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Journal Title: ITU news

Journal Issue: Special edition, no. 9, November 2006



ITU NEWS

SPECIAL EDITION • No. 9 • NOVEMBER 2006



Strategies, Priorities, and the Budget

A balancing act for the
Plenipotentiary Conference



2006

 Antalya
6-24 November 2006 



Viviane Reding, EU Commissioner
for Information Society and Media ▲



Connecting the unconnected by 2015...

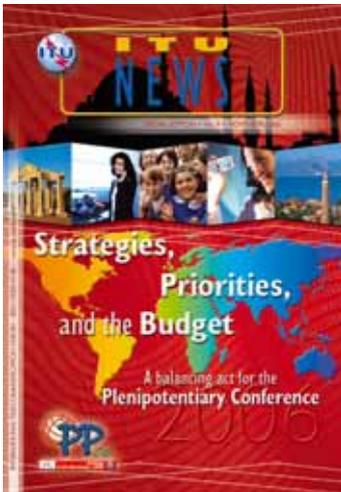
Connecting the unconnected by 2015 was one of the key challenges embraced by world leaders at the World Summit on the Information Society (WSIS).

I believe

It is a major task, but one that can be achieved if we all contribute our unique expertise and resources. Together, governments, the private sector, civil society and international organizations can use the benefits of information and communication technologies to improve health and education, boost economic opportunity and enhance cultural and linguistic diversity.

Join the growing number of organizations that have become partners to *Connect the World*, a global initiative launched by the International Telecommunication Union and other committed stakeholders.

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ITU News: ISSN 1020-4148
<http://www.itu.int/itu-news/>
10 issues per year

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Printed in Geneva by the Printing and Dispatch Division of the International Telecommunication Union

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C O N T E N T S

No. 9

SPECIAL EDITION • NOVEMBER 2006



2 MESSAGE FROM THE ITU SECRETARY-GENERAL

Moving with the times

Yoshio Utsumi

4 MESSAGE FROM THE PRIME MINISTER OF THE REPUBLIC OF TURKEY



Recep Tayyip Erdogan

5 TELECOMMUNICATIONS IN TURKEY

A changing landscape

9 STRATEGIES, PRIORITIES AND THE BUDGET

A balancing act for the Plenipotentiary Conference in Antalya

- Strategies to deliver success (pages 9–14)
- Balancing the books (pages 15–17)

18 REGIONAL COMMON PROPOSALS

- ITU in the wake of WSIS (pages 18–20)
- Should the way ITU's top management is chosen be reformed? (page 21)
- Emergency telecommunications (page 22)
- Strengthening ITU's regional presence (page 23)

24 ITU TELECOM WORLD 2006

A preview

27 LEAST DEVELOPED COUNTRIES

Mid-term review highlights connectivity progress and challenges

31 PIONEERS' PAGE

Wheatstone: inventor of telegraph systems — and the concertina

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Moving with the times



ITU/J.M. Ferré

“The world has changed and ITU must change with it.”

It is my great pleasure to welcome participants to Antalya for the seventeenth ITU Plenipotentiary Conference. I am delighted that it is taking place in Turkey, which has successfully hosted major ITU events in recent years. Istanbul was where the World Radiocommunication Conference was held in 2000, as well as the World Telecommunication Development Conference in 2002. In both of these events, the Turkish administration demonstrated its skills as organizer and its generosity as host country. I am therefore confident that our work on the “Turkish Riviera” will run smoothly.

Nevertheless, I feel that this will be a difficult Plenipotentiary, because ITU faces the critical decision of whether it will remain relevant or not in the information revolution. The main challenge we face is in achieving a consensus on the vision of what we want ITU to become.

A new environment

Our environment is changing rapidly. Telecommunications now lie at the heart of a global information and communication technologies (ICT) business that is valued in terms of trillions of dollars, and which contributes more than 7 per cent of global wealth. The industry is being transformed by a number of broad shifts. These include the change from governmental monopoly to competition between privately owned companies, as well as the switch from analogue to digital networks based on the internet protocol. And of course, mobile communications continue to boom.

Since the Plenipotentiary Conference in Marrakesh in 2002, more than a billion new users have been added to the world’s networks, most of them using mobile phones, and more than a quarter of a billion broadband users have been connected to the internet. ITU has helped to create this change, for instance in setting aside spectrum, or in developing interoperability standards. ITU also played a leading role in the pivotal event of the last few years: the World Summit on the Information Society (WSIS).

The WSIS challenge

WSIS has given ITU the opportunity to position itself in the vanguard of the information society. But in assuming that position, we must demonstrate that we are no longer just a “technical agency” that simply “makes the phones work.” We must show that ITU has a mandate and capacity to engage more broadly in the development of ICT and in their use for the benefit of humanity. With WSIS implementation, our attention

must move to promoting the use of ICT as a tool to build a world in which everyone can create, access, use and share information and knowledge. The world has changed and ITU must change with it.

WSIS helped to highlight the challenges raised by the information society. It also brought together new players and new interests. ITU's competence was recognized in the invitation for it to serve as the overall coordinator for the implementation of the WSIS Plan of Action, as well as facilitator for specific WSIS action lines, such as infrastructure building and cybersecurity.

But despite ITU's central role, WSIS decided that it was necessary to create a separate forum to discuss the issue of internet governance, because ITU was not sufficiently open to the new players that were brought together at the summit, and not flexible enough in its working methods to accommodate new issues. WSIS also highlighted the urgent need for international policy coordination in areas such as cybersecurity, data and privacy protection, countering spam, and in financing ICT for development. Most of these issues fall within the traditional mandate of ITU, but some of its traditional ways of working are not appropriate and a more flexible response is needed.

Now it is up to the Plenipotentiary Conference in Antalya to seize the moment and take the decisions that will help ITU respond fully to the new environment. People from around the world now look to ITU for leadership, following the success of WSIS. They are eager to see the rapid implementation of the goals and objectives of the information society, and they count on ITU to lead the way.

Leadership and innovation

I am proud that, during my tenure as Secretary-General, ITU has been able to demonstrate leadership and innovation in several important matters requiring international policy coordination. Success stories include the agreement on the IMT-2000 family of standards for third generation (3G) mobile communications, of which there are now more than a quarter of a billion users worldwide. This shows how ITU can work with business to create new market opportunities. Another example is the World Telecommunication Policy Forum of 2001. This helped Member States and

Sector Members to develop a common understanding of the implications of voice over internet protocol (VoIP). It also helped create the basis of trust necessary for the much wider use of IP-based networks for carrying voice as well as data.

All this policy coordination work was initiated and facilitated by the high office of the Secretary-General, representing the prestige of the whole Union, and not by the three separate Sectors. ITU could not have played this policy coordination role without a strong focus on remaining relevant to the changing needs of industry and responding with strong political leadership and flexibility.

The work of the Secretary-General was, of course, supported by the ITU staff and membership. In particular, the Strategy and Policy Unit (SPU) has played a critical role in organizing WSIS, developing ITU's capabilities in market and data analysis, and in conducting workshops in areas of high, current policy interest. For instance, without its *New Initiatives* workshops on cybersecurity and countering spam, ITU as a whole would not have been asked by WSIS to play the role of facilitator for cybersecurity.

Similarly, SPU has helped to introduce new topics into the work programme of ITU — such as VoIP, RFID or IPTV — which have now been taken up in the work programmes of the Sectors. Based on this experience, I believe that in the coming period, ITU should focus its efforts on international policy coordination and WSIS implementation and lead the information revolution.

Let me take this opportunity to thank the Member States for the faith they placed in me by electing me as Secretary-General. My eight years in office have personally felt like a very long time, especially as they have coincided with the most ambitious project ITU has ever undertaken, namely, the organization of WSIS. But I am conscious, too, that these years represent just a brief period in the lifetime of the Union, one of the world's most enduring institutions. ■

Yoshio Utsumi
Secretary-General
International Telecommunication Union

Message from the Prime Minister of the Republic of Turkey



©Turkish Ministry of Culture and Tourism

It gives me great pleasure to welcome you all, once again here in Anatolia, a cradle of civilization.

The heart of the telecommunication sector, on a

global scale, will beat in Antalya on the occasion of this significant event, the ITU Plenipotentiary Conference from 6 to 24 November 2006.

We came together in such successful conferences as the Radiocommunication Assembly 2000 (RA-2000), the World Radiocommunication Conference (WRC-2000) and the World Telecommunication Development Conference (WTDC-02) held in Istanbul, a city that brings together civilizations. I hope we will achieve the same success at PP-06 as well. We have exerted great effort and made every preparation in order to accomplish a successful conference.

Turkey is a country that is progressing along the path to becoming an information society. To this end, we follow and use the latest information and communication technologies. Our society is willing and determined to become an information society. Our young people are encouraging us to become a knowledge-based society. Furthermore, we are creating important employment areas in the information and communication sectors for the younger generation. We do not wish to be a country which only follows and uses advanced technology. Our aim is not to remain at the level of merely using, but also to create added value

and content, and to produce technology itself. I believe that we will achieve this goal through the new generation of technologies.

We are primarily moving public services to an internet environment as part of our efforts to become an information society. We are continuing our activities to bridge the digital divide. We attach utmost importance to computer literacy. We are helping children to start using the internet in primary schools. However, there is a long way ahead of us in this regard.

We appreciate and support the efforts of ITU to bridge the digital divide. We desire that not only the people of developed countries, whose technology has been developing and changing at a rattling pace, but also that people from all around the world get to use telecommunication services. Therefore, we support the international activities carried out to achieve this.

The province of Antalya, where the conference will be held, is one of the most remarkable tourism regions in the world, with its historical and natural beauty. It is also a venue for international festivals and artistic events. We are honoured to host guests from various parts of the world in Antalya at many international conferences. I hope that you will attend a fruitful conference and, at the same time, have an enjoyable stay in Antalya.

I would like to express the great pleasure we take from having all the esteemed delegations in Turkey on the occasion of PP-06. It will also please the Turkish people to share the country's natural beauty and historical and cultural riches with you during your stay in Turkey. ■

Recep Tayyip Erdogan
Prime Minister



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Telecommunications in Turkey

Turkey's telecommunication history is over a century old, with the first telegraph line installed in 1847 and the first telephone circuit in 1881. Huge investments were made in the 1980s and 1990s to modernize infrastructure. Today, Turkey's market for information and communication technologies (ICT) has high potential, given ongoing reform of the sector and the country's population of more than 73 million (according to the ITU Yearbook of Statistics for 2005). With over 19 million fixed-telephone lines, about 43.6 million

mobile telephony subscribers and an estimated 16 million internet users at the end of 2005 (see Figure 1), there are growth opportunities in almost all spheres of ICT.

