International Telecommunication Union

ITU THE VISION

Helping the world communicate

International Telecommunication Union

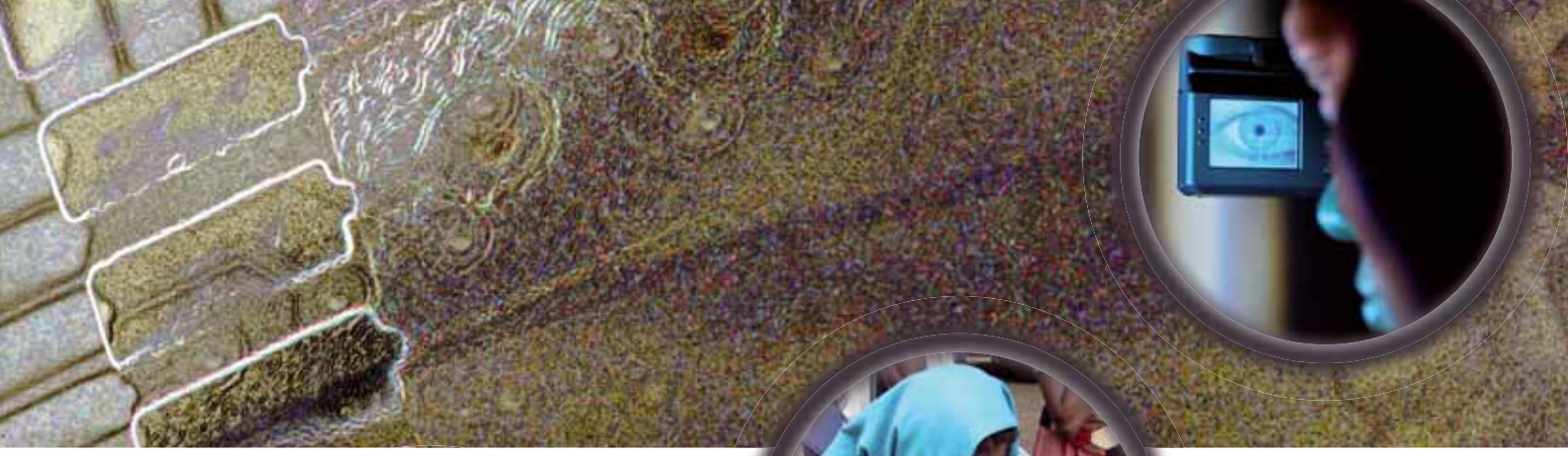
FOREWORD

The International Telecommunication Union is a forward-looking, dynamic organization that has been in the business of helping the world communicate for over 140 years. A resilient organization, ITU remains young at heart and takes the lead at the cutting edge of global communications.

