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ITU NEWS

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Protecting children online



***Satellite broadband
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Meeting with the President of Costa Rica

Patron of ITU's Child Online Protection initiative

Dr Hamadoun Touré,
ITU Secretary-General



ITU/P. M. Viot

■ We all recognize the importance of information and communication technologies (ICT) in the 21st century. These technologies are part of everything we do today, and will continue to play a vital role in social and economic development. Already there are more than six billion mobile cellular subscriptions, and more than 2.4 billion people use the Internet. We are also rapidly seeing devices interconnected with one another — and some industry analysts predict that there will be 50 billion connected devices by 2020.

While we work to expand ICT access for all, we must never lose sight of our responsibility to protect children — the youngest digital citizens — in the online world where they live so much of their lives. In that regard, I was honoured to welcome Costa Rica's President Laura Chinchilla Miranda to ITU on 30 May 2012. As Patron of ITU's Child Online Protection initiative, President Chinchilla will call upon Heads of State and Government around the world to strengthen the framework for Child Online Protection and create national commissions for child online safety.

Costa Rica's pro-active policies to encourage women and girls to consider careers in ICT are commendable. ITU would welcome the opportunity to jointly organize a global conference on Youth and ICT in Costa Rica next year, with a particular focus on using ICT to address the youth unemployment crisis and strengthen our global efforts to ensure child online protection. In this new digital world, we all have a special responsibility to ensure the safety and security of young people in the online world, just as we do offline.

President Chinchilla, a leading digital advocate, has also actively supported ITU's Green ICT agenda, which promotes environmental sustainability through smart technologies, along with greening the ICT sector. President Chinchilla and I agreed that the Green ICT agenda would contribute to a successful outcome of the United Nations Conference on Sustainable Development (Rio+20). We discussed the necessity of recognizing ICT and broadband as enablers of sustainable development and full digital inclusion in the fast-changing information society.

Costa Rica's President Laura Chinchilla and ITU Secretary-General, Dr Hamadoun Touré



I am pleased to say that at the Rio+20 Conference in June, the ITU delegation was successful in ensuring that our message on the importance of ICT for supporting sustainable development was heard loud and clear. The initial draft barely mentioned ICT, but the approved final document — known as “The Future We Want” — contains a number of explicit references to ICT, including direct mentions of both

As Patron of ITU's Child Online Protection initiative, President Chinchilla will call upon Heads of State and Government around the world to strengthen the framework for Child Online Protection and create national commissions for child online safety. President Chinchilla, a leading digital advocate, has also actively supported ITU's Green ICT agenda, which promotes environmental sustainability through smart technologies, along with greening the ICT sector.

broadband and the use of space systems. The conference invited the international community to mainstream sustainable development, and to support developing countries in achieving sustainable development through green economy policies. We know that ICT can spur green growth, create jobs and promote social progress — so let us use ICT to build the future we want.

Contents

Protecting children online

1 Editorial

Meeting with the President of Costa Rica
Patron of ITU's Child Online Protection initiative
Dr Hamadoun Touré, ITU Secretary-General

1



5 Protecting children online Responding to a global challenge

10 ITU at a glance

- ITU symposium calls for eco-design to reduce e-waste
Montreal Declaration
- ITU launches second IPTV Application Challenge
Search for smart living solutions
- Green Standards Week
- Ultra-high definition television: ITU Recommendation ushers in a new age

10

12

13

13



15 Satellite broadband

Satellite broadband comes of age

16



22 Country focus

- From child labour to a technical job —
second chance for deprived girls and boys in Bangladesh
- Broadband in Brazil
The stirrings of a giant
- Broadband and digital broadcasting in Serbia
Broadband affordability target surpassed
- Broadband in Poland
A survey of infrastructure
Magdalena Gaj, President of the Polish Office of Electronic Communications

22

25

27

30





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ISSN 1020-4148
itunews.itu.int
10 issues per year
Copyright: © ITU 2012

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Contents

Protecting children online

32 **Academia**

E-education opportunities for Africa

*United Kingdom Telecommunications Academy offers training and scholarships
Professor David P. Mellor OBE, Chairman of the United Kingdom Telecommunications
Academy, and ITU Special Envoy for Academia*

32

35 **Thailand hosts ITU Asia-Pacific Regional Development Forum 2012**

38 **Arab Book 2012**

A vibrant ICT market in the Arab region
The impact of regulation

39

46 **Building an ethics culture in ITU through training**

50 **Obituaries**

■ Richard Butler
An exceptional and inspiring man

50

■ Richard Kirby
An outstanding radio man

53

55 **Meeting with the Secretary-General** Official Visits to ITU

55

Protecting children online



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Protecting children online

Responding to a global challenge

■ Milestones

Within the framework of its Global Cybersecurity Agenda, the ITU's Child Online Protection (COP) initiative was established in November 2008 as an international collaborative network for action to promote the online protection of children worldwide. United Nations Secretary-General Ban Ki-moon recognized the timely nature of ITU's action, saying "I welcome the ITU's Child Online Protection initiative and I urge all States to support it."

The Child Online Protection initiative brings together partners from all sectors of the international community with the aim of creating a safe and secure online experience for children everywhere. In 2009, a multistakeholder group of Child Online Protection members developed global guidelines for children, parents, governments and industry.

ITU is now well into the second phase of its activities under the Child Online Protection global initiative, launched by ITU Secretary-General Dr Hamadoun Touré in November 2010 together with the Patron of Child Online Protection, Costa Rica's President Laura Chinchilla Miranda. "Individual rights without the fulfilment of duties causes cracks in society. Democracy without responsibility undermines freedom", says President Chinchilla. The President has pledged to ensure that children and youth will be digital citizens, with rights and responsibilities. In 2013, Costa Rica plans to host the first World Conference on Youth and ICT, and one of the main topics of the global discussion will be related to protecting children online.

Resolution 179 (Guadalajara, 2010) encourages ITU to continue its Child Online Protection initiative as a platform to raise awareness and educate people on the dangers of cyberspace. It also requests the ITU Council to continue its Council Working Group on Child Online Protection. It encourages the ITU Secretary-General to coordinate ITU activities with other initiatives at the national, regional and international levels, as well as bringing this resolution to the attention of the United Nations Secretary-General with the aim of increasing the commitment of the United Nations system to protecting children online.

Knowledge gaps

ITU's publication *Child Online Protection — Statistical Framework and Indicators 2010* classifies those who play a role in child online protection: children, parents and guardians, educators, governments, industry and other actors such as academia, and non-governmental or international organizations.