Turkey's youthful market augments this potential. Some 50 per cent of the population is under the age of 25, with 37 million between the ages of 15 and 44. Their influence is shown, for example, in the rising popularity of the short message service (SMS) via mobile phones. The number of SMS messages rose from 6.3 million in 2004 to 16.73 million in 2005.

A changing landscape

Since 1994, the ICT market in Turkey has been going through restructuring to promote competition. Provision of mobile telephone services was liberalized in that year. In 2000, the Telecommunications Authority was established as an autonomous regulatory body. It is responsible for licensing, tariffs, interconnection, numbering and spectrum planning and allocation. The Ministry of Transport retains responsibility for ensuring universal service and for setting telecommunications policy.

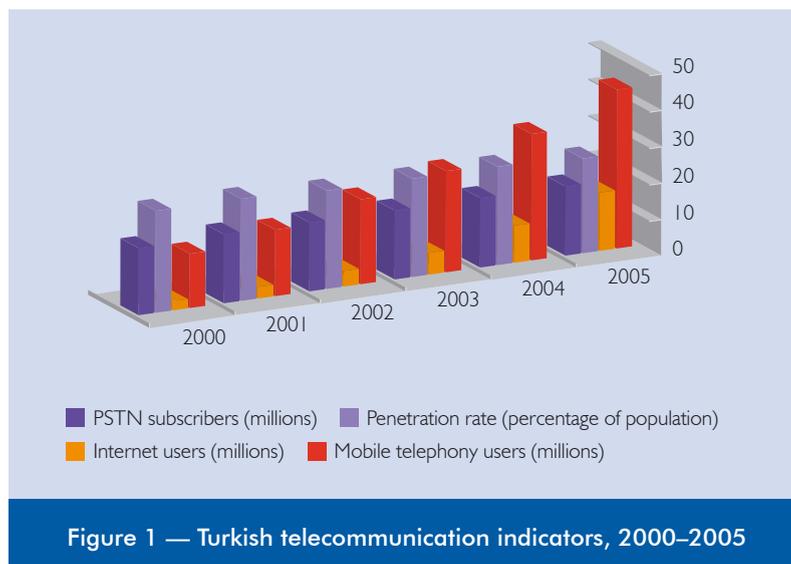
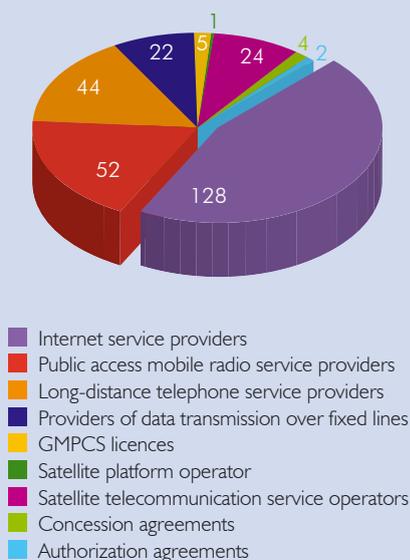


Figure 1 — Turkish telecommunication indicators, 2000–2005

Privatization of the national carrier, *Türk Telekom*, was a key component of the government's policy to create a competitive ICT market structure. January 2004 saw the end of the monopoly of *Türk Telekom* in voice communication and infrastructure, and in August 2005, it was finally privatized through the sale of 55 per cent of the company to an international consortium, Oger Telecoms Joint Venture Group, for USD 6.5 billion.

Global players continue to enter the Turkish ICT market. In 2005, the *Çukurova Group* sold 3.22 per cent of its shares in the mobile operator *Turkcell* to a Russian firm, the *Alfa Group*, in a deal worth USD 3.3 billion. In December that year, *Vodafone* announced its purchase of the mobile operator *Telsim* for USD 4.5 billion, and final approval for the sale was given in May 2006. The number of licensed operators in Turkey has increased dramatically, although not all have launched services. By December 2005, the Telecommunications Authority had issued licenses to over 200 operators, with most of these going to internet service providers (ISP), as shown in Figure 2.

Figure 2 — Number and type of telecommunication operators, end of 2005



Mobile numbers surge

Turkey's mobile telecommunication market has grown fast. By the end of 2005, there were 43.6 million mobile phone subscribers, or almost 60 per cent of the population. The expectation is that mobile subscribers will reach 51 million in 2006.

Mobile telephony was introduced in 1986, when *Türk Telekom* opened an analogue NMT network. In 1994, *Turkcell* and *Telsim* launched services in the 900 MHz band under revenue-sharing agreements with *Türk Telekom*, using networks based on the global system for mobile communications (GSM). These agreements were converted into licences in 1998. The mobile market was further opened in 2001, when two new GSM operators introduced services in the 1800 MHz band. These were *Aria*, (then jointly owned by *Türkiye İş Bankası* and *Telecom Italia Mobile*), and *Aycell*, owned by *Türk Telekom*. In 2004, *Aria* and *Aycell* merged to form the new company, *Avea*.

GSM subscriptions saw a sharp rise from 692 779 in 1996 to nearly 28 million in 2003. The expansion in mobile communications continues. At the end of 2005, *Turkcell* was the market leader with about 27.9 million subscribers, *Telsim* had more than 9 million and *Avea* had an estimated 6.5 million subscribers.

The introduction of competition in the mobile sector has forced down prices for users, particularly since the introduction of prepaid services. However, companies have been making less profit. While the number of subscribers to GSM services increased by a factor of nearly 10 between 1998 and 2004, the revenues of



operators rose by a factor of 3.9. Revenue per user was USD 30-40 in 1998, but dropped to USD 12-13 in 2004, because of increased competition and additional tax burdens imposed after 1999. Nevertheless, further growth of the mobile sector is expected with the anticipated sale in 2007 of licences for third-generation (3G or IMT-2000) services. Meanwhile, applications based on general packet radio service (GPRS, or 2.5G) technology are on offer.

Fixed lines stagnate

The percentage of people in Turkey subscribing to the public switched telephone network (PSTN) was low until the 1980s, when *Türk Telekom* invested in new infrastructure. This helped raise the fixed-line penetration rate to its current level of about 26 per cent. Much of the investment has been spent on digitizing telephone exchanges and modernizing infrastructure, including establishing an internet backbone and the launch of three communication satellites.

However, PSTN investment dwindled after the launch of GSM networks and mobile services. Between 2000 and 2005, the number of subscribers to fixed-line phones stayed about the same at some 19 million. In contrast, the number of subscribers to mobile phone services more than doubled in the same period, from around 15 million to 43.6 million (see Figure 1).

Internet and broadband

When it comes to computers, ownership is relatively low in Turkey, but the number of internet users is rising fast. Figures from the Telecommunications Authority show a surge in numbers from 2.5 million users in 2000, to 6 million in 2003, and 15 million in 2005 (see Figure 1).

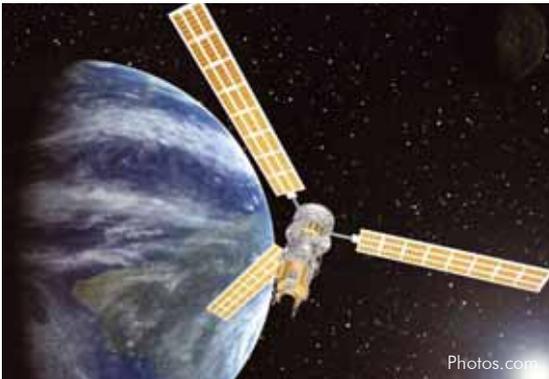
People mainly use the internet for banking and shopping. Major government and private-sector organizations, and many small businesses, have websites, and business-to-business and e-government services are on the increase. Broadband connections using asymmetric digital subscriber line (ADSL) and cable modem technologies are available. Although the number of users is still fairly low, it has been growing rapidly since 2004. As the internet is used more and more for streaming media, users' requirements for bandwidth are expected to increase substantially.



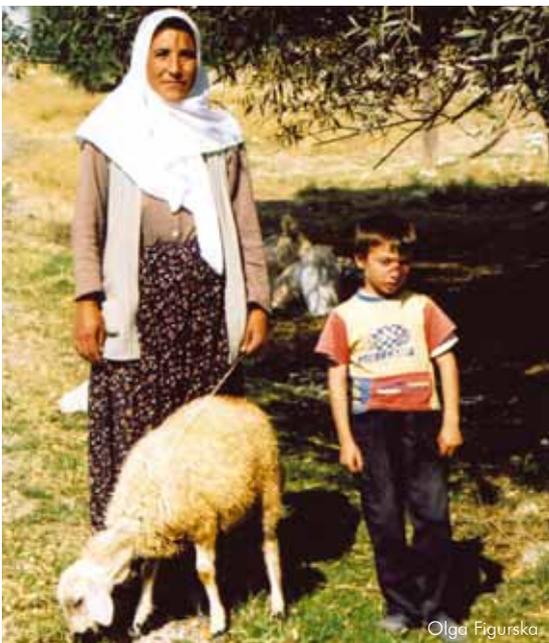


PhotoDisc

Infrastructure for data services includes leased lines, an integrated services digital network (ISDN), frame relay, packet switching data networks, very small aperture terminal (VSAT) networks, time division multiplexing (TDM) networks and asynchronous transfer mode (ATM). International connections are provided by three submarine fibre-optic cables in the Mediterranean and the Black Sea (linking Turkey with Italy, Greece, Israel, Bulgaria, Romania, and the Russian Federation), via 12 Intelsat earth stations, and by 328 mobile satellite terminals in the Inmarsat and Eutelsat systems.



Photos.com



Olga Figurska

Information society strategies

According to the Organisation for Economic Co-operation and Development (OECD), Turkey has the fastest growing economy among its members. However, the Turkish Government recognizes that, in order to survive and thrive in a globalized environment that depends on information, rapid changes are required in organizational structures and ideas. As Turkey's State Planning Organization (SPO) says, these will include "the redefinition of the government's organization, work and decision-making processes; and development of learning systems, technical and legal infrastructure, and economic policy tools in accordance with the needs of the information society."

To be successful, these efforts need coordination, SPO says, and projects should have concrete goals and be prioritized according to the needs of society as a whole. Thus, promoting access to ICT is listed as one of the most significant initiatives under the "Urgent Action Plan" that has been formulated by the Turkish Government to remedy problems in such areas as financial stability, public management, agriculture, and manufacturing. Under the plan, the *e-Transformation Turkey Project* provides a coordinating mechanism for improving ICT, under the auspices of a newly established Information Society Department at SPO. Public institutions, as well as relevant non-governmental organizations (NGO), are recognized as affiliates to the project.