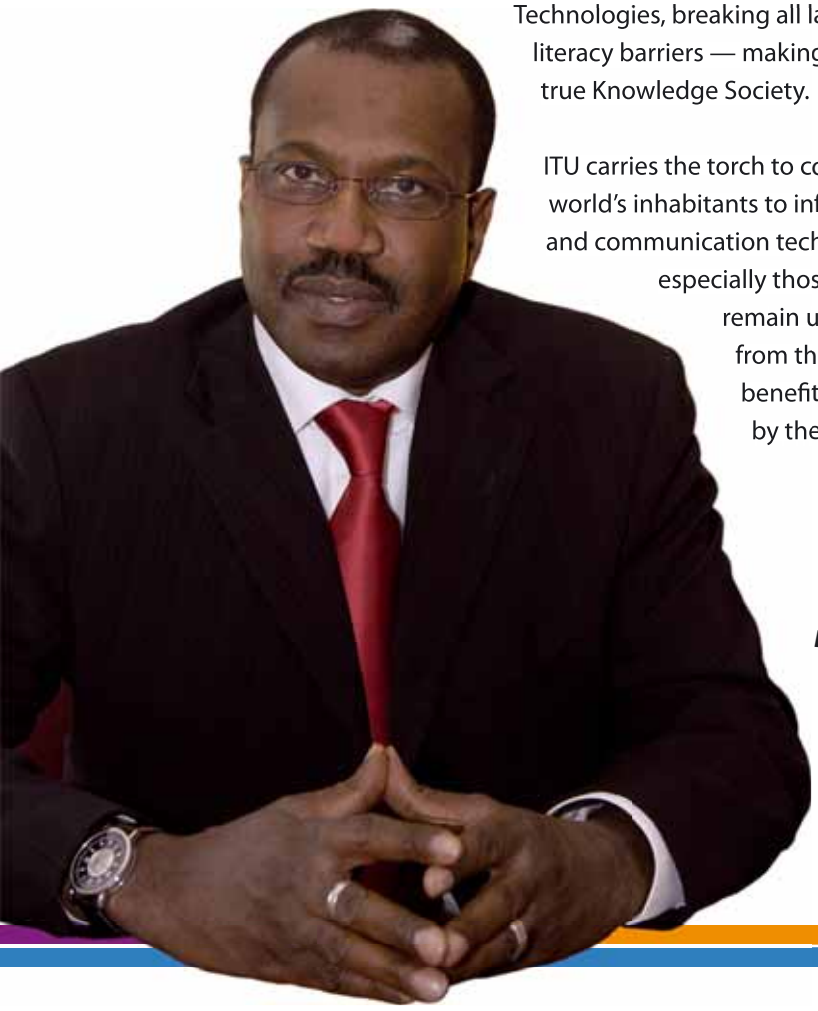
The basis of our social and economic life — and our lifestyles — are increasingly dependant on new, state-of-the-art information and communication technologies. And ITU is at the forefront of this next digital revolution. Our standards in telecommunication and radiocommunication already underpin the entire global communications framework, and will serve as the platform for a whole range of as yet undreamt-of services. Meanwhile, our development sector ensures that no one is left out of the digital revolution.

ITU works in partnership with our membership, which includes 191 Member States as well as over 700 Sector Members and Associates who hail from the private and public sector and include international and regional telecommunication organizations. As it expands its efforts to develop an enabling environment through policy and regulatory modernization and harmonization, the Union's priorities are to strengthen cybersecurity and emergency communications, support the migration to next-generation networks, and build capacity especially in least developed countries.

The watchword is "convergence". It's changing the nature of what we once called telecommunications services, it's reshaping the way we consume and access those services — and it's transforming the networks by which they are delivered. In the wired — or wireless — world of the future, we will have more mobile applications and we will see an exponential growth of



the Internet, which is today still in its infancy. More will also be achieved in Speech Recognition Technologies, breaking all language and literacy barriers — making the world a true Knowledge Society.



ITU carries the torch to connect all the world's inhabitants to information and communication technologies, especially those who remain unconnected from the enormous benefits unleashed by the ongoing digital revolution. As the specialized UN agency for ICT, it is our endeavour to fast-track the 2015 targets of the Millennium Development Goals and empower people everywhere with the means to seek information and knowledge.

We are dedicated to ensuring access to communications anytime anywhere and at an affordable price.

Dr Hamadoun I. Touré
Secretary-General
International Telecommunication Union

ITU AT THE CUTTING EDGE OF GLOBAL COMMUNICATIONS

Every time someone picks up a telephone and dials a number, answers a call on a mobile, sends a fax or receives an e-mail, takes a plane or a ship, listens to the radio or watches a favourite television programme, they benefit from the universal telecommunication and ICT frameworks put in place by the International Telecommunication Union (ITU).

ITU has been at the cutting edge of information and communication technologies, defining and adopting the globally agreed technical standards that have allowed industry to interconnect people and equipment seamlessly around the world. It has also successfully regulated worldwide use of the radio-frequency spectrum, ensuring all international wireless communications remain interference-free to ensure the relay of vital information and economic data around the world.

Spearheading telecommunications development on a global scale, ITU also fosters the deployment of telecommunications in developing countries by advising on development policies, regulatory frameworks and strategies, and by providing specialized technical assistance in the areas of technology transfer, cybersecurity, management, financing, installation and maintenance of networks, disaster mitigation, and capacity building.