Perpetrators are not defined, and will vary depending on the type of threat they pose. In cases of sexual solicitation, perpetrators will generally be individuals (or networks of like-minded individuals). In cases of consumer fraud, they may be individuals or businesses. Individuals will vary with age, gender and socioeconomic status. For some online threats, such as bullying and harassment, children themselves are often the main perpetrators.

"Globally, children and young people tend to become early users and prime innovators on the Internet, and are often far ahead of their parents and other adults in terms of use, skills and understanding. The Internet, particularly social networking and other interactive media, provides new forms of social space globally, which did not exist when most contemporary parents were themselves children. Young people in all societies today are pioneers, occupying online spaces in ways that adults often cannot imagine. These spaces can be immensely creative, but can also expose children to dangers adults may in many instances only dimly perceive," according to UNICEF's report *Child Safety Online: Global Challenges and Strategies*.

The UNICEF report admits that "There are many knowledge gaps about the protection challenges raised by the Internet, particularly in parts of the world where its penetration is so far more limited." Obvious danger areas include images of child sex abuse (pornography), the grooming of children for sex, and cyberbullying.

Raising awareness

ITU has been recruiting special envoys, a group of prominent individuals willing to contribute to its efforts to raise awareness of the objectives and priorities of protecting children online, and to do their utmost to support children's online safety. Deborah



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Taylor Tate, a former commissioner of the United States Federal Communications Commission and 2009 World Information and Telecommunication Society Day Laureate, is ITU's Special Envoy for Child Online Protection.

Recently, ITU drafted a "Child Online Protection National Strategy Guide". This guide will serve as a model for developing national strategies that mitigate online risks to children. And it is part of ITU's effort to assist its Member States to take a holistic and comprehensive approach to building national frameworks that will protect children online.

An online platform has been created within ITU-IMPACT ESCAPE to facilitate the work of members and promote the exchange of knowledge, information, activities and outcomes among partners. And Study Group 17 of ITU's Telecommunication Standardization Sector (ITU-T) has established a Joint Coordination Activity on Child Online Protection, following on from research carried out by a correspondence group in that area.

In its continuing mission to raise awareness of matters related to protecting children online, ITU organized a workshop for the Arab region on policy, advocacy and capacity building in child online protection. The workshop, which was held in Muscat, Oman, on 30–31 October 2011, adopted recommendations as a basis for building national frameworks for the Arab countries to protect children online.

In February 2012, ITU's Telecommunication Development Sector (ITU-D) started to develop a national case study in Costa Rica, to demonstrate best practices. The aim is to replicate this exercise in other countries, as a way of developing global policies for protecting children online.

In March 2012, the *Connect Arab Summit* affirmed the need to establish a curriculum on cybersecurity, aimed at capacity building and raising awareness in government, academia, the private sector, schools and other constituencies on the protection of children in the online world. Following up on commitment shown by Member States, ITU organized two key events. One is the regional workshop on the legal aspects of child online protection, held in Algeria in June 2012, which also discussed the need to create

a working group on the establishment of a regional legal framework for Arab countries. The other is the Child Online Protection workshop in Amman, Jordan, in conjunction with the ITU-IMPACT ALERT Cyber Drill for the Arab region in mid-July 2012. The focus here is the need to enhance cooperation nationally (among public and private entities), regionally and internationally.

In April 2012, the Authority for Info-Communications Technology Industry of Brunei Darussalam, with the support of ITU-IMPACT, organized a child online protection framework workshop to develop a sustainable action plan to be implemented in the country over the next 12 months.

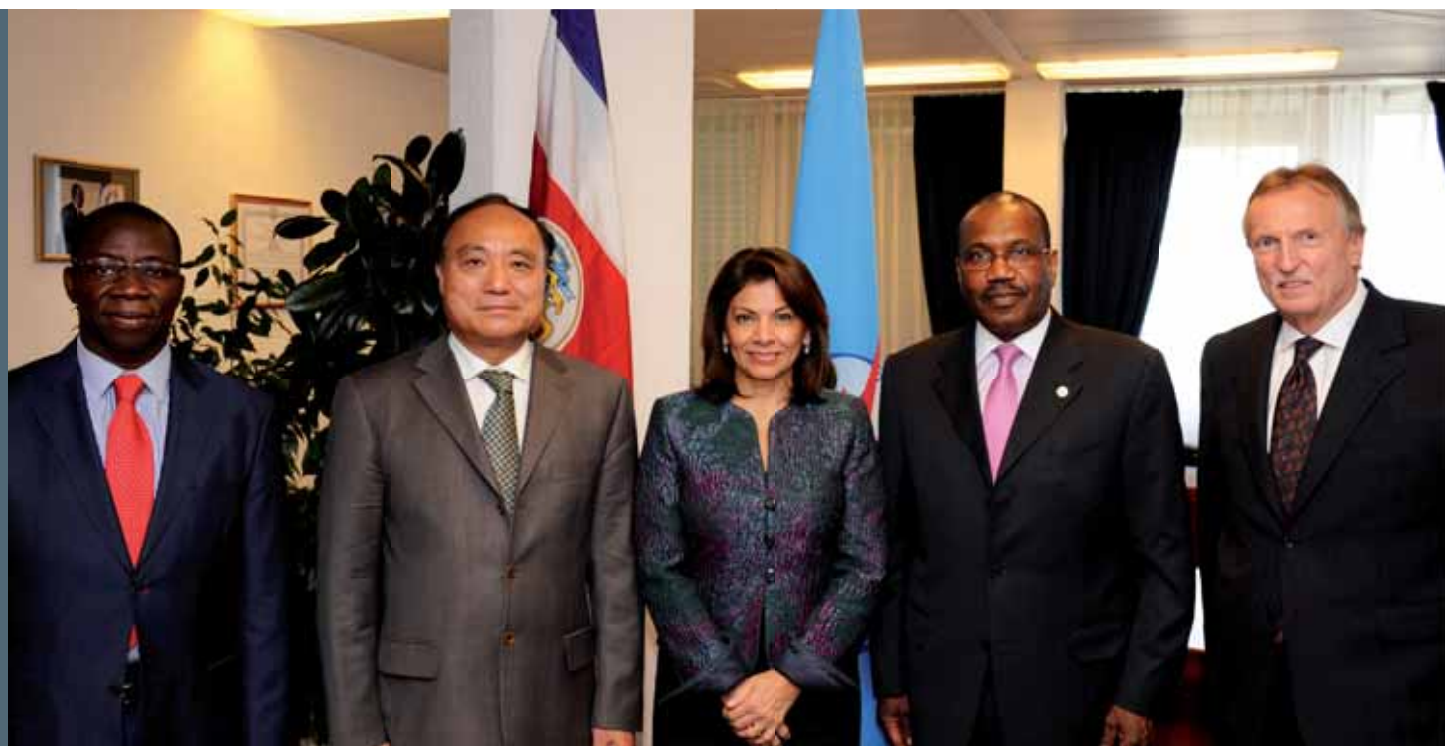
During WSIS Forum 2012 in Geneva, ITU organized a meeting of Child Online Protection partners to discuss how to advance the initiative. An important outcome of this meeting was the agreement to work closely with the Family Online Safety Institute (FOSI) and the Internet Watch Foundation (IWF) to provide the required assistance to Member States.