In addition, an Information Society Strategy has been developed. According to SPO, the aim of the strategy is to facilitate "Turkey's transformation from a labour-intensive society to an information society, and from a traditional economy to a knowledge economy." ■



Murat Cokal

Turkey plans to transform itself from a traditional economy to a knowledge economy

Strategies to deliver success

Since the Marrakesh Plenipotentiary Conference in 2002, many developments have occurred in telecommunications and the broader environment for information and communication technologies (ICT) that have significant implications for ITU. How should it respond? This question is addressed in the draft Strategic Plan.

As reform efforts continue in ITU with respect to achieving results-based budgeting, the Strategic Plan has become an important tool in guiding the Union's activities. It is an essential element in a linked planning process that includes ITU's Financial Plan and Operational Plans. So it is critical that the Strategic Plan be developed with these linkages in mind — especially the requirement for a balanced budget. In Antalya, the Plenipotentiary Conference is expected to consider and approve the draft Strategic Plan for the period 2008–2011, developed by the ITU Council.

Rising to the challenge

The draft plan highlights the continuing challenge that faces ITU: how to remain a pre-eminent inter-governmental organization where Member States, Sector Members and Associates can work together to enable the growth and sustained development of telecommunications and information networks, and to facilitate universal access so that people everywhere can participate in, and benefit from, the emerging information society.

According to the draft plan, there are three factors which ITU must consider in order to rise to this challenge. One is the need to engage representatives of new actors in its work (this relates to the potential inclusion of civil society organizations in ITU activities — a matter to be discussed at Antalya). Another is the need to raise public awareness of ITU's mandate, role

and activities as well as achieve “broader access to its resources for the general public and other actors involved in the emerging information society”. The third factor is “the need to make optimal use of the scarce financial and human resources available for the Union's activities.”

One of ITU's more important activities in the coming years is its role, as part of a multi-stakeholder process, in the follow-up and implementation of the relevant outcomes of the World Summit on the Information Society (WSIS). At the summit's first phase in Geneva in 2003, world leaders issued a *Declaration of Principles and Plan of Action*. The second phase saw them adopt the *Tunis Commitment* and the *Tunis Agenda for the Information Society*. The 11 “action lines” in the Geneva Plan of Action set forth key elements for building the information society. And an annex to the *Tunis Agenda* provides an indicative list of possible moderators/facilitators for each action line (see table on page 18).

ITU is named as sole moderator/facilitator for two of the action lines (ICT infrastructure and cybersecurity). In addition, ITU, alongside the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the United Nations Development Programme (UNDP), has been tasked to play a leading facilitating role in implementing the Plan of Action. The draft Strategic Plan underlines that special attention should be given to the two WSIS action lines for which ITU has been named sole moderator and facilitator, in addition to those in which it has been named as partner.

The draft plan lays out seven strategic goals that should allow ITU to achieve its main mission of enabling and fostering growth and sustained development of telecommunications and information networks, and facilitating universal access to them (see page 10).

Strategic goals

Goal 1

Maintaining and extending cooperation among all Member States, and with relevant regional organizations, for the improvement and rational use of information and communication infrastructure of all kinds, taking the appropriate leading role in United Nations system initiatives on ICT, as called for by the relevant outcomes of WSIS.

Goal 2

Assisting in bridging the digital divides in ICT, by facilitating interoperability, interconnection and global connectivity of networks and services, and by playing a leading role in the follow-up and implementation of the goals of WSIS.

Goal 3

Widening the Union's membership, facilitating participation of an increasing number of administrations and organizations, as well as new actors.

Goal 4

Developing tools to promote confidence among users of ICT and safeguard the efficiency, security, integrity, and interoperability of networks.

Goal 5

Continuing to improve the efficiency and effectiveness of ITU's structures and services and their relevance to the requirements of the membership and the wider global community.

Goal 6

Disseminating information and expertise to assist the membership (particularly developing countries) and the wider community to use the opportunities provided by private-sector participation, competition, network security, and technological innovation in ICT.

Goal 7

Promoting an enabling environment that assists governments in fostering supportive, transparent, pro-competitive and predictable policies, as well as legal and regulatory frameworks that provide appropriate incentives for investment in, and development of, the information society.



Responding to the changing environment

The background to the strategic goals set in the draft plan is the constantly changing environment. Central to these changes is the convergence of technological platforms for telecommunications, information delivery, broadcasting and computing, as well as the deployment of common network infrastructure for multiple communication services and applications. The internet and internet protocol (IP)-based platforms and related services also continue to grow, albeit unevenly across countries. And national and regional IP-based backbone networks are increasingly being deployed.

Wireless and mobile radiocommunications too are developing rapidly and converging with both fixed lines and broadcasting services. And in the future, the digital revolution could enter an entirely new dimension, with the development of ubiquitous networks and pervasive computing, based on technologies such as radio-frequency identification (RFID) and sensor networks. These technologies are emerging as vehicles for creating new services and applications and are expected to dramatically enhance efficiency. For example, mundane tasks will become increasingly automated. Not only will this have important implications for society and individual lifestyles, but also for business strategy and policy priorities.

Meanwhile, service providers and equipment manufacturers are making huge investments in developing standards for next-generation networks (NGN).

All of these changes underline the need for rapid development of market-driven, high-quality, international standards in line with the principles of global connectivity, openness, affordability, reliability, interoperability and security.



Getty Images



Siemens



Télécoms Sans Frontières

Infrastructure gaps and the digital divide

The growing awareness of the role of ICT as a tool for the overall development of society and the recognition that robust telecommunication infrastructure is fundamental to building the information society are noted in the draft plan, which adds that "the private sector should be encouraged to uphold its corporate social responsibility."

There are still significant differences and shortages, within and among countries, in the deployment of ICT infrastructure and in people's capacity to access it (the digital divide). Cost is cited in the draft plan as one of the causes of this problem.

Universal access

The draft plan underscores the need to recognize the principles of universal and non-discriminatory access to ICT for all nations, while taking into account the level of social and economic development of each country. It stresses that the development-oriented aspects of the information society must be respected. Furthermore, ICT must be seen as an effective tool for promoting peace, security and stability, as well as for enhancing democracy, social cohesion, good governance and the rule of law at national, regional and international levels. ICT can also be used to promote economic growth and enterprise development. To achieve these objectives, infrastructure development, human capacity building, information security and network security are critical.

Security issues

The draft plan recognizes the need to effectively confront challenges resulting from the use of ICT for purposes that threaten international stability and se-

curity, or which could adversely affect the integrity of a country's infrastructure to the detriment of its security. It highlights the importance of preventing the abuse of information resources and technologies for criminal and terrorist purposes, while at the same time respecting human rights.

Regulation

The plan notes that there is a trend towards separating operational and regulatory functions and the creation of independent telecommunication regulatory bodies (especially in developing countries), as well as a growing role for regional organizations. This, it says, will help ensure the consistency and predictability of regulatory frameworks and encourage capital investment. But at the same time, the trend in a number of Member States to regulate telecommunications with less reliance on sectoral regulation in competitive markets is generating different challenges for policy-makers and regulators.

Liberalization and competition

Also noted in the draft plan is the continuing liberalization of telecommunication markets. Increased competition arises, too, from the delivery of audio-visual services and applications over a wide variety of new platforms, including both fixed and mobile networks.

Emergency communications

With particular regard to the WSIS action lines, the plan says that the effective use of modern telecommunications and ICT should be encouraged during emergencies as a crucial part of disaster early warning, mitigation, management and relief strategies.

Carrying out ITU's overall mission

The general goals of ITU are achieved through the activities of the Plenipotentiary Conference, the Council, conferences, assemblies, and the three ITU Sectors, all supported by the General Secretariat. In the pursuit of its overall mission of connecting the world, the Union's three Sectors are tasked with ensuring the efficient use of the radio spectrum, developing open and non-discriminatory standards, and promoting equitable and sustainable access to ICT. They are supported in their mission by the work of their respective Bureaux and the General Secretariat. The various mission statements and objectives are detailed in the draft Strategic Plan for 2008–2011. Here is a summary of the main points:

Radiocommunication Sector (ITU-R)

This Sector's main mission is to ensure "the rational, equitable, efficient and economical use of the radio-frequency spectrum by all radiocommunication services, including those using satellite orbits, and to carry out studies and approve Recommendations on radiocommunication matters." ITU-R has five objectives listed in the draft plan:

- Promote, foster, and ensure cooperation and coordination among all Member States in decision-making on radiocommunication issues, with participation of Sector Members and Associates, as appropriate.
- Meet the requirements of the membership for spectrum, orbit access and operations in the light of the growing convergence of radiocommunication services.
- Produce recommendations on radiocommunication services to achieve connectivity and interoperability in the application of modern ICT.

- Respond to needs of the membership by disseminating information and know-how on radiocommunication issues by publishing and distributing relevant materials.
- Provide support and assistance to the membership (mainly to developing countries) on radiocommunication matters and ICT network infrastructure and applications, in particular with respect to bridging the digital divide; gaining equitable access to the radio-frequency spectrum and to satellite orbits, and providing training and training materials for capacity building.

Telecommunication Standardization Sector (ITU-T)

The mission of ITU-T is to provide "a unique worldwide venue for industry and government to work together to foster the development and use of open, interoperable, non-discriminatory and demand-driven international standards that take into account the needs of users, in order to create an environment where users can access affordable services worldwide regardless of underlying technology, particularly in developing countries." The Sector has seven main objectives:

- Develop and publish the required global standards in a timely fashion.
- Identify relevant areas for future standardization projects to be initiated within ITU-T, while remaining aware of the ongoing work in other standards bodies and cooperating with them as appropriate in order to reduce duplication and avoid inconsistencies and ensure that the work of ITU-T creates added value.



