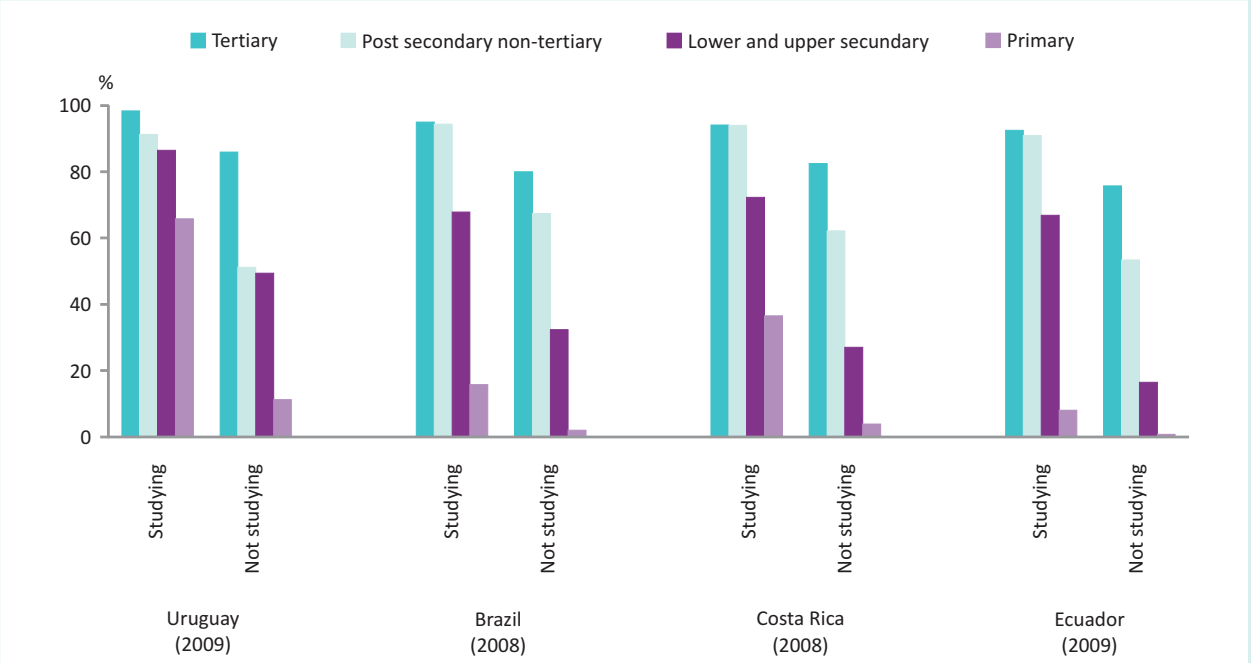
Note: * Surveys were conducted between August 2007 and April 2008 (most countries having finished already in 2007).
† Not nationally representative, but extrapolation was adjusted to reflect the national level.
Source: Research ICT Africa (RIA).

Internet whenever they have money available. Electricity is also less of an obstacle for mobile Internet use, since the mobile phone can easily be recharged elsewhere than at home, giving users more flexibility.

It is also interesting to look at Internet use among students, i.e. people who are currently enrolled at higher-education institutions (e.g. universities) or attending school. Available data from selected Latin American countries show that Internet use levels are generally higher among young people attending school or university than among those who have already earned a degree (Chart 5.8). In Uruguay in 2009, for example, over 65 per cent of primary students were using the Internet, a higher proportion than among Uruguayans holding a secondary or post-secondary degree. This is linked with the Ceibal project, a plan put in place by the government whereby every pupil and every teacher in all public schools received for free a laptop computer which can be connected to the Internet, at least while in school.[13] In Brazil, around 90 per cent of people enrolled in tertiary and post-secondary studies were online in 2008, while the country's overall Internet user penetration stood at below 35 per cent.

The reason why a very large proportion of people who are currently studying or enrolled at university are Internet users could be that through their studies they have (perhaps free) access to the Internet. At the same time, students are also more likely to find relevant and useful content on the Internet, including for their studies. Furthermore, they are in a learning environment, which will help them to acquire the necessary skills to use the Internet.

Chart 5.8: Percentage of individuals using the Internet, by highest education attained or currently studying, selected Latin American countries, latest available year



Source: ITU calculation based on OSILAC, ECLAC: http://www.eclac.cl/tic/flash/default.asp?idioma=IN.

Further, the lowest Internet user penetration levels are found among those who are not at school and have only completed primary education. People at primary and secondary school are more likely to be online than those who reached those levels of education but are not studying any more. Assuming that people will not stop using the Internet once they have been online, this finding suggests that those currently enrolled at school and university are likely to be future Internet users, too. This in turn implies that Internet user penetration rates are destined to increase, particularly in countries that manage to enrol a large part of their young population and ensure that their educational institutions provide students with Internet access.

5.4 The gender divide

Women's access to and use of ICTs can be seen as a means of overcoming gender inequality, in areas such as access to jobs, education or equal wages. At the same time, due to unequal access to the resources that appear to enhance ICT access and usage, women generally have less access to ICTs. Available data from Internet user surveys show that there is still a higher percentage of men than women using the Internet, in both developed and developing countries. Out of all countries with available data, only in New Zealand and Thailand do proportionally more women than men use the Internet, and in these cases the difference is minor (Table 5.2). Marginal differences in favour of men can be seen in Australia, Uruguay, Brazil and Honduras. Quite large differences between the numbers of women and men using the Internet are observed in a number of developing countries, including Azerbaijan, Turkey, Russia and Senegal. Gender-related differences in Internet use do not seem to be tied to development levels, insofar as there is also a relatively large difference, for instance, in Switzerland, where 92 per cent of men use the Internet compared with 86 per cent of women. In the European Union, there is also a clear gender divide, with 74 per cent of men and 69 per cent of women using the Internet.

One explanation for the fact that more men than women are online may be that, in many countries, women earn less and do not have equal access to education.[14] Indeed,

Table 5.2: The gender divide: percentage of women and men aged 15 to 74 using the Internet, latest available year

Country	Reference Year	Women	Men	Difference women - men
Australia	2009	78.2	78.7	-0.4
Azerbaijan	2010	35.5	53.4	-17.9
Belarus	2010	32.0	36.3	-4.3
Brazil	2010	37.5	38.0	-0.5
Chile	2009	39.1	43.5	-4.4
Costa Rica	2008	32.4	35.9	-3.5
Ecuador	2010	29.4	31.6	-2.2
Egypt	2009	17.6	22.8	-5.2
El Salvador	2009	11.6	14.0	-2.4
EU27	2010	68.5	74.0	-5.4
Honduras	2008	13.1	13.1	-0.1
Hong Kong, China	2009	69.2	75.3	-6.2
Iran (I.R.)	2009	11.7	15.4	-3.7
Israel	2009	64.2	68.7	-4.5
Japan	2009	83.8	87.5	-3.7
Korea (Rep.)	2009	78.5	86.9	-8.4
Macao, China	2009	53.7	59.9	-6.1
Mauritius	2008	20.1	23.2	-3.1
Mexico	2010	32.1	36.3	-4.2
New Zealand	2009	84.2	82.8	1.4
Paraguay	2008	14.6	15.9	-1.3
Peru	2008	27.8	35.5	-7.7
Qatar	2010	77.8	83.6	-5.7
Russia	2009	38.8	47.8	-9.0
Senegal	2009	9.3	18.3	-9.0
Singapore	2009	63.3	71.4	-8.1
Switzerland	2010	86.0	91.9	-5.9
Thailand	2010	21.6	20.3	1.3
Turkey	2010	29.9	50.1	-20.2
Ukraine	2009	16.8	19.6	-2.7
Uruguay	2009	39.7	40.5	-0.9

Source: ITU World Telecommunication/ICT Indicators database.

some studies confirm that women often tend to earn less than men even when they have similar qualifications and work experience (Milek *et al.*, 2010).[15] Lower income levels mean that Internet access is less affordable for women. Additionally, lower educational levels among women would also lead to income differences between the genders.

Examples from Africa (Table 5.3) suggest that a major barrier to bringing more people online is lack of awareness of the existence of the Internet (and, consequently, what it offers), and fewer women than men in Africa know about the Internet. In Botswana and Senegal, for example, 2007 data show that men were much more aware of the Internet and that this was correlated with higher Internet user penetration rates. In Cameroon, where women were as aware (or more aware) of the Internet as men, the gender divide in terms of Internet use was marginal. While lack of awareness can indeed be an important barrier to Internet use, other factors, including lower income and educational levels, are likely to play an important role, too.

Table 5.3: Knowing about the Internet and using it: the gender divide, 2007/2008*

Country	Individuals aged 16 and over who know what the Internet is (%)		Individuals aged 16 and over who use the Internet (%)	
	Men**	Women***	Men**	Women***
Benin	27.8	14.6	11.9	5.3
Botswana	30.8	18.1	10.1	4.0
Burkina Faso	8.9	9.8	3.7	6.4
Cameroon	34.5	44.6	13.1	12.8
Côte d'Ivoire	19.3	13.4	8.1	4.0
Ethiopia	10.8	6.5	0.9	0.4
Ghana	29.7	23.4	8.1	3.2
Kenya	39.9	27.8	21.1	11.5
Mozambique	3.8	3.7	1.0	0.9
Namibia	30.4	24.2	11.2	7.2
Nigeria †	40.7	34.9	16.4	7.6
Rwanda	6.4	7.0	1.8	2.1
Senegal	56.5	35.8	14.4	6.7
South Africa	56.2	47.0	20.4	11.3
Tanzania	9.9	8.0	1.9	2.3
Uganda	9.4	3.5	3.7	1.1
Zambia †	49.2	39.6	5.6	1.7

Note: * Surveys were conducted between August 2007 and April 2008 (most countries having finished already in 2007).
** As a percentage of men aged 16 or older.
*** As a percentage of women aged 16 or older.
† Not nationally representative, but extrapolation was adjusted to reflect the national level.
Source: Research ICT Africa (RIA).

The fact that women tend to use the Internet less than men does not seem to have to do with ICTs as such. Empirical evidence has shown that, under equal conditions of education or employment, there are relatively minor differences between men and women in terms of the use of technologies.[16] It is thus differences between men and women in areas such as income and education that play a major role in explaining different levels of access to ICTs and their usage. Disparities increase as the technologies and services become more sophisticated and expensive, requiring greater levels of income and education to access and to operate them.[17]

5.5 The urban/rural divide

People living in rural areas stand to benefit from ICTs even more than others because ICTs have the potential to deliver services that otherwise might be less available, such as e-health, distance learning, information on agricultural product prices, etc. This is also consistent with the fundamental intent of Target 1 in the Geneva Plan of Action adopted by the World Summit on the Information Society (ITU, 2003), which was formulated precisely to ensure that people living in rural areas are not excluded from the information society.

Evidence shows that there are major differences between rural and urban areas, especially in the use of Internet and computers, with people in rural areas using the Internet less than those in urban areas. While these differences tend to be relatively small in developed, high-income countries, the variations are often substantial in developing countries. The urban/rural divide is much less pronounced in high-income economies, such as Switzerland and New Zealand. Indeed, of those countries for which data are available, New Zealand presents the most uniform penetration of Internet users between urban and rural areas, with only one percentage point difference. In many developing countries, including Morocco, Peru, Colombia, Brazil, Ecuador, Chile, Turkey and Azerbaijan, Internet usage among the urban population is much higher than among people living in rural areas (Table 5.4).

Table 5.4: Percentage of individuals using the Internet, by urban/rural, latest available year

Country	Reference Year	Rural	Urban	Difference Rural - Urban
Australia	2009	69.3	76.9	-7.6
Azerbaijan	2010	23.4	47.1	-23.7
Belarus	2010	14.5	37.8	-23.2
Benin	2007	1.2	20.7	-19.5
Botswana	2007	2.9	7.9	-5.0
Brazil	2010	16.0	45.4	-29.4
Burkina Faso	2007	0.5	18.7	-18.2
Cameroon	2007	3.9	21.5	-17.6
Canada	2009	72.9	82.6	-9.7
Chile	2009	16.6	42.0	-25.4
Colombia	2009	9.9	36.2	-26.3
Costa Rica	2008	18.4	41.8	-23.4
Côte d'Ivoire	2007	1.8	11.9	-10.1
Ecuador	2010	12.0	37.6	-25.7
Egypt	2009	14.3	30.7	-16.5
El Salvador	2009	3.1	17.0	-13.9
Ethiopia	2007	0.0	4.0	-4.0
Ghana	2007	2.2	10.0	-7.8
Honduras	2008	2.5	18.0	-15.5
Indonesia	2010	3.8	16.1	-12.3
Iran (I.R.)	2009	3.0	15.0	-12.0
Israel	2009	76.3	62.0	14.3
Japan	2009	76.0	81.3	-5.2
Kenya	2007	13.5	20.9	-7.4
Korea (Rep.)	2009	69.4	84.3	-14.9
Lithuania	2010	51.5	70.1	-18.6
Mauritius	2008	21.9	19.9	2.0
Mongolia	2010	2.5	16.4	-13.9
Morocco	2010	40.4	75.6	-35.2
Mozambique	2007/8	0.0	4.3	-4.3
Namibia	2007	4.1	18.5	-14.4
New Zealand	2009	79.1	79.8	-0.7
Nigeria †	2007	10.3	22.3	-12.0
Paraguay	2008	3.1	21.8	-18.7
Peru	2008	7.8	38.9	-31.2
Russia	2009	27.7	48.0	-20.3
Rwanda	2007	0.4	9.6	-9.2
Senegal	2009	2.2	18.2	-15.9
South Africa	2007	4.6	21.8	-17.2
Switzerland	2010	82.5	84.5	-2.0
Tanzania	2007/8	1.8	3.3	-1.5
Thailand	2010	16.5	35.1	-18.5
Turkey	2010	22.1	47.3	-25.2
Uganda	2007	1.6	8.1	-6.5
Ukraine	2009	5.2	20.6	-15.5
United States	2009	64.9	69.3	-4.4
Zambia †	2007/8	5.1	3.3	1.8

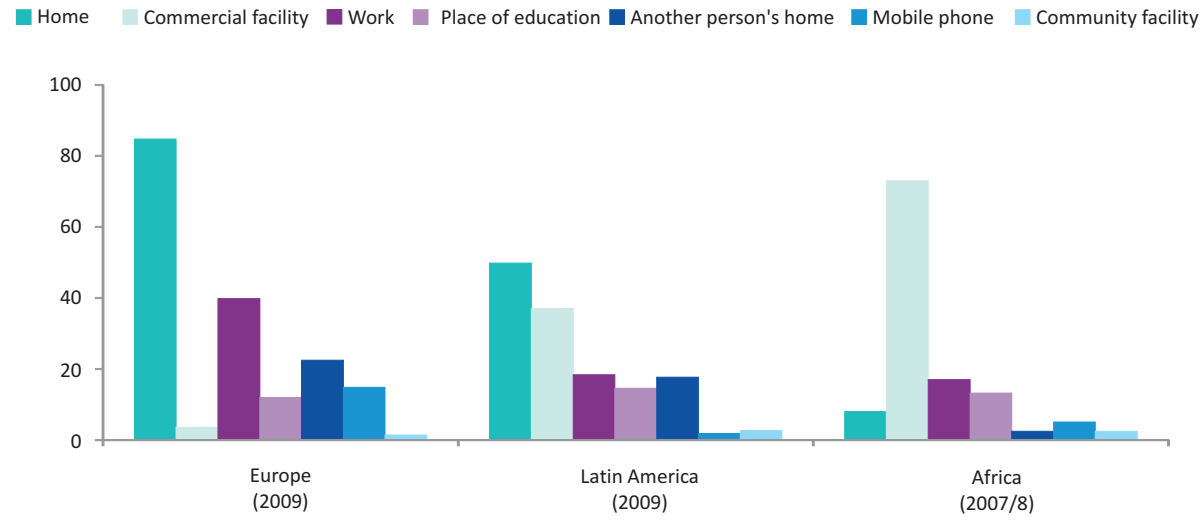
Note: † Not nationally representative, but extrapolation was adjusted to reflect the national level.
Source: ITU World Telecommunication/ICT Indicators database and Research ICT Africa (RIA).

In many African countries, hardly any rural inhabitants were using the Internet in 2007/2008, with Internet use in most countries confined almost exclusively to people living in urban areas. In Burkina Faso, Rwanda, Ethiopia and Mozambique, fewer than one per cent of people in rural areas were using the Internet. Two notable exceptions in Africa are Mauritius and Kenya, where Internet use among rural individuals reached 21.9 and 13.5 per cent, respectively.

For people in many developing countries, in both urban and rural areas, commercial Internet facilities and schools are the main place for accessing the Internet. Chart 5.9 compares location of Internet access in three different regions: Africa, Latin America and Europe. It highlights the importance of public commercial Internet access points, such as Internet cafés, in the developing world. It also shows that these commercial facilities are much more common locations for Internet access than free or government owned and subsidized access points (community facility). Internet use at home is the prevailing practice in Europe (85 per cent of Internet users), and in Latin America (50 per cent of Internet users). However, in Latin America, Internet use at commercial facilities still remains significant, and is especially important for people living in rural areas, who use Internet at home much less than urban users (see country examples in Chart 5.10). As countries progress, there is likely to be a trend towards increasing Internet access at home or through mobile devices, but in the meantime commercially operated public facilities will play a major role in facilitating Internet access in the developing world and in rural areas.

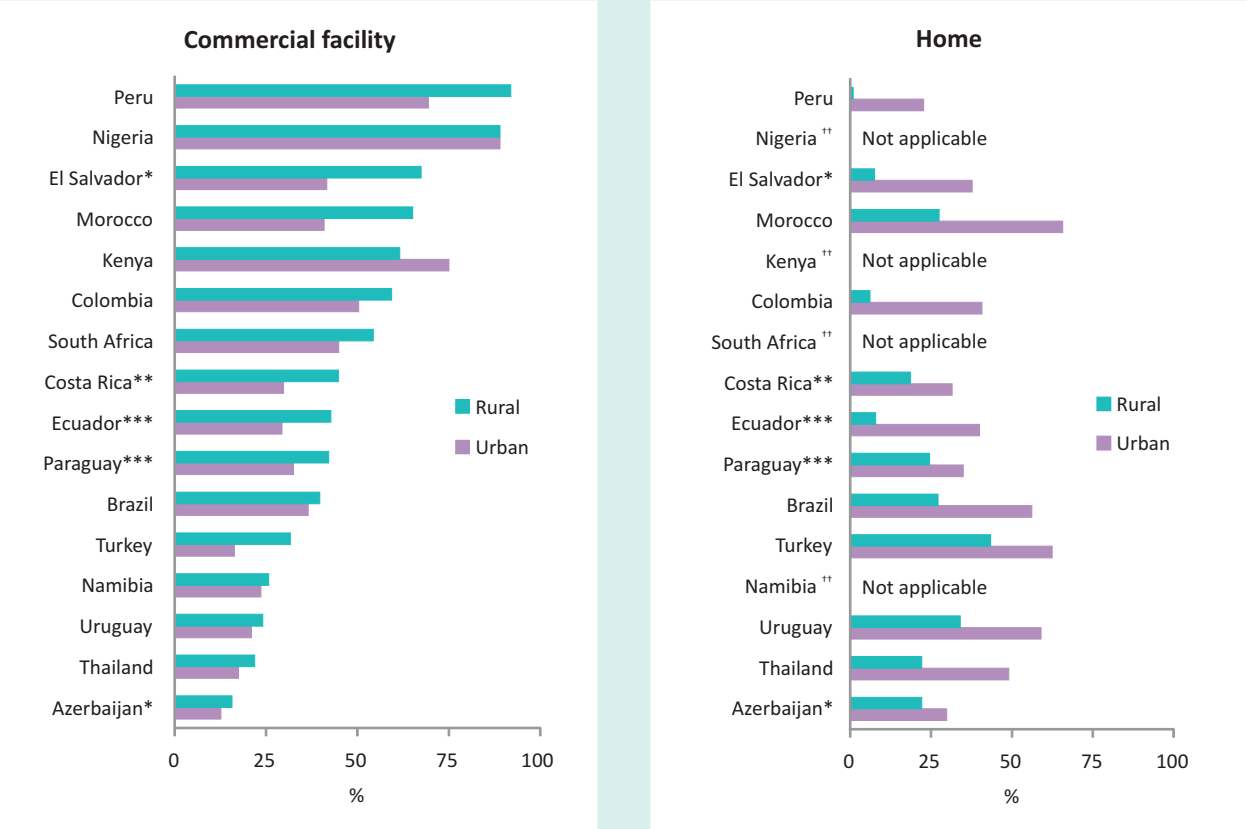
Lastly, the importance of Internet cafés in Africa deserves special attention, all the more so because only eight per cent of African Internet users access the Internet at home, and in some countries barriers to Internet access at home also include a number of bureaucratic obstacles. For example, in Namibia, for a residential fixed-line or ADSL application, Telecom Namibia requires the following documents: identity card or passport, deed of sale or rental agreement, marriage certificate, proof of income, and security deposit. In contrast to the low level of Internet use at home, in Nigeria, for example, 89 per cent of (both urban and rural) Internet users in 2008 accessed the Internet from an Internet café, and 65 per cent in Kenya (75 urban users and 62 rural users). This highlights the importance of such projects as the Kenyan ICT Board's Digital Villages,

Chart 5.9: Location of Internet use aggregated for 17 African countries, 8 Latin American countries and 35 European countries, latest available year



Note: Percentages calculated over the total number of Internet users. Multiple locations are possible. Community facility in the case of Africa refers to a library.
Source: ITU World Telecommunication/ICT Indicators database and Research ICT Africa (RIA).

Chart 5.10: Percentage of Internet users, by urban/rural, using the Internet at commercial facility (left) and at home (right), selected countries, latest available year



Note: All locations are possible, except for some countries where users were asked only about the most used place (*), the two most used places (**) and the three most used places (***). †† Sample results for use at home non significant at the urban/rural level.
Source: ITU World Telecommunication/ICT Indicators database and Research ICT Africa (RIA).

where entrepreneurs are given loans on a commercial basis to set up Internet cafés.[18] These findings not only point to the importance of pubic Internet access facilities for bringing more people online, but also suggest that viable business models may be the best solution in areas where people do not have access to the Internet at home.

5.6 From e-mail to social networks: drivers of Internet use

The Internet supports a wide variety of uses: from simple communications, such as e-mail, chat or Twitter, to sophisticated real-time video and audio communications; from access to the press in digital format and to authoritative information sources, to blogging, wikis and other user-generated content; from educational and research purposes to online gaming, downloading music and streaming videos; from accessing local government services to checking the balance of a bank account.

Data from both developed and developing economies (Table 5.5) show that communication remains the most popular Internet activity in many countries, and that other activities such as e-government, e-banking and commercial transactions are less common. For many users of all ages, men and women alike, the most prevalent activity is sending and receiving e-mails. In countries such as New Zealand and Chile, over 90 per cent of Internet users use e-mail, and in the European Union the average is also very high, at over 88 per cent.

While a large proportion of Internet users also exploit the Internet for education and learning

Table 5.5: Internet activities carried out by Internet users, latest available year (%)

Economies	Reference year	Getting information about goods or services	Getting information on health	Getting information from government	Interacting with government	Sending or receiving e-mail	Telephoning over the Internet/VoIP	Posting information or instant messaging	Purchasing or ordering goods or services	Internet banking	Education or learning activities	Playing or downloading games	Downloading/ listening to/watching music, video, images, TV	Downloading software	Reading/downloading newspapers, magazines, books
Azerbaijan*	2010	10.6	5.4	2.4	5.5	16.3	4.2	13.5	0.9	0.8	11.6	5.5	10.8	4.7	8.0
Belarus	2010	31.1	...	...	13.6	84.4	35.6	...	25.0	...	...	19.3	31.0	...	...
Benin	2007	...	...	2.6	...	85.5	0.4	16.2	...	0.0	10.7	7.0	13.7	...	79.9
Botswana	2007	...	...	7.6	...	68.6	0.0	1.5	...	3.7	20.2	12.4	10.4	...	57.4
Brazil	2010	53.3	46.6	22.9	11.3	74.9	16.6	72.4	22.4	15.2	70.5	50.7	71.1	12.8	39.8
Burkina Faso	2007	...	...	0.3	...	74.0	5.0	12.7	...	0.0	10.7	14.3	17.4	...	54.4
Cameroon	2007	...	...	1.4	...	75.3	3.7	21.1	...	0.7	14.5	3.0	13.9	...	47.0
Canada	2009	64.4	67.1	54.3	25.9	89.3	13.2	52.1	48.5	64.0	48.3	40.3	60.5	33.6	65.0
Chile	2009	85.1	...	...	14.3	91.2	...	...	12.3	12.7	...	...	69.2	...	14.8
Colombia	2010	74.4	74.4	74.4	3.3	76.1	76.1	76.1	5.3	10.2	64.1	62.5	...	...	...
Costa Rica	2008	76.4	...	...	...	78.9	...	...	7.4	22.4	60.1	58.2	...	...	...
Côte d'Ivoire	2007	...	...	0.0	...	53.8	14.5	13.2	...	1.0	13.1	8.7	20.3	...	83.7
Ecuador*	2010	27.2	...	...	0.5	22.4	...	...	0.4	1.1	40.0	1.4	0.7	...	0.7
Egypt	2009	3.0	26.0	9.2	11.2	27.5	54.8	54.6	...	...	38.9	24.4	49.6	2.2	33.6
El Salvador*	2009	2.1	0.5	0.3	...	17.8	...	...	0.3	0.6	67.7	2.9	1.3	...	6.5
Ethiopia	2007	...	...	0.5	...	46.2	7.7	5.8	...	0.0	33.9	1.1	17.3	...	39.8
EU27	2010	81.2	49.3	40.7	46.3	88.6	26.8	45.4	45.3	52.1	56.9	40.4	38.2	30.9	49.7
Ghana	2007	...	...	2.6	...	76.1	2.6	1.1	...	0.2	5.5	2.7	12.6	...	27.7
Hong Kong, China	2009	87.1	...	63.7	14.7	83.1	59.7	...	17.0	32.3	16.4	34.6	47.9	...	83.8
Iran (I.R.)	2009	89.4	...	...	29.6	29.4	...	17.1	5.6	5.2	9.5	45.7	...	...	...
Israel	2009	...	...	...	...	87.7	...	51.9	30.7	32.9	...	...	63.9	...	...
Japan	2009	...	...	...	3.6	56.3	...	...	38.6	11.0	2.1	9.5	33.3	...	...
Kenya	2007	...	...	9.1	...	82.5	6.3	21.2	...	2.9	37.8	16.2	26.2	...	51.3
Korea (Rep.)	2009	62.4	19.0	19.9	12.8	81.2	13.2	52.9	54.6	35.1	50.0	65.5	65.7	8.2	34.4

Table 5.5: Internet activities carried out by Internet users, latest available year (%) (continued)

Economies	Reference year	Getting information about goods or services	Getting information on health	Getting information from government	Interacting with government	Sending or receiving e-mail	Telephoning over the Internet/VoIP	Posting information or instant messaging	Purchasing or ordering goods or services	Internet banking	Education or learning activities	Playing or downloading games	Downloading/ listening to/watching music, video, images, TV	Downloading software	Reading/downloading newspapers, magazines, books
Macao, China	2009	87.2	...	...	34.6	82.6	...	...	6.0	13.0	8.0	...	...	...	...
Mauritius	2008	82.5	...	29.1	7.3	71.6	15.9	...	5.8	6.8	3.0	54.3	...	...	1.4
Mexico	2010	58.4	...	...	1.2	57.4	...	...	3.5	2.6	35.7	...	...	...	28.1
Moldova	2009	32.0	22.0	...	8.0	60.0	43.0	15.0	7.0	4.0	23.0	32.0	49.0	18.0	40.0
Morocco	2010	8.1	20.1	13.4	9.2	56.9	52.1	43.3	4.7	5.0	26.0	38.3	58.0	27.8	48.2
Mozambique	2007/8	...	...	0.0	...	65.7	6.5	13.9	...	11.0	14.7	14.7	21.6	...	72.7
Namibia	2007	...	...	10.7	...	45.3	2.3	11.1	...	2.5	18.8	16.3	28.3	...	42.5
New Zealand	2009	73.8	34.6	45.8	39.8	90.0	28.3	23.9	53.4	64.8	20.5	19.3	54.7	41.4	34.3
Nigeria †	2007	...	...	2.4	...	77.5	5.0	14.2	...	1.9	25.8	11.2	21.1	...	27.8
Paraguay*	2008	6.9	...	...	...	32.9	...	...	1.7	...	38.5	6.1	...	...	1.5
Peru	2008	3.1	7.3	5.3	3.5	75.1	...	...	2.2	4.5	9.0	45.0	...	...	...
Russia	2009	63.7	37.9	14.5	19.3	69.8	17.0	70.4	20.9	5.6	6.1	39.8	68.5	40.8	54.0
Rwanda	2007	...	...	2.2	...	90.7	0.0	9.4	...	0.0	6.8	10.2	13.2	...	26.0
Senegal	2009	72.4	...	18.6	...	54.4	35.4	...	...	4.1	35.7	...	60.4	...	...
Singapore	2009	29.4	7.7	12.7	11.5	70.3	4.3	27.6	15.9	25.8	19.6	23.6	28.2	8.8	28.0
South Africa	2007	...	...	19.8	...	83.3	17.9	33.8	...	25.3	43.9	22.8	31.0	...	60.5
Tanzania	2007/8	...	...	0.7	...	49.6	1.8	18.7	...	0.3	23.7	5.4	37.2	...	65.9
Thailand	2010	82.2	...	...	1.3	26.5	0.1	9.0	0.5	0.4	10.9	25.5	17.5	0.8	23.2
Turkey	2010	52.6	44.6	26.3	27.2	68.7	44.4	60.6	13.1	15.8	36.8	48.3	...	13.9	55.5
Uganda*	2007	...	...	1.4	...	35.8	1.7	14.7	...	0.3	16.0	5.6	11.7	...	11.4
Ukraine	2009	17.1	29.2	...	2.2	31.0	...	...	4.2	3.4	53.8	...	57.5	...	33.5
United Arab Emirates	2008	62.0	...	30.0	15.0	87.0	...	...	19.0	19.0	...	67.0	...	...	...
Zambia †	2007/8	...	...	24.4	...	83.4	7.8	30.3	...	1.9	47.0	7.6	23.0	...	58.5

Note: ... data not available.
Multiple activities are possible, although some countries report only on the most frequent activity (*), therefore their figures appear smaller.
† Not nationally representative, but extrapolation was adjusted to reflect the national level.
Source: ITU World Telecommunication/ICT Indicators database and Research ICT Africa (RIA).

purposes, there are considerable differences across countries. For example, available data from some Latin American countries suggest that around 50 per cent of people using the Internet were going online for – among others – educational purposes in the period of 2009-2010. This can be related to the fact that many users in Latin America are young and are students. The European Union average is also high, at over 52 per cent in 2010, and the figure is similarly high in Ukraine, where over 53 per cent of Internet users accessed the Internet for educational or learning activities in 2009. In Africa, on the other hand, only about 25 per cent of all Internet users employed the Internet for educational purposes in 2007/2008. This may be attributable to a variety of reasons, such as for instance scarcity of suitable content (e.g. in local language, and adapted to each educational level, to people's computer skills, to the type and quality of the connection, etc.) or insufficient information on the educational resources that are available. Improvements in these areas may significantly contribute to extending the benefits of Internet as an e-learning tool to more people in Africa.

A further popular activity in most countries is obtaining information and accessing news, with over 40 per cent of Internet users in many countries across all regions using the Internet for these purposes. Posting information and instant messaging, such as through social media sites, social networking and other user-created content, is becoming increasingly relevant. In countries for which recent (2009 and 2010) data are available, the proportion of Internet users engaging in these activities has reached very high levels. In Colombia, Brazil and the Russian Federation, for example, over 70 per cent of users reported using the Internet for these activities. The next section examines in detail the relevance of social networking and user-generated content for bringing more people in developing countries online.

An interesting finding from RIA's survey is that almost 25 per cent of individuals using the Internet (in 17 African countries) used it to get information for a friend or family member. This highlights the fact that the Internet benefits not only those who are actually accessing and using it, but others, too, especially in rural areas, where 30 per cent of users employed it for these purposes, as against 20 per cent in urban areas.

The popularity of the Internet for entertainment purposes varies between countries. In countries from the European Union and from Latin America for which data are available, around 40 per cent of Internet users accessed the Internet to play or download games, as compared with 13 per cent of Internet users in Africa. In the United Arab Emirates and the Republic of Korea, 67 and 65 per cent, respectively, of Internet users play or download games. While these variations may in part be explained by cultural differences between countries, the type of activities that Internet users can carry out is also greatly influenced by the type and quality of the Internet connection (see Chapter 4).

For instance, if e-mailing is by far the most popular Internet activity in Africa, this is probably because it may be comfortably used even with limited bandwidth and low speeds. It must not be forgotten that some Internet users access the Internet via second-generation mobile networks, which makes using more data-intensive applications impossible. This may also be one explanatory factor (among others) for the low degree of use of e-government services among African Internet users, because this type of application requires a minimum capacity and speed to offer a good user experience. These conclusions are supported by the differences between rural and urban Internet users, since rural areas usually have lower Internet speeds. Indeed, available data from 2007 and 2008 show that African rural Internet users played online games less than urban Internet users, and used e-banking and e-government services less, too.

However, there are other relevant factors determining the uptake of Internet activities beyond just quality and speed of the user connection. One of these is service availability and the extent to which services are adapted to the user. For example, if only very few Internet users in Africa use the Internet to interact with the government, this may also be because of a lack of relevant e-government services matching the skills and needs of Internet users in each country.

Finally, high levels of online purchasing and Internet banking activities are confined primarily to citizens in developed economies. In New Zealand, Canada and the European Union, for example, the majority of Internet users engage in Internet banking, as compared with much lower levels in most developing countries. Several developing countries lack both a widely established banking system and an outreaching Internet access network, and people's income levels in many developing countries are insufficient for them to have a credit card.

Social networks

An important trend that has driven Internet access over the last few years is the growth of social media and networking sites. These provide innovative ways of conveying information, and of reaching a wide audience. They allow people to expand social and business contacts, and facilitate the communication and sharing of content among users, including photos, videos and music. Young people have played a major role in the success of social media and networking sites. Data also suggest that social networking sites have become a key driver of Internet use (see for instance Box 5.1). In some countries over 70 per cent of Internet users are engaging in social networking (specifically posting information and instant messaging) (see Table 5.5).

Livingston *et al.* (2011), for example, conducted a face-to-face survey of 25 000 young Internet users (between the ages of nine and 16) and their parents in 25 European countries, and found that social networking was the most popular activity among children. Some 38 per cent of children between nine and 12 years old have a social network profile, and 77 per cent of children between 13 and 16 years old.

A comparison of data from Facebook, one of the most popular networking sites in the world, indicates that in some developing countries there are as many Facebook users as Internet users. The comparison between Internet users and Facebook users must however be interpreted with caution, since Internet users are individuals, while Facebook accounts may belong to individuals, companies, etc. (see Box 5.2). Table 5.6 shows a list of selected countries ordered by total number of Facebook accounts, and highlights how they rank in terms of absolute number of Facebook accounts in comparison with other countries

Box 5.1: Social networking as a key driver for bridging the Internet divide in Namibia

A nationally representative survey conducted by Research ICT Africa in cooperation with the Communications Regulatory Authority of Namibia (CRAN) from June to August 2011 revealed that 81 per cent of Internet users subscribe to a social network application. The survey, which also covered mobile-phone ownership and use, shows that 17 per cent of mobile-phone owners use their mobiles for accessing social networking applications such as Facebook, Twitter, Mixit, etc. Overall, about 23 per cent of mobile-phone owners used their mobiles to browse the Internet. These results suggest that increasing numbers of people are using mobile phones for social networking. Table Box 5.1 shows some additional results of the survey.

The increasing reliance on the mobile phone and the growth in the use of applications that lend themselves to the mobile platform – such as social media – indicate that the mobile phone is a key entry point for Internet adoption in Namibia. The mobile phone is thus not only narrowing the voice gap in Namibia, but is being used to reduce the differences in Internet usage.

Table Box 5.1: Internet and mobile-phone usage in Namibia, 2011 (%)

Internet usage	
Percentage of individuals aged 15 years or older using the Internet	13.4
Share of Internet users who used the Internet for the first time on a computer or laptop	62.7
Share of Internet users who used the Internet for the first time on a mobile phone	37.3
Share of Internet users who are signed up for a social network	80.7
Share of Internet users who access the Internet using a mobile phone	55.7
Mobile-phone usage	
Percentage of individuals aged 15 years or older owning a mobile phone	56.1
Share of mobile-phone owners who use their mobile for browsing the Internet	22.7
Share of mobile-phone owners who use their mobile for accessing social networking applications such as Facebook, Twitter, Mixit, etc.	17.3

Source: Research ICT Africa (RIA).

Box 5.2: How accurate are Facebook user statistics?

Statistics on the number of Facebook users are widely cited, especially given their impressive growth rates over the past few years, but little is published about how those statistics are compiled or what they actually represent. For example, a comparison of Facebook user data and Internet user data for some developing countries show there to be as many Facebook users as Internet users, whereas it can reasonably be assumed that not every Internet user is also on Facebook. How then can these numbers be explained?

Country-level Internet user statistics are generally collected through official representative national household surveys and reflect the number of individual people in a given country having used the Internet during a certain reference period (for example, the past three/six/twelve months). The survey is often limited to a certain age group (see Annex 3) and does not include Internet use by enterprises, governments or other organizations.

Facebook user statistics for individual countries, on the other hand, are published by several online businesses[19] which compile the data from Facebook's advertisement page,[20] where numbers are to be found on the potential target audience (i.e. users) by country. According to Facebook's Help Centre, *"Facebook determines the location of a user based on IP (Internet Protocol) addresses, which can help identify the country or city where a user is physically located."* [21] Based on this information, Facebook "users" should perhaps be called "accounts", given that a single user could be operating several accounts. In addition to a personal account, a user can create an account for a school, business, organization or other group using a different e-mail address (so that there could, in theory, be more Facebook users than people within a country). In addition, while IP addresses make a good proxy indicator for how many accounts exist in a given country, they are not necessarily accurate, given that Facebook users could be accessing their Facebook accounts through servers located in countries other than their home country (for example, in cases where Facebook access might be restricted or where users are travelling). Finally, the question of how "active" the account should be in order to be counted needs to be addressed. How many "dead" accounts are there and are they included in the user statistics?

Until answers to some of these questions are known, Facebook country-level "user" statistics should be treated with caution, particularly when making comparisons with Internet user statistics.

(Facebook ranking). Some developing countries with large populations, such as Indonesia, India and Mexico, are among the top countries in the world in terms of Facebook accounts. In China, the leading social network is Renren, which by end June 2011 had some 124 million activated users.[22] In Brazil, the leading social network is Orkut. According to a survey by IBOPE, Nielsen Online (2010), as at August 2010 more than 70 per cent of Internet users in the country were visiting Orkut's website at least once a month, and overall 36 million Brazilians were accessing social network sites. It can be thus concluded that social networks are gaining momentum in several developing countries, too. Taking into account that in the developing world only a small proportion of the population has access to the Internet, the popularity of social networks has the potential to become a major incentive for people to go online.

Some social networks such as Renren and Facebook have launched specific platforms to optimize user experience in cases where connection capacity and speed are limited, and to adapt navigation to 2G mobile access. For instance, as early as December 2009 Renren launched an open platform for mobiles, which allowed access via a WAP browser, with streamlined navigation design.[23] In May 2010, Facebook launched Facebook Zero, which allows users to access a mobile version of Facebook, but with data-intensive applications, such as pictures, placed an additional click away. Facebook has also collaborated with operators to make sure that there are no data charges associated with Facebook Zero. Pictures, video and audio can still be accessed, but at that point standard data rates become applicable. A notification page appears when users want to access video or pictures telling them that data charges will apply. Innovations such as Renren's mobile platform and Facebook Zero have the potential to foster Internet usage in countries where high-capacity Internet access is limited, and therefore usage is lagging behind.

Chart 5.11 shows that younger generations tend to be more online in all countries, both in the developed and

Table 5.6: Facebook penetration (selected countries), August 2011

Facebook ranking	Country	Facebook accounts August 2011
1	United States	154'040'460
2	Indonesia	39'568'620
3	India	33'587'640
6	Mexico	28'150'240
7	Philippines	26'056'340
8	Brazil	24'921'480
14	Colombia	15'166'260
16	Thailand	11'698'220
22	Egypt	8'506'060
27	Sweden	4'379'680
29	South Africa	4'281'100
37	Nigeria	3'675'960
39	Romania	3'562'400
47	Tunisia	2'641'060
71	Kenya	1'172'540
89	Senegal	572'500
99	Tanzania	336'980
101	Uganda	314'900
125	Zambia	151'900
127	Botswana	133'200
130	Namibia	122'340

Source: Facebook: http://www.facebook.com/ads/create/.

in the developing world. Indeed, younger people are more curious, more interested and more active in some of the most popular Internet activities, such as those related to personal communications, and social networks. The latter have thus become major drivers of Internet adoption, and can be increasingly so in the future, especially in developing countries. Some 47 per cent of the population in developing countries are under 25 years old, while in developed countries only 28 per cent of the total population are below that age.[24] This represents more than 2.5 billion people under 25 in developing countries, suggesting enormous potential in terms of Internet adoption through the younger generations.

5.7 Conclusions

While the voice communication gap has largely been closed through affordable prepaid mobile-telephone services, the key ICT challenge today is to bring more people online, especially from developing countries. This chapter has shown that the Internet user divide is influenced by gender, education, income and age, and that there are major differences between urban and rural areas. It has also demonstrated that the barriers to Internet use are not necessarily related to infrastructure and access: there is remarkably little difference in terms of usage among highly educated, high-income individuals across the developing and developed world.

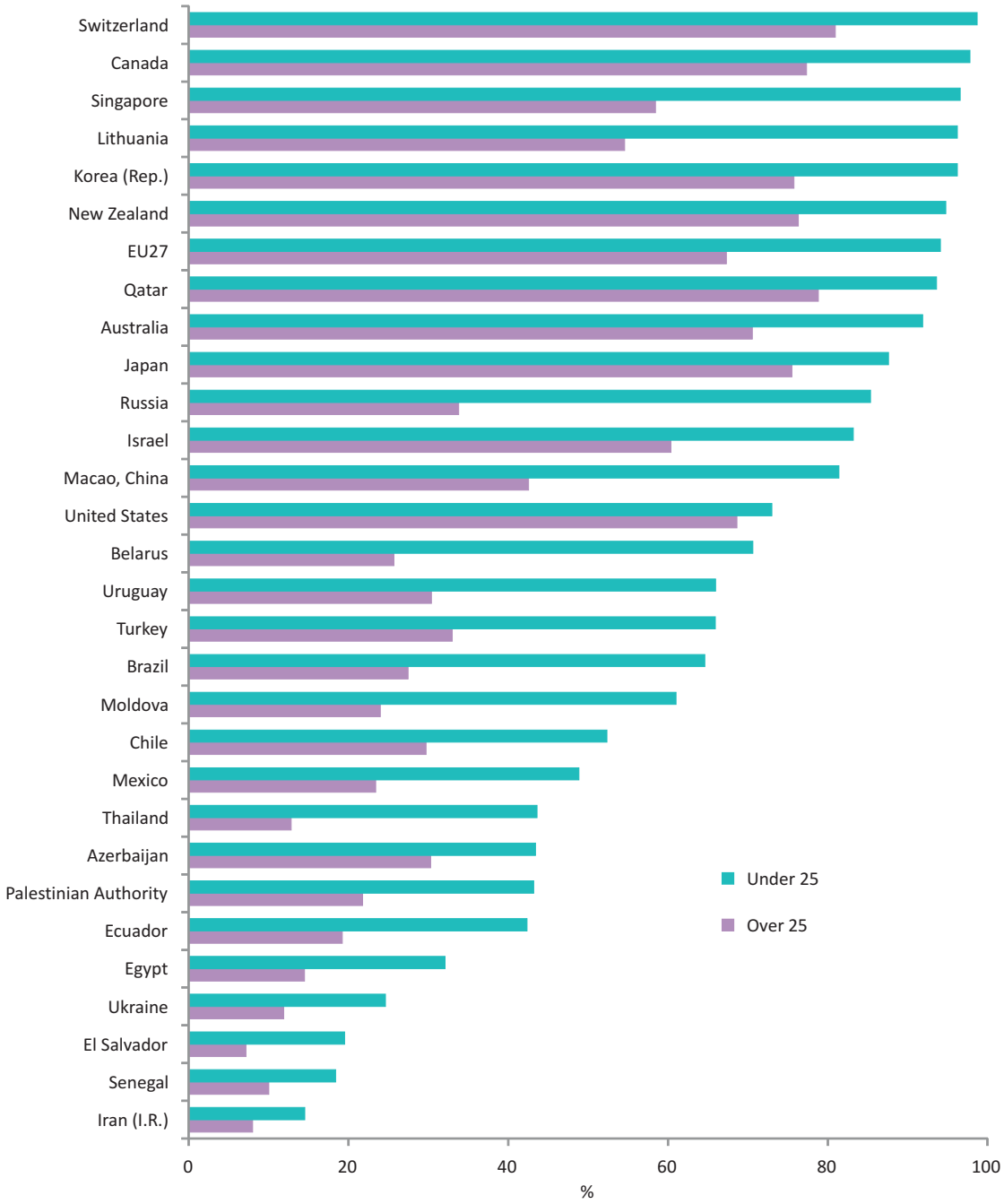
The success of prepaid mobile telephony can be replicated. Mobile Internet access and more affordable prepaid Internet will allow less affluent people to gain access to the Internet. They can recharge airtime to use the Internet whenever they have money available, and use a device for Internet access with which they are already familiar. Mobile phones are less expensive and easier to operate than computers. There is a clear trend towards cheaper smartphones, and this will have an impact on mobile Internet use. However, there is still substantial progress to be made in reducing barriers to prepaid mobile broadband, through a range of measures such as lowering cost, reducing taxation and improving access.

There are some gender-related differences in Internet use between countries, but the ICT gender divide seems to depend largely on factors not related to ICT, and so the gender divide can only be addressed by measures aimed at ensuring equal opportunities in terms of income generation and education.

In developing countries, public access facilities, in particular commercially run establishments, play an important role in reducing the Internet access and usage divide in the short to medium term, in the absence of affordable home access. The success of commercially run cybercafés highlights the need to support innovative commercial business models for public access, even if in the long term one may expect to see an increase in Internet access at home, and through personal devices. Public access points, such as cybercafés, will remain critical for countries at the initial stages of Internet uptake, and particularly for rural users. More affordable personal Internet access through mobile phones (and other wireless devices) is likely to reduce the importance of public facilities over time. In the absence of alternatives, however, public access points are often the only means of finding and obtaining information.

There are significant differences in Internet use between urban and rural areas, with fewer rural inhabitants using the Internet. Urban/rural differences are closely linked with

Chart 5.11: Proportion of individuals* using the Internet, by age group, latest available year (2009/2010)



Note: * Minimum and maximum age varies across countries, see Annex Table 3.1.
Source: ITU World Telecommunication/ICT Indicators database

differences in education and income, but they are also attributable to infrastructure and service limitations in rural areas. This is indeed an area for improvement, which could greatly benefit from wireless-broadband technologies.

Most people use the Internet for communication and entertainment purposes, and social networking sites have become a key driver for Internet uptake, particularly for young people, suggesting that relevant

content is an important factor in bringing more people online. Young people are not only drivers of Internet usage; they also represent a relatively large proportion of the world's population. Developing countries have a large potential Internet user base that could be brought online relatively easily, particularly by connecting schools and other educational institutions.

Endnotes

1 For example, UNCTAD collects statistics on the use of ICTs by businesses and on the ICT sector. For more information, see: measuring-ict.unctad.org.

2 ITU has acknowledged the potential of connecting schools in developing countries, and is promoting ICT development for communities through the "Connect a School, Connect a Community" Initiative. More information is available at: http://www.itu.int/ITU-D/sis/Connect_a_school/index.html.

3 For more information on the Partnership on Measuring ICT for Development and its members, see: http://www.itu.int/ITU-D/ict/partnership/index.html and http://new.unctad.org/default____600.aspx.

4 Research ICT Africa is a network of researchers from African countries which conducts ICT studies to support evidence-based and informed policy-making. For more information, see http://www.researchictafrica.net/home.php.

5 According to Partnership on Measuring ICT for Development (2010), *a computer* refers to a desktop or a laptop computer. It does not include equipment with some embedded computing abilities such as mobile-cellular phones, personal digital assistants (PDAs) or TV sets.

6 Eurostat stopped collecting data on mobile use in 2008.

7 In Kenya, 99 per cent of Internet subscriptions are mobile, including both narrowband (GPRS/EDGE) and 3G mobile. Source: Communications Commission of Kenya (2011).

8 Calculations based on available data from households surveys, for people above 25 years old.

9 The Gini coefficient measures inequality in the distribution of income with a value of 0 expressing total equality and a value of 100 total inequality. Income is hence more equally distributed in Norway than in El Salvador. For Gini values in 2010, see http://hdr.undp.org/en/media/HDR_2010_EN_Tables_reprint.pdf.

10 ICT development is a major cross-cutting feature of Rwanda's Vision 2020, the country's framework for economic and social development, and for the conversion to a knowledge-based economy. Moreover, the country has taken part in the One-Laptop-per-Child project, see: http://www.connectaschool.org/en/schools/connectivity/devices/section_5.6/case%20studies/Rwanda.

11 A definition of gross enrolment ratio is provided in Annex 1.

12 For a in-depth analysis of the relation between income and Internet use in Latin America, see Navarro (2011) and Grazzi (2011).

13 Plans for expanding the Ceibal project to private schools, and to increase the availability of Internet access points for connecting the laptops, are also ongoing. More information can be found at: www.ceibal.org.uy.

14 According to UNIFEM, women often earn much less than men, and the average wage gap between women and men in 2008 was 17 per cent. See: http://www.unifem.org/gender_issues/women_poverty_economics/.

15 2008 data from the United States showed that even with equal education and experience, women only earned 81 per cent of what men earned. See: http://www.time.com/time/nation/article/0,8599,1983185,00.html#ixzz1UjLJohmE.

16 See Milek *et al.* (2011) for a study on 17 African countries, Hilbert (2011)for a study including Latin American and African countries and Navarro and Sanchez (2011) for a study on 6 Latin American countries.

17 See Milek *et al.* (2011) for a more detailed discussion.

18 For more information, see http://www.ict.go.ke/index.php/digitalinclusion/pasha/football.

19 See for example http://www.socialbakers.com/; http://statistics.allfacebook.com/pages; http://www.insidefacebook.com/.

20 http://www.facebook.com/advertising/.

21 http://www.facebook.com/help/?faq=133609753380850.

22 See http://ir.renren-inc.com/phoenix.zhtml?c=244796&p=irol-homeProfile.

23 See http://renren-inc.com/en/news/32.html.

24 United Nations, Department of Economic and Social Affairs, Population Division (2011). World Population Prospects: The 2010 Revision, CD-ROM Edition.

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Annex 1. ICT Development Index (IDI) methodology

This Annex outlines the methodology used to compute the IDI, and provides more details on various steps involved, such as the indicators included in the index and their definition, the imputation of missing values, the normalization procedure, the weights applied to the indicators and sub-indices, and the results of the sensitivity analysis.

1. Indicators included in the IDI

The selection of indicators was based on certain criteria, including relevance for the index objectives, data availability and the results of various statistical analyses such as the principal component analysis (PCA).[1] The following 11 indicators are included in the IDI (grouped by the three sub-indices: access, use and skills).

a) ICT infrastructure and access indicators

Indicators included in this group provide an indication of the available ICT infrastructure and individuals' access to basic ICTs. Data for all of these indicators are collected by ITU.

1. Fixed-telephone subscriptions per 100 inhabitants

Fixed-telephone subscriptions refers to the sum of active analogue fixed-telephone lines, ISDN voice channel equivalents, fixed wireless local loop (WLL) connections, fixed public payphones and voice-over-broadband (VoB) subscriptions. It includes all accesses over fixed infrastructure supporting voice telephony using copper wire, voice services using Internet Protocol (IP) delivered over fixed (wired)-broadband infrastructure (e.g. DSL, fibre optic), and voice services provided over coaxial-cable television networks (cable modem). It also includes fixed wireless local loop (WLL) connections, which are defined as services provided by licensed fixed-line telephone operators that provide last-mile access to the subscriber using radio technology, when the call is then routed over a fixed-line telephone network (and not a mobile-cellular network). In the case of VoB, it refers to subscriptions that offer the ability to place and receive calls at any time and do not require a computer.

2. Mobile-cellular telephone subscriptions per 100 inhabitants

Mobile-cellular telephone subscriptions refers to the number of subscriptions to a public mobile-telephone service which provides access to the public switched telephone network (PSTN) using cellular technology. It includes both postpaid subscriptions and prepaid SIM cards that have been active during the past three months. It covers both analogue and digital cellular systems and all mobile-cellular subscriptions that offer voice communications. It excludes subscriptions via data cards or USB modems, subscriptions to public mobile data services, private trunked mobile radio, telepoint, radio paging and telemetry services.

Given the rapid growth in the number of mobile-cellular subscriptions, it would be useful to distinguish between the number of mobile subscriptions and the number of individuals using a mobile phone. Although the latter indicator would be more appropriate for inclusion in the IDI, only a limited number of countries currently collect this information through household surveys.[2] As more data become available, the number of mobile-phone users should eventually replace the number of mobile subscriptions in the index.

3. International Internet bandwidth (bit/s) per Internet user

International Internet bandwidth refers to the sum of capacity of all Internet exchanges that backbone operators provide to carry Internet traffic. It is measured in bits per second per Internet user. The data compiled by ITU from responses received from countries through its annual questionnaire were supplemented with data from ITU research.

4. Percentage of households with a computer

A *computer* refers to a desktop or a laptop computer. It does not include equipment with some embedded computing capabilities, such as mobile-cellular phones, personal digital assistants or TV sets.

5. Percentage of households with Internet access at home

The *Internet* is a worldwide public computer network. It provides access to a number of communication services, including the World Wide Web, and carries e-mail, news, entertainment and data files, irrespective of the device used (not assumed to be only a computer – it may also be a mobile phone, games machine, digital TV, etc.). Access can be via a fixed or mobile network.

There are certain data limits to this indicator, insofar as estimates have to be calculated for many developing countries which are not yet collecting ICT household statistics (see below on missing data). Over time, as more data become available, the quality of the indicator will improve.

b) ICT use indicators

The indicators included in this group capture ICT intensity and usage. Data for all of these indicators are collected by ITU.

1. Percentage of individuals using the Internet

The *percentage of individuals using the Internet* indicator is based on results from national household surveys. Today, most developed and larger developing countries are collecting data on the number of Internet users through official household surveys. Data are either provided directly to ITU by the national statistical offices (NSO), or ITU carries out the necessary research to obtain them, for example from NSO websites.

There are certain data limits to this indicator, insofar as estimates have to be calculated for many developing countries which are not yet collecting ICT household statistics (see below on missing data). Over time, as more data become available, the quality of the indicator will improve.

2. Fixed (wired)-broadband Internet subscriptions per 100 inhabitants

Fixed (wired)-broadband Internet subscriptions refers to subscriptions to paid high-speed access to the public Internet (a TCP/IP connection). High-speed access is defined as downstream speeds equal to, or greater than, 256 kbit/s. Fixed (wired)-broadband Internet includes cable modem, DSL, fibre and other fixed-broadband technology (such as Ethernet LAN, and broadband over power line (BPL) communications). Subscriptions with access to data communications (including the Internet) via mobile-cellular networks are excluded.

3. Active mobile-broadband subscriptions per 100 inhabitants

Active mobile-broadband subscriptions refers to the sum of active standard mobile-broadband subscriptions and dedicated mobile-broadband data subscriptions.

Standard mobile-broadband subscriptions refers to mobile-cellular subscriptions with advertised data speeds of 256 kbit/s or greater and which have been used to set up an Internet data connection via the Internet Protocol in the past three months. The subscription must allow access to the greater Internet via HTTP and must have been used to set up an IP data connection in the past three months. Standard sms and mms messaging does not count as an active Internet data connection, even if the messages are delivered via IP.

Dedicated mobile-broadband data subscriptions refers to subscriptions to dedicated data services over a mobile network which are purchased separately from voice services, either as a standalone service (e.g. using a data card such as a USB modem/dongle) or as an add-on data package to voice services which requires an additional subscription. All dedicated mobile data subscriptions with recurring subscription fees are included as "active data subscriptions" regardless of actual use. Prepaid mobile-broadband plans require active use if there is no monthly subscription. This could also include mobile WiMAX subscriptions.

ITU began gathering data on active mobile subscriptions in 2010. However, only few countries have started collecting data for this indicator. For this reason, ITU uses data from Wireless Intelligence[3] for active 3G connections. Wireless Intelligence collects these data

directly from operators. While ITU has used the Wireless Intelligence data for this year's calculation of the IDI, countries are encouraged to collect this information from operators and to supply it to ITU under its data-collection survey.

c) ICT skills indicators

Data on adult literacy rates and gross secondary and tertiary enrolment ratios are collected by the UNESCO Institute for Statistics (UIS).

1. Adult literacy rate

According to UIS, the "*Adult literacy rate* is defined as the percentage of population aged 15 years and over who can both read and write with understanding a short simple statement on his/her everyday life. Generally, 'literacy' also encompasses 'numeracy', the ability to make simple arithmetic calculations. The main purpose of this indicator is to show the accumulated achievement of primary education and literacy programmes in imparting basic literacy skills to the population, thereby enabling them to apply such skills in daily life and to continue learning and communicating using the written word. Literacy represents a potential for further intellectual growth and contribution to economic-socio-cultural development of society."[4]

2. Gross enrolment ratio (secondary and tertiary level)

According to UIS, "The *gross enrolment ratio* is the total enrolment in a specific level of education, regardless of age, expressed as a percentage of the eligible official school-age population corresponding to the same level of education in a given school-year."[4]

2. Imputation of missing data

A critical step in the construction of the index is to create a complete data set, without missing values. There are several imputation techniques that can be applied to estimate missing data.[5] Each of the imputation techniques, like any other method employed in the process, has its own strengths and weaknesses. The most important consideration is to ensure that the imputed data will reflect a country's actual level of ICT access, usage and skills.

Given that ICT access and usage are both correlated with national income, hot-deck imputation was chosen as the method for estimating the missing data. Hot-deck imputation uses data from countries with "similar" characteristics. GDP per capita and geographic location were used as the main criteria in identifying countries with similar characteristics. For example, missing data for country A were estimated for a certain indicator by first identifying the countries that have similar levels of GDP per capita and that are from the same region. Then, the indicator that has a known relationship to the indicator to be estimated was considered. For instance, fixed-broadband subscription data of country A was estimated by using fixed-broadband subscription data of country B from the same region with a similar level of GDP per capita and a similar level of Internet subscriptions. The same logic was applied to estimate missing data for all indicators included in the index.

3. Normalization of data

Normalization of the data is necessary before any aggregation can be made in order to ensure that the data set uses the same unit of measurement. For the indicators selected for the construction of the IDI, it is important to transform the values to the same unit of measurement, since some of them are expressed as a percentage of the population or households, with a maximum value of 100, while other indicators (although also expressed as a percentage) can have values exceeding 100, such as mobile-cellular subscriptions or international Internet bandwidth.

There are certain particularities that need to be taken into consideration when selecting the normalization method for the IDI. For example, in order to identify the digital divide, it is important to measure the *relative* performance of countries (i.e. divide among countries). Second, the normalization procedure should produce index results that allow countries to track progress of their evolution towards an information society over time.

A further important criterion for the selection of the normalization method was to choose one that can be replicated by countries. Indeed, some countries have shown a strong interest in applying the index methodology at the national or regional level. Therefore, certain methods cannot be applied, for example those that rely on the values of other countries, which might not be available to users.

For the IDI, the *distance to a reference measure* was used as the normalization method. The reference measure is the ideal value that could be reached for each variable (similar to a goalpost). In all of the indicators chosen, this will be 100, except for four indicators:

- International Internet bandwidth per Internet user, which in 2010 ranges from 101 (bits/s/user) to more than 600 000. To diminish the effect of outliers at the high end of the value scale, the data were first transformed to a logarithmic (log) scale. The ideal value was then computed by adding two standard deviations to the mean of the rescaled values, resulting in a log value of 5.45.

- Mobile-cellular subscriptions, which in 2010 range from 3.53 to 206 per 100 inhabitants. The ideal value was computed using the same methodology used for the bandwidth data, by adding two standard deviations to the mean. The resulting reference value was 180 subscriptions per 100 inhabitants.

- Fixed-telephone subscriptions per 100 inhabitants range between 0.06 and 64 in 2010. The same methodology was used to compute the reference value, resulting in a rounded value of 60 per 100 inhabitants.

- Fixed (wired)-broadband subscriptions per 100 inhabitants. This is a fairly recent indicator, and values range from zero to 38 per 100 inhabitants. In line with fixed-telephone subscriptions, the ideal value was defined at 60 per 100 inhabitants.

After normalizing the data, the individual series were all rescaled to identical ranges, from 1 to 10. This was necessary in order to compare the values of the indicators and the sub-indices.

4. Weighting and aggregation

The indicators and sub-indices included in the IDI were weighted based on the PCA results obtained when the index was first computed.[6] Annex Box 1.1 presents the weights for the indicators and sub-indices.

5. Calculating the IDI

Sub-indices were computed by summing the weighted values of the indicators included in the respective subgroup.

- *ICT access* is measured by fixed-telephone subscriptions per 100 inhabitants, mobile-cellular subscriptions per 100 inhabitants, international Internet bandwidth per Internet user, percentage of households with a computer and percentage of households with Internet access at home.

- *ICT use* is measured by percentage of individuals using the Internet, fixed (wired)-broadband

Annex Box 1.1: Weights used for indicators and sub-indices included in the IDI

	Weights (Indicators)	Weights (Sub-index)
ICT access		
Fixed-telephone subscriptions per 100 inhabitants	0.20	0.40
Mobile-cellular telephone subscriptions per 100 inhabitants	0.20	
International Internet bandwidth per Internet user	0.20	
Percentage of households with a computer	0.20	
Percentage of households with Internet access at home	0.20	
ICT use		
Percentage of individuals using the Internet	0.33	0.40
Fixed (wired)-broadband Internet subscriptions per 100 inhabitants	0.33	
Active mobile-broadband subscriptions per 100 inhabitants	0.33	
ICT skills		
Adult literacy rate	0.33	0.20
Secondary gross enrolment ratio	0.33	
Tertiary gross enrolment ratio	0.33	

Source: ITU.

Internet subscriptions per 100 inhabitants and active mobile-broadband subscriptions per 100 inhabitants.

- *ICT skills* are approximated by adult literacy rate, secondary gross enrolment ratio and tertiary gross enrolment ratio.

The values of the sub-indices were calculated first by normalizing the indicators included in each sub-index in order to obtain the same unit of measurement. The *reference values* applied in the normalization were discussed above. The sub-index value was calculated for each country by taking the simple average (using equal weights) of the normalized indicator values.

For computation of the final index, the ICT access and ICT use sub-indices were given 40 per cent weight each, and the skills sub-index (because it is based on proxy indicators) 20 per cent weight. The final index value was then computed by summing the weighted sub-indices. Annex Box 1.2 illustrates the process of computing the IDI for the Republic of Korea (which tops the IDI 2010).

6. Sensitivity analysis

Sensitivity analysis was carried out to investigate the robustness of the index results, in terms of the relative position in the overall ranking, using different combinations of methods and techniques to compute the index.

Potential sources of variation or uncertainty can be attributed to different processes employed in the computation of the index, including the selection of individual indicators, the imputation of missing values and the normalization, weighting and aggregation of the data.

Each of the processes or combination of processes affects the IDI value. A number of tests were carried out to examine the robustness of the IDI results (rather than the actual values). The tests computed the possible index values and country rankings for different combinations of the processes mentioned above. Results show that, while the computed index values change, the message remains the same. The IDI was found to be extremely robust to different methodologies – with the exception of some countries, particularly countries in the "high" group.

The relative position of countries included in the "high" group (see Chapter 2) can change depending on the methodology used. Therefore, caution should be exercised when drawing conclusions based on the ranking of these countries. However, the relative position of countries included in the "low" group is in no way affected by the methods or techniques used, and the countries in this group ranked low in all index computations using different methodologies. This confirms the results conveyed by the IDI.

Annex Box 1.2: Example of how to calculate the IDI value

	KOREA (REP.)			
	Indicators	**Ideal value***		**2010**
	ICT access			
a	Fixed-telephone subscriptions per 100 inhabitants	60		59.2
b	Mobile-cellular telephone subscriptions per 100 inhabitants	170		105.4
c	International Internet bandwidth bit/s per Internet user**	280'377		11'878.4
d	Percentage of households with a computer	100		82
e	Percentage of households with Internet access at home	100		97
	ICT use			
f	Percentage of individuals using the Internet	100		84
g	Fixed (wired)-broadband Internet subscriptions per 100 inhabitants	60		36.6
h	Active mobile-broadband subscriptions per 100 inhabitants	100		91.0
	ICT skills			
i	Adult literary rate	100		97.9
j	Secondary gross enrolment ratio	100		102.0
k	Tertiary gross enrolment ratio	100		99.0
	Normalized values			
	ICT access	**Formula**	**Weight**	
z1	Fixed-telephone subscriptions per 100 inhabitants	a/60	0.20	0.99
z2	Mobile-cellular telephone subscriptions per 100 inhabitants	b/170	0.20	0.62
z3	International Internet bandwidth bit/s per Internet user	log(c)/5.45	0.20	0.75
z4	Percentage of households with a computer	d/100	0.20	0.82
z5	Percentage of households with Internet access at home	e/100	0.20	0.97
	ICT use			
z6	Percentage of individuals using the Internet	f/100	0.33	0.84
z7	Fixed (wired)-broadband Internet subscriptions per 100 inhabitants	g/60	0.33	0.61
z8	Active mobile-broadband subscriptions per 100 inhabitants	h/100	0.33	0.91
	ICT skills			
z9	Adult literary rate	i/100	0.33	0.98
z10	Secondary gross enrolment ratio	j/100	0.33	1.00
z11	Tertiary gross enrolment ratio	k/100	0.33	0.99
	Sub-indices			
	IDI access sub-index (L)	**y1+y2+y3+y4+y5**	**0.40**	**0.82**
y1	Fixed-telephone subscriptions per 100 inhabitants	Z1*.20		0.20
y2	Mobile-cellular telephone subscriptions per 100 inhabitants	Z2*.20		0.12
y3	International Internet bandwidth bit/s per Internet user	Z3*.20		0.15
y4	Percentage of households with a computer	Z4*.20		0.16
y5	Percentage of households with Internet access at home	Z5*.20		0.19
	IDI use sub-index (M)	**y6+y7+y8**	**0.40**	**0.79**
y6	Percentage of individuals using the Internet	Z6*.33		0.28
y7	Fixed (wired)-broadband Internet subscriptions per 100 inhabitants	Z7*.33		0.20
y8	Active mobile-broadband subscriptions per 100 inhabitants	Z8*.33		0.30
	IDI skills sub-index (N)	**y9+y10+y11**	**0.20**	**0.99**
y9	Adult literary rate	Z9*.33		0.32
y10	Secondary gross enrolment ratio	Z10*.33		0.33
y11	Tertiary gross enrolment ratio	Z11*.33		0.33
IDI	**ICT Development Index**	**((L*.40)+(M*.40)+(N*.20))*10**		**8.40**

Note: * The ideal value was computed by adding two standard deviations to the mean value of the indicator.
** To diminish the effect of the large number of outliers at the high end of the value scale, the data were first transformed to a logarithmic (log) scale. The ideal value of 280'377 bit/s per Internet user is equivalent to 5.45 if transformed to a log scale.

Source: ITU.

Endnotes

1 Principal component analysis was used to examine the underlying nature of the data. A more detailed description of the analysis is available in Annex 1 to ITU (2009).

2 As of 2010 the ITU annual data-collection survey, there were 59 economies reporting the data for this indicator.

3 Wireless Intelligence is part of GSM Media LLC, a wholly owned subsidiary of GSMC Limited, the organization behind the GSMA Mobile World Congress and GSMA Mobile Asia Congress, see https://www.wirelessintelligence.com/about/.

4 UIS "Education Indicators: Technical Guidelines", see http://www.uis.unesco.org/ev.php?ID=5202_201&ID2=DO_TOPIC.

5 See OECD and European Commission Joint Research Centre (2008).

6 For more details, see Annex 1 to ITU (2009).

Annex 2. ICT Price Basket (IPB) methodology

Tariff-data collection and sources

All 2010 tariffs were collected in August 2010, through the *ITU Tariff Indicators questionnaire*, which was sent to administrations and statistical contacts of all ITU Member States. Through this questionnaire, contacts were also requested to provide 2008 and 2009 tariffs. For those countries that did not reply, tariffs were collected directly from operators' websites. Tariffs were collected from the operator with the largest market share (as measured by the number of subscriptions), either from its website or through direct correspondence. Insofar as, for many countries, it is not clear which Internet service provider (ISP) has the dominant market share, preference was given to tariffs offered by the (former) incumbent telecommunication operator. In some cases, especially when tariffs were not clearly advertised, or described only in the local language, and when ISPs did not respond to queries, alternative ISPs were chosen. All prices were gathered during the second half of 2010, and converted into USD using the 2010 average annual UN operational rate of exchange. Similarly, for countries that did not provide 2008 tariffs, these were collected in the second half of 2008, and converted using the 2008 annual UN operational rate of exchange.[1]

The fixed-telephone sub-basket

By the end of 2010, the number of fixed-telephone lines stood at around 1.2 billion. Although at the global level the number of fixed-telephone lines has started to decrease since 2006, the ITU ICT Price Basket (IPB) includes a sub-basket for fixed telephony because fixed-telephone access remains an important access technology in its own right in a large number of countries. Additionally, the conventional fixed-telephone line is used not only for dial-up Internet access, but also as a basis for upgrading to DSL broadband technology, which today represents about 63 per cent of all fixed-broadband subscriptions.[2] While more and more countries are moving away from narrowband/dial-up Internet access to broadband, dial-up Internet access still remains the only Internet access available to many people in developing countries. Since the IPB does not include dial-up (but only broadband) tariffs, and dial-up Internet access requires users to subscribe to a fixed-telephone line, the fixed-telephone sub-basket can be considered a proxy for the price of dial-up Internet access.

The fixed-telephone sub-basket has been developed to capture the average monthly cost of a basic local fixed residential telephone service. Following the methodology of the World Bank's "Price Basket for residential fixed line", it includes the monthly subscription fee plus the cost of 30 three-minute local calls to the same (fixed) network (15 peak and 15 off-peak calls). However, unlike the World Bank's basket, it does not take into consideration the one-time connection charge. This choice has been made in order to improve comparability with the other sub-baskets, which include only recurring monthly charges. If the monthly subscription includes free minutes of calls, then these are taken into consideration and deducted from the total cost of the fixed-telephone sub-basket.

The cost of a three-minute local call refers to the cost of a three-minute call within the same exchange area (local call) using the subscriber's equipment (i.e. not from a public telephone). It thus refers to the amount the subscriber must pay for a three-minute call, and not the average price for each three-minute interval. For example, some operators charge a connection fee for every call, or a different price for the first minute of a call. In this case, the actual amount for the (first) three

Annex Table 2.1: OECD mobile-cellular low-user call distribution (2009 methodology):

	To fixed	On-net	Off-net	TOTAL	Call distribution by time of day (%)
Call distribution (%)	17.0	56.0	26.0	100.0	100.0
Calls	5.2	16.9	7.9	30.0	
Peak	2.4	7.8	3.6	13.8	46.0
Off-peak	1.5	4.9	2.3	8.7	29.0
Weekend	1.3	4.2	2.0	7.5	25.0
Duration (minutes per call)	2.0	1.6	1.7		
Duration (total minutes of calls)	10.4	27.0	13.4	50.9	N/A
Peak	4.8	12.4	6.2	23.4	46.0
Off-peak	3.0	7.8	3.9	14.8	29.0
Weekend	2.6	6.8	3.4	12.7	25.0
Calls	30 calls per month				
SMS	100 SMS per month (50 on-net, 50 off-net)				

Note: N/A: Not applicable.
Source: ITU, based on OECD (2010a).

minutes is calculated. Many operators indicate whether advertised prices include taxes or not. If they are not included, and if the tax rate is advertised, taxes are added to the sub-basket, to improve the comparability of tariffs between countries. The sub-basket does not take into consideration the price of a telephone set.

The mobile-cellular sub-basket

The mobile-cellular market is the fastest growing telecommunication market and uncontested in terms of subscriber numbers. According to ITU, there were 5.4 billion mobile-cellular subscriptions worldwide by the end of 2010. No other ICT service has ever had the same kind of impact in terms of subscriptions, particularly in the developing world, in so little time.

The mobile-cellular sub-basket is largely based on, but does not entirely follow, the 2009 methodology of the OECD low-user basket. The mobile-cellular sub-basket refers to a 30-call basket, which is the entry-level basket of the 2009 OECD methodology.[3] Unlike the 2009 OECD methodology, which is based on the tariffs of the two largest mobile operators, the ITU mobile-cellular sub-basket uses (only) the largest mobile operator's tariffs. Additionally, the ITU mobile-cellular sub-basket does not take into account calls to voicemail (which in the OECD basket represent 4 per cent of all calls), nor non-recurring charges, such as the one-time charge for a SIM card.[4] The basket gives the price of a standard basket of mobile monthly usage in USD determined by the OECD for 30 outgoing calls per month in predetermined ratios plus 100 sms messages.[5] The cost of local short messaging service (sms) is the charge to the consumer for sending a single sms text message within the local exchange area. The basket considers on-net and off-net calls as well as calls to a fixed telephone[6] and, since the price of a call often depends on the time of day or week it is made, peak, off-peak and weekend periods are also taken into consideration. The call distribution is outlined in Annex Table 2.1.

Prepaid tariffs were chosen because they are often the only payment method available to low-income users, who might not have a regular income and will thus not qualify for a postpaid subscription based service. Rather than reflecting the cheapest option available, the mobile-cellular sub-basket therefore corresponds to a basic, representative package available to all customers. In countries where no prepaid offers are available, the monthly fixed cost (minus the free minutes of calls included, if applicable) of a postpaid subscription is added to the basket.

To make tariffs comparable, a number of rules were applied (Annex Box 2.1).

It should also be noted that there has been a methodological change in the computation of the ICT Price

Annex Box 2.1: Rules applied to collect tariffs for the 2010 mobile-cellular sub-basket

1. The OECD 2009 mobile basket for the "30 calls per month basket" is used as a basis for the ITU data collection on mobile-cellular prepaid tariffs.
2. Tariffs are based on the tariffs published by the dominant operator, in terms of the number of subscriptions/market share.
3. If there are several prepaid plans, the plan that is chosen is the one that comes closest to the 30 calls and 100 sms included.
4. Special offers and plans with limited availability (for example those reserved for a limited number of customers) cannot be used.
5. If subscribers can choose "favourite" numbers (for family, friends, etc.) with a special tariff, this special tariff cannot be taken into consideration (irrespective of the quantity of numbers).
6. If prices vary between minutes (1st minute = price A, 2nd minute = price B, 3rd minute = price C), the sum of the different prices will be divided by the number of different prices (for example: price per minute=(A+B+C)/3).
    - 6.1. If only the first minute is different, calculate the average price per minute based on 3 minutes.
    - 6.2. If prices vary beyond 3 minutes, calculate the average price per minute based on 3 minutes.
7. If there is a connection cost per call, then this is taken into consideration in the final formula of the mobile-cellular basket, based on 30 calls.
8. If free minutes/calls/sms are included in the connection fee, then these are taken into consideration and deducted from the number of calls/minutes/sms in the formula that is used to calculate the price basket.
9. If there are different prices for an sms (off-peak vs peak), then the average of both is used.
10. If there are different off-peak tariffs, then the one that is the cheapest before midnight is used.
11. If the only off-peak period is after midnight, then this is not used. Instead, the peak price is applied.
12. If there are different peak tariffs, the most expensive one during daytime is applied.
13. If there are different weekend tariffs, the price that applies Sundays during daytime applies (or the equivalent day in countries where weekends are not on Sundays).
14. If there is no weekend price, the average peak and off-peak price that is valid during the week applies.
15. When the customer can chose between different connection charges that include different amounts of units/minutes, and the price per minute/unit decreases the higher the connection charge, the 'cheapest' refill card is used. If different connection charges exist depending on the validity period, the validity period for 30 days (or closest to 30 days) applies.
16. If calls are charged by call (and not by minute), the mobile-cellular sub-basket formula will be calculated based on 30 calls.
17. Tariffs include taxes.

Basket's mobile-cellular sub-basket, with the result that the values in this report are not strictly comparable with those published in the previous IPB (ITU, 2010b). This change in methodology is due to an update in the OECD low-user basket, which ITU has adopted. In particular, the new (2009) OECD low-user basket includes *more* calls (30, instead of 25 previously) and *more* sms (100, instead of 30 previously), so the overall value of the latest IPB is higher.

The fixed-broadband sub-basket

The discussion on today's information society is increasingly focused on the Internet, which is the single most powerful ICT in terms of access to information and applications. Currently, ITU estimates that one in three people use the Internet; practically all governments and large businesses today are online; and the Internet has transformed the way people communicate.

To take full advantage of the potential of the Internet, broadband Internet access is indispensable. Many of the most popular applications and services in use today, including many that have the greatest development potential, require a high-speed broadband connection. By the end of 2010, there were 527 million fixed-broadband connections, according to ITU. While it is not possible to know how many people access the Internet over a fixed-broadband connection, more and more of the world's 2 billion Internet users have gone 'high speed'. Indeed, the number of dial-up and narrowband connections is decreasing, and in many countries Internet access is almost exclusively broadband.

The price computed for the fixed-broadband sub-basket gives a broad representation of an entry-level fixed-broadband offer available in an economy. The price is calculated based on a 256 kbit/s connection and a minimum of 1 Gigabyte (GB) of data. Broadband is considered any dedicated connection to the Internet at speeds equal to, or greater than, 256 kbit/s, downstream. Where several offers are available, preference is given to a 256 kbit/s connection. Preference is also given to 'unlimited' offers, when these are cheaper than a capped offer (based on 1 GB of data). If providers set a limit of less than 1 GB on the amount of data that can be transferred within a month, then the price per additional Gigabyte was used and added to the monthly tariff to calculate the cost of 1 GB of data per month. Whenever possible, prices are for services over a digital subscriber line (DSL), since this remains the most common access method worldwide. The sub-basket does not include installation charges, modem prices or telephone/line rentals that are often required for a DSL service. The tariff represents the broadband entry-level plan in terms of the minimum speed of 256 kbit/s, but does not take into account special offers – limited in time or to specific geographic areas. The plan does not necessarily represent the fastest or most cost-effective connection, since the price for a higher-speed plan is often relatively cheaper (on account of caps).

A future mobile-broadband sub-basket

An increasing number of people are accessing the Internet over mobile-broadband connections, and in some parts of the world mobile broadband is the only means of access to the Internet. By the end of 2010, more than 150 countries were offering 3G services, but many countries, such as India and China, only launched services in 2009, and operators are still in the process of adjusting tariffs and pricing structures to subscribers' needs and usage patterns.

There are two main reasons for not including mobile-broadband prices in the 2010 IPB. First, mobile-broadband services are not yet available in all countries, so the number of countries included in the IPB would have to be reduced. Second, given the relative novelty of the service, pricing structures are changing quite rapidly and vary between countries. Mobile-broadband subscriptions could include the subscription to a USB/dongle which enables a computer to connect to the Internet via a 3G network; or they could refer to the subscription to the Internet via a mobile-cellular telephone. While both subscriptions use the same high-speed (3G) wireless network, packages and prices differ. Often, access to data and the Internet are also bundled with other services, such as calls or sms, which makes it difficult to separate out the price for data only. These difficulties suggest that some comparisons need to be made and some rules need to be established before a harmonized mobile-broadband sub-basket can be calculated. Finally, it is not clear if this sub-basket should be given the same weight as the other sub-baskets, or whether it should be grouped with the fixed-broadband sub-basket.

Endnotes

1 For the 2008 ICT Price Basket, 2008 PPP conversion factors, the 2008 UN conversion rate and 2008 GNI per capita data were used. For the 2010 IPB, 2009 values were used in all three cases, as 2010 data were not yet available.

2 See Point Topic (2011).

3 See OECD (2010a), pp. 13-14.

4 It should also be noted that the previous (2009) mobile sub-basket was based on the 2001 methodology of the OECD low-user basket, which included only 25 calls and 30 sms, instead of the 30 calls and 100 sms that are included in the 2009 methodology. The results of the mobile sub-basket and the previous IPB that were published in 2010 are therefore not strictly comparable with the 2008 results published in this report. Since the updated mobile sub-basket methodology includes more calls and more sms, it will be relatively more expensive than the mobile sub-basket published in 2010.

5 For more details on the OECD/Teligen methodology, see OECD (2010a) pp. 13-14.

6 On-net refers to a call made to the same mobile network, while off-net and fixed line refer to calls made to other (competing) mobile networks and to a fixed-telephone line, respectively.

Annex 3. Methodological aspects related to household survey results

Since 2004, the Partnership on Measuring ICT for Development has been striving to achieve internationally comparable and reliable statistics on ICT access and use. The members of the Partnership have been working together in developing and maintaining a core list of ICT indicators which is recommended as a minimum set that could be collected by countries, in particular by national statistics offices (NSO). One of ITU's responsibilities has been to provide guidance and capacity building in the collection of data for the core ICT household indicators, specifically on ICT access by households and ICT use by individuals.

Until 2005, ITU focused on collecting primarily telecommunication infrastructure and market statistics. It thus has historic time-series data on ICT services, including Internet and mobile-cellular subscription data. However, subscription (or supply-side) data have their limitations, particularly when it comes to analysing the uptake and use of ICTs by people and businesses. From 2005, ITU therefore started gathering demand-side data. Collected through household surveys, demand-side data provide in-depth information on ICT use not only in terms of usage levels but also according to socio-demographic and economic characteristics, which in turn can be used to identify ICT divides and barriers. More and more countries have started collecting demand-side ICT data through official household surveys. By end 2010, 34 developing economies had collected data on the number of individuals using the Internet for at least one year between 2008 and 2010 through an official household survey. Chart 5.1 (Chapter 5) provides a more detailed picture of data availability on this indicator by region and over time.

Work has been undertaken by ITU, in cooperation with NSOs, to harmonize questions on ICT access and use by households and individuals. However, full harmonization is not always feasible, and some limitations still exist in regard to comparability of questions or classificatory variables. Additional efforts have been made to try to show harmonized and comparable information as far as possible.

For example, populations taken into account to measure the use of ICT may differ, as not all countries are using the same age range for surveyed individuals (see Annex Table 3.1). For comparison purposes, and whenever possible, the results are shown for the population between 15 and 74 years old. It is expected that more countries will collect data with a broader age scope in the future, so that comparisons can be made at the level of the total population.

In other cases, not all countries with available data for a certain variable can be included in the analysis due to the fact that not all subcategories of a question or a classificatory variable have been surveyed. However, it is expected that this can be corrected in future analyses, as more countries begin to follow the recommendations by the Partnership.

When analysing survey results, it is very important to take into account that, as surveys apply to a representative sample of the population and not the entire population, they incur sampling errors. Results which at first sight look different may be very close or potentially equal when they are compared in light of their standard errors. For example, results that show small differences among classificatory categories need to be read with care, since in some cases they may overlap when confidence intervals are calculated. Non-sampling errors, also referred to as bias, may also occur at any time. This can be due, for example, to sampling frame inadequacies or non-response.

Annex Table 3.1: Age scope of household surveys

Economy/region	Scope
Indonesia, I.R. of Iran, Ukraine	All population
Korea (Rep.), Macao (China), United States	Population age 3+
Chile, Colombia, Costa Rica, Ecuador, Honduras, Jordan	Population age 5+
Japan, Mexico, Peru, Thailand, Uruguay, Egypt	Population age 6+
Azerbaijan, Nicaragua, Singapore	Population age 7+
Brazil, El Salvador, Hong Kong (China), Paraguay	Population age 10+
Morocco	Population age 12-65
Mauritius, Senegal	Population age 12+
Switzerland	Population age 14+
Australia, New Zealand, United Arab Emirates	Population age 15+
EU 27*, Croatia, Iceland, Moldova, Norway, Serbia, Macedonia, Turkey	Population age 16-74
Canada, Belarus, Research ICT Africa	Population age 16+
Qatar	Population age 18+
Israel	Population age 20+
Russia	Population age less than 74

Note: *Although the EU27 data (collected by Eurostat) refer to the age group 16 - 74 years old, some countries collect data for a broader age scope: Italy (all), Germany (10+), Slovenia (10-74), Slovak Republic (12+), Lithuania, Netherlands (12-74), and Norway, Spain and United Kingdom (16+).