Founded in Paris in 1865 as the International Telegraph Union, ITU took its present name — the International Telecommunication Union — in 1934 and, in 1947, became a specialized agency of the United Nations. Nominated by leading international consultant Booz Allen Hamilton in 2002 as one of the world's topmost enduring institutions, ITU is also the most inclusive global telecommunications organization. A public-private partnership organization since its inception, ITU now has a membership of 191 countries and over 700 public and private sector companies as well as international and regional telecommunication entities. The Union's consensus-based approach gives a voice to all its members and its work helps deploy infrastructure, achieve connectivity, and provide efficient telecommunication services worldwide.

ITU's biggest achievement is undoubtedly the pivotal role it has played in the creation of the international telecommunications network — the largest man-made artefact ever created. Today, thanks to the advent of the Internet, mobile wireless telephony, convergence strategies and more, this network keeps us in touch, brings us world news and entertainment, provides access to a huge global store of information, and underpins the global economy. It would not exist without ITU's work.

The ITU mission:

Bringing the benefits of ICT to all the world's inhabitants

ITU's mission is 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 and global economy. The ability to communicate freely is a prerequisite for a more equitable, prosperous and peaceful world. And ITU assists in mobilizing the technical, financial and human resources needed to make this vision a reality.

A key priority lies in bridging the so-called Digital Divide by building information and communication infrastructure, promoting adequate capacity building and developing confidence in the use of cyberspace through enhanced online security. Achieving cybersecurity and cyberpeace are amongst the most critical concerns of the information age, and ITU is taking concrete measures through its landmark Global Cybersecurity Agenda.

ITU also concentrates on strengthening emergency communications for disaster prevention and mitigation. While both developing and developed countries are equally vulnerable to natural disasters, poorer nations are hardest hit because of their already fragile economies and lack of resources.

Whether through developing the standards used to create infrastructure to deliver telecommunications services on a worldwide basis, through equitable management of the radio-frequency spectrum and satellite orbits to help bring wireless services to every corner of the world, or through providing support to countries as they pursue telecommunication development strategies, all the elements of ITU's work are centred around the goal of putting every human being within easy and affordable reach of information and communication and to contribute significantly towards the economic and social development of all people.

ITU remains dedicated to helping the world communicate.

RADIOCOMMUNICATION SECTOR

Managing the international radio-frequency spectrum and satellite orbit resources is at the heart of the work of the ITU Radiocommunication Sector (ITU–R).

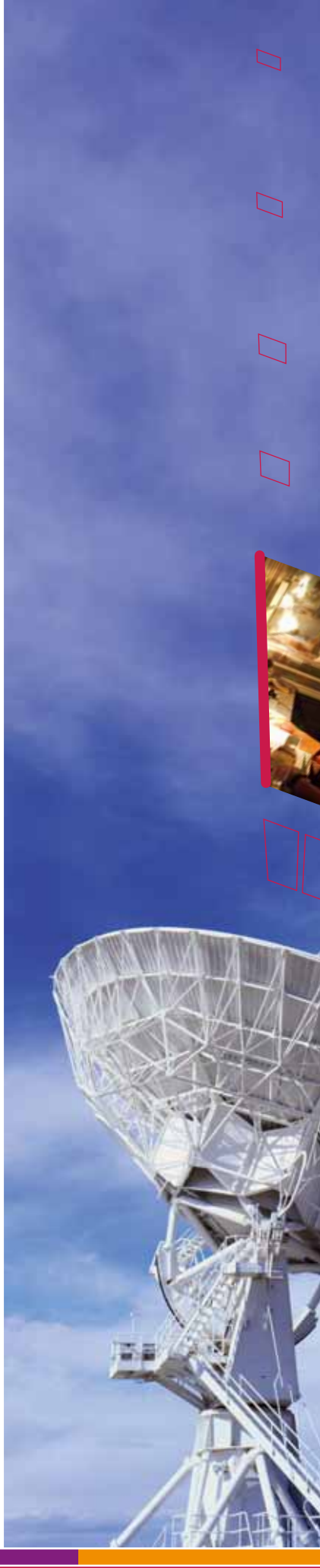
ITU is mandated by its Constitution to allocate spectrum and register frequency assignments, orbital positions and other parameters of satellites, "in order to avoid harmful interference between radio stations of different countries". The international spectrum management system is therefore based on regulatory procedures for frequency notification, coordination and registration.

Major tasks of ITU–R also include developing standards for radiocommunication systems, ensuring the effective use of the radio-frequency spectrum and studies concerning the development of radiocommunication systems.