In July, during the opening ceremony of Connect Americas 2012, ITU invited the President of Costa Rica, Laura Chinchilla, to be the keynote speaker on protecting children in cyberspace. Also in July, in Kuala Lumpur, Malaysia, ITU held the ITU-ASEAN Forum on Promoting Effective and Secure Social Media. The Forum focused on promoting the use of information and communication technologies (ICT) to raise awareness of both the positive and negative effects of social media on people's everyday lives.

Upcoming events

In September, ITU-IMPACT together with the Ministry of Communications and Information Technology of the government of Malaysia will host the Child Online Protection Challenge, with the main objective of assisting schools and teachers, as well as parents, to plan and deploy a sustainable education programme for protecting children online.

In October, with the support of CyberGuardian, one of the Child Online Protection partners, ITU will be organizing a high-level session during ITU Telecom World 2012, to be held in Dubai.



From left to right: Brahim Sanou, Director of the ITU Telecommunication Development Bureau; Houlin Zhao, Deputy Secretary-General of ITU; Laura Chinchilla, Costa Rica's President; Dr Hamadoun Touré, Secretary-General of ITU; and Malcolm Johnson, Director of the ITU Telecommunication Standardization Bureau

ITU

The main purpose of the session will be raising awareness and sharing knowledge of child online protection.

ITU is also working in partnership with the Commonwealth Telecommunication Organization to facilitate the establishment of national frameworks for child online protection in Nigeria, Ghana, Sierra Leone, Gambia and Cameroon. The high-level process will consist of five phases: assessment; definition of country plans; finalization of country plans; implementation; and monitoring and evaluation.

Global Cyberlympics

Within the framework of the Child Online Protection initiative and under the patronage of Secretary-General Dr Hamadoun Touré, the EC-Council Foundation together with ITU is fostering an environment that creates child online protection through education in information security.

The Global Cyberlympics, a not-for-profit initiative led and organized by the EC-Council Foundation, is an event that is held annually. It comprises a series of cybersecurity games, in which teams compete in regional championships. The Global Cyberlympics will conclude with world finals, to be held in October 2012 in Miami, United States, to determine the world champion. This competition is an excellent method for building capacity in the ITU Member States. The hope is that the Global Cyberlympics will help to foster cyberpeace. ITU has sent letters to all its Member States, Sector Members, Associates and Academia inviting them to join the Global Cyberlympics.



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■ ITU symposium calls for eco-design to reduce e-waste

Montreal Declaration

Participants at the 7th ITU Symposium on ICT, the Environment and Climate Change, held on 29–31 May 2012 in Montreal, Canada, issued a Declaration that encourages manufacturers of devices using information and communication technologies (ICT) to make their products more easily upgradable, so that entire devices do not need to be replaced. The call to promote a life cycle approach in the design of ICT (eco-design) also means taking more account of how components in a device can be recycled. Reducing e-waste, and providing incentives and encouragement for e-waste take-back schemes, are just some of the enablers being promoted. The Declaration was issued at the end of the

symposium, and was adopted by the approximately 150 participants at the event. And just before the United Nations Conference on Sustainable Development (Rio+20) in June 2012, ETNO, Telefonica and TechAmerica issued press releases in support of the Montreal Declaration.

The Declaration calls for enabling policies to encourage investment in smart technologies and ICT-based clean technologies (cleantech) as a way of promoting green growth and sustainable development. It also recognizes the support provided by ITU methods to measure the impact of ICT, and a recommendation to ramp up research and development on the use of ICT for

monitoring, mitigating and adapting to the effects of climate change.

More specifically, the Declaration calls on global leaders, public sector officials, ICT and environmental experts, and representatives from international organizations, who will gather at the 2012 United Nations Conference on Sustainable Development (Rio+20), the 2012 United Nations Climate Change Conference (COP18–CMP8), and the 2012 ITU World Telecommunication Standardization Assembly (WTSA-12), to identify and agree on priorities, and to provide clear guidance on how to move the global green agenda forward through the use of ICT.

Malcolm Johnson, Director of ITU's Telecommunication Standardization Bureau (TSB) speaking at the event said "We very much hope that the technology transfer mechanism agreed in Durban at COP-17 for implementation this year will encourage ICT projects that help adapt to, and mitigate, the effects of climate change. The key components for a successful strategy are a combination of policies, regulatory incentives and standards that encourage the use of ICT to combat climate change at the international, regional and national levels. Active participation in international climate change discussions, and engagement in the design of technology solutions and standards are essential."

Hosted by Prompt and jointly organized with Industry Canada, the symposium brought together policy-makers, and representatives from ICT companies and civil society from around the world, to further advance the green ICT agenda by raising awareness of the power of ICT to aid in monitoring, mitigating and adapting to climate change, and in tackling e-waste. The symposium highlighted the key role played by ICT as enablers of environmentally-sustainable economic development.

As the leading United Nations specialized agency for telecommunications and ICT, ITU leads in developing an integrated approach to the use of ICT in addressing climate change and in helping countries implement the United Nations Framework Convention on Climate Change (UNFCCC).

With ICT now pervading every economic sector, it has become essential to integrate ICT-based solutions into the environmental actions taken by industry. The symposium explored ways of achieving this integration, and helped plot the course of ITU's future work in the field.

The Declaration represents ITU's ongoing contribution to World Environment Day, which focuses this year on the theme "Green economy". Through this contribution, ITU continues to raise awareness of the key role that ICT play in the transition to a low-carbon, resource-efficient and socially inclusive green economy. ■



ITU/P.M. Viot

"We very much hope that the technology transfer mechanism agreed in Durban at COP-17 for implementation this year will encourage ICT projects that help adapt to, and mitigate, the effects of climate change..."