Annex 4. Statistical tables of indicators used to compute the IDI

Access indicators

	Economy	Fixed-telephone subscriptions per 100 inhabitants		Mobile-cellular subscriptions per 100 inhabitants		International Internet bandwidth Bit/s per Internet user		Percentage of households with computer		Percentage of households with Internet	
		2008	2010	2008	2010	2008	2010	2008	2010	2008	2010
1	Albania	10.8	10.3	98.7	141.9	*1'581*	9'709	*12.0*	*15.6*	*8.8*	*11.7*
2	Algeria	8.9	8.2	78.5	92.4	*913*	8'120	12.4	*20.0*	3.4	*10.0*
3	Angola	0.6	*1.6*	37.6	*46.7*	*545*	*629*	*5.6*	*7.1*	*4.4*	*5.7*
4	Antigua & Barbuda	43.7	47.1	157.2	184.7	18'409	16'909	47.0	*50.9*	36.0	*38.0*
5	Argentina	24.5	*24.7*	117.1	*141.8*	*17'914*	*27'494*	*37.6*	*40.0*	*17.6*	*21.3*
6	Armenia	20.3	19.1	*75.9*	125.0	5'666	9'219	10.2	*17.8*	5.9	*11.6*
7	Australia	43.6	38.9	102.8	101.0	*9'728*	*41'361*	74.9	*81.1*	66.6	*74.1*
8	Austria	39.4	38.7	129.7	145.8	*41'127*	*73'744*	76.0	76.2	68.9	72.9
9	Azerbaijan	14.7	16.3	73.2	99.0	6'703	12'387	14.6	21.5	13.9	35.3
10	Bahrain	20.9	18.1	136.9	124.2	*8'121*	*14'409*	87.0	87.0	*57.7*	74.0
11	Bangladesh	0.9	*0.6*	30.7	46.2	511	2'790	*2.2*	*3.1*	*1.9*	*2.6*
12	Barbados	*55.1*	50.3	106.1	128.1	*5'525*	20'638	*53.0*	*61.4*	*43.0*	*51.0*
13	Belarus	38.4	43.1	84.0	107.7	*2'021*	22'027	28.5	40.8	15.6	31.2
14	Belgium	44.7	*43.3*	107.0	113.5	*52'952*	*106'008*	70.0	76.7	63.6	72.7
15	Benin	1.4	1.5	43.4	79.9	1'003	2'238	*2.1*	*2.5*	*0.1*	*0.1*
16	Bhutan	3.9	3.6	36.1	54.3	980	3'343	4.7	*6.4*	2.8	*4.9*
17	Bolivia	8.2	8.5	52.4	72.3	2'099	4'271	14.7	*17.0*	3.3	*3.9*
18	Bosnia and Herzegovina	27.3	26.6	84.2	80.1	*1'529*	15'650	*28.3*	*33.7*	*12.6*	*18.1*
19	Botswana	7.3	6.8	76.0	117.8	3'462	6'436	*4.9*	*6.5*	*1.0*	*2.8*
20	Brazil	21.5	21.6	78.6	104.1	6'244	*12'619*	31.2	34.9	23.8	27.1
21	Brunei Darussalam	21.0	20.0	103.7	109.1	3'504	*25'068*	*72.6*	*79.6*	*65.2*	*71.3*
22	Bulgaria	28.8	*29.4*	138.3	141.2	95'326	*115'464*	28.6	35.1	25.3	33.1
23	Burkina Faso	1.0	0.9	19.5	34.7	3'496	3'474	*1.8*	*2.1*	*0.2*	*0.2*
24	Cambodia	0.3	2.5	30.7	*57.7*	*13'476*	*28'067*	3.7	*4.3*	0.2	*0.4*
25	Cameroon	1.4	2.5	32.8	41.6	*314*	411	*4.5*	*5.4*	*1.3*	*1.5*
26	Canada	*54.8*	*50.0*	66.3	70.7	*31'296*	*54'039*	79.4	*83.9*	74.6	*78.2*
27	Cape Verde	14.7	14.5	57.0	75.0	1'590	2'083	*8.2*	*11.3*	*2.5*	*3.5*
28	Chad	*0.4*	0.5	*17.0*	23.3	*150*	101	*0.4*	*0.6*	*0.1*	*0.2*
29	Chile	21.0	20.2	88.1	116.0	*10'376*	19'140	40.0	*46.8*	*26.6*	*35.0*
30	China	25.6	21.9	48.3	64.0	2'133	2'389	*31.8*	*35.4*	*18.3*	*23.7*
31	Colombia	17.6	14.7	91.9	93.8	8'725	10'245	22.8	26.1	12.8	19.3
32	Comoros	4.1	2.9	13.2	22.5	412	4'430	*4.8*	*5.7*	*1.5*	*2.4*
33	Congo (Dem. Rep.)	0.1	0.1	15.9	17.2	47	232	*0.3*	*0.3*	*0.2*	*0.3*
34	Costa Rica	31.8	31.8	41.7	65.1	5'284	12'686	34.4	41.3	14.8	24.1
35	Côte d'Ivoire	1.9	*1.1*	55.0	*75.5*	*2'633*	7'794	*1.4*	*1.8*	*0.7*	*1.1*
36	Croatia	42.5	42.4	133.1	144.5	31'518	*42'920*	52.9	60.0	45.3	56.5
37	Cuba	9.7	10.3	2.9	8.9	207	231	3.3	*3.4*	0.5	*0.6*
38	Cyprus	38.4	37.6	94.4	93.7	*6'584*	*17'098*	56.3	60.5	42.9	53.7
39	Czech Republic	23.9	20.9	132.8	136.6	*30'606*	*69'245*	52.4	64.1	45.9	60.5
40	Denmark	54.1	47.3	119.3	124.4	*85'583*	*142'166*	85.5	88.0	81.9	86.1
41	Djibouti	1.7	2.1	13.2	18.6	*24'047*	13'416	10.6	*13.0*	1.3	*2.2*
42	Dominican Rep.	10.2	10.2	74.6	89.6	6'957	3'568	*14.2*	*16.4*	*6.0*	*7.6*
43	Ecuador	13.6	14.4	83.1	102.2	2'259	6'906	22.8	27.0	7.0	11.8
44	Egypt	15.1	11.9	52.7	87.1	1'920	6'591	27.0	34.0	19.9	31.2
45	El Salvador	17.6	16.2	113.4	124.3	324	1'615	10.9	*14.2*	4.5	*7.5*
46	Eritrea	0.8	1.0	2.2	3.5	119	137	*0.3*	*0.3*	*0.2*	*0.3*
47	Estonia	37.1	36.0	121.0	123.2	17'946	23'144	59.6	69.2	58.1	67.8
48	Ethiopia	1.1	1.1	2.5	7.9	*1'399*	5'357	*0.5*	*1.4*	*0.1*	*0.3*
49	Fiji	*15.3*	*15.9*	71.1	*116.2*	*6'071*	*4'900*	*21.1*	*26.8*	*13.4*	*18.8*
50	Finland	31.0	23.3	128.5	156.4	*44'962*	*107'267*	75.8	82.0	72.4	80.5
51	France	56.5	56.1	93.4	99.7	*45'567*	*69'596*	68.4	76.4	62.3	73.6
52	Gabon	*1.8*	2.0	*89.6*	106.9	*3'331*	52'083	*5.2*	*7.6*	*4.1*	*6.0*
53	Gambia	3.0	2.8	71.3	85.5	*604*	1'063	*4.6*	5.7	*2.0*	*3.2*
54	Georgia	14.1	13.7	62.7	73.4	*11'368*	*21'275*	6.1	18.2	5.9	16.6
55	Germany	61.0	55.4	127.9	127.0	*46'688*	*74'223*	81.8	85.7	74.9	82.5
56	Ghana	0.6	1.1	49.7	71.5	2'028	1'908	*6.4*	*9.1*	*0.3*	*0.4*
57	Greece	46.5	45.8	122.2	108.2	*14'460*	30'998	44.0	53.4	31.0	46.4
58	Guatemala	10.6	10.4	109.2	125.6	2'640	*3'971*	*14.3*	*15.8*	*2.4*	*3.0*
59	Guinea	0.3	0.2	*28.8*	40.1	967	1'565	*1.0*	*1.5*	*0.6*	*1.0*
60	Guyana	18.5	19.9	59.6	73.6	1'681	6'383	*6.1*	*6.5*	*4.0*	*5.1*
61	Honduras	11.3	8.8	85.0	125.1	*3'566*	*5'932*	11.1	*12.9*	4.2	*6.0*
62	Hong Kong, China	60.4	61.6	167.2	190.2	465'650	683'362	74.6	*77.3*	70.9	*75.7*
63	Hungary	30.9	29.8	122.0	120.3	10'691	9'974	58.8	66.4	48.4	60.5
64	Iceland	64.2	63.7	108.5	108.7	*17'686*	290'995	91.9	93.0	87.7	92.0
65	India	3.2	2.9	29.1	61.4	2'837	5'825	*4.4*	*6.1*	*3.4*	*4.2*
66	Indonesia	12.9	*15.8*	59.8	*91.7*	1'349	*3'207*	8.3	10.8	*1.9*	*3.9*
67	Iran (I.R.)	34.3	*36.3*	59.5	*91.2*	1'466	*3'120*	*22.3*	*33.7*	*14.0*	*20.8*
68	Ireland	51.1	46.5	116.0	105.2	*52'740*	*64'054*	70.4	76.5	63.0	71.7
69	Israel	45.5	*44.2*	126.6	*133.1*	*4'748*	*8'024*	71.0	77.0	61.8	69.0
70	Italy	36.8	*35.7*	150.8	*135.4*	29'140	61'535	56.0	64.8	46.9	59.0
71	Jamaica	11.6	9.6	100.1	113.2	3'115	*20'967*	*17.1*	*20.0*	*8.1*	*11.8*
72	Japan	38.3	31.9	87.2	95.4	7'610	*15'477*	85.9	88.5	79.8	*85.4*
73	Jordan	8.9	7.8	90.8	107.0	3'431	*6'380*	39.3	51.4	13.2	*22.1*
74	Kazakhstan	22.1	25.0	95.2	123.3	6'388	8'592	*18.4*	*25.1*	*17.0*	*23.2*
75	Kenya	1.7	1.1	42.4	61.6	248	1'926	*6.3*	*8.0*	*2.5*	*4.0*
76	Korea (Rep.)	51.0	59.2	95.5	105.4	6'698	11'878	80.9	81.8	94.3	96.8

	Economy	Fixed-telephone subscriptions per 100 inhabitants		Mobile-cellular subscriptions per 100 inhabitants		International Internet bandwidth Bit/s per Internet user		Percentage of households with computer		Percentage of households with Internet	
		2008	2010	2008	2010	2008	2010	2008	2010	2008	2010
77	Kyrgyzstan	9.5	*9.4*	65.2	91.9	367	*281*	*2.5*	*4.0*	*2.0*	*3.2*
78	Lao P.D.R.	2.1	1.7	33.6	64.6	2'128	2'304	*5.1*	*6.9*	*2.1*	*3.4*
79	Latvia	26.1	*23.6*	101.2	*102.4*	*4'861*	31'151	56.7	62.8	52.8	59.8
80	Lebanon	*18.0*	21.0	*34.2*	68.0	*1'336*	1'908	*27.6*	*31.7*	*20.0*	*29.7*
81	Lithuania	23.4	22.1	149.5	147.2	17'650	45'426	52.0	59.2	50.9	60.6
82	Luxembourg	53.5	53.7	145.2	143.3	*62'456*	*86'988*	82.8	90.2	80.1	90.3
83	Macao, China	33.9	30.8	179.9	206.4	23'256	30'768	75.5	*80.1*	69.3	*80.0*
84	Madagascar	0.8	0.8	24.7	39.8	481	5'512	*0.9*	1.4	*0.7*	*1.1*
85	Malaysia	16.4	16.1	100.8	121.3	4'178	11'652	38.7	*41.0*	21.1	*25.1*
86	Maldives	15.3	15.2	141.6	156.5	11'377	32'328	*38.7*	54.4	*13.5*	22.9
87	Mali	0.6	0.7	23.8	47.7	2'881	1'868	*2.4*	*3.0*	*1.0*	*1.2*
88	Malta	58.2	59.4	93.2	109.3	26'502	*19'207*	62.6	73.1	59.0	70.4
89	Mauritania	2.3	2.1	63.5	79.3	3'976	*2'698*	*2.5*	*3.0*	*1.0*	*1.4*
90	Mauritius	28.3	29.8	80.5	91.7	1'650	10'479	30.0	*33.4*	20.2	*24.6*
91	Mexico	18.5	17.5	68.1	80.6	4'442	7'328	25.7	29.8	13.5	22.2
92	Moldova	30.7	32.5	66.7	88.6	15'878	34'986	*28.6*	*36.9*	*16.0*	*34.7*
93	Mongolia	7.5	7.0	66.1	91.1	*13'389*	61'146	14.0	22.3	2.9	7.7
94	Montenegro	27.7	*26.8*	184.1	*185.3*	*7'370*	21'317	25.3	*32.0*	17.5	*21.2*
95	Morocco	9.5	11.7	72.8	100.1	*2'424*	4'790	*27.0*	34.2	14.0	25.5
96	Mozambique	0.4	0.4	19.7	30.9	*809*	1'312	*4.0*	*7.5*	*0.9*	1.1
97	Namibia	6.6	*6.7*	47.8	67.2	*1'706*	*4'413*	*12.7*	*15.4*	*3.5*	*3.9*
98	Nepal	2.8	2.8	14.5	30.7	334	*1'969*	3.1	*4.2*	*1.0*	*1.2*
99	Netherlands	44.3	43.2	125.0	116.2	*138'627*	*154'334*	87.7	92.0	86.1	90.9
100	New Zealand	40.9	42.8	108.0	114.9	*9'736*	*19'307*	*77.3*	*83.9*	*67.5*	*79.0*
101	Nicaragua	4.5	*4.5*	55.1	65.1	*4'352*	*8'638*	*6.6*	*8.2*	*1.2*	*2.6*
102	Niger	0.4	0.5	13.1	24.5	*989*	*2'330*	0.4	*1.2*	0.1	*0.2*
103	Nigeria	0.9	0.7	41.8	55.1	*63*	*111*	12.0	*15.4*	6.0	*9.0*
104	Norway	39.7	34.8	109.0	113.1	*69'311*	*109'635*	85.8	90.9	84.0	89.8
105	Oman	11.6	10.2	122.1	165.5	4'721	4'901	*39.2*	*45.6*	*21.9*	*27.7*
106	Pakistan	2.6	2.0	52.6	59.2	*341*	2'595	*9.8*	*13.0*	*5.0*	*8.0*
107	Panama	15.4	15.7	114.9	184.7	*13'020*	21'278	*18.0*	*19.8*	*9.3*	*11.8*
108	Papua New Guinea	1.0	1.8	13.3	27.8	1'301	3'167	*3.2*	*3.5*	*1.9*	*2.7*
109	Paraguay	5.9	*6.3*	92.9	91.6	3'374	*3'282*	13.9	*16.3*	5.8	*9.0*
110	Peru	10.8	10.9	73.6	100.1	*4'597*	*8'487*	18.0	*22.7*	8.8	*12.3*
111	Philippines	4.5	7.3	75.5	85.7	*8'915*	*10'723*	*9.3*	*13.1*	*7.2*	*10.1*
112	Poland	25.4	*24.7*	114.9	*120.2*	*14'774*	*37'732*	58.9	69.0	47.6	63.4
113	Portugal	39.1	42.0	132.1	142.3	*63'924*	*146'649*	49.8	*59.5*	46.0	53.7
114	Qatar	19.0	16.9	102.4	132.4	19'576	20'190	71.0	89.6	63.0	84.0
115	Romania	22.0	20.9	113.3	114.7	29'860	51'408	37.8	47.9	30.4	42.2
116	Russia	31.8	31.4	139.4	166.3	*5'207*	30'776	43.0	*50.0*	29.0	*42.1*
117	Rwanda	0.2	0.4	13.2	33.4	864	2'008	*0.3*	*0.5*	*0.1*	*0.1*
118	Saudi Arabia	15.7	15.2	137.6	187.9	*2'123*	28'252	*47.8*	*57.3*	*41.5*	*54.4*
119	Senegal	2.0	2.7	45.7	67.1	2'321	2'413	*4.6*	*5.7*	*1.9*	*4.5*
120	Serbia	40.3	40.5	125.6	129.2	12'148	*47'011*	*39.9*	*50.9*	*27.6*	*40.2*
121	Seychelles	26.1	25.5	109.2	135.9	2'153	5'229	*25.0*	*32.1*	*13.0*	*17.1*
122	Singapore	39.3	39.0	134.4	143.7	51'658	174'583	80.0	84.0	76.0	82.0
123	Slovak Republic	23.7	20.1	101.4	108.5	8'505	11'526	63.2	72.2	58.3	67.5
124	Slovenia	48.7	45.0	101.8	104.5	*17'086*	*70'384*	65.1	70.5	58.9	68.1
125	South Africa	*9.0*	8.4	91.2	100.5	*2'397*	1'714	*15.9*	*18.3*	*6.5*	10.1
126	Spain	45.6	43.2	109.9	111.8	*29'737*	*55'456*	63.6	68.7	51.0	59.1
127	Sri Lanka	16.8	17.2	54.1	83.2	2'526	3'316	*9.5*	*12.3*	3.0	*5.9*
128	Suriname	*16.1*	16.2	*127.6*	*169.6*	2'992	3'098	26.0	*29.9*	9.0	*11.9*
129	Swaziland	*3.8*	3.7	46.2	*61.8*	457	*578*	*9.3*	*10.7*	*3.3*	*3.6*
130	Sweden	57.8	53.5	108.4	113.5	*108'262*	*236'919*	87.1	89.5	84.4	88.3
131	Switzerland	63.7	58.6	117.5	123.6	*83'361*	*155'512*	*80.6*	*86.9*	*78.0*	*86.4*
132	Syria	18.4	19.9	35.8	57.3	*1'562*	1'357	*36.7*	*40.4*	*31.2*	*35.2*
133	Tanzania	0.3	0.4	30.8	46.8	*79*	701	*2.5*	*2.6*	*0.6*	*0.7*
134	TFYR Macedonia	22.3	20.0	95.9	104.5	*11'640*	*16'831*	45.6	60.3	29.4	49.2
135	Thailand	10.8	10.1	90.6	100.8	*4'434*	10'829	19.6	22.8	8.6	11.4
136	Togo	2.4	3.5	26.8	40.7	732	4'280	*3.3*	*3.7*	*1.1*	1.3
137	Trinidad & Tobago	23.7	21.9	135.7	141.2	22'787	17'842	*42.8*	*53.1*	*18.6*	*19.8*
138	Tunisia	12.1	12.3	83.9	106.0	4'084	13'275	13.1	*17.0*	5.0	7.7
139	Turkey	24.7	22.3	92.8	84.9	8'471	19'087	*32.0*	44.2	25.4	41.6
140	Turkmenistan	*9.7*	10.3	23.1	63.4	929	3'516	*7.0*	*12.0*	*4.0*	*7.0*
141	Uganda	0.5	1.0	27.3	38.4	149	822	*1.6*	*2.1*	*0.2*	*0.4*
142	Ukraine	28.7	28.5	121.1	118.7	*10'305*	*11'480*	21.2	30.7	10.3	20.7
143	United Arab Emirates	25.7	19.7	150.8	145.5	8'718	*34'135*	74.0	76.0	66.0	65.0
144	United Kingdom	55.9	53.7	125.2	130.2	*72'871*	*132'749*	78.0	82.6	71.1	79.6
145	United States	53.4	48.7	85.7	89.9	*22'154*	*36'704*	*72.5*	*75.5*	*63.6*	*71.6*
146	Uruguay	28.7	28.6	104.8	131.7	*5'323*	25'295	35.4	*52.8*	20.8	*33.3*
147	Uzbekistan	6.9	*6.8*	46.2	*76.3*	339	*273*	*3.2*	*4.5*	0.9	*1.3*
148	Venezuela	22.9	24.4	97.7	96.2	*5'509*	*6'779*	*15.3*	*17.3*	6.8	*9.7*
149	Viet Nam	17.2	18.7	87.1	175.3	2'435	5'552	11.4	*14.2*	*4.9*	*8.1*
150	Yemen	4.2	4.3	28.5	46.1	404	1'226	*3.3*	*4.0*	2.2	*2.9*
151	Zambia	0.7	*0.7*	28.6	*37.8*	585	*567*	*2.1*	*2.4*	*1.4*	*2.0*
152	Zimbabwe	2.8	3.0	13.3	59.7	85	300	*4.0*	*5.3*	2.5	*4.0*

Note: Data in italics refer to ITU estimates.
Source: ITU World Telecommunication/ICT Indicators database.

Use indicators

	Economy	Percentage of individuals using the Internet 2008	Percentage of individuals using the Internet 2010	Fixed (wired)-broadband Internet subscriptions per 100 inhabitants 2008	Fixed (wired)-broadband Internet subscriptions per 100 inhabitants 2010	Active mobile-broadband subscriptions per 100 inhabitants* 2008	Active mobile-broadband subscriptions per 100 inhabitants* 2010
1	Albania	23.9	45.0	*2.0*	3.4	0.0	0.0
2	Algeria	10.2	12.5	*1.4*	2.5	0.0	0.0
3	Angola	*3.1*	*10.0*	*0.1*	*0.1*	0.8	5.6
4	Antigua & Barbuda	75.0	80.0	14.5	17.2	0.0	0.0
5	Argentina	28.1	*36.0*	8.0	9.6	1.9	12.8
6	Armenia	6.2	37.0	0.2	2.7	0.0	5.2
7	Australia	71.7	*76.0*	23.9	23.2	52.6	82.7
8	Austria	72.9	72.7	20.7	23.9	26.2	67.4
9	Azerbaijan	17.1	36.0	0.7	5.4	0.0	0.9
10	Bahrain	52.0	55.0	7.3	12.2	18.6	21.3
11	Bangladesh	*2.5*	*3.7*	*0.0*	*0.0*	0.0	0.2
12	Barbados	*66.5*	*70.2*	18.1	20.6	0.0	0.0
13	Belarus	23.0	31.7	4.9	17.4	0.2	11.6
14	Belgium	71.3	79.3	27.9	31.5	12.0	23.1
15	Benin	1.9	3.1	*0.0*	0.3	0.0	0.0
16	Bhutan	6.6	13.6	0.3	1.2	0.3	0.3
17	Bolivia	*10.8*	*20.0*	0.8	1.0	0.1	1.4
18	Bosnia and Herzegovina	34.7	52.0	5.0	10.4	0.0	10.7
19	Botswana	6.3	6.0	0.5	0.6	0.0	6.3
20	Brazil	33.8	40.7	5.4	7.2	1.8	10.6
21	Brunei Darussalam	46.0	50.0	4.4	5.4	38.4	61.4
22	Bulgaria	39.7	46.2	11.1	14.7	16.8	24.5
23	Burkina Faso	*0.9*	*1.4*	*0.1*	0.1	0.0	0.0
24	Cambodia	0.5	1.3	0.1	0.3	1.1	8.9
25	Cameroon	*3.4*	*4.0*	*0.0*	*0.0*	0.2	0.9
26	Canada	*76.7*	*81.6*	29.5	29.8	4.6	14.8
27	Cape Verde	*20.0*	*30.0*	1.5	3.0	0.0	0.0
28	Chad	*1.2*	*1.7*	*0.0*	0.0	0.0	0.0
29	Chile	*37.3*	*45.0*	8.5	10.5	2.4	7.1
30	China	22.6	34.3	6.2	9.4	0.0	2.0
31	Colombia	25.6	36.5	3.3	5.7	1.0	5.6
32	Comoros	*3.5*	*5.1*	0.0	*0.0*	0.0	0.0
33	Congo (Dem. Rep.)	0.4	0.7	*0.0*	0.0	0.0	0.0
34	Costa Rica	32.3	36.5	2.4	6.2	0.0	5.5
35	Côte d'Ivoire	*2.0*	*2.6*	0.1	*0.0*	0.0	0.0
36	Croatia	50.6	60.3	11.9	18.3	20.7	39.3
37	Cuba	12.9	15.1	0.0	0.0	0.0	0.0
38	Cyprus	42.3	53.0	13.7	17.6	20.5	61.3
39	Czech Republic	63.0	68.8	17.0	14.7	13.0	27.8
40	Denmark	85.0	88.7	36.5	37.4	27.1	54.7
41	Djibouti	2.3	6.5	0.3	0.9	0.0	0.0
42	Dominican Rep.	20.8	39.5	2.3	3.6	0.4	2.2
43	Ecuador	*18.8*	24.0	1.1	1.4	0.2	8.7
44	Egypt	18.0	26.7	1.0	1.8	0.8	6.4
45	El Salvador	10.1	*15.0*	2.0	2.8	0.8	5.0
46	Eritrea	4.1	5.4	0.0	0.0	0.0	0.0
47	Estonia	70.6	74.1	21.0	24.3	4.0	8.1
48	Ethiopia	*0.5*	*0.8*	0.0	0.0	0.0	0.3
49	Fiji	*12.2*	*14.8*	*1.5*	*1.9*	0.1	1.4
50	Finland	83.7	86.9	30.4	29.1	24.3	78.1
51	France	70.7	80.1	28.7	33.9	23.6	35.8
52	Gabon	6.2	*7.2*	*0.2*	0.2	0.0	0.0
53	Gambia	6.9	9.2	0.0	0.0	0.0	0.5
54	Georgia	*10.0*	*27.0*	2.2	5.1	9.3	18.8
55	Germany	77.9	81.9	27.5	31.6	21.2	36.4
56	Ghana	4.3	8.6	0.1	0.2	0.0	0.6
57	Greece	38.2	44.4	13.3	19.8	45.1	58.3
58	Guatemala	*8.3*	*10.5*	*0.7*	*1.8*	0.7	3.7
59	Guinea	0.9	*1.0*	0.0	0.0	0.0	0.0
60	Guyana	18.2	29.9	0.7	1.6	0.0	0.0
61	Honduras	9.6	11.1	*0.0*	*1.0*	0.7	4.2
62	Hong Kong, China	66.7	69.4	28.3	30.2	40.3	74.5
63	Hungary	56.0	65.3	16.8	19.6	15.5	29.9
64	Iceland	91.0	95.0	33.4	34.6	0.0	44.9
65	India	4.4	*7.5*	0.4	0.9	0.0	0.9
66	Indonesia	*7.9*	*9.1*	0.4	*0.8*	3.4	10.3
67	Iran (I.R.)	*10.2*	*13.0*	0.4	*0.7*	0.0	0.0
68	Ireland	65.3	69.9	20.3	22.8	33.0	47.3
69	Israel	59.4	67.2	23.7	*25.1*	34.2	62.2
70	Italy	44.5	53.7	18.8	*22.1*	50.6	59.4
71	Jamaica	*23.6*	*26.1*	3.6	4.3	0.9	7.9
72	Japan	75.4	*80.0*	23.8	26.9	73.2	87.8
73	Jordan	*23.0*	38.0	2.3	3.2	0.0	2.4
74	Kazakhstan	11.0	34.0	4.2	5.3	0.0	0.3
75	Kenya	8.7	*25.9*	0.0	0.0	0.1	5.6
76	Korea (Rep.)	81.0	83.7	33.4	36.6	71.4	91.0

	Economy	Percentage of individuals using the Internet		Fixed (wired)-broadband Internet subscriptions per 100 inhabitants		Active mobile-broadband subscriptions per 100 inhabitants*	
		2008	2010	2008	2010	2008	2010
77	Kyrgyzstan	15.7	*20.0*	0.4	*0.3*	0.0	4.1
78	Lao P.D.R.	3.6	7.0	0.1	0.2	0.0	0.4
79	Latvia	63.4	68.4	17.4	19.3	6.3	27.4
80	Lebanon	22.5	31.0	*4.7*	*4.7*	0.0	0.0
81	Lithuania	55.2	62.1	17.6	20.6	4.1	22.9
82	Luxembourg	82.2	90.6	29.4	32.8	64.7	72.1
83	Macao, China	49.2	*56.8*	23.4	24.1	0.0	56.1
84	Madagascar	*1.7*	*1.7*	0.0	0.0	0.0	0.8
85	Malaysia	55.8	55.3	4.8	7.3	8.8	27.2
86	Maldives	23.2	28.3	5.1	4.9	2.5	8.7
87	Mali	1.6	*2.7*	0.0	0.0	0.0	1.1
88	Malta	50.1	63.0	23.0	27.5	14.3	31.0
89	Mauritania	1.9	*3.0*	0.2	0.2	2.2	3.1
90	Mauritius	21.8	*24.9*	4.1	6.3	7.0	22.1
91	Mexico	21.7	31.0	6.7	10.0	1.7	8.3
92	Moldova	23.4	*40.0*	3.2	7.5	0.3	15.3
93	Mongolia	7.0	10.2	1.2	2.3	3.0	11.8
94	Montenegro	41.0	*52.0*	5.4	*8.3*	8.2	38.0
95	Morocco	33.1	49.0	1.5	1.6	2.3	10.0
96	Mozambique	1.6	4.2	0.0	0.1	0.0	1.5
97	Namibia	5.3	*6.5*	*0.0*	0.4	0.0	7.5
98	Nepal	1.7	6.8	*0.0*	0.4	0.0	0.0
99	Netherlands	87.4	90.7	35.2	38.0	25.0	37.7
100	New Zealand	*72.0*	83.0	21.4	24.9	44.7	66.2
101	Nicaragua	*5.3*	*10.0*	*0.6*	*0.8*	0.4	3.0
102	Niger	0.7	*0.8*	*0.0*	0.0	0.0	0.0
103	Nigeria	15.9	*28.4*	0.0	*0.1*	3.1	2.9
104	Norway	90.6	93.4	33.2	34.6	20.9	47.1
105	Oman	20.0	62.6	1.2	1.9	5.6	10.7
106	Pakistan	15.8	16.8	0.1	0.3	0.0	0.6
107	Panama	33.8	42.8	5.8	7.8	0.0	3.4
108	Papua New Guinea	1.2	1.3	0.0	0.1	0.0	0.0
109	Paraguay	14.3	23.6	1.4	0.6	0.3	4.1
110	Peru	30.6	34.3	2.5	3.1	0.4	7.2
111	Philippines	6.2	25.0	1.2	*1.8*	7.0	16.6
112	Poland	53.1	62.3	11.6	*13.2*	16.9	31.0
113	Portugal	44.1	51.1	15.4	19.4	36.7	72.5
114	Qatar	38.0	69.0	7.5	9.2	6.9	28.4
115	Romania	32.4	39.9	11.5	14.0	21.3	32.8
116	Russia	*26.8*	43.0	6.5	11.0	0.6	17.4
117	Rwanda	*3.1*	7.7	0.0	0.0	0.0	1.3
118	Saudi Arabia	36.0	41.0	4.0	5.5	9.1	57.8
119	Senegal	*10.6*	16.0	0.4	0.6	0.0	2.6
120	Serbia	35.6	40.9	6.0	*8.5*	6.7	19.0
121	Seychelles	40.4	*41.0*	3.2	7.3	2.3	4.7
122	Singapore	69.0	*70.0*	21.5	24.7	63.2	69.7
123	Slovak Republic	71.3	79.4	11.1	16.1	11.8	27.0
124	Slovenia	58.0	70.0	21.1	24.4	26.2	32.8
125	South Africa	8.4	12.3	0.9	1.5	5.0	16.6
126	Spain	59.6	66.5	20.1	23.0	36.0	55.7
127	Sri Lanka	5.8	12.0	0.5	1.0	2.3	9.6
128	Suriname	*21.1*	31.6	*1.1*	3.0	0.0	0.0
129	Swaziland	6.9	*8.0*	0.1	0.1	0.0	0.0
130	Sweden	90.0	90.0	31.4	31.6	35.4	84.0
131	Switzerland	79.2	83.9	33.8	38.2	23.2	43.8
132	Syria	6.5	20.7	0.1	0.3	0.0	1.3
133	Tanzania	9.0	11.0	0.0	0.0	0.4	2.1
134	TFYR Macedonia	46.0	51.9	8.8	12.5	0.0	20.8
135	Thailand	18.2	*21.2*	2.6	3.9	0.5	3.8
136	Togo	*4.8*	*5.4*	0.0	0.1	0.0	0.0
137	Trinidad & Tobago	34.8	48.5	6.4	10.8	0.0	0.0
138	Tunisia	27.5	36.8	2.2	4.6	0.0	1.1
139	Turkey	34.4	39.8	8.1	9.8	0.0	17.8
140	Turkmenistan	*1.8*	*2.2*	0.0	0.0	0.0	0.0
141	Uganda	7.9	12.5	0.0	0.1	0.1	0.6
142	Ukraine	10.6	*23.0*	*3.5*	8.1	1.8	4.3
143	United Arab Emirates	72.0	78.0	9.0	10.5	29.1	58.4
144	United Kingdom	78.4	85.0	28.2	31.4	33.8	56.0
145	United States	74.0	79.0	24.8	26.3	26.9	54.0
146	Uruguay	39.3	43.4	6.8	11.4	1.4	5.7
147	Uzbekistan	9.1	*20.0*	0.2	*0.3*	0.0	3.9
148	Venezuela	25.9	35.6	4.7	5.4	8.5	20.8
149	Viet Nam	23.9	27.6	2.4	4.1	0.0	12.8
150	Yemen	6.9	*10.9*	0.1	0.3	0.0	0.0
151	Zambia	5.6	*6.7*	0.0	*0.1*	0.0	0.0
152	Zimbabwe	11.4	11.5	0.1	0.3	0.0	0.7

Note: Data in italics refer to ITU estimates.
* Data provided by Wireless Intelligence. For individual network operator data and forecasts please go to www.wirelessintelligence.com.
Source: ITU World Telecommunication/ICT Indicators database.

Skills indicators

		Gross enrolment ratio				Adult literacy rate	
		Secondary		Tertiary			
	Economy	2008	2010	2008	2010	2008	2010
1	Albania	*78.8*	72.4	*36.7*	*36.7*	95.9	95.9
2	Algeria	*85.4*	*86.6*	24.0	30.6	72.7	72.7
3	Angola	14.9	*14.5*	5.1	*9.4*	70.0	70.0
4	Antigua & Barbuda	113.9	110.5	*14.7*	14.7	99.0	99.0
5	Argentina	84.9	*84.5*	67.7	*69.4*	97.7	97.7
6	Armenia	88.1	93.1	47.7	50.1	99.5	99.5
7	Australia	149.3	*149.3*	77.0	*77.5*	*99.0*	*99.0*
8	Austria	100.0	*100.4*	54.7	*56.4*	*99.0*	*99.0*
9	Azerbaijan	98.6	99.4	15.0	19.1	99.5	99.5
10	Bahrain	96.8	96.4	*28.5*	51.2	91.4	91.4
11	Bangladesh	42.3	*41.9*	*7.0*	7.9	55.9	55.9
12	Barbados	*93.3*	*94.8*	*57.0*	*57.0*	*99.0*	*99.0*
13	Belarus	95.3	*90.1*	72.8	77.0	99.7	99.7
14	Belgium	108.3	*100.0*	63.0	*63.6*	*99.0*	*99.0*
15	Benin	*39.2*	*42.1*	*6.0*	*6.3*	41.7	41.7
16	Bhutan	56.3	61.7	6.6	*8.0*	52.8	52.8
17	Bolivia	81.3	*79.7*	*38.3*	*37.2*	90.7	90.7
18	Bosnia and Herzegovina	90.2	91.2	*33.5*	37.0	97.8	97.8
19	Botswana	81.5	*82.4*	*8.1*	*8.6*	84.1	84.1
20	Brazil	100.8	*99.6*	34.4	*40.0*	90.0	90.0
21	Brunei Darussalam	96.7	98.2	16.0	17.1	95.3	95.3
22	Bulgaria	88.6	*88.5*	51.0	*56.2*	98.3	98.3
23	Burkina Faso	18.4	*21.4*	3.1	3.4	28.7	28.7
24	Cambodia	40.4	*43.7*	7.0	*9.2*	*77.6*	77.6
25	Cameroon	37.3	41.5	7.8	9.0	70.7	70.7
26	Canada	*100.7*	*100.1*	*66.6*	*66.6*	*99.0*	*99.0*
27	Cape Verde	82.8	81.5	11.9	14.9	84.8	84.8
28	Chad	21.7	24.1	1.9	2.0	33.6	33.6
29	Chile	90.4	*90.7*	54.8	*60.1*	98.7	98.6
30	China	76.1	78.2	22.7	24.5	94.0	94.0
31	Colombia	90.6	94.6	35.4	37.0	93.4	93.2
32	Comoros	*49.0*	*50.1*	*3.8*	5.2	74.2	74.2
33	Congo (Dem. Rep.)	34.8	36.7	5.1	6.0	66.8	66.8
34	Costa Rica	89.2	96.1	*26.9*	*26.9*	96.1	96.1
35	Côte d'Ivoire	*28.0*	*29.9*	*8.4*	8.9	55.3	55.3
36	Croatia	94.3	*95.5*	49.3	*54.0*	98.8	98.8
37	Cuba	91.4	89.6	121.5	117.8	99.8	99.8
38	Cyprus	98.3	*98.5*	*42.6*	*45.3*	97.9	97.9
39	Czech Republic	94.9	*94.9*	58.3	*70.5*	*99.0*	*99.0*
40	Denmark	118.6	*100.0*	78.1	*85.3*	*99.0*	*99.0*
41	Djibouti	29.5	30.5	*2.6*	3.5	73.0	73.0
42	Dominican Rep.	74.9	76.8	*34.2*	*34.2*	88.2	88.2
43	Ecuador	69.6	81.1	42.4	*42.4*	84.2	84.2
44	Egypt	*80.2*	*80.5*	28.5	*29.6*	66.4	66.4
45	El Salvador	63.6	*62.8*	24.6	*25.6*	84.0	84.1
46	Eritrea	*30.5*	31.8	*0.4*	2.0	66.6	66.6
47	Estonia	99.3	*99.7*	63.7	*64.1*	99.8	99.8
48	Ethiopia	33.4	34.4	3.6	*4.4*	29.8	29.8
49	Fiji	80.9	*79.6*	*15.4*	*15.3*	95.1	95.1
50	Finland	110.3	*100.0*	94.4	*98.0*	*99.0*	*99.0*
51	France	113.2	*100.0*	54.6	*54.3*	*99.0*	*99.0*
52	Gabon	*55.7*	*58.4*	*6.6*	*6.6*	87.7	87.7
53	Gambia	50.6	*50.3*	4.6	4.6	46.5	46.5
54	Georgia	90.0	108.5	34.3	25.5	99.7	99.7
55	Germany	101.7	*100.0*	*46.2*	*46.2*	*99.0*	*99.0*
56	Ghana	*55.2*	57.2	6.2	8.6	66.6	66.6
57	Greece	101.8	*103.2*	90.8	90.8	97.2	97.2
58	Guatemala	56.6	58.8	17.7	*24.1*	74.5	74.5
59	Guinea	35.8	37.0	9.2	*17.7*	39.5	39.5
60	Guyana	102.1	103.4	11.5	11.2	*99.0*	*99.0*
61	Honduras	64.5	65.2	18.7	18.7	83.6	83.6
62	Hong Kong, China	82.9	82.1	55.6	56.6	*99.0*	*99.0*
63	Hungary	97.4	*97.7*	65.0	*74.1*	99.4	99.4
64	Iceland	110.1	*100.0*	74.6	*80.2*	*99.0*	*99.0*
65	India	60.0	*62.2*	13.5	*15.0*	62.8	62.8
66	Indonesia	74.4	79.5	21.3	23.5	92.2	*92.2*
67	Iran (I.R.)	*79.7*	83.1	36.1	36.5	85.0	*85.0*
68	Ireland	115.0	*100.0*	58.3	*61.2*	*99.0*	*99.0*
69	Israel	90.0	*89.3*	59.7	*61.5*	*99.0*	*99.0*
70	Italy	*100.5*	*100.0*	67.2	*72.0*	98.9	98.9
71	Jamaica	91.2	*91.7*	24.2	24.2	86.4	86.4
72	Japan	100.9	*100.0*	58.0	*60.9*	*99.0*	*99.0*
73	Jordan	88.2	*89.1*	40.7	*43.2*	92.2	92.2
74	Kazakhstan	92.0	*103.0*	46.9	40.1	99.7	99.7
75	Kenya	58.3	59.5	*3.6*	4.1	87.0	87.0
76	Korea (Rep.)	*97.2*	*97.9*	98.1	*102.0*	*99.0*	*99.0*

		Gross enrolment ratio				Adult literacy rate	
		Secondary		Tertiary			
	Economy	2008	2010	2008	2010	2008	2010
77	Kyrgyzstan	85.1	84.1	52.0	50.8	99.2	99.2
78	Lao P.D.R.	43.9	*43.7*	13.4	*20.4*	72.7	72.7
79	Latvia	98.0	*98.4*	69.2	*69.2*	99.8	99.8
80	Lebanon	81.6	82.1	51.5	52.5	89.6	89.6
81	Lithuania	99.0	*98.6*	77.3	*81.5*	99.7	99.7
82	Luxembourg	96.0	*96.3*	*9.2*	*8.6*	*99.0*	*99.0*
83	Macao, China	91.8	91.9	56.5	62.9	93.5	93.5
84	Madagascar	30.1	31.5	3.4	3.6	64.5	64.5
85	Malaysia	68.7	*67.8*	36.5	*37.0*	92.5	92.5
86	Maldives	*87.8*	*91.8*	*0.0*	*0.0*	98.4	98.4
87	Mali	34.8	38.3	5.4	6.0	26.2	26.2
88	Malta	100.3	*100.0*	32.2	*33.9*	92.4	92.4
89	Mauritania	24.5	*24.9*	3.7	3.8	57.5	57.5
90	Mauritius	87.6	87.2	25.9	*30.5*	87.9	87.9
91	Mexico	89.9	*91.8*	27.2	*29.2*	92.9	93.4
92	Moldova	87.7	88.1	40.0	38.3	98.5	98.5
93	Mongolia	*93.4*	*94.2*	49.8	52.7	97.5	97.5
94	Montenegro	*88.1*	*88.1*	*29.8*	*29.8*	*97.0*	*97.0*
95	Morocco	55.8	*58.3*	12.3	12.9	55.2	56.1
96	Mozambique	20.6	*25.5*	*2.7*	*2.7*	55.1	55.1
97	Namibia	65.8	*66.4*	8.9	8.9	88.5	88.5
98	Nepal	*43.8*	*44.2*	*10.1*	*10.1*	59.1	59.1
99	Netherlands	120.7	*100.0*	60.6	*62.6*	*99.0*	*99.0*
100	New Zealand	118.5	*119.2*	78.5	*83.2*	*99.0*	*99.0*
101	Nicaragua	67.9	*69.0*	*19.5*	*19.5*	78.0	78.0
102	Niger	11.0	*13.3*	1.2	1.4	28.7	28.7
103	Nigeria	30.5	*29.4*	*11.6*	*11.6*	60.8	60.8
104	Norway	111.6	*110.8*	73.2	*71.6*	*99.0*	*99.0*
105	Oman	*88.4*	91.3	*29.0*	26.4	86.6	86.6
106	Pakistan	32.9	33.1	5.2	6.4	55.5	55.5
107	Panama	71.2	72.7	45.1	*44.4*	93.6	93.6
108	Papua New Guinea	*22.7*	*22.7*	*15.4*	*15.4*	60.1	60.1
109	Paraguay	66.5	*66.5*	28.6	*30.7*	94.6	94.6
110	Peru	89.1	*90.3*	36.2	*38.1*	89.6	89.6
111	Philippines	82.5	*82.1*	28.7	*27.7*	95.4	95.4
112	Poland	99.6	*100.3*	69.4	*73.2*	99.5	99.5
113	Portugal	103.7	106.1	60.2	*61.0*	94.9	94.9
114	Qatar	93.2	85.2	11.0	10.2	94.0	94.7
115	Romania	91.6	*93.2*	65.6	*66.9*	97.7	97.7
116	Russia	84.8	*84.3*	77.2	*82.5*	99.6	99.6
117	Rwanda	21.9	26.7	4.0	4.8	70.7	70.7
118	Saudi Arabia	94.8	96.8	32.0	32.8	86.1	86.1
119	Senegal	30.1	*33.0*	8.0	8.0	41.9	49.7
120	Serbia	90.5	91.5	48.7	49.8	97.8	97.8
121	Seychelles	104.3	105.0	*1.8*	*1.8*	91.8	91.8
122	Singapore	*74.1*	*74.1*	*43.8*	*43.8*	*94.7*	94.7
123	Slovak Republic	92.1	*91.9*	53.6	*65.2*	*99.0*	*99.0*
124	Slovenia	96.8	*97.0*	86.7	*96.4*	99.7	99.7
125	South Africa	92.6	93.9	*15.8*	*15.8*	88.7	88.7
126	Spain	119.9	*121.3*	70.6	*73.0*	97.6	97.7
127	Sri Lanka	*87.6*	*87.8*	*5.3*	*5.3*	90.6	90.6
128	Suriname	75.4	*75.7*	*12.3*	*12.3*	94.6	94.6
129	Swaziland	53.3	*55.8*	*4.3*	*4.3*	86.9	86.9
130	Sweden	103.5	*100.0*	71.1	*68.0*	*99.0*	*99.0*
131	Switzerland	96.1	*96.8*	49.4	*51.1*	*99.0*	*99.0*
132	Syria	74.0	74.7	*15.7*	*15.7*	84.2	84.2
133	Tanzania	25.2	27.4	*1.7*	*1.7*	72.9	72.9
134	TFYR Macedonia	83.7	*83.6*	40.4	*45.9*	97.1	97.1
135	Thailand	74.3	*77.0*	44.7	45.0	93.5	93.5
136	Togo	41.3	*41.5*	5.3	*6.0*	56.9	56.9
137	Trinidad & Tobago	88.8	*91.2*	*12.6*	*12.6*	98.7	98.7
138	Tunisia	91.8	*94.3*	33.7	*36.7*	77.6	77.6
139	Turkey	82.0	*81.8*	38.4	*44.0*	88.7	90.8
140	Turkmenistan	84.4	85.0	*21.7*	*21.7*	99.6	99.6
141	Uganda	25.3	27.4	3.7	4.1	71.4	71.4
142	Ukraine	94.4	94.5	79.4	*89.1*	99.7	99.7
143	United Arab Emirates	93.8	95.2	*22.9*	30.4	*90.0*	*90.0*
144	United Kingdom	99.0	*97.6*	57.4	*55.7*	*99.0*	*99.0*
145	United States	94.1	*94.2*	82.9	*83.3*	*99.0*	*99.0*
146	Uruguay	87.9	*83.7*	64.9	*76.8*	*98.2*	98.3
147	Uzbekistan	101.4	103.5	9.9	9.8	99.3	99.3
148	Venezuela	81.1	82.1	78.6	78.6	95.2	95.2
149	Viet Nam	*66.9*	*66.9*	*12.2*	*12.2*	92.8	92.8
150	Yemen	*45.8*	*45.5*	*10.5*	*11.2*	62.4	62.4
151	Zambia	*45.8*	*45.5*	*2.4*	*2.4*	70.9	70.9
152	Zimbabwe	*41.0*	*41.0*	*2.3*	*2.3*	91.9	91.9

Note: Data in italics refer to ITU estimates.
Source: UIS. Latest available data.

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World Summit on the Information Society

WSIS FORUM 2011

Outcome Document

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WSIS Forum: working together towards 2015 — World Summit Geneva 2003 Tunis 2005 on the Information Society — Turning targets into action

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- Angola, Angolan Institute of Communication
- Angola, Instituto Angolano das Comunicações
- Angola, Ministry of Foreign Affairs
- Angola, National Assembly
- Angola, Parliament
- Angola, Permanent Mission in Geneva
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- Bahrain, the eGovernment Authority
- Bangladesh, Bangladesh Computer Council
- Bangladesh, Ministry of Science and ICT
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- Belgium, House of Representatives
- Belgium, Senate
- Benin, Autorité transitoire de Régulation des Postes et Télécommunications
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- Burundi, Mission Permanente
- Burundi, Office National Des Télécommunications (ONATEL)
- Cameroon, National Assembly
- Cameroun, Permanent Mission to the UN in Geneva
- Chile, Chamber of Deputies
- Chile, Permanent Mission - UNOG

- Chile, Senate
- China, Ministry Of Industry and Information Technology
- China, Permanent Mission
- Colombia, Comisión de Regulación de Comunicaciones
- Colombia, Senate
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- Dominican Rep., Chamber of Deputies
- Dominican Rep., Instituto Dominicano de las Telecomunicaciones (INDOTEL)
- Dominican Rep., Permanente mission
- Dominican Rep., Senate
- Ecuador, Misión Permanente
- Ecuador, National Assembly
- Egypt, Ministry of Information and Communications Technology
- Egypt, National Telecom Regulatory Authority
- El Salvador, Permanent Mission to the UN
- El Salvador, Superintendencia General de Electricidad y Telecomunicaciones
- Estonia, Parliament
- Ethiopia, Permanent Mission
- European Commission - Eurostat
- European Parliament
- European Union
- Finland, Ministry for Foreign Affairs
- Finland, Ministry of Communications
- Finland, Ministry of Transport and Communications
- Former Yugoslav Republic of Macedonia, Permanent Mission
- France, French Administration- Autorité de Régulation des Communications Electroniques et des Postes
- France, Ministry of Foreign and European Affairs
- France, Mission in Geneva
- France, National Assembly
- Gambia, Ministry of Information and Communication Infrastructure
- Germany, Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
- Germany, Permanent Mission in Geneva
- Ghana, Mission in Geneva
- Ghana, Parliament
- Greece, Permanent Mission in Geneva
- Guatemala, Congress of the Republic
- Guatemala, Permanent Mission in Geneva
- Guinea, Autorité de Régulation des Postes et Télécommunications

- Guinea, Ministère des Postes, Telecommunications et NTI
- Hashemite Kingdom of Jordan**,** Jordan House of Representatives
- Hashemite Kingdom of Jordan**,** Telecommunication Regulatory Commission
- Honduras, Permanent Mission
- Hungary, Ministry of National Development
- Hungary, Permanent Mission
- India, Consulate General of India
- India, Council of States
- India, Department of Information Technology, Ministry of Communication & IT, Government of India
- India, House of the People
- India, Ministry of Communications and Information Technology
- India, Ministry of Communications and Information Technology, Department of Telecommunications
- India, Ministry of India on Public Information Infrastructure and Innovations
- India, Permanent Mission in Geneva
- India, TDSAT - Telecom Disputes Settlement and Appellate Tribunal
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- Iran (Islamic Republic of), Information Technology and Digital Media Development Center
- Iran (Islamic Republic of), Ministry of Information and Communication Technology (MICT)
- Iran, Permanent Mission in Geneva
- Iraq, Ministry of Communications
- Israel, Ministry of Communications
- Israel, Permanent Mission in Geneva
- Italy, Ministero dello Sviluppo Economico/Comunicazioni
- Italy, Permanent Mission in Geneva
- Japan, Ministry of Internal Affairs and Communications
- Japan, Permanent Mission in Geneva
- Kenya, Communications Appeals Tribunal
- Kenya, Communications Commission of Kenya (CCK)
- Kenya, Kenya Network Information Centre - Kenya IGF Committee
- Kenya, Ministry of Information and Communication
- Kenya, National Assembly
- Kingdom of Lesotho, Permanent Mission in Geneva
- Kingdom of Norway, Norwegian Post and Telecommunications Authority
- Korea (Rep. of), Korea Communications Commission
- Korea (Rep. of), *Korea* Information Society Development Institute
- Kuwait, Central Agency for Information Technology (CAIT)
- Kuwait, Ministry of Information
- Kyrgyzstan, Permanent Mission in Geneva
- Latvia, Permanent Mission to the United Nations Office in Geneva
- Lebanon, Telecommunications Regulatory Authority
- Lesotho, Ministry of Communications, Science and Technology
- Lithuania, Communications Regulatory Authority of the Republic of Lithuania
- Madagascar, Projet d'infrastructures, de communication - Ministry of Telecommunications, Posts & ICT
- Malaysia, Malaysian Communications and Multimedia Commission

- Malaysia, Ministry of Information, Communications and Culture (MICC)
- Malaysia, National Information Technology Council
- Maldives, Maldives Mission
- Maldives, People's Majlis
- Mali, Comité de Régulation des Télécommunications
- Mali, National Assembly
- Mali, Office National des Postes
- Malta, House of Representatives
- Maroc, Mission in Geneva
- Mexico, Cámara de Diputados
- México, Comisión Federal de Telecomunicaciones
- Mexico, Coordination of Information Society and Knowledge
- Mexico, Information and Knowledge Society Coordination of the Mexican Ministry of Communications and Transports
- Mexico, Ministry of Health
- Mexico, Ministry of Public Education
- Mexico, Permanent Mission in Geneva
- Mexico, Vice Ministry of Integration and Development of the Ministry of Health
- Monaco, Mission in Geneva
- Montenegro, Government of Montenegro
- Montenegro, Ministry for Information Society and Telecommunications
- Montenegro, Permanent Mission to the United Nations
- Morocco, House of Representatives
- Namibia, National Assembly
- Nepal, Permanent Mission in Geneva
- Niger, National Assembly
- Nigeria, Nigerian Communications Commission
- Oman, Information Technology Authority (ITA)
- Oman, Minister of Transport and Communications
- Oman, Ministry of Civil Service
- Oman, Ministry of Foreign Affairs
- Oman, Ministry of Health
- Pakistan, Permanent Mission in Geneva
- Pakistan, Senate
- Panama, Misión Permanente in Geneva
- Paraguay, Comision Nacional de Telecomunicaciones - CONATEL
- Philippines, Commission on Information and Communications Technology
- Philippines, Permanent Mission in Geneva
- Poland, Ministry of Infrastructure
- Poland, Permanent Mission at Geneva
- Portugal, Knowledge Society Agency (UMIC), Ministry of Science, Technology and Higher Education
- Portugal, Mission to the UN
- Principaulty of Monaco, Permanent Mission
- Republic of Azerbaijan, Ministry of Communication and Information Technologies
- Republic of Azerbaijan, Permanent Mission
- Republic of Bulgaria, Permanent Mission to the United Nations Office in Geneva

- Republic of Cyprus, Permanent Mission
- Republic of Indonesia, Indonesian Telecommunications Regulatory Authority (BRTI) Ministry of Information Technology and Communications
- Republic of Indonesia, Jl. Merdeka Barat No. 9
- Republic of Indonesia, Ministry of Information and Communication Technology
- Republic of Indonesia, Permanent Mission to the UN, WTO and other International Organizations
- Republic of Iraq, Permanent Mission in Geneva
- Republic of Poland, Permanent Mission to the UN Office at Geneva
- Republic of Serbia, Permanent Mission to the UN and other organizations
- Republic of South Africa, Parliament
- République du Congo, Mission Permanente
- Romania, Ministry of Communications and Information Society
- Romania, Permanent mission
- Russian Federation, Ministry of Telecom and Mass Communications
- Russian Federation, Permanent Mission in Geneva
- Saudi Arabia, Communications and Information Technology Commission (CITC)
- Saudi Arabia, Consultative Council
- Saudi Arabia, Ministry of commerce & industry
- Saudi Arabia, Ministry of Economy & Planning
- Senegal, Agence de l'Informatique de l'Etat / Présidence de la République
- Senegal, Autorité de Régulation des Télécommunications et des Postes
- Senegal, Ministry of Communication, Telecommunications and ICT
- Serbia, Ministry of Culture, Media and Information Society
- Slovakia, Permanent Mission to the UN Office and other International Organizations in Geneva
- Somalia, MIPT
- South Africa, Film and Publication Board
- Spain, Congress of Deputies
- Spain, Ministry of Industry, Tourism and Trade
- Sudan, National Information Center
- Sweden, Mission in Geneva
- Switzerland, Geneva School of Diplomacy and International Relations
- Switzerland, Office fédéral de la Communication (OFCOM)
- Switzerland, Permanent Mission in Geneva
- Tanzania, Communications Regulatory Authority
- Thailand, Permanent Mission to the United Nations Office and other International Organizations
- Togo, Mission Permanente
- Togo, Permanent Mission
- Trinidad and Tobago, Senate
- Tunisia, Centre d'Information, de Formation, de Documentation et d'Etudes en Technologies des Communications
- Tunisia, Ministère de la Jeunesse et des Sports
- Tunisia, Permanent Mission in Geneva
- Tunisie, Instance Nationale des Télécommunications
- Turkey, Information and Communication Technologies Authority (ICTA)

- Turkey, State Planning Organization
- Uganda, Permanent Mission in Geneva
- Ukraine, Permanent Mission in Geneva
- Ukraine, Permanent Mission in Geneva
- Ukraine, State Agency of Ukraine for Science, Innovation, and Information
- United Arab Emirates Telecommunications Regulatory Authority - TRA
- United Arab Emirates, Abu Dhabi Systems and Information Center (ADSIC)
- United Arab Emirates, Permanent Mission in Geneva
- United Kingdom, Government: Department for Culture, Media and Sport (DCMS)
- United States, Department of State
- United States, Mission to the UN and other International Organizations
- United States, Permanent Mission in Geneva
- United States, South Carolina Department of Health and Environmental Control
- Uruguay, Permanent Mission to the Office of the United Nations
- Vatican, Permanent Mission of the Holy See
- Venezuela, Permanent Mission in Geneva
- Venezuela, Permanent Mission in Geneva
- Viet Nam, Ministry of Information and Communication
- Yemen, Permanent Mission to the UNOG
- Zambia, Information & Communication Technology Authority (ZICTA)
- Zambia, Ministry of Communications and Transport
- Zambia, Permanent Mission in Geneva
- Zimbabwe, , Permanent Mission in Geneva

Private Sector

- Alcatel-Lucent (France)
- AT&T (Belgium)
- Benoît Müller Avocat (Switzerland)
- Bundesamt für Migration (Switzerland)
- BH Telecom d.d. (Bosnia and Herzegovina)
- CIEL (Connect in Every Life) Foundation (United States)
- Cisco (United Kingdom)
- Communicea (Finland)
- Copyright Commission (Rep. of Korea)
- Corporation for National Research Initiatives (United States)
- DAKA advisory AB (Sweden)
- Dell Corporation (France)
- Dhaka Chamber of Commerce and Industry (Bangladesh)
- DIAMINDS for Social Responsibility (Switzerland)
- e Worldwide Group (United Kingdom)
- Emily Taylor Consultant (United Kingdom)
- Ericsson, representing UMTS Forum at the WSIS Forum 2011 (Sweden)
- Gesellschaft für wissenschaftliche Datenverarbeitung mbH Göttingen (Germany)
- GSMA (United Kingdom)
- Huawei Technologies (UK) Co. ltd (United Kingdom)

- ICANN (Egypt)
- ICT Strategies - mCADE llc (United States)
- Inmarsat (Switzerland)
- Intel Corporation (Germany)
- International Chamber of Commerce (France)
- International University in Geneva (Switzerland)
- KNM Prod (Switzerland)
- Kyos IT Security (Switzerland)
- maplestar corp (India)
- Medi Clinic Pietermaritzburg (South Africa)
- Microsoft Corporation (Switzerland)
- MovieLabs (United Kingdom)
- Nominet UK (United Kingdom)
- NTT (Japan)
- Openmedia Group (Nigeria)
- Optiwave Consultants Pvt Ltd (Pakistan)
- orange business services (France)
- Propulse (Switzerland)
- R&D Media (Switzerland)
- Rostelecom (Russian Federation)
- Sacred Heart Cathollic University of Rome (Italy)
- Saudi Telecom company (Saudi Arabia)
- SEBIT EDUCATION AND INFORMATION TECHNOLOGIES INC (Turkey)
- SOFRECOM (France)
- Solines Abogados / Gobierno Digital (Ecuador)
- STRATEGIC CONSULTING GROUP (Benin)
- Swisscom SA (Switzerland)
- SWITCH (Switzerland)
- Symantec Corporation
- Team Cymru (United States)
- Telecom Italia Innovation Lab (Italy)
- Telefonica S.A. (Spain)
- Telekom Srbija (Serbia)
- Tertius Ltd (United Kingdom)
- The Cyber Guardian (Australia)
- TLcom Capital LLP (United Kingdom)
- Uniqoteq Ltd (Finland)
- Verisign, Inc. (United States)
- Verizon (United States)
- Zurich Insurance Company (Switzerland)

Civil Society

- Action Internationale pour la Paix et le Développement dans la Région des Grands Lacs (Switzerland)
- Advanced Development for Africa (Switzerland)
- African Commission of Health Promoters and Human Rights (Switzerland)

- AFYIDEF - African Youths International Development Foundation (Nigeria)
- Agepoly – EPFL (Switzerland)
- Al-Hakim Foundation(Switzerland)
- Association for Partnership on Information and Communication Technology (Switzerland)
- Artic Cultural Gateway (Canada)
- Association for Progressive Communications (New Zealand)
- Bangladesh Friendship Education Society (Bangladesh)
- Swiss Council for Accident Prevention (Switzerland)
- Bibliothèque cantonale et universitaire (Switzerland)
- COETTC
- Comicion Juridica Para El Auto-Desarollo des los Pueblos Originiarios Andinos (Peru)
- CareWays Community Inc. (Australia)
- Centre du Commerce International pour le développement (Switzerland)
- Center for Technology and Society (Brazil)
- Centre for Law and Democracy (Canada)
- Centre Indépendant de recherches et d'initiatives pour le dialogue (Switzerland)
- Centro Internacional de Investigación Científica en Telecomunicaciones (Ecuador)
- Children's Charities' Coalition on Internet Safety (United Kingdom)
- , cibervoluntarios.org
- Civic Chamber of Russian Federation (Russian Federation)
- CIVICUS: World Alliance for Citizen Participation (France)
- CivicTEC
- Close the Gap (Belgium)
- Committee on Data for Science and Technology (France)
- CO-HABITER (Switzerland)
- Comedia - the Swiss media union / Comunica-ch (Switzerland)
- Commission to Study the Org. of Peace (Switzerland)
- Computer & Communications Industry Association (Switzerland)
- Conference of NGOs in Consultative Relationship with the UN (Switzerland)
- Coordination des ONG africaines (Switzerland)
- Consorsium d'Appui aux Actions pour la Promotion et le Développement de l'Afrique (Cameroon)
- Centre de Recherche sur les droits et devoirs de la personne humaine (Switzerland)
- Coopération Solidarité Développement aux PTT (France)
- Darfur Digital City (Sudan)
- Diaspora africaine pour la société de l'information (Switzerland)
- Dominic Foundation (Switzerland)
- Dominicans for Justice and Peace (Order of Preachers) (Switzerland)
- e-agriculture
- EastWest Institute (United States)
- EC MEDICI Framework of Cooperation (Italy)
- End Child Prostitution, Child Pornography and Trafficking of Children for Sexual Purposes (ECPAT) International (Thailand)
- Education International represented by Gymnasieskolernes Laererforening (Denmark)
- Electronic Information for Libraries (Italy)
- Electronic Frontier Foundation (United States)
- Espace Afrique International (Switzerland)

- EUROLINC (France)
- Family Online Safety Institute (United Kingdom)
- FAZ (Switzerland)
- Ferdous International Foundation (Switzerland)
- Fondation Genereuse du developpement (Switzerland)
- Fundación Cibervoluntarios (Spain)
- GEDAREF - Digital City Organization GDCO (Sudan)
- Géo Expertise (Switzerland)
- Global Centre for Securing Cyberspace (Canada)
- Global Cyber Security Center (Italy)
- GLOCOM (Japan)
- GOREeTIC (Senegal)
- Griffith University (Australia)
- Guild of Service (India)
- ICT4Peace Foundation (Switzerland)
- ICVolunteers (Switzerland)
- International Federation for Information Processing (Austria)
- Inclusive Design Research Centre, OCAD University (Canada)
- Independent (India)
- Indigenous ICT Task Force (Sweden)
- Indigenous Peoples and Nations Coalition (Switzerland)
- Information Technology Industry Association of Nigeria (Nigeria)
- International Network for Standardization of Higher Education Degrees (Nigeria)
- Institut Telecom (-formely GET groupe des ecoles des telecommunications) (France)
- Institute for Planetary Synthesis (Switzerland)
- Institute of Management and Sustainable Development (Romania)
- Institute of the Information Society (Russian Federation)
- Instituto Nupef (Brazil)
- International Centre for Missing and Exploited Children (United States)
- International Committee for the respect &Application of the African Charter on Human & Peoples' Rights (Switzerland)
- International Council of Women (France)
- International Federation of Library Associations and Institutions (IFLA)(Netherlands)
- International Federation of Multimedia Associations (FIAM/IFMA) (Canada)
- International Federation of University Women (IFUW) (Switzerland)
- International Indigenous ICT Task Force (IITF) (Hawaii)
- International Publishers Association (Switzerland)
- Internet Society (Switzerland)
- Internews Europe (France)
- Inveneo (United States)
- Mashhad University of Medical Sciences (Islamic Republic of Iran)
- Media Change & Innovation Division, IPMZ, University of Zurich (Switzerland)
- Medical Care Development International (Switzerland)
- Mouvement Indien Tupaj Amaru (Switzerland)
- Mouvement Mondial des Mères (Switzerland)
- National and University library of B&H (Bosnia and Herzegovina)
- Health Committee (United States)

- Nurses across the borders (Nigeria)
- OpenEntry.com (United States)
- ORBICOM (Canada)
- Outreach Social Care Project (South Africa)
- PEDAGOGY.IR (France)
- Practical Action (United Kingdom)
- PROMOTIC (Haiti)
- Radio Deukhuri 105.8 MHZ, Chailahi Sahakari Sanstha (Republic of Nepal)
- Raising the Floor International c/o Canadian Abilities Foundation (Canada)
- REUSSI (France)
- Sarvodaya-Fusion (United Kingdom)
- Société Française de l'Internet (France)
- Silvia Perel-Levin - Communicating Health (Hungary)
- SINFOR - Sociedad Informatica del Norte (Peru)
- Society Studies Center (Sudan)
- Solidarité pour un monde meilleur (Dem. Rep. of the Congo)
- Sorbonne nouvelle University (France)
- St. Francis College (United States)
- SuNTA
- Swedish Library Association (Sweden)
- Swiss Open systems User Group /ch/open (Switzerland)
- Together against Cybercrime (France)
- Technical University - Consortium for develpment of ITU priority programs (Czech Rep.)
- Terre des Hommes International Federation (Switzerland)
- Terre Nouvelle (Togo)
- telecentre.org
- TESA of Ghana Telecom University College & EKOICT (Ghana)
- The Eurasia Center (United States)
- The Gold Standard Foundation (Switzerland)
- The Salvation Army (Switzerland)
- Transforming Broadcasting (United Kingdom)
- UN Watch (Switzerland)
- Università della Svizzera Italiana (Switzerland)
- University of Wisconsin-Madison United States)
- Video Volunteers (India)
- VILLAGE SUISSE ONG (Switzerland)
- WebForce International Federation (France)
- World Association of Community Radio Broadcasters (AMARC) (Canada)
- World Economic Forum (Switzerland)
- World Federation of Scientists (Switzerland)
- World Summit Award (ICNM) (Austria)
- World YWCA (Switzerland)
- Worldwide Organization for Women (Switzerland)
- Youth Crime Watch of Nigeria (Nigeria)

UN and/or International Organizations

- A2I Project, UNDP,
- African Union Commission
- APF
- APF Francophonie
- Bureau for Development Policy/Democratic Governance Group, UNDP
- Centre du Commerce International
- CERN (European Orgnization for Nuclear Research)
- Conference on NGOs in Consultative Relationship with the UN (CONGO)
- Council of Europe
- Cybercrime Research Institute
- DataCite
- DPADM/DESA
- Economic Commission for Europe
- ECOWAS
- Education International
- European Commission
- European Commission Joint Research Centre
- European Internet Foundation
- Food and Agriculture Organization (FAO)
- G3ict / UN GAID
- IFAD
- International Labour Organization (ILO)
- International Electrotechnical Commission
- International Multilateral Partnership Against Cyber Threats (IMPACT)
- International Organization of La Francophonie
- International Telecommunication Union (ITU)
- Inter-Parliamentary Union
- OECD
- Organisation Internationale de la Francophonie (OIF)
- OSCE
- Permanent Delegation African Union Geneva
- PERMANENT MISSION OF ITALY TO THE UN
- Permanent Mission of the Dominican Republic
- Post and Telecommunication Regulatory Authority
- PPSEA-WAI
- Secretariat of the Basel Convention, UNEP
- Technical Centre for Agricultural and Rural Cooperation, CTA
- UN-HABITAT
- United Nations Conference on Trade and Development (UNCTAD)
- United Nations Department of Economic and Social Affairs (UNDESA)
- United Nations Development Programme (UNDP)
- United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP)
- United Nations Economic and Social Commission for Western Asia (UNESCWA)
- United Nations Economic Commission for Africa (ECA)

- United Nations Economic Commission for Europe (UNECE)
- United Nations Educational, Scientific and Cultural Organization (UNESCO)
- United Nations Environment Programme (UNEP)
- United Nations High Commissioner for Refugees (UNHCR)
- United Nations Children's Fund (UNICEF)
- United Nations Industrial Development Organization (UNIDO)
- United Nations Office on Drugs and Crime (UNODC)
- United Nations Secretariat
- Universal Postal Union
- virtuellement-la.com
- World Health Organization (WHO)
- World Intellectual Property Organization (WIPO)
- World Bank
- World Economic Forum
- World Meteorological Organization

Other

- African Child Online Protection Education & Awareness Center (ACOPEA)
- Agepoly - EPFL
- AHCIET
- APNIC
- BFM - Bundesamt für Migration
- Center for Technology in Government, University at Albany, SUNY
- Centre for Development Informatics (CDI), University of Manchester
- Charles University
- City University London
- CONATEL
- CREA Genève
- CrossRef
- Czech Technical University in Prague
- DEV.TV
- DiploFoundation
- El Hikma Review - University of Algeria
- EPFL - Agepoly
- European Agency for Development in Special Needs Education
- European Broadcasting Union
- Geneva School of Diplomacy
- Graduate Institute of International and Development Studies
- ICANN
- IGF Secretariat
- INSEAD
- International Center for Promotion of Enterprises (ICPE)
- IPMZ, University of Zurich

- Lanit
- London School of Economics
- Mairie d'Althen-des-Paluds
- Max Planck Society - Institute for Pyscholinguistics
- Ministère des Postes et Télécommunications, chargé de la Promotion des Nouvelles Technologies
- Ministry of Communications and Information Technology
- Ministry of Information and Communication Technology (MICT)
- National Advanced IPv6 Centre (NAv6), Universiti Sains Malaysia
- National University of Singapore
- Open University of Catalonia
- Orbicom
- PayPal
- Permanent Mission of Finland, Geneva
- PGDAV College, University of Delhi
- Politecnico di Milano
- Radio Research and Development Institute
- Royal Holloway, University of London
- Spider - Swedish program for ICT in developing regions
- Swiss National Library
- The Abdus Salam International Centre for Theoretical Physics
- The Chinese University of Hong Kong
- UNESCO Chair/Centre in ICT4D, Royal Holloway, University of London
- Universita degli Studi di Milano - Bicocca
- Universita della Svizzera Italiana
- University of Birmingham
- University of Johannesburg
- University of Lausanne
- University of London, the School of Oriental and African Studies, CEFIMS
- University of Twente
- University of Wisconsin, River Falls
- University of Zurich, IPMZ
- Voice of TTY
- VVOB
- Webster University

Special Address: United Nations Secretary-General

Message to the WSIS Forum 2011

Geneva, 16 May 2011

It gives me great pleasure to welcome you to this year's WSIS Forum.

This multistakeholder event is testament to the WSIS vision of collaborative action to bridge the digital divide. I am encouraged that more than 30 UN agencies are involved, joining forces and contributing their expertise.

The WSIS process aims to promote synergies between WSIS and other relevant programmes and initiatives, in order to harness the great power of ICTs in our efforts to reach the internationally-agreed development goals.

By engaging governments, the UN family, civil society and the private sector, we have been able to accelerate the achievement of targets to improve access to ICTs for people and communities worldwide.

ICTs have become essential enablers of socio-economic development. Through e-learning, e-health, e-government, climate monitoring and more, today's and tomorrow's technologies will help bring the Millennium Development Goals within reach.

The power of fixed and mobile broadband will further improve our ability to extend basic services to communities – even those in the remotest places – in ways that where inconceivable when the MDGs were first articulated more than a decade ago.

With the agreed international deadline of 2015 fast approaching, our priority must be to translate the partnerships and progress generated by the WSIS process into tangible achievements that are globally and equitably distributed.

I encourage you to reach out to new partners, and to come up with new innovations that can help us rise to this challenge. I look forward to continuing to work with you to turn the WSIS targets into meaningful, transformational improvements in people's lives.

Please accept my best wishes for a successful forum.

Mr Ban Ki-moon
Secretary-General
United Nations

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Acronyms

ALFM	Action Line Facilitators' Meeting
CW	Country Workshops
HL	High-Level
HLD	High-Level Dialogue
IFM	Interactive Facilitation Meeting
IGF	Internet Governance Forum
IS	Interactive Session
TW	Thematic Workshop
UNGIS	United Nations Group on the Information Society
WTISD	World Telecommunication and Information Society Day

Introduction

WSIS Forum 2011 was held from 16–20 May 2011 in Geneva, Switzerland. The Forum provided structured opportunities to network, learn and to participate in multistakeholder discussions and consultations on WSIS implementation. The Forum was hosted by ITU and jointly organized by ITU, UNESCO, UNCTAD and UNDP. The Forum took place at the ILO Conference Centre. This event built upon the tradition of annual WSIS May meetings, and its new format is the result of open consultations with all WSIS Stakeholders.

Action Line Facilitators from various UN agencies, regional commissions, the private sector, governments and civil society not only reported and assessed their own efforts towards WSIS implementation and follow-up, but also shared their future plans to achieve the targets set in the WSIS Outcome documents. The programme of the Forum consisted of more than **100** sessions structured in **12 different types of meetings** in **6 parallel streams**.

- 5 High Level Sessions and Dialogues
- 17 Interactive Action Line Facilitation Meetings
- 4 Interactive Sessions
- Action Line Facilitators Meeting
- 25 Thematic Workshops
- 6 Country Workshops

- 25 Briefings and Publication Releases
- 3 Meetings of the UN Group on the Information Society including Open Consultation on the Overall Review of the Implementation of the WSIS Outcomes
- IGF Open Consultation Meeting and MAG
- Parliamentary Forum on Shaping Information Society
- 15 Exhibition Stalls
- Several Knowledge Exchanges

WSIS Forum 2011 Participation

Introduction

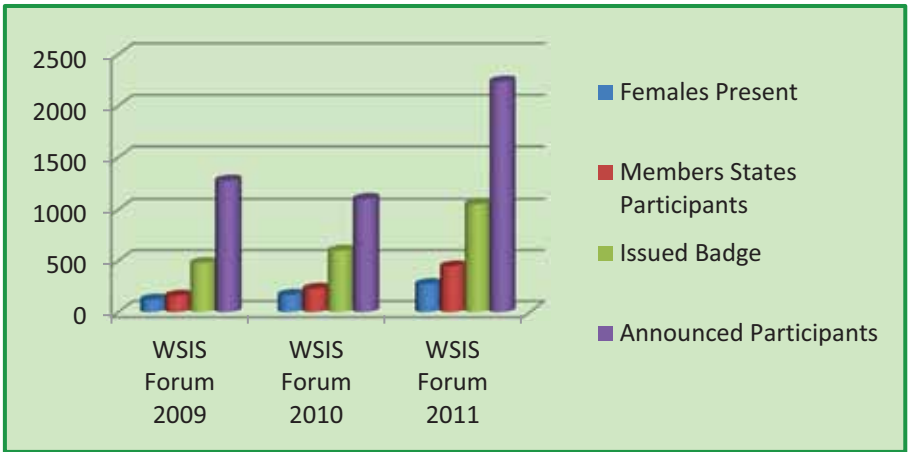
This year the Forum attracted more than 1150 **WSIS Stakeholders from more than** 140 **countries.** Several high-level representatives of the wider WSIS Stakeholder community graced the Forum, more than **20 ministers** and **Deputies**, **Ambassadors**, **CEOs** and **Civil Society leaders** contributed passionately towards the programme of the Forum. Among participants, there were more than **80 members of parliament**, as well as **several C-level representatives of the private sector and civil society**. Inaddition to the badges issues, more than hundred participants carried their own identity badges for participation (for eg representatives of UN Agencies and Permanent Missions). Remote participation was an integral component of the WSIS Forum, as over **2000 stakeholders** followed and contributed to the outcomes of the event in a remote manner worldwide. Onsite networking was facilitated by the **imeetYouatWSIS** online community platform. More than **250 on-site participants** actively used the tool prior to and during the event, this tool facilitated fruitful networking leading to win–win partnerships.

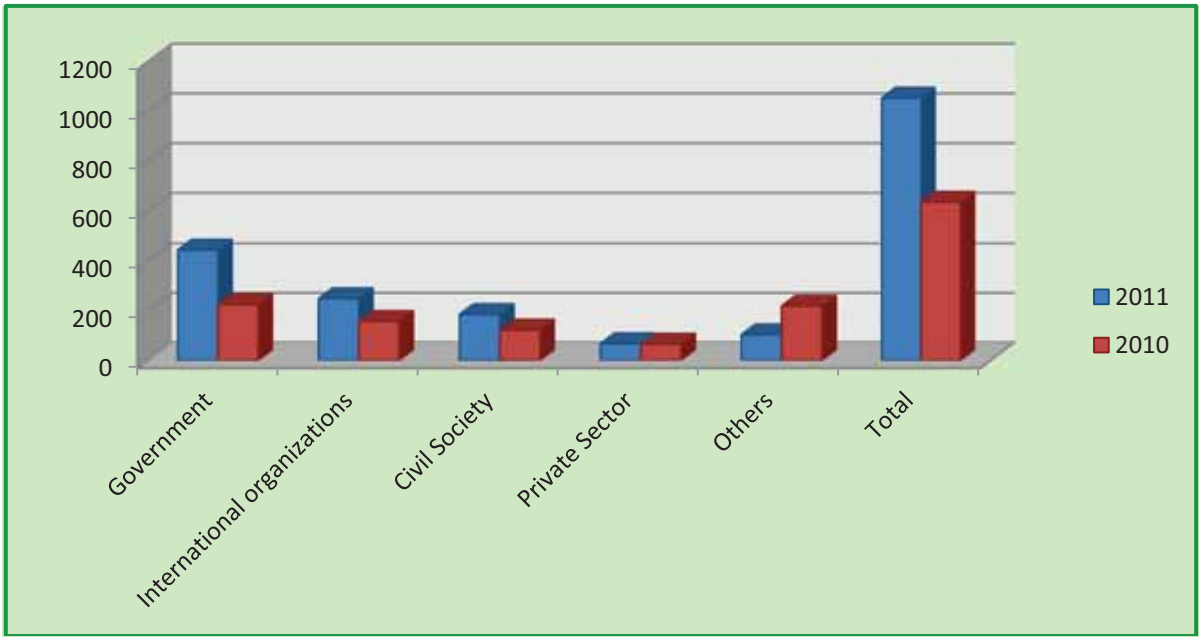
On-site Participation

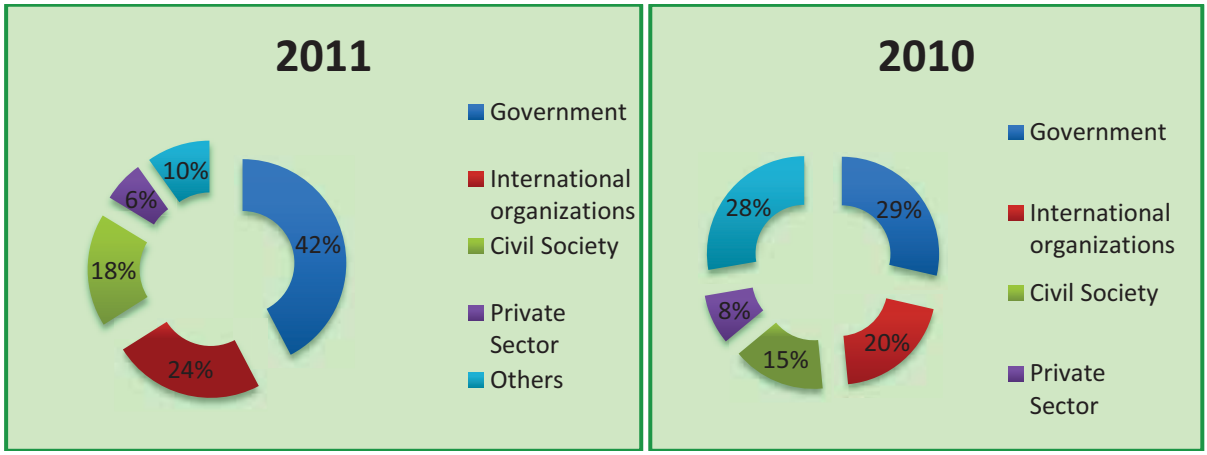
On-site participation increased tremendously during the **WISIS Forum 2011. A total of 1054 badges were issued.** WSIS Forum **participation has more than doubled since last year**. The participation of the Civil Society almost quadrupled, Government was close to tripled and Private Sector nearly doubled. This is a really strong sign of interest from these different types of stakeholders.,.

More than **140 countries** were represented by the participants. More than **20 Ministers and Deputies**, several Ambassadors, CEOs and Civil Society leaders contributed passionately towards the programme of the Forum. Among the participants, there were more than **100 Members of Parliament**, as well as several C-level representatives of the private sector and civil society.

The following graphs demonstrate the trends in terms of rapidly increasing participation and awareness of the event among the WSIS Stakeholders. Within three last years, the number of participants has doubled and participation of representatives of the Member States has tripled.







	Government	↑%	International organizations	↑%	Civil Society	↑%	Private Sector	↑%	Others	Total
2011	446	+96.5	250	+58.2	186	+51.2	68	+3	104	1054
2010	227	x	158	x	123	x	66	x	220	636

imeetyouatWSISForum Platform

The **imeetyouatWSISForum** component provided all registered on-site participants of the WSIS Forum 2011 with an **online social networking community experience**. This social networking community, powered by Pathable, was a new component of the Forum and was specifically designed for the Forum's on-site participants.

The goal of this component was to assist participants in meeting, interacting and scheduling meetings during the Forum, as well as to gather feedback in order to improve both the participants' experiences and involvement by creating an online discussion about WSIS-related issues and topics.

585 on- site participants choose to created profiles on the ImeetyouatWSISForum platform..

imeetyouatWSISFORUM Statistics

Profiles

Total accounts	585
Total signed-in at least once	258
Total visible	257

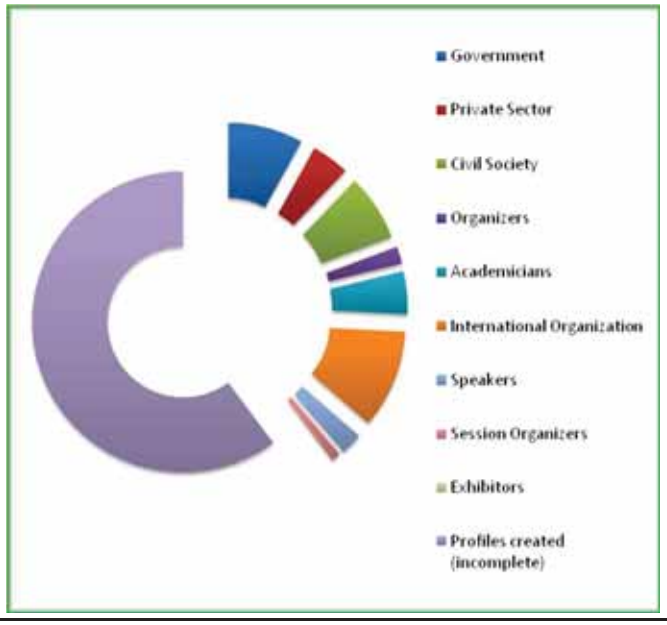
Activity

Private messages	116
Public messages	73

Schedule

Sessions added to schedules	845
Total sessions	105
Attendees registered for sessions	51
Schedules printed	40
Attendees registered for private meetings	15
Meeting invitations accepted	15
Schedules exported	12
Private meetings	12
Meeting invitations unanswered	8

Profiles created (complete):	
Government	47
Private Sector	24
Civil Society	42
Organizers	11
Academicians	27
International Organizations	62
Speakers	14
Session Organizers	6
Exhibitors	0
Profiles created (complete)	**233**
Profiles created (incomplete)	**352**
Total registered participants at imeetyouatWSISForum	**585**



Components of Remote Participation at the WSIS Forum 2011

The WSIS Forum has a multistakeholder character. The WSIS Stakeholders include governments, civil society, private sector and international organizations from all parts of the world. Today, information and communication technologies (ICTs) provide the opportunity for representation and inclusion of all stakeholders in the WSIS Forum by way of remote participation. In order to ensure the

participation and inclusion of all WSIS Stakeholders, remote participation was designed as an integral feature of the WSIS Forum 2011.

Building on the success of remote participation facilities initiated at the WSIS Forum 2010, the organizers integrated the most user-friendly and widely used tools for encouraging remote participation at the WSIS Forum 2011. 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, encouraging dissemination of information about the different sessions and happenings at the Forum.

Webcast

Remote Participation was a key feature of the WSIS Forum 2011 . Stakeholders could follow all sessions via the video webcast (registration not required), these webcasts are archived and can be viewed at the WSIS Forum 2011 website.

Webcast page: http://www.itu.int/ibs/WSIS/201105forum/index.html

Adobe Connect Conference Rooms

Programme of the Forum consisted of more than **100 sessions** structured in **12 different types of meetings** in **6 parallel streams.** Unfortunately all of the "announced participants" and the wider WSIS Stakeholder community were not able to make it to Geneva; hence the WSIS Secretariat developed and promoted various tools for remote participation. WSIS Stakeholders could participate actively as a remote delegate, via the Adobe Connect (virtual) conference rooms. This allowed them to follow the video feed of the conference room, hear what is being discussed (English channel), see presentations and documents, and pose questions to panellists via chat. Each session dedicated 10-15 minutes for questions from remote delegates.

http://itu.adobeconnect.com/wsisgoverning_body_room/

http://itu.adobeconnect.com/wsisforum_room_ii/

http://itu.adobeconnect.com/wsisforum_room_iv/

http://itu.adobeconnect.com/wsisforum_room_v/

http://itu.adobeconnect.com/wsisforum_room_ix/

http://itu.adobeconnect.com/wsisforum_room_xi/

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Row Labels	Count of Participant Name
WSIS Forum 2011 – Governing Body Room	582
WSIS Forum 2011 – Room II	446
WSIS Forum 2011 – Room IX	332
WSIS Forum 2011 – Room XI	280
WSIS Forum 2011 – Room V	236
WSIS Forum 2011 – Room IV	226
Grand Total	**2102**

Short Video: Inside an Adobe Connect Meeting Room

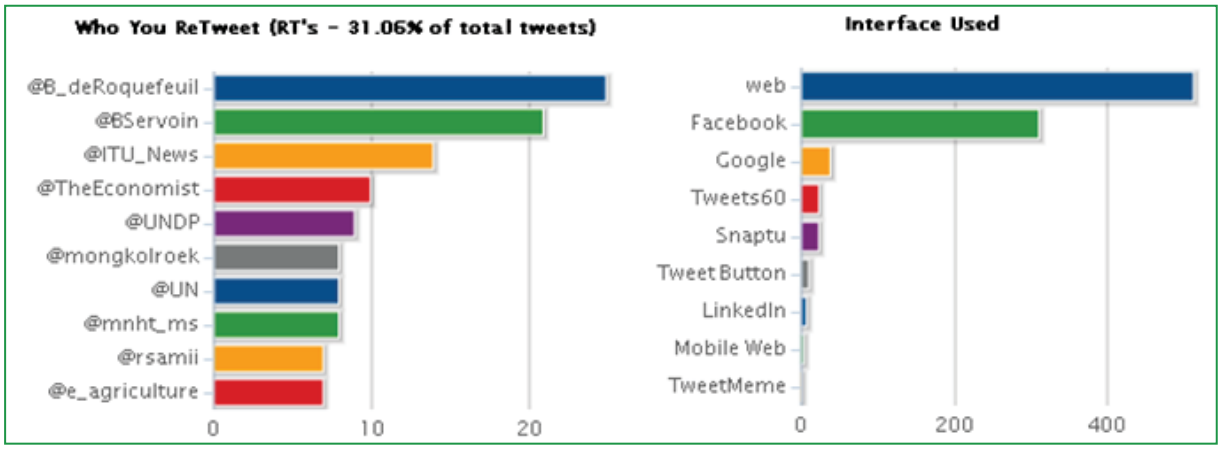
See also: Frequently Asked Questions for Remote Participants

iWrite4WSIS

All Forum sessions featured live reporting via Twitter, as part of the iWrite4WSIS campaign www.wsis.org/iwrite

The **iwrite4WSISForum** component used Twitter, a **microblogging platform**, throughout the event by the organizers as well as by the participants of the Forum. The goal of the use of this tool was to promote engagement and involvement of remote participants during this event but also to get **immediate feedback and reports** from on-site participants. In order to facilitate the use of this kind of communication all tweets were requested to used **#WSIS**.

This communication campaign included **Six Strategic Partners** (CivicTEC, telecentre.org, SuNTA, e-agriculture, cibervoluntarios.org, and COETTC), who not only tweeted but also translated all relevant information on the WSIS Process. Information about the WSIS Forum 2011 was diffused in all **six official UN languages**. More than **8250 people were following** this campaign (264 direct followers + 8016 followers through the strategic partners' network).



Here is a cloud representing the most used words of the tweeting campaign:

#wsis 00 10 14 15 16 17 18 19 20 2011 30 45 6a3dxdd 856 8u5tx abbasi action agriculture al alfm article aspx begin blogs @bservoin building c7 campaign capacity cc @civictec communication concerning consultation country debate default development discuss dr du dupm9t eau economy et exhibition fb forum forum2011 gate gov government groups held high highlights hld hlzwoxvnowy home ict implementation indian information informations initiative initi1atives int interaction interview issues itu ixp @jaroslawponder john la laction le level line lines media mis @mnht_ms mobile monday @mongkolroek mr ms new odb9umlb3hu oman online ont open opening opportunity outcomes overall participation place plus pour presented process projets protection provide public regarding related remote report review room rt session set skilled smsi social society stocktaking stories strategy success summary sur tabid thematic tiny transformed tuesday uae ungis uploaded video watch wbopyix304e workshop wsis wsisstocktakingblog www xeodq0qk1fw youtu @youtube youtube à été более вопросам информационного менее министров на неделя около осталась осталось по الوطني مثل و

每个利益相关者都可以通过注册自己的帐号来参加”我给 wsis 写信”的活动远程参与将成为 2011 年的信息社会世界峰会的主要特点，了解更多有关信息请登陆：http

iwrite4WSISForum Campaign Strategic Partner

COETTC
Col·legi d'Enginyers Tècnics i Graduats de Telecomunicació de Catalunya

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What is COETTC

Partners of iwrite4WSISForum Campaign

COETTC is the acronym of "Col·legi d'Enginyers Tècnics de Telecomunicació de Catalunya" that means "College of Telecommunications Engineers of Catalonia". It is an association delegated by the government (like the English Royal Chapter) that represents the telecommunications professionals of Catalonia.

Catalonia is one of the regions of the Kingdom of Spain. Its main city is Barcelona, on the shores of the Mediterranean. Engineers in Catalonia approach IT technologies to citizens and in their daily work are involved in the deployment of ICT services. As an association, it has become a reference in Spain, especially through one of its biggest events, "Catalonia Telecommunications Day", which is a big yearly summit where telecommunications industry, service developers, technicians and users meet together in an intense full day of roundtables. Various thematic lines are established every year to talk about different aspects of ICTs. In recent years, one of the established lines has become immovable: ICT and disabilities.

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Facebook: http://www.facebook.com/pages/Coettc/107275569351696
YouTube: http://www.youtube.com/user/coettc
LinkedIn: http://www.linkedin.com/company/coettc

Summary of activities carried out during the WSIS Forum 2011 by COETTC

Before the summit

(**Objective**: Promotion of the event and call for participation)

- Frequent Tweets from the organizational account.
- Frequent Tweets and re-Tweets from personal accounts.
- Presentation to the Assembly of Telecom Engineers on 15 April.
- Diffusion between COETTC's associated members and the members of the Telecom Advisory Council*) by means of its own communications.

During the summit

(**Objective**: dissemination of events)

- Moderate Tweets from the organizational account.
- Moderate Tweets and re-Tweets from personal accounts.
- Diffusion between COETTC's associated members and the members of the Telecom Advisory Council*) by means of its own communications.
- Remote participation (sending a brief summary of what had been talked in the followed remote participation).
- WTISD in Spain (event link – programme link).

After the summit

(**Goal**: spread of commitment)

- Sporadic Tweets from the organizational account.
- Sporadic Tweets and re-Tweets from personal accounts.
- Diffusion between COETTC's associated members and the members of the Telecom Advisory Council*) by means of its own communications.
- Preparing English version of COETTC's corporative website to be linked with external activities such as WSIS.