ITU–R further carries out studies for the development of radiocommunication systems used in disaster mitigation and relief operations and these can be found within work programmes of the Radiocommunication Study Groups. Aspects of radiocommunication services associated with disasters include disaster prediction, detection, alerting and disaster relief. In certain cases, when the "wired" telecommunication infrastructure is significantly or completely destroyed following a disaster, radiocommunication services are the most effective in disaster relief operations.

Radiocommunication systems have been expanding at an incredible rate in the last decades. Their importance as development infrastructure and as a major asset for governments, the telecommunications industry and the general public is unquestionable.

Radio-frequency spectrum is a natural resource, and its rational and efficient exploitation can enhance a nation's productivity as well as the quality of life of



its citizens. In order to derive its full benefits, it is critical to develop and implement efficient national frameworks for spectrum management.

The ITU Radio Regulations, and particularly its Table of Frequency Allocations, have been revised and updated almost regularly in view of the enormous demand for spectrum utilization. This is critical to keep pace with the rapid expansion of existing systems as well as the spectrum-demanding advanced wireless technologies that are being developed. The ITU World Radiocommunication Conference (WRC), which convenes every three to four years, is at the core of the international spectrum management process and constitutes the starting point for national practices. WRC reviews and revises the Radio Regulations, an international treaty establishing the framework for the utilization of radio frequencies and satellite orbits among ITU member countries, and considers any question of a worldwide character within its competence and related to its agenda.

Equitable access to spectrum and orbital resources is of special concern, given the uneven needs of developed and developing countries. As a consequence, the principle of *a priori* planning of spectrum and orbit resources is considered in conjunction with a series of plans established by radiocommunication conferences.

Through its various activities covering the implementation of Radio Regulations to the establishment of recommendations and guidelines on the usage of radio systems and spectrum/orbit resources, ITU–R plays a vital role in the global management of radio-frequency spectrum and satellite orbits. These limited natural resources are increasingly in demand from a large and growing number of services such as fixed, mobile, broadcasting, amateur, space research, meteorology, global positioning systems, and environmental monitoring that depend on radiocommunication to ensure safety of life on land, at sea and in the skies.

STANDARDIZATION SECTOR

ITU's standards-making efforts are its best-known — and oldest — activity. Working at the coalface of the world's fastest changing industry, today's Telecommunication Standardization Sector (ITU–T) continues to evolve, adopting streamlined working methods and more flexible, collaborative approaches designed to meet the needs of increasingly complex markets.

Specialists drawn from industry, the public sector and R&D entities worldwide meet regularly to thrash out the intricate technical specifications that ensure that each piece of communications systems can interoperate seamlessly with the myriad elements that make up today's complex ICT networks and services.

The result of a cooperative effort that sees leading industry players put their competitive rivalries aside in favour of building global consensus on new technologies, ITU–T standards (known as Recommendations) are the bedrock underpinning the modern information and communication networks that serve as the lifeblood of virtually every economic activity.

For manufacturers, they facilitate access to global markets and allow for economies of scale in production and distribution, safe in the knowledge that ITU–T-compliant systems will work anywhere in the world: for purchasers from telcos to multinational companies to ordinary consumers, they provide assurances that equipment will integrate effortlessly with other installed systems.

Today's working methods bear little resemblance to the old-fashioned paper-based procedures that once made standards agreement a lengthy and arduous operation. The development of electronic working methods, first introduced in the late 1990s, complemented by a dramatic overhaul of approval procedures in 2001, has meant that the time needed to adopt final technical texts has been cut by as much as 95 per cent.

But if procedural reform was top of the ITU–T agenda five years ago, today's keynote is cooperation and collaboration.

There is now a general understanding that the nature of the ICT market means you cannot go it alone. That's why, over the past eight years, ITU–T has adopted a very proactive stance when it comes to working with other standards organizations, from large industry entities to smaller single-technology groups. As the only truly global ICT standardization organization, ITU has taken a lead role in bringing together senior figures from ICT standards groups worldwide, with a view to fostering inter-organizational cooperation and avoiding duplication of effort.