Malcolm Johnson, Director of the ITU Telecommunication Standardization Bureau



Challenge

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■ ITU launches second IPTV Application Challenge

Search for smart living solutions

Under the theme “Better Quality of Life”, ITU’s second IPTV Application Challenge is inviting individuals, small-to-medium sized enterprises (SMEs) and corporations to provide innovative Internet Protocol television (IPTV) solutions that will improve social welfare through services in fields such as e-health, e-government, e-learning, ICT accessibility and all aspects of smart living.

Registration started on 15 June and will end on 15 August 2012. The period for submitting solutions will run from 13 August to 7 September 2012. The winning application in the individual/SME category will be awarded a cash prize of USD 3000. There is a separate category for corporate entries. Winners will be announced at the World Telecommunication Standardization Assembly (WTSA-12), to be held in Dubai on 20–29 November.

The winning and most promising runner-up applications will be showcased at this and many subsequent ITU events, maximizing global visibility and attracting investment in their development. WTSA is a quadrennial event gathering around 1000 representatives of the ICT industry’s most influential policy-makers, regulators and private-sector enterprises.

Announcing the challenge, ITU Secretary-General Hamadoun Touré said “ITU’s IPTV standards are providing secure end-to-end solutions for broadcasters and service providers around the world. These application challenges are a proven platform to drive innovative use of the medium. They tap into the minds of engineers around the world, and I look forward to some excellent results.”

The first Challenge, in 2011, was very successful, and the second Challenge will add further fuel to an already vibrant IPTV market, which today serves more than 60 million subscribers. Supported by the deployment of high-speed broadband networks, the industry is growing at roughly 25 per cent annually. Average revenue per user is also increasing, signalling a better monetization of IPTV services and tremendous revenue opportunities to the companies serving a market expected to double in size within the 2011–2014 time-frame.

ITU's standards are already being implemented in the IPTV global marketplace, and increased adoption of these standards

will further stimulate market growth. The standardized platforms provided by ITU IPTV Recommendations are more cost effective and flexible than proprietary solutions, and give applications and services the critical advantage of global reach.

Challenge participants are required to develop applications running over either Recommendation ITU-T H.761 Nested context language (NCL) and Ginga-NCL for IPTV services or Recommendation ITU-T H.762 Lightweight interactive multimedia environment (LIME) for IPTV services.

More information is available at: www.itu.int/en/ITU-T/challenges/pages/iptv.aspx ■

■ Green Standards Week

ITU together with TechAmerica Europe is organizing the second Green Standards Week from 17 to 21 September 2012 in Paris. The event will be hosted by Microsoft. Green Standards Week will bring together leading specialists in the field, from top

policy-makers to engineers, designers, planners, government officials, regulators, standards experts and others. The main purpose is to raise awareness of the importance and opportunities of using ICT standards to build a green economy. ■

■ Ultra-high definition television: ITU Recommendation ushers in a new age

ITU has announced a new Recommendation that will hasten the advent of ultra-high definition television (UHDTV) and create an entirely new television broadcasting environment. ITU's Radiocommunication Sector (ITU-R) has developed the standard — or Recommendation — in collaboration with experts from the television industry, broadcasting organizations and regulatory

institutions in its Study Group 6. The new draft Recommendation on the technical details for UHDTV is now being submitted to administrations for approval.

The quality of television pictures has improved dramatically since the early days of black and white screens. Now flat panel displays offer sparkling high-definition colour. But



"I have seen the UHDTV pictures, and they are absolutely stunning — the sense of being there is superb."

François Rancy, Director of the ITU Radiocommunication Bureau



AFP

technology does not stand still. The ITU-R Recommendation lays out the quality standards for UHDTV in two steps. With each of these steps, the quality improvement is roughly comparable to the step from the old standard-definition television to high-definition television (HDTV).

HDTV pictures today have the equivalent of 1–2 megapixels. The first level of UHDTV pictures has the equivalent of about 8 megapixels, and the second level comes with the equivalent of about

32 megapixels. Ultra high-definition picture quality is accompanied by improved colour fidelity, and options for higher numbers of pictures per second than for today's television systems. The Director of ITU's Radiocommunication Bureau, François Rancy, said "I have seen the UHDTV pictures, and they are absolutely stunning — the sense of being there is superb."

ITU Secretary-General Hamadoun Touré praised the work of ITU-R Study Group 6. "UHDTV is an earth-shaking development in the world of television," Dr Touré said. "Watching UHDTV in the near future will be a breath-taking experience, and I look forward to it."

David Wood, Chairman of ITU-R Working Party 6C, which developed the draft new Recommendation, said "This is the dawn of a new age for television that will bring unprecedented levels of realism and viewer enjoyment. It is a historic moment. Some years will pass before we see these systems in our homes, but come they will. The die is now cast, thanks to the untiring efforts of the international experts participating in Working Party 6C."

Chairman of ITU-R Study Group 6 Christoph Dosch added, "The Recommendation means that organizations around the world can safely begin work to make UHDTV a reality." ■

Satellite broadband

The Inmarsat-5 satellites

When operational, the Inmarsat-5 satellites will provide Inmarsat with a comprehensive range of global mobile satellite services, including mobile broadband communications for deep-sea vessels, in-flight connectivity for airline passengers and streaming high-resolution video, voice and data



Satellite broadband comes of age

■ Limitless footprint

Satellites have successfully served traditional markets — telephony and broadcasting — covering large geographical areas using single-beam transmission. Now there is demand for two-way broadband access over large geographical areas not served by telecommunications infrastructure. Satellite providers can offer local-loop services in such areas, and their footprint is virtually limitless, according to a recent report* by ITU entitled “Regulation of global broadband satellite communications”. The report — on which this article is based — explains why satellite broadband technology is vital for expanding multimedia services and applications around the world.

The technology exists right now to create a profusion of interconnected broadband networks in space, with a vibrant and competitive market to access them. But in order to fulfil its potential, the satellite sector needs regulatory certainty and liberalization on a global scale. Use of radio-frequency spectrum is increasingly being constrained, so the barriers to combining terrestrial and satellite networks ought to be removed. As more countries launch satellites and claim

orbital locations, licensing and access to national markets should become more open.