In addition COETTC shares some WSIS messages in its corporative Facebook page (http://www.facebook.com/pages/Coettc/107275569351696) and it has a permanent WSIS-Twitter link on the main window of its corporative blog (http://coettcblog.wordpress.com/). But as it is just starting to develop its social media strategy, the impacts of these actions are still low but continuously growing.

*) The Telecom Advisory Council is made up of key persons of telecom companies (of services and infrastructure), associations of telecom users, relevant persons in the field of ICT, deans of universities, multi-sectoral business associations, regional and local administrations and the Government (ICT agencies and departments).

Jaume Fortuny
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CiviTECH:

CivicTEC is a new kind of not-for-profit organisation for these 2.0 times. It's an emerging international network that draws from the evolving entrepreneurial culture of social innovation, bringing public sector leaders, technology corporates and gurus together with the policy thought leaders and community practitioners that make real change happen.

Our focus is how the connective technologies contribute to and escalate positive development.

http://civictec.org/

SuNTA

e-agriculture.org

cibervoluntarios.org

Conclusions

As experienced during WSIS Forum 2010 and 2011 remote participation has become a necessity: this year **more than 2100 people** followed the WSIS Forum remotely.

Continuing the iwrite4WSISForum Campaign several stakeholders are now tweeting using #WSIS, allowing the continuous circulation of information on WSIS-related issues.

Open Consultation Process on the Thematic Aspect and a New Innovative Format

Following the outcomes of the WSIS Action Line Facilitators' meetings during WSIS Forum2009 and 2010 and the exchange of views amongst several WSIS Stakeholders, the organizers of the WSIS Forum – ITU, UNESCO, UNCTAD and UNDP – held an Open Consultation Process on the thematic aspects of the WSIS Forum 2011.

The consultation process on the thematic aspects of the Forum aimed to ensure a participatory and inclusive spirit, as well as to engage governments, international organizations, civil society and the private sector in the preparatory process of the WSIS Forum 2011.

The Open Consultation Process for WSIS Forum 2011 was structured in four steps as follows:

- **Step One: 15 October – 15 December 2010**: Online Discussions
- **Step Two: 23 November 2010:** Preparatory Meeting
- **Step Three: Deadline 15 January:** Submission of Official Contributions
- **Step Four: 24 February 2011:** Review Meeting

The agenda and format of the WSIS Forum 2011 was built on the outcomes/submissions of the Open Consultation Process

Opening Ceremony

Monday, 16 May 2010, 09:30-10:30, (Governing Body Room) (E/F/S) (Overflow Room II: Audio Only)

The opening ceremony marked the official beginning of the WSIS Forum 2011. It included welcoming remarks from organizers, the host, and representatives from Government, Private Sector and Civil Society. The speakers provided the key messages of the Forum, inviting the participants to a series of high-level dialogues and interactive sessions addressing issues critical to WSIS implementation in multistakeholder set-ups.

The Master of Ceremony for the Opening Ceremony was **Dr Tim Unwin, Royal Holloway, University of London**.

Mr Juan Somavia, Director-General, ILO, made the opening remarks and welcomed all participants to the ILO premises. Mr Somavia drew comparisons on the similarities between the WSIS Process and the mandate of the ILO, highlighting the interconnectedness of their respective goals. He drew attention to the opportunities and challenges that ICTs bring to the field of employment, and wished all WSIS Stakeholders a successful Forum.

Dr Hamadoun Touré, Secretary-General, ITU, thanked the ILO for extending its hospitality to ITU by offering its premises for the WSIS Forum 2011. Dr Touré thanked the United Arab Emirates, a strategic partner of the WSIS Forum, for their financial contribution, Oman for sponsoring workshops, and Mexico for making the Opening Ceremony multilingual.

Dr Touré informed about the International Multinational Partnership Against Cyber Threats (IMPACT) and the multilateral approach it takes to address cyberattacks, and pointed out that IMPACT provides the 192 Member States with resources and assistance to thwart cyberthreats.

He stressed that the week's meetings would not just help fulfil the mandate given by WSIS and in particular the Tunis Agenda, but would also help to create a better future for people all over the world. Dr Touré concluded by emphasizing the importance of the first meeting of the UNGIS Open Consultation, 20 May 2011, towards shaping an inclusive process for review. He emphasised on the successful growth of an open and inclusive information society in which global citizens can use, create and share information with one another.

Complete speech available at: http://www.itu.int/en/osg/speeches/Pages/2011-05-16.aspx

Dr Supachai Panitchpakdi, Secretary-General, UNCTAD, emphasized the fact that the ICT for development agenda is gaining momentum, as was evident by the significant increased in the number of participants in this year's Forum. He stated that UNCTAD is encouraged by several emerging possibilities in which ICTs can support the creation of jobs and income, raise productivity and link local firms more effectively to the global economy.

Complete speech available at: http://groups.itu.int/LinkClick.aspx?tabid=1229&FileTicket=05014

Mr Jānis Kārkliņš , Assistant Director-General for Communication and Information, UNESCO, began by praising the multidisciplinary and interdisciplinary nature of the WSIS Stakeholder's commitment to the WSIS Action Lines. Mr Karklins restated that the focus should remain on human development through the multidimensional utilization of ICTs and not on solely on technology. He highlighted the ability of technology to empower people and to enhance participation and democracy, citing as an example the new technology which facilitated the social movement in the Arab states. He also reiterated UNESCO's belief that the right to information is essential for greater equity within the knowledge society. In closing he reaffirmed UNESCO's commitment to implement concrete activities, within the guidelines of Geneva's Plan of Action and the Tunis Agenda, to help facilitate coherent implementation of up to six Action Lines in the areas of its competence, and that it stands ready to work in close collaboration with ITU and UNDP in the overall multistakeholder coordination of the facilitation of all 11 Action Lines.

Complete speech available at: http://groups.itu.int/LinkClick.aspx?tabid=1229&FileTicket=05018

H.E. Mr Mohamed Nasser Al Ghanim, Director-General, Telecommunications Regulatory Authority, UAE, began by thanking the stakeholders for facilitating the WSIS Forum. He stressed the importance of information-sharing as an essential component for success, as well as the universal right to access and utilize information. He pointed out that, since its inception, the UAE has adopted a clear vision that aims at engaging in the international community actively participating in global initiatives that are set to improve the human conditions and provide people with better quality of life. The UAE leadership finds that the WSIS is one of these constructive initiatives that should be dealt with utmost attention and highest consideration. The UAE has also adopted a national WSIS committee, this committeehas members from the National Stakeholder Organizations adding valuable experience from the industry and user community.. He informed that the UAE has also issued a high-level national report which highlighted the UAE's significant progress towards the objectives of the Action Lines. He also stressed the UAE's commitment to green ICT initiatives.

H.E. Mr Al Ghanim thanked ITU for the opportunity to extend UAE's partnership and support to the WSIS Forum 2011 as a Strategic Partner.

Complete speech available at: http://groups.itu.int/LinkClick.aspx?tabid=1229&FileTicket=05009

Mr John Davies, Intel Corporation, Vice-President Sales and Marketing Group, General Manager Intel World Ahead Program, began by drawing attention to the increasing trend of internet connectivity and the use of ICTs, particularly in the developing world, and related this growth to the different models of ICTs, specifically the prepaid model. He stated that one of the challenges presented to industry has been the inability for those who need services the most to afford or access them, namely impoverished populations in the developing world. He went on to discuss what he called an "inflection point", where the use of infrastructure begins to take off, and more and more people are able to access technological capabilities who previously could not. He closed with a positive vision of how MGD goals can be achieved with the cooperation of all the stakeholders and industry.

Complete speech available at: http://groups.itu.int/LinkClick.aspx?tabid=1229&FileTicket=05304

Mr Cyril Ritchie, President, Conference on NGOs in Consultative Relationship with the UN (CoNGO) displayed CoNGO's commitment to the WSIS outcomes through its involvement with WSIS related events and activities. He noted the importance and significance of a multi-stakeholder alliance, and the WSIS Stocktaking Platform's role in strengthening the commitment of civil society to the successful outcomes of MDG goals. He highlighted that some MDG goals cannot be completed in time for several LDC. Mr Ritchie closed by reiteration CoNGO's and civil society's commitment to the facilitation and cooperation towards the successful implementation of the MDG.

Complete speech available at: http://groups.itu.int/LinkClick.aspx?tabid=1229&FileTicket=05305

High-Level

High-Level Opening Session: Working Together Towards 2015

Monday, 16 May, 10:30–13:00, (Governing Body Room) (E/F/S)

The high-level opening session celebrated partnerships and collaborations amongst WSIS Stakeholders while working together towards 2015. The WSIS Process is a multistakeholder process and its success in achieving the internationally agreed goals depends on successful, win–win partnerships. The goal of WSIS is to work together in multistakeholder set-ups to achieve a common vision, desire and commitment to build a people-centric, inclusive and development-oriented Information Society where everyone can create, access, utilize and share information.

The high-level opening session set the tone for the dialogues and interactive sessions scheduled over the following five days.

Interactive Moderator: Dr Tim Unwin, Royal Holloway, University of London

Welcome Note: Mr Houlin Zhao, Deputy Secretary-General, ITU

Speakers

- H.E. Eng. Baryalai Hassam, Deputy Minister Technical, Afghanistan
- H.E. Mr Elmir Velizadeh, Deputy Minister, Ministry of Communications and Information Technologies (MC&IT), Azerbaijan
- H.E. Mr Archt Yeafes Osman, State Minister, Ministry of Science & ICT, Bangladesh
- H.E. Ms Concilie Nibigira, Minister, Ministry of Telecommunications, Information and Communications and Relations with Parliament, Burundi
- H.E. Mr Méndez Menendez Luis Eduardo, Superintendente, Superintendencia General de Electricidad y Telecomunicaciones, El Salvador
- H.E. Ms Suvi Lindén, Minister of Communications, Finland
- H.E. Mr Alhaji A. Cham, Minister of Information and Communication Infrastructure, Gambia
- H.E. Mr Haruna Iddrisu, Minister of Communications, Ghana
- H.E. Mr Kapil Sibal, Minister for Communications and Information Technology, India
- H.E. Lic. Dionisio A. Pérez Jácome Friscione, Secretario de Comunicaciones y Transportes, Mexico
- H.E. Mr Lazovic Vujica, Deputy Prime Minister, Government of Montenegro
- Mr Talal Sulaiman Al Rahbi, Deputy CEO for Operations, ITA, Oman
- H.E. Mr Ivan John E. Uy, Chairman, Commission on Information and Communications Technology, Philippines
- H.E. Ms Magdalena Gaj, Deputy Minister, Ministry of Infrastructure, Poland
- H.E. Mr Ilya Massukh, Deputy Minister, Ministry of Telecom and Mass Communications, Russian Federation
- H.E. Ms Jasna Matic, Minister, Ministry of Telecommunications and Information Society, Republic of Serbia
- H.E. Mr Mohamed Nasser Al Ghanim, Director-General, Telecommunications Regulatory Authority, UAE
- Ms Kristin Peterson, Chief Executive Officer, Inveneo
- Ms Anriette Esterhuysen, Executive Director, Association for Progressive Communication

Mr Kassym-Jomart Tokayev, Director-GeneralUnited Nations Office at Geneva (UNOG), began by delivering Secretary-General Ban Ki Moons message to the WSIS Forum 2011. He also discussed the unique role of ICTs as essential, multidisciplinary enablers of development – specifically, technology's ability to link a global audience, a feat which would have been impossible just ten years ago. Mr Tokayev encouraged the continued development of new ICT methods and innovations, and highlighted the significance of WSIS as a multistakeholder platform.

Mr Houlin Zhao, Deputy Secretary-General, ITU, opened by expressing his pleasure in seeing progress being made in WSIS outcomes as a result of the efforts of those involved in the WSIS Forum. He also noted that a record number of ministers were in attendance during the 2011 event. He then highlighted the WSIS Stocktaking Success Stories 2011 publication as a source of inspiration concerning ICTs' role in meeting the MDGs. He closed by stressing the importance of placing ICTs at the top of the development agenda and encouraged all participants to engage in the open consultation process.

H.E. Eng. Baryalai Hassam, Deputy Minister Technical, Afghanistan, began by drawing attention to the telecommunication improvements Afghanistan has implemented over the last year which increased mobile phone usage, increased international connectivity to neighbouring countries, and connected 20 out of 35 provinces with a high-speed fibre optic network backbone. He noted that both challenges and opportunities are presented by ICTs in expanding the reach and delivery of government services, stimulating the private sector, leading economic growth and generating employment. Current efforts include mainstreaming of mobile phone applications in strategic government sectors which support local IT industries. Some current areas in need of improvement included the utilization of ICTs in government operations and inadequate ICT policy in the private sector. In closing, the e-Afghanistan Program was highlighted as a catalyst for closing the communication gap and a representation of the Government's commitment to promoting E- and M-services. Finally, the importance of sustainable human development through use of ICTs was re-emphasized.

H.E. Mr Elmir Velizadeh, Deputy Minister, Ministry of Communications and Information Technologies (MC&IT), Azerbaijan, gave an overview of the ICT initiatives in Azerbaijan, beginning with the fact that ICTs have become a top priority for the government. Due to a recent demand for global communication, Azerbaijan has focused its efforts on increasing the coverage of its broadband network. The Minister stated that there are currently 1.4 million people connected in Azerbaijan. In closing, he stated that a national broadband network will be instrumental towards achieving the MDGs.

H.E. Mr Archt Yeafes Osman, State Minister, Ministry of Science & ICT, Bangladesh, began by outlining the dream of Digital City Bangladesh, a city which is poverty-free, with a knowledge-based, middle-income society. This dream is to be achieved by 2021. He noted that the citizens of Bangladesh are prepared for societal development, which is illustrated by the wave of young IT professionals. He outlined the growth of ICT infrastructure by stating that in the last two years, 20 million subscribers were added to the mobile family, and indicated that foreign investment was welcome. His Excellency reminded us that ICTs are a means to an end and not an end onto itself. In closing he noted that challenges were still present, specifically the penetration of broadband technologies which were currently being addressed by further initiatives.

H.E. Ms Concilie Nibigira, Minister, Ministry of Telecommunications, Information and Communications and Relations with Parliament, Burundi, began by identifying ICTs' role in achieving political and economic stability in Burundi and outlined the National ICT Development Policy which began in 2010 and extends to 2025. The plan included such initiatives as human capacity building, adaption of political, legal and regulatory framework to the convergence area, developmental framework for the ICT infrastructure, e-government and e-governance via Burundi Online, ICT and economic development, ICT and social development, rural connectivity, research and development, content, and applications. Success stories included such initiatives as the liberalization of the telecommunication industry, national GSM coverage, and the management of the fibre optic network. The Minister closed by outlining a few challenges, such as the cost and quality of energy services, the lack of use of ICTs in the economic sector, and insufficient investment in the private sector.

Dr Adiseno, Senior Advisor to Minister on Technology Innovation Ministry of Communication and Information Technology,Indonesia began by highlighting the role of ICTs in economic growth and the transformation of lifestyles. He also pointed out the unique challenge of bringing connectivity to an archipelago nation of 17,000 islands. In order to facilitate this, the Government has stepped up efforts, together with stakeholders, to bring ICT infrastructure to the islands. As of January 2010, 25,000 villages had basic telecommunication services, and by September 2011 it is projected that 53,183 villages will have telephony services through the Ringing Villages Project. The Minister also outlined the National Broadband Project, *Palapa Ring,* which would serve as the nation's broadband backbone. He ended with commentary on the rapid growth of the ICT sector and welcomed industry support.

Ms Kristin Peterson, Chief Executive Officer, Inveneo, began by outlining the idea of social business, which is a business concerned with the societal implications of its actions. She outlined how Inveneo serves organizations and local governments by facilitating ICTs in the fields of education, relief and economic development. Inveneo achieves this by matching hardware, software and power technology to problem areas and also looks at models of delivery. Inveneo also puts emphasis on the development of local IT entrepreneurs in the implementation of ICTs. To date, Inveneo works in 25 countries and has helped built the capacity of approximately 100 entrepreneurs. They operate mainly in Sub-Saharan Africa, South Asia and Haiti. Achievements include the delivery of technology to 900 Tanzanian schools, broadband to 50 per cent of rural Haiti, and solar powered computer labs in Uganda. In closing, Ms Peterson highlighted the challenges of slow adaptation of technology despite its availability, and urged stakeholders to accelerate the process.

H.E. Mr Méndez Menendez Luis Eduardo, Superintendente, Superintendencia General de Electricidad y Telecomunicaciones, El Salvador noted that the benefits of ICTs are apparent in societal and economical development, and El Salvador is committed to extending ICTs to all sectors of El Salvador's population, particularly education in the poorest regions. A project to extend connectivity to 80 per cent of its students was highlighted.

H.E. Ms Suvi Lindén, Minister of Communications, Finland, began by highlighting the success of Internet Governance Forum (IGF), and emphasized the need for multistakeholder models for internet governance; specifically, the usefulness of these models to developing countries and their unique challenges in the creation of internet policy. The Minster stressed the need for further collaboration between multiple stakeholders and the advancement of financial mechanisms to support multistakeholder participation. She highlighted the ability of developing countries to start from a clean slate in adopting ICTs, specifically the adoption of broadband technology which allows access to information and is the key to a better future.

H.E. Mr Haruna Iddrisu, Minister of Communications, Ghana, noted that the Government of Ghana is priming ICTs as major driver of societal and economical development and is committed to implementing the WSIS Action Lines. The Minister outlined e-initiatives for health, education, broadband, and making Ghana a source for ICT outsourcing. He noted that challenges included cyberfraud, locally known as *sakawa,* and the dumping of e-waste.

H.E. Mr Kapil Sibal, Minister for Communications and Information Technology, India, noted that the reality of the world today is that the rich already have access, and that the challenge is how to reach the marginalized. Marginalized communities lack economic power and access to technology, and also face information barriers due to language. He asked if we, as a community, can develop open-sourced information for the marginalized and, if so, how will the marginalized be able to access it? He noted that these are the types of questions that ITU should be addressing. In closing, he noted the importance of education and healthcare, and also brought attention to the quality of education versus the quantity. He ended with the question, "Can we make platforms to deliver quality information?".

H.E. Lic. Dionisio A. Pérez Jácome Friscione, Secretario de Comunicaciones y Transportes, Mexico, began by stating that Mexico has shown sustained commitment to the WSIS Process, efforts date back to 2001. Between 2006 and 2010 mobile phone usage rose from 53 per 100 inhabitants to 81 per 100 inhabitants, internet usage rose from 20 per 100 inhabitants to 31 per 100 inhabitants, and broadband use went from 3 per 100 to 11 per 100 inhabitants. Last year Mexico increased the ICT budget eight fold, resulting in 600 million dollars earmarked for ICT development. Several initiatives were highlighted such as eMexico, which is several networks converging on one fibre optic backbone, and expansion of Satellite networking in remote areas. In closing, Mexico can and will commit to further development in the ICT sector.

Questions	Responses/ Commemts
Dr Tim Unwin, Royal Holloway, University of London asked Inveneo CEO, Kristin Peterson, what the private sector would like to see more from governments.	**Ms Kristin Peterson** answered with the recommendation that governments develop a plan for their rural budgets and also to further integrate ICT initiatives into a more holistic approach. **H.E. Ms Suvi Lindén**, Minister of Communications, Finland, noted that 10 per cent of Finland's development budget goes towards ICTs and said that infrastructure alone is not enough and needs to be integrated with other disciplines. She also noted that Finland has declared broadband to be a universal right and hopes that other countries follow suit. **H.E. Mr Kapil Sibal**, Minister for Communications and Information Technology, India, noted that they now have a broadband plan to bring widespread access. They also have a plan to connect every university in a knowledge-sharing environment. He also added that the world is ready to share information, civil society is ready to absorb it, and that government and the private sector are ready to participate in this process. He suggested that every country should have an electronic service delivery bill, which would provide government services information electronically. He closed with the reminder that the right to information is part of the

Questions	Responses/ Commemts
	right to freedom of speech. **H.E. Mr Haruna Iddrisu**, Minister of Communications, Ghana, recognized the gap between rural and urban areas, and highlighted Ghana's efforts to close this gap. They also have telecommunication centres which exclusively employ disabled persons in ICT roles. **H.E. Mr Méndez Menendez Luis Eduardo**, Superintendente, Superintendencia General de Electricidad y Telecomunicaciones, El Salvador, noted that in El Salvador the broadband issue is being worked on with neighbouring countries and that mobile technologies are being rolled out for rural populations. **H.E. Lic. Dionisio A. Pérez Jácome Friscione**, Secretario de Comunicaciones y Transportes, Mexico, expressed Mexico's interest in learning from other countries in regards to bridging the rural versus urban connectivity divide. **Mr Houlin Zhao**, Deputy Secretary-General, ITU, related his personal knowledge of China's successful implementation of connecting rural villages.

Webcast of this high-level opening session is available at:
http://www.itu.int/ibs/WSIS/201105forum/index.html

High-Level Dialogues

The high-level dialogues provided an interesting blend of an expert panel and audience interaction on specific topics identified as relevant and crucial within the mandate of the WSIS.

- *HLD1: Right to Communication: New Social Media and Social Transformations*
  Wednesday 18 May, 09:00-11:15, Room II (E/F)
- *HLD2: Innovation for Digital Inclusion*
  Wednesday 18 May, 09:00-11:15, Room V (E/F)
- *HLD3: ICTs as an Enabler for Development of LDCs*
  Thursday 19 May, 09:00-11:15, Room II (E/F)
- *HLD4*: Building Confidence and Security in Cyberspace
  Thursday 19 May, 09:00-11:15, (Governing Body Room) (E/F)

HLD1: Right to Communication: New Social Media and Social Transformations

Wednesday, 18 May, 09:00–11:15, Room II (E/F)





HLD No 1 provided an interesting blend of an expert panel and audience interaction on the Right to Communication: New social media and social transformations

Access to information and the capacity to be able to enjoy the "right to communication" are essential to the realization of greater equity in a global society. That is, information and communication are both "resources" whose ethical usage and distribution create the conditions for democracy and greater well-being. Communication and information are not, however, "givens." The right to

communication and the free access to information can be impacted by various actors through diverse array of objectives, including political control, technical initiatives, right-oriented campaign, industrial policy and regulation, security, users, and etc. The global digital divide is therefore the site from which new core-periphery relations emerge and find themselves contested. In other words, ICTs and the formation of responsible cyber-citizens are intrinsically ethical issues and ethics, which has long occupied itself with what constitutes "good" social behavior, stands to inform our relationship to ICTs and our virtual social behavior.

The high-level dialogue brought together stakeholders from all over the world ranging from technology experts, policy specialists, to users and cyber-activists to provide insight into the "right to communication" and its ethical implications. In turn, this dialogue offered the means to reconsider humanity's immersion in a socio-eco-techno apparatus that compels mankind to communicate in new ways. The panel will also encouraged brainstorming and debates on burning issues of the "right to communication" related to the WSIS Plan Actions.

Speakers

- **Mr Mark Coeckelbergh, University of Twente, Netherlands**
- **Ms Denisa Kera, National University of Singapore**
- **Ms Nermine El Saadany, Director, International Relations Division, Ministry of Communications and Information Technology, Cairo, Egypt**
- **Ms Victoria Nash, Research and Policy Fellow at the Oxford Internet Institute, University of Oxford, UK**
- **Mr Slim Amamou, Secretary of State for Youth & Sports, Tunisia. Member of Internet Engineering Task Force and the World Wide Web Consortium. Blogger, Cyber-activist**

Mr John Crowley, Chief of Section, Ethics of Science and Technology, Sector of Social and Human Sciences, UNESCO, as the moderator, introduced both the subject and panellists. In the Geneva Declaration the right to communicate is defined as a key social process. It is beyond the freedom of expression. First this idea implies the right not only to speak but also to be heard. It is clearly linked to the technology access but not exhausted by the technology. It is also implying the right to be part of a communication space. Then the right to communicate is not only to share and to be heard but also to receive.

Dr Mark Coeckelbergh, University of Twente, Netherlands, stressed the context and issue between technology and society and how technology is changing the society. The right to communication can be understood as a third generation of rights coming after political and socio-economical right. In order to understand what the right to communication is we have to understand how it is transforming society. The question is how to empower people to develop capabilities. We should think about how individuals can blossom by using these technologies to communicate, in order to create a better society.

Dr Denisa Kera, National University of Singapore, explained that some communities (DIYbio lab) are experimenting the development of open source software all around the world not only in Boston but in Singapore and developing countries. The question is how to democratize the design of technology. Citizens are appropriating science and offer data with an experimental approach of policy. This new approach of spreading science should be investigated.

Question	Responses/ Comments
We should elaborate a code of ethics for the creators of information and the receivers of information.	**Ms Nermine El Saadany, Director, International Relations Division, Ministry of Communications and Information Technology, Cairo, Egypt** What ethics should be prevailing is a really important subject of discussion. **Mr Slim Amamou, Secretary of State for Youth & Sports, Tunisia. Member of Internet Engineering Task Force and the World Wide Web Consortium. Blogger, Cyber-activist** Restraining any kind of information is censorship. The way I think we should focus on is the increase of the individual's right and self-censorship.
What is the concept of the right to communication and what does it mean?	**Dr Denisa Kera, National University of Singapore** Communication is not only about text and language or traditional or social media; nowadays it is also about sharing data protocols.
Is there any attempt to link this new way to spread science and with the traditional one?	Yes, many traditional researchers are supporting DIYbio Lab in this area, some in secret and some openly.
We have to look at "equalality: in the social media space or else we could have a new form of Fascism.	**Dr Denisa Kera, National University of Singapore** Yes, we should support minorities, and enabling small communities to understand science allows them to spread it all around them.. **Ms Victoria Nash** There is the right to communicate and the right to be heard . All the studies have shown that for the right to be heard we always favoured the "big". **Mr Slim Amamou** There are no real losers or winners there are losers in one community and winners in another and the loser of one can be the winner of others.

Ms Nermine El Saadany, Director, International Relations Division, Ministry of Communications and Information Technology, Cairo, Egypt, emphasized that the right to communicate is the need for people to communicate with each others. The paradox is that if we have the right to be heard we cannot force people to listen. We should empower people to have the resources to communicate. Knowledge about communication should be spread as much as possible. The civil right associated with communication should be absolutely inviolable. We should encourage the preservation of existing culture and not prefer one language to another in order to not lose our diversity.

Ms EL Saadany explained the four main phases in the development of this technology.

Ms Victoria Nash, Research and Policy Fellow at the Oxford Internet Institute, University of Oxford, UK, pointed out that communication technologies matter not only because they are something unique but because they are fundamentally tools that can be used to create or protest, and to exercise the right to communicate. There are other rights that should be highlighted. For example, with the right to communicate comes freedom of expression, and so on, and all these rights fit together.

Ms Nash stressed on the importance of ethics in in the context of communication, in particular while using social networks for communication.

Please note that this summary only provides a snapshot of the high- level dialogue. The complete Webcast of this high-level dialogue is available at:
http://www.itu.int/ibs/WSIS/201105forum/index.html

HLD2: Innovation for Digital Inclusion

Wednesday, 18 May, 09:00-11:15, Room V (E/F)

HLD No. 2 provided an interesting blend of an expert panel and audience interaction on Innovation for Digital Inclusion.

The ICT industry undergoes fast changes, and it has been noted in several examples from around the world that innovation plays a major role in ensuring Digital Inclusion. Innovative technologies can turn the "digital divide" into a "digital opportunity", bringing the benefits of ICTs to all segments of the population, in particular those in underserved communities and developing countries. Future applications and services have the potential to build the information society, and several components make important ingredients in achieving digital inclusion, thus enabling universal, sustainable, ubiquitous and affordable access to ICTs by all. In order to provide equal telecommunications access to villages, schools and health centres in remote areas, various innovative broadband models have recently been developed jointly by multistakeholders. These innovative technologies will help bring the benefits of ICTs to all segments of the population, in particular those in underserved communities and developing countries. This HL Dialogue brought together innovators, implements and end users to discuss and debate the role of innovation for digital inclusion and its application in different parts of the world.

Speakers

- Mr Houlin Zhao, Deputy Secretary-General, ITU
- H.E. Mr Ivan John E. Uy, Secretary, Commission on Information and Communications Technology, Philippines
- H.E. Ms Jasna Matic, Minister, Ministry of Telecommunications and Information Society, Republic of Serbia
- H.E. Dr. Maki Esther Ortiz Domínguez, Deputy Minister for Integration and Health Sector Development, Mexico
- Mr Mohamed Al Khamiri, Director Of Strategy & Planning, Abu Dhabi Systems and Information Center (ADSIC)
- Mr Salvator Nizigiyimana, CEO, Office national des télécommunications du Burundi (ONATEL),Burundi
- Mr Mark Summers, Chief Innovation Officer, Inveneo (TBC)
- Mr Ali Ghodhbani, CEO , Tunisie Telecom
- Mr John Davies, Intel Corporation, Vice President Sales and Marketing Group, General Manager Intel World Ahead Program
- Mr Ilker Helvaci, Vice President, Business Development and Marketing, SEBIT ,Turk Telekom Group

Moderator: Dr Reinhard Scholl, Deputy Director, Telecommunication Standardization Bureau, ITU

Mr Houlin Zhao, Deputy Secretary-General, ITU, underlined the role of innovation as the driver for development and the role of private sector in the innovation process. He reminded all present about the great worldwide achievement of the progress of mobile subscriptions and called for the same success regarding broadband connections. Concerning broadband he emphasized on the creation of the Broadband Commission last year by ITU and UNESCO. To conclude his intervention he noted that innovation comes more and more from emerging markets and developing countries.

H.E. Mr Ivan John E. Uy, Secretary, Commission on Information and Communications Technology, Philippines, explained that the digital strategy of the Philippines is based on providing universal access to the population of the country. He highlighted the commitment of the Government of Philippines to reach everyone through e-Government tools which will allow for the improvement of standards of living as well as the empowerment of citizens. Mr Uy informed the participants about the creation of an "e-centre "in partnership with Telecentre.org in Philippines in order to reach the most isolated areas. He presented the involvement of CICT in developing ICTs for disabled people. Mr Uy also underlined the lack of fixed lines to develop broadband in Philippines, leading to the development of wireless solutions. To conclude he called for international partnerships and sharing of experiences in order to bridge the digital gap.

Dr Maki Esther Ortiz Domínguez, Deputy Minister for Integration and Health Sector Development, Mexico, presented the commitment of Mexico to develop e-health services. She talked about the efforts made to increase awareness of patients through websites and ICTs. Dr Ortiz also informed about the mobile units which allow remote and rural areas to connect to hospitals. In order to increase capacity-building on the e-health issue, an education network has been set up in Mexico. She concluded by saying in order to efficiently use e-health services, the traditional medical world has to adapt to integrate new technologies.

Mr Mohamed Al Khamiri, Director of Strategy & Planning, Abu Dhabi Systems and Information Center (ADSIC), shared projects and experiences of e-government in the UAE. He presented the e-citizen program which had been set up to develop the population's awareness of e-government. He also spoke about the public–private partnerships set up by the UAE concerning the education of children and efforts to reach out to most remote areas. He concluded by highlighting the progress at an international level made by the UAE regarding ICTs thanks to these initiatives.

Questions	Responses/ Comments
Information Technology Industry Association of Nigeria asked about the parliamentary aspect of the process (role of parliament in the implementation) and about the sustainability of the e-society.	**H.E. Mr Ivan John E. Uy, Secretary, Commission on Information and Communications Technology, Philippines** replied that in terms of sustainability, in the Philippines an e-government fund has been established to identify the government agencies that would provide e-services to the people and increase connectivity in remote areas. **Dr Maki Esther Ortiz Domínguez, Deputy Minister for Integration and Health Sector Development, Mexico** replied that in the case of e-health the role of parliament is really important in order to keep transparency. **Mr Mohamed Al Khamiri, Director of Strategy & Planning, Abu Dhabi Systems and Information Center (ADSIC)**, talked about the Abu Dhabi System and Information Center which has been established by and has the support of the Government. He highlighted the fact that the commitment of the Government is indeed essential to achieve digital inclusion.
Lesotho asked about the initiative from telecenter.org that aims at empowering 1 million women, with the intention to implement it in their own country.	**H.E. Mr Ivan John E. Uy, Secretary, Commission on Information and Communications Technology, Philippines** responded that his country is working in partnership with telecenter.org, and the 1 million women empowerment programme is already active in Lesotho.
E-worldwide stated that stakeholders from different activities that have an interest in reaching the rural areas are not working in partnerships yet, and she asked if in the future this is something which will be developed.	**Dr Maki Esther Ortiz Domínguez, Deputy Minister for Integration and Health Sector Development, Mexico** replied that in Mexico many secretariats and agencies are working with the telecommunication minister and they use the same technologies. **H.E. Mr Ivan John E. Uy, Secretary, Commission on Information and Communications Technology, Philippines** stated that in the case of the Philippines, many partnerships with chambers of commerce, private sector and universities have been formed in order to minimize the costs of empowering local trainers.
University of Geneva asked if for ITU it is important to consider open-source software as enabling tools for digital inclusion.	**Mr Houlin Zhao, Deputy Secretary-General, ITU** replied that ITU supports the use of open standards but he also recalled the importance of protecting the intellectual property rights of the industry.
Ms Alison Hornery (remote participat) asked what	**Mr Mohamed Al Khamiri, Director of Strategy &**

Questions	Responses/ Comments
potential the panellists see in using new social technologies to enable people in more developed countries to help support digital inclusion efforts in other places.	**Planning, Abu Dhabi Systems and Information Center (ADSIC)**, stated that social media has been playing a major role recently. He recognized social media as a great communication tool, especially for knowledge transfer between individuals. **H.E. Mr Ivan John E. Uy, Secretary, Commission on Information and Communications Technology, Philippines** replied that social media has a great potential as an enabler to share knowledge. He insisted on the role of social media to raise awareness about the diversity of cultures around the world. **Dr Maki Esther Ortiz Domínguez, Deputy Minister for Integration and Health Sector Development, Mexico** said that the capacity of social media can be very useful for government to spread information quickly.

Change of panellists

Mr Salvator Nizigiyimana, CEO, Office national des télécommunications du Burundi (ONATEL), Burundi, talked about the role of the public network operator of Burundi (Onatel) to improve services and infrastructure within the country. He highlighted the tremendous improvement in the mobile penetration rate for LDCs in the last decade; adding that this improvement, combined with the creation of many mobile applications, has permitted a significant amelioration for the population, particularly in rural areas. Burundi has also decided to implement wireless broadband network through Onatel to connect rural zones for e-health and e-education applications. A fibre optic backbone system is also being deployed in Burundi by a conjunction of operators which will permit the implementation of the e-government system.

Mr Mark Summers, Chief Innovation Officer, Inveneo, stated that innovation in the area of ICTs is growing faster and faster after a little stagnation in the past few years. He said that it is a right for all communities in the world to have access to ICT tools for their own benefit. He highlighted the fact that connectivity for rural areas had become the key issue for the e-services. He also underlined that in order to succeed there is a need to choose the right technology and to involve local entrepreneurs in the process. Mr Summers said that in the beginning, there is no right use of a tool and in order not to forbid innovative uses of the technology, there should not always be a prescription of the solution.

Mr John Davies, Intel Corporation, Vice President Sales and Marketing Group, General Manager Intel World Ahead Program, agreed with Mr Summers that one can witness the most innovative use of technology in remote areas. He insisted on the fact that innovation not only has a technical aspect but is also in business models, architecture, standards (with many several from all around the world) and this aspect should not be forgotten.

Mr Ilker Helvaci, Vice-President, Business Development and Marketing, SEBIT, Turk Telekom Group, focused his speech on the educational part of digital inclusion. In his introduction he explained the concept of digital native and immigrants. For Mr Helvaci, at the light of this theory, the main issue is to provide the technology to relevant people. Another important issue for him is the sustainability of the model. He said that in an educational perspective, digital inclusion is just about lowering all barriers. To conclude, he highlighted digital inclusion as the key issue to bring quality education to the next generation.

Prof. Peter Bruck, Chairman of the Board of Directors, World Summit Award, explained the activities of World Summit Award which is to bridge technology with applications. He underlined the problem of having technologies without any content and targeted this issue as the main one. Then he gave many examples of how e-inclusion can come from developing countries.

Questions	Responses/ Comments
Nigeria asked Mr Nizigiyimana about the private sector in Burundi and more specifically about the opportunities given to SMEs, and also about the broadband strategy of Burundi. Nigeria then asked Mr Davies about the role of regulators in putting the right frameworks in place to reduce costs of access.	**Mr Salvator Nizigiyimana, CEO, Office national des télécommunications du Burundi (ONATEL), Burundi** said that Onatel is still in the privatization process. The liberalization of the telecom sector of Burundi that started in 1997. He said that even if Onatel is a state-owned company, it is not the biggest operator in Burundi; in fact Onatel is used to regulate the market, increase competition and provide the services that the private sector is unable to provide (in rural areas for example). As for the SMEs they are participating in public–private partnerships in providing accessories and technologies. Regarding the Broadband Strategy he underlined the fact that Burundi is a landlocked country and therefore not directly connected to the submarine cables, but there is a public–private partnership to build the backbone system. **Mr John Davies, Intel Corporation, Vice President Sales and Marketing Group, General Manager Intel World Ahead Program** replied that there are three roles for regulators. Number one refers to spectrum, the second is to provide access to facilities such as submarine cables and the third is the universal service fund to reach rural areas.

Questions	Responses/ Comments
	Prof. Peter Bruck, Chairman of the Board of Directors, World Summit Award stated that winning the WSA allows the winner to network with other people in their country and all over the world.
FANCV (remote participant) asked how the digital divide can be reduced with respect to early warning systems.	**Mr Mark Summers, Chief Innovation Officer, Inveneo**, gave the example of the cholera epidemic in Haiti, where telecom operators sent automatic SMS to people known to be travelling through infected areas.
Ms Alison Hornery (remote participant) asked about the "teach the teacher" approach.	**Mr John Davies, Intel Corporation, Vice President Sales and Marketing Group, General Manager Intel World Ahead Program** gave the example of India, where female entrepreneurs provide services to their villages and also give training in their villages and others.

To conclude, **Dr Reinhard Scholl** summarized the session by saying that innovation appears in the frontline, not only in big corporations but also in emerging economies and rural areas. He also highlighted the fact that innovation not only refers to technologies but also to business models and products.

Please note that this summary only provides a snapshot of the high- level dialogue. The complete Webcast of this high-level dialogue is available at:
http://www.itu.int/ibs/WSIS/201105forum/index.html

HLD3: ICTs as an Enabler for Development of LDCs

Thursday, 19 May, 09:00–11:15, Room II (E/F)

HLD No. 3 provided an interesting blend of an expert panel and audience interaction on ICTs as Enabler for Development in LDCs.

New ICTs have become critical enablers for sustained human development. There are now numerous examples as to how ICTs have contributed to eradicate poverty, bring to the most vulnerable and marginalized populations basic services for the first time in history, and give them voice in the governance processes. Least developed countries (LDCs) confront extreme poverty and pervasive social exclusion. They also have to deal with limited access to education, health and other key social services, depletion of natural resources, and poor infrastructure and access to ICTs. But to a large extent LDCs also have the benefit of the rapid diffusion of new technologies. In particular, the

explosive growth of mobile phones has taken place in most if not all LDCs. This has mainly been due to improved political stability, the low cost and ease of use of wireless technologies, and an open and competitive environment in the sector.

In the last ten years several developing countries have graduated out of the LDC category. ICTs have played a key role in the general development of most of the LDCs as they can be a catalyst not only for economic growth but also for human development. For instance, ICTs can assist in tackling extreme poverty, structural weaknesses, climate change issues, and the overall vulnerabilities that populations in LDCs are frequently exposed to, such as natural disasters and famines.

This high-level dialogue shared these emerging trends, best practices and lessons learned, and attempted to identify obstacles and constraints that may socio-economic development in LDCs. Views were shared by the LDCs themselves and development partners.

Speakers

- Mr Brahima Sanou, Director Telecommunication Development Bureau, ITU
- H.E Eng. Baryalai Hassam Deputy Minister, Ministry of Communications and Information Technology (MCIT), Islamic Republic of Afghanistan
- H.E. Md. Abdul Hannan, Permanent Representative of Bangladesh, Geneva
- Dr Mongi Hamdi, Head Science Technology and ICT Branch , Division on Technology and Logistics (DTL) , UNCTAD
- Mr Salvator Nizigiyimana, CEO, Office national des télécommunications du Burundi (ONATEL),Burundi
- Mr Chris Locke, Managing Director GSMA Development Fund, GSMA
- Mr Randy Ramusack, United Nations Technology Officer, Microsoft Corporation

Moderator: Mr Cosmas Zavazava, Chief, a.i. Project Support and Knowledge Management Department and Head of LSE Division

Mr Cosmas Zavazava introduced the panel and provided an overview of the subject – the use of ICTs as a catalyst for development to reach MDGs. He highlighted the progress made in LDCs in this area.

Mr Brahima Sanou, Director Telecommunication Development Bureau, ITU, provided the opening remarks, reminding all present of the Istanbul conference. He shared thoughts about the role of ICTs in development; ICTs have the role of a catalyst in eradicating poverty and creating wealth. He also stated that ICTs are responsible for the creation of micro-enterprises, to attain primary education for all as well as gender equality, to enable women autonomy, reduce child death, and fight HIV and AIDS. He also highlighted the role of ICTs in reducing vulnerability to natural disaster and increasing rural integration.

Mr Sanou shared several important points about what should be done in order to fully reach the huge potential of ICTs:

- gathering the resources of change-makers in ICTs
- integrating ICTs in national and regional poverty reduction plans
- helping LDCs to set up legal and juridical framework to promote digital inclusion
- reinforcing human and institutional capacities

- helping LDCs to improve access to ICTs
- improving cybersecurity
- creating public–private partnership using comparative advantage of all actors.

He also put the spotlight on the engagement of ITU in the attainment of the MDGs, particularly for LDCs, and then called for partnerships focusing on the human dimension of ICTs.

H.E Eng. Baryalai Hassam, Deputy Minister, Ministry of Communications and Information Technology (MCIT), Islamic Republic of Afghanistan, talked about the improvement of ICT infrastructure in Afghanistan and highlighted the expected positive impacts of ICTs. He recalled that despite progress in the use ICTs, it remains limited in both the public and private sectors. He stated that the strategy is to focus on high-priority areas such as backbone network, mobile service and so on. He also put the spotlight on the creation of resource help centres by the MCIT of Afghanistan. To conclude he described the development plan and achievements in Afghanistan (regarding health, education, banking and so on).

Dr Mongi Hamdi, Head Science Technology and ICT Branch, Division on Technology and Logistics (DTL), UNCTAD, called for sustainable proactive national policies in order to avoid marginalization of LDCs. He recalled that people in LDCs lack access to information, an issue that can be addressed with the use of ICTs. He also spoke about the digital gap between LDCs and developed countries. He underlined the increase of ICTs in LDCs, particularly concerning mobile phones and the importance of mobile services. Mr Hamdi went on to emphasize the inter-connectedness of different ICTs.

Mr Salvator Nizigiyimana, CEO, Office national des télécommunications du Burundi (ONATEL), Burundi, spoke of ICTs as a tool to fight poverty and illiteracy. He underlined ICTs as a great catalyst for development and the importance of development of mobile and m-services. He also put the spotlight on the impact of ICTs for job creation. He also spoke about broadband as the greatest accelerator for development and he emphasized the key issues to be addressed as: deploy broadband infrastructure, develop and diffuse application and human capacity building. To conclude, he spoke of the future plans of Burundi in the area of e-health, e-education, e-commerce.

Mr Chris Locke, Managing Director GSMA Development Fund, GSMA, spoke about the activities and purpose of the GSMA Development Fund; and spoke about the impact of mobile in LDCs. He also underlined the role mobile money services to provide financial services to unbanked. Mr Locke highlighted GSMA's different programmes (m-money, m-agriculture, gender balance, green economy, community power, m-health and m-learning). He stated that in his opinion infrastructure is the key for development. To conclude, he highlighted the mobile money case of Kenya.

Mr Randy Ramusack, United Nations Technology Officer, Microsoft Corporation, described three ways in which Microsoft looks at ICTs as enablers:

1) Strengthening economy
2) Addressing societal challenges
3) Promoting a healthy online ecosystem

H.E. Md. Abdul Hannan, Permanent Representative of Bangladesh, underlined the opportunities created by ICTs for the poorer economies. He emphasized on the involvement of Bangladesh through e-health and education. He highlighted the gap between rich and poor countries regarding broadband access. To conclude he called for a sustainable plan and to have reports regarding the progress of broadband implementation and fixed access.

Mr Zavazava summarized the interventions of the high-level dialogue in ten points:

1) ICTs are a development enabler

2) Infrastructure is essential for development
3) People-oriented partnerships are key
4) Bottom-up approaches rather than top-down
5) Wireless technology
6) Mobile is not the only answer
7) Digital inclusion is one of the key issues
8) Problem of landlocked and small island countries
9) Climate Change
10) Cybersecurity

Questions	Responses/ Comments
Member of civil society from Geneva referred to three countries that graduated from being LDCs. How can they be interesting cases for others? Also, one of them achieved the negotiations to enter WTO just after they graduated, knowing that many LDCs are not members of this organization. The second question was about the Istanbul action plan because the action plan is for 10 years and the MDGs are in five years , so what about the efficacy and real implementation of the plan. Question **from the floor**: Participant proposed the idea of linking the number of mobile users to the GDP. He stated that more broadband is good but others facilities (water, energy) might be more important. **Boniface Sow, Tanzania**, stated that ICTs have made a tremendous contribution in development of LDCs. He highlighted numerous challenges LDCs are facing: energy crisis, policy issues, etc., and asked how can they be addressed in this summit?	**H.E. Md. Abdul Hannan, Permanent Representative of Bangladesh**, agreed on the need to work on other variables (water, etc.) and said that governments are trying to rationalize and be independent. He said that mainstreaming ICTs in health, education, and SMEs is the responsibility of the government. He underlined that the development plan should be inclusive. He underlined the need to work in an inclusive, comprehensive manner. **Mr Salvator Nizigiyimana, CEO, Office national des télécommunications du Burundi (ONATEL), Burundi**, emphasized the importance of broadband networks and gave the example of Burundi that deployed a network to develop connectivity for education and health on the pre-existing network. Other initiatives are important such as fibre optic in public–private partnerships. Regarding the lack of funds to develop broadband services he said that the solution for Burundi is in the improvement of the business climate and also forming public–private partnerships.
Commission member, Haiti, asked about the role of ICTs in poverty reduction and stated that progress in ICTs can have positive outcomes on development. He asked if there is a unified framework taking into account the dimension of poverty reduction in national ICT strategies or is it left to the LDCs to achieve this conciliation between technologies and basic priorities. **Jean Louis Fullsack** stated that civil society representatives should be more visible in panels such as therse. He highlighted that that ICTs have never been addressed as basic priorities in the Istanbul process.	**H.E. Md. Abdul Hannan, Permanent Representative of Bangladesh** underlined the importance of affordability and availability of broadband. He illustrated the point with the Bangladesh case. He stated that LDCs cannot always afford this connectivity and international organizations like ITU have a big role to play in such cases. He concluded by saying that attimes LDCs need to think of things globally and international organizations like ITU have the global reach. **Dr Mongi Hamdi, Head Science Technology and ICT Branch, Division on Technology and Logistics (DTL), UNCTAD** stated that despite the progress in LDCs,

Questions	Responses/ Comments
	there is still a lot to be done.
President of IT industry of Nigeria stated that he did not want Africa to pass the digital age. Then he asked what governments are doing to promote the organization of the private sector and also to support and sustain it. **Benin, ministry of communication** said that Benin is in reconstruction, but optical fibre is not always integrated in construction of road. He highlighted the need to take into account the integration of infrastructure in cases like this. **Representative of Aboriginal People** raised the issue of non-sustainability of the actual model which generates loss of aboriginal knowledge and genetic resources. **Lesotho** questioned ITU and Microsoft on the plans to improve the situation in landlocked countries and also how Lesotho benefits from Microsoft partnerships in capacity building. **FanCV Buenos Aires** commented on the importance of the Forum for ethical and moral behaviour of ICT initiatives in LDCs, he suggested the creation of a surveillance agency that oversees personal responsibility of those who hold roles at the director level across all the spectrum. **Ministry of Telecommunication, Burkina Faso**, emphasized the role of state in development of ICTs and public–private partnerships. He stated that numerous aspects are still not considered and that the infrastructure is not developed if it is only private. He also stated that there is a lack human resources because of a brain drain issue. Then he highlighted the importance of content to be adapted to needs.	**Mr Salvator Nizigiyimana, CEO, Office national des télécommunications du Burundi (ONATEL), Burundi** said that there seems to be a lack of coordination. He stated that the solution is that at state level a commission should be set up that deals with infrastructure. Regarding the business environment, he underlined the need to improve the content and promote private actions. **Mr Randy Ramusack, United Nations Technology Officer, Microsoft Corporation** recommended many programmes and websites: regarding capacity building, he recommended partnersandlearning.com, competency framework for teachers (UNESCO website) and Research4life.org. **Mr Brahima Sanou, Director Telecommunication Development Bureau, ITU** concluded by saying that there is a need to share infrastructure in LDCs and that for ICT application both human and institutional capacities are needed.

Please note that this summary only provides a snapshot of the high- level dialogue. The complete Webcast of this high-level dialogue is available at:
http://www.itu.int/ibs/WSIS/201105forum/index.html

HLD4: Building Confidence and Security in Cyberspace

Thursday, 19 May, 09:00–11:15, (Governing Body Room) (E/F)

HLD No. 4 provided an interesting blend of an expert panel and audience interaction on Confidence and Security in Cyberspace

By bringing together governments, private sector, international organizations, civil society, and academia from all over the world, the High-Level Dialogue offered an opportunity to discuss in an interactive session the measures that can be adopted to foster an enabling environment to confidently use Information and Communication Technologies (ICTs). The growing incidence of cyberthreats and cybercrime, from financial and identity related frauds to illicit use of ICT services and applications, undermines the willingness to fully exploit the potential benefit of the Information Society, limiting the opportunity to use ICTs as enabler to improve effectiveness and efficiency of the online presence. Through the discussion, high-level panellists introduced challenges and solutions to build a safer interconnected world as well as best practices and actions that make difference in the cyberspace. Moderator:

Speakers

- Dr Hamadoun Touré, Secretary-General, ITU

- H.E. Mr Haruna Iddrisu, Minister of Communications, Ghana
- H.E. Mr Mohamed Nasser Al Ghanim, Director General – Telecommunications Regulatory Authority, UAE
- H.E. Mr Ilya Massukh, Deputy Minister, Ministry of Telecom and Mass Communications, Russian Federation
- Mr Mohd Noor Amin, Chairman, International Multilateral Partnership Against Cyberthreats (IMPACT)
- Mr John Mroz, CEO, East West Institute (EWI)
- Mr Rainer Wieland, Vice President, European Parliament
- Ms Marielos Hernandez, Executive President of PANI, Costa Rica (tbc)

Moderator: Dr Tim Unwin, Royal Holloway, University of London

Within the overall framework of the Global Cybersecurity Agenda (GCA), ITU has been entrusted to take a leading role in achieving cybersecurity and reinforcing international cooperation to address cyberthreat challenges globally. In this direction, the ITU–IMPACT coalition has been indicated as one of the key solutions of international cooperation and one of the best players to share best practices and international . As one of the major cyberthreats, child online protection-related issues were also discussed; ensuring safe and protected access to ICTs by children and youth requires international organizations to allocate technical and economic resources to carry out investigations using a human-rights-based approach. By building awareness and straightening national capabilities, the international community will be better prepared to face cyberthreats and fight cybercrimes.

The session ended with a call to strengthen international cooperation and coordination among agencies at national, regional and international levels.

Moderator: Dr Tim Unwin, Royal Holloway, University of London

Panellists:

Dr Hamadoun Touré, Secretary-General, ITU, stated that cybersecurity is one of the most important challenges in ICTs faced by the international community, and also one of the biggest tests in international cooperation. He informed that the ITU Global Cybersecurity Agenda (GCA) is built upon five strategic pillars 1) Leagal Measures Legal Measures 2) Technical & Procedural Measures 3) Organizational Structures 4) Capacity Building 5) International Cooperation. He stated that cybersecurity is not an issue for only one country, but a global issue, and we are as strong as our weakest link. He also went on to state that the concept of a superpower is becoming obsolete, since in an increasingly technological world, every individual has the opportunity to become a superpower. For example, the Filipino author of the ILOVEYOU Bug wrote this devastating virus on a computer worth less than USD1000. In closing, Dr Touré emphasized the importance of protecting children as a normalizing, common denominator between all stakeholders.

H.E. Mr Haruna Iddrisu, **Minister of Communications, Ghana**, urged that improved legislation, which goes beyond data projection, needs to be put in place to more effectively deal with matters in cyberspace. He also highlighted that much of ICT infrastructure is owned by the private sector, and called attention to their role in the larger cybersecurity discourse.

H.E. Mr Mohamed Nasser Al Ghanim, **Director-General, Telecommunications Regulatory Authority, UAE,** emphasized the need for a legal framework for cybersecurity. He pointed out that although a

number of countries have begun the creation and implementation of legal frameworks, agendas and roadmaps, many countries have not. This is a concern due to the transnational, borderless nature of cybersecurity threats, and international collaboration is the only way to effectively counter cybercrime.

H.E. Mr Ilya Massukh, Deputy Minister, Ministry of Telecom and Mass Communications, Russian Federation, pointed out that ICTs are a locomotive for local economy and increase in GDP, yet they are also a very attractive vehicle for unlawful and illegal elements. He stated it was of upmost important to discuss cyberthreats and encouraged multilateral cooperation. In closing he said that Russia is only one country and that one country cannot develop rules to govern the global phenomenon which is the Internet. To this end he reemphasized the role of international cooperation.

Mr Mohd Noor Amin, Chairman, International Multilateral Partnership Against Cyber Threats (IMPACT), drew parallels between infectious diseases and cybersecurity. He pointed out that during a disease outbreak there is international cooperation and coordination in moderating ports of entry. This model is possible through concerted global action and institutional assistance. The Chairman hoped to replicate this model for cyberthreats, using IMPACT as a vehicle.

Mr John Mroz, CEO, EastWest Institute (EWI), said that due to the increasing digitalization of the global economy, cyber criminality has been growing. He drew attention to the speed of advancements in technology in contrast to the slow adaptation and creation of agreements, policies, standards and regulations in which to govern them. He addressed the lack of trust between international actors and gave examples of some activities which encouraged discussion and built trust between countries: the Chinese-American partnership which aimed to tackle spam, and the Russo-American initiative to agree on 23 definitions. In closing he emphasized that more initiatives which provide solutions and build trust are needed.

Mr Rainer Wieland, Vice-President, European Parliament, addressed the speed at which technological advancement is increasing, which in turn creates new opportunities for cybercrime. The Vice-President urged the creation of a culture to combat cybercrime which is needed if we wish to build trust and confidence in our efforts. In closing he stated we must address and educate two parts of society: the younger generation who know more than their grown-up counterparts and the older generation who know far too little.

Ms Marielos Hernandez, Executive President of PANI, Costa Rica, reported on Costa Rica's efforts in adopting global online child protection. It included initiatives for training in prevention, educating children about cyberthreats, establishing guidelines for industry codes of conduct, and establishing national informational hotlines. The President, by presidential decree, also created the National Online Security Commission which is a multistakeholder and interdisciplinary initiative to deal with cyberthreats.

Questions	Responses/ Comments
Dr Tim Unwin: What do you think is most important in building confidence amongst citizens with regards to cybersecurity?	**Dr Hamadoun Touré, Secretary-General, ITU**: re-emphasized that cybersecurity will only be achieved when we have a global framework and that the protection of children can act as a common denominator on which to build our efforts. **Mr Rainer Wieland Vice-President, European Parliament**: Ssaid that not everything considered by the government to be urgent is urgent to citizens.

	He posed the question "Do we have a legal agenda? And if so do we have a list of core crimes which can be commonly agreed upon?" **H.E. Mr Ilya Massukh Deputy Minister, Ministry of Telecom and Mass Communications, Russian – Federation**: Sstated that there is no single bullet for global cybersecurity regulations but that each country should take steps to protect citizens. He also emphasized the need for education, especially as it related to new trends such as digital signatures. **Ms Marielos Hernandez Executive President of PANI, Costa Rica**: Sstated that when we talk about children we have to talk about children within both a national and multidisciplinary, inter-institutional global framework. She also highlighted the need to teach prevention to parents and educators.

Questions	Responses/ Comments
Dr Tim Unwin: What is the biggest threat your country faces in terms of cybersecurity?	**Mr John Mroz, CEO, EastWest Institute (EWI)**: agreed that the discussion of child protection creates awareness and that awareness is critical in making the dialogue on cybersecurity relevant to the general population. He pointed out that by age four children know to put on their seatbelt when in a car, but are unaware of basic cybersecurity principles and that this must be remedied through education. **H.E. Mr Mohamed Nasser Al Ghanim Director-General, Telecommunications Regulatory Authority, UAE**: pointed out that, due to the large amount of specializations, capacity building becomes extremely difficult. He stated that there is a need to train people on evolving threats on a monthly basis, and also that there is a need for basic awareness in actions such as not opening spam. At the end of the day it is about educating people's behaviours, not about technology.
Question from the floor: What are governments doing to encourage vendors to provide better support and produce less complex products which are more accessible?	**H.E. Mr Haruna Iddrisu, Minister of Communications, Ghana**: raised the question of how governments can commit to the safety and security of cyberspace if cybersecurity is a transnational problem. He also raised Ghana's issue of younger people using IT for Sakawa, internet fraud, instead of productive capacities. **Mr Mohd Noor Amin , Chairman, International Multilateral Partnership Against Cyber Threats (IMPACT)** – highlighted the strong motivations and ideologies of cybercrime perpetrators and that only international collaboration can effectively counter them. He also raised the issue of the private sector in not sharing information regarding which systems have been compromised, and that they have a responsibility to share this information with the rest of the world – which, up to this point, has not been done.
Comment from the floor: It is important to incorporate children into looking for solutions because they are better, and cyber criminals are also younger.	**Dr Hamadoun Touré, Secretary-General, ITU**: stated that emphasis should be placed on what we hold in common (protecting our children) in order to develop a competent framework which can be extended to other areas. **H.E. Mr Ilya Massukh Deputy Minister, Ministry of Telecom and Mass Communications, Russian–Federation**: used the example of child pornography to build an international framework of regulations.

Questions	Responses/ Comments
Comment from the floor: Cybercrime is not a technical issue; it is an economic, societal issue. It is important to understand the fundamentals and what you trying to protect against. It is important to define threats properly. **Comment from the floor**: The definition of cybersecurity not as important as solutions. Cyberspace needs to be conceptualized differently. It has economic, technological and environmental dimensions. A comprehensive cyberspace law would be an endless exercise. One approach to think about could be one approach for each dimension, rather than trying to find a full comprehensive law which covers all those aspects and touches all those elements. **Dr Tim Unwin**: Will policies always being playing catch-up to technological change? Or is there something we can do? **Dr. Tim Unwin**: How should the international community better commit to the online protection of children? **Remote Participant**: What can we do to raise awareness about cybersecurity outside of the Internet? **Comment from the floor**: This person wanted to emphasize the need to educate people in conceptualizing ICTs in terms of how they can be used productively and maliciously. **Comment from the floor**: This person wanted to point out the need for training of law enforcement to understand the new paradigms in cybercrime definitions, such as the theft of personal data.	**Mr John Mroz, CEO, EastWest Institute (EWI):** emphasized the special nature of cyberspace regarding the application of the Hague and Geneva Conventions. He stated that a new way of thinking is required to effectively deal with cybersecurity and that we need to involve ourselves in discussions surrounding cybersecurity issues. **Mr Mohd Noor Amin, Chairman, International Multilateral Partnership Against Cyber Threats (IMPACT):** talked about IMPACT's initiatives for capacity building, including workshops, and stated IMPACT's willingness to respond to cyberthreats. **Mr Rainer Wieland, Vice-President, European Parliament**: stated the need for a clear definition of cybercrimes and the need to find a code of conduct for international procedures in prosecution. **Dr Hamadoun Touré Secretary-General, ITU:** stated that the nature of technology will always put it ahead of legislation, and that we need to operate as though we are in a time of war, with a strong code of conduct and best practices for Member States to follow. He re-emphasized the need for action and not deliberation. **Mr John Mroz** stated the need for better measurement tools of cybercrime, and also the need for the private sector to cooperate in reporting how cybersecurity is affecting them. **H.E. Mr Haruna Iddrisu, Minister of Communications, Ghana**: stated his wish would be for more international cooperation. **H.E. Mr Mohamed Nasser Al Ghanim** also stated the need for further cooperation with emphasis on urgency and commitment. **Mr Mohd Noor Amin** wished to see the acceleration of the establishment of a cybersecurity framework. He also stressed the need for true international cooperation. **Ms Marielos Hernandez** stated that we need to take a human rights approach by investing in education and health. She also stated that we need to listen to and include children in the discourse of tackling cybersecurity. **Dr Hamadoun Touré** asked how we can avoid ideological fights within cybersecurity discourse and restated the need for focusing on our common factors, namely children.

Questions	Responses/ Comments
	H.E. Mr Ilya Massukh also re-emphasized the need for focusing on the common denominator, child pornography, as a foundation for producing an international framework. He also highlighted the need to regulate social networks more strictly due to the high amount of child participation. **Mr John Mroz** applauded the awareness raising and highlighted the vast set of problems that the global community has to deal with. He closed by emphasizing the need for action-based initiatives. **Mr Mohd Noor Amin** re-emphasized IMPACT's agenda for capacity-building and an invitation to utilize the training and programmes offered by IMPACT. **Mr Rainer Wieland** shared his surprise that nobody brought up state criminality in the cybersecurity discourse. He stated that we need to address it at the UN level and resolutions are needed to effectively engage it. **Dr Hamadoun Touré** highlighted ITU's role in awareness-building, not only through the Member States but also through the partnership with 700 private companies. He went on to state that a new global treaty would be needed for cyberspace – no longer will it be restricted to countries but it should also involve corporations and the private sector. **H.E. Mr Haruna Iddrisu** called for the need of a comprehensive framework that was still mindful of differences between countries and cultures. **H.E. Mr Mohamed Nasser Al Ghanim** said prerequisites will be needed for a global treaty, proper response rates and the need for international actors to take violations seriously. He also stated the need for the private sector to participate in a larger global framework due to their deep involvement in ICTs. **H.E. Mr Ilya Massukh** agreed that the private sector should be involved in the discussion of a global framework. He also stated that the dialogue for cybersecurity has been started at the right time and restated the need for fighting child pornography. **Ms Marielos Hernandez** stated the importance of allowing children and younger people to participate in the larger discussion of cybersecurity. She also re-emphasized the need for articulation in agreements.

Please note that this summary only provides a snapshot of the high- level dialogue. The complete Webcast of this high-level dialogue is available at:
http://www.itu.int/ibs/WSIS/201105forum/index.html

Interactive Facilitation Meetings (IFM) for WSIS Action Lines




The Tunis Agenda for the Information Society states that the WSIS implementation mechanism at the international level should be organized taking into account the themes and Action Lines in the Geneva Plan of Action, and moderated or facilitated by UN agencies when appropriate. It also states that ITU, UNESCO and UNDP should play a leading facilitating role in the implementation of the Geneva Plan of Action.

Each year, during the WSIS Forum held in May, the WSIS Action Line Facilitators:

- Provide reports on the year's activities on their respective Action Lines
- Organize Interactive Action Line Facilitation Meetings on their respective Action Lines.

Action Line: C1/C7e-gov/C11 (UNDESA)

Wednesday, 18 May, 11:30–13:00, Room II

On Wednesday, 18 May, the United Nations Department of Economic and Social Affairs convened the third Facilitation Meeting on implementing WSIS outcomes in Conference Room II of the Conference Centre of the ILO from 11:30 to 13:00.

Participants exchanged information and discussed progress in implementing three of the 11 WSIS Action Lines: the role of public governance authorities and all stakeholders in the promotion of ICT for development (Action Line C1); ICT applications – e-government (Action Line C7); and international and regional cooperation (Action Line C11).

The purpose of the Sixth Facilitation Meeting, which was open to all stakeholders from the public and private sectors, civil society and international organizations, was to provide a platform for participants to exchange information and experiences; to identify the propriety areas for implementation within the Action Lines; and to create synergies among different stakeholders for more effective knowledge sharing and collaboration in order to ensure the implementation of WSIS at the international, regional and national levels. The meeting also contributed to further coordination of major stakeholders' activities to support strategic planning and implementation of accessible, inclusive and participatory governments. One of the current trends for e-government development was active and strong citizens' and businesses' involvement in public services delivery. This tendency is based on an unprecedented accessibility and openness of public administrations' data and possibilities for citizens and businesses to build value-added public services on top of it.

The participants mentioned the continued challenge of human capacity-building in e-government and other fields, from building awareness and understanding of the potential of ICTs between government and citizens, through developing the skills of policy-makers, civil servants and industry professionals, to addressing the needs of citizens and micro-enterprises. The need for continued

research and work in the area of the evolving e-government initiatives and now citizen engagement applications is not a luxury but a necessity in trying to earn and restore public trust in government.

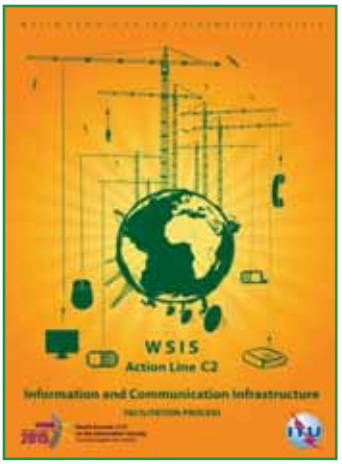
The participants underlined that the WSIS Forum is widely regarded as a major improvement in the facilitation of WSIS Action Lines and the Forum's inclusiveness and openness and its new thematic focus have been responsible for increased physical and remote participation in the meeting. However, there were concerns about the lack of dedicated resources for the facilitation of Action Lines and participants like to see more collaboration between Action Lines' facilitators between annual meetings, fostering the cross-cutting value of ICTs in different domains.

The meeting was chaired by Mr Vyacheslav Cherkasov from UNDESA.

Speakers included: Mr Makane Faye, OIC, e-Applications, UNECA; Mr Gherardo Casini, Head, UNDESA Office in Rome; Mr Randy Ramusack, United Nations Technology Officer, Microsoft Corporation; Mr Michael Szafraniec, Operations Manager, CareWays Community, (Australia); Mr Hani Eskandar, Technical Officer, BDT, International Telecommunication Union; Ms Andreea Stoiciu, Director at the Institute for Management and Sustainable Development (IMDD) (Romania); Dr Yuri Hohlov, Chairman of the Board, Institute of the Information Society (Russia); Ms Esperanza Magpantay, Statistician, Market Information and Statistics Division, BDT, International Telecommunication Union.

Action Line: C2 ICT Infrastructure (ITU)

Monday, 16 May, 14:45–16:15, Room IX



WSIS Forum Action Line C2 Interactive Facilitation Meeting was organized as a panel discussion. The theme for this year's discussion: "Broadband Infrastructure for connecting the unconnected" was selected based on proposals received during the WSIS multi-stakeholders consultation process. BDT Director Mr Brahima Sanou delivered the opening speech, then Minister H.E. Ms Nibigira (Burundi), Minister H.E. Ms Matic (Serbia), and Deputy Minister H.E. Mr Velizadeh (Azerbaijan) presented the role of Administration for providing broadband as keynote speeches. Then, under the moderation by Mr Passerini (ITU), based on presentations by the high-level panellists, the roles and perspectives of broadband networks in rural and remote areas were discussed.

This Facilitation Meeting mainly discussed the following aspects, confirming the importance of sharing experiences and knowledge in order to expand the broadband connectivity in rural and remote areas: 1) evolution of new telecom services in the next ten years; 2) importance of standardization for broadband wireless access; 3) importance of standardization for low cost, safe and efficient electrical supply; 4) successful stories of broadband infrastructure development; 5) role of administration for providing broadband in rural and remote areas; 6) cost-effective infrastructure and simplicity of network; and 7) social impact of broadband.

The following issues and recommendations were highlighted during the panel discussion:

- Demand of broadband services in developing countries is increasing. Today's new broadband opportunities require a new vision by all potential broadband providers, and a new paradigm for policy-makers and regulators.
- Broadband regulation to reduce regulatory burdens, enhance innovative incentives, and coordinate efforts by all links in the broadband value chain, should be considered. Basically less regulatory intervention creates more business opportunities, ensuring that once in place, the infrastructure is accessible to all operators on open, transparent and non-discriminatory terms.
- New spectrum management policy and adequate and harmonized frequency allocation is crucial to the provision of wireless broadband services in rural and remote areas. In this regard, spectrum flexibility can open opportunities for new players to enter the market, with lower infrastructure costs, bringing greater choice and reducing the price of communications. The World Radiocommunication Conference (WRC-12) next year will play an important role.
- Standardization of broadband wireless access is important for utilization of the broadband system. ITU will continue to play an important role in that regard.
- Standardized, reliable and safe energy systems are also important for utilization of the broadband system. Cost and quality of energy are seem as future challenges to be addressed for providing broadband to rural and remote areas.
- Administrations should encourage public–private partnerships (PPP) in conducting projects to overcome economic barriers. Attention should be paid to encourage a combination of public and private funding aimed at deploying broadband infrastructure.
- Every administration should facilitate affordable and high-quality broadband deployment possible in their countries to bridge the economic and social digital divide. Incentives from governments focusing on e-applications (e.g. e-education) is one of the effective ways.

Delegation of public services is also recommended for facilitating the development of high speed broadband.

- All countries need to further develop policies to encourage competitive provision of broadband services coupled with broadband ubiquity policies to address the digital divide. Making use of complementary universal service provisions should be taken into consideration to address a digital divide between those with access to high speed broadband and those without. It is the administration's role to define and develop a sustainable universal services policy and strategy.
- In order to promote the use of broadband, administrations should connect local government buildings, educational institutions and hospitals that either lack broadband options or pay exorbitant fees to incumbent phone companies.
- Access to broadband should be coupled with sufficient focus on increasing PC penetration and enhancing e-skills through demand stimulation measures such as training for students, low-skilled groups and professionals, and subsidizing equipment/installation/subscription costs.

(Speakers)

- *Opening Speech*

  Mr Brahima Sanou, Director of the Telecommunication Development Bureau, ITU

- *Keynote Speech*
  - **S.E. Mme Concilie Nibigira**, Ministère des Télécommunications, de l'Information, de la Communication et des Relations avec le Parlement, République de Burundi
  - **H.E. Ms Jasna Matic**, State Secretary for Digital Agenda, Republic of Serbia
  - **H.E. Mr Elmir Velizadeh**, Deputy Minister of Communications and Information Technologies, Republic of Azerbaijan
- *Panel Discussion*

  (Moderator) **Mr Riccardo Passerini**, BDT, ITU
  - **Mr Christoph Legutko**, Global Public Policy CEE Director, Intel Corporation
  - **Mr Salvator Nizigiyimana**, CEO, Office national des télécommunications du Burundi (ONATEL)
  - **Mr Colin Langtry**, Chief, Study Group Department, BR, ITU
  - **Dr Rolando Hess**, Public Affairs Director, Alcatel-Lucent
  - **Mr Désiré Karyabwite**, IP Coordinator, BDT, ITU
  - **Mr Lasse Wieweg**, UMTS Forum
  - **Dr Wei Feng**, Director of Europe Standards, Huawei Technologies Co., Ltd
  - **Mr Jonathan Buck**, Secretary of the Conformity Assessment Board, IEC
  - **Mr Chris Locke**, Managing Director, GSMA Development Fund, GSMA

Action Line: C3 Access Persons with Disabilities (UNESCO)

Monday, 16 May, 14:45–16:15, Room II (E/F)

Short description:

UNESCO, as facilitator for the WSIS Action Line C 3 – Access, together with ITU (co-facilitator), organized an interactive session bringing together representatives of international organizations, academia, public–private partners and disability rights activists.

This interactive debate explored existing and potential usage of ICTs to improve access by persons with disabilities to information and knowledge and encourage their participation in social, economic and political life.

The speakers of the session shared good practices in the area of digital inclusion and encouraged international cooperation among national, local, nongovernmental and civil society organizations working with persons with disabilities.

The following issues were discussed during the interactive session:

- UN Convention of the Rights of Persons with Disabilities mandates and progress of countries in implementing;
- key barriers to access information and knowledge for persons with disabilities;
- solutions available to eliminate barriers and discrimination; and
- impact in relation to installed bases of ICTs worldwide on education, employment and cultural opportunities.

Main points summarizing the discussion:

- ICTs are effective tools to reach out to persons with disabilities, which can improve their quality of life. ICTs provide new educational and employment opportunities as well as promote their social inclusion and participation.
- The social and economic costs of digital exclusion are very high, not only for the excluded but for society as a whole.
- The global crisis continues to grow in terms of continued development of inaccessible ICTs. For persons with disabilities, the price of ICTs is increasing and availability is decreasing. Technologies are still not available for each disability and for each person with disabilities.
- The Internet should be accessible for persons with disabilities in order to access to information and knowledge. In addition, digital office documents should be made accessible.
- ICTs can contribute to the implementation of the UN Convention of the Rights of Persons with Disabilities (CRPD) and the inclusion of disability in international aid.
- Introduction of ICTs in education for people with different types of learning needs should be taken with a systematic approach. It is essential to ensure that not only people with disabilities, but also educational staff are trained to use ICTs and address different learning needs in classrooms.
- Promotion of positive attitudes helps to overcome some of the barriers.
- Emerging cloud-based infrastructures and the ability to personalize applications and content should be used to enable digital inclusion and address barriers of physical, sensory and cognitive access to online systems.

Action Line: C4 Capacity Building (ITU/UNESCO/ISOC)

Tuesday, 17 May, 14:45–16:15, Room V

An Action Line C4 Facilitation Meeting was co-organized by ISOC and ITU and held on 17 May 2011. It was chaired by Ms Nermine El Saadany, Director, International Relations Division, Ministry of Communications and Information Technology (MCIT), Egypt. Speakers/panellists included Mr Gerard Ross from the Internet Society (ISOC); Mr Mark Summer, Co-Founder and Chief Innovation Officer, Inveneo; and Dr Jovan Kurbalija, Director, DiploFoundation.

The WSIS outputs on capacity building emphasized that "each person should have the opportunity to acquire the necessary skills and knowledge in order to understand, participate actively in, and benefit fully from, the Information Society and the knowledge economy". The chosen theme of this year's meeting was the intersection of the three topics "Leadership, Innovation and Capacity Building".

After introductory remarks by the Chairperson, the panellists gave their perspectives on the theme of the meeting. Mr Ross from ISOC highlighted the non-traditional history of "bottom-up" development of leaders in the Internet community and noted that this leadership model had been very successful in driving innovation and building capacity. He emphasized that in this context, a concept of leadership had emerged not in the Churchillian mold of a single dominant figure with central responsibility, but rather as a meritocracy that emerged out of the collaborative Internet model, sustained and supported by a multistakeholder participatory model.

Mr Summer from Inveneo discussed some of Inveneo's grass-roots based capacity-building efforts to support local entrepreneurs on both technical and business issues with a strong focus on ensuring that their efforts were continued and sustainable after they had left. In this context, he noted that while ICTs are a key enabler, many other factors such as culture, business models, and available infrastructure play a key role. In that regard, Inveneo has been attempting to build an ecosystem of certified in-country ICT entrepreneurs that they partner with around the world to ensure sustainability.

Dr Jovan Kurbalija of DiploFoundation discussed their experiences in trying to build capacity to assist small and developing states to participate more efficiently in global policy processes, including Internet governance discussions. He noted the challenges in dealing with the different perspectives on leadership and governance models across the globe (e.g. highly hierarchical versus more flat models, state supremacy versus multistakeholderism).

A question from the floor gave the perspective that even in the multistakeholderism model, strong personalities emerge as leaders and hierarchies eventually form. In reply, it was noted that a desirable leadership trait would be the ability to recognize that different governance perspectives exist as well as the ability to engage and communicate across boundaries in a multistakeholder environment. A comment from a remote participant suggested that at the next WSIS AL C4 meeting, there should be a greater emphasis on an interactive dialogue.

Action Line: C5 Confidence and Cybersecurity in Cyberspace (ITU)

Wednesday, 18 May, 11:30–13:00, Room XI

This Action Line Facilitation Meeting provided an account of the work carried out in the area of cybersecurity under the Action Line C5.

In particular, national experts of ICTs shared their experiences on how they are dealing with cyberthreats and what measures have been adopted. For instance, Turkey conducted civilian–military exercises, while Oman explained how its CERT became an umbrella agency for all the ministries. Costa Rica, on the other hand, has confirmed its commitment in improving actions at the national level in order to protect children online, while ensuring the cooperation with international organizations such as ITU. Representing the private sector, Symantec mentioned that their recent publication "Symantec Internet Threat Report" displays the need for more security for mobile phones, as well as a shift in the operational mode targeting specific users. Civil society sector was represented by the University of Lausanne.

Within the overall framework of the GCA, international organizations such as IMPACT and ITU are deploying joint services in order to harmonize at the international level different national approaches to better prepare countries to face cyberthreats and solve cyberattacks through information sharing, awareness raising and trainings.

The main outcomes of the meeting highlighted the need for better coordination at any level (national, regional, international), and through organizations such as ITU, ensuring harmonization of efforts and sharing of best practices to advance work and build the necessary capacities.

List of speakers

Opening remarks: **Dr Yury Grin**, Deputy Director, BDT, ITU

Moderator: **Mr Alexander Ntoko**, ITU WSIS C5 Focal Point and Head of the Corporate Strategy Division, ITU

H.E. Mr Manuel B. Dengo, Ambassador Permanent Representative, Permanent Mission of Costa Rica

Eng. Badar Ali Al-Salehi, Director, Oman National CERT

Ms Solange Ghernaouti Hélie, Professor, Faculty of Business and Economics – HEC, University of Lausanne

Mr Zoltán Précsényi, Symantec

Mr Salim KETEVANLIOGLU, ICT Expert, BTK-Turkish ICT Regulatory Body, Turkey,

Mr Mohamed Shihab, Advisor (technical), IMPACT

Action Line: C6 Enabling Environment (ITU)

Monday, 16 May, 16:30–18:00, Room IX

Enabling environment: "cloud computing – new platform for innovation, challenges and opportunities for policy-makers, regulators and all ICT stakeholders"

1 Summary of the meeting

A fundamental role of ITU, strengthened by the WSIS, is to promote the creation of an enabling environment for the development of ICTs and to extend the benefits to all. Enacting an appropriate regulatory framework and establishing competition and investment incentives is essential in this regard. As the lead facilitator on WSIS Action Line C6, ITU will continue to showcase successful experiences and look for positive synergies among stakeholders in implementing the WSIS goals.

Following tradition, the meeting was organized as an interactive panel discussion, involving multiple stakeholders including national governments, regulators, industry, civil society and international organizations with remote participation. Discussions explored the advantages and challenges of cloud computing technology for governments, industry and other ICT stakeholders, focusing on how it can help companies, especially SMEs, to reduce their IT costs and governments to provide services to populations at lower costs. The panel addressed the challenges linked to the legal and regulatory issues of cloud computing which are very specific in terms of competition (oligopoly), interoperability, sovereignty, privacy and security.

The theme for this year's discussion was selected based on proposals received during the WSIS multistakeholder consultation process. The BDT Director noted the growing demand for access to high-speed broadband services, both fixed and mobile. He outlined the need for consumer protection, sustainability, transparency and efficiency, and stressed the increasing uncertainty surrounding the legal and regulatory obligations related to data in cloud systems that could jeopardize the benefits of cloud computing. He also mentioned the upcoming meetings and, in particular, the 12th Forum on Telecommunication/ICT Regulation and Partnership in Africa (FTRA-2011) to be held in Kigali, Republic of Rwanda, 13 to 15 June 2011, that will focus on the theme of cloud computing.

All panellists underlined the need for low-cost sophisticated and environmentally sustainable IT services and agreed that cloud computing could be looked at as a commodity, like electricity, water or gas, and that it is a technical opportunity with the emphasis on operations expenditure rather than on capital expenditure.

Panellists also agreed that stakeholders have increasing difficulties in managing the various ICT systems that are relied upon to do their jobs, and if governments and the private sector can benefit from the optimized pay-per-use resources of cloud computing, then a more general approach to problems such as viruses and spam will also reduce costs.

Where the choice of available services depends on client needs, the building of reliable systems depends on the private sector platform's offer, with long-term concerns of interoperability, safety, security, consumer protection that may require regulatory assistance at international level, to ensure transparency, trust and protection of sovereign rights of national economies. More public–private partnerships were called for, in addition to the need for human resources training and the development of appropriate policy. The oligopolistic situation of the cloud computing market which is dominated by industry players based in developed countries was stressed.

In addition, it was noted that the standardization process will play an important role in the harmonization and interoperability of this new technology, and the legal framework concerning cross-border data and content such as intellectual property rights will need to be discussed. ITU-T established a focus group on the standardization of cloud computing that includes 25 organizations both from the public and private sector, academia and research institutes. The group is open to non-ITU members and examines issues such as security and privacy. The results of the work of the focus group are expected at the end of 2011. Standards have a crucial role to play in questions of reliability of the infrastructure, mostly in developing countries, and interoperability at and among the different layers: infrastructure, platform of services and software. ITU can certainly play a key role in addressing regulatory challenges requiring international coordination.

Some accessibility and reliability challenges, especially in developing countries, will need to be addressed. Private sector panellists responded that the market will most likely be able to offer innovative solutions. It was also stressed that where security and data protection regulation do not exist, governments and public authorities should take the lead and introduce them.

Finally, the questions of intellectual property rights (IPRs) and the need for capacity building in the area of cloud computing were also discussed. The need for reliable connectivity, electricity and efficient back-up procedures for the data at the consumer level was recognized a key element.

2 Speakers and panellists

- *High-level speaker*
  - Mr Brahima Sanou, Director, BDT, ITU (opening remarks)
- *Moderator*
  - Dr Yury Grin, Deputy Director, BDT, ITU
- *Panellists*
  - Mr John Davies, Vice President, Sales and Marketing Group General Manager Intel World Ahead Program, Intel Corporation
  - Mr Imad Hoballah, Acting Chairman & CEO, Telecommunications Regulatory Authority of Lebanon
  - Mr Yuri Hohlov, Chairman of the Board of Directors, Institute of the Information Society, Russian Federation
  - Mr Jean Marie Rabevohitra, Executive Secretary of the Ministry of Communications, Posts and ICT Madagascar
  - Mr Randy Ramusack, United Nations Technology Officer, Microsoft Corporation
  - Dr Reinhard Scholl, Deputy Director, TSB, ITU

3 Follow-up

Share information on cloud computing as available and referenced from the ITU's TREG website, work of the ITU-T Focus Group on cloud computing, report and outcome of June 2011 meeting of the Broadband Commission, results and reference documents from the Forum on Telecommunication/ICT Regulation and Partnership in Africa 2011 (FTRA-2011) meeting on cloud computing.

Contact for questions and/or requests related to facilitation of WSIS AL C6 can be directed to: bdt-rme@itu.int

Action Line: C3 Access & C7 E-science: Open Access (UNESCO / IFLA / IFL)

Thursday, 19 May, 14:45–16:15, Room XI (E/F)

This session was attended by about 45 individuals including 15 remote participants, and was received well in terms of the reporting of the work and discussion it generated. Some of the milestones reported include:

- Increase in the number of repositories, at the rate of about 20 per cent every year.
- There are 6,514 Open Access journals reported in the Directory of Open Access Journals maintained by the Lund University Library.
- Over 400 repositories are in developing countries.
- UNESCO is developing a Global Open Access Portal (GOAP) to provide analytical snapshot information to enable Member States take decisions and understand the Open Access scenario better.
- The Study on Open Access Publishing report that researchers see Open Access as providing more benefits, but the financing of OA publishing is a problem.

- Poland may soon have its Open Access legislation.
- Open Access is not equal to e-science, but is necessary for e-science.
- CERN Model of thematic Open Access may be promoted that enable re-use of research information, and not just access to read.
- Issues related to Open Data may also be considered as important, and for this broadband will provide the necessary connectivity.
- It is important also to consider other low-cost alternative ways of access to scientific information, as the WIPO model of ARDI and the Research4Life.
- The International Federation of Library Associations and Institutions (IFLA) has recently released a statement supporting Open Access, and would be cooperating with and assisting other stakeholders in capacity building and implementing policy in different countries through its member libraries.

The session was jointly organized by UNESCO, IFLA and EIFL, and moderated by Mr Stuart Hamilton of IFLA. Presentations on the progress made were presented by Mr Sanjaya Mishra, UNESCO; Ms Iryna Kuchma, EIFL; Mr Lars Bjornshauge, Lund University; and Mr Jens Vigen, CERN.

Action Line: C7 E-learning: Teachers Count (UNESCO)

Monday, 16 May, 16:30–18:00, Room II (E/F)

Under the title of *E-Learning: Teachers Count*, UNESCO facilitated an e-learning session with presentations from intergovernmental organizations, governmental sector, teachers' unions and NGOs of civil society concerned with teachers role in e-learning.

The meeting was chaired by Mr Karklins, UNESCO Assistant Director-General for Communication and Information, and it started out with a round of presentations by the four panellists. Mr Fengchun

Miao, UNESCO ICT in Education Specialist, presented UNESCO's ICT Competency Framework for Teachers, which in 2011 has been updated with example syllabi and experience from applying the Framework for identifying key teacher competencies worldwide. Mr Arturo Ramírez, Advisor of the Vice-Minister of Basic Education, Ministry of the Public Education, Mexico, then presented the Mexican government's current initiative of training 1.1 million teachers in ICT skills. Mr Hans Laugesen, who is the Senior Educational policy officer and International secretary in GL, the Danish National Union of Upper Secondary Schools and the representative for the global teachers' union (the Education International), highlighted the importance of training teachers in applying ICTs as a pedagogical tool drawing on examples from Denmark, the EU and Uganda. The final presentation was given by Mr Bart Dewaele, the Director-General of VVOB, the Flemish Association for Development Cooperation and Technical Assistance. Mr Dewaele presented the VVOB approach to teacher *grooming*, and highlighted key experiences and challenges in this work such as a clear vision and strategy for teacher development in this field.

After the round of presentations, Mr Cyril Ritchie, the President of CoNGO (the Conference of Non-Governmental Organizations in Consultative Relationship with the United Nations), summarized the key points and results of the other session on ICT in Education organized by CoNGO in the Forum prior to UNESCO's meeting. Then the general discussion focused on available training packages such as the Pedagogical ICT driver licence applied by EPICT, as well as the Media and Information Literacy Curriculum for Teachers developed by UNESCO. A remote participant highlighted the need for the Digital Natives (the students) to integrate the Digital Immigrants (the teachers) into ICTs in education.

Mr Karklins summed up the meeting by concluding that we are far from an ideal solution, but that practitioners, experts and decision-makers, with cooperation and communication, could expand the shared knowledge in this field and work together towards more appropriate solutions.

Action Line: C7 e-Environment: e-Waste (UNEP)

Wednesday, 18 May, 14:45–16:15, Room V

Avoiding e-waste:

Moving to environmentally sound life-cycle management of ICT equipment

Discussion summary

Objectives of the workshop

To brainstorm on possible ways of establishing partnerships that would link environmentally sound management of end-of-life computing equipment with ICT development programmes, including financing, infrastructure strengthening and education on national, regional and international levels.

Speakers

- **Mr Gaël Grégoire**, Senior Environmental Specialist, World Bank
- **Mr Nevine Tewfik**, Ministry of Communication and Information Technology, Egypt
- **Ms Victoria Romero**, Permanent Mission of Mexico to the UN in Geneva
- **Mr Flavio Cucchietti**, Telecom Italia

The session was moderated by **Ms Katharina Kummer Peiry,** Executive Secretary of the UNEP secretariat of the Basel Convention

Highlights of the discussion

- ICTs represent an important tool for development in developing countries and countries with economies in transition. Along with benefits, the accelerated growth of ICTs brings challenges for the human health and the environment if the environmentally sound management of ICT equipment is not applied. From the life-cycle perspective, the engagement of the ICT sector in addressing the e-waste issue is of paramount importance. The link between the ICT and environment sectors on the national level needs to be strengthened to take advantages of the gains from ICTs without compromising human health and the environment.
- A multistakeholder approach to the environmentally sound life-cycle management of ICT equipment engaging governments, the private sector, academia and NGOs was stressed by the panellists. Practical examples from the panellists further underlined the value of this approach.
- The role of governments to support the environmentally sound life-cycle management of ICT equipment extends to, *inter alia*, setting up legal frameworks and standards, undertaking capacity-building activities, issuing licensing, and imposing green public procurement. The private sector should further embrace social corporate responsibility as well as improve performance of the ICT sector in terms of energy consumption, recyclability, etc. Furthermore, the role of the informal sector, specifically in developing countries and countries with the economy in transition, in relation to collection and recycling of e-waste and related employment generation for the informal sector was recognized. However, negative health effects and workers' safety needs to be addressed without delay.