Tibor Fazakas



Siemens



EyeWire

- Provide the most efficient, attractive and effective forum for the development of international standards consistent with the needs and interests of the membership.
 - Promote awareness of the value of ITU–T so as to attract increased membership.
 - Respond to the needs of the membership and others by disseminating information and know-how through the publication and distribution of relevant materials.
 - Cooperate and collaborate with other ITU Sectors, standardization bodies and relevant entities.
 - Provide support and assistance to the membership (mainly to developing countries) on standardization matters and ICT network infrastructure and applications, in particular with respect to bridging the digital divide, and provide training and training materials for capacity building.
- Telecommunication Development Sector (ITU–D)**
- ITU–D's mission is to be “the pre-eminent” promoter and catalyst for telecommunication/ICT development, acting as the bridge between relevant partners involved in ICT. The aim is to foster equitable and sustainable access to innovative and affordable services, especially in developing and least developed countries. The Sector has seven main objectives in the draft plan:
- Organize and strengthen cooperation among ITU–D Members and between ITU–D and other stakeholders, reflecting the relevant outcomes of WSIS.
 - Foster an environment that promotes the development of telecommunication and ICT networks and services (in particular in the policy, legal and regulatory domains), taking into account a rapidly developing ICT environment and technology.
 - Support the identification of relevant projects and promote investment in them from telecommunications or ICT ventures, and nurture public-private partnerships, where appropriate.
 - Respond to the needs of the ITU–D membership by disseminating relevant information and know-how, including information relating to the implementation of WSIS outcomes.
 - Support the implementation of global, regional and other relevant initiatives and projects (including those relating to rural and remote areas, indigenous communities and small island developing States) that will facilitate the deployment and operation of telecommunication and ICT networks and services and foster secure, sustainable and affordable access to them.
 - Assist developing countries (particularly least developed countries, countries with economies in transition and small island developing States), in building human, institutional and organizational capacity through human resource development and dissemination of information on ICT development.
 - Undertake economic, financial and technical studies on questions related to the development of telecommunications and ICT, in conformity with the terms of reference of ITU–D study groups and in close coordination and cooperation with ITU as a whole, and disseminate the results.



The General Secretariat

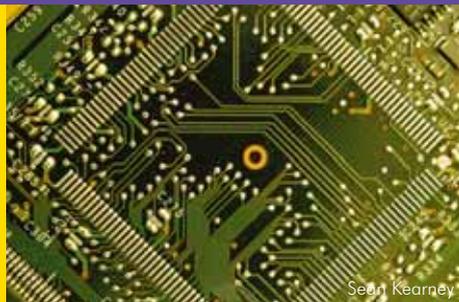
The mission of the ITU General Secretariat is to provide accurate, timely and efficient services to the membership of the Union and to coordinate and support the activities of its three Sectors. This is mainly achieved through providing conference services, centralized common services, information services, legal services, financial planning and cost control and human resource management, as well as services delivered directly to the membership such as TELECOM events. The General Secretariat has the following main objectives outlined in the draft plan.

- Provide the membership, the Council and the Plenipotentiary Conference with information on the ITU budget, programmes and activities and their financial implications, including the thorough application of the principles of cost-recovery and the identification of new sources of funding.
- Progressively improve the efficiency of the Union's operations by proposing to the Council a sound and balanced budget; by ensuring financial accountability (including the implementation of a results-based approach with appropriate feedback mechanisms); by effective and efficient management of conferences and meetings; by cost-effective provision of information services, enhanced security, infrastructure and facilities; by effective management of human resources, and, where appropriate, by outsourcing.
- Facilitate the coordination of activities among the three Sectors in their external relations and corporate communications and where work programmes overlap or are related, so as to ensure that the membership benefits from the full complement of expertise available within the Union.

- Assist the membership in the areas of strategic planning and policy development by preparing papers and reports tracking trends in the global telecommunication environment, including relevant WSIS outcomes.
- Further enhance international cooperation and develop innovative mechanisms for such cooperation, and act as the depository of international treaties and agreements.
- Improve the exchange of information among the membership and promote the Union's activities so as to increase membership; encourage the use of ITU products and services, and raise the overall visibility of the Union within the ICT industry and the international community as whole.

Strategic synergy

The importance of creating synergy among all these areas of ITU is also strongly emphasized in the draft Strategic Plan. To achieve its overall objectives, the whole of ITU has to work together as more than the sum of its parts. ■



Balancing the books

A fundamental task for the Plenipotentiary Conference in Antalya is to approve ITU's Financial Plan for 2008–2011, covering two biennial budget periods. The main purpose of the plan is to provide enough resources to achieve the objectives set forth in the ITU Strategic Plan (see pages 9–14), while striking a balance between anticipated expenditure and estimated income. This is a key factor in implementing “results-based” budgeting as part of an integrated planning process aimed at bringing efficiency gains to ITU's activities. Both the strategic and the financial plans are based on a set of mandatory outputs, defined as final products or services to be delivered. These plans represent a major reform in the operational set-up of ITU, and were prepared by a working group set up by the Council.

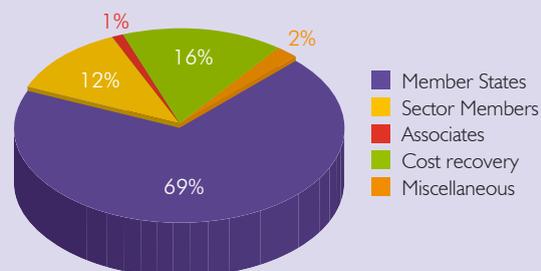


Sanja Gjenero

Where the funds come from

ITU's main sources of income are the contributions from its Member States, Sector Members and Associates, made under a free choice system. As shown in Figure 1, Member States contribute 69 per cent of the Union's total income, with Sector Members contributing 12 per cent. The rest comes from Associates (1 per cent), cost recovery (16 per cent) and miscellaneous sources (2 per cent). ITU's current membership consists of 191 Member States, 645 Sector Members and 132 Associates.

Figure 1 — Where the money comes from



Source: ITU

More work, less money

Having led the successful process of the World Summit on the Information Society (WSIS), ITU has been given an important role in implementing many of its outcomes. The Doha Action Plan agreed at the World Telecommunication Development Conference (WTDC) in March 2006, as well as the decisions reached in June this year by the Regional Radiocommunication Conference (RRC-06), have also increased the workload of the Union. These events gave ITU new tasks that are over and above those covered by existing resources.

Since 2000, ITU has implemented efficiency measures that have resulted in savings of more than CHF 75 million. In particular, drastic cuts have been made in expenditure since the last Plenipotentiary Conference in Marrakesh in 2002 — but the trimming has been accompanied by additional demands. Can even more work be accomplished with less money? If not, what should be the priorities of ITU so that it can remain a viable and dynamic organization at the forefront of technological and policy developments in telecommunications and information and communication technologies (ICT)?

Options on the table

Fundamental to the preparation of the Financial Plan is the determination in Swiss Francs of the contributory unit payable by Member States. At its annual session in April 2006, the Council set the provisional value of the contributory unit at CHF 318 000 (or zero nominal growth), and did not change the ratio of the unit paid by Sector Members. Over the last ten years, however, the contributory unit has fallen from CHF 334 000 in 1997 to CHF 318 000 now. Expressed in real-term values as of January 2006, this amounts to an erosion of 14 per cent over the period 1997–2007.

The draft Financial Plan being presented to the conference shows a significant gap between projected income and the estimated necessary expenditure to implement the full programme of ITU's activities as requested and mandated by its membership. Provisional income estimates for 2008–2011 are CHF 628.9 million, whereas the expenditure level is estimated at CHF 662.2 million.

At its meeting in September 2006, the Council working group on the draft Strategic and Financial Plans was unable to reach final agreement on how to balance the books. So, two options are proposed in the draft Financial Plan:

Option 1

The contributory unit is unchanged at CHF 318 000 and the ratio payable by Sector Members remains at 1/5 of this amount (CHF 63 600). This would leave a shortfall of CHF 33.3 million.

Option 2

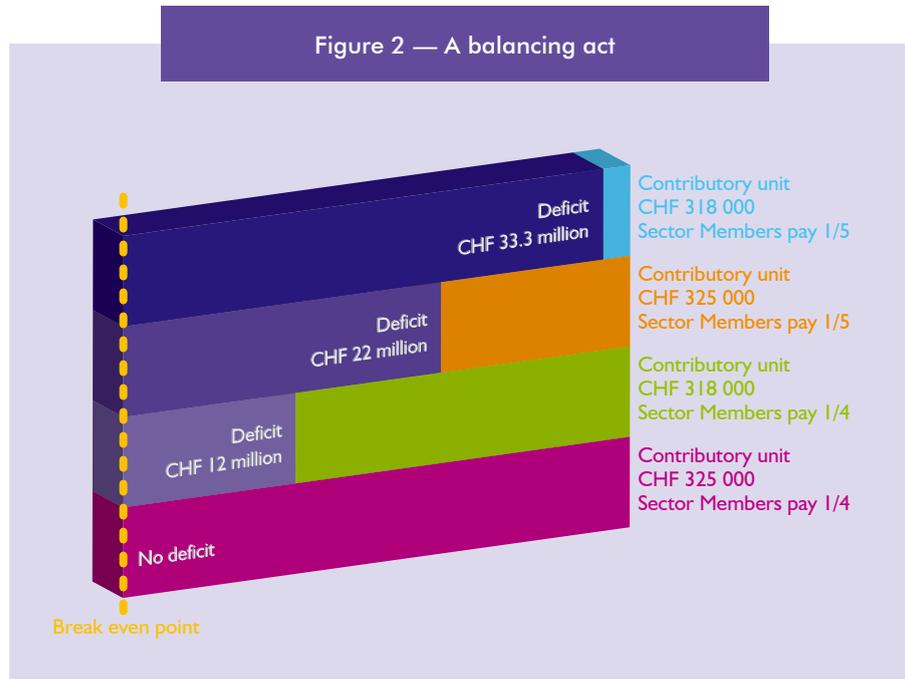
The contributory unit is unchanged at CHF 318 000 and the ratio payable by Sector Members is raised to 1/4 of this amount (CHF 79 500). This would leave a shortfall of CHF 12 million.

In "option 2", the proposal to increase from 1/5 to 1/4 the ratio of the contributory unit payable by Sector Members is based on several arguments. One is that many changes have occurred in the telecommunication sector since 1982 when the current unit ratio of 1/5 was established. Another is that Sector Members' rights have increased substantially since then, and this should carry enhanced financial responsibilities. For example, Advisory Groups have been established at which Sector Members work alongside Member States in developing the budget and operational plans of the Sectors. Under current funding arrangements, it is argued that, Sector Members' contributions are not even covering the direct costs of their participation in Sector activities.



Sanja Gjenero

Figure 2 — A balancing act



Breaking even

If the Plenipotentiary Conference decided to raise the contributory unit to CHF 325 000 (or zero real growth), and kept the ratio of 1/5 payable by Sector Members, the deficit in ITU's finances would be around CHF 22 million. If the ratio were to increase to 1/4, ITU would just about break even (see Figure 2).