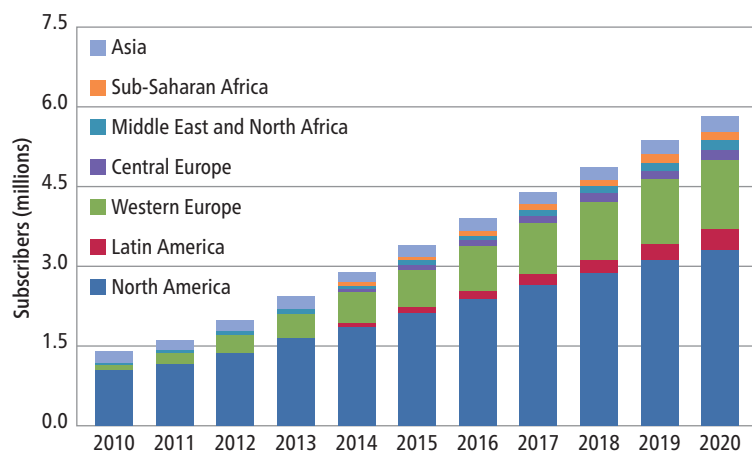
Projected growth in satellite broadband

Costs have been coming down in recent years to the point where satellite broadband is becoming competitive with other broadband options. A new generation of applications with high throughput requirements has emerged, and satellites are meeting these high throughput needs. Satellite systems are optimized for services such as Internet access, virtual private networks and personal access.

Globally, the number of subscribers to satellite broadband is expected to grow from 1.5 million in 2011 to about 6 million in 2020 (Figure 1). From a regional perspective, the anticipated growth is dominated by subscribers from North America and Western Europe.

* This article is based on the report Regulation of Global Broadband Satellite Communications, published by ITU in April 2012. The report was prepared for ITU by Rajesh Mehrotra, Founder and Principal Consultant, Red Books, and benefited from the review and guidance of the Regulatory and Market Environment Division of the ITU Telecommunication Development Bureau (BDT). The report is part of a new series of ITU reports on broadband that are available online free of charge at www.itu.int/broadband.

Figure 1 — Projected growth in satellite broadband subscribers



Source: Northern Sky Research (NSR).



But consumers are fickle, and two disadvantages need to be addressed. The first is latency (the time it takes to send and receive a message). This depends on the distance between the satellite and the Earth. The second is that satellite signals may be attenuated by rain or atmospheric conditions. This problem especially occurs in tropical areas and primarily affects the higher frequency bands.

There are technological fixes for these disadvantages, related to satellite orbits and to the available frequency spectrum — two elements that are central to satellite systems.

Frequency bands and satellite broadband technology

Traditional satellite technology uses a broad single beam to cover entire continents and regions. More recently, the use of multiple narrowly focused spot beams and the reuse of frequencies have made it possible to increase bandwidth by a factor of 20 or more, as compared to traditional satellites. Despite the higher costs associated with spot beam technology, the overall

cost per circuit is considerably lower than for shaped beam technology.

Satellite broadband services are offered in five basic technology categories:

- C-band (4–6 GHz) fixed-satellite service (FSS)
- Ku-band (11–14 GHz) fixed-satellite service (FSS)
- Ka-band (20–30 GHz) bent pipe (with no on-board processing in the satellite)
- Ka-band (20–30 GHz) with on-board processing in the satellite
- L-band (1.5–1.6 GHz) mobile-satellite service (MSS).

First generation satellite broadband, in the late 1990s, made use of the Ku-band fixed-satellite service to provide two-way connections using a single satellite beam. It met with limited success because of the high cost of space segment and subscriber terminals, and the less than optimal network throughput and operational performance.

New generation Ka-band broadband systems deploy spot beam technology, where satellite downlink beams illuminate an area of the order of hundreds (rather than thousands) of

kilometres. Coverage looks like a honeycomb or cellular pattern. This enables frequency reuse, resulting in a dramatic increase in the overall capacity of the satellite. New generation satellite broadband is being customized for target markets, to reduce bandwidth costs and increase capabilities to keep pace with the growth in the subscriber population. The system capacity is 30 to 60 times that of the Ku-band fixed-satellite service approach.

Attenuation and scintillation effects of atmospheric gas, clouds and rain — causing signal fading — become more pronounced with increase in frequency above 1 GHz, and particularly affect the Ka and higher bands. But fade mitigation techniques are implemented to overcome the problem.

Global approaches to delivering satellite broadband

Intelsat operates a fleet of more than 50 communications satellites, and manages its customer network across multiple satellites and regions with the use of only one hub station. This arrangement supports a number of applications, including: Web browsing, digital media streaming, e-mail, multicasting, file transfers, Wi-Fi hotspots, virtual private networks, voice over Internet Protocol (VoIP), extranet and intranet, e-commerce, videoconferencing, and distance learning.

Intelsat's commercial grade broadband access, faster than digital subscriber line (DSL), provides converged voice, data and video applications anywhere in the world. The Intelsat infrastructure allows multiple scalable networks to be built with a common hub platform using C-band and Ku-band frequencies. Intelsat's broadband network offers data rates of up to 18 Mbit/s outbound and 5.5 Mbit/s inbound.

Inmarsat currently has a fleet of 11 satellites, providing mobile voice and data communications globally — on land, at sea or in the air. The three satellites that make up the Inmarsat-4 network deliver Inmarsat's Broadband Global Area Network, provide voice and data. The data connection speed of up to

0.5 Mbit/s is suitable for applications such as e-mail, Internet and intranet.

Inmarsat's aeronautical communication services enable applications for both the cockpit and the cabin — from safety communications, weather and flight-plan updates, to e-mail, Internet and phone services.

Inmarsat's maritime communication services provide ocean coverage globally, except in the extreme polar regions. Services include simultaneous voice and data up to 432 kbit/s, and the Global Maritime Distress and Safety Service.

In 2010, Boeing, the United States aerospace manufacturer, was contracted to build three Inmarsat-5 satellites. The first is scheduled for completion in 2013, with full global coverage expected by the end of 2014. The new constellation of Inmarsat-5 satellites will form part of a worldwide wireless broadband network called Inmarsat Global Xpress. Each Inmarsat-5 satellite will carry a payload of 89 Ka-band beams — capable of providing capacity across the globe and enabling Inmarsat to adapt to shifting subscriber usage patterns over their projected lifetime of 15 years. Global Xpress — the super-fast, Ka-band broadband network planned for launch in 2013 — is expected to offer downlink speeds of up to 50 Mbit/s, and up to 5 Mbit/s over the uplink, from compact user terminals.

SES S.A. has a fleet of 51 satellites (with the 51st satellite successfully launched in July 2012). Based in Luxembourg, and originally founded as *Société Européenne des Satellites* in 1985, it was renamed SES Global in 2001 and later simply SES, as the group management company of SES Astra, SES World Skies and other satellite and satellite service companies in which SES holds a stake, such as QuetzSat, Ciel, O3b Networks and Astra TechCom Services.