- The fast pace of ICT innovation influences consumer behaviour, prompting a consumer to purchase ICT equipment more frequently than ten years ago. At the same time the increase in sales aggravates challenges posed by the management of e-waste. One panellist noted that young people over 30 years old are "immigrants" to ICTs whereas those under 30 years old are "ICT natural". Changing consumer behaviour or discouraging ICT manufacturers to offer frequent new models remains a question for discussion.
- Awareness raising plays an important role in moving towards environmentally sound life-cycle management of ICT equipment. Different approaches to reach out to different stakeholder groups, e. g. youngsters and rural populations, should be considered. For population groups in remote areas, school educational programmes, internet centres and cooperation with local authorities and non-governmental organizations were considered as effective means for awareness-raising activities. Costs of environmental degradation associated with unsound management of e-waste could be used as a powerful message to governments to take appropriate actions.
- The ICT sector can contribute to the solution required to address e-waste issues. Standardization and optimization of the ICT equipment could be the key for better quality and price ICT equipment. Specific country circumstances, however, should be taken into consideration. During the design phase of ICT equipment, issues such as easy dismantling, optimization of energy consumption and minimization of hazardous substances should be considered.

Possible follow-up actions:

1) Intensify awareness-raising activities on e-waste for the general public and the specific groups of population, e. g. youth and rural populations.
2) Encourage standardization and optimization of ICT equipment.
3) Initiate an e-waste awareness-raising campaign in Geneva to bring together stakeholders such as permanent missions to the UN, ILO, ITU, Secretariat of the Basel Convention, UNEP, WHO and WMO.
4) Encourage cooperation between the ICT and environment sectors on the national level to more effectively deal with the increased usage of the end-of-life ICT equipment.

The event was part of the "*e-Environment day at WSIS Forum 2011*", a full day of activities organized for AL C7, e-Environment. The day, organized by the *Basel Convention, CoNGO, ITU, UNEP and WMO*, included two additional workshops on energy efficiency and e-waste, respectively, as well as publication releases session. More information available at www.wsis.org/forum/environment

Action Line: C7 e-Business (UNCTAD/FAO/ITC)

Wednesday, 18 May, 14:45–16:15, Room IX

The ALFM C7 provided an opportunity to report, discuss and debate on issues concerning "e-Business".

The promise of mobile technology:

- Mobile money solutions for small enterprises (Part 1); and
- What is the socio-economic impact on rural communities? (Part 2)

UNCTAD, FAO and ITC organized a joint session on the opportunities that mobile technology offers. The first part was devoted to e-business and focused on how mobile money can support small enterprises. It was chaired by ITC, moderated by UNCTAD and was implemented in the form of an interactive dialogue among invited experts and the audience.

An increasingly wide range of mobile money services offer potential solutions to small enterprises. These include mobile transfers and payments as well as more elaborated financial services such as micro-insurance and micro-finance. For example, mobile technology is allowing insurance companies to reach more customers, collect premiums more efficiently, and pay claims in a faster way. Moreover, the deployment of these services has created important employment opportunities for micro-enterprises operating as mobile money agents.

In addition to the possibilities that mobile money platforms offer, panellists also noted several challenges for small businesses to benefit from these new services. For example, cash management issues among agents and the absence of bookkeeping records had limited the use that women entrepreneurs made of mobile money in urban Kenya.

Developing countries are leading the exponential growth of mobile money deployments. Currently, there are 51 mobile money deployments in Africa and 37 in LDCs. However, not all countries have

been equally successful in the deployment of such services. Participants identified, among others, the following key factors as explanations to variations in the uptake and coverage of mobile money services:

1) National regulatory frameworks. Telecommunications and financial regulations (e.g. know-your-customer requirements) have a great impact. Mobile technology also raises additional regulatory challenges (e.g. related to consumer rights and data protection). Coping with these required capacity-building efforts.

2) Market conditions and structure. In some instances, a competitive telecommunications sector had facilitated the spread; in others, the presence of a dominant but innovative mobile operator had been a positive factor.

3) The added value provided and the opportunities to benefit from them. Participants noted that such added value tended to be greater when integrated with other services (for example, rural extension services) or supported by a combination of technologies (voice communications, radio, etc.).

4) Capabilities of entrepreneurs and businesses to benefit from mobile technology, including their financial, literacy, social capabilities and trust.

All in all, participants agreed that even if the uptake of mobile money services will be slow in some countries, the value of the proposition will make it a success. One suggested approach to speed up the uptake of mobile money services was to promote greater government use of mobile money systems for various kinds of payments.

Action Line: C7 e-Environment (ITU/UNEP/WMO)

Wednesday, 18 May, 16:30–18:00, Room V

From WSIS to Rio+20[1]: The role of ICTs in sustainable development and the green economy transition

Discussion summary

Objectives of the facilitation meeting

The facilitation meeting for the WSIS Action Line C7 (AL C7), e-Environment had the following objectives:

a) To bring together the ongoing parallel discussions on sustainable development and the use of ICTs for environment protection, by considering the overlapping objectives of the Rio+20 and WSIS processes;

b) To review the progress achieved to date in relation to the implementation of AL C7 e-Environment, taking into consideration the advances reported at past facilitation meetings, the projects submitted for this action line in the WSIS stocktaking process and the submissions presented for this Action Line during the open consultations for the Forum (*see Annex*);

c) To discuss what lessons learned can be shared from the ICT sector and from the WSIS process to feed into other parallel processes in order to advance on issues related with sustainable development*;*

d) To present initiatives, projects, case studies and policy recommendations from the WSIS process that are relevant for the Rio+20 process in order to emphasize the importance of ICTs to advance the sustainable development agenda and address new and emerging challenges related with the transition towards a green economy;

e) To share recent findings, publications, projects and other experiences on the implementation of AL C7, e-Environment, providing a networking platform for all stakeholders; and

f) To identify further actions to be followed up on AL C7, e-environment, for the WSIS Forum 2012.

Speakers

- **Mr Hama Kontongomde**, Scientific Officer on climate data and climate monitoring, WMO
- **Ms Katharina Kummer Peiry**, Executive Secretary of the Basel Convention
- **Mr Cyril Ritchie**, President of CoNGO
- **Ms Eunsook Kim**, Vice-Chairman of Working Party 3 of the ITU-T Study Group 5 "Environment & Climate Change"

The session was moderated by **Mr Steven Stone**, *Chief of the Economics and Trade Branch, UNEP*

[1] *2012 United Nations Conference on Sustainable Development (UNCSD 2012), further on referred to as Rio+20. Further information at* http://www.uncsd2012.org/

Highlights of the discussion

- The Action Line Facilitation Meeting focused on the issue of sustainable development as an alternative model for growth and prosperity as suggested within the framework of the Rio+20 process. Participants in this session highlighted the key role of technological innovation and the ICT sector in particular in catalyzing the transition to a "green economy". As in the other sessions organized during the "e-Environment day at WSIS Forum 2011", it was recognized that the active involvement and cooperation of all stakeholders will be necessary to move the sustainable development agenda forward.
- The ICT industry from its side can leverage the speed of this transition and provide tangible ideas and solutions towards a lower carbon economy through dematerialization, standardization, innovative design of products, and new IT-enabled services and applications. At the same time, the private sector needs to adopt a comprehensive approach to secure that innovation is a solution provider and not a problem creator.
- Behavioural attitudes of consumers as well as policy planning and practices of governments also need to be influenced in order to mainstream environmental concerns and promote ethical consumption. To this end, all stakeholders will need to be actively involved to overcome the obstacles and gaps identified in the implementation of the major environmental conventions and treaties since the first Earth Summit (*1992, Rio de Janeiro, Brazil*).
- Participants also highlighted that the focus should be put on building partnerships and adopting holistic approaches grasping all aspects and levels of planning, policy and practice. The UN system has a distinct role to play in ensuring that development and inclusion go hand-in-hand in the modern Information Society. For instance, IT-enabled and climate systems can greatly improve better management of resources; however it is critical that the information they provide is relevant to the needs of each actor.
- As a conclusion to this session, participants recognized the potential synergies and linkages between the Information Society, the sustainable development agenda, and green growth strategies, identifying several activities to be followed up within the WSIS process for 2012. A special call was made during the event to look at the lessons learned in the implementation of the WSIS Action Lines and provide the outcomes of this exercise as an input for the Rio+20 conference.
- Such input would highlight the key role of ICTs in promoting sustainable development and the transition to a "*green economy*", and would assist in the success of the conference. The WSIS Forum 2012, which will take place a few weeks before the conference, could be a good platform to present the results of this exercise and to promote the launching of new multistakeholder partnerships during Rio+20 to promote concrete ICT applications for a sustainable future.

Possible follow-up actions:

- Prepare an input for the Rio+20 conference, based on the outcomes of the implementation of WSIS Action Lines, highlighting the key role of ICTs in promoting sustainable development and the transition to a "*green economy*".
- Encourage and enhance the participation of all stakeholders in this process, with particular focus on civil society and public sector active involvement.

- Encourage and strengthen cooperation between the ICT and the environment sector at a national level to more effectively coordinate and explore synergies and opportunities when building national green growth strategies.
- Mainstream and intensify awareness raising on the topic of "*ICTs and sustainable development / green economy strategies*" at all national, regional and country levels as well as at micro-level, addressed to industry actors, SMEs and consumers.

The event was part of the "*e-Environment day at WSIS Forum 2011*", a full day of activities organized for AL C7, e-Environment. The day, organized by the *Basel Convention, CoNGO, ITU, UNEP and WMO*, included two additional workshops on energy efficiency and e-waste, respectively, as well as publication releases session. More information available at www.wsis.org/forum/environment

Action Line: C7 e-Health (WHO/ITU)

Wednesday, 18 May, 16:30–18:00, Room IV

Jointly organized by WHO and ITU

The World Summit on the Information Society's Action Line C7 on e-Health calls for collaborative efforts of governments, the private sector and international organizations in improving health care and health information systems through the use of ICTs. It further calls for promoting medical training, education and research while respecting and protecting citizens' right to privacy.

The session reviewed progress and challenges of e-Health six years after the WSIS Tunis phase from the perspectives of different stakeholders. Speakers and participants discussed the range and scope of ICTs for health, progress made in countries, and innovations in the field. Key challenges and barriers, and approaches to solving them were also covered. The well-attended multistakeholder Forum showed the strong interest and growing capabilities in this dynamic Action Line.

- **Moderator**: Dr Joan Dzenowagis, senior scientist e-Health, WHO
- **Global perspectives**: Dr Joan Dzenowagis, WHO. Overview of the Action Line and global progress in key areas (national eStrategies, telemedicine, mHealth and evaluation): highlights from WHO's Global e-Health Survey
- **Country experience:** Dr Maki Ortiz Domínguez, Deputy Minister for Integration and Health Sector Development, Ministry of Health, Mexico
- **Private Sector/NGO efforts**: Ms Moshahida Sultana, Professor of Economics, Dhaka University, Bangladesh Sustainability of e-Health Program in rural Bangladesh – a Case Study from AG Breast Care
- **Innovation**: Prof. Peter A. Bruck, Chairman, World Summit Awards WSA, winners of the WSA 2012 in the category e-Health
- **National e-Health planning**: Mr Hani Eskandar, ITU. Introduction of the Joint WHO–ITU "National e-Health Roadmap Development Toolkit"
- **Standardization**: Mr Masahito Kawamori, Rapporteur of the ITU-T Study Group 16, Question 28 "Multimedia Framework for e-Health": ITU work on e-Health Standardization
- **Private Sector/NGO efforts**: Dr Pietro Aparicio, Millennia 2015, Destrée Institute, Belgium: Women and eHealth Initiative
- **Private Sector/NGO efforts:** Ms Salma Abbasi, The e-Worldwide Group. Leveraging ICTs and social structures to avoidable preventable deaths of mothers and newborns.

Action Line: C7 e-Agriculture (FAO/UNCTAD/ITC)

Wednesday, 18 May, 16:30–18:00, Room IX

The promise of mobile technology:

- Mobile money solutions for small enterprises (Part 1)
- What is the socio-economic impact on rural communities? (Part 2)

The role of mobile technology in development is now undeniable. Supporting sound economic growth, while reducing socio-economic disparity is essential.

Following a successful collaboration between the e-business and e-agriculture Action Lines and UN agencies last year, UNCTAD, ITC and FAO have collaborated again, to create two interactive dialogues that allowed both on-site and remote participants to interact with leading thinkers and practitioners.

Building on the latest experiences and looking forward, this session considered the broad potential benefits and impacts created by the use of mobile technology in rural areas. Expert researchers and practitioners provided their perspective on some of the trends, from both public and private sector perspectives, involving mobile technology in development. In particular the dichotomy of positive and negative impacts was addressed. The guest panellists included:

- Ms Mireia Fernández-Ardèvol, Co-director, Research Program “Mobile Communication, Economy & Society”, IN3.
- Internet Interdisciplinary Institute, Open University of Catalonia.
- Dr Harsha Liyanage, Managing Director, Sarvodaya-Fusion.
- Ms Oumy Ndiaye, Chef de Département at Centre Technique de Cooperation Agricole et Rurale ACP-UE (CTA).
- Ms Roxanna Samii, Web, Knowledge and Internal Communications Manager, IFAD.

- Dr Tim Unwin, Professor of Geography and UNESCO Chair in ICT4D, Royal Holloway University of London.

Starting where the preceding session Mobile Money Solutions For Small Enterprises (part 1) left off, this session highlighted the challenges faced and the role of different organizations in supporting positive sustainable development in rural areas with mobile technology and mobile-based services, and it looked to action that should be pursued going forward.

Key questions that were addressed included:

- What are the key characteristics that make mobile technology so important to rural and agricultural communities?
- What are the main socio-economic benefits that mobile technology can facilitate in rural communities?
- Why is mobile technology not only creating positive benefits in rural communities, and what are some of the challenges that must be faced to rectify this situation?
- What mobile services are most needed in rural and agricultural communities now?
- How can the positive benefits of mobile technology be brought to a wider range of rural communities, enhancing economic development and food security?
- What policies and support mechanisms should governments put in place to foster the positive impact of mobile technology in rural areas?

It was observed that while the developing world accounted for 25 per cent of world's 700 million mobile phones in 2000, today, beyond any of our expectations at the time of WSIS, that has grown to 75 per cent of world's 4 billion mobile phones being in the developing world. The potential for good is unquestioned, but the positive value of disruptive power of technology is elusive to harness. However, mobile technology is not the only answer and we must not lose track of this.

We are not succeeding in ensuring that our experience and good practices become part of the broader development scenario. (It was observed that the draft of LDC4 conference only mentions ICTs in one place – in the infrastructure section – which leaves out many key issues of LDC development.)

More effort needs to be placed in collecting and disseminating information on experiences and good practices, as well as promoting the existing communities of practice that work in this area.

Research has identified critical success factors in using modern ICTs for development, including:

- Context – specifically socio-cultural factors, and the expectation that mobile phones in fact can increase or perpetrate inequality;
- Trust – echoing a key issue in the previous session;
- Creativity – interventions need to be more creative, look at informal sector for guidance.

There must be recognition of the need to support the long term timeframe of rural/agricultural development.

The critical role of CSOs and their national campaigns are weak in ICT4D arena compared to other areas of development. Their potential is not tapped sufficiently. We should have a better understanding of why this is and how to improve.

We need to work with communities to develop an impact evaluation model; for example the five indicators identified by Fusion in order to monitor and improve the impact of ICTs used in rural communities of Sri Lanka.

Gender is not an issue of sex (female or male), but an issue of equity, and it is an issue that must be taken into consideration in ICT4D projects. There continues to be too many situations where it is not addressed, resulting in one key area where ICTs have a negative impact on rural communities.

Now we must move forward. It is our collective responsibility to address the greatest challenges (the ICT "have nots") head on. This is where the responsibility of development lies.

Action Line: C8 Culture (UNESCO)

Tuesday, 17 May, 14:45–16:15, Room II (E/F)

Within the framework of Action Line C8 Cultural and Linguistic Diversity, preserving indigenous people's culture is placed at the core of an inclusive, knowledge-based Information Society. This year's meeting therefore focused on the theme of promoting indigenous education and intergenerational transmission of indigenous knowledge.

While States recognize the right of education as a universal right, the indigenous experience with education includes a history of negative impacts including the suppression of indigenous languages, culture and knowledge. The UN Declaration on the Rights of Indigenous Peoples attempts to respond to the issues involved in education and indigenous peoples in several articles, most notably Articles 13, 14 and 15. Concepts surrounding the right to indigenous education include:

a) intergenerational transmission of indigenous histories, languages, oral traditions, philosophies, writing systems and literatures (Art 13);

b) indigenous communities' right to establish and control their own education systems, delivered in their own languages and in a manner appropriate to their cultural methods of teaching and learning (Art 14); and

c) the right to the dignity and diversity of their cultures, traditions, histories and aspiration which shall be appropriately reflected in education (Art 15).

The C8 discussion provided an opportunity to discuss how indigenous peoples, UNESCO, governments and the private sector are responding to these issues through the Information Society and the use of ICTs.

Speakers were: Ms Malia Nobrega of the International Indigenous ICT Task Force; Ms Roxanna Samii of IFAD; Ms Roxana Widmer-Iliescu of ITU; and Mr Teanau Tuiono and Ms Serena Heckler of UNESCO.

Action Line: C9 Media, Media Regulation: Broadcasters and Social Media (UNESCO)

Wednesday, 18 May, 14:45–16:15, Room XI (E/F)

UNESCO hosted the sixth facilitation meeting on C9 media at the WSIS Forum 2011, with a panel of four speakers and 35 participants. The meeting explored various guidelines and media regulation frameworks of broadcasters, particularly PSB, and the emerging social network platforms. UNESCO took the opportunity to present two publications "Public Service Broadcasting: a Comparative Legal Survey" and "Guidelines for Broadcasters on Promoting user-generated Content and Media and Information Literacy".

At the reporting session, representatives from ITU and AMARC respectively reported ITU's work of supporting transition from analogue to digital broadcasting, and the latest developments of community media. A civil society participant reported the recent dynamics of media education. A blogger panellist shared her view on why media regulation matters to every individual, particularly at this social media era. UNESCO's publications were well appreciated by the participants. The discussion focused on how to maintain PSB's important role in digital era, how to deal with the convergence of traditional media and new media, and particularly, new media such as YouTube which raises a huge challenge to existing media regulatory framework. Participants also put forward various questions about digital broadcasting transition and community media.

The C9 meeting was the only session which focused on media issues. As the Internet and ICTs become most powerful media vehicles in digital era, it would be useful to give more attention to media issues and encourage organizing more media-related events including high-level debates at the WSIS Forum in the future.

Action Line: C10 Ethics (UNESCO)

Wednesday, 18 May, 16:30–18:00, Room XI (E/F)

The session on "Cyber and Information Ethics: Freedom & Security, Privacy, Malice & Harm, Property", provided an opportunity to examine some aspects that underlie phenomena such as social media, crowdsourcing and the design of information system which may impede the creation of just, peaceful and inclusive societies and the full expression of human rights.

Emerging from the discussion was a recognition that previously held dichotomies and distinctions around concepts, previously seen as polar – such as the public and private – no longer exist. It was also recognized that trade-offs between issues such as freedom and security can occur and may be accompanied by benefits. The design of information systems and networks was identified as an area which could limit choice by distorting reality and, through poorly mediated human interaction, cause harm. Issues around trust and the control and use of personal data, particularly bio-data, were also examined.

The blurring and morphing of issues and the presence of new threats to human freedoms, which are often not readily noticeable, points to a need for greater public policy discourse around these challenges and their implications to ensure that the maximum benefits are derived and trade-offs understood. Some potential areas for research within this Action Line were identified by participants in response to the discussions.

Interactive Sessions

Interactive sessions provided workshop-style interaction amongst the participants and the panellists. The panellists provided an introduction to the framework of the session and act as moderators, while the participants were encouraged to drive the session discussion.

Interactive Session: Regional Commissions

Tuesday, 17 May, 11:00–13:00, Room V

The interactive session on UN Regional Commissions was held on 17 May. The purpose of this meeting was to discuss the follow-up on the implementation of the WSIS outcomes at the regional level. The session included contributions of the representatives of the UN Regional Commissions, followed by a general discussion.

The Tunis Agenda on the Information Society, more precisely its Para 101, proposed implementation mechanism at the regional level, as follows: Upon request from governments, regional intergovernmental organizations in collaboration with other stakeholders should carry out WSIS implementation activities, exchanging information and best practices at the regional level, as well as facilitating policy debate on the use of ICTs for development, with a focus on attaining the internationally agreed development goals and objectives, including the Millennium Development Goals. UN Regional Commissions, based on the request of Member States and within approved budgetary resources, may organize regional WSIS follow-up activities in collaboration with regional and sub-regional organizations, with appropriate frequency, as well as assisting Member States with technical and relevant information for the development of regional strategies and the implementation of the outcomes of regional conferences.

Stationed in five regions of the world, United Nations Economic Commission for Europe (UNECE), United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), Economic

Commission for Latin America (ECLAC), United Nations Economic Commission for Africa (ECA) and United Nations Economic and Social Commission for Western Asia (UNESCWA) share key objectives aiming to foster economic integration at the sub regional and regional levels, to promote the regional implementation of internationally agreed development goals, including the Millennium Development Goals (MDGs), and to support regional sustainable development by contributing to bridging economic, social and environmental gaps among their member countries and sub regions.

The following presentations are available:

- **Ms Virginia Cram-Martos, Director, Trade and Sustainable Land Management Division, United Nations Economic Commission for Europe** made a presentation on the activities and programmes initiated and implemented by UNECE – presentation is available at: Virginia.Cram-Martos@unece.org
- **Mr Georges Younes, First ICT Officer, ESCWA-ICTD** – presentation is available at: http://groups.itu.int/Default.aspx?tabid=1229
- **Mr Makane Faye, Coordinator, e-Applications, United Nations Economic Commission for Africa (UNECA)** – presentation is available at: http://groups.itu.int/Default.aspx?tabid=1229

Webcast of this interactive session is available at:
http://www.itu.int/ibs/WSIS/201105forum/index.html

Interactive Session: Measuring the ICT sector for Political Analysis (ITU/UNCTAD)

Tuesday, 17 May, 14:45–16:15, Room IX

Tuesday, 17 May, 16:30–18:00, Room IX

The session was chaired by UNESCO Institute for Statistics and started with an overview by ITU of recent activities of the partnership. Special attention was given to emerging measurement issues, particularly related to the rapidly growing mobile access to the Internet. This presentation was followed by a progress report on e-government indicators presented by UNECA.

The session then turned to its main theme, the measurement of the ICT sector and its importance for policy analysis. UNCTAD pointed to the internationally agreed definition of the ICT sector and the latest classification that can be used to measure the sector. Although a number of developed economies collect data on the ICT sector, it was noted that only few developing countries do. The OECD highlighted the evolution of the ICT sector definition and presented new data on the ICT sector in OECD countries. Special emphasis was given to the importance of having accurate data to measure the ICT sector's impact on productivity, competitiveness and economic growth.

Orbicom (the Network of UNESCO Chairs in Communication) then presented the results of its research and training programme related to "Statistical Compilation of the ICT Sector and Policy Analysis", involving researchers and statistical offices in Brazil, Cameroon, Egypt, India and Malaysia. The main results of the country studies were presented by researchers from each of the countries, who provided an overview of the magnitude and composition of the respective ICT sectors. While some countries had substantial ICT manufacturing (e.g. Malaysia), others had developed mainly their ICT services (e.g. India). Generally, countries without ICT manufacturing showed ICT trade deficits. In view of the significant variation in size and composition, relevant policy responses needed to be country-specific as well as industry-specific.

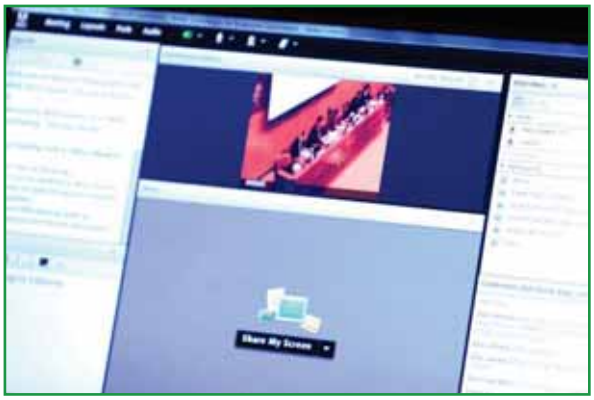
Despite differences, the research also pointed to a number of similarities. For example, ICT sector employees tended to have an above-average level of education and to be younger than employees in other sectors. Furthermore, jobs in the ICT sector were generally perceived as desirable because of upward mobility, job security and the availability of training opportunities. Finally, data suggested that the ICT sector had a relatively high degree of R&D expenditure.

In the lively discussion that followed, several measurement challenges were recognized, including disparities in the gender distribution of employment. There was a lower percentage of women employed in the ICT sector and often women received lower wages, particularly in the informal sector. Another challenge was related to the need to obtain information from multiple sources within a country. The studies are based on data from various sources, including national accounts, trade statistics and survey data. In this context, the researchers mentioned the importance of transparency and the need for governments to make national data available for research purposes. While data to analyse the ICT sector may be available, they are often "hidden" in surveys and national accounts and scattered across different line ministries, the NSO, the central bank and other institutions. It therefore requires a fair amount of effort to find and analyse data.

Addressing these and other challenges requires collaboration between the different stakeholders. It was recommended that other countries explore the possibility of carrying out similar studies. The role of the partnership in promoting the availability of data on the ICT sector, especially in developing countries, was stressed.

Interactive Session: Remote Participation (ITU/CIVITECH/Strategic Partners)

Thursday, 19 May, 16:30–18:00, (Governing Body Room)



This special session on WSIS remote participation explored issues ranging from communication logistics to local models for participation. In order to ensure participation and inclusion of all WSIS Stakeholders, ITU, the hosts of the WSIS Forum, made a concerted effort to integrate remote participation in all sessions of the WSIS Forum. Partners, such as CIVITECH, showed full support in implementing remote participation during the Forum

For the WSIS Forum 2011, the Information Services Department of ITU provided remote participation services. Some Statistics of remote participation were presented:

Remote Participation

- Over 100 Sessions were covered including the Publications and Briefing Sessions.
- Five Remote Meeting Hosts were hired and this team was complemented by two interns to bring the total number of Remote Meeting Hosts to seven.
- Even with this number, the coverage of this event was a major challenge.
- As many as six WSIS Forum sessions were covered simultaneously.
- There were over 400 unique remote participants, as of 19 May 2011.
- Many of these participated in multiple sessions, but were only counted once.
- All sessions have been recorded and were made available within two weeks.

Feedback

- Feedback from the audience was generally positive.
- Remote participants thanked the organizers for making the coverage of this event possible.
- The Remote Participant Hosts received many positive comments for their dedication in representing the remote participants in this conference.
- Areas for improvements include the following:
  - More training should be provided to Session Organizers so they understand that WSIS embraces both physical and remote participants.
  - Better communication and outreach so that the WSIS community may better understand how they can participate remotely.
  - Remote participants lost audio in some sessions, and infrastructure should be more stable in future.
  - Remote Intervention. The lack of hybrid phones in the conference centre meant that audio interventions from remote participants were not possible, and remote panellists could only make their interventions via chat. Some sessions organizers did not give sufficient time for intervention from remote participants.
  - Presentations. Because presentations were provided at the last minute, the remote meeting hosts did not always have time to upload these to the room.

Next Steps

There is strong support for more remote participation coverage in future WSIS events. The next event should provide facilities for remote oral intervention. In addition, physical participants should be shown the virtual meeting rooms projected on the screens so they have a better understanding that this is not just a physical event.

The WSIS team should work with other agencies to provide optimal models for inclusion. There should be clear rules of procedure for remote intervention, so that remote participants do not feel like “second class citizens”

Social Matchmaking/imeetYouatWSIS

Some statistics

Total accounts	585
Total signed-in at least once	257
Total visible	256

Activity

Private messages	114
Public messages	70

Schedule

Sessions added to schedules	845
Total sessions	105
Attendees registered for sessions	51
Schedules printed	40
Attendees registered for private meetings	15
Meeting invitations accepted	15
Schedules exported	12
Private meetings	12

The session was moderated by Mr Guy Girardet, ITU Focal Point, Remote Participation, ITU. Mr Michael Riggs, FAO; Ms Gitanjali Sah, Policy Analyst, ITU; Mr Benoit Servoin, ICT Economist, ITU; and the iwrite4WSISFroum Strategic Partners shared their experience on Remote Participation at WSIS Forum 2011.

Interactive Session: WSIS Stocktaking: WSIS Implementation Success Stories

Thursday, 19 May, 16:30–18:00, Room XI

Outcomes of Interactive Session: WSIS Stocktaking: WSIS Implementation Success Stories

The session was presented by five panellists: Mr Amara Touré, ITU; Ms Viola Krebs, Executive Director, ICVolunteers; Mr Ivan Sanchez, Expert Commissioner, Colombian Communications Regulation Commission; Eng. Badar Ali Al-Salehi, Director, Oman National CERT; Mr Clément Guitton, ITU; and was moderated by Ms Regina Valiullina, ITU.

The session was started with a briefing about the WSIS Stocktaking Process and provided the report concerning the results. It was stated that a total number of 5 077 entries have been submitted by various stakeholders since the launch of the WSIS Stocktaking Database. From 2010, there were more than 1 000 projects submitted to this database. Current, there are more than **185** countries that are following the WSIS Stocktaking process.

It was emphasized that following Para 120 of TAIS, the WSIS Stocktaking serves as an effective tool for assisting with the follow-up of the WSIS Process, beyond the conclusion of Tunis phase of the Summit.

WSIS Stocktaking: Success stories was released in the framework of WSIS Stocktaking in electronic format available at the WSIS Stocktaking Platform.

*Success Stories 2011 (*http://groups.itu.int/Portals/30/documents/WSIS/WSIS_ST_Success_Stories_2011_E.pdf*)* was elaborated in close collaboration with the WSIS Stakeholders, with the aim of showcasing examples of WSIS Implementation projects and transferring experience and knowledge at the global level. The "Success Stories 2011" aggregates several voluntary contributions from around the world that were collected from active members of the WSIS Stocktaking Platform during the 2010–2011 period, and illustrates key lessons drawn from the management of these projects.

The panellists shared their knowledge and experiences, and highlighted the successful examples of approaches for the development of the Information Society. The stakeholders proposed to enforce the networks that would contribute to collect the information for WSIS Stocktaking, particularly to involve networks at the national and local levels. The challenge of collecting the data of Stocktaking is a lack of local initiatives. In conclusion, it was suggested to go through local networks and encourage the partnerships with NGOs.

It was announced that there is a need for more than one call for entries per year in order to guarantee the regular reporting of stakeholders. Another proposal was create a mechanism to evaluate and reward stakeholders for their efforts on the implementation of WSIS outcomes.

With reference to ITA, Information Technology Authority, the Sultanate of Oman, all ICT-related initiatives in line with WSIS Action Lines are uploaded in UNPAN portal and the WSIS Stocktaking Platform.

Following the 2010 ECOSOC Resolution on "Assessment of the progress made in the implementation of and follow-up to the outcomes of the World Summit on the Information Society", all WSIS Stakeholders are encouraged to continue to contribute information to the WSIS Stocktaking database (www.wsis.org/stocktaking).

United Nations Group on the Information Society

The Tunis Agenda (November 2005) requested the UN Secretary-General, in consultation with members of the UN Chief Executives Board for Coordination (CEB), to establish within the CEB, a UN Group on the Information Society (UNGIS), consisting of the relevant UN bodies and organizations with the mandate to facilitate the implementation of WSIS outcomes.

In April 2006, UNGIS was endorsed by the CEB. UNGIS 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 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.

In order to achieve its objectives, UNGIS:

- contributes towards WSIS implementation, primarily at the international level, by mainstreaming the Information Society Agenda into the activities and programmes of CEB members;
- coordinates with the mechanisms for national and regional implementation established in the Tunis Agenda, as well as the multi-stakeholder implementation process;
- strengthens the role of the UN System in facilitating access of developing countries to new and emerging technologies, promoting transfer of technology, and mainstreaming science, technology and innovation policies, including ICTs, into national development policies or poverty reduction strategies in accordance with the priorities of countries;
- facilitates synergies between organizations belonging to the UN system in order to maximize joint efforts, avoid duplication and enhance effectiveness in achieving the WSIS outcomes; and

- promotes public awareness about how the UN system is implementing WSIS and is facilitating better access for developing countries to new and emerging technologies.

The **Seventh Meeting** took place on 16 and 19 May 2011 at the ILO Conference Centre in Geneva, during the WSIS Forum 2011. Participation in this meeting was restricted to the focal points of CEB members.

The seventh meeting of UNGIS consisted of the High-Level Segment on 16 May, 11:00-12:00, and Working Level Meeting that was held on 19 May, 14:45-16:00. The High-Level Segment provided an opportunity to high-level representatives of the Member Organizations to discuss UNGIS' Strategic Orientation, while the Working Level Meeting provided an opportunity to advance Group's objectives of coordination of substantive and policy issues facing the UN system's implementation of the outcomes of the World Summit on the Information Society. Particular focus was directed towards review of progress made in implementation of the activities reflected in the Work Program 2010-2011 as well as elaboration of new Work Program for the period of 2011-2012.

Please note: UNGIS held its **First Physical Meeting of the Open Consultation Process on the Overall Review of the Implementation of the WSIS Outcomes (WSIS+10) on 20 May 2011, 14:30–17:30, in Governing Body Room of the ILO Conference Centre, Geneva, Switzerland**. (Further details can be found on page 160.)

Thematic Workshops




Thematic Workshops are interactive sessions based on the requests received from stakeholders during the open consultation process. These workshops are organized and designed by the stakeholders who submit the requests.

Thematic Workshop: Education and ICTs (CoNGO)

Monday, 16 May, 14:45–16:15, Room IV

Education and Information, communication and computer technologies (ICTs)

Dialogue on how to meet *MDG 2* and the *other internationally agreed education goals by increasing access and enhance the quality of the use of ICTs.*

During this Thematic Workshop, CoNGO aimed to facilitate a dialogue on different ICT approaches and solutions that are being used successfully and on innovative ideas that could be implemented. Panellists and participants also discussed how to further mobilize civil society and decision-makers at all levels to increase access and reach out to all sectors of society including those that are marginalized and excluded.

Thematic Workshop: New challenges to protect children online in the era of non-stop connectivity

Monday, 16 May, 16:30–18:00, Room IV

Session organized by ITU

Moderator: Professor Julia Davidson, PhD, Professor of Criminology, Kingston University, UK

- Mr Badar Ali Al-Salehi, Director, Oman National CERT (OCERT), Oman
- Mr Yasutaka Hirata, Ministry of Internal Affairs and Communication (MIC), Japan
- Ms Marielos Hernandez, Executive President, PANI (National Children´s Patronage), Costa Rica
- Ms Susie Hendrie, Director, Public Policy, GSMA
- Mr David Miles, Director, Europe, Middle East and Africa, Family Online Safety Institute (FOSI), UK
- Ms Yuliya Morenets, Representative, Together against Cybercrime (TaC), France
- Ms Salma Abbasi, Chairperson and CEO, e Worldwide Group

This session aimed to discuss the new challenges of protecting children online in the new media era, which allows people to be always on connected with their new communication devices, and to identify further actions to be undertaken within the COP Global Initiative for social and national benefits.

Broad risks and challenges were identified by panels including:

i) *Content*
including online grooming or solicitation,

ii) *Conduct*
including peer-to-peer inappropriate behaviour,

iii) *Commerce*
including access to age inappropriate goods and services, and

iv) *Materials*
including access or exposure to age inappropriate materials and/or text.

Two country case studies from the Kingdom of Bahrain and Costa Rica (ITU COP Patron, President Chinchilla), were also discussed where new Internet safety frameworks have recently been developed.

Through the session, the following new challenges were also identified by panels jointly with participants:

1. Effective awareness raising for parents and children on the risks associated with the Internet and moral/ethical issues, particularly in respect of the digital footprint. There has been no real attempt to develop programmes for more vulnerable children who may have different needs.
2. Differences in digital literacy and the digital divide (generational and social class) affect Internet usage and understanding, and can be barriers.

3. There are differing regional and cultural issues that impact Internet usage and understanding. These need to be taken into account in developing frameworks and in designing safety practice. It is important to act nationally but think globally.
4. The importance of incorporating young people's views in the design of safety practices was emphasized again.
5. Developments in technology and changes in usage are impacting upon young people's (YP) behaviour.
    - Research demonstrates that YP do not necessarily identify with the term "online" as digital media are now a central component in their lives.
    - Mobile phone technology is enabling mobile Internet access and this may result in a loss of parental control (particularly for younger children).
    - Concern was expressed about the impact of new technology upon YP's relationships, perceptions, and their physical and psychological well-being.
6. The difficulty of establishing common regulatory frameworks across geographical boundaries to enable collaborative legislative and policy practice.

Thematic Workshop: The Urban Gateway – a global online portal to support town and city management in a rapidly urbanizing world (UN-HABITAT)

Tuesday 17 May, 09:00–10:30, Room IV

The workshop demonstrated the Urban Gateway, a new online community that aims to help cities and urban practitioners across the world unite to share knowledge and take action for sustainable cities in a rapidly urbanizing world. The social site, www.urbangateway.org, launched in April 2011, is the first internet-based urban platform of its kind. It provides a central repository of urban knowledge, and is a collaboration and networking hub, a market place with urban jobs, awards and funding opportunities, and a platform for campaigning for better cities. The next phase will add spatial features to allow users to zoom into a particular city and find out about urban conditions, such as access urban services, and innovations to tackle city problems.

Panellists:

- **Ms Jane Nyakairu**, UN-HABITAT
- **Mr Kamal Naim**, UN-HABITAT

Thematic Workshop: Mock Botnet Investigation (World Federation of Scientists/ITU)

Tuesday, 17 May, 09:00–10:30, Room IX

A multidisciplinary group of international experts conducted a mock investigation of a botnet with the goal of bringing the audience closer to the difficulties in tracking and tracing cybercriminal activities, especially those that span multiple jurisdictions. The scenario was based around the theft of highly confidential medicinal formulas from an international pharmaceutical company. Three jurisdictions of the corporation were compromised, and the company had received an extortion email requesting USD 5 million for return of the formulas. The interplay with the general counsel of the company, the company's private forensic investigator, domestic law enforcement, foreign law enforcement, and the IMPACT global cybersecurity centre highlighted the complex jurisdictional issues, variances in cybercrime laws, and difficulties in investigating cybercrimes within a legal

process designed for more traditional forms of crime. Mutual Legal Assistance Treaties and Letters Rogatory processes are time-consuming and hinder the ability to track and trace cybercrimes. The value of breach plans, inventories of data, and established relationships with law enforcement and providers was a central theme of the program. In addition, the panel demonstrated the critical role that IMPACT can play in facilitating 24/7 connections and sharing research and cyber investigation information.

Thematic Workshop: Institutional Choice in Global Communications Governance (University of Zurich)

Tuesday, 17 May, 09:00–10:30, Governing Body Room

On 17 May 2011, the Media Change and Innovation Division, University of Zurich, hosted a workshop at the International Labour Organization in Geneva. Entitled, "Institutional Choice in Global Communications Governance", it was held in the context of the WSIS Forum

The workshop was organized and moderated by the division's International Fellow, Dr William J. Drake, and featured a panel of expert speakers that included the division's Chair, Prof. Michael Latzer. Other speakers included representatives of global civil society, the Internet technical community, and the governments of Switzerland, Brazil and Egypt. About 60 people attended the event in person, while others from around the world participated remotely via the Internet.

The purpose of the workshop was to promote dialogue between policy analysts and practitioners about the design and selection of global governance arrangements for ICTs. The contemporary global communications order has been marked by a significant increase in the number and variety of these arrangements, which vary greatly in terms of the collective action problems they address and the institutional attributes they possess. This proliferation raises a number of challenging problems such as: how do we evaluate the relative political feasibility and functional effectiveness of alternative approaches in relation to specific global policy challenges? What are their respective strengths and weaknesses? How well do such mechanisms cohere into an effective global governance architecture? The workshop explored these and related questions in relation to current policy challenges concerning the global Internet in particular.

Dr Drake opened the workshop by briefly mapping out the historical evolution and contemporary landscape of ICT global governance. Mr Latzer outlined an approach to the evaluation of alternative modes of governance that was based on the division's research on regulatory choice in communications markets. Dr Drake then posed a series of questions to the panellists about the relative merits of current and proposed arrangements based on multilateral, plurilateral, and unilateral government authority, as well as on industry self-governance, public/private co-regulation, and multistakeholderism (e.g. involving governments, business and civil society).

Responding to these questions were the panellists: Mr Michael Latzer (Chair, IPMZ-Media Change & Innovation Division, Switzerland); Ms Anriette Esterhuysen (Executive Director, Association for Progressive Communications, Republic of South Africa); Mr Alvaro Galvani (Head, Division of Information Society, Ministry of External Relations, Government of Brazil); Mr Markus Kummer (Vice President of Public Policy, The Internet Society); Ms Nermine El Saadany (Director of International Relations Division, Ministry of Communications and Information Technology, Government of Egypt); and Mr Thomas Schneider (Deputy Head of International Relations Service, Federal Office of Communications, Government of Switzerland).

The panel's deliberations were followed by a lively and interactive open debate involving the audience in Geneva and remote participants abroad. The debate surrounded some of the key

concrete cases of contemporary global governance challenges, e.g. Internet Governance, privacy, cybersecurity and child protection online. The panellists agreed that an assessment of the suitability of alternative approaches to specific challenges needs to taken into account.

Thematic Workshop: Public dialogue on the impact of the communication and information technology: transformation and global development (CECIDE)

Tuesday, 17 May, 11:30 – 13:00, Room IX

The Objectives of the meeting were to:

- Inform the participants on the contribution of the ITCs in the eradication of poverty and the improvement of the economic and social standard of living through practical cases since the end of the Summit of Geneva in 2003 and Tunis in 2005;
- Promote and encourage good practices of cooperation of North–South technology transfers and South–South;
- Analyse the stakes of the numerical culture on the level of marginalized populations in the rural areas and showing the role of the ITC in the implementation of the MDG.

The presentations were followed by the reading of "Technological transformation and Development in the South" by **Surendra Patel** and **Dr Khrisna Ahooja**.

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Thematic Workshop: World 2011 – Reaching Out (TELECOM)

Tuesday, 17 May, 11:30–13:00, Governing Body Room

At the end of June the Telecom team launched a number of outreach programmes to invite participation from thought leaders, digital talent and change-makers across the world. This interactive workshop at the WSIS Forum 2011 invited participants to share their knowledge to make sure that these innovative outreach programmes are successful.

From 24 to 27 October in Geneva, ITU Telecom World 2011 will provide a large, influential and amplified platform for debate. How can we make sure the right frameworks are in place to connect the world and what commercial and social benefits would this reap? This debate would not be complete without the fresh thinking of the young talent and digital innovators that are using connected technologies to change the world.

For 40 years, the event has connected industry leaders with political leaders. It has provided a leading platform for debate on critical issues around ICTs and their impact on the world. High-level policy debate, national pavilions and big industry partners remain the same, but to celebrate the 40th anniversary, Telecom World is changing. The new event will include live streams, audience-driven debate from across the world, multiple perspectives and a more inclusive event. The website is moving from broadcast to conversation, to build wider communities and to learn to listen. The programme will be about how connected technology can help us become safer, smarter, and more successfully sustainable, learning from other people's experiences: workshops, pitching sessions, case studies and conferences, the integrated Broadband Commission, Digital Cities Conference, and the Technical Symposium.

Another new important element is a number of outreach programmes which invite people who would normally not engage with Telecom World's agenda to get involved. There are four entry points:

- questions from trusted organizations across the world to feed into the Broadband Leadership Summit http://world2011.itu.int/more-about-your-questions;
- an opportunity to share CSR and innovation stories on our bespoke gallery http://world2011.itu.int/yourstories
- Innovation competitions designed to catalyze and develop connected ideas from Young

  Innovators and Geeks working with non-profit organizations http://world2011.itu.int/submit-your-idea
- The output from sessions, polls and these three outreach projects will feed into a Manifesto for Change: a series of clear recommendations for positive action and to ensure the right frameworks are in place to get closer to our mission of connecting the world.

In the workshop, participants were invited to come up with questions that would be posed to the Broadband Leadership Summit; tell any story (CSR or change-makers) that should be shared; and to think of how to carry on with the competitions, including ideas of what the brief could be, who should be on the advisory and selection panel, recommend networks and give ideas how to resource this project.

Twenty-eight people from across the globe (Algeria, Kenya, Russia, Iran, Nigeria and more) came to listen to the presentation and ask questions, and over 20 stayed for the more interactive, participatory workshop to share their recommendations and knowledge.

Below are a few examples of the questions asked by the workshop participants:

- What do you set out to achieve at the Broadband Leadership Summit?
- What programmes are set out to get young people involved in the "Broadband Access for All" project?
- How can you decide which are the first unconnected countries to deserve broadband?
- Who is responsible for investing in poor countries?

The participants shared a number of networks that could be used to share the invitation to upload videos onto the telecom reaching out programme aggregator, including Movirtu, Wired Nigeria and STABI (State Accelerated Broadband Initiative).

This workshop extremely helpful to focus thoughts on the design of the projects. The diversity of the workshop participants meant their input was immensely varied and from a global perspective.

Thematic Workshop: Child Online Protection in Africa (ITU)

Tuesday, 17 May, 16:30–18:00, Room XI

Session organized by ITU

Moderator: Mr Anjan Bose, Program officer ECPAT International

- Mr Michael Katundu, Assistant Director, Communications Commission of Kenya (CCK), Kenya
- Ms Mmapula Makola, Chief Operations Officer, The Film Publication Board (Hotline operator), South Africa
- Ms Susie Hendrie, Director, Public Policy, GSMA
- Mr Franz Josef Allmayer, Project Manager, Advanced Development for Africa (ADA)
- Ms Samantha Woolfe, European Representative, International Centre for Missing & Exploited Children (ICMEC)
- Mr David Miles, Director, EMEA, Family Online Safety Institute (FOSI), UK

The session brought together distinguished panellists from different sectors (state representatives, private sector, legal experts, practitioners and children's rights agencies) to look at the existing challenges and gaps in addressing the issue of online protection of children. The session started with the opening remarks of Mr Brahima Sanou, Director of ITU Development Bureau (opening remarks were read out on Mr Sanou's behalf), who welcomed the inclusion of this very important topic in this year's WSIS Forum.

The Chair introduced the session by mentioning why this is so relevant to Africa, particularly with the IGF 2011 being hosted in Kenya, as it will give developing nations an idea of the framework for child protection that is required to combat the crimes against children. Even though technology has been introduced relatively recently, it will be embraced vigorously by the youth and there will be little phase for learning and catching up as the technology has been quite advanced these days and has opened up the Internet in a big way to a lot of untouched territories.

Unless a proper framework that takes care of all possible components – legislations and their enforcement, education and awareness, developing national policies which also include preventive and protective measures such as victim counselling and rehabilitation, and involvement of the private sector and technology community and community at large – it will be difficult to handle the issue properly, particularly in the African context where there is very little information and readiness to tackle this.

Among the various important points which were raised during the presentations from the speakers, these are some of the main highlights:

1. Children and young people in the African region are spending more time on social networks such as *Facebook* and *Mixit*. There have been cases where children have been approached online or solicited online for sexual activities.
2. Increasingly, governments are recognizing the importance of having national frameworks to deal with the protection of children online, but more needs to be done.

3. The penetration of fixed internet is low and giving way to mobile broadband. The future of Africa relies heavily on mobile networks, hence suitably training operators and building their capacity will go a long way to protect children online. In this regard, the work of a mobile operator in Africa – MTN was highlighted where significant initiative has been launched in relation to protection of children. It was also noted that the mobile network will be able to assist the development of hotlines with the support of a GSMA alliance whose mandate is also to promote the creation of such reporting hotlines and provide assistance in the process. It was noted that there were significant variations in the uptake of mobile technology between different African regions, but that they were all far behind in terms of usage and users compared to the rest of the world.
4. It was noted that most of the countries in Africa lag behind in terms of national legislation on child pornography. The ICMEC presentation highlighted the need to have model legislation in place that recognizes the definition of child pornography/child abuse images, and criminalizes all forms of child pornography – production, distribution, viewing and downloading – and also makes it mandatory for ISPs to report such illegal content to law enforcement when they come across it.
5. Countries like South Africa have created an Internet Reporting Hotline and which has been affiliated with the International Network of Hotlines – INHOPE. This is a very significant stride towards the protection of children as it allows all known reported sites to be blocked or taken down to prevent access to child abuse materials. Moreover, South Africa has also amended their laws to criminalize grooming which has been strongly recommended by international instruments and conventions.
6. Much development work has been undertaken that emphasizes an "African solution to an African problem", which aims to reduce dependencies on foreign aid and funding and ensure sustainability. It was also highlighted through other speakers that bringing ready-made solutions from the west is not likely to be the best solution as there must be ways of sustaining efforts, and solutions need to be crafted keeping in mind regional, cultural and ethical variations.
7. With the strong emphasis placed on connecting Africa (particularly the east coast through optical cable) to boost internet trade and economics, this connectivity is also opening up the world of the Internet to the masses, particularly children. Innovative initiatives that reach out to them and create awareness on the risks caused by such unmonitored access are strongly needed. Some initiatives such as the Make-IT-Safe Campaign by ECPAT network that runs in the African continent is already targeting cybercafés and schools and was mentioned in this regard as a key initiative.
8. The African continent is no different from other regions when it comes to the popularity of the Internet amongst children and young people. Even though their access places may be more public presently, with the widespread use of mobile Internet there will soon be more end users connecting to the Internet. Thus existing knowledge on the harms and risks of unmonitored and unguided online activities must be made available to them at the earliest opportunity.

The Chair thanked all the panellists and the participants, and ITU for hosting such an important session to highlight the priority actions required in the field of child online protection in Africa, and wished success to all the upcoming initiatives in this regard.

Thematic Workshop: ICT4D Partnership (ICT4D Collective)

Tuesday, 17 May, 16:30–18:00, Room IV

Report on session on ICT4D partnerships hosted by the ICT4D Collective

This workshop focused on the key factors that participants considered necessary to overcome four of the most important problems in delivering effective ICT4D multistakeholder partnerships – and thus delivering on the objectives of the WSIS Forum 2011. The idea for the workshop stemmed from the systematic review of the impact of ICT4D partnerships completed by Ms Marije Geldof, Mr David Grimshaw, Ms Dorothea Kleine and Dr Tim Unwin for DFID earlier in 2011 which highlighted four main areas where further thought was required:

- How can we best ensure that local communities and interests are involved in partnership implementation?
- How to ensure that intended development outcomes are really addressed?
- How to build sustainability and scalability into ICT4D partnerships from the very beginning?
- What mechanisms can be used to ensure trust, honesty, openness, mutual understanding and respect?

Following an opening presentation by Mr David Grimshaw (Practical Action, and Royal Holloway, University of London), the workshop divided up into four groups (chaired by Ms Paola Uimonen from SPIDER, Mr Peter Drury from Cisco, and Ms Dorothea Kleine and Dr Tim Unwin from Royal Holloway, University of London), each discussing one of these themes. The outcome was the attached mind map that reflected the collected views of the 30 or so people present, as well as those who joined by WebEx video conferencing services kindly provided by Cisco.

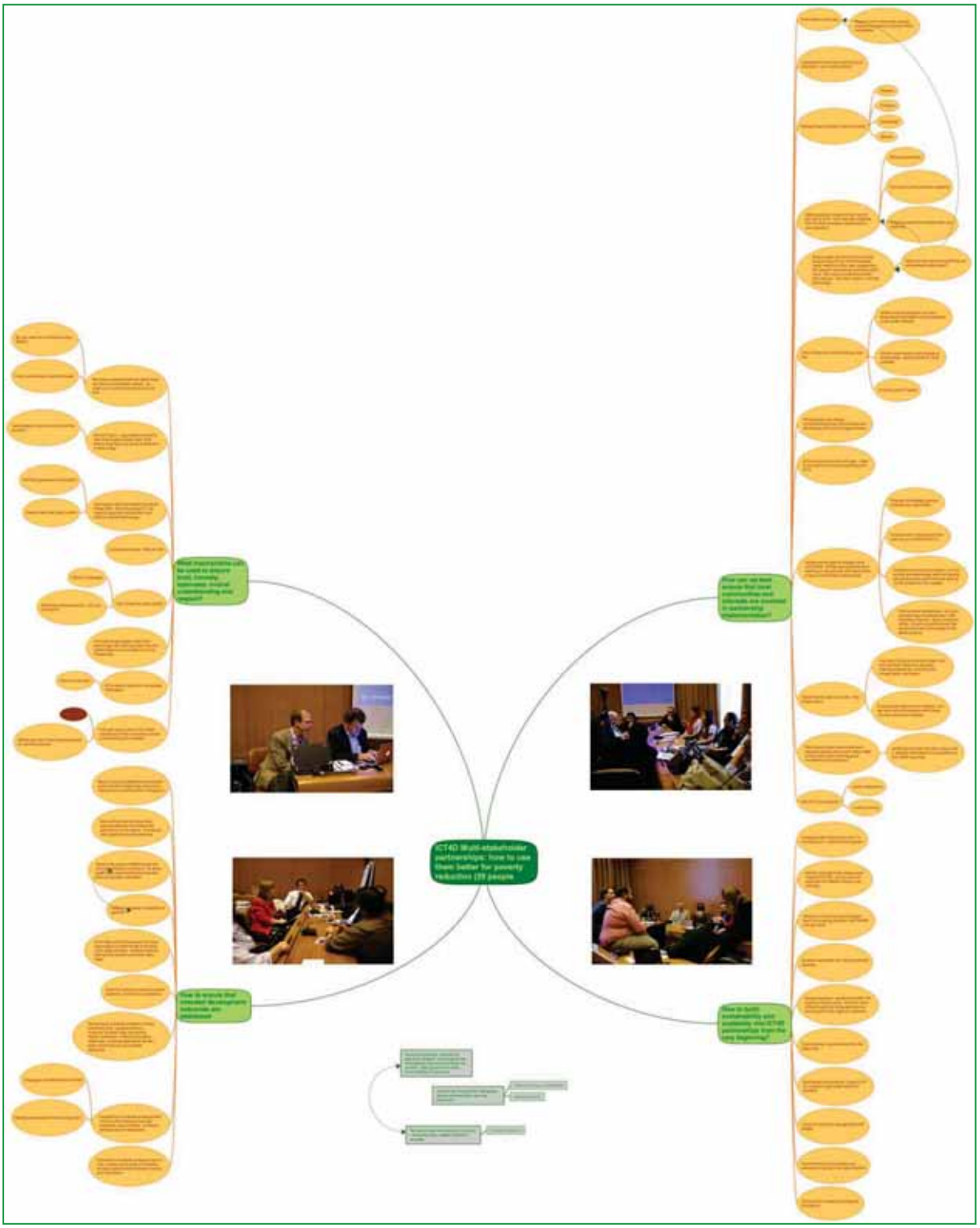
Some of the main suggestions raised and solutions proposed can be summarised as follows:

1. *How can we best ensure that local communities and interests are involved in partnership implementation?*
    - By working from bottom to top.
    - Involving leadership within the local communities.

- Recognizing that communities are fragmented, and that their diversity is important.
- Helping people imagine how they might use ICTs.
- Understanding what people's needs are, and then helping them deliver on them.
- Using Open Source technologies.
- Combining ethnography and design.
- ICTs should not be the end goal, but rather a means to various ends.
- Governments need to engage more with NGOs.
- The government's role in shaping policy is crucial.
- There is value in working at a local community level since people tend to know each other better; the national government can then bring in international partners to support their needs.
- We should also ensure that we use ICTs themselves to be practical.

2. *How to build sustainability and scalability into ICT4D partnerships from the very beginning?*
   - Recognize the real importance of ICTs in development – this tends to be forgotten.
   - Need to identify and define the measurable impact of development.
   - Create networks of learning communities.
   - At least one partner has to have strong financial capacity.
   - The Korean example worked: the Government with FDI providing the infrastructure, and then other partners delivering the applications.
   - Cost-sharing should be in place from the beginning.
   - Need multistakeholder partnerships beyond just ICTs.
   - Big agencies should have long-term plans and clear targets of which others are aware.
   - The government's main role is to ensure that everyone is going in the right direction.
   - There is value in having a scorecard to measure progress.
3. *How to ensure that intended development outcomes are really addressed?*
   - Need to build in mechanisms to re-check agreed developed outcomes throughout the process.
   - Should start with problems rather than solutions or opportunities.
   - Need to think about the responsibilities of different partners.
   - Need to recognize the different reliabilities of partners.
   - In an ideal world there would be more resources to get things done.
   - Partners need to have shared objectives.
   - External review panels should involve civil society, business, academics and governments to ensure that all participants are responsive.
   - People are key carriers of trust.

4. *What mechanisms can be used to ensure trust, honesty, openness, mutual understanding and respect?*
    - Organizations need to get to know each other before they leap into technology investments.
    - Individuals need self-esteem before they begin to exhibit these traits.
    - We should begin to use ICT collaboration tools more effectively – walking the talk. Use of video is really helpful. Technology can also help trace evolution of relationships over time.
    - ICTs can help us learn more effectively from other cultures and develop greater mutual understanding.



Thematic Workshop: Capturing the Impact of ICT (WEF)

Wednesday, 18 May, 11:30–13:00, Room IV

For ten years, the Global IT Report from the World Economic Forum has provided data and thought leadership on the readiness of countries to drive national competitiveness through technology. The Report has been used by ICT ministries globally to benchmark their progress and as a platform for private–public dialogue.

As ICTs become ubiquitous, the debate is shifting from access to impact. Technology is no longer the exclusive concern of the ICT ministry. In almost any domain, new national strategies must include a technology component – whether it is health, education or social inclusion. Interest in technology is no longer just driven by efficiency, but by its potential to have a transformative impact.

But this very ubiquity creates a unique challenge in how we can frame, capture and measure the transformation. How can we go about measuring and benchmarking this impact? What should we be measuring? What dialogue is needed to overcome the challenges?

This interactive workshop was hosted by the World Economic Forum:

- **Ms Joanna Gordon**, Associate Director, Head of IT Industry
- **Ms Jennifer Blanke**, Lead Economist, Director, Head of Centre for Global Competitiveness and Performance

Thematic Workshop: ICT Sector Engagement Towards a Green Economy: Pathways to Sustainable Energy for all (ITU)

Wednesday, 18 May, 11:30–13:00, Room V

ICT Sector Engagement Towards a Green Economy: Pathways to Sustainable Energy for ALL

Discussion summary

Objectives of the workshop

To look at the ICT industry efforts to increase energy efficiency in the ICT sector and to provide an overview of energy efficiency in all areas of production and consumption. ICTs can help to achieve more effective energy production and distribution as well as energy consumption by end users, granting sustainable and affordable energy for all.

Speakers

- **Mr Jean Manuel Canet**, Senior Manager, France Telecom
- **Mr Gabriel Solomon**, Senior Vice-President, GSMA
- **Mr Ray Pinto**, Senior Manager, Microsoft

The session was moderated by **Dr Eunsook Kim**, Vice-Chairman of Working Party 3 of the ITU-T Study Group 5 "Environment and Climate Change".

Highlights of the discussion

- 2012 will be the "*International Year for Sustainable Energy for All*" and United Nations Secretary-General Ban Ki-moon called for a "*global clean energy revolution – a revolution that makes energy available and affordable for all*".

- The session provided an overview of some ICT industry representatives' commitment and successful stories in promoting sustainable and affordable energy for all.
- Commonly agreed standard methodologies are needed to measure the life-cycle impact of ICTs in containing GHG emissions in the ICT sector as well as the reduction of greenhouse gas (GHG) emissions from other sectors. In this regard, within the activity of ITU-T Study Group 5[2], the new recommendation ITU-T L.1400 (Overview and general principles of methodologies for assessing the environmental impact of ICTs) was approved on 22 February 2011.
- ITU-T recommendation L.1400 presents the general principles on how to assess the environmental impact of ICTs. The recommendation provides examples of opportunities to reduce the environmental load thanks to ICTs, outlining different methodologies for:
  - assessing the environmental impact of ICT goods, networks, and services;
  - assessing the environmental impact of ICT projects;
  - assessing the environmental impact of ICTs in organizations;
  - assessing the environmental impact of ICTs in cities; and
  - assessing the environmental impact of ICTs in countries or groups of countries.
- From a different perspective, the GSMA has developed a benchmarking methodology to measure the annual CO2 levels of mobile networks. The methodology, which allows for a comparison between different networks and to measure the progress in the implementation of the commitments made by operators to abate their carbon emissions, is based on the following KPIs:
  - energy consumption per mobile connection;
  - energy consumption per unit mobile traffic;
  - energy consumption per cell site; and
  - energy consumption per unit of mobile revenue.
- Finally, in representation of Microsoft, Mr Pinto presented new solutions which adopt ICTs to improve energy distribution and consumption. Examples presented included the use of smart grids, smart metering, smart billing or electrical mobility. Other trends presented included cloud computing and intuitive user interfaces, which will drive new trends, such as:
  - removing the need for hardware and moving all IT needs to data centres to reduce energy consumption and improve energy efficiency;
  - driving down data centre energy, water, land, concrete and copper needs to tackle climate change;
  - new communication platforms that will allow two-way interactions with citizens; and
  - smarter transportation, buildings and manufacturing through the use of ICTs in smart grids.

[2] *Question 18/5 – Methodology of environmental impact assessment of ICT.*

Possible follow-up actions

The ICT sector has shown its commitment to the UN Secretary-General's call for "*energy available and affordable for all*". Ways to move forward include:

1. encouraging and strengthening cooperation between the ICT industry and governments, particularly with environmental authorities; and
2. building a bridge between environmental authorities and ICT authorities at the national level.

These initiatives may be explored at future activities to be initiated within the WSIS process.

The event was part of the "*e-Environment day at WSIS Forum 2011*", a full day of activities organized for AL C7, e-Environment. The day, organized by the *Basel Convention, CoNGO, ITU, UNEP and WMO* , included and additional workshop on e-waste, and action-line facilitation meeting focused on the Rio+20 process, as well as publication releases session. More information is available at www.wsis.org/forum/environment

Thematic Workshop: Role and Responsibility of Internet Intermediaries in the Field of Copyright (World Intellectual Property Organization (WIPO)/Internet Society (ISOC))

Wednesday, 18 May, 11:30–13:00, Room IX

WIPO
WORLD
INTELLECTUAL PROPERTY
ORGANIZATION

A. **Summary of the workshop**

This workshop focused on the very important issue of the role and responsibility of the internet intermediaries regarding the field of copyright. The issue is being discussed around the world by stakeholders and by public authorities, and different solutions are being proposed in different jurisdictions.

Mr Victor Vazquez, Senior Legal Counsellor of the Culture and Creative Industries Sector of the World Intellectual Property Organization (WIPO) opened the floor by introducing the theme and setting the landscape for the other panellists.

Mr Vazquez highlighted that Internet intermediaries are key drivers in the development of the Internet as well as in distributing creative content. Their role in recent years has evolved in areas such as User Generated Content (UCG), streaming websites, free hosting of large content files and other roles played by the Internet Intermediaries nowadays. Mr Vazquez outlined the WIPO activities on this important theme. Those activities could be divided into two main fields: Normative and Facilitation of an open and balanced discussion among governments and stakeholders.

In the normative area, WIPO administers two main treaties regarding copyright in the digital environment, the Internet Treaties. Their importance could be noted in regard to a clarification of the Internet Service Provider liability, included in the agreed statement of the Article 8 of the 1996 WIPO Copyright Treaty namely that *"It is understood that the mere provision of physical facilities for enabling or making a communication does not in itself amount to communication within the meaning of this Treaty or the Berne Convention. It is further understood that nothing in Article 8 precludes a Contracting Party from applying Article 11bis(2)".* Also regarding the normative area, WIPO is preparing studies in order to provide helpful information for member states and stakeholders. The most recent studies that will be published soon are:

1. Role and Responsibility of the Internet Intermediaries in the Field of Copyright, by Professor Lilian Edwards
2. Survey of National Legislation and Jurisprudence on the Liability of Internet Intermediaries in the Field of Copyright and Related Rights, co-authorship of Professors Daniel Seng and Juan José Marin.

Regarding the facilitation of a discussion, Mr Vazquez highlighted that WIPO is highly committed to prepare balanced and open discussions on this issue. Three examples are WIPO Asia Regional Seminar on Copyright and Internet intermediaries which took place in Bangkok, Thailand; a side event organized with ISOC at WIPO headquarters on 22 June 2011 regarding the same topic of the Internet Intermediaries; and in September, also with ISOC collaboration, a side event during the Internet Governance Forum (IGF) in Nairobi, Kenya.

The second panellist was Ms Christine Runnegar, Senior Manager of Public Policy, Internet Society (ISOC). She clarified that ISOC is also involved in the organization of the events mentioned above by Mr Vazquez, such as the side events taking place in Nairobi.

She presented the recent ISOC Study – *"Perspectives on Policy Responses to Online Copyright Infringement–An Evolving Policy Landscape".* The Study is based on one basic question: how to protect copyright content online? In order to provide an answer, three relevant facts would need to be considered:

a) Copyright content can be easily reproduced or transported.

b) Internet does not distinguish lawful/unlawful content.

c) There is no uniform global copyright legislation.

The study deals with policies and implications thereof and focuses on categories of policies instead of the existing examples of policies that have been adopted by the countries.

The study would be further discussed in another event during the WSIS event "Publication of the study: Perspectives on Policy Responses to Online Copyright Infringement – An Evolving Policy Landscape", which took place on Thursday, 18 May.

The third panellist was Mr Kiseok Oh, Senior Researcher of the Korea Copyright Commission, Seoul. He presented the subject "The Role and Responsibility of Internet Intermediaries in the Field of Copyright in the Republic of Korea".

By explaining the recently implemented national legislation which applies the graduated response system in the Republic of Korea, Mr Oh clarified the liability of the Internet service providers in case of online infringement of copyright, also revealing that the legislation differentiates some service providers, classifying them as "special types of Internet service providers".

Mr Oh also showed some of the current numbers of the graduated response of the Korean Copyright Commission, such as the 91 recommendations issued before 2010 session of the Commission for account suspension. Mr Oh finalized the presentation explaining the procedures that should take place in order for the measures to take place, such as for the account suspension.

Thematic Workshop: Mainstreaming Crisis Mappers and Social Media in Crisis Management (ICT4Peace)

Wednesday, 18 May, 14:45–16:15, Room IV

For the second consecutive year, the ICT4Peace Foundation was invited to host a Thematic Workshop at the annual WSIS Forum in Geneva. Under the title *Mainstreaming Crisis Mappers and Social Media in Crisis* on Wednesday 18 May, the Foundation held a panel discussion that was also live broadcast on the Internet.

The submissions of the panellists captured in our live tweeting clearly demonstrated the degree to which social media and ICTs has progressed in relief work even over one year. See the tweet archive and related blog post with links to the archive of live video of the event – http://ict4peace.org/updates/thematic-workshop-at-wsis-forum-2011-mainstreaming-crisis-mappers-and-social-media-in-crisis.

Panellists from UN agencies repeatedly noted that web-based social networks and ICTs were an integral part of their operations, including content from Twitter and Facebook. Stressing the need for accountability, many suggested that new tools and mobiles helped victims help themselves and each other after a disaster. And yet challenges regarding adoption were also placed for consideration, including the fact that it is not always easy to use new technologies in the aftermath of a large scale sudden onset disaster, or in other crisis situations. A key driver of the UN CiM process supported by the ICT4Peace Foundation – the availability of Common Operations Datasets (CODs) – was also underscored by panellists, who said that not all data was the same, and noted that how best to collect, analyse, visualizes and categorize data remained key challenges for the UN system as well as other crisis mapping actors. Panellists also brought out a gendered critique of new technologies, suggesting that it was important to look at who actually owned and had access to ICTs that could be of use post-disaster as well as for disaster preparedness.

Panellists also stressed the issue of accountability and the responsibility to asses new ICT tools and platforms from the perspectives of the disaster-affected community, with humility and eschewing what is a tendency amongst actors in relief work to take credit for when things go right, and disavow responsibility for when expectations are not met, go unheeded and in some cases, and threaten lives.

Speakers

- Mr Tom de Groeve, EC Joint Research Center
- Mr Andrew Alspach, UN OCHA
- Ms Kimberly Roberson, UNHCR
- Mr Sanjana Hattotuwa, ICT4Peace Foundation and TED Fellow

- Mr Daniel Stauffacher, ICT4Peace Foundation, Moderator

Background note for the panel discussion

ICTs are a huge enabler and source of empowerment, allowing individuals to take some, albeit limited, control of their own destiny within the chaotic framework of a crisis, natural disaster or post-conflict situation. From the SMS/text messages of Haitian earthquake victims and refugees in Darfur to Rwandan farmers checking grain prices online, ICTs provide a tool with which individuals can share and obtain information. In some cases this can mean the difference between life and death, economic survival or abject poverty. In turn, the compilation of all these pieces of data on crowd-sourcing platforms and other databases provide an overall picture of a given situation, which can be very useful to humanitarian responders and governments in times of crises, war, conflict and state-building.

Approaching humanitarian relief with an increasing emphasis on ICTs brings hope for a better future but at the same time significant challenges. How can the humanitarian community and other actors physically assess the mountains of data that come in? What steps does the humanitarian community need to take in order to manage this process? How can the accuracy of the information coming into a given platform be validated, in particular in conflict situations where misinformation is often used as a weapon? How can individuals in conflict situations, who provide valuable information, be protected?

Another important series of issues that also needs to be discussed is the responsibility and role of technology providers. What responsibilities do technology platform providers have? What happens when collected information cannot be acted on? How can the links between information gathering and implementation be improved? How can responders ensure that new systems uphold the “do no harm” principle of the humanitarian community? What criteria exist, or should exist, for ICT providers (including crisis mappers and social media) to determine which crises they should address or “map”?

At the end of the day, the question remains as to whether or not we will be able to use improved ICTs in such a way so as to significantly improve the situation for victims of crises. Does increased ICT ability and use really mean progress and reduced loss of life? To date, the jury is out, but at a minimum new technology provides an opportunity to re-think how we respond to crises, how we prepare communities for disasters and we manage conflict and post-conflict situations.

Thematic Workshop: Empowering Community Voices (Video Volunteers)

Thursday, 19 May, 11:30–13:00, Governing Body Room

The session focused on community media which is one way that low cost communications technologies can be used to empower the poor and give them a voice to make their needs heard in forums like this.

This session focused on how Video Volunteers (VV) uses community video, and the need to think about the way that new technologies can enable the poor to advocate on their own with authority and also to express themselves creatively. Creative expression, as well as the ability to articulate, is very important for promoting community-led development. We need to think about bottom-up development processes. Video – as well as radio – has the benefit of being easy to learn by people who are not literate. And of course, people do not need literacy to understand the messages.

Video Volunteers has built the largest media network anywhere in the world of poor people making news and documentaries on critical community issues, giving a voice to thousands of unheard people in slums and villages around the world. The people trained by Video Volunteers make videos that are shown on widescreen projectors in hundreds of villages, online and on broadcast TV. In approximately 300 villages and slums across India, people gather regularly in public spaces in the evenings to watch news and inspirational documentaries produced by their neighbours, discussing solutions to problems ranging from corruption, to child marriage and health – demonstrating that even communities that largely lack literacy can still create their own locally-controlled news services. The work has created significant impact, reducing corruption, getting teachers to arrive on time, getting people more involved in elections, and creating extraordinary leaders out of people, especially women, who used to be farm labourers or Muslim housewives but who now are their villages' local journalists.

Several videos produced by local journalists were displayed:

1. "empowering community voices," an eight-minute video about Video Volunteers.

   http://www.youtube.com/watch?v=O6GMsn356GA

2. Video Volunteers' IndiaUnheard program. www.indiaunheard.videovolunteers.org

   On this website, Video Volunteers is releasing one new video every day made by a poor person in India. This program, IndiaUnheard, is kind of like a grassroots Reuters. They have one person in each state of India reporting. These people are trained by VV in a quick, intense period and then they go back to their home villages and produce two videos each month. Each community correspondent talks to their mentor in the VV office who helps them develop the story. The correspondent shoots the story, and writes a "paper edit", a kind of script on paper, which they then mail to VV via postal service, which can take as many as ten days to arrive. Someone in VV edits it according to what the community producer has directed. Then it is uploaded to the web, with an accompanying article that talks about the "behind the scenes" content such as information on the producer, or challenges they faced, or impacts locally, and it is shared on Facebook, Twitter, etc. VV has given each person a USD 100 flip-cam-type camera made by Kodak, but there are interesting technical challenges. For instance, none of them has access to the Internet, so they have to snail mail their videos. And while VV cannot afford to give each person a USD 500 computer, VV can facilitate editing.

3. VV has one person now in nearly each of India's states. The link below contains one video by VV's person in Maharashtra, Mr Anand Pagare. This is Anand's first video after his training,

and it was chosen to prove that people with little education can actually produce professional quality work. http://indiaunheard.videovolunteers.org/anand/plastic-industry-toxic-concerns/. At the time of the Forum, the VV team in Goa was working with Anand to take this video to the relevant government authorities to ensure that health standards are implemented in those garbage dumps. For VV, and for the community correspondents, the purpose is not to make videos, but to create change. VV's people are video activists.

4. There are many reasons why local communities should produce their own stories and news. One is that they have access to stories that an outside and "professional" will not. Daniel, a VV correspondent from Manipur, in the northeast region of India, was the first media ever allowed inside this armed insurgent camp. His video can be found here:

   http://indiaunheard.videovolunteers.org/daniel/exclusive-militant-group-speaks-out/

   The northeast region of India, wedged between Burma, China and Bangladesh, is full of armed insurgents. Why did this group allow him in when no other media had ever been previously allowed? Because he is from the same tribe and so the group trusted him with their story.

5. The next video is by Video Volunteers correspondent Jai Kumar. In addition to working for VV, Jai runs a small primary school in his slum. This is a video on something called manual scavenging, and is quite graphic. Like many activities in India that rely on manual labour and not technology, sewers are cleaned by bare hands. However, only one caste, the so-called lowest caste, the so-called untouchables, has to do this work, which is risky and dangerous, as is visible in the video.

   http://indiaunheard.videovolunteers.org/jai/lives-wasted-in-gutters/

6. Nearly every film that has been shared in the community has had an impact. Video Volunteers correspondent Rohini is from a rural farming family in Maharashtra. She exposed the discrimination in wages paid to men and women doing day labour on other people's farms in her village – work many people in her own family do.

   http://indiaunheard.videovolunteers.org/rohini/gender-bias-in-wages-2 /

Video Volunteers would love to hear from you if you are interested in working with them to bring community media to your countries, or just in knowing more. Their contact info is info@videovolunteers.org or Jessica@videovolunteers.org.

Thematic Workshop: Greater Government Transparency and Citizen Engagement to Promote Effectiveness and Accountability in Public Service Delivery (UNDESA/ITU)

Thursday, 19 May, 11:30–13:00 / 14:45–16:15 / 16:30–18:00, Room IX

Meeting organized by the United Nations Department of Economic and Social Affairs (UNDESA) in cooperation with the International Telecommunication Union (ITU).

Proposed programme

The one-day workshop on "Government 2.0: The Next Generation in Public Service Delivery" included one plenary and three thematic sessions on selected topics on Government 2.0. Each session included presentations followed by open discussions. The sessions included the following:

- *Plenary:* Discussion on overall approaches, trends, best practices and key challenges in Government 2.0 as the next generation in public service delivery.
- *Session I:* m-Government: Benefits and Outcomes for Citizens, Government and Business.
- *Session II:* Open (Linked) Data and Social Networks Services for Public Services Delivery.
- *Session III:* Strategies for ubiquitous, inclusive, equitable and efficient public service delivery.

Background

Communities and citizens around the globe are realizing the role ICTs can play in transforming their lives. Governments, like other sectors, are looking to ICTs as a key instrument for their own transformation agendas. Whether they are seeking to create new governance processes through citizen engagement initiatives, reduce corruption by providing new levels of transparency and accountability, improve the quality of life of the chronically underserved, or contribute to the green economy by simply making traditional government services more efficient in the use of resources and reducing the carbon footprint, ICT-based strategies are recognized as a powerful agent of transformation.

The low entry cost and the ease of use of modern ICTs and mobile devices especially are removing barriers in telecommunications and empowering citizens to connect to government and public service providers in entirely new ways. The low barriers to entry present opportunities not just to extend access to existing services, but to fully reconsider the whole spectrum of public services provided to people. Reconsidering governance and service delivery, in terms of a citizenry empowered with ICTs, allows entirely new levels of civic engagement and government accountability and transparency, which in turn enhance public service delivery and the use of public resources. We must think anew about how ICTs can be used to ensure broader access to public services and information, in particular promoting inclusiveness and equity for those who do not have access to traditional channels, but who can be well served through innovative uses of ICTs. To these aims, we must develop a new understanding of how political, socio-economic and cultural contexts must be taken into account by Government 2.0 policies and strategies to be developed.

One of the current trends for electronic/mobile-government development is active and strong citizens' and businesses' involvement in public services delivery. This possibility is based on an unprecedented accessibility and openness of public administrations' data and innovative possibilities for citizens and businesses to get value from public services offered through e/m-government. However, one of the challenges for governments to is to better understand the opportunities and

challenges they face, and to count on reliable sets of indicators and methodologies to measure new emerging effects of Government 2.0 development.

The intrinsic value and the potential benefits of e/m-government seem reasonably clear, although still our collective imagination can be widened by active exchanges of ideas and experiences. What is even more challenging is to look at how governments at every level – national, regional, local – initiate, sustain and build capacities for ensuring that the potential of Government 2.0 are realized. This requires strengthening the capacity of public administrators as well as stakeholders from civil society to initiate, implement, and evaluate innovative and sustainable forms of Government 2.0 services.

The growing global consensus on the importance of e/m-government as a component of public governance by enhancing public service delivery and citizen engagement – is reflected in various resolutions and decisions of the United Nations. Notably, GA 65/141, 20 December 2010, reaffirms "the need to harness the potential of information and communications technologies to promote the achievement of the internationally agreed development goals, including the Millennium Development Goals and sustainable economic growth". Furthermore, GA A/65/L.1 underlines "Strengthening public–private partnerships in order to close the large gaps that remain in access to and affordability of ICT across countries and income groups, including by upgrading the quality and quantity of existing telecommunication infrastructure, particularly in the least developed countries, to support more modern ICT applications and greatly increase connectivity, access and investment in innovation and development and the effective use of innovative ICT applications and e-governance tools; and in this regard encouraging further operationalizing of the voluntary Digital Solidarity Fund".

Objectives

The Workshop met the following objectives:

- Strengthen the participants' capacity in policy and programme formulation, implementation and evaluation of e/m-government and e/m-public service delivery.
- Accelerate participants' learning on how ICTs are being adopted and adapted across the range of governmental, socio-economic and cultural contexts, and assess the structural policy and organizational changes needed at the national, regional, city, and local levels to develop and implement new e/m-public services.
- Understand the value created for governments, citizens, civil society, and the business community, by innovative uses of ICT in public service delivery.

Thematic Workshop: ICT and Road Safety (ITU)

Thursday, 19 May, 14:45 – 16:15, (Governing Body Room)

On 11 May 2011, UN Secretary-General Ban Ki-moon launched a global initiative to increase actions to save lives on the world's roads: the Decade of Action for Road Safety 2011-2020.[3] It is startling that some 1.3 million people are estimated to die on the world's roads each year, while as many as 50 million are injured. Although many governments already have programmes in place to reduce road deaths and injuries, the number of road fatalities is increasing, and if current trends continue, road crashes are predicted to become the fifth leading cause of death by 2030.

[3] Decade of Action website: http://www.decadeofaction.org/

In April 2010, ITU Council noted that information and communication systems, including intelligent transportation systems (ITS), provide mechanisms for vehicular and passenger safety.[4] Council also considered, however, that the proliferation of integrated in-vehicle ICTs and nomadic devices, including navigational information and electronic data communications devices, may contribute to driver distraction, and are among the leading contributors to road traffic fatalities and injuries.

This Thematic Workshop brought together advocates of road safety from intergovernmental organizations, civil society and the private sector: *Dr Tami Toroyan* (World Health Organization), *Mr Guido Fürer* (BFU – Swiss Council for Accident Prevention), *Mr Randy Ramusack* (Microsoft) and *Mr Martin Adolph* (ITU) discussed road safety and how ICTs can impact or increase road safety. Topics addressed included the global road safety status, distracted driving, advanced driver assistance systems, autonomous vehicles, as well as related standardization activities and awareness campaigns. The workshop was moderated by *Dr Reinhard Scholl* (ITU). Presentation material and biographies of the panellists are available at http://www.itu.int/en/ITU-T/techwatch/Pages/Workshop-on-ICT-and-Road-Safety.aspx.

[4] ITU Council 2010, Resolution 1318: "ITU's role in ICTs and improving road safety", http://www.itu.int/md/S10-CL-C-0087/en

Knowledge Exchanges

Knowledge Exchanges provided all participants with an opportunity to meet and discuss areas of mutual interest and concern with reference to WSIS-related activities. This attempted to capture the component of imeetyouatWSISForum. Through imeetyouatWSISForum participants were able to schedule informal meetings with each other. These meetings provide a good opportunity for knowledge exchange and partnerships.

Country Workshops

Countries provided updates and reported on implementation of the WSIS Action Lines in their respective countries. This session provided an opportunity for all participants to learn and share their country-level experiences on the implementation of the WSIS Action Lines.

Country Workshop: Implementation of WSIS Action Lines in Bangladesh

Tuesday, 17 May, 14:45–16:15, Room IV

The country session on the implementation status of the WSIS action plan in Bangladesh was held on 17 May in Room No IV. The session was moderated by Mr Mahfuzur Rahman, Additional Secretary and Executive Director of Bangladesh Computer Council. The Honourable State Minister for Science and Information Technology of the Government of the Government of Bangladesh Arch. Yeafesh Osman was present in the session as Chief Guest. The country status was presented by Mr Munir Hasan, consultant of the Ministry of Science and ICT, Government of Bangladesh. Mr Hasan, in his presentation, described the achievements of Bangladesh towards the target set in the WSIS Plan of Action. He informed about the pledge of the "Digital Bangladesh by 2021", a vision of inclusive development using modern technology.

He pointed out that the country achieved good progress in connectivity through the 98 per cent coverage of mobile phones. Some of the citizen's services are now offered through mobile phones, which included but were not limited to the delivery of the public examinations, results, registration of university admissions, permits of selling sugarcane to sugar mills, news alerts, disaster warnings,

etc. The newly adopted national education policy gave proper emphasis on ICT-based education, and the Government has introduced a programme to establish computer labs in the most remote parts of the country. Learning English through mobile phones has been gaining some momentum in the country while farmers are now getting agricultural information through mobile phones. A Union Information and Service Centre (UISC) in each Union (the lowest administrative unit) was established to bring e-services to villages. The Government has also taken the initiative to establish government-wide networks and to establish national data centres for hosted services. However, the country faces challenges because of the lack of adequate national ICT capacity both in infrastructure and in human resources. International experience-sharing and technical cooperation would enhance the nation's efforts towards achieving its cherished goal.

After the presentation, the Honourable State Minister answered various questions from the audience. He mentioned that the Government, under the leadership of its Prime Minister Sheikh Hasina, is committed to the upliftment and development of the poor and trying to use its limited resources for all out development. He expressed his belief that the Bengali Nation will overcome the challenges it is facing now and eventually come up as a middle-income country before its 50th birthday in 2021.

Representatives from ITU, Global GSM forum, FAO and WIPO, as well as other country representatives attended the session.

The session was concluded by a vote of thanks from the moderator.

Country Workshop: Initiatives of Democratic Republic of the Congo for the Information Society

Thursday, 19 May, 14:00–14:30, Room X

The Workshop featured one panellist, Mr Fundi Serge, ICT Study Leader at the ITC Unit Department of Posts, Telephones and Telecommunications. , Congo. He spoke about the evolution of the telecom sector and ICTs in the Democratic Republic of the Congo. Six mobile operators (GSM) are sharing the market, deployed over a large area of the national territory, and three fixed telephony operators are on the market, especially in the capital and the main citys of the country. Fifteen ISPs, 150 FM radio diffusers and 50 TV channels are deployed in the country. Mr Serge highlighted the difficulties that the country faced after several wars which led to the destruction of the ICT infrastructure.

Mr Serge reminded us that at the Geneva Summit of 2003, the Government of the Democratic Republic of the Congo took the engagement to implicate itself in the Information Society. In this regard the Government dedicated its efforts to reduce the lack of basic infrastructure by the construction of a national optical fibre network. The current national optical fibre network, financed by the Chinese bank EXIM BANK, connected the "Kinshasa – Muanda, 650 km". The intention is to continue the country's connection on the ground line "Kinshasa – Muanda, 650 km". The wire connection has been realized by the China Company International Telecommunication with a ten Gbps capacity. The Kinshasa – Muanda link will be run as soon as a terrestrial connection is constructed.

Mr Serge also spoke about the NGN & CDMA/WLL metropolitan network, installed as a complement to the fibre-optic ring of Kinshasa, built by the Société HUAWEI (currently in a testing period). This network will allow the offering of services (VOIP/data/multimedia) to Kinshasa users, and create an important subscribers network for the Congolese Society of Posts and Telecommunications, which is estimated to have 150,000 subscribers at the launching.

There are many ICT projects in the Democratic Republic of the Congo, notably the computerization project of the state public services (currently discussed with partners), and the network project of

the Kinshasa Universities (UniversiTic), which has already been achieved. There is also a project to implant communitarian telecentres (waiting for funds), and finally the PANAFRICAN Network project, which is currently in process.

At the end of the presentation, the attendants asked many regulatory and technical questions in order to help the DRC to have a better understanding of its future ICT development. The Congolese specialists explained that they were open to any kind of suggestion and contribution. They invited the participants to email them with suggestions if they wanted to.

To conclude, the speaker thanked the members of the audience for their attention, and invited them to continue to get engaged in the WSIS orientation in their respective countries, in order to reduce the digital gap and alleviate poverty, especially in Africa. Finally, he invited the information society stakeholders to invest in the DRC, tremendous development potential in the next years.

Country Workshop: Implementation of WSIS Action Lines in India

Monday, 16 May, 14:45–16:15, Room XI

Brief on Presentations made during WSIS 2011

It was indeed a great honour and privilege for India to share the advances it has made on the WSIS Action Lines and the progress made in leveraging ICTs for mitigating poverty and moving towards the Millennium Development Goals. The sharing of experiences on WSIS Action Lines and on using ICTs for MDGs by various countries has greatly benefitted India and the deliberations during the WSIS 2011 Forum surely helped all participants to evolve a common strategy for common challenges across nations and cultures. Even though India has made giant strides in the field of IT and is known the world over for its IT capabilities, the country needs to take certain policy-level initiatives which will ensure inclusive growth and empowerment in order to ensure that the benefits of ICTs reach everyone and empowers them with knowledge and information.

The Indian economy is one of the fastest growing economies. In terms of purchasing power parity, it ranks the fourth largest in the world. With more than eight per cent growth of GDP in last five years despite the global downturn, the Indian economy has displayed its strength and potential to generate enough resources to improve the quality of life of the average Indian. Progressive liberalization of government policies, rapidly expanding services sector, FDI growth, rising global competitiveness and increasing domestic demand have all contributed to a strong economy. By 2020, the economy is expected to even quadruple its current size.

However, what is even more important is for the fruits of higher economic growth to be equitably distributed among 1.2 billion Indians. On one hand there are a number of entrepreneurs who are on the Forbes list of successful entrepreneurs, but on the other hand a sizable part of the population struggles with poverty. While celebrating entrepreneurial success of the country, it must not be forgotten that strong governance is needed to ensure “inclusive growth”, especially for the most disadvantaged sections of society.

India seeks to achieve these objectives by using ICTs to touch and transform the lives of its citizens. The endeavour is to not only promote the growth of IT Industry, but to use ICTs to empower citizens and ensure transparency and accountability in governance through reliable and efficient delivery of public services. The key pillars through which the above objectives are sought to be attained include:

- **e-Government:** Providing e-infrastructure for delivery of e-services
- **e-Innovation / R & D:** Enabling creation of Innovation / R&D Infrastructure in emerging areas of ICT&E

- **e-Learning:** Providing support for development of e-Skills and Knowledge network
- **e-Security:** Securing India's cyberspace
- **e-Inclusion:** Promoting the use of ICTs for more inclusive growth.

While e-Government is primarily seen as a means to improve efficiencies in the internal workings of the government, the driving force behind various e-Governance initiatives in India is to improve governance. India's policy-makers have a vision of inclusive growth, reducing poverty and bridging the various divides that still continue to fragment society. This vision can only be achieved if there is a significant improvement in the quality of governance. If attributes of good governance are transparency, efficiency, responsiveness, cost effectiveness and accountability, e-Governance is the means to attain these attributers through the use of technology and process re-engineering.

It is in this context, the **National e-Governance Plan (NeGP) of the Government of India was launched by the Government in May 2006 with a vision to "***Make all government services accessible to the common man in his locality, throughout common service delivery outlets and ensure efficiency, transparency and reliability of such services at affordable costs to realize the basic needs of the common man".* The National e-Governance Plan has been formulated to provide e-services to citizens belonging to all sections of society, at their doorsteps, in a cost-effective manner. Although several "computerization" initiatives were taken up in the country in the past, the National e-Governance Plan has one major difference from the previous "computerization" initiatives: the focus on delivery of services to citizens. The Plan lays strong emphasis on outputs and outcomes, services and service levels. This marks an enormous shift from the earlier paradigm of a more input-related or technology-oriented approach to a more citizen-centric approach.

