Conclusions and the way forward

This World Telecommunication/ICT Development Report (WTDR) reflects the first effort to carry out a comprehensive global review of the international targets and goals agreed at the World Summit on the Information Society (WSIS) in Geneva and Tunis, based on a set of measurable indicators. Only five years away from the target date of 2015, this mid-term review will help policy-makers assess what has been achieved since the conclusion of WSIS in 2005. It also provides concrete suggestions on how to monitor progress, and on the policies that could be implemented to achieve the targets.

Overall, the analysis showed that considerable advances have been made in terms of global dissemination of ICT since WSIS. In particular, mobile telephony has spread worldwide, making it likely that by 2015 half the world population will be using mobile phones. Similarly, access to basic radio and TV services is widely available. The number of Internet users has also been growing continuously, Internet user penetration having doubled between 2003 and 2009 (from around 12 per cent in 2003 to around 25 per cent by the end of 2009).

Good progress has also been made in bringing Internet access to central governments and scientific and research institutions, and to some extent also to schools, hospitals, museums, libraries and archives, at least in the major cities. There are a large number of national initiatives to provide Internet access to museums and archives, in particular, including in the developing world. Given their relatively limited number worldwide (in relation to, for example, households or schools), and as the majority of them are located in the developed world, connecting all museums and archives by 2015 could be achieved with the right policy focus.

Nevertheless, by the end of 2009, 75 per cent of the world population (and more than 80 per cent of people in developing countries) were not yet using the Internet, and even fewer via a broadband connection. Yet broadband Internet is increasingly considered as a general-purpose technology, on a par with electricity, and even as a basic human right. With five more years to go before the 2015 target year, all stakeholders need to step up a gear in their efforts to bring high-speed Internet to a large number of people and institutions, especially in the developing world, and in particular to rural communities, schools, hospitals and local governments.

Furthermore, in order to harness the full potential of ICTs, and for countries to become knowledge-based societies, there is a need to move from simply ensuring the provision of infrastructure and ICT access to encouraging the effective use of ICTs. Increasing people's and organizations' use of ICTs and developing applications in such areas as e-health, e-learning, e-culture and e-government are thus essential, and have been included in the assessment of the targets. Finally, much needs to be done to make the Internet truly multilingual in order to create an inclusive information society.

In view of these findings, and to ensure that the WSIS targets and goals will be achieved by 2015, a concerted policy effort is required on the part of all national, regional and international stakeholders. This is especially important given the significant impact that ICT use has on other areas of social and economic development and, hence, the major role ICT development can play in achieving the Millennium Development Goals (MDGs), also set for 2015.

Each of the chapters of this report provides a set of specific policy recommendations for the respective target. Many of the policy areas outlined in the report, and which require urgent attention, were also addressed in detail in the WSIS outcome documents. Therefore, full implementation of the WSIS action lines will help to achieve the WSIS targets by 2015. Five years is a relatively short period for putting in place new policies and programmes and achieving widespread impact. However, ICTs are in high demand and, if made accessible, affordable and meaningful, are likely to be taken up and used quickly by citizens and institutions.

Given the importance of high-speed Internet access for full participation in the information society, universal access to broadband should be a key policy focus in all countries without exception in the years to come. At the international level, assistance should be provided to support developing countries in the establishment and implementation of national broadband plans. ITU's "*Build on Broadband*" initiative highlights the power of broadband as a tool for driving social and economic development, and urges governments to take the lead in forging partnerships with industry in order to develop national broadband networks and ensure affordable, equitable access for all citizens.[1] The newly created high-level *Broadband Commission for Digital Development*, led by ITU and UNESCO and supported by the UN Secretary-General, aims to promote the huge potential of high-speed communication networks for transforming economies and accelerating achievement of the MDGs. In time for the 2010 MDG Review Summit, the Broadband Commission will focus attention on fast-tracking the formulation and implementation of national ICT policies in line with the MDGs, and propose a set of actions and initiatives to implement universal broadband access based on a sector-wide approach.