SES has been a major player in the development of the direct-to-home market in Europe and the Internet Protocol television (IPTV) market in the United States. In Europe, SES Astra supplies ASTRA2Connect, a satellite-based broadband Internet access for residential users.



KA-SAT coverage over Europe and the Mediterranean Basin (different colours show frequency reuse)

Source: www.eutelsat.com/satellites/9e_ka-sat.html; www.webcitation.org/5vI9KSD8A.

Regional approaches to providing satellite broadband

Europe and the Middle East

KA-SAT, owned by Eutelsat, provides broadband Internet access services across Europe and a small area of the Middle East. It is an example of a satellite-based broadband system for Internet Protocol (IP) services that deploys spot beam technology. Positioned at its geostationary orbit location at 9°E, the satellite KA-SAT features a high level of frequency reuse, enabling the system to achieve a total capacity of more than 70 Gbit/s. It has an 82 beam structure, and each spot beam generates an area of connectivity about 250 km wide having a capacity of 900 Mbit/s.

KA-SAT is a high-throughput satellite that delivers a download speed of up to 18 Mbit/s and an upload speed of 6 Mbit/s,

according to Eutelsat. This enables the company's new-generation Tooway (bidirectional) broadband service.

Fast Internet connections in Africa

The Regional African Satellite Communication Organization (RASCOM), an intergovernmental commercial satellite organization, uses RascomStar-QAF, a private company, to operate its geosynchronous satellite RASCOM-QAF1R, launched in August 2010 and located at 2.9°E. The satellite's Ku-band covers two zones over Africa (North and South), providing television broadcasting and high-speed Internet. Its C-band covers one zone over Africa and is used for thin route trunking and bandwidth lease service.

The Nigerian communications satellite NIGCOMSAT-1R was launched on 19 December 2011 to replace the satellite NIGCOMSAT-1, sub-Saharan Africa's first geosynchronous

communications satellite, which had been launched in May 2007 and located at 42.5°E but had failed in 2008. With transponders in the C, Ku, Ka and L-bands, NIGCOMSAT-1R has better look angles and shorter latency for intra-Africa communication traffic, and high fade margin compensation for attenuation losses resulting from rain.

South American satellite broadband services

Hughes, a branch of the Hughes Network Systems LLC, uses a Ka-band SPACEWAY satellite to provide Internet access in Brazil, especially to rural communities — even in the Amazon forest. Hughes has been working with the Amazonas Board of Education to provide educational material via satellite Internet to approximately 10 000 students in rural communities.

In Mexico, the Communications and Transport Ministry selected Hughes to support the Mexico Government's connectivity programme to expand broadband access to rural areas of the country. Hughes satellite terminals will provide broadband Internet access to public schools, hospitals, libraries, and government offices.

The satellite network VENESAT-1, also called SIMON BOLIVAR-1, was launched in 2008 for Venezuela to boost its telecommunications, film and television industries, culture and education. Located at 78°W, SIMON BOLIVAR-1 has 14 C-band transponders (radio and television signal), 12 Ku-band (data and high-speed Internet) and 2 Ka-band (future digital television signal transponders) to cover most of the South American continent and part of the Caribbean, and provide communications and broadcasting services to Venezuela as well as the surrounding region.

Upgrading Internet access in North America

A Ka-band system, deployed in 2007 using the SPACEWAY-3 satellite, employs onboard (regenerative) processing and has a total throughput of approximately 10 Gbit/s. As of August 2011, the SPACEWAY-3 satellite served 464 000 subscribers. JUPITER, the next-generation, high throughput, Ka-band satellite from Hughes, is expected to expand the SPACEWAY-3 system by

providing over 100 Gbit/s additional capacity in North America. Scheduled for launch in late June 2012, JUPITER is expected to provide service for 15 years or more. Each single JUPITER beam will have the approximate capacity of an entire conventional Ku-band satellite, making JUPITER equivalent to approximately 50 conventional Ku-band satellites.

VIASAT-1, launched on 19 October 2011, has similar capabilities and North American coverage to JUPITER. VIASAT-1 expands the existing WildBlue Ka-band network, which employs two satellites — WILDBLUE-1 and ANIK-F2 — serving more than 500 000 subscribers in the United States. Telesat operates the Canadian Ka-band payload of ANIK-F2 to provide consumer satellite broadband service in Canada.

Demand for direct-to-home service in Asia and the Pacific

THAICOM-4 (IPSTAR), the only high throughput satellite serving the Asia-Pacific region, is a multiple spot beam bent-pipe satellite without on-board regenerative payload. It provides full nationwide broadband satellite services to Australia, Cambodia, China, India, Indonesia, Japan, Malaysia, Myanmar, New Zealand, Philippines, Republic of Korea, Thailand and Viet Nam, and has 18 gateways located in the countries it serves. The user beams operate in the Ku-band and the gateway services operate in the Ka-band. Located at 119.5°E, IPSTAR has 84 spot beams, three shaped beams, and a 45 Gbit/s maximum bandwidth capacity. It provides a variety of services for the government, business and industry sectors, such as managed virtual private network cellular backhaul, satellite news gathering, rural telephony, retail broadband, disaster recovery and emergency communication, and distance learning.

Open skies please!

In the satellite market today, commercial and government-owned entities are jostling to meet the ever increasing demand for services. The rights and obligations of ITU Member States, as well as the mechanisms for sharing the orbit/spectrum resource,



recognize the inherently international nature of satellite communications. The Radio Regulations aim to provide interference-free operation of satellite networks by means of international coordination procedures. And harmonization of licensing frameworks could improve overall global satellite connectivity.

For a satellite system, it typically takes a decade to move from concept to gainful returns. National spectrum allocation policies therefore need to be supportive of long-term financial investment by satellite operators. The regulatory framework for satellite systems needs to be efficient and should produce timely as well as predictable decisions in order to ensure the continued infrastructure investments required to deploy these networks.

The tremendous demand for Internet, data, voice, video and other essential services is best addressed by policies that permit open and direct access to all satellite resources, assuming that these resources have been properly coordinated through ITU.

The footprint of a satellite — the area of the Earth illuminated by a satellite — does not match national borders. This makes it necessary to regulate satellite usage through international agreements such as those painstakingly reached under

the auspices of ITU as a result of multiple study cycles and world conferences.

The ITU coordination process is designed to mitigate interference among satellite networks. Once the entire process of coordination has been completed, the satellite service can be provided in any of the service areas associated with the coordinated satellite network. Therefore, if a satellite operator is licensed to use a satellite from a country that owns the satellite and has coordinated it through ITU, no duplicate licensing requirement should be imposed on the use of that satellite to provide services in any other country.