In a document to be presented to the Plenipotentiary Conference, the Secretary-General offers further suggestions that he believes would help to close the gap in the budget and give his successor some flexibility for starting new initiatives to increase ITU's relevance and ensure its future role. The document is entitled "Meeting the shortfall in the ITU Financial Plan, 2008–2011".*

Finding a balance

The challenges facing the Union are significant. The draft Strategic Plan calls upon ITU to play a leading role in the follow-up and implementation of the WSIS goals. High-priority outputs have also been assigned to ITU's three Sectors and to the General Secretariat, all of which have only the bare minimum of resources needed to achieve these objectives. Any further reduction would result in activities being shelved.

If ITU is to achieve the shared vision of its members and retain its pre-eminence in telecommunications while broadening its mandate to cover new developments in ICT, resources will need to match expected results. This calls for a fine balancing act. It will be up to the conference in Antalya to make the necessary decisions to ensure that ITU continues to provide its fundamental services, while also fulfilling the important new roles it has been given at the dawn of the information society. ■

* This document is available to TIES account users at:
<http://www.itu.int/plenipotentiary/2006/pd/non-papers/Non-Paper2-Fin.pdf>

ITU in the wake of WSIS

What is the appropriate role for ITU in the overall implementation and follow-up of the World Summit on the Information Society (WSIS)? What changes might be required to ITU's Constitution and Convention, as well as to its name and work programmes, to accommodate the WSIS outcomes? What would be the possible benefits and risks, as well as the resource implications, of a new name for ITU to show how it is adapting to the changing environment? These are some of the questions that the ITU membership has been asking in the wake of WSIS.

Different regions have put forward their viewpoints to the 2006 Plenipotentiary Conference in the form of "common proposals." The ITU Council Working Group on WSIS (WG-WSIS) has also held meetings to share views on the way forward, and will present a report to the conference on how ITU has assisted the WSIS process over the last four years.

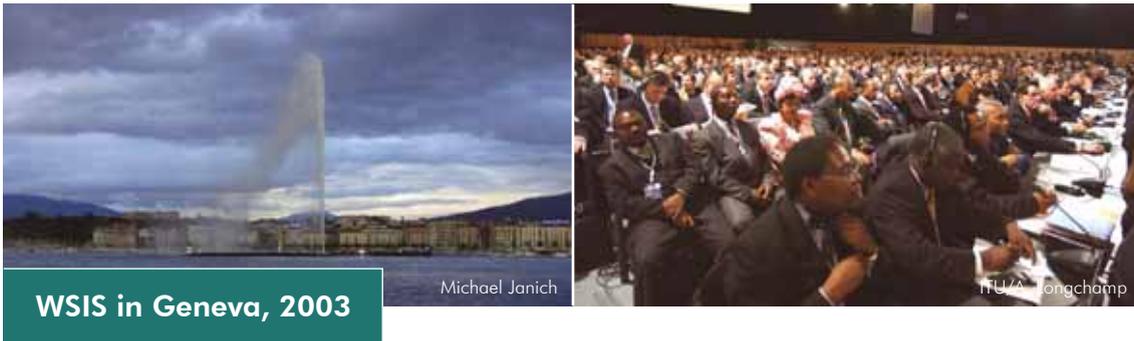
WSIS was conducted in two phases, at Geneva in 2003 and in Tunis in 2005. ITU was named as the lead facilitator for two action lines of the Geneva Plan of Action and as a partner in other action lines, as shown in the table.

The eleven WSIS action lines

Action line	Possible moderators/facilitators*
1. The role of public governance authorities and all stakeholders in the promotion of ICT for development	ECOSOC/UN Regional Commissions/ ITU
2. Information and communication infrastructure	ITU
3. Access to information and knowledge	ITU /UNESCO
4. Capacity building	UNDP/UNESCO/ ITU /UNCTAD
5. Building confidence and security in the use of ICT	ITU
6. Enabling environment	ITU /UNDP/UN Regional Commissions /UNCTAD
7. ICT applications	
• E-government	UNDP/ ITU
• E-business	WTO/UNCTAD/ ITU /UPU
• E-learning	UNESCO/ ITU /UNIDO
• E-health	WHO/ ITU
• E-employment	ILO/ ITU
• E-environment	WHO/WMO/UNEP/UN-Habitat/ ITU /ICAO
• E-agriculture	FAO/ ITU
• E-science	UNESCO/ ITU /UNCTAD
8. Cultural diversity and identity, linguistic diversity and local content	UNESCO
9. Media	UNESCO
10. Ethical dimensions of the information society	UNESCO/ECOSOC
11. International and regional cooperation	UN Regional Commissions/UNDP/ ITU /UNESCO/ECOSOC

* The list of possible facilitators/moderators is indicative and non-exhaustive.

Source: Annex to the Tunis Agenda for the Information Society.



Expanding ITU's scope and mandate

A proposal from countries in the Regional Commonwealth in the Field of Communications (RCC) stresses that in the wake of WSIS, the scope and mandate of ITU need to be expanded "far beyond the confines of the traditional concept of telecommunications" if it is to remain "a vibrant, adaptive organism." The proposal underlines that "the basic instruments of the Union no longer fit the realities of the environment and the challenges of today."

A similar view is expressed by a group of African countries in a proposal highlighting the need to broaden the mandate of ITU to reflect the responsibilities it has received as a result of WSIS. These countries go on to suggest that a working group of the Council should be established to propose the necessary amendments to the ITU Constitution and the Convention. RCC countries too propose the setting up of a similar group to focus on "adapting the Union for the implementation of WSIS outcomes."

Implementing action lines

A European common proposal advocates "a structured and focused approach" to implementing the WSIS action lines. In a draft resolution to the conference, European countries state that ITU's resources and expertise should be used in a way that takes account of the WSIS outcomes and of the rapid changes in the telecommunication world. They acknowledge that "ITU is competent under its mandate to work on a range of new challenges facing the information society, including spectrum management and standards in a converged telecommunication environment, and all manner of matters concerning the integrity, functioning and security of infrastructure, networks, services and applications, including helping to counter spam." But they also underline that in order to achieve the best results in implementing WSIS action lines, "ITU must review its own functioning and management practices so as to be able to deploy its expertise in telecommunications globally."

They point to the need to ensure that any work undertaken with regard to WSIS implementation "is appropriately resourced and, in particular, that there is adequate funding." They emphasize that the ITU membership from the private sector is "essential to the success of the Union in meeting its goals."

Asia-Pacific countries declare that it is now time to move towards implementation, making sure that commitments reached at WSIS are realized in an effective way. They note the high priority attached to the implementation of WSIS in the draft strategic and financial plans for 2008–2011, which will be considered by the conference. They propose that to achieve the goals of WSIS by the target year of 2015, it is necessary to set objectives and deadlines now.

For these countries, ITU "should therefore develop a concrete plan for implementing the WSIS outcomes and for ensuring their successful implementation."



A new name for ITU?

Some regions have put forward proposals to the conference arguing in favour of a name change for ITU. For RCC countries, ITU's name should reflect its broader perspective as a result of WSIS and they suggest that the term "infocommunication" should replace "telecommunication" (although the acronym "ITU" should not be changed). They define infocommunication as meaning "the reception/storage/processing and transmission of information using public facilities without any change in location of the physical carrier." As regards ITU, they do not wish the term to include questions of intellectual property or content.

The Arab States say that ITU should be known as the "International Telecommunication and Information Technology Union," reflecting the results of WSIS. They add that amendments to ITU's Constitution or Convention (and other relevant texts) might be required, because of the "additional executive responsibilities in relation to the WSIS Plan of Action falling within the purposes of the Union, including the use of telecommunications for disaster early warning and disaster relief." Amendments might also be needed in order to include a clear definition of the term "information technology," the proposal states.

However, countries from the Asia-Pacific region believe that there should be no change of name for ITU. They say that "telecommunication" is "the most appropriate and useful descriptor of the ITU's mandate." They add that this "does not limit the significance or scope of ITU's competence" because "telecommunication" is "a very broad and inclusive term that covers all the network-related aspects of information and communications technology." The Asia-Pacific countries further point to the costs of implementing a change of name, and argue that "changes in names and language should reflect actual ITU roles and not set out new areas of activity that remain controversial."

The Council Working Group on WSIS

WG-WSIS met ten times during the past four years to guide ITU's strategy regarding the World Summit on the Information Society. At its most recent meeting in September 2006, some members said that the ideal time had arrived to update the name, scope and mandate of ITU, in order to reflect the outcomes of WSIS and to refresh ITU's public image. Others felt that the Union's mandate is already broad enough to incorporate other aspects of information and communication technologies

and to respond to the changing environment. Also, not all the group's members were convinced of the merit of changing ITU's name, fearing that it would risk diluting the "brand image" that ITU has established through the WSIS process. They added that the financial implications of a name change would require further study.

Another focus of discussion at WG-WSIS was how to enhance the participation of civil society in ITU's implementation of WSIS goals. The group as a whole agreed on "the desirability of engaging civil society in ITU's work" and wanted to find ways to encourage this. Some members thought that a specific category of observer status at ITU should be created for civil society organizations, but others said that these organizations can already be accommodated within the existing framework of Associates and Sector Members.

In the end, WG-WSIS developed a draft resolution recommending that "in order to further enhance the participation of civil society entities and organizations in ITU activities, it is necessary to conduct a study, taking into account existing practices in other UN entities." The draft resolution will be considered by the Plenipotentiary Conference in Antalya, along with the group's report. ■

Should the way ITU's top management is chosen be reformed?

Unlike other United Nations agencies, ITU has five top elective posts: Secretary-General, Deputy Secretary-General and a Director for each of its three Bureaux dealing with radiocommunications, standardization and development. All five are elected at Plenipotentiary Conferences. Given the complexity and rapid evolution of today's telecommunication environment, however, some ITU members are questioning whether the Union's leadership should continue to be chosen in this way.

Calling for change

One of the European Common Proposals to the Plenipotentiary Conference calls for "the appointment rather than election of the Directors of Bureaux". It states that "the large number of elected officials in ITU, in contrast to most UN agencies, adds complexity to the management of the Union and compromises its efficiency". According to the proposal "the existing arrangement of five elected officials politicizes the management of the organization, and creates a lack of clarity as to who is accountable for resolving problems of concern to Member States." A draft resolution says that these officials "should be appointed according to usual United Nations practice," and that

"the Secretary-General and Deputy Secretary-General should be the only officials elected."

While recognizing that methods for selecting the Directors of Bureaux, duration of their tenure and other matters will need to be resolved, the proposal from 16 European nations stresses that "appointments should be made on the basis of fair tendering for jobs, with candidates selected on merit and taking into account the desirability of equitable geographic representation." As well as cutting the time and resources needed for elections, the new approach, they say, would have "many advantages," including clarification of the responsibilities of the Secretary-General regarding the management of the Union.