It has been nearly five years since the approval of the NeGP and a long journey has been made towards achieving the vision of the NeGP. The path has not been easy; it has been dotted with many challenges – political, administrative and technological – some of which have been overcome successfully.

Perhaps the most important challenge towards enabling a solution on such a large scale has been to provide access: access to broadband, access to technology, access to content. In this regard, providing the necessary infrastructure has been critical to enable access to services, especially in remote areas. Considering the challenges of low literacy levels and low ownership of broadband and personal computing devices, the NeGP lays emphasis on "access" to web-enabled services through common internet kiosks on a public–private partnership (PPP) model.

The Common Services Centre (CSC) scheme is perhaps the largest internet kiosk initiative in the world. These centres are envisaged as the front-end delivery points for government, private and social services and provide access to education, telemedicine, public services, remote banking and entertainment to hitherto unreached sections of society. These broadband- and Internet-enabled CSCs will provide a much needed connectivity to the networked world that exists beyond the realm of villages, and will significantly influence day-to-day lives. The CSCs are envisaged as an important catalyst/agent in the economic development process that would help in giving a boost to the rural economy, where nearly 70 per cent of the population lives. Besides providing access to the Government's web-enabled services, these centres are also providing a livelihood to a large number of rural people as these centres are set up and managed by local rural entrepreneurs on a PPP model. It is believed that this single initiative will unlock the immense economic potential laying latent in the rural India. It is also envisaged to connect all *panchayats* of the country by optical fibre networks.

The most common service being offered in these centres today is **e-learning**. In addition to teaching computer skills, these centres can play a great role in providing **quality education** in rural areas

where teachers are not present. Similarly these centres can also play a key role in providing basic health-care services in rural areas. Telemedicine solutions have a huge potential in ensuring access to good quality and cost-efficient **health services** for all. It is also planned to use ICTs to upgrade skills and impart new skills so as to improve the employability of the rural population. ICTs are also being leveraged for enhancing productivity and incomes in rural areas, particularly for **the agriculture and related sectors**.

Another challenge that India faces is the issue of **financial inclusion**. Large sections of society in rural areas have access neither to banks nor to credit, rendering them unable to leverage financial instruments for their economic growth. In order to mitigate this challenge, the Working Group of Reserve Bank of India has allowed CSCs, amongst others, to work as banking correspondents on a pilot basis.

The Reserve Bank of India is of the opinion that the only way to bridge this financial divide is to use technology. Today, after much effort, there is a robust chain of outlets for the banks to use for financial inclusion. It is the endeavour of the Department of Information and Communication Technology to ensure that all rural CSCs become business correspondents of banks and ensure delivery of financial services, NREGS wage payments and government welfare payments to the beneficiaries in the most remote parts of the country.

Another significant development has been the explosive growth of mobile telephony in the country. The Government of India has decided to leverage the outreach enabled by mobile devices and is currently developing an **m-Governance** framework which will enable delivery of select critical public services over mobile and other hand-held devices.

The Government of India believes that a citizen-centric government is something much more fundamental than selected departments providing services to citizens. It involves rethinking the entire service delivery system – prioritizing areas important to citizens and then associating all agencies across all levels of government to provide services and leverage e-Governance tools accordingly. As compared to small homogeneous countries, this is a huge challenge in countries like India which have a multi-tiered administrative and political set-up. There are over 2,50,000 local self-governing, democratically elected institutions called Panchayats at the village level. There are over 6,000 municipalities and 600 districts.

In this context, the Electronic Service Delivery Act has been created, which will mandate provisioning of all public services of the Central Government Ministries/Departments through electronic means only, thereby abolishing manual delivery of such services in a phased manner. The draft act is already in the public domain and there have been very significant inputs and suggestions for the same.

With the enactment of the Electronic Service Delivery Law, the possibility of e-Government projects becoming pervasive in all domains of public services is increasingly becoming a reality. E-Governance projects are characterized by large outlays and often implemented through public–private partnerships. Given the limited penetration of PCs and broadband, challenges of basic literacy, computer literacy and English literacy – which is the current currency of internet – it is important to engage with identified and potential service seekers and other stakeholders of e-Governance projects. In order to meaningfully engage with citizens, a detailed study of needs, stakeholders and frequency must be undertaken. The engagement must be done in a planned manner with responsibility for the same assigned to a specific team. Towards this objective, India is evolving a citizen engagement framework which ensures active involvement of Citizens in e-Governance projects right from the conceptualization stage. This also includes leveraging social media and new media for citizen engagement.

The challenges to governance in the region are diverse and multifaceted. Such challenges include providing quality education and health to the common citizen, effective implementation of public service programmes, fighting corruption, and the dissemination of necessary information to the common citizen in the most remote corner of the country.

There are two common issues which require deliberation by practitioners to promote e-Governance. First and foremost is the need to fast track e-Governance implementations by cutting down the time spent in lengthy procurement cycles and implementation cycles. This is more important in IT projects because of the rapid obsolescence rate of technology. New technologies such as cloud computing will make it possible to provide faster implementations. In India, the Government is exploring the possibility of creating Government-wide platforms to be used by multiple departments across all tiers of the Government.

The other key challenge is to build institutional capacities. e-Governance projects are inherently process transformation and change management projects in which technology plays a very small though a very critical role. There are enormous gaps in the ability to internally conceptualize and implement large e-Government projects. While initially these gaps may be filled through short-term measures of hiring professionals from industry, from a long-term perspective, capacity must be built internally by imparting appropriate training to civil servants, engineers and elected functionaries, at all levels of government through skill-building programmes.

With these planned initiatives, India is truly embarking on its *Journey from Knowledge Economy to Inclusive Information Society.*

Country Workshop: e.Oman – a strategy that transformed the society with e-skilled in less than five years

Monday, 16 May, 14:45–16:15, Room V

The Information Technology Authority (ITA) recently represented Oman at the World Summit on the Information Society (WSIS) 2011 in Geneva, Switzerland, on the 16th and 17th of May 2011. Hosted by the International Telecommunications Union (ITU), the ITA participated in a number of activities at the 2011 WSIS Forum, which was conducted at the Conference Centre of the International Labour Organization (ILO). WSIS 2011 is the world's largest annual gathering of the world's 'ICT for development' community, including UN agencies, governments, and civil society and ICT industry representatives.

First on the agenda, the ITA conducted a Country Workshop, moderated by Mr Talal Al Rahbi, Deputy CEO of Operations at ITA, which included a presentation on ITA activities. Following this presentation, the ITA facilitated two Thematic Workshops: one which was presented by the Ministry of Health (MoH), and a second one by the Ministry of Civil Services (MoCS). In addition to Mr Al Rahbi, the Oman delegation attending this year's WSIS Forum included H.E. Mr Yahya Salim Al-Wahaibi, Ambassador, and Permanent Representative of The Sultanate Oman to the United Nations & World Trade Organization (WTO), and Ms Shariffa Al Meskary, Director of International Relations and Information at ITA, among other representatives of ITA, the MoH and the MoCS. H.E. Dr Ahmed bin Mohammed bin Obaid Al Sa'eedi, Minister of Health, already in Geneva attending a World Health Organization (WHO) meeting, attended the MoH Thematic Workshop.

In his opening speech in the Country Workshop on Oman, HE Yahya Salim Al-Wahaibi, Ambassador, and Permanent Representative of The Sultanate Oman to the United Nations & World Trade Organization (WTO) said, "Under the guidance of His Majesty Sultan Qaboos bin Said, the Sultanate of Oman has been transformed into a modern state with a stable and strong growing economy and

increasing economic opportunities. With the goal of diversification of the economy and the transformation of the sultanate into a knowledge-based society and the establishment of the TRA and ITA, the ICT sectors have witnessed rapid progress in recent years. The Digital Oman strategy, or e.Oman for short, has laid the vision and the road map for the realization of an information society where the government delivers customer-centric services, harnessing modern technology."

He continued, "e.Oman comprises a wide range of initiatives and services designed and created to improve the efficiency of government services, and empower individuals with skills and knowledge to meet society's needs and expectations, and to direct Oman towards becoming a knowledge-based economy. In this regard, Oman's Information Technology Authority, Ministry of Education, Ministry of Civil Services and the National Association of Cancer Awareness have recently been named winners of the 2011 UN Public Services Award (UNPSA). The ITA was a first-place winner with its transformation of society through the e.Oman communication strategy in the category of advancing knowledge management in government. This achievement is a testament to the Sultanate's unwavering desire to excel at providing exceptional public service. We are pleased to be part of the WSIS Forum 2011, which is brings together governments, private sector, international organizations, civil society, academia and other individuals from all over the world. In conclusion, I am pleased to extend my gratitude to ITU as well as to all those who contributed in the preparation of the workshops."

WSIS evolved as a means of recognizing the importance of the revolution in ICTs as a means of shaping the future of the world. World leaders decided that a global vision and a global dialogue were needed to build the framework of an all-inclusive and equitable Information Society. Thus, WSIS was born. The goal of WSIS is to achieve a common vision, desire and commitment to build a citizen-centric, inclusive and development-oriented Information Society where everyone can create, access, utilize and share information. Begun as a unique two-phase UN summit aimed at addressing the issues raised by ICTs through a structured and inclusive approach at the national, regional and international levels, the first phase of the Summit was hosted by ITU in December 2003, and Tunisia hosted the second phase in Tunis in November 2005. The Tunis Agenda for the Information Society states that the WSIS implementation mechanism at the international level should be organized taking into account the themes and Action Lines in the Geneva Plan of Action, and moderated or facilitated by UN agencies when appropriate.

The annual WSIS Forum builds upon the tradition of annual follow-up meetings for the implementation of WSIS outcomes, which are normally scheduled in May, to coincide with celebrations of the World Telecommunication and Information Society Day (WTISD) to mark ITU's founding in 1865. The Forum provides opportunities to network and participate in multistakeholder discussions and consultations on WSIS implementation. These include meetings for facilitators, thematic workshops and speed exchanges on critical issues. Contributing to this year's WSIS Forum, Oman is one of 20 ICT ministries from around the world presenting their achievements in workshops and at meetings, with the total number of participants exceeding 1,400.

This year, e.Oman was proud to sponsor the series of workshops being conducted at the Forum. In the Country Workshop about Oman, WSIS Forum participants learned how, in less than forty years, the Sultanate has gone from an era of widespread illiteracy to a high-tech age where the youth receive ICT education at university level. Oman now offers digital solutions throughout society while simultaneously raising awareness, as well as building ICT capacity and fostering e-skills in its population to reap the benefits of new technology. It aims to create an effective government–community–citizen infrastructure that provides better public services to its people. The workshop focused on two main points, namely: how to develop and promote programmes in order to eradicate

illiteracy using ICTs at a national level; and, how to promote e-literacy skills for all by designing and offering courses of public administration.

Mr Shariffa Al Meskary, Director of International Relations and Information at ITA, a member of the Oman delegation, offered the following statement: "Oman is in Geneva showcasing its best practices in information awareness, ICT capacity building, eHealth services and transparency in public services recruitment. This year's WSIS Forum is about discussing the road map to 2015 and how ready countries are to date, complying with the 11 Action Lines of WSIS. The e.Oman strategy/vision is in line with the 11 Action Lines of the WSIS, e.g. e-Health, e-Education, infrastructure and educating society using ICTs, including people with disabilities by training them in using ICT tools which can assist them with their disabilities. Oman is looking forward to covering all the 11 Action Lines including the eight Millennium Development Goals which are also included in WSIS."

The ITA, the organization responsible for implementing e.Oman, also facilitated two Thematic Workshops. The first workshop presented a synopsis of Oman's Ministry of Health's Al Shifa Hospital Information System, which notably won a prestigious UNPSA in 2010 in the category of "Advancing Knowledge Management in Government". Al Shifa, a comprehensive health-care information management system, is a complete solution developed to electronically manage details about patients' health-care information, in addition to maintaining non-medical systems such as blood banks, pharmacy supplies, X-ray departments and emergency medical stores. Accessible throughout the Sultanate, the system essentially eliminates the old-fashioned pen and paper system as a means of intra-departmental communication.

The second workshop focused on Oman's Ministry of Civil Service's Central Recruiting System, which recently won another UNPSA in the 2011 competition in the category of 'Preventing and combating corruption in the public service' category. Development and implementation of the new Central Recruiting System using SMS improved recruitment for the 35 ministries and government units under the Civil Service Law. Job seekers can now apply for civil service jobs by sending an SMS with their manpower registration number and the corresponding job identification number published in the advertisements. Through integration with the Ministry of Manpower's National Manpower System, the system validates the applicant's data in seconds. The job seekers can apply for jobs in the civil service at anytime, anywhere, eliminating the need to travel to the capital just to submit applications and sit for entrance exams. The system electronically verifies applicants' qualifications; administers computer-based examinations; and, electronically grades exams, immediately producing results. From an initial 11-month time frame, the whole process is shortened to less than a month and, less than a week from testing to nomination.

Presenting Oman in such a prestigious setting as the WSIS Forum 2011, held at the ITU headquarters in Geneva, gives credence to Oman's focus and great attention paid to its implementation of the WSIS Action Lines. It also gives the Sultanate an opportunity to share its achievements with respect to harnessing ICTs in the world arena. Continuing in the global perspective, Oman also recognized the World Telecommunication and Information Society Day (WTISD) 2011 on 17 May with the rest of the world in Geneva as part of WSIS 2011 activities. The Sultanate will host its own celebrations of WTISD 2011 on Saturday, 21 May 2011, at the Grand Hyatt Hotel in Muscat, starting at 10:00.

Country Workshop: Sudan and Sudan Telecentres' role in WSIS implementation (Sudan)

Tuesday, 17 May, 11:30–13:00, Room II

The Workshop was moderated by Mr Mohamed Al-Mortada, the minster in mission of Sudan, and there were three panellists:

1) Eng. Mubarak Mohamed Ahmed, (NIC government), the Director General of Sudan National Information Centre. He spoke about the role of the Ministry of Communication and Information Technology (MCIT) in the ICT e-infrastructure in Sudan, as well as policy and legislation. He briefed the audience on the universal fund and its financial resources, how Sudan spends this money, and how it chose the privatization of the ICT sector and the PPP model of governing the sector. There were three mobile companies and two fixed-line companies with more than 20,000 km of fibre optic cable and 18 million active subscribers as of 2010. Many ICT projects have been implemented in Sudan: the National Data Center Project (www.nic.gov.sd), the Sudan e-Government Portal Project (Sudan Gate) (www.sudan.sd), the e-Health Project (www.seham.sd), the Digital Certificate Project (Draft e-authentication), the Universal Number Project, the Higher Education Project. (www.mohe.gov.sd), the Sudanese Computer driving License Certificate Project, the Free/Open Source Software Project, the Capacity Building Project. (Training Center of Information Technology and Communications), the PC for Every Family Project, the Computer Lab for Every Secondary School project., the E-community Service (Tele-centers) Project, the States Information System Project (www.statedb.gov.sd) and the GIS Project (www.gisc.gov.sd). Eng. Ahmed outlined the challenges facing these projects, and how these projects can be replicated sustainably to bridge the digital gap.

2) Dr Abdelmageed Mohamed, Chair of Digital City of Darfur (DDCO – NGO founded in January 2011) spoke about ICT penetration highlights, the importance of PPP in connecting rural areas and the expected potential of DDCO in Darfur. As an ICT expert, he talked about the telecommunication companies, the fibre optic network and internet penetration in Sudan. There are three mobile companies and two fixed-line companies; 2,500 towns and villages are covered by telecom services; all banks are connected through a national data network; and 50 per cent of cities are covered by fibre optic network (20,000 km). He spoke about the role of NGOs in PPP and the next generation rural ICT platform.

3) The last speaker was Eng. Ahmed Mahmoud M. Eisa, Chair of Gedaref Digital City Organization (GDCO) the winner of the Information for Development Award i4d in India for three successive years (2007, 2008, 2009). It is founded in partnership with the Digital City of Eindhoven DSE and more than 750 computers were donated. It is the founder of the first Telecentre Academy in Africa and the Middle East and the thirteenth in world (Sudan National Telecentre Academy – SuNTA). He spoke about the role of the telecentre.org network in the implementation of WSIS Action Lines and the 8 MDGs. He also spoke about the innovative Global Telecentre Academy (GTA) and its role in training, capacity building and skill development for telecentre mangers and operators, the campaign of training one million women and one million telecentre mangers, operators and community leaders. He outlined the PPP projects in GDCO, specifically e-agriculture, e-education and Gedaref University Support, out of school children e-learning project, telemedicine. He presented a short film about the GDCO project and how they are on the right track of the WSIS Action Lines and have achieved part of the eight MDGs .

Country Workshop: Implementation of WSIS Action Lines in UAE

Monday, 16 May, 16:30–18:00, Room XI

The United Arab Emirates (UAE) was the Strategic Partner of WSIS Forum 2011. UAE organized several Thematic Workshops, a publication release, a brief and had an exhibition. More information available on page 146.

The TRA, representing the UAE attended the WSIS Forum 2011. The first day of the Forum included a High-Level Dialogue in which specific topics were addressed by panel members as well as by the audience. This year the topics were: Echo of Silence and the Cooperation between public– private partnerships (PPP). The goal of WSIS is to work together in multistakeholder set ups to achieve a common vision and commitment by creating people focused, development-oriented Information Society.

The high-level dialogue was followed by the UAE WSIS report which provided an overview of the industry. WSIS holds country-specific workshops in order to aid countries in implementing key Action Lines of the WSIS. These workshops are designed to allow attendees to learn and share country-specific experiences. Topics addressed in the UAE Country Workshop included: UAE WSIS Committee Achievement, Abu Dhabi e-strategy program, .emarat, IXP project, and Spectrum management and radio services. The Workshop was followed by a reception which was attended by H.E. Mr Mohamed Nasser Al Ghanim, TRA Director-General, Dr Hamadoun Touré, and H.E. Ambassador Obaid Salem Al Zaabi, Permanent Representative of the United Arab Emirates to the United Nations in Geneva.

The second day of the Forum held the Thematic Workshop “Abu Dhabi e-government program”, which was moderated by Mr Suleman Bakhsh, Senior ICT Analyst. This was followed by workshops on the Abu Dhabi Green IT Strategy and the Abu Dhabi Egov Contact Center. A briefing session covering the UAE ICT Discovery (UAE Sponsoring an ICT Museum at ITU) followed. The final workshop of the day was the Thematic Workshop with the following agenda: UAE Domain Name—Changing the Landscape, .ae DA history, background, and Technical, Business, Policy and Awareness.

The final two days of the summit held high-level dialogues catering to the topics: Innovation for digital inclusion (ADSIC was on the panel) and Cyber Security. As the industry undergoes fast changes, innovative technologies can bridge the gap between countries that are capitalizing on the digital age and those countries which are still yet to emerge. This discussion talked about taking the “digital divide” and turning it into a “digital opportunity.”

The final high level discussion provided insight on Confidence and Security in Cyberspace. It was an interactive panel discussion including the audience. ICT services are hindered by the growing cyber threats and cybercrime, from financial and identity related frauds. Panellists introduced challenges and solutions in order to build a safer interconnected world as well as best practices and actions that make difference in the cyberspace.

Briefings

Brief: Broadband Commission

Monday, 16 May, 14:00–14:30 Room V

The Broadband Commission for Digital Development was established in May 2010, five years after the World Summit on the Information Society, and ten years after the launch of the Millennium Development Goals. Expanding broadband access in every country is key to accelerating the attainment of those goals by the target date of 2015. Accordingly, the Broadband Commission will define practical ways in which countries, at all stages of development, can achieve this, in cooperation with the private sector.

The Commission represents a joint venture between the ITU and UNESCO, a relationship which reflects the fact that connectivity and content are essentially two sides of the same coin: there's no point in having one without the other. The Commissioners represent governments from around the world, relevant industries, international agencies, and organizations concerned with development. They share the vision that high-speed, high-capacity broadband connections to the Internet are an essential element in modern society, with wide economic and social benefits.

The work of the Commission to date has taken the form of two reports, which offer insight into the current state of global connectivity. In 2011, the Commission has also split into thematic Working Groups, concentrating on issues ranging from Climate Change to Youth. These groups will propose concrete steps moving forward, and have been asked to report back to the Commission in the final quarter of 2011.

To find out more, or to contribute to the work of the Broadband Commission visit www.broadbandcommission.org or email us at bbcommission@itu.int.

Brief: Connectivity Scorecard 2011

Monday, 16 May, 14:00–14:30 Room II

Nokia Siemens Networks' Connectivity Scorecard is a global ICT index – the first of its kind to rank 50 countries not only on their deployment of ICT infrastructure but also to measure the extent to which public sector, businesses and consumers make use of connectivity technologies to enhance social and economic prosperity, so called "useful connectivity".

Connectivity Scorecard 2011 highlights the continued need for investment in ICTs to stimulate a return to economic growth. Connectivity Scorecard 2011 is the fourth annual update of the index.

Brief: Girls in ICT Day

Monday, 16 May, 14:00–14:30 Room IX

Witnet on WSIS

Briefing session on girls in ICT Day

- Introduction on establishing the global Girls in ICT Day
  - Leaky Pipeline; PP 2011; WITNET and ITU
- 28 April 2011: stories from around the world
  - Statistical data; examples of denoting the day
- Girls Day in Serbia (photos and video presentation, website)
  - 270 girls from around Serbia visited Belgrade, shadowed women employed in ICT companies, government institutions and universities. The day also contained the following events: award celebration for the best ideas of the use of ICTs; career speed meetings with heads of ICT companies in Serbia; and teleconferencing with other institutions denoting Girls Day.
- Promotion of future celebrations
  - Awareness-raising; institutional capacity building; public–private partnerships

Brief: The ICT Discovery (UAE)

Tuesday, 17 May, 14:00–14:30 Room XI

The ICT Discovery

In line with WSIS Action Line C3: "Access to Information and Knowledge," the Telecommunications Regulatory Authority (TRA) and the UAE Government have partnered with ITU to construct a state-of-the-art museum (known as the ICT Discovery) at ITU Headquarters in Geneva. The ICT Discovery will showcase the proud history of ICTs and provide a preview of prospective ICT artefacts.

The Government of the UAE and the TRA has kindly offered a sum of USD 2 million for the design and construction of the ICT Discovery which will be open, free of charge, to ITU delegates, visiting experts and the general public. The ICT Discovery will strive to inform visitors about the rich history and exciting developments in ICTs, featuring interactive exhibits that showcase cutting-edge ICT systems and their role in transforming the way we live. It will also highlight ITU's role in helping to "connect the world".

Brief: Development of the knowledge base for vulnerable children online (TaC)

Tuesday, 17 May, 14:00–14:30 Room IX

The vulnerable population is confronted with problems, needs and very particular specifics with regard to ICT; we refer here to the paragraph 13 of the Geneva Declaration of Principles.

Vulnerable young people represent an important percentage of Internet and ICT users of their group of society; in this regard they have very specific concerns (ref. to par. 90(n) of the Tunis Agenda for the Information Society).

When referring to victims of online risks, research very often makes a reference to the vulnerable children and young people. Recent surveys show that cyberbullying and online grooming is of increased concern for certain "high risk" groups of children and young people.[5]

They face more difficulties and are more fragile with regard to Internet dangers, as they do not always have access to information on how to avoid cyberdangers or how to react. Taking into account their fragility, attention must be focused on the way to give them access to this type of information in language which is comprehensible to them.

The knowledge base for vulnerable children project aims to establish the knowledge base for dealing adequately with existing and emerging uses of the online environment for child protection services and other professionals working with vulnerable children.

TaC – ***Together against Cybercrime*** is a non-profit organization against cybercrime. The main goal of this organization is to fight e-crimes at an individual level. The TaC office is based in Strasbourg (France).

Brief: Wireless Networking Training: The ICTP Strategy

Tuesday, 17 May, 14:00–14:30, Governing Body Room

The Abdus Salam International Centre for Theoretical Physics (ICTP) in Trieste, Italy, has been playing a leading role in the field of training in ICTs for scientific institutions. Since initial efforts began more than 17 years ago, ICTP has held some 40 training activities that have attracted more than 1,600 participants from all over the world. A close collaboration with the International Telecommunication Union's Development Sector (ITU-D) has been developed.

A recent ICTP–ITU project has contributed to developing networks of expertise by transferring low-cost wireless technology know-how to African training and/or educational institutions. This effort involved the establishment of training centres on wireless technologies at selected African educational institutions, training of trainers, provision of training materials (e.g. lab bundles), and the launching of specific training opportunities.

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[5] For cyberbullying see Beatbullying, Virtual violence: Protecting Children from cyberbullying London 2009, page 21 and onwards:
http://www.beatbullying.org/pdfs/Virtual%20Violence%20-%20Protecting%20Children%20from%20Cyberbullying.pdf
For grooming see Anders Nyman, Abused Online, 2008:
http://www.childcentre.info/projects/internet/dbaFile15618.pdf

Brief: International Telecommunication Regulations 2012

Wednesday, 18 May, 14:00–14:30 Room XI

This briefing was given by Mr Alexander Ntoko, Head of the Corporate Strategy Division, ITU. The session started with a presentation depicting the evolution of ICTs and the history of the International Telecommunication Regulations (ITRs).

Mr Ntoko shared with the group how, from 1865 to present day, ITU has been providing the general principles for the provision and operation of international telecommunications which adopt the form of treaty-level international regulations. The ITRs succeeded the telegraph and telephone regulations and, in 1988, a new treaty was adopted which outlines, *inter alia*, the respective responsibilities of governments and operating agencies in an industry that had previously largely been government-owned or controlled.

The next part of the presentation highlighted some of the influences the ITRs have had on the ICT sector. They have laid out the framework for the international network which provides international services, safety of life and priority of communications, accounting and charging of international services. The ITRs set the stage for increased competition and reduced accounting rates. So with all this success, why is there a need to rejuvenate the ITRs?

Mr Ntoko demonstrated how the ICT sector has experienced dramatic changes since the adoption of the treaty. New technologies have entered onto the scene, shifting the sources of revenue from fixed to mobile and voice to data. Alongside these new innovations have come new challenges that need to be addressed at the global level: access to ICTS for all needs to be ensured and confidence and security in the use of ICTs needs to be built. The revision of the ITRs has been under discussion since 1998 and resolutions of Plenipotentiary Conferences have established expert groups to further determine the way forward.

Steady progress has been made in the preparatory process towards the 2012 World Conference on International Telecommunications (WCIT-12), starting with Council Resolution 1312 which created a council working group (CWG-WCIT-12) to prepare for this conference. The dates and agenda for WCIT-12 have been defined by Council Resolution 1317 and confirmed by PP10 Resolution 171. A mechanism is already in place for the success of the conference and review of the treaty. All regional groups are closely involved in the preparatory process. The Chairman of CWG-WCIT-12 was present at the briefing and was introduced. The website for CWG-WCIT-12 was also shared for those interested in further information on the group's work.

A question-and-answer session followed the briefing on ITRs, whereby Mr Ntoko emphasized that the ITRs deal with access to technology, the network and services, not content. There are some terms that need clarification such as Quality of Service and Net Neutrality, both of which mean different things to different people. There are new players in the ICT industry and a minimum code of conduct is necessary. An agreement based on the basic elements of predictability and sustainability would be needed, while not inhibiting growth.

Questions arose from participants regarding the involvement of some key developed countries as well as concern over accounting and charging methods. Mr Ntoko confirmed the involvement of all countries as part of ITU's consensus decision-making process. As for charging methods, he indicated that specificities would be avoided and general principles would likely govern the treaty. Another area of concern was whether content would be included in the treaty. The response was that legal versus illegal content is usually subject to national laws.

The session closed by making reference to CWG-WCIT-12 and its website: http://www.itu.int/council/groups/cwg-wcit12/index.html. Participants were invited to review the contributions and work of the council working group as well as submit their own contributions.

Brief: UNESCO World Press Freedom Day

Wednesday, 18 May, 14:00–14:30 Room IV

UNESCO hosted the briefing session on WPFD on the afternoon of 18 May 2011 at the WSIS Forum 2011. UNESCO representative gave a 15-minute presentation of WPFD activities and UNESCO research "Freedom of Connection: Freedom of Expression".

The major WPFD event in 2011 in Washington D.C. was co-organized by UNESCO with the U.S. State Department and over 20 civil society partners. The conference focused on the theme "21st Century Media: New Frontiers, New Barriers" and explored the growing role of the internet, the emergence of new media and the rise in social networking in recent years. On 4 May UNESCO and UN DPI organized an event in UN HQ marking the 20th anniversary of the Windhoek Declaration, which laid the grounds for WPFD celebrations. Several dozen other conferences for press freedom took place on all continents.

In parallel with its global advocacy initiatives, UNESCO is working on a publication on Internet freedom titled "Freedom of Connection – Freedom of Expression: The Changing Legal and Regulatory Ecology Shaping the Internet". The publication pioneered in examining the complex situation of freedom of expression on the Internet in a broad context of policy and practice around the globe, and was officially launched at UNESCO Headquarters in Paris on 30 May 2011.

Contact:

Ms Xianhong Hu (x.hu@unesco.org), Communication and Information Sector, UNESCO.

Brief: imeetyouatWSISForum

Wednesday, 18 May, 14:00–14:30 Room IX

The imeetyouatWSISForum provided all registered on-site participants of the WSIS Forum 2011 with an online social networking community experience. This social networking community was powered by Pathable. This is a new component of the WSIS Forum that was especially designed for the Forum's onsite participants.

The goal of this component was to help people meet during the WSIS Forum 2011, but also create a social experience at the Forum. Another expectation was to get feedback from the ground in order to improve both the participants' experience and involvement and to create an online discussion of WSIS topics.

Current Stats

Profiles

Total accounts	585
Total signed-in at least once	258
Total visible	257

Activity

Private messages	116
Public messages	73

Schedule

Sessions added to schedules	845
Total sessions	105
Attendees registered for sessions	51
Schedules printed	40
Attendees registered for private meetings	15
Meeting invitations accepted	15
Schedules exported	12
Private meetings	12
Meeting invitations without response	8

Publications

Publication: United Arab Emirates WSIS Committee Report 2010-2011

Monday, 16 May, 14:00–14:30 Room XI

The United Arab Emirates WSIS Committee Report 2010-2011 was launched by Telecommunications Regulatory Authority (TRA) during the WSIS Forum 2011. The report highlighted the efforts made by the UAE in the quest to implement WSIS Action Lines within the country. H.E. Mr Mohamed Nasser Al Ghanim, TRA Director-General, spoke in his address at the public release of the report about the UAE's progress toward achieving WSIS goals, and the vital role that the UAE National Committee plays by creating an ambitious plan to fulfil WSIS recommendations before 2015.

The United Arab Emirates WSIS Committee Report 2010–2011 contains all information pertaining to the UAE National WSIS activities in this field. It is an important reference that documents every step that has been made in the UAE's journey to achieve WSIS goals. The report provides all participant delegations with a background of the achievements of UAE.

This Report marks the longstanding commitment of the UAE to the work and objectives of the WSIS. The Report, which is an important reference that documents every step taken by the UAE in its journey to achieve WSIS goals, contains all information related to:

- The WSIS activities of the UAE since the beginning.
- The work done by the WSIS National Committee, which the TRA is a member of, to develop a strategic follow-up plan based on the recommendations of the WSIS.
- The challenges faced by the committee in following-up the WSIS objectives during 2008 and 2009. These challenges included focusing the efforts of community leaders, recognizing the most effective and efficient contributions to society's development, and bringing all government and non-government organizations onboard to establish their commitment to the achievement of WSIS objectives.
- The overview of the UAE's accomplishments in the context of: WSIS Action Lines, the notable achievements that were made in developing ICT infrastructure, providing access to information and building public confidence in the security of information technology.

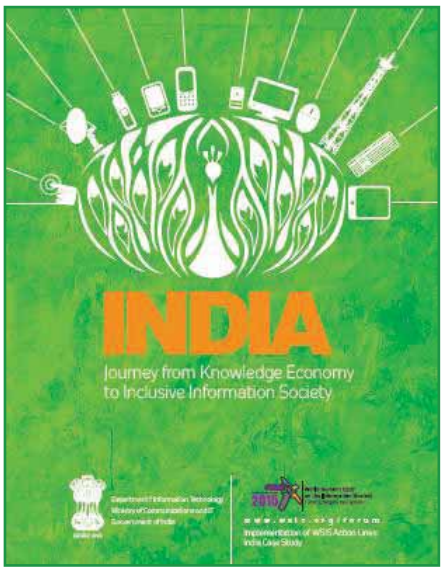
- The report also commends the WSIS National Committee's support of government and community initiatives to achieve the goals set by the WSIS, and it shows that the UAE has also produced more local content while encouraging cultural and linguistic diversity and pushing for international and regional cooperation.

H.E. Mohamed Nasser Al Ghanim, TRA Director-General, informed that the report provides all participant delegations with the background of the achievements of the UAE. Emphasizing the vital role that the UAE National Committee plays in creating an ambitious plan to fulfil WSIS recommendations before 2015. He added: "We hope that you are able to benefit from this report in your own countries". Finally, the report congratulates the committee for its assessment of the UAE's progress toward the achievement of Actions Lines.

United Arab Emirates WSIS Committee Report 2010-2011: available at the following link http://www.wsis.ae/downloads.php

Publication: India Journey from Knowledge Economy to Inclusive Information Society – Profiles of Progress

Monday, 16 May, 14:00–14:30 Room IV



During the past two decades, India has emerged as one of the fastest growing economies in the world. The progress that India has made can be attributed to reforms in the financial sector, progressive and pro-development policies of successive governments, the collaborative efforts of the corporate and civil society organizations and, above all, the role of ICTs and new media technologies in enabling information enabled growth at the bottom of the pyramid.

India has various challenges in moving ahead on the goals for improving Governance and ensuring Inclusive Growth. Challenges include a population of more than 1.2 billion, almost 7 per cent rural population, and a multilingual, multi-religious and multi-ethnic society. India has a Federal Constitution with the 35 States and Union Territories having very well defined jurisdiction, especially in the arena of public service delivery. Despite this, India has been able to move forward on the path of growth and development and is amongst one of the fastest growing economies of the world.

Today, India is the third largest economy in the world and ICTs are a major contributor in India's GDP. India's GDP growth has been impressive and it is currently 8.6 per cent. In the FY 2011-12, it is expected that the growth rate will be 9 per cent, positioning India as the second fastest growing economy after China.

However, this growth is neither sufficient nor sustainable. This is because even today, after more than 60 years of Independence, more than one-third of the population is still below poverty line. This means that about 450 million people do not earn more than a dollar per day; leaving them unable to take care of their families, and without the means to access education, health services, and other essential services. It is important to note here that in order to make this growth sustainable and take care of these 450 million people, it is necessary to make this growth inclusive. To make society and this growth inclusive, it is necessary to make information, public services, good quality health care and employment accessible to each and every resident of the country in a cost-effective, transparent and reliable manner.

This is sought to be achieved by having a *Rights Based Policy Framework.* In 2005, the historic Right to Information Act was passed which gave a legal right to citizens to get information. This was followed by Right to Employment through the enactment of the National Rural Employment Guarantee Act in 2006, which gave a right to all citizens to demand and obtain employment, and the Right to Education Act of 2009 which makes it mandatory for all children between the age 6 to 14 to be admitted to schools. Two more laws are in the process of being enacted – the Right to Food and the Right to Public Services. The Right to Food or the proposed Food Security Act seeks to give a legal right to all citizens to obtain 35 kgs of subsidized food grains every month. The most groundbreaking will be the Right to Public Services Act, which has already been enacted by several state governments. The central Government has also proposed an Electronic Services Delivery Act which seeks to ensure mandatory electronic delivery of all public services in the next five years.

The Government of India has been successful in inducing healthy policy competition among the states which, in turn, has been able to accelerate the overall development of the country. The progressive policies of the Indian government such as the National e-Governance Plan (NeGP), Right to Information Act (RTI), National Urban Renewal Mission (NURM) National Rural Employment Guarantee Scheme (NREGS), National Rural Health Mission, and Sarva Siksha Abhiyaan (SSA) over the past decade has helped the country make a significant headway in tapping the potential of ICTs and new media technologies in rapidly progressing towards the achievement of MDGs, as well as transforming the country into a knowledge economy. These initiatives have resulted in increased communications, interaction and collaboration among citizens, governments, industry and service providers at various levels.

The Indian approach to the achievement of sustainable growth and inclusive development is a unique model of how a developing country has been able to contextualize the use of ICTs and new media technologies based upon its own priorities. While models adopted by the developed countries have their own lessons from which the Indian efforts have surely drawn benefits, the formulation of Indian policies has been based upon cultural and contextual needs of Indian citizens, government agencies, federal structure and the priorities of grass-roots communities. In that sense, Indian journey of transformation from the knowledge economy to inclusive information society is a unique model that may provide insight to other developing countries. Some of the salient features that make the Indian journey towards the transformation into inclusive information society are:

- Vibrant ICT industry
- Localized policy and deployment models suitable for the needs of a developing country
- Centralized planning and decentralized implementation approach

- Participative policy formulation marrying top-down and bottom-up approach
- Continuous assessment and performance management

The report "India – Journey from Knowledge Economy to Inclusive Information Society" provides a high-level update and an overview of the progress made by India in transforming itself info into an inclusive information society as well as progress on WSIS Action Lines.

India's national development plan for 2007-12 has reaffirmed its commitment to attaining the MDGs and relies strongly on the innovative use of ICTs and new media technologies for achieving the goal of transforming itself into an inclusive information society, thus adhering to the Action Lines as laid out in the WSIS declaration. In a sense, the targets laid down in the five-year plan are nationally dovetailed forms of the MDG targets, but by some measure, envisage faster results than what the MDGs defined for us to attain.

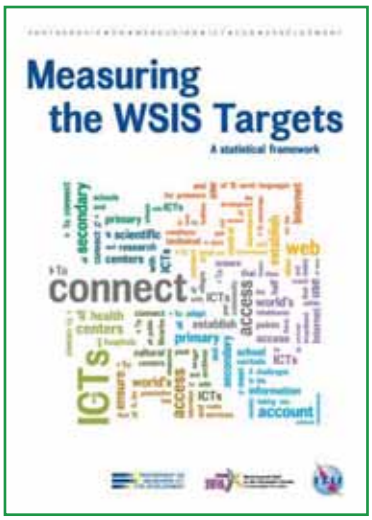
In India, the story of development, even in the midst of the global economic slow-down, has not been bleak. Advances are most evident where targeted interventions have been initiated, and where increased funding and improved institutional mechanism have stimulated better delivery of services and tools directly to those in need. This can be seen in the universalization of primary education and gender parity in school education and literacy, fight against malaria and tuberculosis, immunization of children against deadly diseases, safe motherhood and reproductive care, access to safe drinking water, and development of telecommunications.

This report on India's Journey from Knowledge Economy to Inclusive Information Society, which was launched during the India Country Workshop 2011, captures a glimpse of policy initiatives and the key projects that highlight India's achievements in the move towards the creation of an inclusive information society. It also covers, in detail, the actions carried out by the Government in terms of policy initiatives, and the efforts of other stakeholder groups in implementing these policy initiatives. The initiatives mentioned are those that relate to the MDG agenda and the WSIS Action Lines. The report also chronicles Profiles of Progress, which is a compilation of case studies based on select projects from different domains pertaining to the innovative use of ICTs by government and stakeholder groups in various areas such as government, health, education and agriculture, etc. The presented cases are not an exhaustive list of all the initiatives but are a collection of some of the cases that correspond to WSIS Action Lines.

The Government of India has realized that in an era when technology is changing so fast and new media technologies such as mobiles are fast becoming the primary mode of access for the majority of rural citizens, it is necessary to continuously evolve new policies and undertake initiatives so that the gaps between government policy, technology changes and citizen aspirations can be minimized. The Report also provides a glimpse of the key policy initiatives undertaken by government of India in the year 2010-2011. A brief description of the key initiatives such the mobile governance policy, electronic service delivery act, framework for citizen engagement in policy formulation and open data policy have been provided in the section entitled "The Way forward". These initiatives, if deployed successfully, have the potential to transform India into the world's first truly digital economy and inclusive information society.

Publication: Measuring the WSIS targets – A statistical framework (Partnership on Measuring ICT for Development)

Tuesday, 17 May, 14:00–14:30 Room V



Measuring the WSIS Targets – A statistical framework is a response to the WSIS call to develop indicators and produce official statistics for measuring the information society. The report puts forward concrete indicators to monitor the 10 WSIS targets, which range from connecting villages, schools, and health centres to developing online content and providing people with ICT access. It is a practical tool for policy-makers and data producers in developing countries to monitor and assess information society developments.

The report was prepared by the Partnership on Measuring ICT for Development's Task Group on Measuring the WSIS Targets under the leadership of ITU, and in consultation with many experts in the field of ICT measurement. It is expected to become the main reference document for the final review of the achievements made towards meeting the WSIS targets in 2015.

Panellists

- **Mr Brahima Sanou**, Director, Telecommunication Development Bureau, ITU
- **Mr Mongi Hamdi**, Chief, Science and Technology, UNCTAD
- **Mr Hendrik van der Pol**, Director, UNESCO Institute for Statistics
- **Mr John Davies**, Vice President Sales and Marketing Group, General Manager Intel World Ahead Program, Intel Corporation

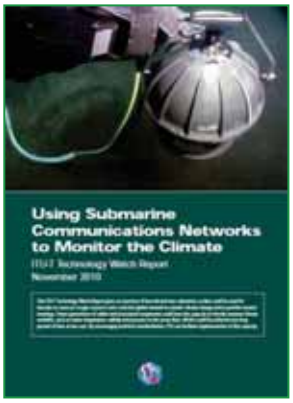
Report available at the following link: http://www.itu.int/ict/partnership/wsistargets/

Publications: e- Environment

Wednesday, 18 May, 14:00–14:30 Room V

ITU-GeSI Report on Using Information and Communication Technologies (ICTs) to Tackle Climate Change (ITU-GeSI)

ICTs can be used in a number of ways to meet the requirements of the three main pillars of the Bali Action Plan arising from COP-13 in December 2007: enhanced action on adaptation, cooperative action to reduce greenhouse gas emissions, and actions on mitigation of climate change and the recently adopted Cancun Agreements. ICTs can address these and the problems that all countries (particularly developing countries) face with respect to climate change. ICTs can be used to mitigate the impact of other sectors on greenhouse gas (GHG) emissions and to help countries adapt to climate change. These impacts are described in this paper.



Link: http://www.itu.int/ITU-T/climatechange/itu-gesi-report.html

Using Submarine Communications Networks to Monitor the Climate (ITU)

This ITU-T Technology Watch Report gives an overview of how old and new submarine cables could be used for decades to come as a major resource and a real-time global network to monitor climate change and to provide tsunami warnings. Future generations of cables and associated components could have the capacity to directly measure climate variables, such as water temperature and salinity, as well as give pressure readings on the ocean floor. All this could be achieved over long periods of time at low cost. By encouraging technical standardization, ITU can facilitate implementation of this capacity.

Link: http://www.itu.int/en/ITU-T/techwatch/Pages/submarinenetworks.aspx

ICT as an Enabler for Smart Water Management (ITU)

Smart water management has become a key policy issue for the 21st century, as a growing number of factors are impacting the delivery of already scarce fresh water to millions of people. Economic growth, seasonal climatic conditions and rising population are all affecting availability of water resources. Moreover, a number of effects linked to climate change, such as lengthy droughts and extreme weather events, are worsening the situation. This ITU-T Technology Watch Report provides an overview of how ICT can be a strategic enabler for smart

water management policies and surveys upcoming ICT standards that will enable smart water initiatives.

Link: http://www.itu.int/en/ITU-T/techwatch/Pages/smartwatermanagement.aspx

The essential role and global importance of radio spectrum use for Earth observations and for related applications

- An extensive overview of the use of spectrum by Earth observation radiocommunication applications
- Overview of solar radio monitoring applications
- Benefits from spectrum use by the radio space service

Use of remote sensing systems in the study of climate change and the effects thereof

- Guidelines on the provision of satellite-provided remote sensing data for the purpose of studying climate change
- Summary of status of major climate variables and forcing factors

UNEP Basel Convention Partnership for Action on Computing Equipment (PACE): Guidance Document on the Environmentally Sound Management of Used and End-of-Life Computing Equipment, final draft, March 2011

The document provides guidance for the environmentally sound management of used and end-of-life computing equipment with an emphasis on reuse and recycling, thereby diverting such used and end-of-life products from final disposal operations such as landfills or incinerators. It summarizes the information contained in technical guidelines and findings of the PACE group on environmentally sound management criteria and transboundary movement.

Available at:
http://www.basel.int/industry/compartnership/documents.html

UNEP Basel Convention Partnership for Action on Computing Equipment (PACE): Guideline on the environmentally sound testing, refurbishment and repair of used computing equipment, final draft, February 2011

This guideline on the environmentally sound testing, refurbishment and repair of used computing equipment promotes greater reuse of such computing equipment, through environmentally sound refurbishment and repair and the environmentally sound management of any discarded equipment or components. It provides concrete guidance applicable to refurbishment and repair facilities, including labelling/documentation, packaging, storage and handling of refurbished and repaired equipment.

Available at:
http://www.basel.int/industry/compartnership/documents.html

UNEP Basel Convention Partnership for Action on Computing Equipment (PACE): Guideline on Environmentally Sound Material Recovery / Recycling of End-of-Life Computing Equipment, final draft, February 2011

This guideline describes the chain of steps that should be taken in order to ensure environmentally sound management in material recovery facilities that recycle electronics, and to encourage operators at each step to know about, work with, and take their responsibility for human health, safety and the environment, so that the entire value chain works in both an economically and environmentally sustainable manner.

Available at:
http://www.basel.int/industry/compartnership/documents.html

Publication: M-Government: Mobile Technologies for Responsive Government and Connected Societies

Thursday 19 May, 14:00 – 14:30 Room XI

The report highlights the critical potential of mobile technologies for improved public governance, as well as for economic and social progress towards the achievement of the internationally agreed development agenda defined in the Millennium Development Goals (MDGs). The in-depth analysis of the prerequisites for m-government, its main benefits and challenges, the value-chain and the key stakeholders, and the checklist of concrete actions intended to sustain policy-makers in monitoring and updating their knowledge on m-government, and to draw on its implications for public sector governance, public service delivery, and smarter and more open government.
URL: http://www.itu.int/ITU-D/cyb/app/m-gov.html

Publication: Perspectives on Policy Responses to Online Copyright Infringement – An Evolving Policy Landscape

Thursday, 19 May, 14:00–14:30 Room IX

Countries around the world are exploring and experimenting with new solutions to address online copyright infringement. This discussion paper examines various emerging Internet-focused strategies for the enforcement of copyright online:

- graduated response and suspension of Internet access;
- traffic shaping;
- blocking;
- content identification and filtering; and
- domain name system manipulation;

and considers some of the potential implications of such strategies for the Internet, Internet technologies, access and use. It is intended to stimulate further dialogue and collaborative multistakeholder examination of these issues.

This paper draws from the expertise and discussions within the volunteer Internet Society Copyright Working Group (2009–2010). The Internet Society would like to express its sincere thanks to the members for their strong commitment to this project, many insightful ideas, and ongoing support of the Internet Society's mission.

Paper available at: http://isoc.org/wp/newsletter/?p=3530

Publications

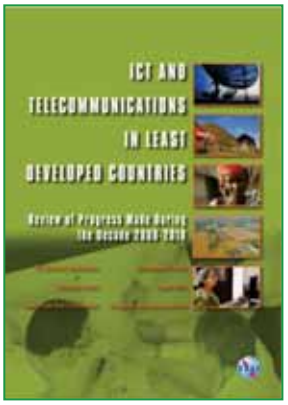
The Role of ICT in Advancing Growth in Least Developed Countries, Trends, Challenges and Opportunities, 2011

Thursday, 19 May, 14:00–14:30 Governing Body Room

The Role of ICT in Advancing Growth in Least Developed Countries: Trends, Challenges and Opportunities report is being published on the occasion of the Fourth United Nations Conference on the Least Developed Countries (LDC-IV, held in Istanbul, Turkey in May 2011.

Available at: http://www.itu.int/ITU-D/ldc/publications.html

ICT and Telecommunications in Least Developed Countries: Review of Progress Made During the Decade 2000-2010



The vulnerability of least developed countries (LDCs) to external economic shocks, the environmental effects of climate change, as well as the their low levels of literacy, among other factors, challenge the ability of LDCs to meet national and international development goals, including the Millennium Development Goals (MDGs).

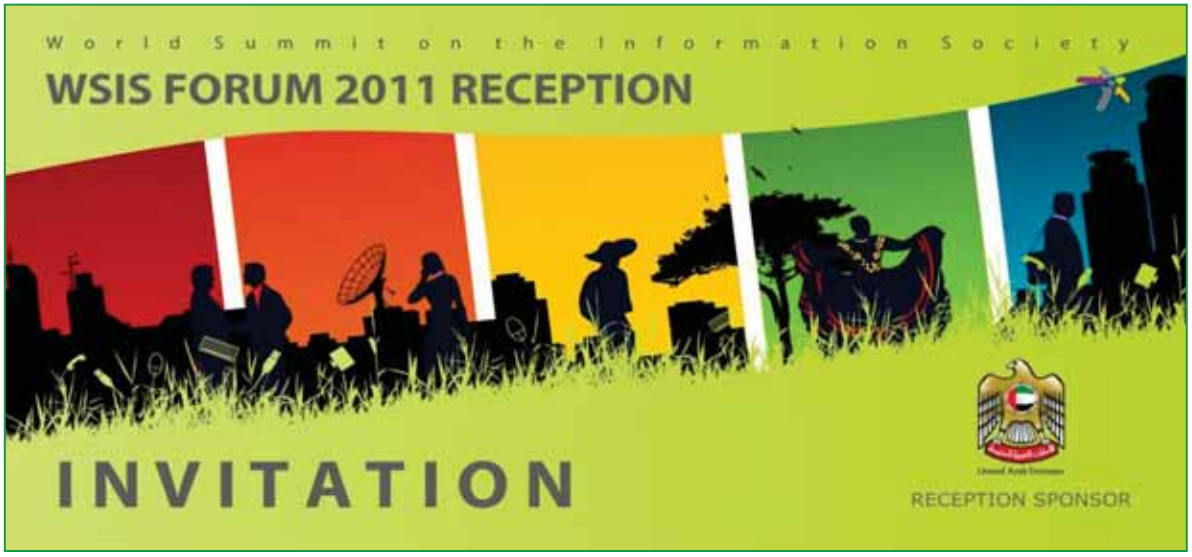
Available at: http://www.itu.int/ITU-D/ldc/publications.html

Publication: WSIS Stocktaking: Success Stories 2011

Thursday, 19 May, 16:30 18:00 Room XI

The 2010 WSIS Stocktaking Session, held during the WSIS Forum 2010, recommended that ITU develop a set of case studies in order to leverage the efforts of countries in WSIS Implementation which were reported to WSIS Stocktaking. Consequently, Success Stories 2011 was elaborated in close collaboration with the WSIS Stakeholders, with the aim of showcasing examples of WSIS Implementation projects and transferring experience and knowledge at a global level. The "Success Stories 2011" publication aggregates several voluntary contributions from around the world that were collected from active members of the WSIS Stocktaking Platform during the 2010–2011 period, and illustrates key lessons drawn from the management of these projects.

RECEPTION Monday 16, 18:00



On the occasion of the World Summit on the Information Society Forum 2011
the organizers

have the pleasure of inviting you
to a reception

which will be held

on

Monday, 16 May 2011, at 18:00

Reception sponsored by UAE

VENUE
ILO Restaurant
"Le Morillon"
Floor R2 NORD
International Labour
Organization

EXHIBITION

The Exhibition offered WSIS Stakeholders an opportunity to showcase, at an international level, the activities **carried out by them in context of the WSIS outcomes**.

The exhibition stands were located at the entrance of ILO Porte I, R3 Sud, and the vibrant networking atmosphere in the exhibition area made it possible to **meet new potential partners** and to learn about their **flagship initiatives**.

The **Exhibition Inauguration** took place from 13:00-13:15.

Find below a list of all Exhibition Stand Organizers:

Logo	Name of Organizer	Subject of Display	Country	Web page
	United Arab Emirates	To demonstrate implementation of WSIS Action Lines in UAE	UAE	http://www.tra.gov.ae/about_tra.php
IMPACT	**ITU-IMPACT (Cybersecurity)**	Promotion of ITU-IMPACT	Switzerland	http://www.itu.int/osg/csd/cybersecurity/gca/impact_index.html
Gedaref Digital City Organization	**Gedaref digital city organization GDCO – SuNTA (Member of telecentre.org network)**	To demonstrate implementation of WSIS Action Lines and MDGs in telecentres.	Sudan	http://gedaref.com/index.php?option=com_content&task=view&id=367&Itemid=1

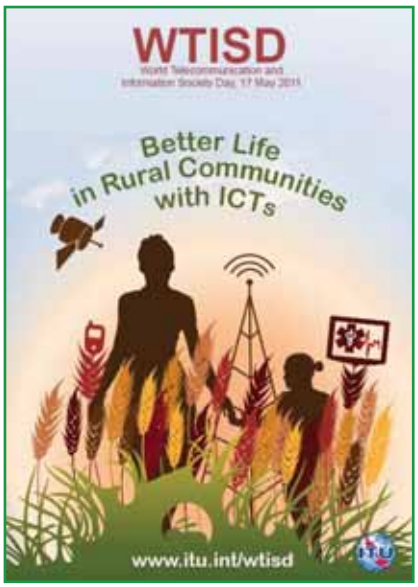
Logo	Name of Organizer	Subject of Display	Country	Web page
	UN-HABITAT	Promotion of Urban Gateway, the global online urban portal, launched on April 2011. The portal allows governments local authorities, civil society organizations, the private sector, urban professionals and researchers to exchange best practices, collaborate on projects, share the latest thinking on urban issues and trends, find expertise, and mobilize resources for urban initiatives	Kenya	http://www.unhabitat.org/
	UNESCO	Towards Inclusive Knowledge Societies	France	http://www.unesco.org
	ICT4D Collective& UNESCO Chair in ICT4D, Royal Holloway, University of London	To share knowledge and understanding of the work done by the ICT4D Collective in the field	United Kingdom	http://www.ict4d.org.uk
	Raising the Floor – International	To raise awareness of the work going on in cloud computing and accessibility – and to help people interested in this topic connect with each other. A key purpose of the Exhibit space was a place for people to meet and connect with each other. Also to introduce both the CLOUD4All project in Europe and the international collaborative efforts to build a Global Public Inclusive Infrastructure	Switzerland	http://RaisingTheFloor.org
	ITU Telecom	Display of ITU Telecom World 2011	Switzerland	http://www.itu.int/WORLD2011/
	ICVolunteers	E-TIC, GreenVoice, Maaya, CyberVolunteers	Switzerland	http://www.icvolunteers.org/

Logo	Name of Organizer	Subject of Display	Country	Web page
	TESA OF Ghana Telecom University College, EKOICT & WAIYS	Schools and community ICT Projects in Ghana and West Africa ICT Youth Society	Ghana	http://www.tesaworld.org
	**Information Technology & Digital Media Development Center**	To showcase the achievements of Iran, especially the activities of Culture Ministry on the basis of the WSIS Action Lines.	Iran	http://dmdc.farhang.gov.ir/introduction-en.html
	**KYOS IT Security**	IT Security	Switzerland	http://www.kyos.ch
	**Connect-World**		United Kingdom	http://www.connect-world.com/
	**International Centre for Theoretical Physics (ICTP)**	Wireless Networking Training the ICTP Strategy	Italy	http://www.ictp.it/
	**UNEP Secretariat of the Basel Convention**	Partnership for Action on Computing Equipment (PACE)	Switzerland	http://www.basel.int/industry/compartnership/index.html
	**International Telecommunication Union (ITU)**	World Radiocommunication Conference 2012	Switzerland	www.itu.int

WTISD

World Telecommunication and Information Society Day

Tuesday 17 May, 10:30 – 12:00, (ITU Popov Room / Overflow Room II at ILO)



The World Telecommunication and Information Society Day (WTISD) celebrated each year on 17 May, marks the anniversary of the signature of the first International Telegraph Convention in 1865 which led to the creation of the International Telecommunication Union. This occasion was recognized as World Telecommunication Day in 1973. Following the World Summit on the Information Society (WSIS) in 2005 and the 2006 ITU Plenipotentiary Conference in Antalya, Turkey, 17 May was designated as WTISD.

The WTISD endeavours to raise awareness of the possibilities that the use of the Internet and other ICTs can bring to societies and economies, as well as of ways to bridge the digital divide.

ICTs are increasingly in demand to meet the Millennium Development Goals. In the rural context, ICTs provide enhanced opportunities to generate income and combat poverty, hunger, ill health and illiteracy. The theme of this year's WTISD, "Better life in rural communities with ICTs", aims to ensure that ICTs will contribute to a better future for rural populations.

As a means of bringing global attention to this theme, ITU presented the annual World Telecommunication and Information Society Award to the eminent personalities listed below:

President of Finland Tarja Halonen

President of Finland Ms Tarja Halonen is co-chairman of the High-level United Nations Panel on Global Sustainability and has focused on several key issues, from sustainable sourcing to improving access to education and improving maternal health in low-income countries. Finland is one of the premier centres for ICT innovation and productivity, especially in the mobile phone sector. In July 2010, Finland made broadband a legal right for all citizens, which is in line with ITU's campaign to accelerate broadband connectivity in order to feed both rural communities and urban centres with the means to meet their development goals and aspirations.

Telecommunication innovator Sam Pitroda

Mr Sam Pitroda is currently Adviser to the Prime Minister of India on Public Information Infrastructure and Innovations and Chairman of the National Innovation Council of India. He is also widely considered to have been responsible for India's telecommunications revolution and has been a leading campaigner to help bridge the global digital divide. As technology Adviser to Prime Minister Rajiv Gandhi in the mid-1980s, Mr Pitroda not only heralded the telecom revolution in India, but also made a strong case for using technology for the benefit and betterment of society through several missions on telecommunications, literacy, dairy, water, immunization, and oilseeds. He has continued to redefine the role technology can play in a society like India by linking it to better delivery of services for the underprivileged in the country.

CEO of Inveneo Kristin Peterson

Ms Kristin Peterson is CEO of Inveneo, a non-profit social enterprise that takes computers, Internet access and telephony to rural and underserved communities in the developing world. To help offset connectivity issues and environmental challenges, Inveneo's solutions incorporate cost-efficient and sustainable features that include ultra-low-power computing and long-distance wireless connectivity, and they partner with local ICT entrepreneurs for in-country deployment. Ms Peterson has led Inveneo's efforts to deliver education, health care, economic development and relief projects in Haiti and in 25 countries throughout Sub-Saharan Africa and South Asia with life-impacting ICTs.

United Nations | Inter-Parliamentary Union | International Telecommunication Union

Fourth Parliamentary Forum on Shaping the Information Society

The Triple Challenge of Cybersecurity: Information, Citizens and Infrastructure

18–20 May 2011

Geneva, Switzerland

Summary

The Fourth Parliamentary Forum on Shaping the Information Society "The Triple Challenge of Cyber-Security: Information, Citizens and Infrastructure" was held from 18 to 20 May 2011 at the Headquarters of the International Labour Organization in Geneva, Switzerland. The event was co-organized by the United Nations Department of Economic and Social Affairs (UNDESA), the Inter-Parliamentary Union (IPU) and ITU.

The Forum was the fourth meeting of members of parliament focusing on issues relating to the Information Society organized within the framework of the Global Centre for ICT in Parliament, a partnership initiative launched by UNDESA and the IPU at the WSIS in 2005.

The aim of the Forum series is to further dialogue among legislators on parliamentary actions that can contribute to the shaping of the Information Society in view of the WSIS implementation, follow-up and future 2015 review. It also intends to strengthen the interaction at international level between members of parliaments and representatives of international organizations working in this domain with a view of identifying good parliamentary practices for the advancement of ICT-related policies in favour of the internationally-agreed development goals.

The Fourth Parliamentary Forum attracted about 100 members of parliament, including chairs/presidents of parliamentary committees with responsibility for science and technology, information and telecommunication, from all over the world. Other participants included senior representatives and officials of international organizations, as well as experts from agencies, governments and the academia.

Following consultations, led by the Parliament of Chile, participants endorsed a final declaration, which highlighted the following issues:

Effective and harmonized legal frameworks are necessary to address the challenges of cybersecurity:

- Confidence in cyberspace is vital for the development of the information society. Parliamentarians have the responsibility to enact legislation that promotes a safe and enabling environment for citizens, businesses and institutions to fully benefit from the Internet revolution.
- Cybercrime and the illicit use of ICT cannot be combated effectively without greater harmonization of our national legislation. The lack of harmonization creates an environment in which criminal activities can proliferate in relative impunity, and it is therefore urgent to act promptly.

While noting with satisfaction the regional and international initiatives to promote cybersecurity, participants deplored the absence of an internationally agreed instrument that would provide a comprehensive framework for countries to coherently address cybersecurity issues in a coordinated manner.

Participants called upon the Global Centre for ICT in Parliament to strengthen its engagement with parliaments on topics related to the Information Society. In particular, they requested the Global Centre to create a working group of parliamentarians to explore ways to harmonize legislation on cybersecurity, and to report back on progress at the next Parliamentary Forum.

At the end of the meeting, participants thanked the co-organizers – the UN, ITU and IPU – as well as the Global Centre for ICT in Parliament, and encouraged all parliaments to participate in the next annual forums in preparation of the 2015 review of the World Summit on the Information Society.

e-Environment day

e-Environment day at the WSIS Forum 2011

For the WSIS Forum 2011, the co-facilitators for this Action Line (*ITU, UNEP, WMO and the Basel Convention*) organized a full day of events under the heading *"e-Environment day at WSIS Forum 2011*". This thematic day included two workshops, an Action Line Facilitation Meeting, a publication releases session and a joint stand, offering participants several opportunities to exchange knowledge and network with each other.

ICT Sector Engagement Towards a Green Economy: Pathways to Sustainable Energy for ALL

The first workshop of the day looked at the efforts of the ICT industry to increase energy efficiency in the sector, where energy savings are particularly envisaged for the operation of infrastructure, equipment and services. The session also provided an overview of energy efficiency in all areas of production and consumption, and looked at ways in which ICTs can help to achieve more effective energy production and distribution as well as energy consumption by end users.

The session highlighted the set of methodologies currently being developed within ITU-T Study Group 5 to measure the life-cycle impact of the ICT Sector, both in terms of its own greenhouse gas emissions and the savings created through ICT applications in other industry sectors. These methodologies will be instrumental to green the ICT industry and encourage the adoption of ICTs as enablers of a low carbon economy.

Finally, participants underlined the positive transformative potential of ICTs to de-carbonize the economy. Examples of this include the promotion and wide deployment of new smart technologies, such as smart grids or intelligent transport systems, as well as ensuring that energy efficient or

alternative energy solutions are accessible and affordable for all. This last aspect will be much discussed during 2012, the "*International Year for Sustainable Energy for All*".

Avoiding e-waste: Moving to environmentally sound life-cycle management of ICTs

The second session of the "*e-Environment day*" was focused around the hot issue of e-waste. The session brainstormed possible ways of establishing partnerships that link environmentally sound management of end-of-life computing equipment with ICT development programmes, including financing, infrastructure strengthening and education on national, regional and international levels.

The session highlighted the challenges that the accelerated adoption of ICTs will present for human health and the environment if the environmentally sound management of ICT equipment is not applied. From the life-cycle perspective, the engagement of the sector in addressing e-waste is of paramount importance. The link between the ICT and environment sectors at the national level needs to be strengthened to enjoy the benefits of the Information Society without compromising health and the environment.

A multistakeholder approach to this issue equipment engaging governments, the private sector, academia and NGOs was accentuated by all panellists. Practical examples further underlined the value of this approach. In particular it was highlighted the role of governments to set up legal frameworks and standards, undertaking capacity-building activities (in particular directed to the informal recycling industry), issuing licensing, and adopting green public procurement. The private sector should also further embrace social corporate responsibility and improve performance in terms of energy consumption and recyclability.

As follow-up actions to this session, participants proposed to intensify awareness-raising activities directed to the general public, encourage standardization and optimization of ICT equipment and promote cooperation between the ICT and environment sectors among international organizations and on the national level to more effectively deal with the increased usage of the end-of-life ICT equipment

From WSIS to Rio+20: The role of ICTs in sustainable development and the green economy transition

The Action Line Facilitation Meeting focused on the issue of sustainable development as an alternative model for growth and prosperity as suggested within the framework of the Rio+20 process. Participants in this session highlighted the enormous power of technological innovation and the ICT sector in particular in catalyzing the transition to a "*green economy*". As in the previous sessions, it was recognized that the active involvement and cooperation of all stakeholders will be necessary to move the sustainable development agenda forward.

The ICT industry from its side can leverage the speed of this transition and provide tangible ideas and solutions towards a lower carbon economy through dematerialization, standardization, innovative design of products, new IT-enabled services and applications. At the same time, the private sector needs to adopt a comprehensive approach to ensure that innovation is a solution provider and not a problem creator. Behavioural attitudes of consumers as well as policy planning and practices of governments also need to be influenced in order to mainstream environmental concerns and promote ethical consumption. To this end, all stakeholders will need to be actively involved to overcome the obstacles found since the first Earth Summit in the implementation of the major environmental conventions and treaties.

Other issues highlighted during this discussion were the role of the UN system in ensuring both development and inclusion in the modern Information Society or the need for holistic approaches grasping all aspects and levels of planning, policy and practice. For instance, IT-enabled and climate systems can greatly improve better management of resources; however it is critical that the information they provide are relevant to the needs of each actor.

As a conclusion to this session participants agreed that the Information Society has many lessons to share with the sustainable development community. To this end a call to action was launched to look at the lessons learned from the WSIS process to prepare an input that can be presented throughout the preparatory process of the Rio+20 conference. Such input would highlight the key role of ICTs in the promotion of sustainable development and assist in the success of the conference. The WSIS Forum 2012, which will take place a few weeks before the conference, could be a good platform to present the results of this exercise and to promote the launching of new multistakeholder partnerships during Rio+20 to promote concrete ICT applications for a sustainable future.

e-Environment day at the WSIS Forum 2011

In summary, the "*e-Environment day*" brought together experts from the ICT public and private sectors, civil society, as well as experts from the environmental community, looking together at the key role of the information society in the protection of the environment. The three sessions of the day identified several activities to be followed up for the WSIS Forum 2012, in particular the invitation to produce an input for the Rio+20 conference. The co-facilitators for this Action Line invite other Action Line co-facilitators to participate in this task. One of the success stories of the day was the involvement of the civil society in the organization of the sessions. An aspect to improve for the future was the participation of the public sector, which was, in general, low throughout the sessions. The event moved forward on creating bridges between the ICT and the environmental communities, a bridge that will need to be strengthened in the future.

Internet Governance Forum

Internet Governance Forum: Open Consultation

Wednesday, 18 May, Governing Body Room

The purpose of this meeting was to hold Open Consultations on the programme and schedule of the Sixth Annual IGF Meeting, which will be held in Nairobi, Kenya on 27–30 September 2011. The theme of which will be "**Internet as a catalyst for change: access, development, freedoms and innovation".** The consultation focused particularly on the selection of workshops for this year's meeting.

Internet Governance Forum: MAG (Open to Observers)

Thursday, 19 May, Room IV

This was a meeting of the Internet Governance Forum's Multi-stakeholder Advisory Group (MAG). The group further deliberated on the input received in the previous day's Open Consultations and discuss refinements to the programme and schedule for the IGF 2011 meeting in Nairobi, Kenya.

Further information available at: http://www.intgovforum.org/cms/

Action Line Facilitators' Meeting

Friday, 20 May, 9:30–12:30, Governing Body Room

Pursuant to Article 109 of the Tunis Agenda, the sixth meeting of WSIS Action Line Facilitators took place within the framework of the WSIS Forum 2011. The purpose of the meeting was to assess the general progress made within the WSIS Action Lines, as well as to identify measures to strengthen the overall WSIS implementation process. All Facilitators and Co-Facilitators of WSIS Action Lines attended the meeting and reported on their respective Action Lines.

ITU, UNESCO, UNDP provided brief introductory remarks and welcomed all present to the meeting. ITU encouraged participants to engage in interactive discussions and debate, and invited facilitators to give briefings on their respective Action Lines focusing on challenges and opportunities and ways to strengthen the Action Line facilitation process.

Action Line C1-C7-C11 Focal Point UNDESA

Mr Vyacheslav Cherkasov from the United Nations Department of Economic and Social Affairs (UNDESA) reported on Action Line C1 (The role of public governance authorities and all stakeholders in the promotion of ICTs for development), C7 (e-Government), C11 (International and regional cooperation).

On Wednesday, 18 May, UNDESA convened the sixth Facilitation Meeting on implementing the outcomes of the WSIS. Participants exchanged information and discussed progress in implementing

three of the 11 WSIS Action Lines: the role of public governance authorities and all stakeholders in the promotion of ICT for development (Action Line C1); ICT applications – e-government (action Line C7); and international and regional cooperation (Action Line C11).

The purpose of the Sixth Facilitation Meeting, open to all stakeholders from the public and private sectors, civil society and international organizations, was to provide a platform for participants to exchange information and experiences; to identify the propriety areas for implementation within the Action Lines; and to create synergies among different stakeholders for more effective knowledge sharing and collaboration in order to ensure the implementation of WSIS at the international, regional and national levels. The meeting also contributed to further coordination of major stakeholders' activities to support strategic planning and implementation of accessible, inclusive and participatory governments. One of the current trends for e-government development was active and strong citizens' and businesses' involvement in public services delivery. This tendency is based on an unprecedented accessibility and openness of public administrations' data and possibilities for citizens and businesses to build value-added public services on top of it.

Participants present mentioned the continued challenge of human capacity building in e-government and other fields, from building awareness and understanding of the potential of ICTs between government and citizens, through developing the skills of policy-makers, civil servants and industry professionals, to addressing the needs of citizens and micro-enterprises. There is a need for continued research and work in the area of the evolving e-government initiatives and now citizen engagement applications – not as a luxury but as a necessity in trying to earn and restore public trust in government.

The participants underlined that the WSIS Forum is widely regarded as a major improvement in the facilitation of WSIS action lines and the Forum's inclusiveness and openness and its new thematic focus has been responsible for increased physical and remote participation in the meeting. However a concern was voiced about the lack of dedicated resources for the facilitation of action lines and would like to see more collaboration between action lines' facilitators between annual meetings, fostering the cross-cutting value of ICTs in different domains.

The facilitation meeting on Action line **C1-C7-C11** was chaired by Mr Cherkasov.

Speakers included: Mr Makane Faye, OIC, e-Applications, UNECA; Mr Gherardo Casini, Head, UNDESA Office in Rome; Mr Randy Ramusack, United Nations Technology Officer, Microsoft Corporation; Mr Michael Szafraniec, Operations Manager, CareWays Community, (Australia); Mr Hani Eskandar, Technical Officer, BDT, ITU; Ms Andreea Stoiciu, Director at the Institute for Management and Sustainable Development (IMDD) (Romania); Dr Yuri Hohlov, Chairman of the Board, Institute of the Information Society (Russia); Ms Esperanza Magpantay, Statistician, Market Information and Statistics Division, BDT, ITU.

UNDESA made two proposals:

1. Organizing special thematic sessions for the following WSIS Forums, this would enable AL Facilitators and participants to prepare better resulting in better discussions.
2. The guidelines for AL facilitators could be revisited and a set of new guidelines could be proposed.

Action Line C2 Infrastructure – Focal Point ITU

Mr Riccardo Passerini, BDT, ITU, provided an update on the WSIS Forum Action Line C2 Interactive Facilitation meeting that was organized as a panel discussion during the Forum. The theme for this year's discussion, "Broadband Infrastructure for connecting the unconnected", was selected based

on proposals received during the WSIS multistakeholder consultation process. Mr Brahima Sanou, BDT Director, delivered the opening speech. Minister H.E. Mrs Nibigira (Burundi), Minister H.E. Mrs Matic (Serbia), and Deputy Minister H.E. Velizadeh (Azerbaijan) then presented the role of administrations in providing broadband as his keynote speech. Under the moderation of Mr Passerini and based on presentations by the high-level panellists, the role/perspective of broadband networks in rural and remote areas were discussed.

The Action Line C2 Facilitation Meeting mainly discussed the following aspects, confirming the importance of sharing experiences and knowledge in order to expand the broadband connectivity in rural and remote areas: (1) evolution of new telecom services in the next ten years; (2) Importance of standardization for broadband wireless access; (3) importance of standardization for low cost, safe and efficient electrical supply; (4) successful story of broadband infrastructure development; (5) role of administration for providing broadband in rural and remote areas; (6) cost-effective Infrastructure and simplicity of network; and (7) social impact of broadband.

The following issues and recommendations were highlighted during the panel discussion:

- Demand of broadband services in developing countries is increasing. Today's new broadband opportunities require a new vision by all potential broadband providers, and a new paradigm for policy-makers and regulators.
- Broadband regulation to reduce regulatory burdens, enhance innovative incentives, and coordinate efforts by all links in the broadband value chain, should be considered. Basically less regulatory intervention creates more business opportunities, ensuring that once in place, the infrastructure is accessible to all operators on open, transparent and non-discriminatory terms.
- New spectrum management policy and adequate and harmonized frequency allocation is crucial to the provision of wireless broadband services in rural and remote areas. In this regard, spectrum flexibility can open opportunities for new players to enter the market, with lower infrastructure costs, bringing greater choice and reducing the price of communications. The World Radiocommunication Conference next year (WRC-12) will play an important role.
- Standardization of broadband wireless access is important for utilization of broadband system. ITU will continue to play an important role in that regard.
- Standardized, reliable and safe energy systems are also important for utilization of broadband system. Cost and quality of energy are seen as future challenges to be addressed in the provision of broadband to rural and remote areas.
- Administrations should encourage public–private partnerships (PPP) in conducting projects to overcome economic barriers. Attention should be paid to encourage combination of public and private funding aimed at deploying broadband infrastructure.
- Every administration should facilitate making affordable and high-quality broadband deployment possible in their countries to enable bridging the economic and social digital divide. Incentive from government focusing on e-applications (e.g. e-education) an effective way. Delegation of public services is also recommended for facilitating the development of high speed broadband.
- Every country needs to further develop policies to encourage competitive provision of broadband services coupled with broadband ubiquity policies to address the digital divide. Making use of complementary universal service provisions should be taken into consideration to address a digital divide between those with access to high speed broadband

and those without. It is the administration's role to define and the develop a sustainable universal services policy and strategy.

- In order to promote the use of broadband, administration should connect local government buildings, educational institutions and hospitals that either lack broadband options or pay exorbitant fees to incumbent phone companies.
- Access to broadband should be coupled with sufficient focus on increasing PC penetration and enhancing e-skills through demand stimulation measures such as training for students, low skilled groups and professionals, and subsidizing equipment/installation/subscription costs.

Action Line C3: Access – Focal Point UNESCO

Mr Cedric Wachholz, UNESCO, provided an update on the Interactive Action Line Facilitation Meeting on Culture. UNESCO, as facilitator for the WSIS Action Line 3 – Access, together with ITU (co-facilitator), organized an interactive session bringing together representatives of international organizations, academia, public–private partners and disability rights activists. This interactive debate explored existing and potential usage of ICTs to improve access by persons with disabilities to information and knowledge and encourage their participation in social, economic and political life.

The speaker of the session shared their good practices in the area of digital inclusion and encouraged international cooperation among national, local, nongovernmental and civil society organizations working with persons with disabilities.

The following issues were discussed during the interactive session:

- UN Convention of the Rights of Persons with Disabilities mandates and progress of countries in implementation;
- key barriers to access information and knowledge for persons with disabilities;
- solutions available to eliminate barriers and discrimination; and
- impact in relation to installed bases of ICTs worldwide on education, employment and cultural opportunities.

Main points summarizing the discussion

- ICTs are effective tools to reach out to persons with disabilities, which can improve their quality of life. ICTs provide new educational and employment opportunities as well as promote their social inclusion and participation.
- The social and economic costs of digital exclusion are very high, not only for the excluded, but for society as a whole.
- The growing global crisis continues to growth in terms of continues development of inaccessible ICTs. For persons with disabilities, a price of ICTs is increasing, in availability is decreasing and no technologies for each disability and for each person with disabilities.
- The Internet should be accessible for persons with disabilities in order to access to information and knowledge as well as digital office documents should be made accessible.
- ICTs can contribute to the implementation of the UN Convention of the Rights of Persons with Disabilities (CRPD) and the inclusion of disability in international aid.

- Introduction of ICTs in education for people with different types of learning needs should be taken with a systematic approach. It is essential to ensure that not only people with disabilities, but also educational staff are trained to use ICTs and address different learning needs in classrooms.
- Promotion of positive attitudes helps to overcome some of the barriers.
- Emerging cloud-based infrastructures and the ability to personalize applications and content should be used to enable digital inclusion and address barriers of physical, sensory and cognitive access to online systems.

Action Line C4: Capacity Building – Co-facilitator ITU

The WSIS outputs on capacity building emphasized that "each person should have the opportunity to acquire the necessary skills and knowledge in order to understand, participate actively in, and benefit fully from, the Information Society and the knowledge economy". 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.

Mr Robert Shaw, ITU, reported on the Action Line meeting during the WSIS Forum 2011. An Action Line C4 Facilitation Meeting was co-organized by ISOC and ITU and held on 17 May 2011. It was chaired by Ms Nermine El Saadany, Director, International Relations Division, Ministry of Communications and Information Technology (MCIT), Egypt. Speakers/panellists included Mr Gerard Ross from the Internet Society (ISOC), Mr Mark Summer, Co-Founder and Chief Innovation Officer, Inveneo and Dr Jovan Kurbalija, Director, DiploFoundation.

The WSIS outputs on capacity building emphasized that "each person should have the opportunity to acquire the necessary skills and knowledge in order to understand, participate actively in, and benefit fully from, the Information Society and the knowledge economy." The chosen theme of this year's meeting was the intersection of the three topics "Leadership, Innovation and Capacity Building".

After introductory remarks by the Chairperson, the panellists gave their perspectives on the theme of the meeting. Mr. Ross from ISOC highlighted the non-traditional history of "bottom-up" development of leaders in the Internet community and noted that this leadership model had been very successful in driving innovation and building capacity. He emphasized that in this context, a concept of leadership had emerged not in the Churchillian mold of a single dominant figure with central responsibility, but rather as a meritocracy that emerged out of the collaborative Internet model, sustained and supported by a multi-stakeholder participatory model.

Mr. Summer from Inveneo discussed some of Inveneo's grass roots based capacity-building efforts to support local entrepreneurs on both technical and business issues with a strong focus on ensuring that their efforts were continued and sustainable after they had left. In this context, he noted that while ICTs are a key enabler, many other factors such as culture, business models, and available infrastructure play a key role. In that regard, Inveneo has been attempting to build an eco-system of certified in-country ICT entrepreneurs that they partner with around the world to ensure sustainability.

Dr Jovan Kurbalija, of DiploFoundation discussed their experiences in trying to build capacity to assist small and developing states to participate more efficiently in global policy processes, including Internet governance discussions. He noted the challenges in dealing with the different perspectives on leadership and governance models across the globe (e.g., highly hierarchical versus more flat models, state supremacy versus multistakeholderism).

A question from the floor gave the perspective that even in the multistakeholderism model, strong personalities emerge as leaders and hierarchies eventually form. In reply, it was noted that a desirable leadership trait would be the ability to recognize that different governance perspectives exist as well as the ability to engage and communicate across boundaries in a multi-stakeholder environment. A comment from a remote participant suggested that at the next WSIS AL C4 meeting, there should be a greater emphasis on an interactive dialogue.

Action Line C5: Cybersecurity- Building Confidence and Security in the Use of ICT Organized by ITU

Mr Marco Obiso, ITU presented the report on AL C5, he emphasized on the multi-stakeholder aspect of the Interactive Facilitation meeting on Action Line C5. In line with the WSIS principle of multi-stakeholder participation on an equal footing, and within the framework of WSIS Action Line C5 – Building confidence and security in the use of ICTs, sessions were held during WSIS Forum 2011. He also emphasised the increasing interest of not only the WSIS Stakeholders but also, this year Parliamentarians from all over the world, in the Cybersecurity issues.

He highlighted that in particular, national experts of ICTs have shown how they are dealing with cyber threats and what measures have been adopted. Complete Report of Action line C5 is available at: http://groups.itu.int/wsis-forum2011/Agenda/OutcomeDocument.aspx

Action Line C6: Enabling Environment: Focal Point – ITU

A fundamental role of ITU, strengthened by the World Summit on the Information Society (WSIS), is to promote the creation of an enabling environment for the development of ICTs and to extend the benefits to all. Enacting an appropriate regulatory framework and establishing competition and investment incentives is essential in this regard. As the lead facilitator on WSIS Action Line C6, ITU will continue to showcase successful experiences and look for positive synergies among stakeholders in implementing the WSIS goals.

Ms Alessandra Pileri, ITU reported on Action Line C6. Following tradition, the Action Line C6 Facilitation meeting was organized as an interactive panel discussion, involving multiple stake-holders including national governments, regulators, industry, civil society and international organizations with remote participation. Discussions explored the advantages and challenges of cloud computing technology to governments, industry and other ICT stakeholders, focusing on how it can help companies especially SMEs to reduce their IT costs and governments to provide services to populations at lower costs. The panel addressed the challenges linked to the legal and regulatory issues of cloud computing which are very specific in terms of competition (oligopoly), interoperability, sovereignty, privacy and security.

The theme for this year's discussion was selected based on proposals received during the WSIS multi-stakeholders consultation process. The BDT director noted the growing demand for access to high speed broadband services, both fixed and mobile. He outlined the need for consumer protection, sustainability, transparency, efficiency and stressed the increasing uncertainty surrounding the legal and regulatory obligations related to data in cloud systems that could jeopardize the benefits of cloud computing. He also mentioned the upcoming meetings and in particular, the 12th Forum on Telecommunication/ICT Regulation and Partnership in Africa (FTRA-2011) to be held in Kigali, Republic of Rwanda, 13 to 15 June 2011, that will focus on the theme of Cloud computing.

All panellists underlined the need for low-cost sophisticated and environmentally sustainable IT services and agreed that cloud computing could be looked at as a commodity, like electricity, water or gas and that it is a technical opportunity with the emphasis on operations expenditure rather than

on capital expenditure. Panellists also agreed that stakeholders have increasing difficulties in managing the various ICT systems that are relied upon to do their jobs, and if governments and the private sector can benefit from the optimized pay-per-use resources of cloud computing, then a more general approach to problems such as viruses and spam will also reduce costs.

Where the choice of available services depends on client needs, the building of reliable systems depends on the private sector platform's offer, with long-term concerns of interoperability, safety, security, consumer protection that may require regulatory assistance at international level, to ensure transparency, trust and protection of sovereign rights of national economies. More public-private partnerships were called for, in addition to the need for human resources training and the development of appropriate policy. The oligopolistic situation of the cloud computing market which is dominated by industry players based in developed countries was stressed.

In addition, it was noted that the standardization process will play an important role in the harmonization and interoperability of this new technology, and the legal framework concerning cross-border data and content such as intellectual property rights will need to be discussed. ITU-T established a focus group on the standardization of cloud computing that includes 25 organizations both from the public and private sector, academia and research institutes. The group is open to non-ITU members and examines inter alia questions like security and privacy. The results of the work of the focus group are expected end of 2011. Standards have a crucial role to play in questions of reliability of the infrastructure, mostly in developing countries, and interoperability at and among the different layers: infrastructure, platform of services and software. ITU can certainly play a key role in addressing regulatory challenges requiring international coordination.

Some accessibility and reliability challenges, especially in developing countries, will need to be addressed. Private sector panellists responded that the market will most likely be able to offer innovative solutions. It was also stressed that where security and data protection regulation don't exist, governments and public authorities should take the lead and introduce them.

Finally, the questions of intellectual property rights (IPRs) and the need for capacity building in the area of cloud computing were also discussed. The need for reliable connectivity, electricity and efficient back-up procedures for the data at the consumer level was recognized a key element.

As a follow up on the meeting, information on cloud computing as available and referenced from the ITU's TREG website, work of the ITU-T Focus Group on cloud computing, report and outcome of June 2011 meeting of the Broadband Commission, results and reference documents from the Forum on Telecommunication/ICT Regulation and Partnership in Africa 2011.

Action Line C7: E –Environment- UNEP, ITU, WMO and Basel Convention

Mr Matthias Kern, UNEP provided a reported on the e environment day held at WSIS Forum 2011.

e-Environment day at WSIS Forum 2011

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Finally, participants underlined the positive transformative potential of ICTs to de-carbonize the economy. Examples of this include the promotion and wide deployment of new smart technologies, such as smart grids or intelligent transport systems, as well as ensuring that energy efficient or alternative energy solutions are accessible and affordable for all. This last aspect will be much discussed during 2012, the "*International Year for Sustainable Energy for All*".

Avoiding e-waste. Moving to environmentally sound life-cycle management of ICTs

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The session highlighted the challenges that the accelerated adoption of ICTs will present for human health and the environment if the environmentally sound management of ICT equipment is not applied. From the life-cycle perspective, the engagement of the sector in addressing e-waste is of paramount importance. The link between the ICT and environment sectors at the national level needs to be strengthened to enjoy the benefits of the Information Society without compromising health and the environment. WSIS Forum 2011 Outcome Document

A multi-stakeholder approach to this issue equipment engaging governments, the private sector, academia, and NGOs was accentuated by all panellists. Practical examples further underlined the value of this approach. In particular it was highlighted the role of governments to set up legal frameworks and standards, undertaking capacity-building activities (in particular directed to the informal recycling industry), issuing licensing, and adopting green public procurement. The private sector should also further embrace social corporate responsibility and improve performance in terms of energy consumption and recyclability.

As follow up actions to this session, participants proposed to intensify awareness raising activities directed to the general public, encourage standardization and optimization of the ICT equipment and promote cooperation between the ICT and environment sectors among international organizations and on the national level to more effectively deal with the increased usage of the end-of-life ICT equipment

From WSIS to Rio+20: The role of ICTs in sustainable development and the green economy transition

The action line facilitation meeting session focused on the issue of sustainable development as an alternative model for growth and prosperity as suggested within the framework of the Rio+20 process. Participants in this session highlighted the enormous power of technological innovation and the ICT sector in particular in catalyzing the transition to a "*green economy*". As in the previous sessions, it was recognized that the active involvement and cooperation of all stakeholders will be necessary to move the sustainable development agenda forward.

The ICT industry from its side can leverage the speed of this transition and provide tangible ideas and solutions towards a lower carbon economy through dematerialization, standardization, innovative design of products, new IT-enabled services and applications. At the same time, the private sector needs to adopt a comprehensive approach to secure that innovation is a solution provider and not a problem creator. Behavioural attitudes of consumers as well as policy planning and practices of governments also need to be influenced in order to mainstream environmental concerns and promote ethical consumption. To this end, all stakeholders will need to be actively involved to overcome the obstacles found since the first Earth Summit in the implementation of the major environmental conventions and treaties.

Other issues highlighted during this discussion was the role of the UN system in ensuring both development and inclusion in the modern Information Society or the need for holistic approaches grasping all aspects and levels of planning, policy and practice. For instance, IT-enabled and climate systems can greatly improve better management of resources; however it is critical that the information they provide are relevant to the needs of each actor.

As a conclusion to this session participants agreed that the Information Society has many lessons to share with the sustainable development community. To this end a call to action was launched to look at the lessons learned from WSIS process to prepare an input that can be presented throughout the preparatory process of the Rio+20 conference. Such input would highlight the key role of ICTs in the promotion of sustainable development and assist in the success of the conference. WSIS Forum 2012, which will take place a few weeks before the conference, could be a good platform to present the WSIS Forum 2011 Outcome Document results of this exercise and to promote the launching of new multi-stakeholder partnerships during Rio+20 to promote concrete ICT applications for a sustainable future.

e-Environment day at WSIS Forum 2011

Summarizing, the "*e-Environment day*" brought together experts from the ICT public and private sectors, civil society, as well as experts from the environmental community, looking together at the key role of the information society in the protection of the environment. The three sessions of the day identified several activities to be followed up for WSIS Forum 2012, in particular the invitation to produce an input for the Rio+20 conference. The co-facilitators for this action line invite other action-line co-facilitators to participate in this task.

Finally, one of the success stories of the day was the involvement of the civil society in the organization of the sessions. On the other hand, an aspect to improve for the future was the participation of the public sector, which was in general terms low throughout the sessions. Summarizing, the event moved forward on creating bridges between the ICT and the environmental communities, a bridge that will need to be strengthened in the future.

Action Line C7: e-Learning ICTs and Education, Focal Point- UNESCO

Mr Cedric Wachholz, UNESCO provided an update on the Interactive action line facilitation meeting on e learning.

Under the title of *E-Learning: Teachers Count*, UNESCO facilitated an e-learning session with presentations from intergovernmental organization, governmental sector, teachers' union and NGOs of civil society concerned with teachers role in e-learning.