Monitoring progress: towards 2015

A key objective of the report was to review the WSIS targets, revise them where necessary for measurement purposes, and identify a set of measurable indicators that could be used by national, regional and international stakeholders to monitor progress until 2015 — and beyond.

Not all the targets specify a quantitative goal such as "*more than half*" of the population should have ICTs within their reach (Target 10), or "all" of the population should have access to TV and radio (Target 8). Much emphasis was placed on "*connecting*" villages, schools, museums, hospitals etc. with ICTs, without however specifying the type of connectivity or ICT, nor *a fortiori* the use that should be made of the technology. Therefore, each target was interpreted in the context of today's ICT developments, and rephrased where necessary for the purpose of measurement and to identify the relevant indicators.

Some areas, although vital to the development of the information society, are not covered anywhere in the targets. The most critical example is the use of ICTs by businesses, which is essential for participating in today's knowledge-based economy and being competitive. This area is reflected in Action Line C7, under "e-business," which calls upon governments to promote the use of e-business, especially in developing countries. It is therefore proposed that a new target be added: "Connect all businesses with ICTs." Indicators to monitor this proposed new target have been defined by the *Partnership on Measuring ICT for Development* and are collected at the international level by the United Nations Conference on Trade and Development (UNCTAD).[2]

Other areas not addressed by the targets are e-agriculture and e-environment, which are also included in Action Line C7; building confidence and security (Action Line C5); and the ethical dimensions of the information society (Action Line C10). Progress in these areas should also be monitored and indicators defined to this end.

The *WSIS Mid-term Review Table* (at the end of this chapter) summarizes the main results of the report, including proposed revisions to the targets to facilitate measurement, the most relevant action lines, and the indicators proposed to monitor each of the targets. The proposals should be considered as preliminary, and will be subject to further consultation and refinement (see below).The table also provides an overall assessment of the status of the targets and the indicators for which data were available, by developed and developing countries. It shows that, whereas in developed countries most indicators have a high level of achievement, this is not the case in developing countries, where only few indicators have reached a high level of achievement and most indicators are still at a low level. This confirms the urgent need for policy action outlined throughout the report.

The mid-term review clearly suffered from limited data availability. Even though the most basic indicators were chosen, they are often not collected at the national (or international) level, or are outdated. It was therefore not possible to perform a comprehensive global assessment of all targets. The questionnaire sent out by ITU in preparation for the review was returned by 48 countries, but information was not always provided for all of the targets.

Without further and more extensive data collection at the national level, it will be difficult to assess whether the WSIS goals and targets will be met by 2015. This is a problem for developing countries in particular, where ICT penetration levels are lower and which are behind in meeting several of the targets.

One of the difficulties of measuring progress towards the WSIS targets has been the lack of concrete, measurable and well-defined indicators. The *Partnership on Measuring ICT for Development* has drawn up a core list of ICT indicators, and an increasing number of countries are using them to collect ICT statistics. However, the WSIS targets go beyond the *Partnership*'s current core list. This report represents the first effort made at the international level to define a set of quantifiable indicators related to each WSIS target. The proposed indicators can facilitate data collection and comparisons between countries, and countries should find them useful in their efforts to monitor their information society developments.

Monitoring progress towards the WSIS targets needs to be continued up to at least 2015. The international community needs to assist countries in the measurement process. The indicators presented in this report can serve as a starting point, but they need to be further refined, and perhaps expanded, in consultation with the WSIS community.