The European countries propose that a group of Member States and Sector Members should be set up to consider the process by which the Directors of the Bureaux could be selected and appointed. The group would report its conclusions in time for preparations for the next Plenipotentiary Conference.

Keeping the status quo

Fourteen African countries state that they are in favour of retaining "the current federal structure of five elected officials of the Union". They say that the current structure "gives

a fair opportunity for geographical regional representation" and that it "does not concentrate power in one office of the Union."

A similar position is expressed by 11 countries in the Regional Commonwealth in the Field of Communications. They say the existing ITU structure and number of elected officials should remain unchanged, arguing that it "ensures the necessary balance, including in geographical terms, and democracy in the management and direction of the Union". According to these countries, "the existing provisions of the Constitution and Convention on the ITU structure afford both the Secretary-General and the Sectors sufficient flexibility to improve their working methods and procedures."

Exploring the possibilities

Looking at these divergent views on how to select ITU's top management, countries in the Asia-Pacific region suggest that all options should be studied by a group of experts open to ITU Member States. Like the European proposal, the Asia-Pacific countries want such a group to report its findings in time for preparations for the 2010 Plenipotentiary Conference. ■



Daniel Tan

Thorfinn Stainforth

Télécoms Sans Frontières

Emergency telecommunications

The importance of ratifying a life-saving treaty

In recent times, the Asia-Pacific region has experienced some of the world's biggest natural disasters, which caused colossal damage and loss of life. Among these was the earthquake in Pakistan in October 2005, when rescue and relief operations were drastically hampered because "telecommunication infrastructure was severely damaged and distribution networks almost perished," according to a group of 13 Asia-Pacific nations. They say that such problems could be alleviated by countries implementing the Tampere Convention on cross-border emergency telecommunications, and they have put forward a proposal to the Plenipotentiary Conference calling for ratification of the treaty as rapidly as possible.

In 1998, an Intergovernmental Conference on Emergency Telecommunications was held in Tampere, Finland. It resulted in the *Tampere Convention on the Provision of Telecommunication Resources for Disaster Mitigation and Relief Operations*, and ITU was one of the organizations at the forefront in

drafting the document. The Convention provides the legal framework for the cross-border use of telecommunications in international humanitarian assistance. It also protects providers of telecommunication assistance while safeguarding the interests of the disaster-hit country. The Convention came into force on 8 January 2005, following its ratification by 30 States just two weeks after the massive Indian Ocean tsunami in December 2004. Since then, however, only a few more countries have ratified the treaty.

A proposal from 22 European countries also says that ITU should play an active role in promoting the ratification and implementation of the Tampere Convention. It underlines that "a wider understanding and cooperation between governments is needed" in order to foster the practical implementation of what they call the "life-saving treaty."

Both the Asia-Pacific and the European proposals want an amendment to Resolution 36 on *Telecommunications in the service*

of humanitarian assistance. Now that the Tampere Convention has entered into force, the European countries say that the Resolution should be updated to look into the reasons for the Convention's "low rate of ratification, the impediments to its implementation and how to speed up the ratification process." For the Asia-Pacific group of countries, Resolution 36 should now emphasize that the ITU membership should "work towards accession to the Tampere Convention as a matter of priority."

The European countries say that this is of great importance because of "the seriousness and magnitude of potential disasters that may cause dramatic human suffering." They note that "reliable telecommunication links are indispensable at every level of disaster management," and the Tampere Convention "is an international tool for ensuring fast communication in disasters." The more widely it is ratified and implemented, the more lives are likely to be saved. ■

Strengthening ITU's regional presence

As well as headquarters in Geneva, ITU has regional offices covering Africa, the Americas, the Arab States, the Asia-Pacific region, and Europe and the Commonwealth of Independent States (CIS). Their purpose is to support ITU's development activities in the field and to act as links for disseminating information on the work of the Telecommunication Standardization and Radiocommunication Sectors.

One of the Inter-American Common Proposals to the Plenipotentiary Conference focuses on ITU's regional presence. The nine countries which have put forward this proposal say that the ITU Council should establish a group of experts "to assess the efficiency and effectiveness" of such matters as the location, structure, functions and management of the regional offices, as well as their responsibilities and relations with other organizations. The group would make recommendations for action to the 2007 Council session.

The Inter-American proposal says that the overall goal is to ensure a well-coordinated regional presence working in close collaboration with the ITU headquarters, as well as with regional telecommunication organizations and other international organizations, "with a view to optimizing the use of scarce resources and avoiding duplication of effort".

Asia-Pacific countries stress that "ITU's regional activities provide important assistance and are, in some ways, the only opportunity countries of the region have to participate in the work of the Union." They say that, considering the rapid growth in the Asia-Pacific communications market, it is important for the Plenipotentiary Conference "to reaffirm and update the case for the importance of the regional presence."

African countries have also put forward a common proposal on this topic. They point out that in Africa, "several factors continue to hamper performance" in telecom-

munications. There is a "great need for national and institutional capacity to be strengthened," and ITU has a crucial role to play in this.

The African group emphasizes that ITU's regional offices "should be upgraded and endowed with the authority and expertise they need to meet the various needs of the Member States." It also wants to see better coordination between the offices and other regional organizations, so as to make projects more effective. To achieve these aims, an evaluation should be undertaken of ITU's regional offices around the world, "in order to propose concrete measures to be taken to strengthen their capabilities, by giving them the relevant planning and financial authority for their various programmes and initiatives." ■

ITU TELECOM WORLD 2006

A preview



TELECOM WORLD 2006 will be held at AsiaWorld Expo in Hong Kong

Three years ago in Geneva, Bill Gates chose ITU TELECOM WORLD 2003 as the place to announce Microsoft's partnership with Vodafone for developing location authentication services. Many other major contracts were launched at the same event, including one worth EUR 100 million between BT and mobile operator "3" to build networks in Ireland. And from the public sector, the European Commission announced that it would invest EUR 3.8 billion in such key areas as microelectronics, nanotechnology and e-health. As at the previous event, new technologies, new initiatives and new partnerships are expected to be launched during ITU TELECOM WORLD 2006, being staged at AsiaWorld-Expo in Hong Kong, China from 4 to 8 December.

Held every three years, the fundamental purpose of ITU TELECOM WORLD is to enable people at the leading edge of information and communication technologies (ICT) to make the right connections that will unite and improve the industry. Since being established in 1971, the event has attracted more than 800 000 visitors and over 6000 exhibitors. The list of participants this year includes the world's major companies in ICT (see box), as well as policy-makers, government ministers and regulators from 160 countries. With opportunities to launch new technology, debate industry issues, engage with developing nations and learn about the future, TELECOM WORLD is the industry's global networking platform.

What's happening at World 2006

World Forum

The Forum at WORLD 2006 will provide a programme of debate and discussion on critical issues in ICT, focusing on future trends and examining key growth areas such as new wireless services, triple play and digital content. Forum sessions will be split into three different domains: "Digital Lifestyles", "Digital Ecosystems", and "Digital Society." A number of key themes will be explored in depth during these sessions.

- **Digital content:** The quest to provide innovative digital content has brought together a whole new set of players. From broadcasters and record labels to hardware and software producers, all have a stake in the digital content industry. But what are the big opportunities in this burgeoning industry? And what are the pitfalls for new market entrants?

- **Digital home:** The digital home of the future is likely to have on-line access to the world's largest ever library, news sources and collections of movies and other entertainments — all delivered over an internet protocol-based broadband network. These homes could also have a host of computing and communication devices to monitor and modify the environment. But what challenges need to be addressed while making digital homes into a reality?
- **Multiple play:** Multiple-play services are becoming increasingly available, but many issues remain to be addressed, from pricing to regulation and content delivery.
- **Ubiquitous networks:** A society in which information can be accessed from anywhere, at any time, by anyone and anything — this concept of ubiquitous networks is being created with a raft of new technologies.

CEO round-table session

To be held on 4 December, this session brings together chief executive officers (CEO) of leading ICT companies worldwide — both vendors and service providers — that have a combined turnover of more than USD 350 billion. It offers a chance to contrast the different styles and messages of leading industry figures, whose actions are helping to translate visions of the digital world into reality. Speakers include Sanjiv Ahuja, CEO, Orange; Ki-Tae Lee, President, Samsung; Masao Nakamura, President and CEO, NTT DoCoMo; Patricia Russo, Chairman and CEO, Lucent Technologies; Carl-Henric Svanberg, President and CEO, Ericsson; Kaoru Yano, President, NEC Corporation, and Xiaio Chu Wang, Chairman and CEO, China TELECOM. The session will be moderated by Reza Jafari, Chairman of the ITU TELECOM WORLD 2006 Forum Advisory Committee and Managing Director, International, NeuStar.

Youth Forum

The Youth Forum gathers university students from all over the world who have the talent and vision to take on future leadership roles in ICT. This forum is attended by a man and a woman from each ITU Member State, and the Hong Kong event is expected to host over 250 young people from more than 150 countries. Participants will follow a challenging programme, with opportunities to meet senior members of the ICT community. This year, the Youth Forum is sponsored by China, the host country of ITU TELECOM WORLD 2006.

Taking part in TELECOM WORLD 2006

CEOs and other senior representatives of the following companies will be among the speakers at TELECOM WORLD 2006:

Accenture	Microsoft Corporation
Alcatel	Motorola
BT Wholesale	NeuStar
China Mobile	NEC Corporation
China Netcom	NTT DoCoMo
Cisco Systems	OKI Electric Industry Co Ltd
Ericsson	Orange
Hewlett-Packard Company	PCCW Ltd
Intel Corporation	Qualcomm Inc
Intelsat Ltd	Telefônica do Brasil
KDDI	Toshiba Corporation
Lucent Technologies	

Note — Speakers confirmed as at 20 October 2006.

Development Symposium

The TELECOM Development Symposium (TDS) brings together representatives from the world's least developed countries. Participants include managers working in policy-making, regulation, planning or operations in the ICT authorities of ITU Member States. The symposium at WORLD 2006 will be sponsored by Cisco Systems and focuses not just on technological issues, but also on human needs. It will examine the possibilities for deploying next-generation networks (NGN) and their potential for benefiting socio-economic development. Participants will attend workshops on the latest developments in ICT and how to apply them in their countries' own development plans.

Digital Life Theatre

The "Digital Life Theatre" has been set up to provide a stage for commercial presentations reflecting the "Living the Digital World" theme of TELECOM WORLD 2006.