The meeting was chaired by Mr Karklins, UNESCO Assistant Director General for Communication and Information, and it started out with a round of presentations by the four panellists. Mr. Fengchun Miao, UNESCO ICT in Education Specialist, presented UNESCO's ICT Competency Framework for Teachers, which in 2011 has been updated with example syllabi and experience from applying the Framework for identifying key teacher competencies worldwide. Mr. Mr. Arturo Ramírez, Advisor of the Vice Minister of Basic Education, Ministry of the Public Education, Mexico, then presented the Mexican government's current initiative of training 1.1 million teachers in ICT skills. Mr Hans Laugesen, who is the Senior Educational Policy Officer and International Secretary in GL, the Danish National Union of Upper Secondary Schools and the representative for the Global Teachers' Union (the Education International), highlighted the importance of training teachers in applying ICTs as a pedagogical tool drawing on examples from Denmark, the EU and Uganda. The final presentation was given by Mr Bart Dewaele, the Director-General of VVOB, the Flemish Association for Development Cooperation and Technical Assistance. Mr Dewaele presented the VVOB approach to teacher *grooming*, and highlighted key experiences and challenges in this work such as a clear vision and strategy for teacher development in this field.

After the round of presentations, Mr. Cyril Rithilie, the President of CoNGO (The Conference of Non-Governmental Organizations in Consultative Relationship with the United Nations), summarized the key points and results of the other session on ICT in Education organized by CoNGO in the forum prior to UNESCO's meeting. And then the general discussion focused on available training packages such as the Pedagogical ICT driver license applied by EPICT as well as the Media and Information Literacy Curriculum for Teachers developed by UNESCO. A remote practitioner highlighted the need for the Digital Natives (the students) to integrate the Digital Immigrants (the teachers) into ICT in education.

Mr Karklins summed up the meeting by concluding that we are far from an ideal solution, but that practitioners, experts and decision makers by cooperating and communicating could grow the shared knowledge in this field and work together towards more appropriate solutions.

Action Line C7: E-Business and E-Agriculture, Focal Point – UNCTAD

Ms Marta Perez Cuso, UNCTAD focused on the facilitation process and on building partnerships. UNCTAD, FAO and ITC organised a joint session on the opportunities that mobile technology offers. The first part was devoted to e-business and focused on how mobile money can support small enterprises. It was chaired by ITC, moderated by UNCTAD and was implemented in the form of an interactive dialogue among invited experts and the audience. Dialogue format encouraged interactions and debate. Interaction from remote participants was satisfactory.

The challenge that UNCTAD faces is the there are lack of well defined targets. Lack of dedicated resources hinders the reach of the facilitation process.

Ms Highlighted the request of participation of civil society from developing countries. UNCTAD would like to support the establishment of an e-business target within the WSIS Action lines and hope that this is reflected in the WSIS Overall Review.

The report of the Action Line Facilitation meeting C7 is available here : http://groups.itu.int/wsis-forum2011/Agenda/OutcomeDocument.aspx

Action Line C7: E-Agriculture

Mr Micheal Riggs, FAO, reported on Action Line C 7: e-agriculture. He appreciated remote participation as an integral part of the WSIS Forum 2011.

The action line C7 facilitation meeting provided an opportunity for networking between key stakeholders, enabling a platform for learning and sharing.

Key questions that were addressed included:

- What are the key characteristics that make mobile technology so important to rural and agricultural communities?
- What are the main socio-economic benefits that mobile technology can facilitate in rural communities?
- Why is mobile technology not creating positive benefits in rural communities, and what are some of the challenges that must be faced to rectify this situation?
- What mobile services are most needed in rural and agricultural communities now?
- How can the positive benefits of mobile technology be brought to a wider range of rural communities, enhancing economic development and food security?
- What policies and support mechanisms should governments put in place to foster the positive impact of mobile technology in rural areas?

One of the main outcomes of the Action Line facilitation meeting was to develop an impact evaluation model, for example the 5 indicators identified by Fusion in order to monitor and improve the impact of ICT used in rural communities of Sri Lanka.

Action Line C3: Access/C7: e-Science Focal Point -UNESCO

Mr Cedric Wachholz, UNESCO provided an update on the Interactive action line facilitation meeting on Culture.

Action Line C8: Culture: Focal Point- UNESCO

Mr Cedric Wachholz, UNESCO provided an update on the Interactive action line facilitation meeting on Culture.

Within the framework of Action Line C8 Cultural and Linguistic Diversity, preserving indigenous people's culture is placed at the core of an inclusive, knowledge based Information Society. This year's meeting therefore focused on the theme of promoting indigenous education and intergenerational transmission of indigenous knowledge.

While States recognize the right of education as a universal right, the indigenous experience with education includes a history of negative impacts including the suppression of indigenous languages, culture & knowledge. The UN Declaration on the Rights of Indigenous Peoples attempts to respond to the issues involved in education and indigenous peoples in several articles, most notably Articles 13, 14 and 15. Concepts surrounding the right to indigenous education include:

a) intergenerational transmission of indigenous histories, languages, oral traditions, philosophies, writing systems and literatures (Art 13);

b) indigenous communities' right to establish and control their own education systems, delivered in their own languages and in a manner appropriate to their cultural methods of teaching and learning (Art 14);

c) the right to the dignity and diversity of their cultures, traditions, histories and aspiration which shall be appropriately reflected in education (Art 15)

The C8 discussion provided an opportunity to discuss how indigenous peoples, UNESCO, governments and the private sector are responding to these issues through the Information Society and the use of ICTs.

Speakers were: Malia Nobrega of the International Indigenous ICT Task Force; Roxanna Samii of IFAD; Roxana Widmer-Iliescu of ITU; and Teanau Tuiono and Serena Heckler of UNESCO.

Action Line: C7 e-Health (WHO/ITU)

Mr Hani Eskandar The World Summit on the Information Society's Action Line C7 on e-Health calls for collaborative efforts of governments, the private sector and international organizations in improving health care and health information systems through the use of information and communication technologies (ICTs). It further calls for promoting medical training, education and research, while respecting and protecting citizens' right to privacy.

The session reviewed progress and challenges of e-Health 6 years after the WSIS Tunis phase, from the perspectives of different stakeholders. Speakers and participants discussed the range and scope of ICT for health, progress made in countries and innovations in the field. Key challenges and barriers, and approaches to solving them were also covered. The well-attended multi-stakeholder forum showed the strong interest and growing capabilities in this dynamic action line.

Moderator: Dr Joan Dzenowagis, senior scientist e-Health, WHO

1. **Global perspectives**: Dr Joan Dzenowagis, WHO. Overview of the action line and global progress in key areas (national eStrategies, telemedicine, mHealth and evaluation): highlights from WHO's Global e-Health Survey
2. **Country experience:** Dr. Maki Ortiz Domínguez, Deputy Minister for Integration and Health Sector Development, Ministry of Health, Mexico
3. **Private Sector/NGO efforts:** Ms Moshahida Sultana, Professor of Economics, Dhaka University, Bangladesh Sustainability of e-Health Program in rural Bangladesh – a Case Study from AG Breast Care
4. **Innovation:** Prof. Peter A. Bruck, Chairman, World Summit Awards WSA, winners of the WSA 2012 in the category e-Health.

5. **National e-Health planning:** Mr Hani Eskandar, ITU. Introduction of the Joint WHO-ITU "*National e-Health Roadmap Development Toolkit*"
6. **Standardization:** Mr Masahito Kawamori, Rapporteur of the ITU-T Study Group 16, Question 28 "Multimedia Framework for e-Health": ITU work on e-Health Standardization
7. **Private Sector/NGO efforts:** Dr Pietro Aparicio, Millennia 2015, Destrée Institute, Belgium: Women and eHealth Initiative
8. **Private Sector/NGO efforts:** Mrs Salma Abbasi, The e-Worldwide Group. Leveraging ICTs and social structures to avoidable preventable deaths of mothers and newborns

Facilitation meeting noted that the need to move from pilots to up scaling projects. A lot of innovation has been seen in the area and the potential is huge, however for the innovation to move to a National level we need a ecological approach, enabling human resources, connectivity and infrastructure.

- Issue of standardization was highlighted, to make solutions affordable and interoperable.
- Two MDGs 2 and 5 are related to role of women in health and we could focus on that in the area of e health.
- Proposed a working group to share lessons learned and information with the developing countries.

Action Line C9: Media Focal Point-UNESCO

Mr Cedric Wachholz, UNESCO provided an update on the Interactive action line facilitation meeting on Media. UNESCO hosted the sixth facilitation meeting on C9 media at WSIS Forum 2011 joined by a panel of 4 speakers and 35 participants. The meeting explored various guidelines and media regulation frameworks of broadcasters, particularly PSB, and the emerging social network platforms. UNESCO took the opportunity to present two publications "Public Service Broadcasting: a Comparative Legal Survey" and "Guidelines for Broadcasters on Promoting user-generated Content and Media and Information Literacy".

At reporting session, representative from ITU and AMARC respectively reported ITU's work of supporting transition from analogue to digital broadcasting, and the latest development of community media. A civil society participant reported the recent dynamics of media education. A blogger panellist shared her view on why media regulation matters to every individual, particularly at this social media era. UNESCO's publications were well appreciated by the participants. The discussion focused on how to maintain PSB's important role in digital era, how to deal with the convergence of traditional media and new media, and particularly, the brand new media as Youtube which raises a huge challenge to existing media regulatory framework. Participants also put forward various questions about digital broadcasting transition and community media.

C9 meeting seemed to be the only session focused on media issues. Since Internet and ICT's become most powerful media vehicles in digital era, it would be useful to give more attention to media issues and encourage organizing more media-related events including high level debates at WSIS forum in future

Action Line C10: Ethical dimensions of the Information Society, Information Ethics, Focal Point -UNESCO

Mr Cedric Wachholz, UNESCO provided an update on the Interactive action line facilitation meeting on C 10. The session on "*Cyber and Information Ethics: Freedom & Security, Privacy, Malice & Harm, Property*", provided an opportunity to examine some aspects, that underlie phenomena such as social media, crowd sourcing and the design of information systems which may impede the creation of just, peaceful and inclusive societies and the full expression of human rights.

Emerging from the discussion was a recognition that previously held dichotomies and distinctions around concepts, previously seen as polar; such as the public and private; no longer exist. It was also recognized that trade-offs between issues such as freedom and security can occur and may be accompanied by benefits. The design of information systems and networks was identified as an area which could limit choice by distorting reality and through poorly mediated human interaction cause harm. Issues around trust and the control of and use of personal data particularly bio-data were also examined.

The blurring and morphing of issues and the presence of new threats to human freedoms, which are often not readily noticeable, points to a need for greater public policy discourse around these challenges and their implications to ensure that the maximum benefits are derived and trade-off understood. Some potential areas for research within this action line were identified by participants in response to the discussions

The floor was opened for discussion for **ways to strengthen the WSIS Implementation process**. Participants contributed the following:

WSIS Stakeholder	Submission made by Stakeholder
Civil Society	Focus on thematic sessions requested for future WSIS Forums. Increased representation of Civil Society within the high-level panels/ dialogues of the WSIS Forum.
Civil Society (Latin America)	It is important to ensure the participation and role of Civil Society in all the UN Processes.
World Summit Award	It is important to look at the digital divide in terms of content, applications, language, culture and interaction. Remote participation important and critical for the openness of the process. Reiterated the appreciation for the statistics provided by partnership in measuring ICTs.
ITU	Civil Society members could be invited as panellists in each AL Facilitation Meeting
Journalist/Civil Society (Boris Engleson)	Proposal to develop indicators on role of ICTs in business sector
Civil Society	With reference to AL C2: • ICTs should be considered a part and parcel of general infrastructure. Issue of infrastructure should be a prerequisite for development. It is an effort that needs to be deployed by all WSIS Stakeholders. • All WSIS Stakeholders need to work in partnership to take stock of existing infrastructure. Infrastructure should not be left to the markets.

WSIS Stakeholder	Submission made by Stakeholder
Civil Society -Connecting Every Life	Basic services provided through ICTs should not be conditional to market conditions; mechanisms should be in place for legal processes.
Guinea	Action Line sessions should focus on specific Action Lines; this is important for an effective approach. Sessions organized around specific themes would make it easier to recommend tangible actions.
Civil Society Voice of Africa for Sustainable Development – Nairobi (Remote Participants)	A more visible representation of the work done on the ground to supplement the high-level discussions.

United Nations Group on the Information Society Open Consultations on Overall Review of Implementation of the WSIS outcomes (WSIS+10) E/F

Friday, 20 May, 14:30–17:30, Governing Body Room

Draft Executive Summary of Statements

This executive summary has an informal character and has been prepared based on the recording available at http://groups.itu.int/wsis-forum2011/About/RemoteParticipation.aspx. The main purpose of this executive summary is to facilitate follow-up and future discussions on the Overall Review (WSIS+10) to be held within the framework of the next phases of the UNGIS Open Consultation Process. In case of any questions WSIS Stakeholders are invited to contact the Secretariat at contact@ungis.org

The first physical meeting of the UNGIS Open Consultations on the Overall Implementation of the WSIS Outcomes (WSIS+10) was held on 20 May 2011, on the concluding day of the WSIS Forum 2011. More than 150 high-level representatives from the WSIS Stakeholder community took a proactive role in this first meeting of the UNGIS Open Consultation Process.

As the UNGIS Chair for 2011-2012, **Dr Hamadoun Touré, Secretary-General, ITU**, provided a brief background on the UNGIS Open Consultation Process. This was initiated when the 2010 Plenipotentiary Conference of ITU (Guadalajara, Mexico) adopted Resolution 172 on the Overall Review of the Implementation of the WSIS Outcomes, in line with the Tunis Agenda and the UN General Assembly Resolution 60/252, which decided to conduct an overall review of the implementation of the Summit outcomes in 2015. The ITU Plenipotentiary Resolution 172 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 has requested the ITU Secretary-General to initiate the preparatory process at the UN Chief Executive Board (CEB). Consequently the CEB tasked UNGIS to prepare, on the basis of an open consultation, an Action Plan to organize a high-level meeting on the WSIS Review. The Action Plan would be presented to the CEB meeting in April 2012.

Dr Touré highlighted that 2015 is not only the year set for achieving the WSIS Goals but also will be the review year for the MDGs at the MDG Summit. As it will be difficult to have two major events since one will most likely over shadow the other, 2014 is considered as a logical year for the WSIS Final Review meeting. The results of the meeting will also feed into the MDG review event in 2015.

Dr Touré invited all present to participate in the first physical meeting of the Open Consultations and put forth four themes that helped stir discussions:

1. Objectives, goals, possible outcomes.
2. Type of meeting to be held.
3. Type of preparatory process to be proposed.
4. Timeline.

Dr Indrajit Banerjee, Director, Information Society Division, UNESCO, reiterated that UNESCO welcomed the decision of the CEB and invited all stakeholders present to participate actively in the open consultations.

Dr Mongi Hamdi, Head Science Technology and ICT Branch, Division on Technology and Logistics (DTL), UNCTAD, highlighted that UNGIS has proven to be a successful mechanism for interagency coordination and invited all stakeholders to express their views on the overall WSIS review in 2014.

Mr Gherardo Casini, Head, Office of the United Nations Department of Economic and Social Affairs in Rome and Secretary to the Board, Global Centre for ICT in Parliament, informed all present that UNDESA was appointed as the rotating Vice-Chair of UNGIS for the year 2011-2012 and expressed commitment of UNDESA to the UNGIS Open Consultation process.

Statements received from the floor:

WSIS STAKEHOLDERS	EXECUTIVE SUMMARY OF STATEMENTS RECEIVED
India **(Government)**	1) India has been supporting the WSIS Process from the beginning and welcomes the UNGIS Open Consultation Process. 2) Important to ensure that the benefits of ICTs reach the last mile, in this regard would offer two suggestions: a. All communities are creating their own infrastructure. Let us create a mechanism so that we can evolve a **common platform** in the area of financial inclusion, agriculture, health or education, where all information is available to all the people worldwide. We would be very happy to host such a common platform in India and provide with the required resources. b. Let us identify areas of common interest, such as security, open data, and use of social media for citizen engagement (today people want to be part of the political process).

	3) Requests a. India would like to be **Strategic Partner of WSIS** b. **India would like to host the Overall Review Meeting in 2014**
World Summit Award (Civil Society)	1) Congratulate the ITU for this year's WSIS Forum, in particular the excellent WSIS Forum website, remote participation and the emphasis on dialogue. 2) WSA welcomes this open consultation process. The world's changed tremendously since the two-phase WSIS, with mobile growth for instance. The issue of access of infrastructure and technology is a very different one than from 2005, as well as the digital divide (less of technology and infrastructure, but more of content and cost). **3)** In the process leading up to 2015 **content and cost need to be taken into consideration**, we should **focus on best practices in the area of content.** 4) **Criteria of evaluation regarding the WSIS Stocktaking process** needs to be specified.
CSD PTT & CESIR **(Civil Society)**	1) The topic of funding of the WSIS Targets to foster development needs to be addressed. 2) Suggest setting up a **multistakeholder Forum on the topic of funding**, similar to IGF, to submit recommendations to UNGIS or UNDESA. 3) UNGIS could be the vector of this Forum, and could help organise this Forum, there is a need to create a structure for this forum. 4) In the next WSIS Forum funding to be discussed as a major theme.
The Guild of Service **(Civil Society, India)**	1) **Support the request of the Indian delegation** for the overall review of the WSIS Process to be held in India in 2014, this would have a ripple effects on the entire region.
Hungary	1) Congratulations, WSIS Forum has exceeded expectations. 2) Thoughts on Review Process: **a.** EU Countries not clear about the **year of the review process 2014 or 2015** b. Is it too early to start the open consultations?

Civicus **(Civil Society)**	1) It is not too early to start talking about WSIS+10 2) It is important to start now to **inform and activate civil society to participate** 3) Important to share ideas on the preparatory process with the civil society
Civil Society	1) Congratulate the organizers for successful participation and good quality of discussions at the WSIS Forum 2011. 2) Consider **setting up a voluntary assessment body before 2014**, so that member states and stakeholders can send their outcomes to this body. 3) With respect to Civil Society, funding and means to attend WSIS Forums each year needs to be addressed. 4) Congratulate the Indian Delegation, for their offer to host the WSIS Review in 2014 and applaud them for the publication released during the forum.
Russia Federation	1) Congratulate WSIS as a truly multi-stakeholder platform. 2) We need to work towards **providing results of implementation of WSIS**, with new technologies (broadband and mobility) we also have new challenges (cybersecurity, child protection, etc.). These must be taken into account when the results and proposal for the future of WSIS will be assessed. 3) Propose that a consultation should take place to define ways to **report to the General Assembly**. The Review of WSIS outcomes could be only as a report without any consideration at a global forum, but also could be in the form of a High Level Meeting with participation of all stakeholders in 2014, e.g. in conjunction with PP-10 or a Separate Summit 4) It would be reasonable to say that this **review should be completed by 2014** to be reported to the Millenium+15 Summit in 2015. 5) **Steering Committee** needs to be created as soon as the type of meeting is decided. 6) **Open Consultation should be completed by end of September 2011.** At the Plenipotentiary Conference more than 160 administrations instructed the Secretary General of ITU to report to the Council 2011 that will take place in October 2011.
Poland	1) In July 2011 Poland taking over the presidency from Hungary in the Council of the European Union. 2) WSIS Process is inclusive and Poland in its future role will ensure **good cooperation with EU** in this process.
Finland	1) Welcome the organization of an Event to review what has

	been achieved 2) The **WSIS Overall Review event should have a strong link to the MDGs** and link to the MDG Summit. 3) Finland favours a **true multi-stakeholder approach** that would be **action oriented** and is **not in favor of a lengthy preparatory process** e.g. with prepcom etc. 4) The **WSIS Forum could be used as a platform for the review of the WSIS Outcomes**, with special focus on WSIS Implementation.
United Arab Emirates	1) **Stocktaking methodology** needs to be frozen. We are still talking on how to measure progress. 2) We need to assure a **global report on countries progress**, along with a ranking. 3) We have to show countries where they are lacking and give them the chance to improve before the end of the process. 4) **2014 should be made as a year of a global assessment** on the implementation of the WSIS goals. If we failed we need to decide how to improve. 5) **2015 we need to announce global progress** and achievements and WSIS conclusions 6) The **WSIS process needs to be concluded by 2015**, we have new challenges and priorities. With evolution of technologies everything changes. 7) UAE is committed to the process and will support ITU till the end of the process. There is a need for a very strong leadership from ITU
International Chamber of Commerce (BASIS Initiative) **(Private Sector)**	1) ICC is an active contributor to the WSIS Process since the beginning. 2) WSIS process should continue to include all WSIS Stakeholders in an equal footing. **3)** ICC would encourage all to remain sensitive to the **limited financial resources.** 4) ICC is pleased that **prepcoms are not being considered for this process**. 5) ICC would encourage all **to maximize benefits from the online tools**
Civil Society	1) Important to **enhance participation of Universities and academicians** in the WSIS Process. There is even a resolution approved for this. 2) Academia need to be encouraged to join the WSIS process.
Brazil	1) Propose to set up a **task force for the preparatory process**, to design the process and implement remote participation

	as an integral part of the whole preparatory process itself. 2) Preparatory process must be inclusive and participatory.
Senegal	1) Important to focus on MDGs and the use ICTs to foster development. **2)** Proposal to **use resources most effectively** 3) Carry out a **review on a regional basis/ a regional mechanism** to identify success and failures, also to show how can we improve, why we failed and how can we do better in the future.
Microsoft **(Private Sector)**	1) **Inclusion of Private Sector needed, and was visible** this at WSIS Forum 2011. 2) We support the future of WSIS in particular, e government, IGF, cloud computing, ICT4D, crisis repose and road safety 3) We support goals for online collaboration and facilitation of the future
Association for Progressive Communication (APC) **(Civil Society)**	1) Proposals for improving the implementation process, processes must be clearly defined for participation 2) Processes must be guided by some **principles, with clear mechanism** especially for developing countries , they should be pro-active, and cross-cutting entities. 3) WSIS Stocktaking, **time for analysis and evaluation**. Correlation between what we are taking stock of and the WSIS Outcome themselves. 4) The preparatory process should have **a global and regional approach**. We should use regional IGF processes. 5) APC remains committed to the WSIS processes and on building civil society participation.
Algeria	1) **Raising awareness and enhancing cooperation amongst WSIS Stakeholders at a regional and country level is very important.** Setting up of awareness raising entities in each country is priority. 2) In the next stages of the process important to create focus groups to reach the targets set.
Civil Society	1) Important for Civil Society to know the **format and content** of the WSIS Overall review. 2) **Remote Participation** very important for the process, for Africa for example it is a good idea to use the

	telecommunications schools. They are already visible and active. 3) It is important for the process to be genuinely multi-stakeholder. 4) We need to be concrete and pragmatic – thematic approach useful for this fora.
Civil Society (Sudan)	1) Important to have **country level meetings every year** to evaluate WSIS Implementation in each country. The reports of these meetings can be submitted to the WIS Forum each year.
Civil Society (Remote Participation)	1) It will be important to be clear about the thematic focus of the WSIS Forums.
Republic of Guinea	**1) Concentrate on themes interesting / important for regions at a regional level.** 2) Important to create **regional forums** so that they relate to the implementation of ICTs in the region.
Civil Society (Brazil)	1) Multi stakeholder approach for outreach to bring in new participants and stakeholders. 2) Setting up of a **Working Group to find the links between WSIS process and IGF process**. 3) Exchange **good practices between IGF and WSIS**, remote participation is a good example. 4) More support from other organizations to the IGF secretariat

The UNGIS Chair and Vice-Chairs invited all stakeholders to activate their networks and help ensure that the UNGIS Open Consultation Process (WSIS+10) turns into a fully inclusive process respecting the voice of each stakeholder, enabling UNGIS to build a plan of action which addresses real needs.

Closing Ceremony

Friday, 20 May, 17:30–18:00, (Governing Body Room)

The closing ceremony of the WSIS Forum 2011 took place on 20 May. Concluding the Forum, Dr Touré invited H.E. Mr Mohamed Nasser Al Ghanim, TRA, Director-General, United Arab Emirates, strategic partner of the WSIS Forum 2011, for his closing remarks.

H.E. Mr Al Ghanim congratulated all participants for their common commitment and vision for achieving the WSIS Targets. He emphasized the healthy discussions and positive outcomes of the WSIS Forum 2011, which were a testimony to the fact that all WSIS Stakeholders could work together to achieve the WSIS Goals. During Forum, the UAE was able to share its ongoing projects as well as its plans for the next four years. The UAE–WSIS National Report, a high-level briefing on UAE and WSIS implementation, was released during the Forum. The Forum provided a good platform for highlighting the achievements of the UAE–WSIS National Committee. Mr Ghanim offered his sincere appreciation to ITU and the other facilitating organizations.

Dr Touré thanked the UAE for its continued support and partnership as a Strategic Partner of WSIS Forum 2011, Oman for its role as a Workshop Partner and Mexico for the Spanish translations. He went on to thank all WSIS Stakeholders for their contributions and commitment towards the implementation of the WSIS Goals. Dr Touré thanked the UN agencies and colleagues from the UN agencies for working in close partnership to achieve tangible results. He congratulated all WSIS Stakeholders for their positive spirit and for making the WSIS Forum a successful event. He requested suggestions for improvement and appreciated the work done by the WSIS Secretariat. Dr Touré then invited the co organizers for their concluding remarks.

Mr Cedric Wachholz, UNESCO; Dr Mongi Hamdi (Head Science Technology and ICT Branch, Division on Technology and Logistics (DTL), UNCTAD; and Mr Slava Cherkasov, DPADM/DESA, thanked ITU, the Secretary-General of ITU and other co-organizers, participants (both remote and on-site) and expressed appreciation for the efforts of all the WSIS Stakeholders in implementing the WSIS Goals.

Strategic Partner WSIS Forum 2011: UAE

Organizers of the WSIS Forum 2011 would like to thank the United Arab Emirates (UAE) for their significant contribution towards strengthening all activities related to the Forum.

United Arab Emirates

"The WSIS Forum is a great platform to showcase practices being followed elsewhere that aid effective deliberation and knowledge dissemination in implementing the WSIS Action Lines, and towards achieving the WSIS goals."

H.E. Mohamed Nasser Al Ghanim
TRA, Director-General
United Arab Emirates

Thematic Workshop: E-Gov Strategy (UAE)

Thematic Workshop: Domain name Industry in UAE, changing the landscape (UAE)

TRA attended the World Summit on the Information Society 2011. The first day of the summit comprised of the High Level Dialogue in which specific topics were addressed by panel members as well as by the audience. This year the topics were: Echo of Silence and the Cooperation between public and private partnerships (PPP). The goal of WSIS is to work together in multi-stakeholder set ups to achieve a common vision and commitment by creating people focused, development-oriented Information Society.

The high-level dialogue was followed by the WSIS report which provided an overview of the industry. WSIS holds country specific workshops in order to aid countries in implementing key action lines of the WSIS. The workshop is designed to allow attendees to learn and share country specific experiences. Topics addressed in the UAE Country Workshop included: UAE WSIS Committee Achievement, Abu Dhabi e-strategy program, .emarat, IXP project, and Spectrum management and radio services. The workshop was followed by a reception which was attended by H.E. Mr. Mohamed Nasser Al Ghanim, TRA Director General, and H.E. Hamadoun Touré, H.E Ambassador Obaid Salem Al Zaabi, Permanent Representative of the United Arab Emirates to the United Nations in Geneva.

The 2nd Day of the summit held the Thematic Workshop entitled “Abu Dhabi e-government program” which was moderated by Suleman Bakhsh, Senior ICT Analyst. This was followed by workshops on the Abu Dhabi Green IT Strategy and the Abu Dhabi Egov Contact Center. A briefing session covering the UAE ICT Discovery (UAE Sponsoring an ICT Museum at the ITU) followed. The final workshop on the 2nd day encompassed the Thematic Workshop with the following agenda: UAE Domain Name—Changing the Landscape, .ae DA history, background, and Technical, Business, Policy and Awareness. These Thematic Workshops are interactive sessions which cater to requests received from stakeholders during the open consultation process. The workshops are designed by the stakeholders themselves.

The final two days of the summit held high level dialogues catering to the topics: Innovation for digital inclusion (ADSIC was on the panel) and Cyber Security. As the industry undergoes fast changes, innovative technologies can bridge the gap between countries that are capitalizing on the digital age and those countries which are still yet to emerge. This discussion talked about taking the “digital divide” and turning it into a “digital opportunity”.

The final high level discussion provided insight on Confidence and Security in Cyberspace. It was an interactive panel discussion including the audience. The ICT services are hindered by the growing cyber threats and cybercrime, from financial and identity related frauds. Panellists introduced challenges and solutions in order to build a safer interconnected world as well as best practices and actions that make difference in the cyberspace.

Workshops Partner WSIS Forum 2011: Oman

Thematic Workshop: The Al-Shifa Hospital Information system (Universal Health Information hand in hand with Universal Health Care) (Oman)

Thematic Workshop: Managing human recourses at national level – How Oman is managing a huge workforce to supplement its own (Oman)

The Information Technology Authority (ITA) recently represented Oman at the World Summit on the Information Society (WSIS) 2011 in Geneva, Switzerland, on the 16th and 17th of May 2011. Hosted by the International Telecommunications Union (ITU), the ITA participated in a number of activities at the 2011 WSIS Forum, which was conducted at the Conference Centre of the International Labour Organization (ILO). WSIS 2011 is the world's largest annual gathering of the world's 'ICT for development' community, including UN agencies, governments, and civil society and ICT industry representatives.

First on the agenda, ITA conducted a Country Workshop, in which there was a presentation on ITA activities which was moderated by Talal Al Rahbi, Deputy CEO of Operations at ITA. Following this presentation, the ITA facilitated two Thematic Workshops: one, which was presented by the Ministry of Health (MoH), and a second one by the Ministry of Civil Services (MoCS). In addition to Talal Al Rahbi, Deputy CEO of Operations at ITA, the Oman delegation attending this year's WSIS event included HE Yahya Salim Al-Wahaibi, Ambassador, and Permanent Representative of The Sultanate Oman to the United Nations & World Trade Organization (WTO); Ms. Shariffa Al Meskary, Director of International Relations and Information at ITA; among other representatives of ITA, the Ministry of Health and the Ministry of Civil Services. HE Dr. Ahmed bin Mohammed bin Obaid Al Sa'eedi, Minister of Health, already in Geneva attending a World Health Organization (WHO) meeting, attended the MoH Thematic Workshop.

In his opening speech in the Country Workshop on Oman, HE Yahya Salim Al-Wahaibi, Ambassador, and Permanent Representative of The Sultanate Oman to the United Nations & World Trade Organization (WTO) said, "Under the guidance of His Majesty Sultan Qaboos bin Said, the Sultanate of Oman has been transformed into a modern state with a stable and strong growing economy and increasing economic opportunities. With the goal of diversification of the economy and the transformation of the sultanate into a knowledge-based society and the establishment of the TRA and ITA, the ICT sectors have witnessed rapid progress in recent years. The Digital Oman strategy, or e.oman for short, has laid the vision and the road map for the realization of an information society where the government delivers customer-centric services, harnessing modern technology.

He continued, "e.oman comprises a wide range of initiatives and services designed and created to improve the efficiency of government services, and empower individuals with skills and knowledge to meet society needs and expectations and to direct Oman towards becoming a knowledge-based economy. In this regard, Oman's Information Technology Authority, Ministry of Education, Ministry of Civil Services and the National Association of Cancer Awareness have recently been named winners of the 2011 UNPSA. The ITA was a first place winner with its transforming the society through the e.oman communication strategy in the category of advancing knowledge management

in government. This achievement is a testament to the Sultanate's unwavering desire to excel at providing exceptional public service. We are pleased to be part of the WSIS Forum 2011, which is brings together governments, private sector, international organizations, civil society, academia and other individuals from all over the world. In conclusion, I am pleased to extend my gratitude to the ITU as well as to all those who contributed in the preparation of the workshops."

The World Summit on the Information Society (WSIS) evolved as a means of recognizing the importance of the revolution in ICTs as a means of shaping the future of the world. World leaders decided that a global vision and a global dialogue were needed to build the framework of an all-inclusive and equitable Information Society. Thus, WSIS was born. The goal of WSIS is to achieve a common vision, desire and commitment to build a citizen-centric, inclusive and development-oriented Information Society where everyone can create, access, utilize and share information. Begun as a unique two-phase United Nations (UN) summit aimed at addressing the issues raised by information and communication technologies (ICTs) through a structured and inclusive approach at the national, regional and international levels, the first phase of the Summit was hosted by the ITU in December 2003, and Tunisia hosted the second phase in Tunis in November 2005. The Tunis Agenda for the Information Society states that the WSIS implementation mechanism at the international level should be organized taking into account the themes and action lines in the Geneva Plan of Action, and moderated or facilitated by UN agencies when appropriate.

The annual WSIS Forum builds upon the tradition of annual follow-up meetings for the implementation of WSIS outcomes, which are normally scheduled in May, to coincide with celebrations of the World Telecommunication and Information Society Day (WTISD) to mark ITU's founding in 1865. The Forum provides opportunities to network and participate in multi-stakeholder discussions and consultations on WSIS implementation. These include meetings for facilitators, thematic workshops and speed exchanges on critical issues. Contributing at this year's WSIS Forum, Oman is one of 20 ICT ministries from around the world presenting their achievements in workshops and at meetings, with the total number of participants exceeding 1,400.

This year, e.oman is proud to sponsor the series of workshops being conducted at the 2011 WSIS Forum. In the Country Workshop about Oman, WSIS Forum participants learned how in less than forty years the Sultanate has gone from an era of widespread illiteracy, to the high-tech age where the youth receives ICT education at university level. Oman now offers digital solutions throughout society while simultaneously raises awareness, as well as builds ICT capacity and fosters e-skills in its population to reap the benefits of new technology. It aims to create an effective government-community-citizen infrastructure that provides better public services to its people. The workshop focused on two main points, namely: How to develop and promote programmes in order to eradicate illiteracy using ICTs at a national level; and, How to promote e-literacy skills for all by designing and offering courses of public administration.

Shariffa Al Meskary, Director of International Relations and Information at ITA, a member of the Oman delegation offered the following statement: "Oman is in Geneva showcasing its best practices in information awareness, ICT capacity building, eHealth services and transparency in public services recruitment. This year's WSIS forum is about discussing the road map to 2015 and how ready countries are to date, complying with the 11 Action lines of WSIS. The e.oman strategy/vision is in line with the 11 action lines of the WSIS, e.g. eHealth, eEducation, infrastructure and educating the society in using ICT, including people with disabilities by training them in using ICT tools which can assist them with their disability. Oman is looking forward to cover all the 11 action lines including the 8 millennium development goals which are also included in WSIS."

The Information Technology Authority, the organization responsible for implementing the Digital Oman Strategy, or e.oman for short, also facilitated two Thematic Workshops. The first workshop presented a synopsis of Oman's Ministry of Health's Al Shifa Hospital Information System, which notably won a prestigious UN Public Services Award in 2010 in the category of 'Advancing Knowledge Management in Government'. Al Shifa, a comprehensive healthcare information management system, is a complete solution developed to electronically manage details about patients' healthcare information, in addition to maintaining non-medical systems like blood bank, pharmacy supplies, X-ray departments, and emergency medical stores. Accessible throughout the Sultanate, the system essentially eliminates the old-fashioned pen and paper system as a means of intra-departmental communication.

The second workshop focused on Oman's Ministry of Civil Service's Central Recruiting System, which recently won another UNPSA in the 2011 competition in the category of 'Preventing and combating corruption in the public service' category. Development and implementation of the new Central Recruiting System using SMS improved recruitment for the 35 ministries and government units under the Civil Service Law. Job seekers can now apply for Civil Service jobs by sending an SMS with their Manpower Registration Number and the corresponding job

identification number published in the advertisements. Through integration with the Ministry of Manpower's National Manpower System, the system validates the applicant's data in seconds. The job seekers can apply for jobs in the Civil Service at anytime, anywhere, eliminating the need to travel to the capital just to submit applications and sit for entrance exams. The system electronically verifies applicants' qualifications; administers computer-based examinations; and, electronically grades exams, immediately producing results. From an initial 11-month time frame, the whole process is shortened to less than a month and, less than a week from testing to nomination.

Presenting Oman in such a prestigious setting as the WSIS Forum 2011, held at the ITU headquarters in Geneva, gives credence to Oman's focus and great attention paid to its implementation of the WSIS Action Lines. It also gives the sultanate an opportunity to share its achievements with respect to harnessing ICTs in the world arena. Continuing in the global perspective, Oman also recognized the World Telecommunication and Information Society Day (WTISD) 2011 on 17 May with the rest of the world in Geneva as part of WSIS 2011 activities. The sultanate will host its own celebrations of WTISD 2011 on Saturday, 21 May 2011, at the Grand Hyatt Hotel in Muscat, starting at 10:00 AM.

Documentation of the WSIS Forum 2011

Videos Highlights and Interviews of the WSIS Forum 2011

All official videos highlights and interviews are available at:

- http://www.youtube.com/playlist?p=PLBEE8B57141E3B3A7

Photographs of the WSIS Forum 2011

All official photographs are available at:

- ITU Flickr: http://www.flickr.com/photos/itupictures/sets/72157626756235034/
- ITU Photo Gallery: http://www.itu.int/net/pressoffice/photolibrary/display.aspx?event=199&ple=199&k=&d=&t=&id=

Webcast of the WSIS Forum 2011

Session webcasts of WSIS Forum 2011 are available at:

- http://www.itu.int/ibs/WSIS/201105forum/index.html

Adobe Connect Rooms

Remote delegates were able to participate in the WSIS Forum 2011 via the Adobe Connect (virtual) conference rooms. These rooms allowed remote delegates to follow the video feed of the conference room, hear what was being discussed (English channel), see presentations and documents, and ask panellists questions via chat. Each session had 10-15 minutes for questions from remote delegates.

- http://itu.adobeconnect.com/wsisgoverning_body_room/
- http://itu.adobeconnect.com/wsisforum_room_ii/
- http://itu.adobeconnect.com/wsisforum_room_iv/
- http://itu.adobeconnect.com/wsisforum_room_v/
- http://itu.adobeconnect.com/wsisforum_room_ix/
- http://itu.adobeconnect.com/wsisforum_room_xi/

Short Video:

- Inside an Adobe Connect Meeting Room

See also:

- Frequently Asked Questions for Remote Participants

Press Overview of the WSIS Forum 2011

Please find below a collection of all the WSIS Forum 2011 articles that were brought to the notice of the WSIS Secretariat. Please send additional articles to wsis-info@itu.int

Open Access at the WSIS Forum 2011

IFLA

Dear Colleagues

As you may know, the IFLA General Assembly passed a resolution at the Gothenburg Congress in 2010 that encouraged IFLA to become more involved in the promotion of open access issues. Following up on this, I would like to draw your attention to the United Nations Group on the Information Society (UNGIS) Areas of Focus for 2010-2011. One of the areas of focus is "Open Access to Scientific Knowledge" – a great opportunity for us to showcase the innovative open access activities of libraries at a UN level.

http://www.ifla.org/en/news/open-access-at-the-wsis-forum-2011

7 January 2011

The WSIS Forum 2011 ,and, WSIS Action Lines

By AHMED EISA SUDAN

Seep community.com

This year's Forum will offer a diverse range of interactions, including High-level Dialogues, WSIS Action Line Facilitation Meetings, Facilitators Meeting, interactive sessions, thematic workshops, country workshops, knowledge exchanges, publication releases and exhibitions, as well as IGF Open Consultation, Parliamentary Forum, UNGIS meetings.

http://seepcommunity.com/profiles/blogs/the-wsis-forum-2011-and-wsis

7 May 2011

UAE Telecommunications Regulatory Authority sponsors WSIS 2011

Teletechwire

Abu Dhabi (Teletechwire): The Telecommunications Regulatory Authority (TRA) has put the final touches on preparations for the World Summit on the Information Society (WSIS 2011).

http://teletechwire.com/20110508/3597.php

8 May 2011

TRA gears up for world summit in Geneva

The Gulf Today

ABU DHABI: The Telecommunications Regulatory Authority (TRA) has put the final touches on preparations for the World Summit on the Information Society (WSIS 2011).

http://gulftoday.ae/portal/6011a307-9d61-4ee7-bca0-0371d5b28f9e.aspx

9 May 2011

WSIS Forum 2011

ICDE

UNESCO is organizing a high level debate on the right to communication, together with six sessions on themes related to education and the media at the WSIS Forum 2011 to be held in Geneva, Switzerland and online, 16-20 May 2011.

http://www.icde.org/WSIS+Forum+2011.b7C_wtfU32.ips

10 May 2011

Secretary-General, in Message to WSIS Forum, Calls for Innovations to Translate Targets into Equitably Distributed Achievements

IEWY news

Following is UN Secretary-General Ban Ki-moon's message to the WSIS [World Summit on the Information Society] Forum 2011, to be held in Geneva on 16 May:

http://www.iewy.com/26264-secretary-general-in-message-to-wsis-forum-calls-for-innovations-to-translate-targets-into-equitably-distributed-achievements.html

14 May 2011

BSNL will construct the colossal fibre-network under National Broadband Plan: Sibal

By Prashant Duggal

Real Time News

Despite strong reservations from the Telecom Regulator, telecom minister Kapil Sibal has said that the state-owned Bharat Sanchar Nigam (BSNL) will be tasked with creating a massive optic-fibre network across the country. Speaking at the World Summit on the Information Society (WSIS) in Geneva today, Sibal said that "initially," BSNL will be in charge of the roll-out.

http://rtn.asia/387_bsnl-will-construct-colossal-fibre-network-under-national-broadband-plan-sibal

16 May 2011

World Information Society Summit Assessment: ICT Services Deemed Less Costly

By William New

Intellectual Property Watch

More than five years since the last UN-led World Summit on the Information Society (WSIS) and less than five years before the 2015 target date of the Millennium Development Goals, experts and representatives of needy countries are in Geneva to assess how it is going. One thing they are being told: the price of information and communications technology services has dropped in the past two years.

http://www.ip-watch.org/weblog/2011/05/16/world-information-society-summit-assessment-ict-services-deemed-less-costly/

16 May 2011

Azerbaijan participates in discussion of ICT role in socio-economic development of the planet

Azerbaijan Business Center

Baku, Fineko/abc.az. Within the forum on execution of solutions of World Summit on the Information Society (WSIS) starting today Azerbaijan participates in discussion of ICT role in socio-economic development of the planet.

http://abc.az/eng/news_16_05_2011_54172.html

16 May 2011

Cette semaine à Genève: le Sommet mondial sur la société de l'information (SMSI-WSIS) éd. 2011

La tribune de Genève

Le Sommet mondial sur la société de l'information ? Une nébuleuse ou des actions concrètes ? La 1ère édition fut lancée en 2003 à Genève, puis il y eut Tunis en 2005 (oui, vous lisez bien Tunis), et un certain nombre de réunions intermédiaires dont celle de cette semaine à l'Union internationale des télécommunications.

Un certain nombre d'organisations internationales, la société civile, des représentants gouvernementaux constituent l'assistance.

http://jpaccart.blog.tdg.ch/archive/2011/05/16/4eadb89b3806f09bac3c4c1e2765977d.html

16 May 2011

Talk is cheaper

The Economist

The cost of telecommunications has fallen worldwide

DEVELOPING countries still pay far more for communications than developed countries as a proportion of overall income. But over the past two years these services have become more affordable worldwide, according to the ITU (International Telecommunication Union).

http://www.economist.com/blogs/dailychart/2011/05/telecommunications

17 May 2011

The Poor May Have Cell Phones But Not Computers

By Pamela Taylor

The Global Journal

Concerned that the world's poorest are missing out on the benefits of internet connectivity, the UN convened a World Summit on the Information Society (WSIS) in Geneva (May 16-20) to discuss how the internet can help address the UN's eight anti-poverty goals known as MDGs (Millennium Development Goals) by 2015.

http://www.theglobaljournal.net/article/view/112/

17 May 2011

World IT forum opens in Geneva

Newsbytes Philippines

The World Summit on the Information Society (WSIS) opened in Geneva, Switzerland on Monday with the Philippines, represented by the Commission on Information and Communications Technology (CICT), as one of the participants.

http://newsbytes.ph/2011/05/17/ph-present-as-world-it-forum-opens-in-geneva/

17 May 2011

Oman participates in WSIS forum

Oman Daily Observer

The Information Technology Authority (ITA) represented Oman at the World Summit on the Information Society (WSIS) 2011 in Geneva on May 16 and 17. Hosted by the International Telecommunications Union (ITU), the ITA participated in a number of activities at the 2011 WSIS Forum, which was conducted at the Conference Centre of the International Labour Organisation (ILO).

http://main.omanobserver.om/node/51523

Oman
18 May 2011

Oman represented at WSIS Forum 2011 in Geneva, Switzerland

e.Oman

The Information Technology Authority (ITA) recently represented Oman at the World Summit on the Information Society (WSIS) 2011 in Geneva, Switzerland, on the 16th and 17th of May 2011. Hosted by the International Telecommunications Union (ITU), the ITA participated in a number of activities at the 2011 WSIS Forum, which was conducted at the Conference Centre of the International Labour Organization (ILO). WSIS 2011 is the world's largest annual gathering of the world's 'ICT for development' community, including UN agencies, governments, and civil society and ICT industry representatives.

http://www.ita.gov.om/ITAPortal/MediaCenter/NewsDetail.aspx?NID=363

18 May 2011

Al Qaed speaks about Bahrain's eGovernemnt in Geneva Summit

Bahrain News Agency

Geneva, May 21 (BNA) The eGovernment Authority of the Kingdom of Bahrain represented by its CEO Mohammed Al Qaed took part in a workshop included in the World Summit of the Information Society 2011 (WSIS 2011) from May 16 to 20.

http://www.bna.bh/portal/en/news/457455

21 May 2011

Comunicado de prensa de Business Wire : TRA

Terra

Los EAU, representados por el Comité Nacional de la WSIS, participaron en la Cumbre Mundial sobre la Sociedad Informática (World Summit on the Information Society,WSIS) 2011, que tuvo lugar en Ginebra del 16 al 20 de mayo de 2011, en calidad de patrocinador oficial y socio estratégico del evento.

http://www.terra.com.mx/noticias/articulo/1116116/Comunicado+de+prensa+de+Business+Wire++TRA.htm

22 May 2011

UAE Group Photo at the WSIS 2011

Entornointeligente.com

Los EAU, representados por el Comité Nacional de la WSIS, participaron en la Cumbre Mundial sobre la Sociedad Informática (World Summit on the Information Society, WSIS) 2011, que tuvo lugar en Ginebra del 16 al 20 de mayo de 2011, en calidad de patrocinador oficial y socio estratégico del evento.

http://www.entornointeligente.com/articulo-completo/1117554/UAE-Group-Photo-at-the-WSIS-2011-Photo-Business-Wire

22 May 2011

Gli Emirati Arabi partecipano al Summit mondiale sulla società dell'informazione 2011 (WSIS)

Wall Street Italia

Gli Emirati Arabi, rappresentati dal comitato nazionale WSIS, hanno partecipato al Summit mondiale sulla società dell'informazione 2011 (WSIS, World Summit on the Information Society) tenutosi a Ginevra nei giorni 16-20 maggio 2011, in veste di sponsor ufficiale e partner strategico dell'evento.

http://www.wallstreetitalia.com/article/1135827/gli-emirati-arabi-partecipano-al-summit-mondiale-sulla-societa-dell-informazione-2011-wsis.aspx

22 May 2011

Bahrain showcases its eGovernment experience at WSIS Forum 2011 in Geneva

ameinfo.com

The Kingdom of Bahrain was represented by the CEO of the eGovernment Authority, Mr. Mohammed Ali Al Qaed, who participated in a workshop as part of the World Summit on the Information Society Forum (WSIS) 2011 in Geneva, Switzerland held between the 16th to the 20th of May. It is one of the largest annual conferences held under the United Nations and various UN organizations.

http://www.ameinfo.com/265889.html

Bahrain
23 May 2011

Bahrain wins laurels at global eGov forum

TradeArabia

Bahrain won wide recognition from leading Information and Communication Technology (ICT) experts for its eGovernment program at the 'World Summit on the Information Society Forum' (WSIS) held in Geneva, last week.

http://www.tradearabia.com/news/LAW_199070.html

Bahrain
23 May 2011

La participation des Émirats Arabes Unis au Sommet Mondial sur la Société de l'Information(SMSI) 2011

TF1 News

Les Émirats Arabes Unis, représentée par le Comité National pou le SMSI, a participé au Sommet mondial sur la société de l'information SMSI 2011 qui a eu lieu à Genève entre le 16 et 20 Mai, comme un sponsor officiel et partenaire stratégique de l'événement.

http://bourse.lci.fr/bourse-en-ligne.hts?urlAction=bourse-en-ligne.hts&idnews=BNW110523_00005930&numligne=0&date=110523

23 May 2011

Forum 2011 du SMSI : Janis Karklins rappelle l'importance des TIC dans l'édification des sociétés du savoir

Tolerance.ca

En ouverture du Forum 2011 du SMSI, Janis Karklins, sous-directeur général de l'UNESCO pour la communication et l'information, a rappelé que l'UNESCO est très attachée au processus de suivi du SMSI et que l'Organisation est déterminée à continuer à jouer un rôle actif pour assurer le succès de la mise en œuvre des résultats du SMSI à l'échéance de 2015.

http://www.tolerance.ca/ArticleExt.aspx?ID=111022

23 May 2011

Les gouvernements du G8 invités à adopter une approche multipartite pour débattre des questions liées à l'Internet

Génération nouvelles technologies

Les mêmes organisations apportent actuellement leur expertise, contribution et expérience précieuses à d'autres forums intergouvernementaux, y compris par le biais du Comité consultatif technique de l'Internet (ITAC) de l'OCDE. Les organisations ont également rappelé l'engagement pris par les gouvernements lors du Sommet Mondial sur la Société de l'information (SMSI)

http://www.generation-nt.com/gouvernements-g8-invites-adopter-approche-multipartite-newswire-1207541.html

23 May 2011

Monsieur Sarkozy, osez un e-G8 Forum multipartite

Le monde.fr

La Coalition pour la Gouvernance d'Internet (Internet Governance Caucus) est un forum ouvert composé d'individus et d'organisations issus de la société civile qui se sont réunis dans le contexte du Sommet Mondial sur la Société de l'Information (SMSI) pour promouvoir des objectifs d'intérêt public mondial en ce qui concerne la mise en place de politiques de gouvernance d'Internet.

http://www.lemonde.fr/idees/article/2011/05/24/monsieur-sarkozy-osez-un-e-g8-forum-

multipartite_1526245_3232.html

24 May 2011

Journée mondiale des télécoms et de la société de l'information : Les TIC au secours du monde rural

It mag

Les chiffres les plus récents indiquent que 70% des 1,4 milliard d'habitants de pays en développement considérés comme extrêmement pauvres vivent en zone rurale. Ils sont aussi ceux qui ont le moins accès aux TIC et à leurs avantages.

http://www.itmag-dz.com/2011/05/journee-mondiale-des-telecoms-et-de-la-societe-de-l%E2%80%99information-les-tic-au-secours-du-monde-rural/

24 May 2011

WSIS, ICT4D and the future

By Adekunle Adekoya

Vanguard

Last week, the World Summit on Information Society held in Geneva, and for the whole of last week, technocrats and other specialists in information technology gathered to further brainstorm on the sole objective of making life better for man.

http://www.vanguardngr.com/2011/05/wsis-ict4d-and-the-future/

25 May 2011

World YWCA Participates in the World Summit on the Information Society

World YWCA

On May 16-20, 2011, the World YWCA participated in the World Summit on the Information Society (WSIS) forum which was held in Geneva, Switzerland. The WSIS focuses on the speedy expansion of information technology (ICT) and utilisation towards the Millennium Development Goals in crucial areas like the environment, health and education. Hendrica Okondo, World YWCA Global Programme Manager SRHR and HIV and Focal Point for Africa, and Alemtsehay Gebremichael, Programme Associate Communications, attended the Summit. The WSIS provided structured opportunities to network, learn and to participate in multistakeholder discussions and consultations.

http://www.worldywca.org/YWCA-News/World-YWCA-and-Member-Associations-News/World-YWCA-Participates-in-the-World-Summit-on-the-Information-Society

27 May 2011

World Summit on the Information Society (WSIS) Forum 2011

IFLA, along with Electronic Information for Libraries (eIFL) and UNESCO, held an Interactive Facilitation Meeting on Open Access in Geneva, Switzerland on May 19th, as part of the World Summit on the Information Society (WSIS) Forum 2011.

http://www.ifla.org/en/node/5630

30 May 2011

PHL joins world summit on communications technology

GMA News

The Philippines was represented at the World Summit on Information Society (WSIS) Forum 2011 in Geneva from May 16 to 20, the Department of Foreign Affairs (DFA) said.

In a news release posted on its website, the DFA said Commission on Information and Communications Technology (CICT) Chairman Ivan John Uy led the Philippine delegation in the forum which was hosted by the International Telecommunications Union (ITU).

http://www.gmanews.tv/story/222143/pinoy-abroad/phl-joins-world-summit-on-communications-technology

May 31, 2011

PHl Participates at the World Summit on Information Society Forum 2011 in Geneva

Department of Foreign Affairs, Philippines

The Philippine Permanent Mission to the United Nations in Geneva reported that Commission on Information and Communications Technology (CICT) Chairman Ivan John Uy led the Philippine delegation in the recently concluded World Summit on Information Society (WSIS) Forum 2011, hosted by the International Telecommunications Union (ITU), from May 16 to 20 in Geneva.

http://www.dfa.gov.ph/main/index.php/news-from-rp-embassies/3103-phl-participates-at-the-world-summit-on-information-society-forum-2011-in-geneva

31 May 2011

Форум ВВУИО-2011 открылся в Женеве

пресс-релиз МСЭ

В этом году Форум Всемирной встречи на высшем уровне по вопросам информационного общества (ВВУИО), совместно организуемый МСЭ, ЮНЕСКО, ЮНКТАД и ПРООН, пройдет с 16 по 20 мая в Женеве.

http://www.iis.ru/content/view/543/91/

For further information, please contact :

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wsis-info@itu.int
www.wsis.org/forum

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International Telecommunication Union

World Summit on the Information Society

WSIS Stocktaking: Success Stories 2011

www.wsis.org/stocktaking

working together towards 2015

World Summit on the Information Society
Turning targets into action
Geneva 2003 Tunis 2005

ITU

WSIS Stocktaking: Success Stories 2011

Case Studies

Version 1.1

www.wsis.org/stocktaking

2015
World Summit
on the Information Society
Turning targets into action

ITU

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Disclaimer

Information contained in this publication is provided by multiple stakeholders that contributed to the WSIS Stocktaking Platform and do not engage ITU.

International Telecommunication Union (ITU), Geneva

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Introduction

This is the first edition of the success stories publication prepared within the framework of World Summit on the Information Society (WSIS) Stocktaking Process. It contains set of case studies to be presented at the WSIS Forum 2011 in Geneva. The WSIS Forum builds upon tradition of the annual Cluster of WSIS Related Meetings, and since 2009 is held every year following an open consultation process which brings together different stakeholders involved in the WSIS Process who shape the information society of tomorrow. Following Para 109 Tunis Agenda on the Information Society (TAIS) the WSIS Forum serves as an unique platform for annual meeting of the moderators/facilitators of action lines to coordinate the implementation at global level and to assess the progress that has been made so far. The WSIS Stocktaking Process, as requested in paragraph 120 of TAIS , serves as effective tool for assisting with the follow-up of the WSIS Process, beyond the conclusion of Tunis phase of the Summit. It has complementary function to the WSIS Forum letting the stakeholder highlight their stories accessible online and serving as reference material while discussing implementation of 11 WSIS Action Lines.

Therefore the main role of the WSIS Stocktaking is to maintain a public database which showcases the wide range of reported actions undertaken by different stakeholders to achieve the targets set in the WSIS Outcome Documents. Similarly, this publication *Success Stories 2011* aggregates several voluntary contributions from around the world that were collected during the period 2010-2011, and illustrates key lessons drawn from the management of these projects. By sharing these case studies, stakeholders are intending to facilitate transfer of knowledge, experiences and models for project implementation. Success Stories 2011 aim at encouraging the others to share their experiences from the WSIS implementation.

The management of the challenges that have been overcome by a country can serve as a basis for other stakeholders facing similar situations and seeking for possible solutions. Even though some of the case studies included in this publication address very specific and country-oriented solutions, they can certainly be transposed and adapted to different contexts. They are emphasizing on innovation and sustainability of project implementation towards building an inclusive information society.

It is worth noticing that more projects can be consulted in the online database of WSIS Stocktaking (www.wsis.org/stocktaking). It is strongly believed that knowledge sharing can enhance international cooperation and problem solving. Following the 2010 ECOSOC Resolution on “Assessment of the progress made in the implementation of and follow-up to the outcomes of the World Summit on the Information Society” all WSIS stakeholders are encouraged to continue to contribute information to the WSIS Stocktaking database (www.wsis.org/stocktaking). This specific set of case studies presented in this publication was compiled on a voluntary basis and provides valuable knowledge that could be transmitted to other stakeholders.

Summaries of the success stories collected from the period 2010-2011

Reaching Out for Rural Development

In September 2009 Intersat Africa and Voices of Africa for Sustainable Development joined their forces into a partnership. This project aimed to provide ICT capacity building and infrastructures in rural regions of Africa who faced important difficulties regarding education and youth employment. In order to successfully achieve these goals, there was a need to choose the right and most affordable technology and also to build the capacity of local population to use it. Intersat Africa and Voices of Africa implemented the Rural Internet Kiosk (RIK) which uses solar energy and satellite connection; due to these characteristics it can be set up in the most remote areas. In the end, this project obtained a tremendous success with ICT training classes booked months in advance and the request for stakeholders to build new training centres in ten different locations and demand of advice for five more similar projects.

Green ICTs in the Republic of Korea

The Republic of Korea launched a "national strategy for green ICTs" in 2009 and the "framework on low carbon Green Growth" in 2010. Based on its strong ICT policy and infrastructure, the Republic of Korea aims to realize a new ICT growth engine with the creation of green industries, transportation, technologies. The ambitious goal of the Republic of Korea is not only to adapt to climate change and reach energy independence but also to create a green growth model providing a green revolution of life for the population and the foundation of a green economy for businesses.

Case Study E-TIC.net: Use of Technology by Farmers in West Africa

The E-TIC project in Sahel region of West Africa is a multi-stakeholder initiative coordinated by ICVolunteers. The aim of this project is to empower small farmers, stockbreeders and fishermen through the use of ICTs to be more informed and sell their products better. For this project a survey has been conducted in order to find the relevant technologies considering the numerous obstacles (such as low literacy rates) for the use of ICTs in this region. In addition to this survey, the E-TIC web portal has been launched in five languages (French, English, and also the local Wolof, Fulani and Bambara) and ICT trainings have been organized for local intermediaries. In the end the E-TIC project has highlighted the benefits of ICTs to local populations of West Africa (especially through mobile phones and local radios). Regarding the web platform, the training sessions have proved to be very useful.

Awareness-raising campaign and formation of ICTs for entrepreneurial women

The training of Female Entrepreneurs in Mali is a collaborative project of COFEM (Collective Of Women From Mali), Women Entrepreneurs and PARHEF (Support project for Gender Equity). The aim of this project is to contribute to reducing gender gap regarding ICTs in Mali by providing basic user skills of computer devices, software (Word, Excel) and the Internet. The training was carried out by Internet Society – Mali, and 20 women entrepreneurs participated. They each created their own blog and e-mail address and each woman was awarded a participation certificate.

Colombian Case study: Computadores para Educar "A road to knowledge"

In Colombia, the Computadores Para Educar initiative was launched by the Ministry of Information and Communication and the Ministry of Education. The initiative is aimed at providing computer devices and ICT training in schools, as well as preventing pollution and electronic waste since the computer provided to the schools are recycled ones. By reducing disparities in ICT education, CPE allows Colombia to set up the background for development with many outcomes from providing ICTs into schools such as less desertion and better admission into higher education.

ICT revolution in the Sultanate of Oman

The Sultanate of Oman has implemented numerous initiatives regarding ICTs and e-government in order to provide better public services by saving time, energy and frustration. In August 2008 the Information Technology Authority launched National E-Payment Gateway which provides public and private sector a secure way for online transactions, this initiative has been a major success with nearly 100 000 transactions in two years for an amount of almost USD 8 million. Business registrations has also been facilitated through the launch of One Stop Shop by the Ministry of Commerce and Industry in May 2006. Education in Oman was improved thanks to two important initiatives from the Ministry of Education: the Electronic Educational Portal which provides useful resources for teachers and the Higher Education Admission Center which had greatly eased the life of students applying for Higher Education Institutions. Other major progress has been made regarding health with the Al Shifa information implemented by the Ministry of Health which centralized information, turning hospitals in an almost paperless environment. Also, regarding employment, the initiatives of the Manpower Registration System (from the Ministry of Manpower) and the E-recruitment Project (from the Ministry of Civil Services) have facilitated the job application process for foreigners for the former and local for the latter.

Mada (Qatar Assistive Technology Center): working towards an inclusive digital society

In June 2010, ictQatar opened Mada, the Qatar Assistive Technology Center for disabled people. Mada provides a showcase of assistive technologies related to ICTs in order to increase the awareness of them. The main aim of the project is to provide a better education and more employment opportunities for people with disabilities. Mada provides a team of experts to assess needs and abilities of individuals in order to customize solutions. One of the other goal of Mada is to provide assistive technologies and ICT literature in Arabic. This project has been set up as a public-private partnership and as such involves the Supreme Council of Information and Communication Technology, ictQATAR for the public part and for the private part Qtel, Vodafone Qatar, Microsoft and Qatar National Bank.

WI-FI covering of the Republic of Macedonia

The "WI-FI covering of the Republic of Macedonia" project aims to bring Internet access in rural areas of the Republic of Macedonia facing stagnation in this matter due to a lack of economic interest from Internet providers. Internet kiosks have been installed in entrances of schools, providing wireless Internet access in a range of 250 metres. The main goal of this project is to create the enabling environment for the development of the Internet within the Republic of Macedonia. Such a development is allowed by wireless technology for significant lower cost than cabled technologies. The Republic of Macedonia has identified five major benefits from international competitiveness for foreign investors to improvements regarding democracy, businesses, education and mobility. The

implementation phase of this project is already a success with 680 Internet kiosks all over the country.

"Ecole des Sables" in Mali

The project "Ecole des Sables" (*School of Sands*), created by the Ag Assarid brothers in 2002, aims to develop education and the acquistion of official languages within the Touareg community in order to achieve a better integration in the Malian society. This initiative has been and continues to be a great success: ten years after the creation of the first school in Taboye, 110 pupils, including 86 nomadics, attended the school with an amazing success rate of 99 per cent for elementary school and 100 per cent for high school. Also two other schools in the regions of Kidal and Tombouctou have been implemented with the support of the Ministry of Education and local communities. Regarding communication around this project, a partnership has been established with French schools in order to develop exchange between French and Malian pupils and teachers.

E-Krishok, Bangladesh

E-Krishok is an e-agriculture initiative launched by BIID (Bangladesh Institute of ICT in Development) in Bangladesh. The goal of this campaign is to provide information to farmers: general information through a web portal and answers to specific requests delivered by an agriculturist. The major innovation in this project is that the telecentre which provides information is usually set up by a local entrepreneur thanks to micro-credit organization. This project is a success; starting with just ten locations at the launch of the project in October 2008, there were 100 locations in February 2010, e-Krishok became the preferred source of information for many farmers who were reached by the campaign. The goal is to attain 5,000 locations all over Bangladesh by 2015, not only in telecentres but also through the Internet and mobile phones in order to reach a critical mass.

Reaching Out for Rural Development

Submitted by Intersat Africa and Voices of Africa for Sustainable Development

In September 2009, Intersat Africa and Voices of Africa for Sustainable Development joined in partnership to brainstorm on how to reach every rural village in Africa with Internet connectivity. This huge dream, shared between these two organizations, is to bring change through ICTs to those who need it most whether they live in the furthest corners of the continent or not.

Voices of Africa VOA has visited and worked in Kenya, Uganda, Tanzania, South Africa, Senegal and Libya. These countries have large agricultural rural populations with high youth unemployment and limited educational resources available to the poor. The goal is to provide the solutions to these needs. Intersat Africa provides Internet access solutions in rural and remote areas. The NGO partnered with Intersat Africa to assist the Research and Development of products and services that would provide information and communications access in extremely limited areas. The Partnership was started with the introduction of the Rural Internet Kiosk.

It was a struggle to create a device that would provide public Internet access and computers that work in any environment regardless of the infrastructure. Currently more than 80 per cent of the population is without electricity, especially in the rural areas, so Intersat Africa and Voices of Africa for Sustainable Development decided to use solar power.

The Rural Internet Kiosk (RIK) has three industrial access terminals, a solar panel system, and the Get2Net satellite Internet system. The first installation was set up at school in Nairobi. Based on this experience, the company started to learn about the difficulty in deciding on the right technology to be included and to try to create a product at the lowest price possible. The cost was a very important factor as the people who would be the end-users are some of the poorest in the world. Another factor was showing people how to use the Internet as a tool of development. The heart of the challenge was to bring about social change using a business model as the backbone. The appropriate education and consultation with the people involved proved to be a necessary requirement.

In February 2010, a grant was received from the Internet Society to install a pilot Rural Internet Kiosk (RIK) in the coastal area of Msambweni, Kenya. It was implemented with a youth group named "Voice of Diani" that represents people who would be exactly like the RIK operators anywhere else in the world: young and unemployed with limited access to education. An American volunteer came to teach at the RIK for six months. RIK had many technical difficulties with the harsh environment and the youth group did not make much money. However, the project was continued despite these difficulties. The group continued to run RIK and earned only 300 Kenyan Shillings per day – just enough money to keep the project running. Ali Bwengo and Gideon Mulandi were the first LIVE RIK operators. Ali says, "The Internet has completely changed my life and I teach many people each day on how to use (technology) to change theirs as well." Gideon added, "Before the RIK project we had problems engaging with the youth in the community. Since we began this project, our youth group has grown and members have started many new projects including a jewelry-making collective that sells internationally; a mentoring programme named STEM for local secondary schools; and have been working to make low cost nutritional supplements for those with HIV/AIDS, vulnerable children, and schools."

Based on the pilot results from Diani, VOA determined that there was a need to create a unique, one of a kind training system that would teach people how to use the latest devices, what ICT for development can do, how to run a social enterprise and how to use social media. VOA decided to build a training school for unemployed rural African youth. In September 2010, VOA opened the Webuye Youth Empowerment Training Center that was built in a rural community with lower education levels, extreme poverty, and a large variety of development needs. The training center teaches a minimum of 40 youth per month on Basic Computer Skills and ICTs for development training. VOA found that it took several months of Basic Computer Skills training to build up the local

capacity to a level high enough to utilize ICT4D. First, VOA trained more than 200 youth to a high enough capacity level, then in February 2011 VOA trained 20 youth in ICT4D. These youth are now teaching others in their community about development and technology. The success of these training classes was enormous and the classes are booked for the next several months.

In March 2011, VOA launched a partnership with Africa Nazarene University (ANU) and their Advanced Centre for Communications, Enterprise and New Technologies (ACCENT) project. Through this partnership VOA launched a new classroom in Nairobi to train 20 additional students per month in ICT4D. These students come from all over East Africa and will be the operators of the latest version of the RIK renamed the Solar Powered Advanced Rural Communications (SPARC). ANU and ACCENT have five additional training centres where the curriculum will be taught starting in July. Voices of Africa has received requests to build training centres in ten additional locations in Uganda, Tanzania, and Sierra Leone with requests for consultation on how to build similar projectS in Ghana, South Africa and Nigeria.

New corporate partners have recently come into the partnership for knowledge sharing and sustainable development. At the launch the Huawei corporation showed its commitment to ICTs for development by donating their new IDEOS Android platform smartphones to be taught in class in conjunction with the SPARC. The small mobile devices can create a small Wi-Fi network to eight additional devices setting up the base of a wireless mesh system. Ralph Sarjoo, CEO of Promote Africa, another corporate partner came to discuss the Ijelo low cost electronic pads targeted at the African education market. The wireless-mesh networks are to contain walled-garden constantly updated educational materials for all age levels, from primary to university, and on development topics such as sustainable agriculture, health, and business. VOA plans to partner with more device manufacturers to ensure that the poor have access to the technical devices required to support development. Currently, a fund is being established in Kenya to give microloans to all course graduates to acquire the best low-cost educational devices on the market. All of these devices require the connectivity and solar power provided by the SPARC for their products to enter the rural market.

With the impending proliferation of small bandwidth-sharing devices Intersat Broadband Services – with assistance and guidance from the Plexus Group, a consulting firm of highly talented telecommunications industry leaders – is leading the way by developing a prepaid platform for Wi-Fi that can turn every SPARC into a community-wide cybercafé and provide access at the lowest possible cost. Coupled with the training and an “each one, teach one” philosophy, it is expected to see results in the near future.

The SPARC is an advanced version of the RIK, which has built-in Wi-Fi with a radius of 500m and the advantage of more solar power, better technology, and advertising monitors on three sides to play rotating advertising spots. The training programme is directly tied to the software installed on the SPARC; consequently operators are equipped to teach and reach before they have the equipment. The new advertising displays will greatly reduce the amount that the rural youth will have to pay for the SPARC as they will be sponsored by corporations and local businesses.

The concept is to create a rural market for the Internet through the desire for sustainable social, economic, and political development. All rural communities want to earn more money, to educate their children, and to see real change. By using the SPARC as a community access point and provider of Wi-Fi for the community, it will create employment, knowledge sharing, and long-term sustainable development.

The step from pilot to manufacturing has been a challenge due to resource constraints which have now been overcome through the first venture-capital investment. In April of 2011, it is planned to implement ten SPARC in Kenya, Uganda, and Congo Brazzaville. In May of 2011, another ten will be implemented in South Africa, Sierra Leone, and Afghanistan. By the end of the year, it is expected to have more than 120 installations and ten training centres.

The commitment to change and to meet the social objectives make this project and partnership different from others. Through the process of implementation and feedback, the goal of the created projects was to increase the impact over time and create the change that the rural people want to see. The triple-bottom-line approach of VOA is to empower the community to create social change that makes a profit for the community. That is the key to sustainability.

Green ICTs in the Republic of Korea

Submitted by Korean Communications Commission

The Republic of Korea is the ninth biggest country increasing its rate of energy consumption, and at the same time is strengthening regulations for Greenhouse Gas (GHG) discharge. The country needs a new ICT growth engine, particularly a framework act on low carbon green growth that adequately allocates resources. In addition, international cooperation should be reinforced to share valuable experiences that will enable the improve of quality of life and environment.

The Republic of Korea organized "Green Growth Commission" in February 2009. The President called for the above initiative, as well as the "National Strategy of Green ICT" and "National Strategy of Green Growth and a five-year Plan". The strategy for the three initiatives was published in 2009. The government also enacted and enforced the "Framework Act on low carbon green growth" in 2010. There are ten policy directions under the three main strategies:

- First, to adapt to climate change and to reach energy independence which can be achieved by efficient GHG reduction, energy independence, and adaptation to climate change.
- Second, to improve quality of life; national reputation, which can be achieved by fostering green homeland and transportation; and green revolution of life, realizing the green growth model.
- Third, to form a global environment, which can be achieved by development of green technology, green industry advancement of industrial structure, fostering a green-economy foundation.

Since 1994 the Republic of Korea has developed a strong ICT policy focused on strong broadband Internet infrastructure, world-leading ICT technology, and nationwide information policy. Korea developed a target management system for climate change and energy that included a system for trading emission rights. The strong ICT infrastructure and the Framework Act on low-carbon green growth made it possible for a synergy effect that enabled a strong driving force for green ICTs.

The Republic of Korea utilizes a Business as usual (BAU) approach. The approach calls for a 30 per cent reduction of national greenhouse gas emissions by 2020 and is developing a comprehensive management system to manage the greenhouse gas energy target. For achieving this goal, a GHG management system was established. The Republic of Korea developed an ICT inventory guideline and emission reduction plan, and will develop four telecom operator inventories in 2011. In addition, broadcaster's inventory will be developed in 2013.

The Republic of Korea also introduced a Green-Certification system with administrative and financial incentives through tax exemptions, as the framework for energy saving. The certification is categorized by green technology, green business and green-venture enterprise.

For example, there are some projects using green ICTs. First, there is a remote-medical services that combine medical and ICT technology. Telemedicine increases the treatment effect for chronically ill

patients such as diabetes patients. It also leads to cost reduction for elderly patients (from 65 years old) and in the case of Korea this cut can be around KRW 1.5 trillion.

Second, by providing remote educational services using ICT network technology the Republic of Korea can bridge the information gap and reduce greenhouse-gas emissions by reducing transport costs.

Third, the IP-based Ubiquitous Sensor Networks (IP-USN) centre collects and provides the environmental information in real-time over the broadband network. This centre facilitates the monitoring and provision of climate- and environmental-pollution data.

Case Study E-TIC.net: Use of Technology by Farmers in West Africa

Submitted by ICVolunteers

Authors: Viola Krebs, Kate O'Dwyer, Namory Diakhate, ICVolunteers.org

The E-TIC project aims at providing training tools and elements so that small **farmers**, **herders** and **fishermen** may sell their products better. Through the setting up of the Internet portal www.e-tic.net and of a series of training sessions destined for local intermediaries (**young people**, **women,** community radio **journalists**), the E-TIC project aims at sharing knowledge relevant for effective farm management.

The E-TIC project is an initiative involving various role-players coordinated by ICVolunteers, a non-profit organization. It has been implemented in Senegal and in Mali (Sahel region), with the support of the *Fonds Francophone des Inforoutes* and a series of other partners. The setting up of a network in the agricultural domain is also an underlying objective of the project. The intermediaries in the field play the multidisciplinary role of connectors that provide a link between small farmers and new technologies.

An extensive enquiry and case study provide information about the effective use of technologies in rural areas of West Africa (Mali and Senegal). By far, community radio and mobile phone technologies are the two means that are most effective to get messages to local populations. Given that an important percentage of the population is illiterate and/or speaks a language other than French, which is taught at school, pictograms and other visuals provide the right alternative to communication.

The work is structured according to seven points: 1) a **survey** with the help of **questionnaires**; 2) (audio and/or filmed) **interviews**, as well as exchanges by interest groups; 3) a **study** in order to place the work in a **methodological and theoretical framework**; 4) organization of **meetings** with interest groups; 5) organization of **training seminars**; 6) setting up of **collaborations** with the authorities of the two respective countries; and 7) setting up **strategic partnerships** for the SMS messaging service and the research work ,which accompanies the actions in the field.

Although the project is still underway, some **observations can already be outlined** concerning the use of new technologies in the domains of agriculture, stockbreeding, and fishing in Senegal and in Mali. The exchange meetings, the first training sessions, and the field survey in connection with farmers, herders and fishermen confirm that a large majority of people in these sectors today own mobile phones. Also, Internet access is available in some remote localities and community radio journalists use the Internet as an important source of information for their programmes. Overall, farmers do not appear to be advised enough of the often dramatic consequences of conventional agricultural practices such as the use of too much fertilizer and/or pesticides. Too much of the above eventually generates soil impoverishment and a decrease in the harvests. Information concerning market prices is very useful for small farmers and breeders who often do not have the possibility of knowing the current prices of their products.

The E-TIC project focuses on the use and utility of information and communication technologies (ICTs) in the domains of agriculture, stockbreeding and fishing. Its work has shown that ICTs are only a means, but one that can empower people if used in such a way that they can help themselves. Finding the right tool needs to take into consideration the local situation and context, for example, the fact that the adult literacy rate (age 15 and above) is just 26.2 per cent for Mali and 41.9 for Senegal.[1]

Apart from the farmers, herders and fishermen themselves, other stakeholders in this project include universities for data collection; community radio journalists for the dissemination of information, be it through community radio, written press or television; mobile phone operators; volunteers; government; local authorities; and NGOs, all of whom cooperate in sharing information relevant to the project.

Through the network of local professionals and volunteers, ICVolunteers carried out a field study in six regions of both Senegal and Mali. In Senegal, this involved the localities of Guédé-Chantier (Saint-Louis Region), Meckhé (Thiès Region), and Mbam (Fatick Region), and in Mali, the Timbuktu, Ségou and Sikasso Regions. In each case, particular focus was given to the role of ICTs for agriculture, stockbreeding and fishing.

ICVolunteers were interested in finding out what kind of issues farmers, herders and fishermen had, what was the role of technology, and what could technology do to address future issues such as information to obtain comparative market prices, information about sanitation, organic farming practices, health issues for plans, animal and humans, etc. The information was collected by means of a standardized questionnaire distributed to local connectors (governmental representatives, community leaders, volunteers deployed in the six above-mentioned localities, journalists). A second questionnaire was specifically developed for journalists. The questions asked related to the main activities of the respondents, products and markets, the ownership of cultivated lands, products used on the lands and the selling of product information and communication. Given that the majority of people interviewed from the first group were not fluent in written French, the questionnaire was filled out by connectors (field volunteers). These volunteers were deployed in six main localities. For Senegal, it was Guédé-Chantier in Podor, Méckhé in Tivaouane and Mbam in the Fatick Region. For Mali, the field connectors-volunteers worked in the Timbuktu, Segou and Sikasso regions.

A series of training sessions were organized, in particular, for local intermediaries (young people, women, community journalists). The training sessions included ICT training that focused on the use of the Internet for reference and research purposes, the use of mobile phones for sending and receiving SMS messages, as well as the dissemination of information through networks.

[1] UNDP, Country profile of human development indicators, http://hdrstats.undp.org/en/countries/profiles/MLI.html and http://hdrstats.undp.org/en/countries/profiles/SEN.html, consulted on April 11, 2011.

Objectives of the E-TIC.net project

General objectives

- To acquire sound knowledge of the farming sector and to understand the issues associated with it;
- To be in a position to extract relevant information for the distribution of information on the field (notably the use of information and communication technologies, or more precisely the web and mobile phone);
- To appropriate the methodological tools allowing for the analysis of problems of distribution and logistics of agricultural markets and of their functioning;
- To understand the organization and functioning of various distribution circuits for agricultural production;
- To get to know modern logistics methods in order to be capable of managing the flows and information;
- To appropriate tools adapted for the collection and gathering of data on the field.

Specific objectives

- To formulate projects in order to improve the conditions of pastoral and urban agriculture and its profit;
- To launch initiatives to ensure and diversify the diet and well-being of economically-weak populations in an accessible way;
- To integrate the notion of sustainable development through waste management;
- To make populations aware of health risks;
- To promote likely policies, technologies and work methods;
- To improve productivity, accessibility and the support of rural production systems. The productivity, accessibility and support of these production systems must take into account the economic profitability, the support of service, supervision and evaluation services, the participation and the appropriation of the activities developed by the producers, access and the institutional context.

With regards to the specific communication tools put in place for this project, one of the first was the E-TIC.net website, to be translated into multiple languages – French, English, Wolof, Fulani and Bambara, as well as a number of other work and exchange tools (wiki, distribution list, etc.) for communication between project stakeholders. The Internet platform aims to provide information regarding agricultural activities, including production, marketing and promotion techniques, market prices and other useful data, both for the farmers themselves and other stakeholders, including researchers in this domain.

As far as the use of mobile phones is concerned, research has been carried out through partnerships with mobile phone operators such as Manobi, Jokko and Trade at Hand, that can provide technical solutions to facilitate the use of mobile phones for the collection and sharing of information in order to improve the economic, financial and commercial transactions of the populations in their activities of agriculture, stockbreeding and fishing. Manobi has developed a range of mobile and web-based applications focused on improving weaknesses in value chains. T2M enables farmers to check market prices on their mobile phones via SMS, WAP, MMS, or mobile Internet—all of which are designed for low literacy. The information is updated by a team of market researchers who map and enter it into their mobile phones.

There has been a significant increase in the use of mobile phones amongst populations in Africa, as is also the case with community radio stations, another popular means of communication, especially as it does not require the users to read or write information, which is provided in the local language understood by all.

An AgriGuide is currently under development. It aims to provide all the information collected in a simple way, accessible in local languages and communicated through illustrations and simple explanations in the local languages. This guide aims to serve as a work tool and a reference document creating a link between information and communication technologies, agriculture, stockbreeding and fishing in Senegal and in Mali.

Highlights

Throughout the project, various actors were involved in seminars and meetings, coming from both Senegal and Mali, who work in the domain of rural, urban and peri-urban agriculture. For example, in Senegal, meetings took place at the Ministry of Stockbreeding of Senegal, the National Civic Service of Senegal, as well as a large communal meeting in the presence of numerous mayors of communes and villages, which were later broadcast on the RTS television channel. In Mali, a hearing took place with the Secretary-General of the Ministry of Youth and Sports of Mali and workshops took place in February 2010 in the presence of various authorities, including the Mayor of Bamako and representatives of the Ministry of Stockbreeding, Agriculture and New Information and Communication Technologies.

Several interviews were carried out with various authorities and stakeholders, including mayors, representatives of associations, farmers, herders and fishermen, in both Senegal and Mali and were recorded on film and documented.

Results

Information gathered so far through the field study indicates that both mobile phones and community radio are the best adapted means of communication currently available. Where accessible, the Internet also constitutes a significant source of information. However, while many cybercafés have sprung up in cities over the last decade, the use of the Internet in rural areas of Senegal and Mali still remains marginal. This may evolve over the next few years, with the mobile

web developing new and adapted applications (such as information about the weather, markets and animal health transmitted through a mobile phone). When ICVolunteers first started its work in Timbuktu in 2002, there was one cybercafé available, but no mobile phone coverage. Today, many of the herders out in the desert use phones and solar panels to recharge them.

A survey carried out by means of a standardized questionnaire revealed that the main activities of the respondents are: agriculture (46.5 per cent), stockbreeding (42.6 per cent) and river fishing (14 per cent). Responses were obtained from 132 different families of farmers, herders and fishermen in Guédé-Chantier, Méckhé and Mbam (Senegal) and Timbuktu, Segou and Sikasso (Mali).

The majority of people interviewed sell their products in the local market or neighbouring villages. Of all the products sold, 28.6 per cent of the respondents sell directly to the consumer, as compared to 46.4 per cent who deal with intermediaries, and 25 per cent who do both. While the vast majority of traders get most of their information from direct discussion with other traders, many of them indicate that they also use mobile phones to share information obtained. Traders see a use in SMS services and mobile payment applications.

Of the people surveyed, 52.4 per cent said that they determine the price of at least one of their products, while 40.3 per cent of the respondents said that they work with intermediaries who determine the prices, and 12.1 per cent indicated that they refer to a cooperative or association. Ten point four per cent declared that they apply the prices proposed by fish wholesalers, or factory – or government-centralized entities such as SAED[2] in Northern Senegal.

Respondents point out that it would be useful to obtain weather information, market prices, animal health-related information and practical tutorials for farming.

In Senegal, approximately 70 per cent of the working population are involved in agriculture (including forestry, stockbreeding and fishing). The following languages are spoken by the population in Senegal: French (official), Balanta-Ganja, Hassaniyya, Jola-Fonyi, Mandinka, Mandjak, Mankanya, Noon, Pulaar, Serer-Sine, Soninke and Wolof. The average literacy rate in the country is 39.3 per cent (51.1 per cent for men and 29.2 per cent for women).

[2] Société Nationale d'Aménagement et d'Exploitation des Terres du Delta du Fleuve Sénégal

Even though Guédé-Chantier has been a member of a network of eco-villages in Senegal since 2007, the agricultural practices are mainly conventional, with the widespread use of fertilizers and pesticides. Farmers in the region do not have sufficient knowledge of organic farming practices. Often farmers sell their products and foodstuffs such as tomatoes and rice at lower prices than what could be obtained if the farmers had more complete and accurate information regarding the markets. "Sometimes we feel our village is isolated," points out a local farmer. "We have problems selling our products. Speculation forces us to sell at very low prices." Herders generally sell their animals on the local market, as is the case with the river fish sold by fishermen. Eighty per cent of the inhabitants of Guédé-Chantier are farmers and twenty per cent are fishermen, traders or municipal employees.

Background Information

The mobile phone is the most common means of communication; however, it is thought that the setting up of a community radio station would be very useful. There is one Internet connection in an Internet café which is not widely used. A new computer training centre was set up by EREV, a non-profit organization. The centre is managed by a local management association and is equipped with 30 computers.

As far as Meckhé is concerned, agriculture also plays an important role, with the main crops cultivated being groundnuts and cassava, mainly due to the fact that these crops do not require an enormous quantity of water, especially as the village only gets three months of annual rain. As in Guédé-Chantier, the agricultural practices are traditional. The lands have become impoverished due to overexploitation and the use of pesticides and chemical fertilizers. Many of the farmers know that pesticides are not good for their soil. They notice that each year they have to add more and more chemicals. Thus, alternative solutions would be most welcome, but many of the farmers do not possess the required knowledge to implement change. Sharing of agricultural best practices, is thus, important for the preservation of the environment and natural habitat. Information and communication technologies can play an important role in this information sharing. An information technology training centre has been set up in the village as well as a private Internet café, but further efforts are needed to make these tools accessible to the population.

In Mbam, the groundnut represents the most widely cultivated crop despite how difficult it is to distribute. Millet is also cultivated; however, both crops are mainly cultivated for the direct use of the inhabitants themselves and only a part of the harvests is sold. Market gardening also represents an important part of the agriculture of this region. Farmers tend to use chemical fertilizers which lead to land impoverishment. Stockbreeding is also an important activity in the region; however, herders are faced with problems of animal diseases. This is partly due to the animals not being vaccinated often enough and not receiving vitamins or de-worming treatments. The most present communication tool is the mobile phone, largely used for SMS communication, much more so than for actual phone calls. As Mr Sarr, the local representative of the global Eco-Village Network (GEN) in Mbam points out, "If it is to talk to my neighbour, why waste credits on my phone? But if I have customers that are living outside the village, I may call them to let them know that my crops are ready to be sold."

With regards to Mali's economy, agriculture and stockbreeding represent essential sectors in the country. However, only the southern part of Mali is favourable for agriculture and less than 2 per cent of the country's surface area is cultivated. Mali is faced with the environmental problems of drought, deforestation, soil erosion, desertification and an insufficient supply of drinking water. The languages spoken by the population of Mali are: French (official), Bambara (Bamanankan), Bomu, Hassaniya Arabic, Maasina Fulfulde, Mamara Senoufo, Kita Maninkakan, Koyraboro Senni Songhay, Pulaard, Songo, Soninke, Syenara Senoufo, Tamasheq, Tieyaxo Bozo, Toro So Dogon and Xaasongaxango.

In the Timbuktu Region of Mali, wheat and rice (irrigated with Niger River water) are the main crops cultivated, and stockbreeding represents an important activity with almost 60 per cent of the population involved in it. The types of stockbreeding practised are transhumant, nomadic and sedentary stockbreeding. Animals are sold at the Timbuktu market, bought by merchants who then sell them further in the large animal markets held in Mauritania and Algeria. Speculation is an issue here, where local herders are paid a fraction of what animals are sold further down in the value chain. Therefore, for herders who wish to sell their animals, it would be useful to be able to obtain information in advance regarding the prices, so as to receive an equitable price at the outset. Especially as many of the herders are illiterate, the most useful means of communication for them, in this sense, would be the community radio. There is a community radio station, "Radio Boctou" as well as a regional radio and national television network. Mobile phones are also widely used and there are several points of Internet access in Timbuktu.

In the Segou Region of Mali, the population is largely made up of nomads and semi-indigenous and indigenous peoples. Segou was found to produce the largest proportion of foodstuffs in Mali. Cereals, including millet and wheat, vegetables and tubers (potatoes, sweet potatoes) are cultivated here. It was found that farmers, herders and fishermen are all in need of training in new techniques and methods in order to increase the profitability of their production. As far as communication is concerned, there is a number of Internet cafés in the region.

Significant agricultural activity takes place in the Sikasso region of Mali. It acts as a crossroads between the coastal countries (Togo, Benin, Ghana, Côte d'Ivoire) and the coastlines of Mali and Burkina Faso.

From a communication point of view, Wolof is the most commonly represented language among the targeted populations of Senegal, as is Bambara for the targeted populations of Mali. To reach these populations it is important to find means of using these languages, both on a local level, through the use of community radio stations and mobile phones and on a more global level, through the translations of the E-TIC website and Internet platform.

Mobile phones in West Africa

- In 2009, the estimated population of Senegal was 13.7 million inhabitants.[3] The number of mobile phone subscriptions (for the most part prepaid cards) was 5.4 million in 2008. This means that one out of every 2.5 inhabitants approximately has a mobile phone. In a context where 42.2 per cent of the population is under 15 years, this ratio is doubled for people over 20 years.

- For Mali, this ratio is slightly lower, but remains significant. For a population estimated at 13.4 million inhabitants (2009), 3.4 million mobile phone subscriptions were counted (including prepaid cards). This means that approximately one out of every four inhabitants have a mobile phone. With 48.3 per cent of the population under 15 years, the use of mobile phones for those over 20 years is almost 50 per cent of the population.