Other activities designed to promote a new spirit of collaboration include regular workshops on key industry topics, often in partnership with industry groups. Such workshops not only serve as a platform for better standards-making coordination, they also promote the knowledge sharing essential for the rapid development of new technologies, particularly in developing countries. A recent initiative will bring greater participation of academia and encourage emerging young talents to familiarize themselves with the work of ITU.

Looking ahead, convergence between different industry types is one of the main challenges facing the Sector. With traditional telephone services, mobile networks and TV and radio broadcasting now beginning to carry new kinds of services, the scene is set for a revolution in the way we communicate and process information.

As in the past, when seismic shifts transformed the simple world of the telegraph to create wireline telephony, followed by radio and satellite systems, fibre optic networks, and cellular mobile, ITU–T plays a central and critical role in ushering in this new converged environment. ITU–T coordinates global efforts, promotes technical excellence and impartiality in standards development, and builds the consensus needed to ensure that new technologies and equipment are embraced worldwide.

DEVELOPMENT SECTOR

Bringing ICT to the World

The ITU Telecommunication Development Sector (ITU–D) was established to help spread equitable, sustainable and affordable access to information and communication technologies (ICT) as a means of stimulating broader social and economic development. Held every four years, the World Telecommunication Development Conference (WTDC) establishes concrete priorities to help achieve these goals. Through a series of regional initiatives together with comprehensive national programmes, activities on the global level and multiple targeted projects, the Sector works with partners in government and industry to mobilize the technical, human and financial resources needed to develop ICT networks and services to connect the unconnected. To that end, we are pushing for the expansion of global broadband connectivity that is pervasive, simple and affordable for all and enables the migration towards next-generation networks (NGN).

In order to address the challenges raised by fast-paced ICT growth, we promote an enabling regulatory and business environment through a range of tools for policy-makers and regulators that have resulted in innovation and a more efficient telecommunications marketplace. We support the deployment of new wireless and mobile technologies through projects that bring access to rural communities and, when necessary, provide disaster relief through emergency telecommunications. We furthermore help create an ICT-literate workforce through our numerous technical and policy training initiatives around the globe, paying particular attention to the specific needs of youth, women and people with disabilities.

Acting as a promoter and catalyst for ICT development, ITU–D engages with government leaders and the international donor community to find the right balance between public and private investment. There is no "one-size-fits-all" strategy to create digital opportunity, and ITU–D assists Member States in elaborating targeted national e-strategies, including in the areas of e-government and e-learning. Further, we endeavour to build safety in cyberspace by helping developing countries secure their networks and promote a culture of cybersecurity. In addition, ITU–D offers widely referenced, reliable statistics on trends and developments in the ICT field and organizes study groups on key questions facing governments and industry.

ITU–D provides a unique one-stop service for governments and private sector companies interested in forging new development partnerships, by identifying "win-win" opportunities for collaboration, and linking external partners with experienced ITU project specialists to ensure successful project implementation.

The Membership of ITU–D encompasses telecommunication policy-makers and regulators, network operators, equipment manufacturers, hardware and software developers, regional standards development organizations and financing institutions, ITU's activities, policies and strategic direction are determined by governments and shaped by the industry its serves.

ITU Telecom

ITU Telecom brings together the top names from across the ICT industry as well as ministers and regulators and many more for a major exhibition, a high-level forum and a host of other opportunities. Through all that they offer, the events provide a networking platform for the world's ICT community to come together, meet, network, showcase the latest technologies, explore the latest trends and get business done.

ITU Telecom began life in 1971 when the first event was held in Geneva, Switzerland. Since then, ITU Telecom has built up a wealth of experience organizing events across the world. An ITU Telecom event is held in a different world region each year, with the flagship ITU Telecom World taking place every 3 years.

The exhibition is a major component of each ITU Telecom event and features the top players from across the ICT industry. Expect to see exhibitors showcasing the latest products, services and innovations, from broadband or IP-enabled services to mobile and wireless technologies, next-generation networks, satellites and much more. Companies and technologies on the show floor span the full reach of the industry. The Show Floor also includes the Telecom Village, a quiet environment at the heart of the event, designed specifically for business productivity, where companies can base their HQ onsite for the duration of the event.