As a follow-up to the mid-term review presented here, it is therefore proposed that a sustained effort be made by the international community to develop a monitoring framework for the WSIS targets and assist the data collection process at the national and international levels. The *Partnership* is best placed to take on such a task. Indeed, in 2008, the United Nations Economic and Social Council (ECOSOC) recommended that the *Partnership* track progress towards the achievement of the WSIS goals and targets (Resolution 2008/3, § 29). In particular, it

"*Recommends that the Partnership on Measuring Information and Communication Technologies for Development consider the creation of benchmarks and indicators, including impact indicators, for further consideration and decision by the Statistical Commission, in order to track progress towards the attainment of the specific goals and targets set out in the outcome documents of the World Summit on the Information Society, particularly section B of the Plan of Action adopted in Geneva.*"

Under the umbrella of the *Partnership*, ITU, the co-authors of this report (UNESCO, WHO, UNDESA and representatives from civil society, such as FUNREDES) and other *Partnership* members should work together to develop a measurement framework for the WSIS targets, in close collaboration with other relevant stakeholders. A final matrix for all targets and action lines should be presented as soon as possible and disseminated widely to help countries in their monitoring efforts. Data should be compiled on a continuous basis, and regular quantitative updates of progress on the goals should be prepared by the partners. A final report should then be prepared for 2015, setting forth a global assessment of progress achieved in reaching the WSIS targets and goals.

WSIS mid-term review table: Targets, action lines, proposed indicators and overall status

WSIS Targets	Proposed target revisions for monitoring progress	Most relevant WSIS action lines	Proposed indicators for monitoring progress*	Overview of level of achievement, 2009**	
				Developed countries	Developing countries
1. To connect villages with ICTs and establish community access points	To connect **all** villages with ICTs and establish community access points	C2. Information and communication infrastructure; C3. Access to information and knowledge; C4. Capacity building	1. Rural population covered by a mobile cellular telephone network, broken down by technology	High	High
			2. Rural households with a telephone, by type of service (fixed and/or mobile, mobile only, fixed only)	High	Medium
			3. Rural households with Internet access, by type of access (narrowband, broadband)	Medium	Low
			4. Localities with public Internet access centres (PIACs), by type of access and urban/rural	Medium	Low
			5. Location of individual use of the Internet in the last 12 months (including PIACs), by urban/rural	n.a.	n.a.
2. To connect universities, colleges, secondary schools and primary schools with ICTs	To connect **all** ~~universities, colleges, secondary~~ schools and primary schools with ICTs	C2. Information and communication infrastructure; C3. Access to information and knowledge; C7. E-learning	1. Schools with a radio used for educational purposes	High	Medium
			2. Schools with a television used for educational purposes	High	Medium
			3. Schools with Internet access, by type of access (narrowband, broadband)	High	Low
			4. Learners-to-computer ratio	High	Low
3. To connect scientific and research centres with ICTs	To connect **all** scientific and research centres with ICTs	C2. Information and communication infrastructure; C3. Access to information and knowledge; C7. E-science	1. Scientific and research centres with broadband Internet access	High	Medium
			2. Presence of a national research and education network (NREN), by bandwidth capacity (Mbit/s)	High	Medium
			3. Number of NREN nodes	n.a.	n.a.
			4. Universities connected to the NREN by type of connection (narrowband, broadband)	High	Medium
			5. Scientific and research centres connected to the NREN by type of connection (narrowband, broadband)	High	Medium
4. To connect public libraries, cultural centres, museums, post offices and archives with ICTs	To connect **all** public libraries, cultural centres, museums, post offices and archives with ICTs	C3. Access to information and knowledge; C4. Capacity building; C8. Cultural diversity and identity, linguistic diversity and local content	1. Public libraries with broadband Internet access	High	Low
			2. Public libraries providing public Internet access	Medium	Low
			3. Public libraries with a website	Medium	Low
			4. Cultural centres with broadband Internet access	n.a.	n.a.
			5. Cultural centres with a website	n.a.	n.a.
			6. Cultural centres providing public Internet access	n.a.	n.a.
			7. Museums with broadband Internet access	High	Medium
			8. Museums with a website	High	Medium
			9. Post offices with broadband Internet access	n.a.	Low
			10. Post offices providing public Internet access	n.a.	Low
			11. Archives with broadband Internet access	High	Medium
			12. Archives with a website	Medium	Low
			13. Content in archives that has been digitized	n.a.	n.a.
			14. Digitized information in archives that is available online	n.a.	n.a.
5. To connect health centres and hospitals with ICTs	To connect **all** health centres and hospitals with ICTs	C2. Information and communication infrastructure; C7. E-Health	1. Public hospitals with Internet access, by type of access (narrowband, broadband)	High	Medium
			2. Health centres with Internet access, by type of access (narrowband, broadband)	High	Low
			3. Public hospitals using computers/the Internet to collect/process/transmit individual patient information	Medium	Low
			4. Health centres using computers/the Internet to collect/process/transmit individual patient information	Medium	Low