- In Mali, there are 168 radio stations including 121 community and associative radio stations, 38 commercial radio stations and denominational radio stations (figures from the *Union des Radios et télévisions libres du Mali* – URTEL). The complete list of independent radio stations in Mali is available as an appendix of the present report.

Project at a glance

Location: Region of Timbuktu, Segou, Sikasso (Mali) and Region of Guede Chantier, Mbam Méckhé (Senegal).

Technology: Internet and mobile phone.

End users: Farmers, even if the groups remain an indispensable intermediary links to new technologies. You must press the field connectors.

Key to success: Working in groups and between groups.

Challenges: Limited access to technology today, the fact that the majority of the people concerned communicate orally with only very little writing. French-speaking context with partner languages (especially Wolof, Fulani, Bambara, Tamashek, Songhay).

[3] Statistics of the ITU on the use of mobile phones: http://www.itu.int/ITU-D/icteye/Reporting/ShowReportFrame.aspx?ReportName=/WTI/CellularSubscribersPublic&ReportFormat=HTML4.0&RP_intYear=2008&RP_intLanguageID=1&RP_bitLiveData=False,

Conclusion

As shown by the case studies and the survey, ICTs have an important role to play for the populations in Senegal and Mali, but the specific applications need to be adapted to local needs and means, for example, low literacy and local languages. Given the relatively low literacy rate in most cases and a strong oral tradition with the use of local languages, the most common means of communication remains direct conversation (whether through farmers, herders, etc. meeting each other or speaking with each other by mobile phone) and community radio stations. Especially with regard to farmers, herders and fishermen being able to buy and sell products more effectively and at a better profit, the use of SMS messaging services and the Internet could be of considerable use to them. Nevertheless, the Internet is not widely used.

However, with the development of tools such as the E-TIC.net website and the "Réseau VERT" platform, and with adequate training provided, it is hoped that this technological tool will become more accessible to the local populations involved in farming, stockbreeding and fishing, especially as the information is provided in the local languages, as well as French and English. The training sessions for local intermediaries (young people, women, community radio journalists) have, therefore, been a useful step in this approach. The use of mobile phones, and in particular, SMS messaging services has been examined and encouraged through partnerships with various mobile phone operators active in both countries. As a considerable number of people own a mobile phone, it is worthwhile for them to learn how to use them for the purpose of enhancing their economic and commercial activity.

Other projects of ICVolunteers

Other projects in which ICVolunteers is involved include:

GreenVoice: This project aims to increase awareness of environmental issues through the collection and display of photos from throughout the world. In 2011, following the third call for creative photography issued by ICVolunteers, a photographic exhibition on the topic of "Water and Forest, Citizenship and Volunteering" will be organized at Quai Wilson in the heart of Geneva. For more information, see http://www.icvolunteers.org and http://www.greenvoice.info.

MigraLingua: This project aims to provide a service of linguistic accompaniment to migrants who do not master the local language. Volunteer community interpreters are deployed, in order to assist migrants in their daily tasks in areas such as education, health and administration. The programme is aimed at migrants (whether families or individuals), interpreters and institutions. For more information, see http://www.migralingua.org.

Maaya: ICVolunteers is a founding member of Maaya, the World Network for Linguistic Diversity, the aim of which is to enhance and promote linguistic diversity in the world, through the empowerment of language communities worldwide in developing and using their own languages, through the promotion of bilingual/multilingual education, localized software, equal access to all languages in cyberspace, and through its contribution to the creation and sharing of language resources. For more information, see http://www.maaya.org.

Awareness-raising campaign and formation of ICTs for entrepreneurial women

Submitted by Conseillère pédagogique à la DNP/MEALN, The Republic of Mali

COFEM (Collectif de Femmes du Mali)(Collective of Women from Mali)

The Collective of Women from Mali (COFEM), in collaboration with "Women Entrepreneurs" and with the financial support of PAREHF (Projet d'appui au renforcement de l'égalité homme-femme) has organized the training workshop on ICTs for women entrepreneurs.

The COFEM objective is to establish equity for everyone (men and women) and promote Malian women's the use of ICTs by drawing attention to the emergency for women entrepreneurs in Mali.

In general, the majority of female entrepreneurs lack knowledge in ICTs, hence women miss out on ICT opportunities. Subsequently, COFEM's mission is to make women entrepreneurs familiar with the use of ICTs, especially the Internet.

Female entrepreneurs have limited access to ICTs repressing their involvement as entrepreneurs in e-business.

This project contributes to the reduction of the gap between male and female entrepreneurs and to increasing competitiveness of women for economic and social promotion. The target population of the project is the female entrepreneur regardless of age or area of specialization. The project covers Bamako district and Kati circle, located 15km from Bamako.

The leading committee of three members from the executive bureau of COFEM was set up. The leading committee ,in collaboration with the president of the female entrepreneurs' association (L'association des femmes entrepreneurs) listed 20 female entrepreneurs from different areas of

specialization to be trained in Bamako and Kati for a period of five days. The women already had basic IT knowledge.

One day was dedicated to training, with presentations followed by debates dedicated to ICTs, ICTs in education, ICTs in health with the cyber pharma experiment, ICTs in business, and ICTs in agriculture. The four other days were used for training the women and young girls. The training took place in the "cyber espace" at Information and Communication Technology Agency (AGETIC). Internet Society (ISOC-Mali) carried out the training. The goal of the training was to brief participants about the use of the Internet, computer devices and software such as Word and Excel.

Ms AWA said, "With the knowledge of ICTs, there is a possibility to present products on the web to many more customers. Price variation may occur during an interval of 24 to 48 hours. With the Internet, it is possible to know about variations of prices and take orders accordingly. The information is particularly essential to and helpful with perishable products such as mangos, green beans and other similar products. Moreover, ICTs aid with awareness-building, so that one is up-to-date about what others are doing in your field. Examples from others in the same field help to improve business practices.''

There is a need to involve a large number of women in this sort of training. At the end of the training these selected women created and managed electronic addresses by sending emails to other people. In addition, they were able to create their own blogs, where they posted the pictures of their products on the web, indicating their email address in order to find potential new customers.

During the five days the women and young girls in the training were taught about the different range of services that ICTs could offer and e-business issues that could arise. The training allowed 20 female and young entrepreneurs to create and manage electronic addresses. A discussion list was created on Yahoo for them. Each of them also opened a blog that they update regularly. The 20 women who were selected for the training were extremely motivated and often stayed after working hours to learn. A participation certificate was given to each woman after the training.

Computadores para Educar "A road to knowledge"

Submitted by The Republic of Colombia, Ministry of Communication and Information Technology, Ministry of Education www.computadoresparaeducar.gov.co

"Since Computadores para Educar reached our school, there have been some remarkable changes: The children are happy to come into the classroom, the teacher finds it easy to transmit knowledge and there are the dynamics and personal relationships, because we have made the Systems Room a space for coexistence of the development of values"

Testimony of teacher Héctor José López Quintero

Santa Rosa de Cabal – Risaralda

Summary

Computadores para Educar (CPE) is a social programme of the Ministry of Information and Communications Technology and the Ministry of Education in Colombia that seeks to reduce social and regional gaps and to help improve education quality based on the incorporation of ICTs in basic and intermediate public education. This was evaluated in a study conducted by Universidad de los Andes in 2010, concluding that variables such as desertion and academic achievement, which were measured through the Colombian Institute for the Promotion of Higher Education ICFES scores, and access to higher education were positively impacted by ICTs, provided that the teachers were also properly trained. The integral strategy of CPE indicates that there are clear impacts in educational quality and reduction of gaps; the challenge is to increase CPE's reach and magnitude, which will be achieved with the targets of Plan Vive Digital.

Introduction

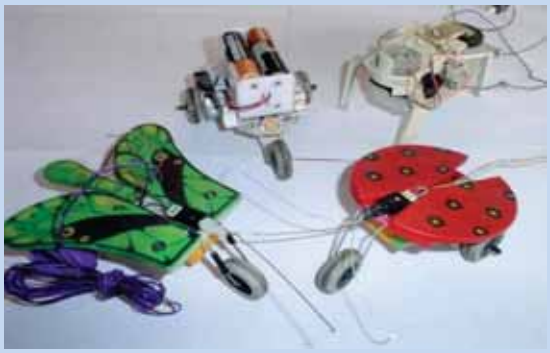
CPE is a pillar of the incorporation of ICTs into basic and intermediate public education in Colombia. Over ten years of evolution, the lessons taught enabled the management model to be adjusted in the field to make it more efficient, with a stronger cost–benefit ratio, and a more inclusive, integral, sustainable programme. This has also brought benefits in environmental, economic, social and educational terms through strategies, which range from reconditioning, maintenance, and educational accompaniment, through to the efficient management of electronic waste. Since 2000, and up to 31 December 2010, CPE provided benefits to 20,673 public schools; that is, more than 53 per cent of all schools in Colombia, with 291,261 computers, providing access to almost 6,000,000

children or to 65 per cent of enrollments in the public system. Educational accompaniment has been provided to 11,135 schools, encouraging competence among 43,986 teachers, or 15 per cent of the total number of teachers in the country. Furthermore, 78,327 computers have been remanufactured, and the inappropriate final disposal of more than 4,000 tons of electronic waste has been avoided. The social investment altogether to groups in need made by CCPE in Colombia amounts to approximately USD172 million over ten years. This investment has generated a return of 2.41 times to society, according to Econometria (2008).

Plan Vive Digital [4] programme works towards a Colombia without social exclusion guaranteeing access to ICT to the entire educational population before 2014. Plan Vive Digital programme also seeks to provide connectivity, together with capacity for use, allowing learning environments to be enriched. They also seek to obtain new forms of access to knowledge and contribute to knowledge production, so that they can support education activity from a pedagogical point of view. The programme, therefore, is of benefit to public educational institutions, houses of culture and public libraries across the country. The programme consolidates a model of integral management of electronic waste complementary to the strategy for reconditioning and assembly of computers. This places CPE in the forefront of international recognition. With these activities, thousands of tons of outdated computers and peripherals were saved from inappropriate forms of open-air disposal or discharge into sanitary fills, with which there would have been serious environmental consequences due to the hazardous waste they contain.

Further, CPE generates economic benefits for society by placing a value on waste through practices of recovery and use of items and materials for subsequent conversion into robot didactic platforms, which can be used by children and adolescents.

These are some electronic waste materials that CPE found in places like garages. The e-waste are recovered and used as raw materials.



These are some examples of the robots that are made by children with waste materials.

[4] Is the Expansion of Broadband technology Plan for next four years of the Colombian Ministry of Information Technologies and Communications

When the computers are delivered to their recipients, they come with a one-year guarantee, and after that, CPE offers a preventive and corrective maintenance service for the following year in order to prolong the useful life of equipment delivered and to guarantee the sustainability of processes initiated with the introduction of ICTs. With this management strategy, the programme also seeks to generate a culture of use and care of computers.

It is not sufficient just to deliver these educational tools to the schools: There is an entire process of formation and accompaniment to be implemented so that the tools may be used effectively, developing strategies designed to incorporate ICTs in the best possible way into the local processes of each educational establishment. The integration of computers into pedagogical processes promotes collaborative learning, creativity, new ideas and the personal and professional growth of pupils and teachers alike. This has a positive impact on the development of communities themselves and their productive processes.

The CPE team travels to extreme rural areas using a variety of modes of transport. In this photo this team is trying to deliver PCs by a canoe through Casanare river in order to reach Hato Corozal in Casanare town.

Reduction of social and regional gaps

UNCTAD has often stressed the capacity of ICTs to reduce poverty, to the extent that it closes the gaps of distance, provides opportunities and generates knowledge. Indeed, WSIS (2003) has stated that ICTs may be tools to promote the achievement of the Millennium Development Goals.

Many of the barriers, which in the past made access to education difficult or even impossible for a good part of the population, have now been dismantled, thanks to ICTs. Today, digital educational content, connectivity and Internet tools such as social networks make it possible for thousands of people, wherever they may be and regardless of their socio-economic situation, to obtain and share knowledge.

ICTs, therefore, arose as a factor of equity, as they increased opportunities for learning potential and the flow of knowledge within a wide range of populations, especially those that have traditionally been considered to be the most vulnerable, as described by Haddad and Draxler (2002[5]).

Therefore, it is impossible today to propose any target in education without taking ICTS into account, or any target in ICTs without taking into account its impact, direct and otherwise, on education. ICTs and education are increasingly becoming two aspects of a single reality. The equitable generation of opportunities for members of society should lead to the eradication of poverty and misery. Today, nobody disputes that education is the best way for people to improve their condition of life. In the words of the famous American thinker John Rawls, "The function of education in a just society is to erase the effects of the differences of their parents from the children, in order to prevent economic and social inequities disparities from being transferred from one generation to another."[6]

However, the simple fact of providing access to ICTs does not guarantee real impact in educational quality (Angrist & Lavy, 2001), or indeed, the closing of gaps. Therefore, more than six years ago CPE initiated the process of formation for teachers and managers, with regard to competences and skills, which are not merely technological, but also cover basic areas. The scheme seeks to support the teaching of natural sciences, mathematics and social sciences to children and the young. The scheme also promotes community development through the formulation and development of productive products, creating wealth for the population living around the schools, who benefit from CPE.

This formation is addressed to teachers, since their role in this process of appropriation and use of new technologies is of primary importance, because that is what turns the teacher into a dynamic agent for the young to learn, and a promoter of collective processes of the construction of knowledge, developing creative and innovative qualities among pupils, by using technological tools. In fact technology reinforces the valuable work of traditional teaching, "potentiating the quality of learning achievements, facilitating the acquisition, of latest generation competences, promoting learning throughout life, and improving institutional management".[7]

CPE makes a decisive contribution to this, according to a recent piece of research from the Center for Studies on Economic Development CEDE, Universidad de los Andes (2010). The research finds that the programme has a positive and measurable impact on students in schools. The students in need have lower desertion rates, better academic achievement, increased access to higher education, and higher levels of income in employment. All of this, according to the University, suggests that the use of ICTs reduces the gaps in knowledge between rural and urban pupils, and between the boys and girls, and at the same time benefits the poorest students and those with parents who have the lowest level of education. The study found evidence that the use of these technologies increases the possibility of access to higher education among the poorest groups. There is a strong capacity for education policy to be a decisive factor in inclusion and social mobility. In summary, the use of technology, with proper appropriation, encourages the reduction of social and regional gaps.

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5 Haddad, W.D. y A. Draxler (eds.) (2002). Technologies for Education: Potentials, Parameters and Prospects. Paris: UNESCO and the Academy for Educational Development (AED)

6 Cited by MONTENEGRO, Armando y Rafael RIVAS (2005). Las piezas del rompecabezas, desigualdad, pobreza y crecimiento. Bogotá: Taurus, 1ª edición

7 Technical document No. 2 "Measurement of ICT in Education", Unesco IEU (2009), page 11.

The following are some of the main results of the study:

1. Fewer children out of school. As a result of the educational accompaniment of CPE, the impact evaluation found that the schools that benefited from the programme in 2005, and had previously had no kind of ICT programme, reduced the probability of desertion by four percentage points after three years of benefit from the programme, with an integral strategy for educational accompaniment. For example, if the school had a desertion rate of 10 per cent, after three years of the programme it would fall to 6 per cent.

2. Higher scores for greater opportunities. With regard to academic achievement, the research concluded that CPE also contributed to improvements in the results of state examinations (ICFES), by 18.8 per cent of the standard deviation, eight years after a school started to receive benefits. In other words, any Grade 11 student, whose school has been receiving equipment from CPE for eight years, has a score 2.1 per cent higher than he would have if the same school had not received the integral strategy from the programme during that time.

3. More educated young people make a better country. The study also found that young people, who graduated from the schools where teachers had access to the benefits from CPE, increased their admission to higher education by 2.7 per cent. So, if a school that had been receiving programme benefits for eight years graduated 100 young people in 2009, and 42 went on to higher education, only 30 would have done so if the school had not received the benefits of CPE over the last eight years.

4. Higher income means greater progress. Finally, according to international studies higher academic achievement means higher employment income. Results show that CPE can increase employment income by up to 4.6 per cent for students registered in schools that benefited from the programme. To illustrate this, if a graduate that benefited from the CPE programme did not pass on to higher education, she or he would earn about USD261, compared to USD250 per year, if the school had not benefited from the programme.

The importance of the impact on beneficiaries is even more important, as they are the poorest students in Colombia. The majority of poor students have SISBEN[8] level 11 scores, while the average families in public schools have a score of 13.2. The beneficiaries' parents have an average of 4.7 years education compared to parents of students in public schools, who generally have an average of 5.2 years education. SISBEN helps to identify potential beneficiaries of social programmes. For example, a student with a level between 1 and 3, may have access to state subsidies through a number of programmes, and in accordance with the regulations.

This programme is ready to be rolled out to 100 per cent of the public schools across the country in Colombia. The reason why it cannot be rolled out, however, is that there are more than 11,500 schools, covering almost 1,000,000 children, who live in the most vulnerable regions of Colombia and who have never had the opportunity to see or touch a computer. Moreover, 89 per cent of these schools have only 20 pupils, and 70 per cent do not even have electricity. Furthermore, 60 per cent

[8] SISBEN is the system to identify potential beneficiaries of social programs. It is a tool for identification which organizes individuals in accordance with their standard of living and allows technical, objective, uniform and equitable selection of beneficiaries for State social programs, in accordance with their specific socio-economic situation.

of the teachers in public schools do not know how to best take advantage of these technologies, Thus, there is also a challenge to increase coverage of the pedagogical formation in ICTs.

Conclusion

Universidad de los Andes confirmed that ICTs, coupled with the strategy of appropriation developed by CPE, have a quantifiable impact in reducing social and regional gaps. As a result, they contribute to improvements in education quality, reduce desertion and increase the probability that the young in public schools will be admitted to higher education. However, the challenge in Colombia the next four years is to roll out CPE programmes to 100 per cent of the 43,000 public schools. In effect, the challenge is to reach the 11,500 students who have never had access to ICTs and to provide formation to 100 per cent of teachers with digital competences. Consequently, the impact of ICTs in Colombia will increase by a significant order of magnitude if ICT CPE programme benefits can be appropriated accordingly.

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ICT revolution in the Sultanate of Oman

Submitted by Information Technology Authority, the Sultanate of Oman

Information Communication Technologies (ICT) applications are used on a daily basis in the Sultanate of Oman, often without realizing it. There are potentially no limits to the creative use of ICT applications. The strategy of the Sultanate of Oman regarding ICTs is clearly defined in its 2009 Annual Report as, "the Digital Oman Strategy, or e.Oman for short, at the outset, aims to provide appropriate services electronically to citizens, residents, the private and public sectors and the community; in order to transform the Sultanate into a knowledge-based community that is able to achieve the objectives of sustained development".[9] Whether one is a citizen, resident, visitor, business or government entity in the country, e.Oman offers a wide variety of convenient, cost-effective and customer-oriented electronic services that will empower and transform one's life for the better.

The adopted approach of the strategy is that it encompasses e-government as well as digital society issues. It aims at creating an effective government–community–citizen infrastructure that provides better public services to people.

The past few years have seen a remarkable revolution in the ICT realm in Oman. Jobs that once took several hours to accomplish are now done within the click of a mouse – saving time, energy and frustration. The examples of different projects with regards to e-business, e-learning, e-health, e-employment and e-agriculture are illustrated in order to prove how ICT applications could encourage the development of an effective government–community–citizen infrastructure that provides better public services to people, resulting in a meaningful information flow between the government and citizens.

The National e-Payment Gateway (ePG) launched by Information Technology Authority (ITA) in August 2008 provides an operational component of the e-governance infrastructure and full e-commerce facilities that allow secure online payments (e-Payments). The ePG supports multiple banks and operates as a critical shared service within the e-governance architecture along with Oman's forthcoming Government eServices Portal. The ePG currently supports the Internet and various other electronic channels including mobile phones, IVRs, call centers, etc. ePG is reliable, secure and future-proof with Payment Card Industry Standards. It is a cost-effective and complete payment solution for ministries and private sector merchants.

[9] Information Technology Authority Sultanate of Oman, e.oman, *Annual Report 2009*, p19

There are various entities that are connected to the ePG and could benefit from gateway including Omani banks such as the National Bank of Oman, Bank Muscat, and Bank Sohar and e-commerce portals. A good example is the internet auction website www.omanbay.com, where users can offer their second hand or other valuable items for sale online. Omanbay is allowing users through ePG to pay for the advertisement of their products. The two mobile telecom operators have also connected to the local ePG for their customers to make online payments and top up their telephone Business-To-Consumer (B2C). One of the current online Government-to-Citizen G2C services using this system is Royal Oman Police, www.rop.gov.om, where car owners can pay their traffic fines online. Another example is the online donations portal, www.onlinedonations.org, which is a common portal for several local charities. Users can go online and donate to their desired charities. From the official launch of the ePG on 30 August 2008 (with five merchants) until 30 September 2010, there have been more than 97,707 transactions with a total value exceeding USD 7,943,000.

As part of the Government's effort of bringing in foreign investment for the country, one of the initiatives was to ensure a hassle-free business registration process. It should also be cost-effective and reduce the time needed for business registrations. As such, the idea of the One Stop Shop (OSS) emerged in May 2006, combining different governmental agencies to offer various services to investors.The fundamental element of the new system is a one-stop service, which offers comprehensive services via technology. The project was introduced by Ministry of Commerce & Industry (MoCI).The primary objective of the system is to provide a state-of-the-art, scalable, secure and reliable solution, enabling access through multiple channels, providing feedback mechanisms such as e-mails and SMS to investors. Future ventures will provide value to MoCI/Investors through the official website.

In the past, an investor had to wait for one month for the commercial registration application to be completed and then had to visit each government entity separately in order to get the required approvals for the registration. In some cases, inspections had to be made before the issuance of the registration act. In fact, the time required for each application in any concerned entity was a minimum of two weeks. However, with the introduction of the OSS, each application is processed within one to two working days, which saves investors a considerable amount of time and effort.

The OSS solution is built around a series of functional building blocks and systems designed to meet the MoCI's requirements such as the OSS web portal, the gateway to MoCI's Intranet, and the wider Internet. Such systems include: a self-service system for investors; the MoCI back office system, which allows the MoCI to drive and manage the OSS efficiently; the front office system for the MoCI, which presents a unified and secure set of functions for internal and external users; a document management system to manage the submission and storage of scanned official documents; a workflow system to allow business processes to be automated within the OSS system; an interface to an electronic payment gateway, allowing investors to securely pay fees online; and an interface to the Government System, enabling a comprehensive set of web services. The system has been

successful in achieving the overall objectives as defined in the digital strategy, the vision, and mission, as set by the management of the MoCI in addressing the overall development of services.

Story of Sulaiman Masoud Al-Khayari, Director-General and Owner, House of Wisdom for Translation, Sultanate of Oman

The Ministry of Commerce and Industry (MoCI) has made great strides in facilitating transactions by providing One Stop Shop. Since I am a businessman and an owner of one of the leading institutions in the field of translation, I need to do all transactions quickly and easily in order to save time. Now all transactions can be done electronically. One Stop Shop speeds up the completion of transactions. Thanks to MoCI.

The Electronic Educational Portal has been recently introduced by the Ministry of Education and represents a quantitative leap in the use of modern information technology in education. The portal is an electronic communication system for the exchange of information, ideas, experiences and views on various aspects of the educational process. It contains a database which assists educational sector employees in their decision-making and in the implementation of their plans, programmes and projects that helps to improve the efficiency of educational planning and allows the Ministry to evaluate quickly the results of its development programmes. The project involves the development of a comprehensive system which is compatible with, and complementary to, the Ministry's vision for deep-rooted educational reform in the Sultanate.

The Electronic Educational Portal provides attractive interactive teaching tools using advanced and innovative techniques, supports improvements in evaluation and assessment and teaching methodologies and curricular development. In doing so, it assists in the creation of a quality education system. The portal's electronic teaching programmes train teachers on how to develop self-learning skills among their students and enable interested members of the public to extend their educational opportunities through distance learning and virtual classrooms.

The main obstacles during the implementation of the project are: infrastructure, human resources, e-curriculum, society and culture, financial resources and application solutions (creativity).

Over a number of years, it had become apparent in Sultanate of Oman that the way in which students were enrolled in the **Higher Education Institutions (HEIs)** could be improved. In the past, when students received their examination results, they had to travel to each Institution to submit a separate application. This was a great inconvenience to students and their parents, and it often incurred considerable expenditure. Therefore, the Ministry of Higher Education (MoHE) established a new system that enables students to apply electronically, with one single application, to any Higher Education Institution (HEI), through the **Higher Education Admission Centre (HEAC)**. The new system

operated for the first time in 2006.Through the HEAC system, students do not need to travel to HEIs one after the other to submit their applications. Another change is that applicants apply before they sit their final examinations. The idea is that they will be able to make better suitable choices at a time when there is less pressure and when more people will be available to advise and assist them. Although students will be allowed to change their choices after getting their results, the advice to applicants is that they should not postpone these critical decisions until such a stressful time. The **HEAC** has made the necessary arrangements with all the institutions to enable students to benefit from the new central admission system.

Story of Khamail Ahmed Al Balushi, Student, Um Saad Al Ansariya School (8th Grade), Muscat Educational Region, Sultanate of Oman

I am Khamail Ahmed Al Balushi, a student at Um Saad Al Ansariya School, 8th Grade (Muscat Region, Sultanate of Oman). I believe the Educational Portal is an excellent project implemented by Ministry of Education in the Sultanate of Oman and it is becoming the backbone of the education system in the Sultanate. This portal is very important to me as a student, because it has simplified most of the procedures and it offers a wide variety of services to all the education members. As a student, I can perform many services online such as reviewing my performance appraisal, selecting school activities, viewing my electronic data file and participating in educational forums. In addition, my parents are continuously notified about my absence, performance and related issues through the SMS services implemented by the portal.

The Ministry of Health (MoH) in 1997 developed and implemented a **Hospital Information System, called Al Shifa**, tailored to fit each of its health-care institutions.. Since then, Al Shifa has been implemented in all major health-care institutions. The total number of institutions that have implemented the Al Shifa hospital information system is over 170. **Al Shifa** incorporates all the processes and procedures in the hospital environment to make it almost "paperless". The system is a powerful tool running through a single menu that represents the fundamental components of the electronic medical record. It provides comprehensive online data inquiry reports based on the user-defined search criteria for retrieving and displaying only the desired information that can be viewed from any workstation.

The system has been successful in achieving the overall objectives as defined in the digital strategy, the vision, and mission, as set by the management of the Ministry of Health in addressing the overall development of services. As part of the Ministry of Health Al Shifa electronic system, the Ministry has developed and enhanced this application by developing a unique referral system called **Al Shifa e-Referral System.** The electronic referral engine involves first streamlining the Referral Process itself,

deciding on the clinical documentation standard for referral for treatment, and then adopting the standard for the investigation. Three immediate benefits of this initiative are: the faster speed of processing the referral, the automated feedback received upon submission of the referral, and the presence of local management at each health-care institution in the referral process. This reduces documentation processes and reduces the referral process from three days to a matter of minutes. It further addresses issues such as the lack of transparency in the referral process, the time it takes, the lack of feedback from referral, and the error-prone manual input of laboratory referral results at the referring institutions. The system impacted on the referral of patients in the Sultanate of Oman by connecting all the health-care institutions across the country and providing easy, fast and more transparent referral of cases. Care providers can now track their patients whenever they are referred to other institutions, which leads to better care for citizens.

Before the implementation of the **Manpower Registration System (MRS)**, the work permit and application process for the hiring of foreign talent in Oman was tedious, time-consuming and labour-intensive. According to 2007 statistics, the Sultanate of Oman has a total of 840,000 foreign workers to complement the current workforce. To apply for work permits for expatriate workers, companies or sponsors were formerly required to complete the application form and submit the completed form to the Ministry of Manpower in person, then the Ministry would manually process the forms. The normal time to obtain approval for the work permit was between one to three months under the manual system.

With the development of the electronic MRS, the Ministry of Manpower has greatly improved customer service to the companies and other ministries' organizations. Today, it takes only one week to obtain a work permit for a foreign worker, and through the system the companies can easily update foreign workers' information regularly. Furthermore, the system is integrated with other ministries thereby providing efficient Government-to-Government (G2G) application. The Ministry of Manpower provides information about the labour force to different government sectors in an effort to help expedite their related services to citizens and residents. The integration of applications within the Ministry of Manpower along with other ministries is valuable to the community. It demonstrates a working example of integrated e-Services and information sharing between government ministries. The system has been successful in achieving the overall objectives as defined in the digital strategy, the vision and mission, as set by the management of the Ministry of Manpower in addressing the overall development of services.

The Ministry of Civil Service (MoCS) introduced the project **e-Recruitment**. The recruitment process of MoCS is done at least three times a year to notify jobseekers of available vacancies, and advertise for upcoming vacancies. The MoCS used to get more than 20,000 applicants per advertisement. Thus, according to the old procedures, applicants were required to submit their applications and CVs by hand to the MoCS recruitment department located in Muscat, the capital of the Sultanate. This meant that the applicants had to travel from various regions to the capital city. In addition, after submitting the applications, all applicants had to take a paper-based written qualification examination. Based on the high number of applicants, it often took a long time to grade, pre-qualify the candidates and select them for formal interviews. The candidates who cleared the written exam would then be called for an interview, which was also manually documented. The whole recruitment process would take six months on average and sometimes could take up to 12 months.

The new recruitment system, launched in 2006, has eliminated many of these inconveniences. Using SMS technology, jobseekers can apply for jobs in the civil service by sending an SMS with their Manpower Registration Number and the corresponding job identification number published in the

advertisements. Through integration with the Ministry of Manpower's National Manpower System, the system validates the applicant's data in seconds. Jobseekers can apply for jobs in the civil service at any time and from anywhere, eliminating the need to travel to the capital just to submit the applications and sit for the entrance examinations. From an initial six months, the whole process is shortened to less than a week, from notification to nomination. This is a huge savings of 23 weeks, plus the elimination of having to travel or queue for approval, as well as the anxiety of waiting for examination results. The citizens now can get the required information by sending the details of the job advertisements to the mobile phone numbers provided. These subscribers will be notified with the dates of job advertisement as appearing in local newspapers. The system offers facilities to inform job applicants about the status of their application, date of scheduled interview or tests and their results. Through this service, queuing is reduced at the Ministry, allowing employees to focus on better service to the public. Applicants benefit by saving their time and effort in physically visiting the Ministry for all their enquiries.

The Ministry of Agriculture (MoA) acknowledged the importance of ICTs by introducing e-agriculture services and projects such as an **e-Permit system** that assists the Veterinary Quarantines Department in overcoming issues related to generating permits. Such permits are essential to ensure that the country of origin, as well as export and transit countries have good zoo sanitary and environmental preventive measures. A total of 48 services are available on the MoA website such as registering beehive certificate, requesting support for modern irrigation systems for farmlands and requesting change of use of an agriculture land. These services help citizens and business in their daily life by easing the process of performing agriculture-related services.

Mada (Qatar Assistive Technology Center) working towards an inclusive digital society

Submitted by The State of Qatar

Author: Ahmed Habib

Since opening its doors in June 2010, Mada (Qatar Assistive Technology Center) has served as a critical resource to people with disabilities in Qatar.

Located in the heart of downtown Doha and open to all, Mada offers an interactive environment showcasing a wide range of ICT-related assistive technologies (AT). These include, to name a few: adaptive keyboards; Braille readers; text-to-speech software for the blind, low vision and people with learning challenges; hearing induction loops for the deaf; and cutting edge eye gaze devices that are hands-free remote human–computer interfaces, which can be used by people with severe mobility challenges by using only their eyes.

Creating awareness about the potential of AT is a key component in promoting its wider use, and forms an essential part of Mada's work. Assistive technologies have a great impact on bridging the digital divide for people with disabilities, which means greater social inclusion, integrated education and employment opportunities. As such, Mada allowed thousands of community members in Qatar to learn about various ways in which people with disabilities could benefit from the use of ICTs.

Throughout the scope of its work with a variety of social actors such as Disabled People's Organizations (DPOs), schools, employers and government agencies Mada committed to empowering people with disabilities to become active participants in a knowledge-based economy building confidence and security in the use of ICTs as a mechanism for social change.

For people with disabilities who are facing challenges in using ICTs, Mada allows them the opportunity to have their needs and abilities assessed by a team of experts.

By customizing solutions for every individual, Mada provides a service that is empowering to the end user. The Centre's staff works closely with individuals and organizations to ensure that people with

disabilities are connected, wherever they are – whether in learning institutions, at home, or in workplaces throughout Qatar.

Mada also provides extensive training programmes for professionals, caregivers, and users of assistive technologies. This includes workshops on the latest trends and thinking in AT and individual sessions for members of the community. Topics covered by the training team included: disability awareness, AT for visual impairments, dyslexia, voice recognition software and accessible design.

Edwin is 16-year-old who visits the Mada resource centre regularly. As a person with low vision and learning difficulties, Edwin uses Assistive Technology to connect to ICTs and gain much needed literacy skills.

Anirban Lahiri.

Since graduating in Computer Science from Carnegie Mellon University in Qatar, Anirban Lahiri worked to improve the lives of others. His knowledge of technology coupled with passion for encouraging greater use of ICTs by people with disabilities drove him to become an integral part of the Mada project.

Anirban is an avid user of ICT-related Assistive Technologies. He uses a screen keyboard to type, and a computer interface to control his smart phone that facilitates WHAT??? His experiences have shaped his intimate knowledge of AT and made him an advocate for further innovation in the field. Currently, he is the Senior Assistive Technology Specialist at Mada (Qatar Assistive Technology Center), where he works to actively connect people with disabilities to the world of ICTs.

Anirban ensures that the latest AT is available to people with disabilities in Qatar. He directly supports the Mada's assessment and training teams to ensure that the solutions offered are impactful, wherever they may be applied.

The Centre's name, Mada <مدى>, means "horizon" in Arabic, and reflects the limitless potential of assistive technologies to impact the lives of people with disabilities. An important element of Mada's vision is the research and development of localized AT solutions by increasing the availability of software and other forms of access technologies in Arabic. The Centre is currently working with a number of manufacturers to test and launch various localized assistive technologies. For example, Mada is working with Toby Churchill, a British manufacturer of portable text-based communication aids for people who cannot speak, to develop an Arabic version of the Lightwriter, which is a popular Augmentative and Alternative Communication (AAC) tool. Innovation in the field of Arabic language solutions will bridge the gap between Arabic speaking people with disabilities and the world of ICTs, and provide the tools necessary to people with disabilities to create more digital Arabic content.

Government Vision

The center is governed by the Supreme Council of Information and Communication Technology, ictQATAR, which enables and regulates the ICT industry in Qatar; the country's two telecommunications operators (Qtel and Vodafone Qatar); as well as Microsoft and Qatar National Bank, the leading national bank. This enables Mada to be driven by a national policy, whilst benefitting from the expertise of industry leaders that are shaping the ICT infrastructure in Qatar. Dr Hessa Al Jaber, the Secretary-General of ictQATAR, announced the establishment of a dedicated Assistive Technology Center in 2008, the year when the International Telecommunication Union (ITU) called on Member States to connect people with disabilities.

The Qatari Government's role in establishing Mada is a tangible manifestation of its own belief in the role of connecting people to the technologies that, "enrich their lives, drive economic development and inspire confidence in the nation's future", according to ictQATAR's vision statement. Mada also provides a proactive mechanism of guaranteeing the right of people with disabilities to access digital content, as outlined in the UN Convention on the Rights of Persons with Disabilities, to which Qatar became a signatory in 2008.

Mada's work is carried out in tandem with the outward-looking vision of the Qatari Government related to human and social development. The Centre's vision is aligned with the country's National ICT Plan 2015, and more broadly, Qatar's National Vision 2030.

Qatar is developing an e-accessibility policy in collaboration with Mada and G3ict (The Global Initiative for Inclusive ICTs). The e-accessibility policy will ensure that licensed telecommunications operators, government agencies, and publicly funded organizations provide ICT services that abide by accessibility standards.

Some of the more prominent national initiatives coordinated by Mada in order to implement this policy include:

- The "Connected" initiative in partnership with Qtel and Vodafone Qatar aimed at reducing the barriers facing people with disabilities in using mobile technology through the provision of AT, greater in-store and web accessibility; and
- Web accessibility audit services that will assess websites and portals in Qatar according to international standards set by the World Wide Web Consortium.

International Cooperation

As a public–private partnership, Mada recognizes the importance of international collaboration with organizations that have developed best practices in the area of connecting people with disabilities.

Mada's mission is based on the International Telecommunication Union's vision of a world with Information and Communication Technology for All (ICT4All). Since participating in the World Summit on the Information Society (WSIS) in 2005, Qatar has actively worked towards meeting the goals outlined within the WSIS Plan of Action. The plan's commitment to the universal provision of ICTs is reflected in the mission and vision of a Center such as Mada.

Qatar's vision in establishing Mada demonstrates many positive implications of the ethical dimensions of the Information Society and constitutes a vital step towards achieving the Millennium Development Goals.

The "Books without Barriers" initiative is an example of how global public–private partnerships can benefit people with disabilities in Qatar. By using Bookshare, a project of US-based high-tech firm Benetech, people with disabilities in Qatar will be able to download tens of thousands of electronic books in an accessible format for the first time. The implementation of the Bookshare initiative in learning institutions such as Qatar University enhances the educational experience of students with visual, learning and physical disabilities. It exemplifies the way in which ICT applications benefit people in all aspects of life. An important focus of the joint initiative between Bookshare and Mada is to develop and provide Digital Arabic Content. The two entities promise to produce 500 Arabic accessible e-books in 2012. This will ensure that accessible e-books take cultural diversity, identity and linguistic diversity into account.

As a centre that is built on the principles of cooperation, Mada's long-term success will rely on its ability to engage other partners in building an accessible ICT ecosystem.

Mohammed Shafeea By the age of 13, Mohammed Shafeea was presenting a television programme, a Qatar Television's flagship children's show called "Our Little Planet." He was also regularly contributing to Qatar Radio while attending the Al Noor Institute for the Blind in Qatar, where he excelled in his studies. More recently, Mohammed began working with Al Jazeera Children's Channel through a work placement programme with Mada aimed at using Assistive Technologies (AT) to encourage the employment of people with disabilities.

Mohammed's ability to excel in all his endeavours stems from the fact that he has integrated ICTs into all aspects of his life. Instead of using slow and heavy Braille note-takers, Mohammed uses the latest AT to navigate through the information superhighway. As an advanced user of AT, he is setting the pace for other members of the blind community in Qatar to get fully connected.

As an advocate for accessible ICT ecosystems, Mohammed actively challenges many of the barriers that face blind and low-vision ICT users. He has used his media skills to record audio-instructional guides on AT for users who cannot read Braille. In his work with Mada, Mohammed conducts advanced user testing for new technologies, and holds training sessions for users on a variety of AT.

For its part, Mada has supported Mohammed's ambitions. Through its partnership with ictQATAR, Mada has sponsored Mohammed in his academic career, where he is in his first year of media studies at Qatar University.

Mohammed is a trailblazing example of a young generation of Qataris that utilize the benefits of ICTs to open a new world of opportunities. Mohammed is a true ambassador for people of all disabilities who strive to use ICTs as tools for improving their quality of life.

Conclusion

Mada is a non-for-profit organization based in Doha, Qatar that is committed to connecting people with disabilities to Information and Communication Technology (ICT) as a way of fostering greater equity and empowerment, and creating public awareness around best practices in Assistive Technology (AT).

Mada is committed to providing solutions that are based on impartial-expert advice and assessment to ensure best practices in ICT-related Assistive Technologies. This also includes providing up-to-date information and training for people with disabilities, parents, and professionals. Mada believes that people with a disability have the right to find a way of connecting to digital information in the way that they choose and prefer. This is the guiding vision for Mada's aspirations of connecting people with disabilities. ICTs take many forms, including computers, mobile phones, e-book readers, games consoles, etc. This vision is one that is shared by many people and nations across the globe. Mada plays a part in contributing to finding innovative and creative solutions to help connect all people with disabilities.

To achieve universal access for people with disabilities, a number of actions needs to be taken into consideration to achieve the vision. Mada recognizes that ICT4ALL is achieved when:

1. People with disabilities receive independent advice on the best technology to meet their needs.

2. People with disabilities are helped to acquire the technologies they require.

3. People with disabilities are provided with the training and support they require to implement the technology effectively.

4. Digital content is designed to interact effectively across platforms and with a full range of access technologies.

5. A communications infrastructure based on national and international policies is implemented to facilitate full access for all.

We welcome partnership and participation from all who share this vision of ICT for All.

Please visit our website at mada.org.qa or email info@mada.org.qa

WI-FI covering of Republic of Macedonia

Submitted by the Former Yugoslav Republic of Macedonia, Ministry of Information Society

After an assessment was conducted of the current situation and level of internet technology development in the Republic of Macedonia, and specifically in the rural areas, as well as the internet access possibilities of the population in those regions, it was concluded that the rural environment was significantly underdeveloped compared to rest of the country. The main reason for this stagnation is insufficient economic interest from internet providers, as well as the hardly accessible terrain.

Taking in consideration these findings, the primary motive for "WI-FI covering of Republic of Macedonia" project is to stimulate the progress of the information society in such areas. It is also a sort of subvention for the operator which will have a positive impact for further investments.

The criterion for defining internet kiosks' placement is the location of peripheral schools all across the country. The kiosks are installed outside the main entrances of these schools, and so are available to everyone. Internet kiosks are also an open-access point for wireless internet network which is accessible in a range of 250 metres.

Because of the fact that this network and the kiosks themselves are open and available to anyone, as a necessary security measure, offensive contents (Nazism, pornography, anti-Semitism, aggression and others) are filtered, with the purpose of protecting the young population from bad influences.

The monitoring system included in this project provides utilization statistics and alarms about eventual defects. It supports fast and accurate 24/7 maintenance service provided by contractors.

In recent years, popularity and utilization of wireless networks have primacy due to their availability and price. They can be installed anywhere. The reason of wireless networks' success should be also considered from an economic, financial and low-cost aspect. Wireless network installation is cheaper than the wired network, because it does not request construction work, such as digging streets and laying cables, which drastically reduces the expense. The installation only requires the setting of a few access points.

The main characteristic of wireless networks is flexibility. This feature allows changes to be made in the environment while all network components remain connected.

Popularity, availability, price and flexibility are wireless networks' advantages. A disadvantage of these networks is security. The data is transmitted though a certain frequency, which makes it accessible to anyone near an access point. Anyone who possesses a laptop and a wireless card can connect to a company network in an easy way, and can reach sensitive data. Therefore, good strategy, technology and network protection methods are necessary. The security level can be raised only with proper strategy and technology.

The main priority of the project "WI-FI covering of Republic of Macedonia" is to offer further motivation and support in developing the ICT sector in Republic of Macedonia. The project's goal is to prepare Macedonian citizens for the modern IT economic market and global competitive economy. The project would focus on increasing the percentage of Internet users in Republic of Macedonia, thus making the Internet an available tool for all citizens. Improvement of the business and economic climate in the Republic of Macedonia is also expected. The low cost of WI-FI technology is a significantly important and favourable precondition for its use on the territory of the Republic of Macedonia, compared with the expenses that would emerge from setting broadband cables over the whole territory.

There are several benefits to be expected during the implementation of this project:

1. *National identification by modernization and citizens' IT skills – WI-FI nation.* One of the expected benefits from the launch of the project for WI-FI cover is the promotional effect on a country level. With the successful realization of this project, the Republic of Macedonia could be affirmed as a country innovator in the Balkans with an extremely high level of IT capacity. Enjoying the reputation of a country with implemented contemporary WI-FI technology, Macedonia could even expect improved attractiveness for foreign investments, as well as more prestige on an international level.

2. *Stimulating democracy.* Internet helps to include citizens in the decision-making and governance processes through new platform forums, blogs and social networks. New internet media allow displacement of the focus from the centralized media system to an essential civil democracy, as well as participatory, transparency and stimulus for civil activism.

3. *Increasing benefits offered by internet technology in education field*. By using internet in education, students will acquire knowledge and experience, will be able to share ideas and will have the chance to learn about many different cultures. Internet can be useful for parents and teachers as well. The interactive teaching with the use of the Internet will assist students and teachers to be mutually involved in the learning process.

4. *Improving business*. Utilizing internet on a general level creates conditions for opening new markets and services which can procure new economic and social benefits. The Internet, as a tool, benefits productivity and efficiency in the business sector and public administration. E-commerce and e-business, thanks to the availability of wireless internet, can ensure faster conclusion of business deals, changing the way business is conducted. The country's economy would be stimulated by the increased information and knowledge exchange, as well as by the improved competition which the Internet offers.

5. *Users' mobility*. The main strong side of WI-FI wireless connection is users' mobility towards internet accessibility. Rural areas, which in the past were deprived of Internet connection because of the terrain, will now have the possibility to exploit the benefits which mobile accessibility of internet information offers.

All the locations are divided into 13 regions, and assigned to three operators, depending on their offers in an online bidding system. Taking into consideration the immense dimensions of this project, with 680 Internet kiosks with access points installed across all the country, the process of implementation is successfully closed.

« Ecole des Sables »in Mali

Submitted by Moussa AG ASSARID, Écrivain – Consultant en Développement et Communication

The Touareg community is one of the oldest communities in the world, but the absence of education for children restrains the development of the region. Action towards a better future must be taken, and education is one of the only ways to resolve the impasse. Hence the Ag Assarid brothers decided to create École des Sables in 2002. This project offers nomadic children an access to quality education. École des Sables in Taboye gives children, whose parents continue to live as nomads, an education at a residential school which is open all year around. At the beginning of the school year 2010–2011, 110 pupils attended the school, from which 86 were nomadic boarders. There are three classrooms and six teachers, including three women and three men remunerated by the state of Mali. The school applies a teaching method that targets excellence respecting local cultures. The rate of success at elementary school is 99 per cent and at high school is 100 per cent. Access to education is necessary for integration into Malian society and for Touaregs to learn the official language, which are French and national languages.

Ten years after the creation of the École des Sables Saint-Exupéry in Taboye in 2011, the project was expanded to two other schools in the regions of Tombouctou and Kidal, still in northern Mali. All of these three schools are supported by the Ministry of National Education and local communities, which demonstrates the credibility of the project. For the last two schools, classrooms have been rebuilt and a residential school and high school have been set up. Those three schools are located in northern Mali, where the lowest school enrolment rate in the country is found.

To finance the schools, Moussa, a writer, sold his books through his blog (*http://moussa-blog.azawadunion.com*) and then gave a part of his benefits and royalties towards the funding of École des Sables residential schools.

The purpose of this projects is to develop a winning partnership between Écoles des Sables and schools from other countries around the world. The establishment of correspondence by different means of communication, including the Internet, is essential in order to make this project successful. The Internet basically enables the exchange on teaching methods, pedagogy and personal cultures between Touareg community and schools in France.

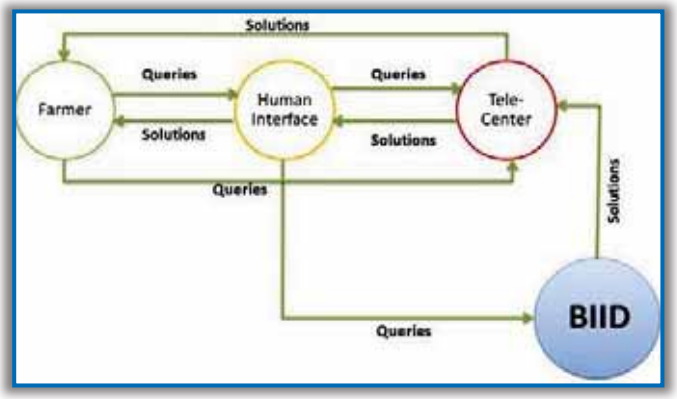
e-Krishok

Submitted by Bangladesh Institute of ICT in Development (BIID)

Background on e-Krishok

Bangladesh Institute of ICT in Development (BIID)launched an ICT-based initiative known as e-Krishok (e-Farmer) in October 2008 in the agricultural sector in Bangladesh. The idea for e-Krishok arose out of the need to provide effective extension services in the agricultural sector in Bangladesh.

BIID has been supporting local cellular network operators and telecentre networks in more than 500 locations all over the country in order to reach rural communities with various ICT-based informational and advisory services. It was, therefore, logical to use this platform to introduce e-Krishok to the wider farming community. e-Krishok evolved as a major campaign to bring the benefits of ICTs to the grassroots level in rural Bangladesh.



The information delivery model applied by BIID is quite simple. A rural telecentre owner/operator is trained to use the user-friendly Bangla content available on the e-Krishok website. It includes farming technology, new verities, disease prevention, input information (source and price), best practices and Frequently asked questions FAQ on agri-problems. A number of success stories from e-Krishok members are also being featured on the web. Many of these centre's were set up by local entrepreneurs with micro-credit obtained through various micro-credit organizations such as Grameen Bank. The centre operator browses the web portal to locate the solution to a farmer's problem or query. In case she or he is unable to find a solution, she or he sends an e-mail to info@ekrishok.com. An agriculturist managed by BIID responds to all queries sent to this address on a daily basis. Hence, in about 24 hours, the centre operator finds a solution, which she or he passes on to the farmer. Farmers in the locations where e-Krishok was activated (100 locations all over Bangladesh) are mobilized using a local contact known as e-Krishok brand promoter, or BP. A BP communicates with farmers in two stages. In the first stage, a group of farmers (approximately 30–50) are organized in a courtyard for a meeting. In this meeting, the BP, along with identified local elderly farmers and opinion leaders, make farmers aware of information services available through their local telecentre.

To ensure sustained communication with a number of identified farmers, a BP would also encourage those who gather at the courtyard for a meeting to enlist as e-Krishok members and would take note of their most urgent problems in their current agricultural activities. In the next step, enlisted farmers would be contacted directly in their field or at home to further understand their farming problems or to help them reach solutions to problems already recorded. The role of the BP is to create a first-time trial of the service. For further inquiries or problems, a farmer would be required to come to the telecentre.

Launching and initial outcome of the e-Krishok campaign

As it was mentioned previously, e-Krishok was launched in October 2008, in ten locations around Bangladesh. At this initial stage the priority was on learning and addressing specific local needs such as appropriate varieties of seeds and technology, etc., plant diseases, input (pesticide and seed) sourcing, local experts, market information including price and contacts of retailers, wholesaler, bulk buyer, building the optimum delivery mechanism and fine-tuning the entire process so that the best possible service provision model could be built and implemented. The major questions were: 1) would the farmers accept this new technology?; 2) could e-Krishok gain the trust of the farmers?; and 3) was it an initiative that could reach critical mass so as to become sustainable?

The initial stage began in October 2008 and ended in April 2009. The major milestones in the piloting of the campaign were to: understand the local setting and farming-related issues; recruit BPs; set up the groups and create e-Krishok member ID; establish crop calendar-based problem identification systems; and organize problem specific information and advisory services, to enable online video-conferencing.

The key achievements of the initial stage are summarized in the table below:

The campaign key achievements	Farmers	Queries
Farmers reached (direct and indirect)	2500	
Registered Members (direct reach)	756	
Total queries from farmers handled by TELECENTREs in 10 locations (Trial of Services)		550
Total of farmers who benefited by applying information/advice obtained from telecentres (Beneficiaries)	150	
TOTAL	**3406**	**550**

The most crucial lesson learnt during the pilot of this project was the importance of earning the trust of the farmers, so that they would be motivated to seek the services of a telecentre or any other ICT-based service-delivery platform as and when needed. In some areas the project was more successful than in others. The factors that contributed to better outcomes were that: a) the entrepreneurs were motivated and participated wholeheartedly to reach farmers effectively through the campaign that helped the local entrepreneurs to promote their centre among

the local communities and get an edge over other local competitors; and b) the BPs were active and successful in connecting with farmers.

This initial phase led the BIID to identify four major areas of greater focus and formulate recommendations within the identified areas for replication of the campaign:

1) Content Provision and Delivery

Scaling up the initiative in more locations would require a stronger expert consultation. Furthermore, greater focus would be required to serve farming activities in livestock, poultry, fisheries and some non-conventional crop cultivation such as strawberries, mushrooms, etc. Above all, fertilizer recommendations for yield maximization were increasingly in demand by farmers. On the delivery front, the BPs role in getting the solutions to the farmers in their fields and/or homesteads would be crucial. The goal of the strategy is to motivate farmers to visit an ICT access point.

2) Capacity Building

The experiences in the pilot phase showed that centres tend to forward queries to the agricultural experts without making adequate use of the information platform available at www.ekrishok.com.

3) Field Coordination and Monitoring

The level of field coordination that was required of the BIID for only ten locations clearly indicates that such field coordination in replication in more locations dispersed all over the country will require decentralized provision for field coordination. Hence, the BIID would employ a regional coordinator to cater to telecentres in each division of the country.

4) Collaboration with the Government

In view of the long-term vision of the campaign to induce behavioral change of farmers as well as to develop a sustainable model of content management and delivery to farmers, the BIID underscored the need for a systemic change that would bring together private resources (ICT networks) and government facilities. The Government's provision of agricultural information and services through the DAE, the AIS and other allied bodies such as the Soil Research Development Institute (SRDI), etc. constitute a huge resource pool that, if deployed effectively in partnership with private sector, would bring about revolutionary changes in the information landscape to farmers.

Replication and scaling-up of e-Krishok nationally

The success of the initial stage convinced the BIID that e-Krishok was a viable initiative, able to reach farmers at the grassroots level with compelling benefits, which encourages farmers to change their behavioral mindset. Farmers at the ten locations increasingly began to look at the telecentres from which e-Krishok is available as their preferred source of information and advice. From BIID's perspective, this achievement of changing behavioral patterns justified expanding the initial intervention to 100 locations throughout Bangladesh.

The replication and scaling up of e-Krishok to 100 locations began in October 2009 and ended in February 2010. In less than five months, the results of the campaign exceeded expectations formed as a result of the pilot project.

The results of this replication and scaling-up phase are summarized in the table below.

The campaign key achievements	Farmers	Queries
Farmers reached (direct and indirect)	14228	
Registered Members (direct reach)	12668	
Total queries from farmers handled by TELECENTREs in 10 locations (Trial of Services)		6793
Total of farmers who benefited by applying information/advice obtained from telecentres (Beneficiaries)	2310	
TOTAL	**29206**	**6793**

During this replication, BIID incorporated a new service called Fertilizer Recommendation Software (FRS), developed by the SRDI and supported by Katalyst Bangladesh. As a test case the software-based fertilizer recommendation was introduced in 20 locations. A tool for precision farming, the FRS has started to show promising uptake by e-Krishok member farmers, providing impetus to the local Krishi offices of the Government for participation in the campaign. This is accomplished through the organization of courtyard meetings for farmers, sharing FRS details from government officials, and then following up by inviting the farmers to additional group meetings at strategically located centres to demonstrate the service online.

It can be said without equivocation that this replication and scaling-up phase was a success. However, in view of the long-term sustainability of the initiative, a few components in the service-delivery model were criticized for not being cost-effective or sustainable. One criticism is the use of salaried brand promoters, and the other criticism is the financial incentives and future direction for the access points. The first criticism targets the sustainability issue – who will continue to pay the brand promoters if they are to be removed from the service delivery model, and how will their role be filled in. The criticism targets the financial issue and ask the question how and when to commercialize transactions between a farmer and a centre. The major outcome of the e-Krishok initiative was to have built trust and confidence among the farmers for an ICT platform to deliver information and advice to farmers.

There are several examples that illustrate how e-Krishok can be applicable in the lives of farmers. These examples clearly demonstrate how e-Krishok is able to bring about positive change in the lives of farmers through the use of ICTs.

Ujjal had an agricultural problem where the potato plants were attacked by pests, which spread rapidly to the healthier plants. A swift solution was crucial, before further damage was done to the harvest and, consequently, the family's food supply. The solution for Ujjal's problem was found thanks to the online agricultural information repository provided by e-Krishok service.

Chaina's case is different and it relates to a disease which attacks bottle gourd plants, resulting in very low yields. She benefited from the e-Krishok service available at a local telecentre from a courtyard meeting organized by a BP of e-Krishok, following the same procedure of e-Krishok as in the previous case.

Previously, Iqram regularly faced agricultural problems and the solution was to use pesticides. This time Iqram found out about the use of agricultural solutions from the local Community Information

Center (CIC) through the e-Krishok Campaign. By applying the solution from CIC, Iqram estimates that he was able to save nearly 90 per cent of his rice crop.

From the beginning of 2009, Mojid Ali was facing problems with his Cucumber's field. Thirty-five per cent of Ali's cucumber field began shrinking gradually and becoming weaker. The cucumbers were attacked by pests. According to Ali he went to CIC and told them what he was experiencing. CIC suggested that he use 'Sex Feromon' to kill pests and 'Sumithion', 'Sitap', 'ripot' to get rid of *Mojaik* disease.

More cases are available at http://www.ekrishok.com/frmListSuccessstory.aspx

The above examples clearly illustrate how e-Krishok is able to change and impact the lives of rural farmers in a positive way. e-Krishok has given them a valuable source of information and advice, which they sorely lacked before. Through e-Krishok, they were able to increase their livelihood and living standard. Now the farmers are able to better plan for the future a clearer frame of mind.

The success of e-Krishok has convinced BIID that it is a viable ICT-based service, which is of real value to farmers. This belief has fueled the hunger and drive to expand the campaign to even more locations all over Bangladesh. Currently, there are 100 locations where farmers can take advantage of e-Krishok; however, this is about to change.

By the end of 2011, e-Krishok will be available in over 500 locations and by the end of 2015 e-Krishok will be in over 5,000 locations all over Bangladesh. Towards this end, BIID is now currently working with various governmental and non-governmental organizations to mobilize the necessary resources required for such a massive scaling-up of the campaign. BIID intends to adopt the following key strategies to achieve its goal of implementing e-Krishok at 5,000 locations by 2015. Innovation plays a crucial role in service delivery mechanism. Farmers need easily accessible service facilities as well as a user-friendly interface to become familiar with the ICT-enabled system. A touch-screen based kiosk is running at pilot level and scopes are being explored to use this technology on a large scale.

BIID is working hard to build e-Krishok as the brand of choice for farmers whenever they are in need of any information and advice. For the farmers, e-Krishok will grow to become a symbol of service, which is dependable, reliable and always there. In the near future, e-Krishok will be available not only in select information centres, but in all places where information is served through the means of ICTs, particularly through Internet and mobile phones.

Concluding Remarks

Past experience suggests that farmers do pay for services once they understand the benefit of said service. As we have seen in the project locations, some centres are already providing information as a transacted service. With branding and standardization of the service provision comes the opportunity to introduce elements of commercialization in the service-delivery model. With that in mind, in the first stage (during the nationwide scaling up starting from March 2011) fee-based registration will be required for farmers to avail services. This will be a nominal fee of Tk. 10 to 15 (or about $0.14–0.21) for an initial trial period (up to 4–6 months). At the end of the trial period, BIID will seek to introduce a standard fee per transaction. It is expected that the telecom partner supported by the Government of Bangladesh (GoB) will be able to add value in developing an innovative-payment mechanism to ensure that the network continues to provide services. One of the means could be "prepaid cards" for farmers only. There are other options for partnerships such as commercialization and expansion of e-Krishok, which are correspond closer to what is happening on

the ground. BIID already signed an MoU with Advance Chemical Industry (ACI), a leading agri-input supplier in Bangladesh, to work jointly to take the e-Krishok campaign nationwide.

To conclude, it should be noted that e-Krishok is first and foremost a campaign in Bangladesh that seeks to provide information and advisory services to farmers through the means of ICTs as the delivery mechanism. e-Krishok is a distinct initiative, which focuses on long-term perspectives, rather than traditional project based initiatives. However, in order to institutionalize the use of ICTs and to make ICTs an everyday, commonplace tool in the lives of farmers, an adjustment in the mindset of the farmers is necessary. This change will not take place in a short time-span. Indeed, it may take more than a generation to achieve. What e-Krishok has demonstrated is that such a service can be of benefit to farmers in rural Bangladesh – it is able to increase the income and opportunities of farmers, thereby, instigating positive growth in the socio-economic development of rural Bangladesh.

BIID demonstrated through e-Krishok that farmers are willing and capable of change when they perceive that change is in their favour. BIID showed that farmers will trust new technology if it was amply demonstrated to work. Now BIID is working hard to ensure that this trust is not lost by gaining a critical mass of users who will ensure the sustainability of e-Krishok.

Conclusion

These case studies have highlighted practices which show the way towards achieving the vision of an inclusive information society, as defined in the WSIS Outcome Documents. The different themes exposed will certainly promote cooperation between stakeholders and encourage others to share their experiences from the WSIS implementations.

The voluntary contributions, coming from Africa, Asia, Europe and Latin America, have given a rough picture of projects taking place worldwide and practical solutions to overcome challenges related to Information Society development.

More projects and case studies can be found under the WSIS Stocktaking platform (www.wsis.org/stocktaking) that follows the same objective of aggregating and showcasing ICT-related projects working towards the vision of the 2015.

List of Abbreviations and Acronyms

AAC:	Augmentative and Alternative Communication
ACCENT:	Advanced Centre for Communications, Enterprise and New Technologies
ACI:	Advance Chemical Industry
AGETIC:	Agence des Technologies de l'Information et de la Communication Information and Communication Technology Agency
AIDS:	acquired immune deficiency syndrome
AIS:	Agricultural Information Service
ANU:	Africa Nazarene University
AT:	Assistive Technologies
B2C:	Business To Consumers
BAU:	Business As Usual
BIID:	Bangladesh Institute of ICT in Development
BP:	Brand Promoter
CEDE:	Centro de Estudios sobre Desarrollo Económico
CEO:	Chief Executive Officer
CIC:	Community Information Center
COFEM:	Collectif des Femmes du Mali Collective Of Women From Mali
CPE:	Computadores Para Educar (Computers For Education)
DAE:	Development of Agriculture Extension
DPOs:	Disabled People's Organizations
ePG:	E-Payment Gateway
EREV:	EarthRights EcoVillage
FAQ:	Frequently Asked Questions
FRS:	Fertilizer Recommendation Software
G2C:	Government To Citizen
G2G:	Government to Government
G3ict:	Global Initiative for Inclusive Information and Communication Technologies
GEN:	Global EcoVillage Network
GHG:	Greenhouse Gas
GoB:	Government of Bangladesh
HEAC:	Higher Education Admission Centre
HEIs:	Higher Education Institutions
HIV:	Human immunodeficiency virus
ICFES:	Instituto Colombiano para el Fomento de la Educación Superior
ICTs:	information and communication technologies
ICT4All:	Information and Communication Technology for All
ICT4D:	Information and Communication Technologies For Development
InterSAT:	Internet via Satellite
IP:	Internet Protocol
IP-USN:	Internet Protocol based Ubiquitous Sensor Networks
ISOC-Mali:	Internet Society Mali
IT:	Information Technology
ITA:	Information Technology Authority
ITU:	International Telecommunication Union
KRW:	Korean Won
MMS:	Multimedia Messaging Service
MoA:	Ministry of Agriculture
MoCI:	Ministry of Commerce & Industry

MoCS:	**Ministry of Civil Service**
MoH:	**Ministry of Health**
MoHE:	**Ministry of Higher Education**
MoU:	**Memorandum of Understanding**
MRS:	**Manpower Registration System**
NGO:	**Non-Governmental Organization**
OSS:	**One Stop Shop**
PARHEF:	**Programme d'Appui et de Renforcement de l'Équité Homme/Femme Support project for Gender Equity**
PC:	**Personal Computer**
RIK:	**Rural Internet Kiosk**
ROP:	**Royal Oman Police**
RTS:	**Radio Television Sénégalaise**
SAED:	**Société Nationale d'Aménagement et d'Exploitation des Terres du Delta du Fleuve Sénégal National Society of Developing and Exploitation of the Fields of Delta of Senegal River**
SISBEN:	**Sistema de Identificacíon de Potenciales Beneficiarios de Programas Sociales**
SMS:	**Short Message Service**
SPARC:	**Solar Powered Advanced Rural Communications**
SRDI:	**Soil Research Development Institute**
STEM:	
T2M:	**Time to Market**
UN:	**United Nations**
UNCTAD:	**United Nations Conference on Trade and Development**
UNDP:	**United Nations Development Programme**
URTEL:	**Union des Radios et Télévisions Libres du Mali (Union of Mali's Free Radio and Television)**
USD:	**United States Dollars**
VOA:	**Voices Of Africa**
WAP:	**Wireless Application Protocol**
WSIS:	**Word Summit on the Information Society**

UNITED NATIONS GROUP ON THE INFORMATION SOCIETY (UNGIS)

Open Consultation Process on Overall Review of the Implementation of the WSIS Outcomes (WSIS+10)

This document consists of a list of six Annexes containing information on the Open Consultation process on the Overall Review of the Implementation of the WSIS Outcomes (WSIS +10)

Annexure I: Phase One : First Physical Meeting during the WSIS Forum 2011
Annexure II: Phase Two: Online Consultation: www.wsis-community.org
Annexure III: Phase Three: Official Submissions to the UNGIS Process
Annexure IV: Draft Plan of Action (Building on the Interim Results)
Annexure V: Draft Plan of Action (Additional comments received during the 2nd Physical Meeting)
Annexure VI: Additional Comments Received from 20th September to 30th September 2011

ANNEXURE I

Phase One: First Physical Meeting during the WSIS Forum 2011

Note: This executive summary has an informal character and has been prepared based on the recording available at http://groups.itu.int/wsis-forum2011/About/RemoteParticipation.aspx. The main purpose of this executive summary is to facilitate follow-up and future discussions on the Overall Review (WSIS+10) to be held within the framework of the next phases of the UNGIS Open Consultation Process. In case of any questions WSIS Stakeholders are invited to contact the Secretariat at contact@ungis.org

Draft Executive Summary of Statements

WSIS STAKEHOLDERS	EXECUTIVE SUMMARY OF STATEMENTS RECEIVED
India (Government)	1) India has been supporting the WSIS Process from the beginning and welcomes the UNGIS Open Consultation Process. 2) Important to ensure that the benefits of ICTs reach the last mile, in this regard would offer two suggestions: a. All communities are creating their own infrastructure. Let us create a mechanism so that we can evolve a **common platform** in the area of financial inclusion, agriculture, health or education, where all information is available to all the people worldwide. We would be very happy to host such a common platform in India and provide with the required resources. b. Let us identify areas of common interest, such as security, open data, and use of social media for citizen engagement (today people want to be part of the political process). 3) Requests a. India would like to be **Strategic Partner of WSIS** b. **India would like to host the Overall Review Meeting in 2014**
World Summit Award (Civil Society)	1) Congratulate the ITU for this year's WSIS Forum, in particular the excellent WSIS Forum website, remote participation and the emphasis on dialogue. 2) WSA welcomes this open consultation process. The world's changed tremendously since the two-phase WSIS, with mobile growth for instance. The issue of access of infrastructure and technology is a very different one than from 2005, as well as the digital divide (less of technology and infrastructure, but more of content and cost). **3)** In the process leading up to 2015 **content and cost need to be taken into consideration**, we should **focus on best practices in the area of content.**

	4) **Criteria of evaluation regarding the WSIS Stocktaking process** needs to be specified.
CSD PTT & CESIR (Civil Society)	1) The topic of funding of the WSIS Targets to foster development needs to be addressed. 2) Suggest setting up a **multistakeholder Forum on the topic of funding**, similar to IGF, to submit recommendations to UNGIS or UNDESA. 3) UNGIS could be the vector of this Forum, and could help organise this Forum, there is a need to create a structure for this forum. 4) In the next WSIS Forum funding to be discussed as a major theme.
The Guild of Service (Civil Society, India)	1) **Support the request of the Indian delegation** for the overall review of the WSIS Process to be held in India in 2014, this would have a ripple effects on the entire region.
Hungary	1) Congratulations, WSIS Forum has exceeded expectations. 2) Thoughts on Review Process: **a.** EU Countries not clear about the **year of the review process 2014 or 2015** b. Is it too early to start the open consultations?
Civicus (Civil Society)	1) It is not too early to start talking about WSIS+10 2) It is important to start now to **inform and activate civil society to participate** 3) Important to share ideas on the preparatory process with the civil society
Civil Society	1) Congratulate the organizers for successful participation and good quality of discussions at the WSIS Forum 2011. 2) Consider **setting up a voluntary assessment body before 2014**, so that member states and stakeholders can send their outcomes to this body. 3) With respect to Civil Society, funding and means to attend WSIS Forums each year needs to be addressed. 4) Congratulate the Indian Delegation, for their offer to host the WSIS Review in 2014 and applaud them for the publication released during the forum.
Russia Federation	1) Congratulate WSIS as a truly multi-stakeholder platform. 2) We need to work towards **providing results of implementation of WSIS**, with new technologies (broadband and mobility) we also have new challenges (cybersecurity, child protection, etc.). These must be taken into account when the results and proposal for the future of WSIS will be assessed. 3) Propose that a consultation should take place to define ways to **report to the General Assembly**. The Review of WSIS outcomes could be only as a report without any

	consideration at a global forum, but also could be in the form of a High Level Meeting with participation of all stakeholders in 2014, e.g. in conjunction with PP-10 or a Separate Summit 4) It would be reasonable to say that this **review should be completed by 2014** to be reported to the Millenium+15 Summit in 2015. 5) **Steering Committee** needs to be created as soon as the type of meeting is decided. 6) **Open Consultation should be completed by end of September 2011.** At the Plenipotentiary Conference more than 160 administrations instructed the Secretary General of ITU to report to the Council 2011 that will take place in October 2011.
Poland	1) In July 2011 Poland taking over the presidency from Hungary in the Council of the European Union. 2) WSIS Process is inclusive and Poland in its future role will ensure **good cooperation with EU** in this process.
Finland	1) Welcome the organization of an Event to review what has been achieved 2) The **WSIS Overall Review event should have a strong link to the MDGs** and link to the MDG Summit. 3) Finland favours a **true multi-stakeholder approach** that would be **action oriented** and is **not in favor of a lengthy preparatory process** e.g. with prepcom etc. 4) The **WSIS Forum could be used as a platform for the review of the WSIS Outcomes**, with special focus on WSIS Implementation.
United Arab Emirates	1) **Stocktaking methodology** needs to be frozen. We are still talking on how to measure progress. 2) We need to assure a **global report on countries progress**, along with a ranking. 3) We have to show countries where they are lacking and give them the chance to improve before the end of the process. 4) **2014 should be made as a year of a global assessment** on the implementation of the WSIS goals. If we failed we need to decide how to improve. 5) **2015 we need to announce global progress** and achievements and WSIS conclusions 6) The **WSIS process needs to be concluded by 2015**, we have new challenges and priorities. With evolution of technologies everything changes. 7) UAE is committed to the process and will support ITU till the end of the process. There is a need for a very strong leadership from ITU
International Chamber of Commerce (BASIS Initiative)	1) ICC is an active contributor to the WSIS Process since the beginning.

(Private Sector)	2) WSIS process should continue to include all WSIS Stakeholders in an equal footing. **3)** ICC would encourage all to remain sensitive to the **limited financial resources.** 4) ICC is pleased that **prepcoms are not being considered for this process**. 5) ICC would encourage all **to maximize benefits from the online tools**
Civil Society	1) Important to **enhance participation of Universities and academicians** in the WSIS Process. There is even a resolution approved for this. 2) Academia need to be encouraged to join the WSIS process.
Brazil	1) Propose to set up a **task force for the preparatory process**, to design the process and implement remote participation as an integral part of the whole preparatory process itself. 2) Preparatory process must be inclusive and participatory.
Senegal	1) Important to focus on MDGs and the use ICTs to foster development. **2)** Proposal to **use resources most effectively** 3) Carry out a **review on a regional basis/ a regional mechanism** to identify success and failures, also to show how can we improve, why we failed and how can we do better in the future.
Microsoft (Private Sector)	1) **Inclusion of Private Sector needed, and was visible** this at WSIS Forum 2011. 2) We support the future of WSIS in particular, e government, IGF, cloud computing, ICT4D, crisis repose and road safety 3) We support goals for online collaboration and facilitation of the future
Association for Progressive Communication (APC) (Civil Society)	1) Proposals for improving the implementation process, processes must be clearly defined for participation 2) Processes must be guided by some **principles, with clear mechanism** especially for developing countries , they should be pro-active, and cross-cutting entities. 3) WSIS Stocktaking, **time for analysis and evaluation**. Correlation between what we are taking stock of and the WSIS Outcome themselves. 4) The preparatory process should have **a global and regional approach**. We should use regional IGF processes. 5) APC remains committed to the WSIS processes and on building civil society participation.
Algeria	1) **Raising awareness and enhancing cooperation amongst WSIS Stakeholders at a regional and country level is very important.** Setting up of

	awareness raising entities in each country is priority. 2) In the next stages of the process important to create focus groups to reach the targets set.
Civil Society	1) Important for Civil Society to know the **format and content** of the WSIS Overall review. 2) **Remote Participation** very important for the process, for Africa for example it is a good idea to use the telecommunications schools. They are already visible and active. 3) It is important for the process to be genuinely multi-stakeholder. 4) We need to be concrete and pragmatic – thematic approach useful for this fora.
Civil Society (Sudan)	1) Important to have **country level meetings every year** to evaluate WSIS Implementation in each country. The reports of these meetings can be submitted to the WIS Forum each year.
Civil Society (Remote Participation)	1) It will be important to be clear about the thematic focus of the WSIS Forums.
Republic of Guinea	**1) Concentrate on themes interesting / important for regions at a regional level.** 2) Important to create **regional forums** so that they relate to the implementation of ICTs in the region.
Civil Society (Brazil)	1) Multi stakeholder approach for outreach to bring in new participants and stakeholders. 2) Setting up of a **Working Group to find the links between WSIS process and IGF process**. 3) Exchange **good practices between IGF and WSIS**, remote participation is a good example. 4) More support from other organizations to the IGF secretariat

Annexure II

UNITED NATIONS GROUP ON THE INFORMATION SOCIETY (UNGIS)

Open Consultation Process on Overall Review of the Implementation of the WSIS Outcomes (WSIS+10)

Phase Two: Online Consultation: www.wsis-community.org

Note: This document provides a summary report on the WSIS Knowledge Communities Discussion from the period of 15th June to 5th September 2011

WSIS Summary of written comments

**N/I No information provided.*

Name	Affiliation	Group	Country	Comments
Teresa Torreseca	International Society for Education Through Art (InSEA)	Civil Society	Portugal	- A non formal meeting, a place to share ideas, not exposing monologues ,
Daniel Quimper	N/I*	N/I	N/I	- Little work groups pronouncing on one peculiar issue or one peculiar angle of a framed problematic / debate.

Bangladesh NGOs Network for Radio and Communication(BNNRC)	Bangladesh NGOs Network for Radio and Communication(BNNRC)	Civil Society	Bangladesh	-	Country consultation with the participation from multistakholders.
Reza Assadi	Mashhad University of Medical Sciences	Civil Society	Islamic Republic of Iran	-	Need to find solutions for sharing the experiences and knowledge between countries.
Fathi Essalmi	N/I	N/I	N/I	-	Organize a WSIS Review conference in the collaborative manner among stakeholders. - The conference should be organized based on call for papers submitted by stakeholders.
EUROLINC	EUROLINC	Civil Society	N/I	-	Collect reviews on the event, by groups and individuals - Publish a summary - Collect proposals for evolutions - Call an

					informal meeting, with remote participation, for discussing proposals - Publish outcome of meeting, and launch poll on resulting options
Gipson Varghese	University of Deusto	Civil Society	Republic of India	-	The review conference should be organized according to country-wise importance.
Kallirroi Nikoli	N/I	Civil Society	N/I	-	A Formal Meeting with many opportunities for exchanging ideas and opinions planning and creating the global knowledge society which will belong to any citizen of our world.
Ahmed Eisa	Gedaref digital city organization (GDCO)	Civil Society	Republic of Sudan	-	Organize country level meetings once or twice every year to

					evaluate WSIS Implementation in each country. The reports of these meetings can be submitted to the WSIS Forum each year.
Etienne Tshishimbi	ISOC Senegal	Civil Society	Republic of Senegal	-	Truly open and inclusive open consultation should be organized beyond UN agencies and traditional WSIS stakeholders.

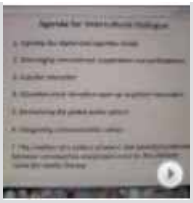
Summary of video messages

Questions: Followed by 30 second brief statement on the major contribution brought by ICT for development, please address the following:
1. What are your expectations for the outcome of WSIS Review 2015, and concrete proposals in this regard?
2. What are your views on the progress made in implementing the WSIS outcomes?

Name	Video	Affiliation	Group	Country	Comments
Constance Bommelaer		ISOC	Civil Society	Switzerland	- Support several proposal of focusing Action Lines Fora on 2014 on assessing the WSIS implementation commitment. - Don't agree organizing separate summit either on 2014 or 2015

					including a new declaration and plan of action. - Review should allow concrete evaluation and assessment, and discussions would allow identifying best practices, intangible mechanisms to improve information about stakeholders involved. - IGF, which is the one of the most successful WSIS outcomes should be integrated in the WSIS outcomes review. - The review outcome should be a light resolution gathering all stakeholders' inputs. - Preparatory process should be inclusive and participatory as possible. - Internet technical and academic communities should be included in the process.
Markus Sabadello		Project Danube	Civil Society	Austria	- WSIS should spare more efforts to culture of peace. Establishing global peace of culture is one of the most promising and the best strategy we have to work towards various UN Charter. ICTs are great tools for mutual learning and understanding to avoid conflicts due to cultural differences. - Identity and anonymity of Internet and democracy.

					- For the Review, UN family should reach next generations' social network communities. Need to raise their awareness about WSIS and promote also various UN charters among them.
Kenneth Deer		Indigenous ICT Task Force	Civil Society	Canada	- Indigenous people have rights to enjoy access to information and also to spread messages. - UNESCO's proposal of hosting a meeting in 2013 in Paris can broaden the support base and audience for WSIS implementation objectives, in particularly with the Action Lines related to the UNESCO mandates such as culture, science and education. - WSIS people need to be treated as equal participants of the development of the Information Society. They should be involved in every level of activities to ensure inclusiveness. - The WSIS Plan of Action should continue beyond 2015.
Malia Nobrega		N/I	Civil Society	USA (Hawaii)	- WSIS identified key principles that are still true today for many of indigenous communities: the heart of the Information Society is respect for the dignity and the human rights of indigenous peoples, nations and

					tribes, and these rights should be firmed. - Those principles should guide the work of those who are involved in the Information Society. - Indigenous people communities are willing to continue actively working on the WSIS implementation process.
Tapio Varis		UNESCO Chair in global e-learning	Civil Society	Finland	- Agenda for the inter-cultural dialogue: 1.Fight against digitalized community divide 2. International cooperation and participation 3. Global open education 4. Freedom and rights are in balance, and cultural and linguistic diversity are emphasized.
Giacomo Mazzone		European Broadcasting Union	IGO	Switzerland	- WSIS is the best platform to build society of knowledge and information. Broadcasting would be the essential part of such an Information Society development process. - Global approaches are needed for spectrum, for media and for cultural diversity. These rules must respect citizen's right to promote freedom of expression, pluralism and independence of media. - Developing countries need both

					infrastructure and capacity to develop their own contents. - Shared set of principles should be agreed by various stakeholders. WSIS might be the right place to do so and will promote the development of equitable use of ICTs as a human rights in the future converging world.
Joy Liddicoat		APC	Civil Society	South Africa	- The review should provide elements to: o assess the degree of progress towards WSIS goals and other internationally agreed development goals in which ICTs have a role to play, in particularly for MDGs and human rights; o assess participation of various stakeholders in the process o identify thematic new priority area. - The review should take place in alongside with national and regional IGFs. - Need additional financial resources. UN Regional Commission could provide and support necessary means to ensure participation

					of stakeholders. - APC would like the Review process to be truly participatory.
Tim Unwin		UNESCO Chair in ICT4D	Civil Society	N/I	- Need to come up with practical solutions to address the needs of poorest and marginalized people. - Need clear agreements cutting through all the existing bureaucracy to avoid overlap and to ensure coherency of the process. - Democratic and bottom-up process. - Define clearly the role of each stakeholder.

Annexure III

UNITED NATIONS GROUP ON THE INFORMATION SOCIETY (UNGIS)

Open Consultation Process on Overall Review of the Implementation of the WSIS Outcomes (WSIS+10)

Phase Three: Official Submissions to the UNGIS Process

Note: This document provides all the Formal Submissions received from WSIS Stakeholders from the period of 15th June to 5th September 2011

#	Organization Name	Stakeholder Type:	Country
1	Ministry of Telecommunications	Government	Ecuador
2	Ministry of Communications and IT	Government	Egypt
3	Ministry for Foreign Affairs of Finland	Government	Finland
4	MINISTERE DES AFFAIRES ETRANGERES ET EUROPEENNES	Government	France
5	Ministry of National Development	Government	Hungary
6	Department of Information Technology, Govt of India	Government	India
7	Information Technology and Digital Media Center	Government	Iran
8	Ministry of Communications, Science and Technology	Government	Lesotho
9	Ministry of ICT	Government	Mauritius
10	Ministry of Interior and Administration	Government	Poland
11	Knowledge Society Agency (UMIC), MES	Government	Portugal

12	Communications and Information Technology Commission,	Government	Saudi Arabia
13	Information Technology Authority	Government	Sultanate of Oman
14	Telecommunication Regulatory Authority	Government	United Arab Emirates
15	United Kingdom Government – Department for Culture, media and Sport (DCMS)	Government	United Kingdom
16	Bangladesh Institute of ICT in Development (BIID)	Private Sector	Bangladesh
17	NOKOR-ACT	Private Sector	Cambodia
18	Internation Chamber of Commerce	Private Sector	France
19	The Internet Society	Private Sector	Switzerland
20	VnECPRO	Private Sector	Vietnam
21	Project Danube	Civil Society	Austria
22	ACTION DE SENSIBILISATION SUR LES NTIC	Civil Society	DR Congo
23	ISOC Sénegal	Civil Society	Dakar
24	Gedaref digital city	Civil Society	Republic of the Sudan
25	CIVICUS: World Alliance for Citizen Participation	Civil Society	South Africa
26	Association for Progressive Communications	Civil Society	South Africa
27	ISETO / OISTE	Civil Society	Switzerland
28	Uganda Scout Association	Civil Society	Uganda
29	Association des clubs d'entrepreneurs etudiants du Tchad	International Organization	Chad
30	Conference of Non-governmental Organizations in Consultative Relationship with the United Nations (CoNGO)	International Organizations	Switzerland
31	EBU - UER European Broadcasting Union	International Organizations	Switzerland

Submissions received:

Government

1. Ministry of Telecommunications and IT, Government, Ecuador

1) Please provide objectives, goals and possible outcomes of the Overall Review of the Implementation of the WSIS Outcomes

The Overall Review of the Implementation of the WSIS Outcomes must review the advances of stake holding nations in achieving the goals and objectives subscribed to in previous summits, especially the ones in Geneva and Tunis. The achievements certainly vary by nation, but a general review will be useful in order to share best practices from nations that have experienced great advances, and to provide help for nations that have lagged behind. In addition, discussions will be useful to determine whether new methods can be used to achieve our objective of "promoting the use of ICT-based products, networks, services and applications, and to help countries overcome the digital divide". The Review should also consider whether new strategies are needed to accomplish the goals of the WSIS. Ecuador believes that the objectives and goals of the Review should be:

a. An analysis of the achievements and shortfalls of individual nations with regards to the action lines proposed at both Geneva and Tunis.
b. A revision of the methods utilized to achieve the objective of the WSIS in light of new technological developments.
c. A discussion on whether new strategies are needed to achieve the objectives established at Geneva and Tunis, in light of individual experiences, achievements, and failures.

The ideal outcome would be that those nations that are lagging behind can receive substantial help from those that are having a smooth transition towards becoming societies of information. In addition, we hope that new ideas can help solve some of the problems that stakeholders have faced, and that new forms of communication can enable members to share ideas with each other in a more constant manner.

2) Please indicate what type of meeting(s) should be held within the framework of the Overall Review of the Implementation of the WSIS Outcomes

Since all action lines must be reviewed, participants should be split into Work Groups that would analyze the status of each objective of the WSIS. A first general meeting should be held to inform all stake holders about the status of the WSIS goals, and about technological trends that have developed in stake holding nations. At this meeting, keynote speakers should be invited from the most successful nations to discuss the methods they have used to reduce the digital breach in their countries. In addition, this first meeting will serve to delegate Work Groups and explain the action line that each one should undertake. Afterwards, each Work Group should meet regularly (remotely or personally) to discuss the status of each objective and share ideas about new methods. A final meeting would be used to incorporate all the work from the different Work Groups and to draft a Plan of Action to address any shortcomings of the WSIS.

a. Work Groups should be created to analyze each individual action line. These groups would be chaired and composed by stakeholders. Each committee would be in

charge of one action line, and would discuss the status on achieving the goals relevant to that action line by 2015.

b. Each Work Group could meet remotely, at least every six months, until late 2014, when a final, all-inclusive meeting could be held.
c. At the final meeting, each Work Group would present a report to help draft a declaration and outcome document to be used in the Final Review of 2015.

3) Please describe the type of preparatory process that might be proposed for the Overall Review of the Implementation of the WSIS Outcomes

The composition and findings of the Work Groups would be an important preparation for the Final Review. However, more work needs to be done because each nation should carry out an extensive evaluation in order to bring more valuable materials to the Work Group´s discussions and to the general meetings. Some suggestions are:

a. Apart from the Work Groups, each member should conduct national meetings to review the status of the WSIS objectives within his own country, at the local levels.
b. To ensure all-inclusiveness, each stakeholder should hold focus groups at the national level to take suggestions on how to achieve the WSIS goals effectively.
c. To make sure all members are up-to-date with the findings of each group, each Work Group should maintain working documents about their respective action line.

4) Please provide a timeline for the Overall Review Process and all proposed meetings

a. The process should begin in 2011, before the CEB meeting of 2012, and should finish by the end of 2014 or early 2015 at the latest.
b. By late 2011, or early 2012, the Plan of Action should be finalized so that it can be presented at the CEB meeting of April 2012.
c. A general meeting should be held after the CEB meeting to discuss the CEB´s recommendations on the proposed Plan of Action (if there are any), and to discuss the Review process in detail. At that general meeting, which should count with keynote speakers and a plenary session, the Work Groups will be created randomly or based on the preferences of each stakeholder.
d. From late 2012 until the end of 2014, the individual Work Groups will meet regularly (in person or remotely) to discuss the status of each individual action line and to draft a final Review. The final document will include recommendations as well.
e. At the end of 2014, or in early 2015, a final meeting of all stakeholders will be held. At this meeting, the findings of all Work Groups will be presented, and a new document will offer a general review of the Implementation of the World Summit on the Information Society Outcomes.
f. This last meeting could be the final one or a prelude to another meeting where an official review may be presented along with the United Nations and the ITU.

2. Ministry of Communications and IT, Government, Egypt

1) Please provide objectives, goals and possible outcomes of the Overall Review of the Implementation of the WSIS Outcomes

Since the conclusion of the first and second phases of the World Summit on the Information Society in 2005, significant efforts have been made on the international,

regional and national levels to implement the important outcomes of this Summit. As we approach the review process of the implementation of the WSIS outcomes it is important to consider the following points:

There have been significant achievements and similarly there have been some shortfalls. Also, as the implementation of the WSIS outcomes varied from one facilitator to another, from one region to another and from one country to another, it can be concluded that the achievements and shortfalls are variable. Hence, arises the necessity to conduct a complete review on the international, regional and national levels in order to assess completely the outcomes of the implementation process.

Additionally, this review process should also include a revision of the themes that were tackled during the WSIS. It is evident that some of the technologies, challenges, and themes that the international community deemed important in 2005 have lost their importance in recent years

Similarly, the fast paced development of the ICT sector in the past years have introduced new technologies and challenges that make it necessary for the international community to tackle them as new themes.

It is important also to consider that the Millennium Development Goals will also be reviewed in 2015, the outcome of which is not clear at the moment. As the WSIS affirmed, in both phases, its commitment to harnessing ICTs to achieve the internationally agreed development goals, it becomes evident that the outcomes of the review of the MDGs will be of relevance to any future commitment that may be tackled by the overall review of the WSIS in 2014/2015.

With these points in mind, Egypt proposes that the Overall Review of the Implementation of the WSIS Outcomes have the following goals and objectives:

1. To conduct a complete review of the WSIS both horizontally (themes, action lines, targets, etc…) and vertically (internationally, regionally and nationally)

a. Horizontal review should include a revision of the implementation of the themes, action lines and targets.

b. Vertical review should focus on the implementation of the WSIS outcomes internationally, regionally, and nationally.

c. This revision should identify achievements as well as shortfalls of the implementation process and the implementation outcomes.

2. To identify the themes that are still of relevance and new themes that have emerged that require an international commitment.

a. Review the WSIS themes and decide on the relevance of them vis-à-vis the new technologies and challenges that have emerged.

b. Identify possible new themes that will require an international commitment.

c. In light of the above, review the WSIS action lines and decide whether or not they are still prevalent

d. Review the WSIS set targets and determine if there is a need for new targets to match the above

2) Please indicate what type of meeting(s) should be held within the framework of the Overall Review of the Implementation of the WSIS Outcomes

Preparatory meetings on regional and national levels are considered to be an integral part of the review process. As well, one or two international preparatory meetings would be as well possible in order to discuss the way forward with a special focus on suggested new themes.