It will give firms the chance to unveil their plans for products, services and innovations, and bring them to life in front of an audience of peers, legislators and potential customers. For the first time, ITU has launched a *Digital Life Theatre* competition in the run-up to the event, inviting companies to outline their visions for the future in the digital age. The competition's winners will have their multimedia presentations put on display.

TELECOM Village

The TELECOM Village lies at the centre of the exhibition floor, providing a professional environment where companies can set up their own office suites, conduct business, and network with others. It gives companies a chance to focus on business in a relaxed environment that has various restaurants, lounges and public areas where organizations can showcase their business capabilities, seal business deals and maximize their event presence.

Country and technology pavilions

ITU TELECOM WORLD has traditionally hosted pavilions from countries around the world. An important part in the overall success of the event, the pavilions provide opportunities to participate under individual country flags, allowing organizations immediate national recognition. In addition, the "nations" of Wi-MAX, the internet and G-PON (passive optical networks) will each be staging their own pavilions, to present their combined expertise on some of the world's hottest technology issues. ■

Further information about ITU TELECOM WORLD 2006, and details of how to participate, can be found on the ITU website at: <http://www.itu.int/WORLD2006/index.html>



The Exhibition at TELECOM WORLD events provides a showcase for the latest in ICT

LDCs make progress in connectivity, but challenges remain

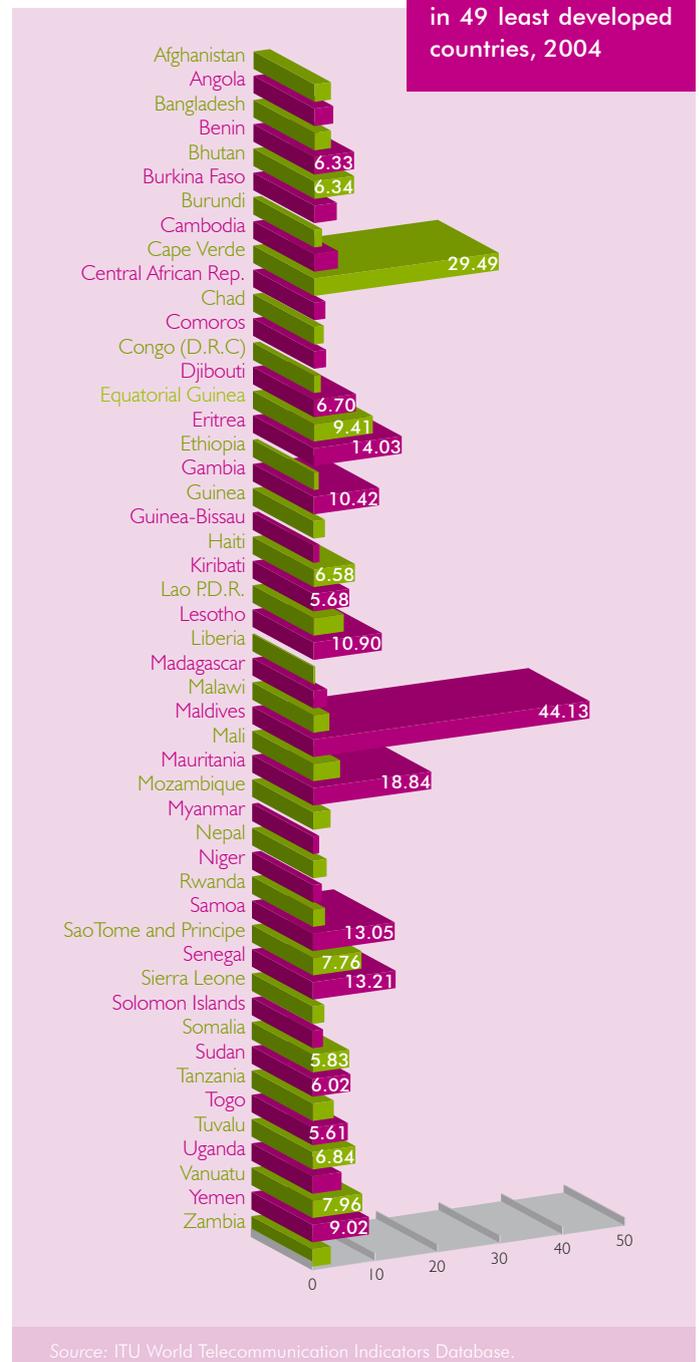
The use of information and communication technologies (ICT) in the world's 50 least developed countries (LDC) has risen significantly over the last five years, especially in mobile telephony and the internet. This is the conclusion of a new report entitled *ICT and Telecommunications in Least Developed Countries: Mid-Term Review for the Decade 2001–2010*, which was launched by ITU on 13 September 2006 at the United Nations headquarters in New York.

The report was presented to a Special Session of the United Nations General Assembly on "Integrating Least Developed Countries into the world economy through telecommunications/ICT." This was a mid-term review of the implementation of the *Brussels Programme of Action for the Least Developed Countries for the decade 2001–2010*. The programme was adopted in May 2001 at the Third United Nations Conference on Least Developed Countries, held in Brussels (Belgium).

Among the Brussels commitments on eradicating poverty were targets for improving access to telecommunications and ICT. One of the goals was for LDCs to achieve an average teledensity of 5 main phone lines per 100 inhabitants by 2010. ITU statistics show that 21 of the LDCs had met this target by the end of 2004 (see Figure 1).

LDCs that have liberalized their telecommunication markets have seen particularly high growth in ICT. In Cape Verde, Maldives and Samoa, for example, there has been an increase in foreign investment inflows that has led to network expansion and the upgrading of facilities. All three island nations depend heavily on tourism which, in part, accounts for increased demand for telecommunication services. In 2004, Maldives and Cape Verde led all the other LDCs, with teledensities of 44 and 29, respectively.

Figure 1 — Teledensity in 49 least developed countries, 2004





Mobile phones lead the way

It is the mobile sector that is having the biggest impact in LDCs. Their number of mobile subscribers grew by 82 per cent during the period 2000–2005, compared with a rise of 12 per cent in the number of fixed-line subscribers. The result is that teledensity has more than doubled in the majority of LDCs since 2000, with some of them boosting connectivity by a factor of 20. Most LDC households now have one or two mobile phones, but no fixed line. On average, 3 people out of 100 had mobile phones in LDCs in 2004,

compared to 1 out of 100 with a fixed line.

People go straight to mobile phones for a number of reasons:

- Easy connectivity and deployment of infrastructure, even in rural communities.
- Frustration at the long wait for a fixed-line connection which, in some countries, takes up to two years.
- Introduction of prepaid services that bring in users who might not otherwise qualify for a monthly subscription.
- Gradual reduction of mobile phone call charges, due to increased competition.

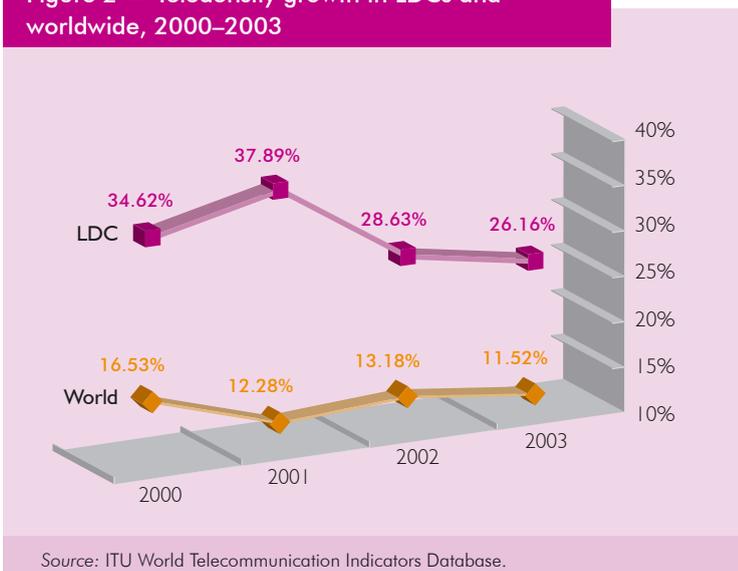
The ITU report says that, “in many LDCs, mobile prepaid services are the only means of communication for the majority of households.” Prepaid services bring mobile telephony within the reach of more customers, and they account for almost 90 per cent of the entire market in LDCs. In Afghanistan, Chad, Djibouti, Eritrea, Haiti, Somalia and Niger, all mobile

subscriptions were prepaid in the period under review.

Another important element in the expansion of ICT in least developed countries is the increased use of the short message service (SMS) via mobile phones. This means of communication is cheaper than voice calls, and is an important way to ensure that information reaches places where people do not have internet access. Mobile telephony has helped to narrow the gap in access to communications between urban and rural areas. For example in Uganda, FoodNet, a non-governmental organization, collects data on agricultural prices, which farmers can access by SMS. Similar services providing information on commodity prices are widely used in rural areas of many other developing countries.

Teledensity has been rising faster in LDCs than in the rest of the world (see Figure 2). During 2000–2003, LDCs had an average growth of 32 per cent, against 14 per cent for the world as a whole.

Figure 2 — Teledensity growth in LDCs and worldwide, 2000–2003



Internet too

Another goal of the Brussels programme is that the number of internet users in LDCs should reach ten people in every 100 by 2010. The ITU report shows that internet access has increased. Several countries have reached penetration rates of around 5 per cent, such as Maldives (5.8 per cent), Cape Verde and Togo (both 4.9 per cent), and Senegal (4.6 per cent).

Digital subscriber lines (DSL), cable modems and wireless local area networks (LAN) still have little coverage in the LDCs. Wireless fidelity (Wi-Fi) technology, which provides public broadband access through “hot spots,” also remains rare. Although most LDCs have not yet launched high-speed internet services, popular demand is encouraging more countries to upgrade from dial-up to broadband connec-

tions. For instance, by 2005, over 89 per cent of all internet subscribers in Senegal were connected via DSL technology, and 70 per cent in the Maldives. This compares with 17 per cent in Cape Verde and 2 per cent in Lao P.D.R.

By 2004, the percentage of people using the internet had caught up with fixed-line penetration in LDCs. In terms of internet penetration, Tuvalu saw an enormous rise in the period 2000–2004, reaching 30 users per 100 people, while Sao Tome and Principe achieved a penetration rate of 12 per cent. Those with the greatest number of personal computers were Bangladesh (with an estimated 1 650 000), Sudan (606 000) and Myanmar (325 000).