Running alongside the exhibition is the Forum, which brings together the industry's top names — including CEOs and regulators, government and industry visionaries — to debate and explore the trends shaping the global ICT industry of tomorrow. The Forum includes a Youth Forum, which brings together young people — students of university age from ITU Member States across the globe — for a packed programme of discussion and debate to shape the world's ICT future. It also includes the Telecommunication Development Symposium, a special convention aimed at boosting ICT capacity in least-developed and low-income ITU Member States.

ITU Telecom offers a number of other services such as sponsorship and visibility packages to help companies maximize their event participation. There are also a host of different social events plus online services and a VIP programme, all designed to help participants meet, network and make the right connections before, during and after the event.

Participants at events represent a broad cross-section of the ICT industry, with the major global ICT names very much in evidence along with smaller, innovative new market entrants. National, regional or industry pavilions provide the ideal opportunity for fast-growing regional ICT companies to showcase their latest products and services.

ITU Telecom also features an extensive presence of government ministers and regulators, as well as a significant number of global and regional media organizations.

CYBERSECURITY

Confidence and security in using information and communication technologies (ICT) are fundamental in building an inclusive, secure and global information society. Confidence and security are vital to use ICT effectively, as acknowledged by the World Summit on the Information Society (WSIS).

The legal, technical and institutional challenges posed by cyber-threats and cybercrime are global and far-reaching, and can only be addressed through a coherent strategy taking into account the role of different stakeholders and existing initiatives, within a framework of international cooperation.

Current attempts to address these challenges at the national and regional levels are inadequate, as cyberspace is boundless and limited only by human imagination. The boundaries of the information society have no direct correlation with existing geographical borders — cyber-threats can arise anywhere and at any time, causing immense damage in a very short space of time. Security in cyberspace is only as secure as the weakest link, and concerted global action is needed to tackle this deadly scourge.

The World Summit on the Information Society (WSIS) recognized the real and significant risks posed by cybercrime and entrusted ITU to facilitate the implementation of the WSIS Action Line (C5) related to building confidence and security in the use of ICT. With its 191 Member States and more than 700 Sector Members, ITU is uniquely placed to propose a framework for international cooperation in cybersecurity. Its membership includes Least Developed Countries, developing and emerging economies, as well as developed countries. ITU is therefore an excellent forum where actions and responses to promote cybersecurity and tackle cybercrime can be discussed, with the goal of arriving at a common understanding as how to best address these challenges.

Based on achievable goals and working with recognized sources of expertise through the High Level Experts Group (HLEG), the Global Cybersecurity Agenda (GCA) is an ITU framework for international cooperation aimed at proposing solutions to enhance confidence and security in the information society. It builds on existing initiatives to avoid duplication of work and provides a global platform for collaboration amongst all relevant partners.

EMERGENCY TELECOMMUNICATIONS

Disasters disrupt national economies, severely weaken the poor and vulnerable and are major impediments to sustainable development and economic growth, especially in poor countries. The impact is even worse for those living in remote and isolated areas, where access to basic information and communication facilities are limited.

Timely dissemination of authoritative information before, during, and after disasters is critical to mitigate their impact. ITU's work in coordinating the effective use of the radio-frequency spectrum, establishing radio standards and guidelines concerning the use of radiocommunication systems, deploying telecommunication technologies and developing infrastructure and guidelines facilitates prediction, detection, monitoring, alerting, and general communications for disaster management.

ITU's technical standards for telecommunications also play a strategic role in ensuring global interconnection and interoperability for monitoring and management at the onset of emergency situations and during disasters. A number of Recommendations have been developed for call-priority schemes that ensure relief workers get access to communication lines, whether using traditional or next-generation communications networks. Standards are also fundamental to ensure that timely early warnings are delivered uncorrupted from the source to the end users — no matter how they can be reached.

Emergency telecommunications is an integral part of ITU's development arm. Considerable effort is directed at mainstreaming disaster management and preparedness in telecommunications/ICT projects and activities. This includes infrastructure development and the establishment of enabling policy as well as legal and regulatory frameworks.