This non-discriminatory approach by domestic and non-domestic satellite service providers to have direct access to all available satellite resources and markets constitutes the policy referred to as “open skies”. It involves permitting increased access to orbital resources, regardless of the satellite operator’s country of origin.

An open skies policy brings in competition and gives end users more choices.

From child labour to a technical job — second chance for deprived girls and boys in Bangladesh

Bangladesh is a country of about 160 million people, of whom 43 per cent are children. It has made good progress in enrolling children in primary education — more than 98 per cent of children have now started school. But poverty causes half of these children to drop out before completing fifth grade. Instead of continuing their schooling, the children go out into the workplace to earning a living for themselves and their families. Consequently, the number of working children is high in Bangladesh and they have no opportunities for formal education.

Underprivileged Children's Educational Programs (UCEP-Bangladesh), a leading national non-governmental organization, gives these child labourers a second chance to complete their schooling, in order to improve their social and economic prospects so that they can look forward to better lives.

UCEP provides a package of educational opportunities for working children, comprising integrated general and vocational education, technical education and employment support services, along with training in various aspects of child rights, good governance and life skills. It operates 53 integrated general and vocational schools and 10 technical schools, with a total enrolment of more than 42 thousand distressed working children. There are equal proportions of boys and girls in the schools.

Since the inception of UCEP-Bangladesh, a total of 187 490 underprivileged children have been admitted to its integrated general and vocational schools. UCEP technical schools, established in 1983, have produced 47 215 technical graduates in different trades, and 43 408 of those graduates have been placed in jobs. UCEP is marching forward to achieve "Vision 2021",

the time-frame set by Prime Minister Sheikh Hasina to transform the country into "Digital Bangladesh".

Catching up with general and technical education

The integrated general and vocational schools educate children up to the eighth grade. The curriculum comprises an abridged form of the National Curriculum along with the basics of a technical education. In UCEP schools, children complete each grade in six months instead of one year — the time usually required in a formal school. Once the integrated general and vocational education is completed, students follow a 6 month course of pre-technical education to prepare them for technical school. Having completed schooling up to eighth grade and the pre-technical course, UCEP students pursue skills training in UCEP technical schools, which offer 6-month to 12-month courses in 20 different trades that require highly marketable skills.



Houlin Zhao, ITU Deputy Secretary-General (second from left) talking to students at the UCEP-Mirpur Technical School, Dhaka, during a visit where he was accompanied by, among others, Dr Ubaidur Rob (first from left), Chairperson of the UCEP Board of Governors and M. A. Kashem (right) a retired Major and Consultant, Submarine Cables System, Bangladesh Telecommunication Regulatory Commission

UCEP also offers vocational courses leading to the Secondary School Certificate for students who have completed integrated general and vocational education up to eighth grade. Every year UCEP provides financial support to the top ten performers in the Secondary School Certificate (vocational) examination in each UCEP technical school, enabling them to pursue a Diploma in Engineering course at a public polytechnical institute.

Helping students to find jobs

Students who have completed their skills training can look to the UCEP employment support service for help in finding a job. This service arranges on-the-job training for UCEP technical school students, and almost always manages to place graduates in gainful jobs within six months. The UCEP job placement rate is 95 per cent of job seekers, and the employment support service relies on job placement measures such as labour market surveys and linkages with employers.

Training in information technology

UCEP-Bangladesh has been running computer courses in its technical schools since 2002. Now there are 63 information technology centres — one in each of the 63 UCEP schools — and each centre is equipped with ten computers.

The study programme in UCEP integrated general and vocational schools covers Internet Explorer and software installation applications, and in UCEP technical schools it builds on earlier learning about information technology applications, and adds a software application for computer-aided design (AutoCAD).

UCEP students participated in making voter identity cards for the national election in 2008. UCEP schools have also been using information and communication technologies to teach the English language as part of an “English in action” course.

To prepare students for jobs in the electrical and electronic control industry, the curriculum in UCEP technical schools covers such topics as mobile telecommunications, including footprint, coverage, and a power supply system for base transceiver stations.

Country focus

Connecting schools

A social action project, supported by the British Council, to connect schools online is being implemented in 20 UCEP integrated general and vocational schools. The project has provided training to 20 teachers and 80 students, increasing their ICT knowledge and skills. These teachers and students are now getting the opportunity to share their knowledge and information with other students through the Internet, and to take part in online projects in other schools at home and abroad.

Dignitaries visit UCEP-Mirpur Technical School in Dhaka

ITU Deputy Secretary-General Houlin Zhao, accompanied by, among others, Sameer Sharma, ITU Senior Advisor, Regional Office for Asia and the Pacific, and Major General (retired) Zia Ahmed, Chairman of the Bangladesh Telecommunication Regulatory Commission, visited UCEP-Mirpur Technical School, Dhaka, on 24 May 2012. During the visit, Mr Zhao had an opportunity to talk to students taking different trade courses, and was impressed by the enthusiasm of children who were continuing to learn while working for their livelihood.

Houlin Zhao, ITU Deputy Secretary-General signing the UCEP-Bangladesh Visitor's Book following a visit to the UCEP-Mirpur Technical School, Dhaka, where he was accompanied by (from left to right): Brigadier General (retired) Aftab Uddin Ahmad, Executive Director of UCEP-Bangladesh; Dr Ubaidur Rob, Chairperson of the UCEP Board of Governors; Major General (retired) Zia Ahmed, Chairman of the Bangladesh Telecommunication Regulatory Commission; Ms Luna Shamsuddoha, Member of the UCEP Board of Governors; Sameer Sharma, ITU Senior Advisor, Regional Office for Asia and the Pacific; and Major M. A. Kashem (retired), Consultant, Submarine Cables System, Bangladesh Telecommunication Regulatory Commission





Broadband in Brazil

The stirrings of a giant

Brazil is the largest country in Latin America, both by geographical area and by population — with more than 190 million people. It is also the world's eighth largest economy. The implementation of its national broadband plan thus has major significance in global terms, as well as providing an example of regulatory progress in a developing country. The role of the regulator ANATEL is clearly specified.

This article is adapted from Trends in Telecommunication Reform 2012: Smart Regulation for a Broadband World, Chapter 2 "Setting national broadband policies, strategies and plans", written by Dr Bob Horton, Senior Telecommunication Expert.

Broadband is at the core of telecommunication services and network convergence, and Brazil sees competition as the main driver to increase broadband offerings over a wider area and population. Competition will encourage lower prices and increased quality of service for most of the country, though further action will be needed to make sure that the whole population has access to these services.