Egypt proposes a Summit in 2014 for the review process

3) Please describe the type of preparatory process that might be proposed for the Overall Review of the Implementation of the WSIS Outcomes

As we consider the preparatory process of both phases of the WSIS (2003 and 2005) several mechanisms stand out:

1. There was an international preparatory committee that convenes at least three times prior to each summit

2. There were regional preparatory meetings that facilitate and consolidate regional inputs to the issues discussed

3. Non-governmental stakeholders were engaged in the preparatory process in accordance with the rules of procedures adopted for the WSIS.

4. In the second phase three working groups were established (such as the Group of the Friends of the Chair) that facilitated the negotiations of the issues.

Egypt believes that these four features should prevail in the preparatory process we are considering for the Overall Review of the Implementation of the WSIS Outcomes:

•Regional preparatory meetings should convene to consolidate regional inputs;

• All stakeholders should be part of preparatory process in a similar fashion as was implemented in both phases of the WSIS.

• There should be flexibility to establish working groups that could facilitate the work of the preparatory committee. Such working groups may focus on specific hotly debated new themes and/or to prepare the texts that serve as the basis for negotiations on some of those issues.

4) Please provide a timeline for the Overall Review Process and all proposed meetings

Egypt proposes that we revisit this question upon announcement of the action plan on the 5th of October 2011. There is no current preference on the exact timeline as long as it remains in the framework described above.

3. Ministry for Foreign Affairs of Finland, Government, Finland

1) Please provide objectives, goals and possible outcomes of the Overall Review of the Implementation of the WSIS Outcomes

Finland believes that the objective of the WSIS+10 is to review and assess the progress made in the implementation of WSIS outcomes, both at the global and at the regional levels. Besides achievements, the review discusses shortages and challenges in the implementation and the reasons for them. Ideally, it identifies solutions, provides best practices and gives recommendation/guidance for further action, as appropriate. Its findings need to be future oriented and take into account the rapid technological progress after the WSIS summit.

The main focus of the review should be on development. The MDG process, with its target year of 2015, should be able to benefit from the findings of the WSIS+10.The review should provide assessment on how the implementation of WSIS commitments and the use of the ICTs have supported the achievement of the MDG goals and sustainable development. Special consideration should be taken in the least developed countries, the poorest and the most marginalized groups of society.

Finland hopes that the main outcome of the review is a global report which bases its findings on the contributions received from different regions and stakeholder groups. The United Nations regional commissions could be tasked to collect inputs and contribute to the review from the perspective of their respective regions. The report should be commensurable and be based on clear indicators.

If the governments decide to also have a negotiated outcome, it should be concise and focused in creating a true impact on development. The Tunis commitments should not be reopened for further negotiations.

2) Please indicate what type of meeting(s) should be held within the framework of the Overall Review of the Implementation of the WSIS Outcomes

The review should be discussed in an open and inclusive meeting where all stakeholders can participate on equal level. As to the level of the meeting, the objective should not be to attract high level participation, but rather to engage relevant experts from all stakeholder groups and regions in fruitful discussions. Financial implication should be borne in mind when planning the meeting. The meeting could be organized in the context of an existing mechanism, such as the WSIS Forum.

3) Please describe the type of preparatory process that might be proposed for the Overall Review of the Implementation of the WSIS Outcomes

Finland favors inclusive and transparent preparatory process where all stakeholders can be fully involved. The process should benefit from a clear co-ordination mechanism within

the United Nations framework. Its focus should be on the quality of the WSIS+10 review document. One should avoid overlaps, heavy bureaucracy and long negotiations.

4) Please provide a timeline for the Overall Review Process and all proposed meetings

Sufficient time should be allocated to the collection of contributions from all stakeholders and to the preparation of a high quality review report.

4. Ministere des Affaires Etrangeres et Europeennes, Government, France

1) Please provide objectives, goals and possible outcomes of the Overall Review of the Implementation of the WSIS Outcomes

Le Sommet Mondial sur la Société de l'Information (SMSI) en 2003 à Genève a jeté les bases d'une action en faveur d'une société de l'information « à dimension humaine, inclusive et privilégiant le développement ». Si nombre d'objectifs et indicateurs ont été définis, mesurables et quantifiables dans la limite des données dont nous disposons, il n'en reste pas moins que le bilan devra aussis'ouvrir à la société de l'information d'aujourd'hui dans son ensemble. Elle est en effet très différente de celle qui existait il y a 10 ans tant les bouleversements technologiques, depuis la formidable expansion de la téléphonie mobile au web 2.0, ont été importants. De plus, ce bilan devra s'ouvrir largement à tous les acteurs de l'internet afin que tous, société civile, entreprises, communauté technique et académique en particulier, puissent contribuer à montrer le chemin parcouru depuis 10 ans dans leur domaine de compétence. Comment en effet aurait-on vu un tel développement de la connectivité sans l'investissement du secteur privé ? Qui d'autres que les utilisateurs eux-mêmes ont « inventé » les services bancaires par mobile ?un tel développement de la connectivité sans l'investissement du secteur privé ? Qui d'autres que les utilisateurs eux-mêmes ont « inventé » les services bancaires par mobile ?

2) Please indicate what type of meeting(s) should be held within the framework of the Overall Review of the Implementation of the WSIS Outcomes

Les réunions physiques sont coûteuses et nombre d'entités ont du mal à financer leurs déplacements. Il conviendra donc de limiter les rencontres physiques au profit d'espaces électroniques multilingues permettant le recueil d'information, les échanges, etc. Les quelques réunions physiques pourraient s'adosser à des évènements mobilisant déjà un grand nombre d'acteurs, tel que le Forum SMSI. Une conférence finale de présentation des résultats pourrait également être envisagée. Cette conférence ne nécessite pas l'ampleur de celle de Tunis en 2005.

3) Please describe the type of preparatory process that might be proposed for the Overall Review of the Implementation of the WSIS Outcomes

La France ne souhaite pas un processus lourd comprenant notamment des réunions de type « prepcom ». Il serait intéressant, tel qu'évoqué ci-dessus, de lancer un processus préparatoire largement par voie électronique et de s'appuyer sur le Forum SMSI en lui ajoutant cette dimension de revue des objectifs du SMSI.

4) Please provide a timeline for the Overall Review Process and all proposed meetings

La déclaration de principes de Genève a affirmé que l'enjeu consistait à tirer parti des possibilités qu'offraient les TIC en faveur de la réalisation des Objectifs du Millénaire (OMD). Il est donc tout naturel que le processus de révision du SMSI s'inscrive étroitement dans le bilan qui sera mené en 2015 sur les OMD.

Le rapport SMSI+10 devra donc idéalement être terminé à la fin de l'année 2014 afin de servir de base à la revue 2015 des OMD ; même si les technologies de l'information n'apparaissent que dans la cible 8E des OMD (« en coopération avec le secteur privé, faire en sorte que les nouvelles technologies, en particulier les technologies de l'information et de la communication, soient à la portée de tous »), elles n'en sont pas moins de puissants leviers pour atteindre tous les objectifs du millénaire.

5. Ministry of National Development, Government, Hungary

1) Please provide objectives, goals and possible outcomes of the Overall Review of the Implementation of the WSIS Outcomes

When considering any of the Information Society matters, one has to REGARD:

- the fast pace of the development of digital and information technologies and their applications together with the ever increasing communication needs and the new innovative services is ongoing all over the world, on all continents, in all societies and throughout the whole economy; there has not been such a development in the history when a new technology has penetrated so much in the everyday life of all people and nations.

- that, naturally, various groups of people use the benefits and take advantage offered by the new technology and new connections and relationships in the society and in the workplace in rather different ways: differently understanding and being ill with the threats and drawbacks that accompany the new technological developments;

- that there have been on one side extended expectations towards the broad opportunities offered by the digital world, and on the other side the fear to be left behind if not acting in a timely manner; also there are needs to do all the possible precautions in order to avoid the threats, to anticipate and prevent the dangers, possible criminal attempts, illegal use and actions in the world of the Internet;

- the huge capabilities and potential of the ICT services and applications for the benefits of the society and economic development

- the openness of the digital world, including right to access information and also the rights to free expression of opinion, these are the major contributors to the success and fast progress of the Internet.

Hence the broad community of stakeholders – upon the initiative of the UN GS –AGREED – as the result of the WSIS process- about launching regular broad discussion processes – the annual Internet Governance For a, and the enhanced cooperation – both with the

participation of the broadest groups of interested stakeholders from all the different regions and countries of the world.

On the IGF process:

One of the most important objectives of setting up the annual IGF meetings has been to bring together all interested partners (governments, international organizations, NGO-s, private sphere, developers and users, content owners/publishers and consumers, civil society, etc.) in order to provide them for a and occasions to discuss the rather complex questions of technological developments, service provisions, access to these services, right protection, protection of the infrastructure and services, etc. in the and get close to multifaceted world of the Internet. The global aim behind this objective has been facilitating favorable environment for further development and extension of the service space, inclusion of wide circle of users, in other words giving a free rein to the full economic and societal potential of the digital world.

The IGF has proved itself as very successful and powerful multistakeholder fora in meeting the above mentioned goals. Thus in general the iGF process has fulfilled its original objectives. certainly there are ways to improve the IGF, but no major changes should be done – in our opinion. In this respect the IGF itself has already shown its own capability to find way of self-improvement, what we have to further encourage.
The possible ways of improvements should aim at: finding ways how to promote wider attendance from the developing regions at the IGF meetings; how to give wider visibility and provide easier and cheap access to the outcome of the meetings; how to improve the preparatory work of the annual IGF-s; what should be done to help the work of the bureau. In this regard more extensive use of on-line discussions, exchange of views, setting up on-line communities/interest groups may be an effective tool.
On the question of administrative support we are in favor of a donor-funded “independent” secretariat.

In parallel with the IGF meetings several regional IGFs (e.g. EuroDig in Europe) have been held which contributed a lot to the preparatory work of the annual IGF meetings, and also the discussion on region-related issues.

On enhanced cooperation:

From the very beginning the proposal for enhanced cooperation has suffered from a lot of uncertainties. There has been a lot of non-understanding what enhanced cooperation should be, who would be the cooperating partners, etc. Moreover there is not a clear distinction between the IGF multistakeholder exchange of views, and enhanced cooperation.

On goals and possible outcomes of the IGF process:

The organization and holding the annual IGF meetings is one of the successes among the outcomes of the Implementation of the WSIS Outcomes. This has been acknowledged by the decision of the General Assembly on the proposal of the UNGS about the extension of the IGF till 2015.
In our view no major changes should be implemented, however some suggestions on the preparatory work and access to the OGF documents may help further improvements.

2) Please indicate what type of meeting(s) should be held within the framework of the Overall Review of the Implementation of the WSIS Outcomes

In our view specialized committees of the UN are the right framework for the Overall Review. In this regard we see the CSTD as the most suitable committee to fulfill this task. The work of the CSTD should be backed by special Task-Groups/Task-Forces to be created by the CSTD.

3) Please describe the type of preparatory process that might be proposed for the Overall Review of the Implementation of the WSIS Outcomes

On the preparatory process and the workplan the Task-Groups/Task-Forces should decide.

4) Please provide a timeline for the Overall Review Process and all proposed meetings

On the workplan the Task-Groups/Task-Forces should decide.

6. Department of Information Technology, Government, India

1) Please provide objectives, goals and possible outcomes of the Overall Review of the Implementation of the WSIS Outcomes

The objective of the review of the Implementation of the WSIS Outcomes should be assess as to what extent we have been able to move forward on the identified outcomes and if there is a need of any course correction before 2015. The open consultation process is a welcome step and it is suggested that Regional Meetings may be organised specially for the countries of Asia and Africa to focus on key issues that need to be addressed for these specific regions. A platform needs to be created, possibly under the aegis of WSIS/UN/ITU to enable sharing of experiences and best practices across countries. Further, lot of work has been done in various countries which has led to socio-economic transformation enables by the use of ICT. These achievements needs to be shared across - example the mpaisa of Kenya or the Bhoomi project of India or the Common Services Centers (telecenters) initiative of India that will have learnings for other countries also. This would help in ensuring that the path towards achieving the WSIS outcomes is possible by 2015.

In addition there is a need to review the WSIS Outcomes to make it in sync with the changing technology and action lines need to evolve to capture the potential of Social Media tools and other collaborative technologies that enable sharing of best practices and experiences without any limitations. Mobile phones and M governance has a huge potential in not only addressing the WSIS Action Lines but also the millennium development goals

Further, the information exchange between member countries should be more frequent and country specific meetings should be initiated by the respective members themselves which should also be attended by the WSIS representatives to help them move forward on the agenda. Online meetings should be the norm, but formal meetings may also be organized in 2012 to ensure all are on board.

2) Please indicate what type of meeting(s) should be held within the framework of the Overall Review of the Implementation of the WSIS Outcomes

The folloiwng meetings need to be orgainsed:

1. Country specific meetings in all member countries in 2012.
2. Regional meetings in 2012-2013 to share the best practices
3. A formal meeting with all member countries and other stakeholders in 2014. India has already volunteered to host the Review Summit in 2014.
4. Apart from these formal meetings, there is a need for regular online interaction with all stakeholders for getting ideas, suggestions and views. This online facility should also enable sharing of best practices and also the 'crowd sourcing' strategy of coming up with solutions for the challenges being faced.

3) Please describe the type of preparatory process that might be proposed for the Overall Review of the Implementation of the WSIS Outcomes

In Tunis 2 main paths were identified to be followed in the search of common principle:

WSIS (the place to promote ICT to help sustainable and fair development)

IGF (the place of discussion for policies related to Internet)

IGF and WSIS process needs to increase their complementarities and their dialogue in view of delivering common (or at least complementary) recommendations to 2015 WSIS. This is the wish of the broadcasting industry and we count on UN system (and mainly in UNESCO and ITU) to make of this process a success.

4) Please provide a timeline for the Overall Review Process and all proposed meetings:

The timelines for the meetings have been provided in Q 2 above. It is being reiterated here:

1) Country specific meetings in all member countries in 2012.

2. Regional meetings in 2012-2013 to share the best practices

3. A formal meeting with all member countries and other stakeholders in 2014. India has already volunteered to host the Review Summit in 2014.

4. Apart from these formal meetings, there is a need for regular online interaction with all stakeholders for getting ideas, suggestions and views. This online facility should also enable sharing of best practices and also the 'crowd sourcing' strategy of coming up with solutions for the challenges being faced.

5) Please provide other comments, if any

1. India has been supporting the WSIS Process from the beginning and welcomes the UNGIS Open Consultation Process. It is important to ensure that the benefits of ICTs reach the last mile. In this regard would offer two suggestions:

a. All communities are creating their own infrastructure. Let us create a mechanism so that we can evolve a common platform in the areas of financial inclusion, agriculture, health or education, where all information is available to all the people worldwide. We would be very happy to host such a common platform in India and provide with the required resources.

b. Let us identify areas of common interest, such as security, open data, and use of social media for citizen engagement (today people want to be part of the political process).

2) Further, India would like to be Strategic Partner of WSIS and we would like to host the Overall Review Meeting in 2014

7. Information Technology and Digital Media Center, Government, Iran

1) Please provide objectives, goals and possible outcomes of the Overall Review of the Implementation of the WSIS Outcomes

1- Reviewing what have done in line with WSIS Action Lines 2- Revising the WSIS Action Lines and updating it 3- Proposing new agendas and measures to achieve WSIS goals 4- Determining the next milestone for example 2020 or 2025 for such High Level Meeting 5- Providing official report on Implementation of the WSIS during 2005-2015 and feed the report into MDG Summit

2) Please indicate what type of meeting(s) should be held within the framework of the Overall Review of the Implementation of the WSIS Outcomes

High Level meetings to discuss on what have done and what should be done in future with participation of the related Ministers of the countries, especially ICT Ministers, and head of the the main ICT companies such as Google, Microsoft, AT&T, Huawie, Vodaphone, etc and the main NGOs.

3) Please describe the type of preparatory process that might be proposed for the Overall Review of the Implementation of the WSIS Outcomes

1- Establish expert meetings to review the WSIS Action Lines and propose revisions which should be approved by the main the official delegates in the main High Level Meetings during Overall Review of the Implementation of the WSIS Outcomes 2- Request the countries to provide official report on their achievements towards WSIS goals and their suggestion for the future at least one year before the meeting

4) Please provide a timeline for the Overall Review Process and all proposed meetings:

1- Open Consultation Process on Overall Review of the Implementation of the WSIS Outcomes (WSIS+10) in 2011 2- Discussion on the goals, agendas and frameworks during WSIS 2012 3- expert meetings to review the WSIS Action Lines and propose revisions (2012 and 2013) 4- Request for country report: 2012 and 2013 5- Providing regional and global report 2013 and 2014 6- High Level Meeting 2014

8. Ministry of Communications, Science and Technology, Government, Lesotho

1) Please provide objectives, goals and possible outcomes of the Overall Review of the Implementation of the WSIS Outcomes

To promote ICT in community development
To train a number of individuals within a specific time period and the outcome will be improvement in innovation using ict as a stimulant for sustainable development.

2) Please indicate what type of meeting(s) should be held within the framework of the Overall Review of the Implementation of the WSIS Outcomes

Meetings that needs to be undertaken should concentrate more on integrating ict in all aspects of life. These should be through continuous capacity building and networking of experts.

3) Please describe the type of preparatory process that might be proposed for the Overall Review of the Implementation of the WSIS Outcomes

Train WSIS staff to be fully familier with the expectation of the institution so that they could take part in disseminating information to other stakeholders.

4) Please provide a timeline for the Overall Review Process and all proposed meetings:

March – April is appropriate time to have some of these meetings

5) Please provide other comments, if any

For properly designed questionnaire, we should be given enough time to give answers,

bearing in mind that we already have other pressing issues at our work places. Give at least two weeks.

9. Ministry of ICT, Government, Mauritius

1) Please provide objectives, goals and possible outcomes of the Overall Review of the Implementation of the WSIS Outcomes

1. To assess the implementation of the WSIS Outcomes by stocktaking and evaluating projects implemented by stakeholders with respect to the eleven WSIS Action Lines.

2. To provide a common platform for key global players and stakeholders to share information, knowledge, expertise and best practices as well as priorities, development needs and challenges faced in the implementation of the WSIS Outcomes.

3. To suggest solutions or remedial measures for failures or bottlenecks encountered during the implementation of the WSIS Outcomes.

4. To review the existing WSIS Action Lines in the light of global ICT development, emerging technologies e.g. broadband, and new challenges e.g. cybersecurity issues.

5. To identify "success stories" in the implementation of the WSIS Outcomes and provide some kind of reward schemes or incentives as well as encourage their replication by interested parties

2) Please indicate what type of meeting(s) should be held within the framework of the Overall Review of the Implementation of the WSIS Outcomes

The WSIS Forum could be used as a platform for the review of the WSIS Outcomes.

Regional level meetings could be organised to enable countries within the same regional blocks to identify areas of collaboration in the implementation of the WSIS outcomes.

Thematic meetings could be organised for each Action Line.

Showcasing of some ICT applications (e.g. e-health, e-education, e-agriculture, e-adoption, e-infrastructure) that may have major impact in developing countries and facilitate in bridging the digital divide.

Meeting with development partners to work out funding mechanisms for the implementation of these applications in developing countries.

3) Please describe the type of preparatory process that might be proposed for the Overall Review of the Implementation of the WSIS Outcomes

A High Level Steering Committee/Task Force could be set up to drive the preparatory process (inlcuding planning, design, implementation and evaluation of the process).

The preparatory process should have a regional and a global approach. The regional meetings could culminate into a high-level meeting with the participation of all stakeholders.

A common platform could be set up for each area of focus (e.g. security, enabling environment, infrastructure, e-strategies), whereby focus groups/experts could interact effectively and share information, knowledge and experiences.

There should be awareness on the preparatory process and active participation in the process should be encouraged.

4) Please provide a timeline for the Overall Review Process and all proposed meetings:

The proposed meetings could span over a period of 6 to 12 months.

The review process should be completed by the year 2014, so that a high-level meeting could be held in 2015 (WSIS+10).

Further, the outcome of the review process could be reported at the Millenium+15 Summit scheduled for 2015.

5) Please provide other comments, if any

The WSIS Review Meeting will provide an important forum for the assessment of the global progress in the implementation of the WSIS Outcomes. As such, all relevant stakeholders should be encouraged to actively participate in this exercise. Assistance could be provided to developing countries to support them in their efforts to reach their WSIS targets.

The Review should also consider the governance of Internet, which is a key topic given that the Internet is a fundamental tool at the service of mankind and underpins all spheres of economic activities and development.

The Review of the WSIS should also consider emerging technologies and trends as well as critical issues that certain countries might have been faced since the last review. The topics that may be considered during the WSIS Review are the Economic Crisis and its aftermath, Cloud Computing, Sustainable ICT, Green Technologies, Open Data Initiatives, Next Generation Networks and growing use of applications for smartphones,among others.

10. Ministry of Interior and Administration, Government, Poland

1) Please provide objectives, goals and possible outcomes of the Overall Review of the Implementation of the WSIS Outcomes

The main objective of the overall review of the implementation of the WSIS outcomes could be presented in the final report which would summarise the progress achieved and identify the shortcomings and the challenges for the future actions.

This report could comprise of the analysis of the current situation (including benchmarks and presentation of best practices) and measurement of the actual progress achieved especially with regards to each of the action as specified in the Geneva Action Plan, using - when appropriate - hard data and measurable indicators. There should be a link between the MDGs and the influence of the Internet on its achievement marked. All the measurements and comparisons should refer to 2015.

In conclusion to the report, revision/modification of actions (especially when taking into account recent ICT developments) and follow-up of the WSIS targets and goals could be proposed. It would be advisable if the report could include the recommendations for further actions.

2) Please indicate what type of meeting(s) should be held within the framework of the Overall Review of the Implementation of the WSIS Outcomes

It might be perceived that the most appropriate formula for the meeting would be to have a discussion/meeting among the practitioners, with hands-on experience on the implementation of Geneva Action Plan actions. The outcome of such a review could be presented at one of the Internet Governance Forums. If the need arises the high-level

meeting could be organized, but it should be born in mind that participation to such meeting could be limited. The financial concerns regarding the participation and organization of the meeting are also of importance and should be subject to further discussion.

Elaboration of the declaration for future improvements can also be considered as an additional outcome of the meeting. The WSIS Forum meeting in 2015 can be also considered as a possible place for the overall review.

3) Please describe the type of preparatory process that might be proposed for the Overall Review of the Implementation of the WSIS Outcomes

The preparatory process should be transparent, inclusive, non-binding and open for contributions from all stakeholders, done under the guidance of the UNGIS. It could be considered that preparatory process would be two-phased with the length of the process to be discussed.

4) Please provide a timeline for the Overall Review Process and all proposed meetings:

As 2015 is the deadline for achieving the WSIS targets, all the results of the review process and indicators should refer to 2015 Outcomes could be presented either at the Internet Governance Forum or the WSIS Forum by the end of 2015.

11. Knowledge Society Agency (UMIC), MES, Government, Portugal

1) Please provide objectives, goals and possible outcomes of the Overall Review of the Implementation of the WSIS Outcomes

The Overall Review of the Implementation of the WSIS Outcomes should focus on the assessment of the WSIS commitments and on understanding how Tunis Agenda has changed (or not) the Development paradigm (both in Developed, Emerging, Developing and least Developed countries). This assessment should also comprise the evolution and outcomes of the multistakeholder debate in the Tunis Agenda in the pursuit of economic and social development.

The objective of WSIS + 10 should involve analysing the level of accomplishment of the Action Lines, assessing which regions were more dynamic and which types of actions/ policies where more structured. An effort should be made in collecting best practices, which have the potential to provide guidance for further action.

A global report, as a possible outcome of the review, should comprise a clear focus on how ICT support an inclusive and sustainable development and integrate different regions and stakeholder´s perspectives and be based on specific and clear indicators.

Tunis Agenda and commitments should not be reopened for further negotiations and stakeholders should continue to fulfill its aims, assessing its progresses.

2) Please indicate what type of meeting(s) should be held within the framework of the Overall Review of the Implementation of the WSIS Outcomes

We do not favor a set-up of new types of meetings or forms of discussion as IGF and the WSIS Forum provide appropriate settings to discuss the Overall Review of the Implementation of the WSIS Outcomes and to maximize the Tunis Agenda and commitments, which should not be reopened but fullfilled.

Therefore the meeting(s) should be action oriented and organized in an open and inclusive multistakeholder framework. We emphasize the role of the regional and national IGF´s as examples of the type of meetings that could be held to better assist the completion of the Overall Review.

3) Please describe the type of preparatory process that might be proposed for the Overall Review of the Implementation of the WSIS Outcomes

The preparatory process should be held in a open and inclusive atmosphere. Portugal is not in favor of a long preparatory process but a goal oriented and open to multistakeholder inputs. Resources should be used in the most efficient and transparent way. The process should be sustainable and continuous, using existing mechanisms. Remote participation should be enshrined in all this preparatory process.

4) Please provide a timeline for the Overall Review Process and all proposed meetings:

The timeline for the Overall Review Process should be concluded by the GA in 2014 and have a clear and strong link to MDGs. Portugal does not support a lengthy process but a focused one with efficient use of available resources.

12. Communications and Information Technology Commission, Government, Saudi Arabia

1) Please provide objectives, goals and possible outcomes of the Overall Review of the Implementation of the WSIS Outcomes

The Overall Review should result in an assessment of where we have succeeded and where we have failed in the implementation of the WSIS Outcomes, along with an analysis of why we have succeeded and failed. The assessment and analysis should be both global and regional, identifying those regions that remain most disadvantaged. The analysis should be linked to the MDGs. An important outcome is a way forward – decisions on what still needs to be done and how to do it, particularly in view of the significant changes to ICT challenges since 2005.

2) Please indicate what type of meeting(s) should be held within the framework of the Overall Review of the Implementation of the WSIS Outcomes

The Overall Review should be in a format similar to the original WSIS meetings, possibly in conjunction with PP-14. There should be particular emphasis on enabling remote participation and facilitating representative participation from developing countries. It is foreseeable that the Overall Review may create one or more Working Groups to develop specific strategies and recommendations for the way forward.

3) Please describe the type of preparatory process that might be proposed for the Overall Review of the Implementation of the WSIS Outcomes

Create a Steering Committee and Secretariat to manage the overall preparatory process. Avoid duplication and leverage existing forums to develop inputs on the assessment and analysis.

4) Please provide a timeline for the Overall Review Process and all proposed meetings

2011 – create the Steering Committee and Secretariat. 2012 and 2013 – address implementation of WSIS Outcomes in the global and regional IGFs and prepare assessment and analysis reports as input to the Overall Review. 2015 – Outcome of the Overall Review (and possibly of the Working Groups, if any) to be inputs to the MDG Summit.

5) Please provide other comments, if any

ITU has been and should continue to be the overall facilitator and coordinator of activities related to WSIS and also related to the way forward that will be determined by this process.

13. Information Technology Authority, Government, Sultanate of Oman

1) Please provide objectives, goals and possible outcomes of the Overall Review of the Implementation of the WSIS Outcomes

- Enhance the national ICT strategy

- Align national plans with international targets

- Raise public awareness on WSIS

2) Please indicate what type of meeting(s) should be held within the framework of the Overall Review of the Implementation of the WSIS Outcomes

- High level meetings to boost the implementation process

- Regional meetings to share challenges and solutions

- Enhance and promote the online discussion/meetings

3) Please describe the type of preparatory process that might be proposed for the Overall Review of the Implementation of the WSIS Outcomes

- Country progress assessment and ranking need to be established

4) Please provide a timeline for the Overall Review Process and all proposed meetings

- Comprehensive review and country ranking in 2013

- Preparatory review and reporting every year from 2012 to 2014

14. Telecommunication Regulatory Authority, Government, United Arab Emirates

1) Please provide objectives, goals and possible outcomes of the Overall Review of the Implementation of the WSIS Outcomes

The objectives, goals and possible outcomes are:

1. Recognizing the overall achievements made by all member states and sector members (2015 Golden Book of Achievements)
2. Report on Member states in terms of WSIS implementation status with clear country ranking (1 – 200)
3. Identify and reward Active countries and Active projects/initiatives
4. Report on Member states best practices, gaps, and the areas of improvements (future opportunities)
5. Report on new challenges, trends and priorities for year 2014 and 2015
6. Connect Donors (funding bodies) with different regional projects
7. Identification of initiatives and projects for every region and country for the coming years considering projects which are suitable and viable
8. Identify all past years collaborative efforts (joint projects, government and private sector projects)
9. Review WSIS action lines, and consider changing and amending the action lines to make them cope up with new challenges and to be specific and measurable
10. Set clear measurement criteria for each country to assess the WSIS Progress

2) Please indicate what type of meeting(s) should be held within the framework of the Overall Review of the Implementation of the WSIS Outcomes

1. High level Meetings (Invite high level representatives from all countries to attend the WSIS meeting in 2015)
2. Meeting to address new challenges and set priorities for each country/region
3. Meeting to agree on a set of criteria for measuring the progress made
4. Media and Marketing Meetings to address high level preparation for the overall WSIS implementation

3) Please describe the type of preparatory process that might be proposed for the Overall Review of the Implementation of the WSIS Outcomes

1. Physical meeting in every year IGF meetings (around 2 sessions), local regional WSIS related events/meetings (ITU should keep track of all regional WSIS related meetings)

2. Schedule conference calls (remote rooms) with every key stakeholders (one to one OR one to many accordingly to the region)

4) Please provide a timeline for the Overall Review Process and all proposed meetings

Overall review process should start by 2012 – 2014 (3 years of review process)

IGF Meetings / WSIS May Meeting, the stocktaking should be freezed by 2013

2014 – present countries progress / results, the overall status of WSIS (success or failure or and areas which needs improvements)

2015 – Update on WSIS priorities / action lines / consider different approach for implementation and follow up

5) Please provide other comments, if any

sign a separate body (consultant) the task to a evaluate countries progress and identify best projects for every region and country

Freeze the Stocktaking by year December 2013 in order to start measuring the progress

Launch Publications about the following key topics:

15 best projects for every Region (criteria should be clear and acceptable by all countries)

15 best collaborative initiatives (government with private or civil)

15 best ICT projects

15 best new innovative projects (could be young or for disable people)

Best Projects in under Every WSIS Action Line

Initiate a **"Project/Fund Exchange Program"** – a program that identifies the fund in one country and a good case of a project implementation in another, both countries can then work on exchanging the fund in return of an experience to replicate similar projects getting the right and suitable assistance, utilizing the ITU as a middle ground. The project should be of importance to the funding body in order to initiative this collaborative work. The projects should be listed in the Stocktaking and the ITU should list these projects for other member states in order to be considered for future implementation.

Introduce WSIS regional meetings (can be conducted virtually) (6 regions, North America, Latin America, Europe, Africa, Arab Countries, and Asia), to measure every region progress for the year 2014. The ITU should consider assisting the regions to commence their own regional meeting where countries start having a regional database and clear measurement criteria for that purpose. This will eventually assist in clearly identifying the progress globally and in specific to these regions/countries.

15. United Kingdom Government – Department for Culture, media and Sport (DCMS), Government, UK

1. **Please provide objectives, goals and possible outcomes of the Overall Review of the Implementation of the WSIS Outcomes**

The United Kingdom Government understands that Paragraph 111 of the Tunis Agenda for the Information Society is intended to ensure that full account is taken of how multi-stakeholder implementation activities at the global, regional and national levels have performed since 2005 in creating an inclusive and dynamic global information economy that benefits all citizens of the world no matter the stage of economic development of the national society in which they reside.

It is inherently important therefore for the review to determine the extent to which the digital divide has been reduced in the last 10 years through in particular advances in technology and applications, the adoption worldwide of best practice and harmonized policy approaches that foster the development of liberalised markets and innovation, the growth of public-private partnerships and unfettered cooperation amongst all actors in the information society. These include the creators of business opportunities, the investor community, multilateral aid agencies, the technical community, user communities, civil society, parliamentarians, government policymakers, multi-stakeholder Internet entities and the inter-governmental organizations with a direct role in the growth of the global information society.

The conduct of the review should therefore be fully inclusive and seek to obtain substantive inputs from all the above stakeholder communities in all the world's regions. It should also collate, analyze and publish all the relevant indicators and data that have been amassed in the stock-taking reviews over the last 10 years. The final analysis should aim to identify in particular where progress has been limited, erratic or slow, and seek to identify the key determinants and barriers to implementation of the actions identified in the WSIS to address these issues.

The focus of the review will therefore be on progress with implementation in the developing and least developed economies. The centrepiece of the review should provide an assessment of progress in achieving development goals and objectives, including the Millennium Development Goals (MDG). In this way the WSIS review will serve as a key contribution to determining the extent to which the MDG have been achieved by the 2015 deadline and the reasons for any shortfalls so that remedies can be identified through further stakeholder consultations.

A preliminary report on the above findings should be prepared following a global programme of consultations to be conducted in the latter half of 2014. The consultations with the stakeholder communities in the regions should largely be conducted online using interactive technologies and services, facilitated by regional information hubs to be managed by the regional representative bodies or commissions of the UN agencies involved in the WSIS process using a harmonized template. The resources required for conducting these consultations should be subject to public scrutiny in order to ensure that they are conducted efficiently and inclusively.

The report will provide the basis for a single multi-stakeholder conference to be held in 2015 to discuss its findings. This should not be a negotiating forum but in pursuing any WSIS-related actions, it may wish to conduct workshops on specific issues to report to the main plenary.

The Tunis commitments should not be reopened for further negotiations and the conference should not be a re-run of the 2003-05 process or seek to amend or reject the existing WSIS recommendations. Only if there is broad stakeholder consensus that technological change has

rendered a significant updating of any existing recommendations as desirable should such a revisit of the existing WSIS texts be contemplated. In this way the WSIS review in 2015 would recognize any fundamental change in the dynamics of the global information society that has been brought about by technological advance in the period since 2005.

2. **Please indicate what type of meeting(s) should be held within the framework of the Overall Review of the Implementation of the WSIS Outcomes**

The initial multi-stakeholder consultations should be conducted online within a 6 month timeframe in the latter half of 2014. This should be followed by a single two or three day conference to review the report of the consultations. This conference should be conducted in an open and inclusive manner, without seeking to negotiate a comprehensive text, where all stakeholders can participate on an equal footing. There should be remote participation facilitated by the regional representative bodies or commissions of the UN agencies involved in the WSIS process. The organizers of the regional hubs should ensure that there is widespread awareness in advance amongst all stakeholder communities of the ability to participate in the review conference remotely in all official UN languages.

The Conference should conclude with a Chairman's report which would summarize the findings of the review, with a specific emphasis on those findings most relevant to the MDG which would be forwarded to the partners in the UN MDG.

3. **Please describe the type of preparatory process that might be proposed for the Overall Review of the Implementation of the WSIS Outcomes**

The preparatory process should be fully open and inclusive relying primarily on well publicized environmentally sustainable interactive online consultations in all regions conducted in all the official UN languages through regional hubs managed by the regional representative bodies or commissions of the UN agencies involved in the WSIS process using a harmonized template. We would not support conducting a series of meetings for these preparatory awareness activities or consultations, in order to avoid creating resource and funding barriers to participation.

4. Please provide a timeline for the Overall Review Process and all proposed meetings

Broadly the UK recommends a three stage process during 2014 -15 commencing with an online awareness campaign for the review to explaining its necessity, overall objectives and outreach to stakeholders, conducted in the first half of 2014. This would be followed by online preparatory consultations with stakeholders in the second half of 2014 and culminating in the holding of the single review conference over two-three days in mid-2015.

Private Sector

1 Bangladesh Institute of ICT in Development (BIID), Private Sector, Bangladesh

1) Please provide objectives, goals and possible outcomes of the Overall Review of the Implementation of the WSIS Outcomes

To understand and measure the progress of overall WSIS Plan of Action including specific initiatives at country level as well as global level.

2) Please indicate what type of meeting(s) should be held within the framework of the Overall Review of the Implementation of the WSIS Outcomes

These meetings should invite relevant stakeholders with specific agenda in terms of achievements and initiatives, and more interactive sessions to discuss challenges and opportunities. Workshop type meeting could be better options.

3) Please describe the type of preparatory process that might be proposed for the Overall Review of the Implementation of the WSIS Outcomes

Regional and Country level initiatives under UN framework (Other than UNDP lead) can be organized to discuss at local level and present in the meetings of the conferences.

4) Please provide a timeline for the Overall Review Process and all proposed meetings:

October 2011 to start the review process and December 2011 for the meetings.

5) Please provide other comments, if any

Involve more private sector actors in the WSIS process.

2 NOKOR-ACT, Private Sector, Cambodia

1) Please provide objectives, goals and possible outcomes of the Overall Review of the Implementation of the WSIS Outcomes

[Note – The focus of this proposal concentrates on a subset of the Overall WSIS Review effort.] It is suggested that the Overall Review of the Implementation of the WSIS Outcomes take into account a cross-border and increasingly significant subset of the information society, namely: individuals and social groups engaging in so-called "virtual worlds". Their economic characteristics and developmental potential have recently been studied by a prominent development agency. The economic footprint and demographic outreach of such social groups —hereinafter referred to as "virtual societies" or "VS"— is expected to expand in the coming years. Suggested objectives: a) Review direct and indirect contributions of virtual societies to Millennium Development Goals. b) Foster stronger contributions to MDG's in the longer run. Suggested goals: a) Invite representatives of virtual societies to participate in WSIS Review in 2015; b) Raise global awareness and self-awareness. Suggested outcome: Action plans seeking synergies between virtual societies and other WSIS initiatives.

2) Please indicate what type of meeting(s) should be held within the framework of the Overall Review of the Implementation of the WSIS Outcomes

It is suggested to hold two types of meetings: a) Meetings of conventional types; b) Meetings immersed within virtual worlds — to be scheduled prior to, and possibly also during the 2015 WSIS Review summit.

3) Please describe the type of preparatory process that might be proposed for the Overall Review of the Implementation of the WSIS Outcomes

The preparatory process of the 2015 WSIS Review would require a specific outreach and promotion effort across VS stakeholders as well as WSIS participants with similar interests, e.g: VS members; VS business entrepreneurs; VS infrastructure operators; economists; academics; governance specialists; ethics specialists; philosophers; to name a few.

4) Please provide a timeline for the Overall Review Process and all proposed meetings:

It is suggested to allow a period of 24 months for preparatory meetings in relation to the consultation of virtual societies.

3 International Chamber of Commerce, Private Sector , France

1) Please provide objectives, goals and possible outcomes of the Overall Review of the Implementation of the WSIS Outcomes

See below

2) Please indicate what type of meeting(s) should be held within the framework of the Overall Review of the Implementation of the WSIS Outcomes

ICC BASIS input on WSIS review process The International Chamber of Commerce (ICC) and its BASIS initiative, Business Action to Support the Information Society, welcome the opportunity to contribute to the consultation on the WSIS review process. ICC BASIS and its cross-sectoral membership of businesses and associations from around the world have been active contributors throughout the Summits in Geneva and Tunis and in the post-WSIS processes and forums. The WSIS and the post-WSIS processes have proven the benefits of the inclusion of all relevant stakeholders in discussing, implementing and making progress on the WSIS goals and a people centered Information Society. All relevant stakeholders include governments, business, civil society, the Internet technical community, international and intergovernmental organizations. We believe the process associated with this review of the WSIS outcomes should continue to include all relevant stakeholders on an equal footing and in a substantive manner. All relevant stakeholders have been actively engaged in a broad range of activities, processes and forums which continue to implement the WSIS goals. Thus, we believe a review of the outcomes will benefit from their full participation in all aspects. As stakeholders devote their time, energy and resources to continue to implement the WSIS outcomes, we encourage all to remain sensitive to the limited financial and human resources of ALL stakeholders while considering how this review should happen, and what will be the best use of limited resources.

3) Please describe the type of preparatory process that might be proposed for the Overall Review of the Implementation of the WSIS Outcomes

We note an idea that was put forward by the Government of Finland during the UN Group on the Information Society (UNGIS) meeting regarding this review process. The proposal was to utilize the WSIS action lines Forum in 2014 or 2015 by focusing it on WSIS review and making this the event where all stakeholders can take part in this assessment. WSIS review needs to take place in a fully multistakeholder context, without constraints of UN participation rules; hence, the WSIS action lines Forum would be an appropriate venue for this review. We strongly encourage and support the equal participation in the WSIS review of all the UN agencies that have leadership of WSIS action lines. We also raise the possibility of a main session at an Internet Governance Forum (IGF) in the coming years that would focus on "taking stock" of the IGF's own contribution to implementation of WSIS goals. This would also ensure a widespread understanding of the separate and distinct mandates and focus of the WSIS action lines Forum and the IGF, respectively. Given the limited resources of all relevant stakeholders, we are pleased that lengthy preparatory committee meetings are not being envisioned for the WSIS review process. Every effort should be made to ensure that the valuable resources of all stakeholders are put to the best, and most effective, use possible. The use of online tools to ensure inclusive participation in an effective and efficient online preparatory process would be the most useful way to take stock of the implementation progress, allowing the investment of resources instead in actual initiatives that will progress further the WSIS goals. Additionally, enabling remote participation and archiving of information eases continued engagement by all current and future stakeholder groups. In today's environment, a burdensome preparatory process and stand-alone event would not be in the interest of any stakeholder group. Thank you for your consideration of the views of global business on this important matter.

4) Please provide a timeline for the Overall Review Process and all proposed meetings

see above

5) Please provide other comments, if any

About the International Chamber of Commerce (ICC)

The International Chamber of Commerce is the largest, most representative business organization in the world. Its thousands of member companies in over 120 countries have interests spanning every sector of private enterprise. A world network of national committees keeps the ICC International Secretariat in Paris informed about national and regional business priorities. More than 2000 experts drawn from ICC's member companies feed their knowledge and experience into crafting the ICC stance on specific business issues. The United Nations, the World Trade Organization, and many other intergovernmental bodies, both international and regional, are kept in touch with the views of international business through ICC. For more information please visit: www.iccwbo.org About BASIS ICC created BASIS to raise awareness among the public, governments, civil society, intergovernmental organizations and technical community of what business requires to continue contributing to the development of the Information Society. It serves as the voice of business in the global dialogue on the Information Society, following two

World Summits on the Information Society (WSIS) held in Geneva (2003) and Tunis (2005). To promote the environment in which business around the world will continue to thrive as an innovator of information and communication technologies, BASIS participates in UN¬-linked forums set up to continue the dialogue, such as the Internet Governance Forum (IGF) and the WSIS follow up and implementation processes, and the UN Global Alliance for ICTs and development (GAID). To help shape the agenda and participate in these global discussions, BASIS relies on the policies developed in the ICC Commission on E-business, IT and Telecoms as the foundation for its efforts. BASIS builds on the activities and network of the Coordinating Committee of Business Interlocutors (CCBI), which ICC formed to coordinate participation by world business in the processes leading up to and at WSIS. BASIS members include business organizations such as the TechAmerica, World Information Technology and Services Alliance (WITSA), Africa Investor, Global Information Infrastructure Commission (GIIC), Japan Business Federation (Nippon Keidanren), and the Association for Competitive Technology (ACT) as well as several ICC national committees and companies from across sectors and geographies. For further information regarding BASIS, the founding partners, members and activities, visit: www.iccwbo.org/basis

4 The Internet Society, Private Sector Entity, Switzerland

1) Please provide objectives, goals and possible outcomes of the Overall Review of the Implementation of the WSIS Outcomes

The Internet Society (ISOC) would like to express its support to a certain number of proposals to focus the WSIS action lines Forum in 2014 on assessing and implementation of WSIS commitments. In addition, it doesn't seem useful at this point to organize a seperate Summit in 2014/2015 including a new Declaration and Plan of Action.

The review should allow a concrete assessment and evaluation of the implementation of the WSIS Outcomes. The discussion could allow identifying best practices and tangible mechanisms to improve information of all stakeholders involved.

In addition, we recognize the Internet Governance Forum (IGF) as one of the most active and successful outcomes of the WSIS. We recommend examining better ways to integrate the IGF in the Implementation of the WSIS Outcomes. In a similar way, a natural evolution for the IGF could be to have a stronger linkage with the UN Commission on Science and Technology Development (CSTD), while maintaining the IGF's multi-stakeholder dimension.

Finally, we recommend that the outcomes of the Review be a light resolution, allowing by its design for input from all stakeholders.

2) Please indicate what type of meeting(s) should be held within the framework of the Overall Review of the Implementation of the WSIS Outcomes

ISOC has had the privilege to contribute to all phases of the WSIS. We believe strong participation to the WSIS process is a condition to its success, and we have also supported participation of diverse groups of stakeholders through our "ISOC WSIS Ambassadorship" programme.

In order to enhance participation in the preparatory process, we would strongly suggest that meetings be done on-line (having regular conference calls, creating mailing lists on various action lines, etc) where possible. All meetings and whatever events should be multi-stakeholder and inclusive.

ISOC would also recommend that any physical preparatory meeting be held in Geneva. Over the years, we have found that Geneva is a practical location for building a fruitful and interactive WSIS dialogue. Geneva has been a convenient location capable of gathering an impressive number of organizations and individuals, and allowing Internet governance discussions to be truly multi-stakeholder. As the UN CSTD meetings, as well as the majority of the Internet Governance Forum's consultation and advisory group meetings are held in Geneva, this location allows stakeholders to meet on a regular basis.

3) Please describe the type of preparatory process that might be proposed for the Overall Review of the Implementation of the WSIS Outcomes

ISOC recommends that the preparatory process be as inclusive and multi-stakeholder as possible. In the spirit of the Tunis Agenda, the "Internet technical and academic communities" should be fully recognized in the process.

In keeping with the multi-stakeholder essence of the WSIS, panels should gather participants from all sectors of the Internet ecosystem. The Internet technical and academic communities need to be formally included.

Given the importance of the WSIS outcomes and their implementation, we recommend that in 2014, the Review includes a discussion on how to improve the annual follow-up of the WSIS evaluation.

4) Please provide a timeline for the Overall Review Process and all proposed meetings

ISOC suggests to couple all physical preparatory events and meetings with IGF preparatory meetings (Open Consultations and MAG meetings) in Geneva.

The overall review process could follow the following timeline:

- Call for proposals launched in view of next May's WSIS Forum: online consulation

- Discussion at the physical meeting next May

- Further refinement of the aganda etc,

- Adoption of the agenda in May 2013

- On-line final preparations of 2014 meeting.

5) Please provide other comments, if any

From the perspective of a not-for-profit organisation such as ISOC, there can be no doubt that the innovations and openness that the WSIS brought to all the organisations and stakeholders involved has continued into the implementation phase.

ISOC welcomes the opportunity to be part of this effort, and looks forward to continuing to work with others to contribute.

5 VnECPRO, Private Sector Entity, Vietnam

1) Please provide objectives, goals and possible outcomes of the Overall Review of the Implementation of the WSIS Outcomes

Building humain resources and national regulation on enterprices management and imprementation trade contract in respected international trade law

2) Please indicate what type of meeting(s) should be held within the framework of the Overall Review of the Implementation of the WSIS Outcomes

International Trade law and regulaions

3) Please describe the type of preparatory process that might be proposed for the Overall Review of the Implementation of the WSIS Outcomes

Training cources about International Trade law with experiences on its resolved

Study and Executive the Trade international Law

4) Please provide a timeline for the Overall Review Process and all proposed meetings

Begin at Octobre 2011.

Civil Society

1. Project Danube, Civil Society, Austria

1) Please provide objectives, goals and possible outcomes of the Overall Review of the Implementation of the WSIS Outcomes

I am an Internet developer and entrepreneur, and participant of the original WSIS Tunis summit. I would like to submit the following two points as input to the Overall Review of the Implementation of the WSIS

Outcomes:

1. There is an ongoing and heated debate about technical, political and legal frameworks for personal identity on the Internet. While some argue for requiring the use of real names on the Internet, others are trying to promote anonymity as a human right. Even though this debate is certainly important, it misses a much more important aspect of identity: Cultural identity. This concept needs to be much better integrated in next generation social networks, in order to ensure the respect for cultural diversity on one hand, and intercultural dialogue on the other hand. On today's social network platforms such as Facebook or Google+, for example, there is little to no notion of this cultural identity.

2. There are large and dynamic communities of Internet engineers, visionaries and entrepreneurs who embody not only the ability to make next generation communication technologies happens, but also a set of ideal that are quite close to those of WSIS. UNGIS, WSIS, UNESCO & Co. need to reach out to those communities, in order to promote WSIS values and incorporate them in actual new technologies..

The objective of WSIS + 10 should involve analysing the level of accomplishment of the Action Lines, assessing which regions were more dynamic and which types of actions/ policies where more structured. An effort should be made in collecting best practices, which have the potential to provide guidance for further action.

A global report, as a possible outcome of the review, should comprise a clear focus on how ICT support an inclusive and sustainable development and integrate different regions and stakeholder´s perspectives and be based on specific and clear indicators.

Tunis Agenda and commitments should not be reopened for further negotiations and stakeholders should continue to fulfill its aims, assessing its progresses.

2) Please indicate what type of meeting(s) should be held within the framework of the Overall Review of the Implementation of the WSIS Outcomes

Meeting #1: A New Culture of Peace via ICTs: Despite the fact that the UN decade for a Culture of Peace is over, I am convinced that this concept remains our best strategy for working toward the values of the UN Charter. This meeting should aim at working out realistic (!) guidelines and proposals on how modern social networks and other applications can incorporate Culture of Peace principles, a notion of cultural identity (as opposed to only personal identity), and effective tools for intercultural dialogue. Meeting #2: WSIS Outreach to Tech Communities: Many individuals, organizations and companies in the private sector as well as civil society work on their own to create tomorrow's Internet applications and services. Within these communities (e.g. Silicon Valley conferences, but also universities and companies around the world), there is not only actual power for making technologies happen, but typically also a wealth of idealism

to build a better world using ICTs. Unfortunately, within those very same communities, there is little or no knowledge and cooperation with the values of WSIS. The next Facebook won't be created by the UN, but if UNGIS / WSIS become visible enough in the right places, then the next Facebook might very well be based on UN values and principles. Therefore, there needs to be an effort of active and friendly outreach within the next few years, including participation in conferences, providing active input, seeking dialogue with decision makers and opinion leaders, etc.

3) Please describe the type of preparatory process that might be proposed for the Overall Review of the Implementation of the WSIS Outcomes

I have to admit I have little experience in planning and organizing preparatory processes like this, but I would propose that UNGIS, UNESCO and other WSIS representatives take a much more significant role within those communities (e.g. Silicon Valley, academia, etc.) where actual achievements can be made for tomorrow's (mainstream) technologies.

4) Please provide a timeline for the Overall Review Process and all proposed meetings:

Some of the upcoming conferences where the UNGIS / WSIS community could reach out to concrete

communities which are working on next generation identity, personal data, and social networking

technologies:

http://www.internetidentityworkshop.com/ - Internet Identity Workshop

http://sxsw.com/ - South by Southwest

http://www.w3.org/2005/Incubator/federatedsocialweb/ - Federated Social Web

http://personaldataecosystem.org/ - Personal Data Ecosystem

… and many more …

5) Please provide other comments, if any

I have prepared a video for you… I would be very happy for any feedback:

http://vimeo.com/28622243

I also have some more material on the overlap of ICTs and Peace&Conflict here:

http://projectdanube.org/publications/

If you like, give me a call at +43 664 3154848

- Markus Sabadello

2. ACTION DE SENSIBILISATION SUR LES NTIC, Civil Society, DR Congo

1) Please provide objectives, goals and possible outcomes of the Overall Review of the Implementation of the WSIS Outcomes

Pour l'implantation des résultats du plan d'action du SMSI, nous pensons que la stratégie en matière de des TIC/télécommunications doit viser l'amélioration de l'accessibilité aux

services fixes et mobiles de télécommunications, notamment la téléphonie et l'Internet, par la création d'une infrastructure des télécommunications nationales et internationales à haut débit ; promouvoir un marché des télécommunications concurrentiel, cohérent et innovant à travers le renforcement de la libéralisation et la compétitivité du secteur ; améliorer la contribution des technologies de l'information et de la communication au développement économique et social et garantir son accès universel sur l'ensemble du territoire national. En ce qui concerne les Pays en voie de développement et les Pays les moins Avancés, j'estime que le renforcement des capacités des experts fonctionnaires et dirigeant qui interviennent dans le développement des TIC s'impose. Les propopositions des priorités pour la période de 2021 à 2015 sont : (i) renforcement de capacité dans de le e-gouvernement,(ii)la mise en place des infrastructures haut débit (fibre optique), (iii) l'amélioration et l'harmonisation des cadres juridiques, (iv) la migration vers le numérique, (v) le déploiement des télécentres communautaires aux TIC, (vi) le mise en route d'un plan de cybersécurit. Les résultats attendus devraient être : La réduction de la fracture numérique, l'utilisation des TIC comme outil de développement social surtout dans les PMA.

2) Please indicate what type of meeting(s) should be held within the framework of the Overall Review of the Implementation of the WSIS Outcomes

Nous suggérons que les parties prenantes encourage des réunions préparatoire au niveau régional surtout l'Afrique ainsi que des réunions en ligne, afin de recevoir les points de vues et les contributions des populations parties prenantes du SMSI.

Aussi encourager la présence de la société civile et des délégués des Pays en développemnt, au différentes réunions avec prise en charge.

3) Please describe the type of preparatory process that might be proposed for the Overall Review of the Implementation of the WSIS Outcomes

Recenser les besoins en matière de développement en tenant compte des problèmes locaux des populatons, afin d'inclure des dans le processus des thèmes pouvant répondre directement.

Collaborer avec les organisations regionales et internationales présentes dans les Pays afin de pouvoir repertorier les meilleures pratiques réalisées en ce qui concerne le SMSI. Au niveau régional, organiser des réunions régionales en vue d'évaluer les meilleures pratiques au niveau régional.

4) Please provide a timeline for the Overall Review Process and all proposed meetings:

Nous suggérons qu'il se tienne une réunion préparatoire mensuelle avant le SMSI. Alternativement, une réunion en ligne et une suivante physique.

5) Please provide other comments, if any

Nous souhaitons que pour l'année 2013, le Forum SMSI se tienne en Afrique pour permettre à nombreux d'Africains n'ayant pas la possibilité de se déplacé pour Genève de prendre part aux assises. Aussi, au sujet de la participation à distance, nous suggérons que les organisations des Nations Unies parties prénantes au SMSI (PNUD, UNTCA et autres) puissent mettre en place des centres temporaires à internet pour permettre aux participants à distance de pouvoir suivre et participer interactivement aux différentes étapes du processus.

3. ISOC Sénegal, Civil Society, Dakar

1) Please provide objectives, goals and possible outcomes of the Overall Review of the Implementation of the WSIS Outcomes

Objectifs:
-La place que les 10 cibles du SMSI ont joué dans la réalisation des Objectifs du Millénaire pour le Développement (OMD) -L'appropriation du SMSI par les populations du monde
-Voir la place de la jeunesse dans la réalisation des objectifs du SMSI
Résultats:
-Mise en place des moyens pour une meilleure connaissance du SMSI et de ses 10 cibles au niveau planétaire
-Mise en place des éléments statistiques et d'une véritable industrie ou communauté statistique pour une meilleure analyse et un meilleur suivi de la Société de l'Information

2) Please indicate what type of meeting(s) should be held within the framework of the Overall Review of the Implementation of the WSIS Outcomes

Des réunions préparatoires de bas niveau:
-Dans chaque pays que les acteurs locaux se retrouvent autour des bureaux du système des Nations Unies dans les différents pays
-Que par sous-région au niveau de chaque continent qu'un Forum des Jeunes soit organisé pour que les jeunes du secteur des TIC et Non fassent leur rapport sur le SMSI et donner leurs perspectives
-Que les utilisateurs lamdas de la planète fassent aussi leur analyse
Des réunions de haut niveau à l'étape continental et mondial
-Dans chaque continent que les différentes parties prenantes se retrouvent par secteur pour faire leur analyse selon leur prisme
--Etats & Gouvernements
--Le Secteur privé
--La Société Civile

3) Please describe the type of preparatory process that might be proposed for the Overall Review of the Implementation of the WSIS Outcomes

Je prône une approche communautaire: Dans cette approche les obligatoires seront claires. La participation active des différentes parties prenantes. L'égalité pour tous dans la prise de décision. Elle devra aussi s'attaquer aux causes et non traités des symptômes. Le sens de l'action partira de la communauté vers les instances mondiales de la Société de l'Information (ITU, ICANN, ONU, etc.)

4) Please provide a timeline for the Overall Review Process and all proposed meetings:

-Novembre 2011 Forum des jeunes dans les différentes sous-régions

-Janvier 2012 Réunions préparatoires dans les différents pays

-Février 2012 Différentes réunions des utilisateurs lamdas

-Mars 2012 Différentes réunions de haut niveau à l'étape

5) Please provide other comments, if any

Il y a une forte nécessité de faire connaître les organisations du secteur qui font la Société de l'Information au grand public (IUT, ICANN, ISOC, etc.). Le citoyen lamba utilise Internet, sans savoir ce qu'il y a derrière, ni qui est derrière. L'approbation de la communauté (de la société) est importante pour donner une certaine légitimité aux actions. Il va falloir prévoir des campagnes de sensibilisation à grande échelle pour informer sur la Société de L'Information (à l'image de ce qui est fait pour le SIDA). Je félicite IUT et UNGIS pour le travail réaliser jusqu'à présent mais je souhaite que le multilinguisme soit plus visible et plus présent au sien de l'IUT et aussi au niveau de l'UNGIS. Car tous les documents pour cette consultation ouverte ne sont qu'en Anglais de facto on exclut certains alors que le système des Nations Unies à 6 langues pourquoi n'avons nous pas les documents relatifs à cette consultation dans les 6 langues. Cela participe aussi à l'augmentation de la fracture numérique, parce que cette consultation vise à donner les contours de la Société de l'Information. Et du faite qu'elle ne soit faite qu'en Anglais certains sont exclus, et la Société de l'Information ne reflétera pas l'image réel du monde car l'avis et les préoccupations de ceux qui ne s'expriment pas en anglais ne pourront pas être connus. BUILDING THE INFORMATION SOCIETY WSIS Stocktaking: Stocktaking of activities relevant to the World Summit on the Information Society (WSIS) Ce document n'est qu'en Anglais / pas de déclinaison dans les autres langues.

4. Gedaref Digital City, Civil Society, Republic of the Sudan

1) Please provide objectives, goals and possible outcomes of the Overall Review of the Implementation of the WSIS Outcomes

1- Best utilization of ICT for community development 2- Improve the quality of community training to enhance capacity building, quality skills and certification. 3- Knowledge exchange, sharing experiences and best practices through ICT in a public private partnership (PPP) ways 4- Bridging the digital divide especially within persons with disability, disadvantage and marginalized communities to connect the unconnected for better inclusion. 5- Achieving the millennium developments goals (8th MDGs) 6- Help the governments to speed up the e-services to the community. 7- Co-ordination between the working organizations and institutions in the field of Information Technology to achieve the shared goals, participate in establishing new Telecentres, and supporting the operating Telecentres

2) Please indicate what type of meeting(s) should be held within the framework of the Overall Review of the Implementation of the WSIS Outcomes

there should a local meeting at the base of the pyramid including ICT experts, community leader , the triangles of PPP and community Representative as end users. then a national and regional which end with the global meetings

3) Please describe the type of preparatory process that might be proposed for the Overall Review of the Implementation of the WSIS Outcomes

there should be different sectors and themes for each of the 8th MDGs... develop a partnership for promotion and disemination like whay we are doing for iwrite4WSIS http://gedaref.com/index.php?option=com_content&view=article&id=359:gdco-supporting-media-or-associate-partner&catid=38:rokstories-samples 〈 =en&Itemid= http://gedaref.com/index.php?option=com_content&view=article&id=357%3Awill-you-please-write-4-wsis-and-be-a-wsis-strategic-partners-&catid=38%3Arokstories-samples 〈=en http://gedaref.com/index.php?option=com_content&view=article&id=130:2011-06-11-08-00-33&catid=38:rokstories-samples〈=en&Itemid=

4) Please provide a timeline for the Overall Review Process and all proposed meetings:

there should a continuous meeting as the local level,,, followed by a monthly meeting and a nominated committee,, then every three month at the national level and six month regionally and annual meeting globally

5. CIVICUS: World Alliance for Citizen Participation, Civil Society, South Africa

1) Please provide objectives, goals and possible outcomes of the Overall Review of the Implementation of the WSIS Outcomes

Goal: Overall Review organized as a genuine multi-stakeholder platform inclusive of governments, private sector, and a broad spectrum of civil society in forum with each having an equal footing to achieve the following. Objectives: 1) Identify key areas with the greatest potential benefit to citizen engagement with government and the private sector from information technology, such as open data, public access to information, and e-governance. 2) Measure countries' progress in using information technology to promote maximum public participation in the public and private sector as well as enable informal citizen activism. 3) Identify case studies of existing best practices of facilitating and supporting citizen engagement and participatory democracy by using information technology, e.g. the interactive online drafting of Iceland's new constitution. Outcome: Overall Review dialogue empowers governments, the private sector, and civil society toward proactive citizen engagement and participatory democracy.

2) Please indicate what type of meeting(s) should be held within the framework of the Overall Review of the Implementation of the WSIS Outcomes

Multi-stakeholder regional meetings and consultations should be organized in the years leading up to the Overall Review. These Regional meetings and consultations will both

enable a wider and more diverse dialogue with stakeholders. The outputs of these regional initiatives should then also feed into the themes of the Overall Review in 2014. Multi-stakeholder dialogues at the regional and global levels should be arranged around themes including: inclusion of vulnerable and marginalized groups, open access to information, preserving the internet as an open and free space for debate and dialogue, proactive approaches to citizen engagement via information technologies and spanning the gap between digital and in-person engagement. Being of aware of both cost implications and potential synergies, regional and global meetings should strive to be held as part of or parallel to other key government, private sector and civil society gatherings to unlock the participation and input of previously unengaged stakeholders.

3) Please describe the type of preparatory process that might be proposed for the Overall Review of the Implementation of the WSIS Outcomes

A Steering Committee should be form to guide the preparatory process with equal representation of government, private sector and civil society stakeholders on equal footing. As an initial objective in the preparatory process, the Steering Committee should seek to inform and activate a diverse range of stakeholders across sectors, particularly civil society, and fields to foster their participation in developing the content and form of the Overall Review. Information technologies should be fully utilized to promote and enable remote participation in the preparatory process and discussion, but attention must also be paid to proactively bridging gaps to engage stakeholders, particularly at the local level, who are on the other side of the still persistent digital gap. One key should be to raise awareness of both cost implications and potential synergies. Regional and global consultations and meetings should be held as part of or parallel to other key government, private sector and civil society gatherings to engender participation and input from previously unengaged stakeholders.

4) Please provide a timeline for the Overall Review Process and all proposed meetings:

December 2011 - Formation of the multistakeholder Steering Committee January - June 2012 - Outreach activities (primarily via ICTs) to inform diverse range of stakeholders on WSIS+10 Overall Review Process July 2012 - June 2013 - Regional multistakeholder meetings September 2012 - Global WSIS+10 multistakeholder meeting at the CIVICUS World Assembly in Montreal July - August 2013 - Consolidation of regional multistakeholder meetings September 2013 - Global WSIS+10 multistakeholder meeting at the CIVICUS World Assembly in Francophone Africa November 2014 - Overall Review Meeting

***5*) Please provide other comments, if any**

The discussions also need to focus on creating enabling environment for citizens and civil society to use information technologies for participating in governance and policy making, In many regions of the globe, access to information is limited due to restrictive laws and practices. These issues must be discussed in detail as well as delving into solutions to engender greater participation of citizens.

6. Association for Progressive Communications, Civil Society, South Africa

1) Please provide objectives, goals and possible outcomes of the Overall Review of the Implementation of the WSIS Outcomes

• Provide elements to assess the degree of progress towards achieving the WSIS and other internationally agreed goals in which ICTs have a role to play (in particular the MDGs and human rights agreements);
• Provide elements to assess the participation of the various stakeholders in the implementation of the WSIS action lines;
• Identify new priority areas that need to be considered in the WSIS+10 meeting. The positions and contributions of all relevant stakeholders should be considered in the outcomes of the review process, which means that their effective participation has to be secured independently of their financial possibilities. Resources should also be made available to initiatives oriented towards promoting the expression and consideration of Southern and civil society voices in the process. The official outcomes should include:
• A ten-year review and appraisal of the implementation of the WSIS declaration and plan of action;
• Agenda and proposed procedures for the work of the WSIS+10 Preparatory Committee (PrepComm). These two documents should synthesise the contributions made by all the stakeholders in the review process. In addition, references should be provided to the contributions produced by all stakeholders as part of the official outcomes. We suggest that a web page is set up for this. In the next months APC will be looking for additional financial resources in order to implement two new initiatives that would generate concrete contributions to the WSIS review process: a GISWatch 2015 report on WSIS+10 and a project that would build on the Civil Society Declaration to the WSIS. The WSIS+10 special Global Information Society Watch (GISWatch, http://giswatch.org/about) report will offer a critical analysis of the implementation of global and regional ICT policy agreements in the past 10 years, including the WSIS and also regional agreements such as the regional action plans and roadmaps that resulted from the regional conferences held in preparation of the second phase of the WSIS, as well as their follow-up processes. The WSIS+10 report will include more than 60 country studies (62 countries will be included in the 2011 report) and, similarly to what was done in the first GISWatch report, an overview of the main institutions and bodies that are currently in charge of the implementation of the WSIS agreements will also be included. The second project that APC plans to develop is conceived as an opportunity to promote the active involvement of organisations working on communications rights in the WSIS+10 process. It will be based on a review of the civil society declaration “Shaping information societies for human needs”, which was developed by organisations participating in the WSIS process after the finalisation of the first summit in December 2003 in Geneva (http://goo.gl/LqeYg). More information about this initiative is provided below.

2) Please indicate what type of meeting(s) should be held within the framework of the Overall Review of the Implementation of the WSIS Outcomes

APC would like to suggest that the WSIS review process is conducted at global but also at regional and national levels. An effective way to do this would be to link the WSIS review and the regional Internet governance forum processes, which have emerged in the last five years as relevant multistakeholder platforms for policy dialogue around internet governance and ICT4D issues, embracing and respecting the WSIS principles. Linking the WSIS and IGF processes would contribute to not only identify the various national and regional priorities in order to bring them to the global arenas but also encourage greater exchange, dialogue and complementarities between them. We are convinced both

process share similar challenges in addressing related internet global policies and might be mutually benefited by such linkage. The WSIS review process should also incorporate substantially the outcomes of the annual sessions of the UN Commission on Science and Technology for Development (CSTD), which provide an opportunity to explore particular aspects of WSIS goals. To make sure that and all relevant stakeholders –and, in particular, civil society organisations- can effectively contribute to the process, additional resources need to be channelled to the WSIS review process at regional level. In particular, UN regional commissions should express their commitment with the WSIS review process by providing the necessary means to ensure the participation of all stakeholders. Collaboration with governments and other stakeholders is also essential in order to implement review process at national level. UN bodies at the different levels (national, regional, global) should find effective ways to promote and support national WSIS reviews in order to really open up the process to all interested parties.

3) Please describe the type of preparatory process that might be proposed for the Overall Review of the Implementation of the WSIS Outcomes

The WSIS Action line implementation and follow up process needs to continue to be a constructive platform for shared learning, collaboration, networking and monitoring of the Geneva Action Plan and Tunis Agenda. Processes should be:

• Participatory - for example, by putting clear mechanisms in place for the effective engagement and inclusion of all the interested parties, particularly of developing countries actors in way that allow to fully integrate the multistakeholder approach in WSIS follow up and implementation at all levels.
• Proactive - for example, by coordinating initiatives across agencies and stakeholder communities.
• Analytical - for example, by addressing a small number of specific issues in detail.
• Evaluative - for example, by monitoring activity related to WSIS outcomes.
• Informative - for example, by facilitating exchange of information between participants.

4) Please provide a timeline for the Overall Review Process and all proposed meetings:

• National preparatory meetings (2012 – 2014)

• Regional preparatory meetings (2012 – 2014)

• Global preparatory meetings (2012 – 2014)

We suggest that each year the meetings are focused on the implementation of four of the WSIS action lines, making “human rights and the internet” a transversal theme for all the meetings.

5) Please provide other comments, if any

APC supports the WSIS process and remains committed to participating in the processes that emerged from the WSIS with a view to improving the process, building CSO participation in the process and monitoring implementation of areas of most interest to APC. As mentioned, APC is planning to develop two initiatives in order to support this: a special GISWatch report focused on WSIS+10 and a review of the WSIS Civil Society Declaration. In the context of this project, an interactive platform will be incorporated into the GISWatch website to gather information from civil society organisations –in addition to

the information that is provided each year by the GISWatch partners- in order to measure the perception of the distance between civil society's goals, the commitments agreed by the international community and their effective implementation. A new index would be developed to communicate this perception, which would be included each year in the GISWatch report as an advocacy tool. While this will be a civil-society-driven review, the philosophy will be one of engagement and collaboration in multi-stakeholder environments. Rather than competing with initiatives such as the partnership to measure the information society, it will be aimed at complementing it with the perspective of civil society. As mentioned, the development of these projects is conditioned to the possibility of securing funds for them. We believe these initiatives –and others, developed by other stakeholders- to be relevant contributions to the official review process and would therefore like to propose that concrete resources are channelled to them. We estimate that for the civil society declaration review USD 40,000 need to be raised while the estimated budget for the GISWatch WSIS+10 special report is of USD 200,000.

7. ISETO / OISTE, Civil Society, Switzerland

1) Please provide objectives, goals and possible outcomes of the Overall Review of the Implementation of the WSIS Outcomes

On the specific field of Internet security:
Objective: widen the consensus about the most viable solutions dealing with secure digital identities
Goal: a more secure Internet
Outcomes: a better understanding of the stumbling blocks to solve the problems of interoperability, compliance testing, identity assurance, privacy and other technical, political and legal issues related with digital identities.

2) Please indicate what type of meeting(s) should be held within the framework of the Overall Review of the Implementation of the WSIS Outcomes

The International Standard Setting process: ITU + ISO
The National Standard Setting process: National standard institutions + International Organizations + Private Sector + Civil Society

Private actors in the Standard Setting process:
Workshops led by ICANN
Workshops led by the Internet Society
Workshops led by OpenID and the Kantara Initiative
International law and the Internet

3) Please describe the type of preparatory process that might be proposed for the Overall Review of the Implementation of the WSIS Outcomes

Consultations with stake-holders with a clear identification of the stances taken by governments, the private sector and organizations representing civil-society

4) Please provide a timeline for the Overall Review Process and all proposed meetings:

2012 - priority given to Civil Society

2013 - priority given to the State Sector

2014 - priority given to the Private Sector

2015 - multi-sectorial meetings and WSIS+10

2016 - declared the year of Ciber-Security by ECOSOC

5) Please provide other comments, if any

The process of setting standards to deal with digital identities is driven by companies, professional organizations and experts with a stake on the issue. There is little or no participation from the "lambda" user of Internet. The WSIS + 10 is the forum to address this matter bearing in mind that the Internet blurs the boundaries of the national state and creates the basis for a truly global citizenship. The traditional concept of national sovereignty is challenged by the numeric revolution. The tension that arises from this fact requires that new voices emerge and find the opportunity to express their opinion.

New participatory processes have to be set in place to allow the nearly 2 billion users of Internet to bear on the decision-making processes dealing with key issues affecting the security of Cyberspace.

The OISTE foundation follows the evolution of this process and seeks to gather and represent the views of a global civil society in the adoption of solutions to the digital identity issue, monitoring that they correspond to the public interest.

8. Uganda Scout Association, Civil Society, Uganda

1) Please provide objectives, goals and possible outcomes of the Overall Review of the Implementation of the WSIS Outcomes

The objectives should strongly be based on the improvement of ICT infrastructure because there is still a big gap in ICT between the Under Developed Countries and the Developed Countries with strong reference to Africa. There for to achieve the 2015 goal, the forum should concentrate on projects that rural based because according to a recent research carried out, ICT infrastructure is high concentrated in the urban areas compared to the rural with 68% in the rural area, 18% in urban areas and the remainder have no ICT knowledge. Secondly, Communities based organizations should create their projects based on extension of ICT and through is through enhancement and building on ICT Infrastructure. There is a lot of Misuse of Development funds which should strongly be addressed in the Parliamentary forums and appropriate measures should be derived in order for appropriate ICT implementation projects be developed. The Outcomes of the WSIS are great because there is a rapid development of ICT especially with the introduction of Android development which supports Mobile

application. Secondly, the outcomes should be geared towards promoting an even growth and distribution of ICT especially we discover the gap in the Technology for instance the 3G technology which has not reached in certain parts, so the outcome should be based strongly in bridging the Technological Gap. As we build a strong interconnection, we should put strong emphasis on Child Online Protection and Cyber security because this is still a big challenge. As we gear our strategies in achieving the 2015 goal, strong appropriate measures should be taken in restricting the content provide and Cyber networks Security. On ground analytical tools should be used and evaluate ICT growth through the different mechanism in developing countries in reference to achieving the Millennium development Goals and the use of ICT to foster development in different Sectors.

2)Please indicate what type of meeting(s) should be held within the framework of the Overall Review of the Implementation of the WSIS Outcomes

The meetings to be help should be Open Participatory Meetings where the Stakeholders brainstorm and ideology and come up with appropriate working solutions..

3) Please describe the type of preparatory process that might be proposed for the Overall Review of the Implementation of the WSIS Outcomes

The preparatory processes should be based on ICT reports of the different countries as they build the Gap. Secondly, Online Preparatory processes should be enhanced and streamlined with the Connectivity Challenge in Africa.

4) Please provide a timeline for the Overall Review Process and all proposed meetings

The Overall Review Process should be done by 2014 such a final report be compiled and presented in the 2015.

International Organizations

1. Association des clubs d'entrepreneurs étudiants du Tchad, International Organization, Chad

1) Please provide objectives, goals and possible outcomes of the Overall Review of the Implementation of the WSIS Outcomes

Rien à signaler pour le moment

2) Please indicate what type of meeting(s) should be held within the framework of the Overall Review of the Implementation of the WSIS Outcomes

Rien à signaler pour le moment

3) Please describe the type of preparatory process that might be proposed for the Overall Review of the Implementation of the WSIS Outcomes

Rien à signaler pour le moment

4) Please provide a timeline for the Overall Review Process and all proposed meetings:

Rien à signaler pour le moment

2. Conference of Non-governmental Organizations in Consultative Relationship with the United Nations (CoNGO), International Organization, Switzerland

1) Please provide objectives, goals and possible outcomes of the Overall Review of the Implementation of the WSIS Outcomes

The WSIS impetus, outreach and comprehensive partnership approach are of such immediate and long-term importance that the Overall Review must ensure that the post-2015 period and processes are thoroughly prepared, involving all stakeholders. There must be no slowing down or hesitation about continuing processes and structures beyond 2015, under the continued overall stimulation of the United Nations System. This will require adequate Secretariat underpinning, which in turn requires adequate financial underpinning

2) Please indicate what type of meeting(s) should be held within the framework of the Overall Review of the Implementation of the WSIS Outcomes

In addition to the substantive ITC and related issues, there will need to be consideration of possible international legal instruments to anchor WSIS outcomes in the long term. All meetings should of course be based on and strengthen the multi-stakeholder participatory process, with input from the broad range of Major Groups and "Families" Expert and impartial scientific and technological meetings will be an essential component in helping to ensure that the benefits deriving from the WSIS Outcomes are fully available to developing countries.

3) Please describe the type of preparatory process that might be proposed for the Overall Review of the Implementation of the WSIS Outcomes

To repeat, multi-stakeholder and participatory

4) Please provide a timeline for the Overall Review Process and all proposed meetings:

Depending on resources, as early a start as feasible !

5) Please provide other comments, if any

To assist the United Nations to move forward on WSIS Outcomes, the competent input of responsible Civil Society Organizations is ever more needed. Based on experience of working with communities and peoples, this input will contribute to better, more-realistic intergovernmental decision-making which takes account of the long-term needs of the planet.

3. EBU - UER European Broadcasting Union, International Organization, Switzerland

1) Please provide objectives, goals and possible outcomes of the Overall Review of the Implementation of the WSIS Outcomes

EBU, as all the other Broadcasting Unions of the world has been and will remain strongly committed to the success of the WSIS process. We hope that in 2015 the process will positively be concluded after 12 years of reflection and discussion. As for what concerns the goals and possible outcomes, EBU expects the following:

a. Set up shared principles in the converging world on a global scale to set up Spectrum, Media and Cultural Diversity. This is the only way to build the society of knowledge and information we are all looking for;
b. The new digital world will have to count on structures and rules adequate to the digital convergence, where the same principles apply to the same services despite of their form of distribution (broadcasting dedicated network, satellite or telecom lines , either fixe or mobile);
c. These principles need to be agreed , on equal footing, between all stakeholders: governments, industry, civil society and international organizations;
d. WSIS process it's not all about infrastructure. Developing world needs both infrastructure and the capacity to develop its own content. If not, the developing countries will simply be flooded with content from countries that have a head start – sometimes of decades. This need will have to be build up and become one of the WSIS priorities.

2) Please indicate what type of meeting(s) should be held within the framework of the Overall Review of the Implementation of the WSIS Outcomes

Broadcasting plays an essential part in the information society . A specific reflection on contents, their diversity and related human rights, needs to be launched (by UNESCO ? in partnership with all interested parties) as soon as possible, in order to bring this part of the action at the same level than the others.

3) Please describe the type of preparatory process that might be proposed for the Overall Review of the Implementation of the WSIS Outcomes

In Tunis 2 main paths were identified to be followed in the search of common principle:

WSIS (the place to promote ICT to help sustainable and fair development)

IGF (the place of discussion for policies related to Internet)

IGF and WSIS process needs to increase their complementarities and their dialogue in view of delivering common (or at least complementary) recommendations to 2015 WSIS. This is the wish of the broadcasting industry and we count on UN system (and mainly in UNESCO and ITU) to make of this process a success.

4) Please provide a timeline for the Overall Review Process and all proposed meetings:

We believe that the whole process needs to be completed by early 2014 at the latest, in order to be submitted to all competent bodies and governments and to feed the Prepcoms

that will be needed in 2014 to have a successful WSIS 2015. In 2013 WSIS follow up process and IGF need to start to converge their efforts.

5) Please provide other comments, if any

TEXT OF THE VIDEOMESSAGE published on Sept. 1 2011 into the WSIS website:

1.The European Broadcasting Union, the world's largest association of national broadcasters, strongly supports the global information society. We realize that there is a need to share the benefits of the converging world. The World Summit on the Information Society is a great platform to help build up a society of knowledge and information globally.

2. Broadcasting is an essential part of the information society. From 2015 when analogue signals would have in principle become obsolete in many countries, the world will know mostly one digital reality, that will be the convergence of broadcasting, information technology and telecommunications.

3. So global approaches are needed on spectrum, media and cultural diversity. And these rules must respect citizens' rights and promote freedom of expression, pluralism and independence.

4. We must not forget that the developing world needs both infrastructure and the capacity to develop its own content. If not, the developing countries will simply be flooded with content from countries that have a head start – sometimes of decades.

So a shared set of principles should ideally be agreed by the various stakeholders – governments, industry and civil society.

5. The broadcasting industry hopes that the third World Summit on the Information Society will prove to be the right platform. And that it will promote sustainable and equitable development of information and communication technologies as a human right in the future converging world.

ANNEXURE IV

Draft Plan of Action

This document is a Draft Plan of Action that builds on the Interim Results of the Open Consultation Process on the Overall Review of the Implementation of the WSIS Outcomes (WSIS+10), it compiles and summarizes the submissions received from the WSIS Stakeholders including governments, the private sector, civil societies and intergovernmental organizations.

The Open Consultation Process has been designed in six phases, including physical meetings, online consultations process, and collection of formal submissions (20 May to 5 October 2011). For all information on the Open Consultation process, please consult www.ungis.org

Proposed Expected Final Outcomes of the Overall Review Process (WSIS+10)

1. Possible Forward Looking Agreed Outcome Document (AOD), setting an agenda beyond 2015

2. Evaluation and Assessment Reports
   - WSIS+10 Progress Report (Quantitative Focus)
     (Initial Coordination by Partnership on the Measuring ICT for Development during the WSIS Forum 2012)
   - Review Reports by Action Line Facilitators (11 Action Lines)
     (Template to be prepared by WSIS Action Line Facilitators' Meeting during the WSIS Forum 2012)
   - Self-evaluation National Review Reports
     (Draft template to be prepared during WSIS Action Line Facilitators' Meeting of the WSIS Forum 2012)
   - WSIS+10 Stocktaking Report
     (International Telecommunication Union)
   - IGF Secretariat Report
   - UNGIS Review Report

Proposed Preparatory Process and Meetings within the Framework of the Overall Review up to 2015

Preparatory process will include virtual working methods as an integral part of the overall review.

2012:

- **May: Start of Preparations for the WSIS+10 Review** during the WSIS Forum 2012, Geneva (2 days) to define
  - preliminary indications for the scope of the possible forward looking agreed outcome document (AOD), setting agenda beyond 2015
  - templates for the reports of the lead facilitators on the Action Lines
  - templates for the national self-evaluation reporting on the implementation of the WSIS outcomes

- **May: Report on the outcomes of the UNGIS Consultations on the WSIS+10 Review** to the 15th Session of the Commission on Science and Technology for Development (CSTD)

2013:

- **February/March: Multi-stakeholder Event for the WSIS+10 Review** (title to be decided)
  (3 days event, hosted by UNESCO in Paris, with a high-level component)
  - Review of emerging trends in the Information Society
  - Development of the specific recommendations of relevance to the AOD

- **May**: **Preparations to the WSIS+10** during WSIS Forum 2013
  (Geneva, 2-3 days)
  - Agreement on outline of the AOD
  - Discussion on text

2014:

- **May**: **Preparations to the WSIS+10** during WSIS Forum 2014
  (Geneva, 2-3 days)
  - Finalization of the AOD

- **June/July: High-Level Meeting on the Overall Review (WSIS+10)**
  (Location to be determined based on hosting proposals)
  - Presentation of all review reports
  - Adoption of the AOD

2015:

- **Report on the outcomes of the Overall Review Process** to the 18th Session of CSTD

- **UN General Assembly** to endorse the AOD

- **Contribution to MDGs Review Process**

ANNEXURE V

Draft Plan of Action

Second Physical Meeting (20 September 2011)

14:30 - 18:00, Room H, ITU Headquarters, Geneva, Switzerland

This document is a Draft Plan of Action that builds on the Interim Results of the Open Consultation Process on the Overall Review of the Implementation of the WSIS Outcomes (WSIS+10), that compiles and summarizes the submissions received from the WSIS Stakeholders including governments, the private sector, civil societies and intergovernmental organizations. The document also includes comments received from Stakeholders during the Second Physical meeting held on 20th September 2011.

The Open Consultation Process has been designed in six phases, including physical meetings, online consultations process, and collection of formal submissions (20 May to 5 October 2011). For all information on the Open Consultation process and additional inputs, please consult www.ungis.org and contact us at contact@ungis.org

Proposed Expected Final Outcomes of the Overall Review Process (WSIS+10)

1. Evaluation and Assessment Reports
    - WSIS+10 Progress Report (Quantitative Focus)
      (Initial Coordination by Partnership on the Measuring ICT for Development during the WSIS Forum 2012)
    - Review Reports by Action Line Facilitators (11 Action Lines)
      (Template to be prepared by WSIS Action Line Facilitators' Meeting during the WSIS Forum 2012)
    - Self-evaluation National Review Reports
      (Draft template to be prepared during WSIS Action Line Facilitators' Meeting of the WSIS Forum 2012)
    - WSIS+10 Stocktaking Report
      (International Telecommunication Union)
    - IGF Secretariat Report
    - UNGIS Review Report
    - Contributions to the MDG Process

2. Possible forward looking outcome setting an agenda beyond 2015

Proposed Preparatory Process and Meetings within the Framework of the Overall Review up to 2015

Preparatory process will include virtual working methods as an integral part of the overall review.

2012:

- **May: Start of Preparations for the WSIS+10 Review** during the WSIS Forum 2012, Geneva (2 days) to define
  - preliminary indications for the scope of the possible forward looking outcome, setting agenda beyond 2015
  - templates for the reports of the lead facilitators on the Action Lines
  - templates for the national self-evaluation reporting on the implementation of the WSIS outcomes

- **May: Report on the outcomes of the UNGIS Consultations on the WSIS+10 Review** to the 15th Session of the Commission on Science and Technology for Development (CSTD)

- **December: General Assembly**

2013:

- **February/March: Multi-stakeholder Event for the WSIS+10 Review** (title to be decided)
  (3 days event, hosted by UNESCO in Paris, with a high-level component)
  - Review of emerging trends in the Information Society
  - Development of recommendations of relevance to the forward looking outcome.

- **May**: **Preparations to the WSIS+10** during WSIS Forum 2013
  (Geneva, 2-3 days)
  - Agreement on outline of the forward looking outcome
  - Discussion on text

2014:

- **May**: **Preparations to the WSIS+10** during WSIS Forum 2014
  (Geneva, 2-3 days)
  - Finalization of the forward looking outcome

- **June/July: High-Level Meeting on the Overall Review (WSIS+10)**
  (Location to be determined based on hosting proposals)
  - Presentation of all review reports
  - Adoption of the forward looking outcome

2015:

- **Report on the outcomes of the Overall Review Process** to the 18th Session of CSTD

- **UN General Assembly** to endorse the forward looking outcome.

- **Contribution to MDGs Review Process**

ANNEXURE VI

Additional Comments Received from 20th September to 30th September 2011

During the 2nd physical meeting it was requested that the Draft Plan of Action is left open for comments till 30th October 2011.

The following comments were submitted:

1) Finland, Government

- Finland suggests changing the order of the first bullet points ("possible forward looking outcome..." and "evaluation and assessment reports...") and maintaining the wording on "possible forward looking outcome..." and not on "Agreed Outcome Document" as it was described before.

- The focus of the review should be in analyzing the implementation of WSIS commitments. In addition to several evaluation and assessment reports from different actors, there should be a single main review document which takes into account all other contributions received and links the WSIS+10 to the MDG process.

- The decision on the possible outcome (other than the review documents) should be based on the findings of the review documents. The preparations for the possible outcome (other than the review documents) should take place only after the receipt of the review documents.

- The CSTD should be engaged in the WSIS+10 review process through its mandate to assist the ECOSOC as the focal-point in the system-wide follow-up of the WSIS Summit. The role of the CSTD should be well defined in the Plan of Action.

2) Iran, Government

We recall that 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. To this end, UNGIS has initiated open consultations on organizing high-level event on WSIS review. Our preliminary comment on the Draft Plan of Action prepared by UNGIS addresses the issue of preparatory process and its timeline. The preparatory process has to be started in early 2013 after consideration and decision by the General Assembly in December 2012 elaborating the overall review process. Mandate by the General Assembly will be required to start the process. Therefore, the WSIS Forum could start its work on this review in 2013. Furthermore, the deliberations by the WSIS Forum in 2013 and 2014 should provide inputs to the preparatory meetings which should be convened in 2014 before the High-Level Meeting. The preparatory meetings have to be tasked to develop the outcome document for adoption by the High-Level Meeting.

3) ISCO, Civil Society

The Internet Society (ISOC) would like to thank the UNGIS Secretariat for the opportunity to submit comments on the revised version of the Draft WSIS 2014 Action Plan.

The latest version of the Draft Action Plan proposes two possible outcomes:

1. “Possible forward looking outcome setting and agenda beyond 2015”
2. “Evaluation and Assessment Report”.

ISOC would like to echo proposals made during Phase Three (written contributions) and Five of the Open Consultation Process (physical meeting, 20 September 2011) by a number of delegations to focus solely the WSIS action lines forum in 2014 on assessing and implementation of WSIS commitments, i.e. on the second possible outcome proposed by the Draft Action Plan.

The review should allow a concrete assessment and evaluation of the implementation of the WSIS Outcomes. The discussion could allow identifying best practices and tangible mechanisms to improve information of all stakeholders involved.

Regarding the “Proposed Preparatory Process and Meetings within the Framework of the Overall Review up to 2015”, we would like to make the following suggestions:

- Examine better ways to integrate the Internet Governance Forum (IGF) in the implementation of the WSIS outcomes.
- Ensure multi-stakeholder participation in the development of any outcome of the WSIS Review: ISOC strongly recommends that the preparatory process be as inclusive and multi-stakeholder as possible. In addition and in the spirit of the Tunis Agenda, the “Internet academic and technical communities” should be fully recognized in the process.
- Focus the discussion on identifying outcomes addressing the evaluation and assessment of the WSIS follow-up: As proposed by Switzerland during at the Fifth Phase of the Open Consultation Process, the preparatory process should focus on defining a working methodology and reliable measurement tools to enhance the overall quality and efficiency of the WSIS Review and Follow-up process.
- These activities should be sufficient to ensure the best possible implementation of WSIS outcomes without the need for holding a separate Summit and negotiating outcome documents.