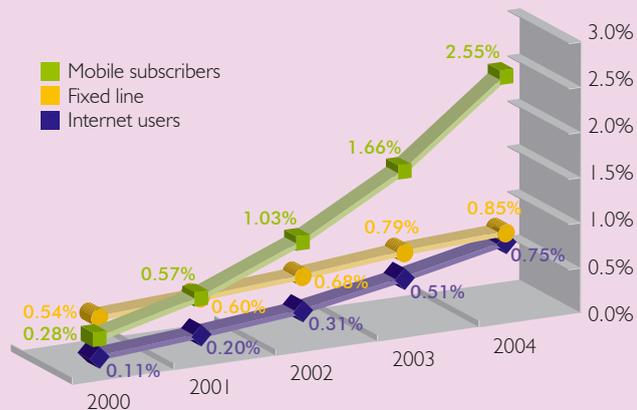
Nevertheless, internet users are still very few, as indicated in Figure 3, with only an estimated



5.5 million of the LDC population of 720 million being online in 2004. Broadband could be a method for narrowing the gap between urban and rural areas in LDCs, using such technology as Wi-MAX, which offers high-speed connectivity over a range of up to 50 kilometres. The challenge is to attract investment into areas considered to be unprofitable.



Figure 3 — Improving access to ICT



Source: ITU World Telecommunication Indicators Database.
 Note — Data for internet users in Liberia and the Democratic Republic of Congo are for 2003.



The television platform

The rising number of television sets in LDCs is likely to increase in significance as technology converges. This trend is expected to contribute to universal access, as the same medium could be used for broadcasting and interactive communications. In 2000, there were about 26 million television sets in LDCs as a whole, and by 2004 this figure had grown to 41.1 million, as shown in Figure 4. The penetration rate in 2004 was 5.72 per cent.

Challenges for LDCs

Despite making progress, the ITU report says, LDCs continue to face major challenges. Rapid developments in the telecommunication market require new strategies to be adopted. Many established policies and regulations in these countries have become obsolete, hampering ICT development. It is, therefore, important to adapt

policy and regulatory frameworks to the fast-changing environment, taking into account such trends as the convergence of ICT around internet protocol (IP) networks, as well as the emergence of next-generation networks — and the market reform that has led to increased competition in the telecommunication sector.

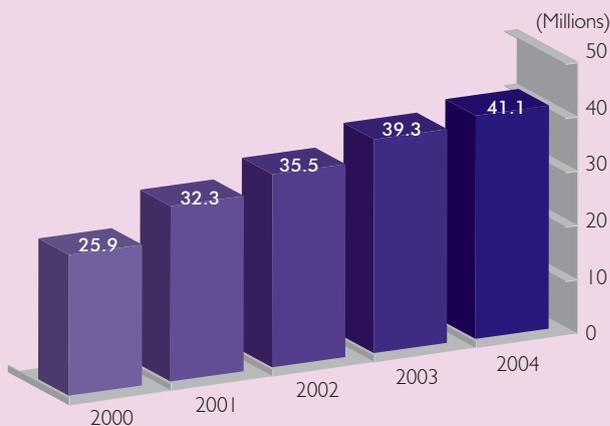
Other challenges include lack of ICT infrastructure in LDCs, as well as the high cost of international bandwidth, which has tended to limit internet penetration in these countries. As the report argues, “the norm in LDCs, for those privileged enough to afford to go online at all, is slow and unreliable dial-up”.

Help is on the way

At the launch of the report, ITU outlined activities it plans for the next five years that include assistance to at least 20 LDCs. This assistance will be in the areas of development of ICT infrastructure and introduction of new technologies; rural telecommunication development to promote universal access; implementation of projects in e-services and applications; development of appropriate legal, regulatory and policy regimes; and integration of ICT in disaster risk reduction for enhanced disaster preparedness.

The ITU report concludes that “the emergence and rapid deployment of wireless technology is going to speed up the race towards universal access in least developed countries,” and there is a good chance that the targets set by the Brussels Programme of Action will be met by 2010. ■

Figure 4 — Television sets in LDCs, 2000–2004



Source: ITU World Telecommunication Indicators Database.



Wheatstone

Bridging distance through telegraphy

Charles Wheatstone is perhaps most widely known for a device which he did not, in fact, invent: the Wheatstone bridge. Rather, he popularized practical use of an instrument developed by Samuel Hunter Christie in 1833, which Wheatstone realized could be used to measure the electrical resistance of a circuit. Nevertheless, Wheatstone was an important innovator who created the world's first public telegraph system. And to answer the question posed in September's Pioneers' Page, he was also the inventor of a popular musical instrument, the concertina.



Danny Chapman

The scientist invented the forerunner of the concertina, the "Symphonium," in 1829, and patented the concertina itself in 1844.

Charles Wheatstone (1802–1875). He was knighted by Queen Victoria in 1868.



BT Heritage

A musical background

Wheatstone was born into a musical family in 1802, in Gloucester in the west of England. After they moved to London, Charles was apprenticed in the family music shop. He helped to attract business by making an "Enchanted Lyre" which astonished customers by emitting the sounds of various musical instruments. In fact, the "telephonic" lyre was simply a sounding box suspended from a solid rod connected to instruments played out of sight on the floor above.

In 1823, Wheatstone proposed that a communications system be constructed between London and Edinburgh using sound transmitted through rods. However, it was the electrical production of signals that was to be the next focus of his research. Wheatstone became Professor of Experimental Physics at King's College, London, in 1834

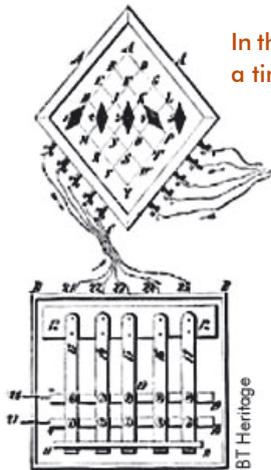
— the first person to hold that position. In the same year, he achieved fame when he made the first-ever measurement of the speed of electricity in a wire.

Schilling, Cooke and Wheatstone

There had been experiments with sending signals using electricity since the mid-18th century. Practical proposals only became possible, though, after the discovery by Hans Christian Ørsted in 1820 that an electric current can deflect a magnet. This principle was employed by Baron Pavel Lvovitch Schilling, a Russian diplomat and engineer who, in 1832, made the world's first electromagnetic telegraph, linking two rooms inside his home in St Petersburg. An Englishman, William Fothergill Cooke, heard about this invention in 1836 and became keen to commercialize it.

Cooke (1806–1879) tried designing a telegraph system, but could not make it work. He therefore proposed a partnership with Wheatstone, who could provide the scientific skills while Cooke contributed his business acumen. Wheatstone had already been working on an electromagnetic telegraph system and, in June 1837, the two men filed a joint patent in London. Their device used five needles, two of which were moved when a key completed or broke a circuit in a battery, sending electricity down the wire to an electromagnet at the other end. The deflected needles pointed to letters of the alphabet.

An experimental telegraph line, about 2.5 km long, was laid alongside railway tracks in north London. On 25 July 1837, Wheatstone sent the first message and Cooke replied. Wheatstone later recalled



In the five-needle telegraph, two needles at a time were deflected to point at a letter.



A double-needle telegraph in an ornate case, reputedly used for signaling directly to Buckingham Palace in London

that "never did I feel such a tumultuous sensation before, as when, all alone in the still room, I heard the needles click and, as I spelled the words, I felt all the magnitude of the invention pronounced to be practically beyond cavil or dispute."

Capturing a world first

The system was used to create the world's first commercial telegraph line in 1839, covering some 22 km along the Great Western Railway from London. It was extended in 1841, and the innovation was advertised as a public attraction. However, what really drew people's attention to the potential of telegraphy was the capture of a murderer on 1 January 1845. John Tawell had killed his lover, Sarah Hart, in a town near the railway. To escape, he took a train to London. He might have succeeded, had not the police used the new telegraph to signal his description to the terminus. On his arrival, Tawell was arrested. He confessed to the crime and was subsequently hanged.

Moving to Morse

The five-needle telegraph had the advantage of not requiring a skilled operator, but it needed multiple circuits and this meant higher installation and maintenance costs. Wheatstone and Cooke made the device simpler, introducing a double-needle and then a single-needle telegraph. These needed skilled operators as they used a complex code to identify letters, based on deflections of the needles. By 1848, some 1600 km of railway were equipped with telegraph wires carrying messages from London to over 200 towns and cities across the United Kingdom.

Meanwhile, in the United States, Samuel Morse and Alfred Vail had also been working on electromagnetic telegraphy since the mid-1830s. Their system first went into operation in 1844 and marked a paper tape to show when electric current — and a message — was transmitted along a single wire. The "Morse code," patented in 1840, allowed the paper "dots" and "dashes" (and later sounds) to be translated into text. This simpler code than Wheatstone's was even-

tually adopted as the international standard for sending messages.

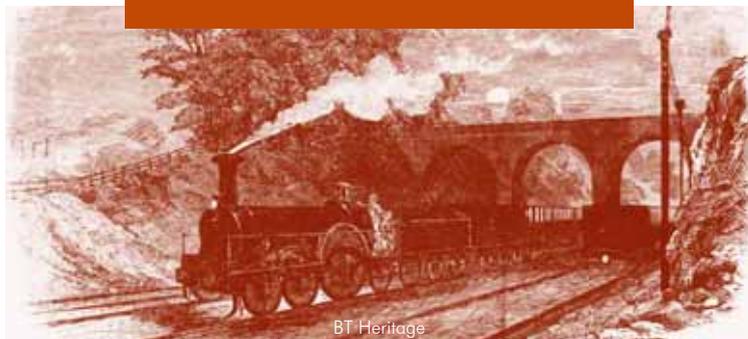
Wheatstone also studied the possibility of laying telegraph lines below the sea. In 1840, he proposed such a link between Dover and Calais, and later conducted practical experiments. He was also an expert advisor on the laying of the first transatlantic telegraph line.

A legacy for computers

In 1841, Wheatstone patented a type-printing telegraph — the first of its kind — which used electric current to make a hammer press a letter onto paper. Later, he invented the automatic transmitter, which increased five-fold the number of words that could be sent per minute in Morse code. This was done by replacing the hand of the telegraph operator with a paper tape that had the code punched into it. This passed through a mechanism that controlled signal currents. Early computer designs followed this example by using punched paper tape to input data. In this way, Wheatstone helped to link the world of telegraphy with today's information age. ■

QUESTION FOR NEXT MONTH:

What tropical tree links telegraphy and golf? Find the answer in the next *Pioneers' Page*.



The world's first telegraph line followed the railway



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