WSIS mid-term review table: Targets, action lines, proposed indicators and overall status (continued)

WSIS Targets	Proposed target revisions for monitoring progress	Most relevant WSIS action lines	Proposed indicators for monitoring progress*	Overview of level of achievement, 2009**	
				Developed countries	Developing countries
6. To connect all local and central government departments and establish websites and e-mail addresses	To connect all local and central government departments and establish websites ~~and e-mail addresses~~	C1. The role of public governance authorities and all stakeholders in the promotion of ICTs for development / C2. Information and communication infrastructure / C3. Access to information and knowledge / C7. E-government	1. Government employees using the Internet	n.a.	n.a
			2. Government employees using computers	n.a.	n.a.
			3. Government institutions with Internet access, by type of access (narrowband, broadband)***	High	Medium
			4. Government institutions with a website***	High	Medium
			5. Government institutions using corporate networks (LAN, WAN, intranet, extranet)***	n.a.	n.a.
			6. Government institutions offering online services, by type of service (interactive, transactional, connected)***	Medium	Low
7. To adapt all primary and secondary school curricula to meet the challenges of the information society, taking into account national circumstances	(no revision proposed)	C4. Capacity building / C7. E-learning	1. ICT-qualified teachers in primary and secondary schools	n.a.	n.a.
			2. Teachers trained to teach subjects using ICT	Medium	Low
			3. Schools with computer-assisted instruction	High	Medium
			4. Schools with Internet-assisted instruction	High	Low
8. To ensure that all of the world's population have access to television and radio services	(no revision proposed)	C2. Information and communication infrastructure / C3. Access to information and knowledge / C9. Media	1. Households with a radio	High	High
			2. Households with a TV	High	High
			3. Households with multichannel television service, by type of service	High	Low
9. To encourage the development of content and put in place technical conditions in order to facilitate the presence and use of all world languages on the Internet	(no revision proposed)	C3. Access to information and knowledge / C8. Cultural diversity and identity, linguistic diversity and local content	1. Internet users, by language	Low	Low
			2. Webpages, by language	Low	Low
10. To ensure that more than half the world's inhabitants have access to ICTs within their reach	To ensure that more than half the world's inhabitants have access to ICTs, in particular broadband Internet, within their reach and make use of them	C2. Information and communication infrastructure / C3. Access to information and knowledge / C6. Enabling environment / C7. ICT applications: benefits in all aspects of life	1. Mobile cellular telephone subscriptions per 100 inhabitants	High	High
			2. Individuals who used a mobile cellular telephone in the last 12 months	High	Medium
			3. Individuals who used the Internet (from any location) in the last 12 months	High	Medium
			4. Households with access to the Internet, by type of access (narrowband, broadband)	High	Low

Note: *Refers to percentages unless otherwise indicated. **High/medium/low level of achievement of indicator based on reported values; n.a. = data not available to determine overall status. Based on data available and featured in the chapters of this report. ***Includes local and central government institutions.

Source: ITU.

Notes

1   For more information on the ITU *Build on Broadband* initiative, see http://www.itu.int/en/broadband/Pages/default.aspx.

2   For more information on UNCTAD's work on ICT measurement, see http://measuring-ict.unctad.org.