In the immediate aftermath of disasters, ITU deploys temporary telecommunications/ICT solutions to assist countries affected by disasters, including the provision of basic telecommunications and telemedicine applications via satellites. Reconstruction and rehabilitation of telecommunications/ICT networks are an important part of disaster management. After providing assistance for disaster relief and response, ITU undertakes assessment missions to affected countries to determine the magnitude of damage to the network through the use of geographical information systems. On the basis of its findings, ITU and the host country embark on the resuscitation of the infrastructure while ensuring that disaster resilient features are integrated to reduce network vulnerability in the event of future disaster strikes.

NEXT-GENERATION NETWORKS

Market liberalization and globalization have led to unprecedented levels of innovation and competition in what were the once distinct business sectors of IT and telecoms. Convergence between the two sectors as well as other industries — for example, broadcast and the automotive business — highlights a clear need for interoperability and standardization.

Industry is backing the move to so-called next-generation networks (NGN) to the tune of billions of dollars. The world's manufacturers of telecoms equipment, network and service providers and administrations have entrusted ITU with the work that will ensure that this move is managed as smoothly and efficiently as possible. They understand that global standards will stimulate innovation and superior technology as well as enable interoperability, protecting current and future investment.

On many levels NGN represents an unprecedented example of unification, bringing together some very important constituents of the global economy. From an ITU perspective, we have seen thousands of experts from many different disciplines pooling efforts and adjusting to new work programmes and schedules. And from a standards world perspective, we have witnessed great cooperation with forums and other standards development organizations and regional standards organizations. Their ongoing involvement in NGN planning and standards development activities is essential.

In short, our members from industry have risen to meet this enormous challenge, and ITU is well on track to ensure that the rollout of this revolutionary new approach to information and communication technologies will be underpinned by a solid standards foundation.

BRIDGING THE DIGITAL DIVIDE

We live in a time of transformation — a new world information society is taking shape as a result of the integration of information and communication technologies (ICT) into almost all facets of human activity. Globally interconnected networks become critical infrastructure for social development and economic growth, providing access to the resources of the knowledge economy. Yet, billions of the world's citizens, particularly those living in developing countries, remain completely disconnected.

Recognizing the significant role of ICT as a catalyst to achieve the UN Millennium Development Goals, leaders at the World Summit on the Information Society (WSIS) agreed to a set of targets, including ten connectivity goals, to be achieved by 2015. We are today at risk of not achieving these targets unless we collectively take urgent action. ITU has taken the lead in the multi-stakeholder implementation process of WSIS and has been acting as a facilitator in the implementation of the 11 WSIS Action Lines. This includes building ICT infrastructure (as called upon by WSIS Action Line C2), focusing on strategies to bridge the connectivity gaps.

To help connect the world and empower people and communities, ITU works in partnership with governments and industry to stimulate broad ICT diffusion and growth. From the expansion of broadband, wireless and mobile-access technologies and the harmonization of technical standards, to creating an enabling regulatory and business environment and developing an ICT-savvy workforce, ITU is on the forefront of global efforts to bridge the digital divide. Moreover, ITU's strategy is to concentrate on a regional basis, starting with Africa and moving on to other regions with the aim of accelerating ICT investment in underserved areas and support human development by bringing together stakeholders that can contribute the required human, financial and technical resources.

In 2006, less than 1 out of every 20 Africans used the Internet, compared with 1 out of every 2 people living in developed nations.

High-income economies are home to just 16% of the world's population, yet have more than the half of the world's Internet users.

At the current growth rates, less than 25% of people living in the developing world will be online by 2010, compared with 57% of the inhabitants in the developed world, who were already online by 2006.

Over three quarters of Africa's over 28 million fixed phone lines are located in just 6 of its 54 nations.

Access to broadband — the "big pipe" connections increasingly vital to Internet access — now extends to one-fifth of the population in high-income countries. It remains close to zero in many African economies.

Some 30 countries still rely on a single 10Mbps international connection to serve their entire population; in wealthy countries, consumers can now buy their own personal 10Mbps connection at very affordable prices.

BECOME A MEMBER OF ITU

Benefit from the impartial, universal and global scope of ITU. With a membership encompassing telecommunication policy-makers and regulators, network operators, service providers, equipment manufacturers, hardware and software developers, regional standards development organizations and financing institutions, ITU's activities, policies and strategic direction are determined by governments and shaped by the industry it serves.

Participate in ITU events, network with government officials and other companies in the sector, gain access to special reports, participate in study groups and more…

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