The broadband industry has been growing in Brazil in response to market growth and increased competition, and the latest spectrum auctions have demanded significant investment from operators. Optical network infrastructure has been one of the most significant areas of growth, and the government-owned incumbent, Telebrás, has been revitalized by an injection of funding to effectively create an additional player in the wholesale market.

Country focus

Establishment of a national broadband plan

In May 2010, the President of Brazil issued a Decree establishing the national broadband plan (Decree No. 7175 of 12 May 2010). The plan aims to foster the provision and use of information and communication technology goods and services in order to enhance access to broadband Internet connection services. The objectives are to speed social and economic development; promote digital inclusion and reduce social and regional inequalities; promote the generation of jobs and income; expand electronic government services and facilitate the use of State services by citizens; promote capacity building for the population on the use of information technologies; and expand Brazilian technological autonomy and competitiveness.

The plan is being implemented, managed and monitored through a Digital Inclusion Programme Steering Committee, which has defined the actions, goals and priorities of the plan, and which will promote and foster partnerships between public and private entities in order to reach these objectives.

Consultation over the broadband plan has been widespread and has taken place in open public forums and meetings of the Steering Committee, to build a general consensus, discuss the country's broadband needs, and set out specific targets and goals.

As part of a cost-benefit analysis of broadband implementation, there has been an analysis to evaluate the sustainability of specific broadband offers in the country (for example, coverage versus retail price). One of the major objectives of the plan is to promote competition in the wholesale market, and to bring market forces into play in order to reduce prices for end users.

Role of Telebrás

To achieve the objectives of the Decree, Telebrás is responsible for implementing the private communication network of the federal public administration. It is also responsible for

providing assistance and support in implementing public policies for Internet broadband connections to universities, research centres, schools, hospitals, service stations, community telecentres and other locations of public interest. Further, it will provide a supporting network infrastructure for telecommunication services delivered by private companies, states, federal districts, municipalities and non-profit entities. Telebrás will also provide broadband Internet connection services to end users in localities that do not have an adequate service offering. The Steering Committee will define these localities.

Telebrás thus has a significant role to play in the context of the national broadband plan, and decides itself on the technology to be implemented for its own network. Telebrás is authorized to use, operate and maintain the infrastructure and networks owned by the federal public administration.

The role of ANATEL as regulator

The national telecommunications regulatory agency, ANATEL, is responsible for supervision of all telecommunication services in Brazil, as well as technical aspects of networks and spectrum usage.

ANATEL follows the policies established by the Communications Ministry. The regulator has no influence on the choice of technology for implementing broadband. In Brazil, regulation is neutral with respect to the technology to be employed in any network.

There are various regulatory obligations and incentives related to broadband roll-out. Examples include obligations tied to spectrum licences to offer services in a wider range of municipalities; a proposed regulation to promote competition in markets where broadband is considered as wholesale, taking into account significant market power; and other proposed regulations to reshape network termination rates and address service provision.



Jasna Matić, Serbia's Secretary of State for the Digital Agenda with ITU Secretary-General Dr Hamadoun Touré at the inaugural meeting of the National Broadband Commission of Serbia in Belgrade on 4 April 2012

Broadband and digital broadcasting in Serbia

Broadband affordability target surpassed

Serbia recorded one of the most dramatic changes in broadband affordability in the world between 2008 and 2010, as reported in ITU's "Measuring the Information Society 2011" report. Access to entry-level broadband services in Serbia cost just over 3 per cent of average monthly income by 2010, down from more than 6 per cent two years earlier. Broadband affordability in Serbia now easily meets the targets set by the Broadband Commission, bringing broadband well within the reach of most households in the country.

On 4 April 2012, Serbia's Digital Agenda Authority established the National Broadband Commission for Digital Development, with ITU Secretary-General Dr Hamadoun Touré attending the founding meeting in Belgrade. The National Broadband Commission was launched by Jasna Matić, Serbia's Secretary of State for the Digital Agenda. The Commission will promote broadband access, aiming to make it a universal and

generally accepted standard for social and economic development in Serbia. Its members are prominent representatives of major telecommunication institutions and companies in the country.

The Serbian National Broadband Commission is modelled on the global Broadband Commission for Digital Development. Jasna Matić is a member of the global Commission, having been

Country focus

appointed Commissioner at the Commission's fifth meeting, which took place in April 2012 in Ohrid in the Former Yugoslav Republic of Macedonia. "Membership of this Commission is a great recognition and confirmation that Serbia can show significant results", she said at the time, pointing to the outcome of the United Nations E-Government Survey, published on 1 March 2012, which identifies Serbia as one of the three countries that has made the greatest progress in this field in the past two years, and ranked Serbia 51st among 190 countries of the world.

Belgrade to host Europe's Regional Preparatory Meeting for WTDC-14

In 2013, Serbia and the city of Belgrade will host Europe's Regional Preparatory Meeting for the World Telecommunication Development Conference 2014 (WTDC-14). This meeting will discuss regional priorities for the development of information and communication technologies (ICT). The agreed strategies and priorities will serve as inputs to WTDC-14.

Marking the continuous cooperation between Serbia and ITU's Telecommunication Development Sector (ITU-D) and Bureau (BDT), Serbia's "Broadcast Multiplex and Network Operator" (ETV), a new public entity, has become a Sector Member of ITU-D.

Rebuilding Serbia's destroyed public broadcasting system

In accordance with Resolution 126 of the ITU Plenipotentiary Conference held in 2010, "Assistance and support to Serbia for rebuilding its destroyed public broadcasting system", and Resolution 33 (Rev. Doha, WTDC-06), BDT's experts visited Serbia in 2011 to assess the assistance and support to be given to the country. After collecting information on the status of Serbia's broadcasting networks and the requirements for further development, ITU proposed guidelines for future assistance.

BDT has already assisted Serbia by providing ETV with a field survey vehicle (a car equipped with an antenna mast

The newly reconstructed Avala Tower in Belgrade



Brahima Sanou (third from left), Director of the ITU Telecommunication Development Bureau, visits the reconstruction site of Serbia's public broadcasting system accompanied by ETV officials



ETV/M. Simic

and monitoring receiver, television receiver and set-top box, and a global positioning system). In addition, based on the information collected during the expert mission and after a review meeting held in Geneva in early 2012 during the World Radiocommunication Conference (WRC-12), ITU has prepared a project document in order to mobilize funds for the full implementation of Resolution 126.

In 2011, public enterprise *Emisiona Tehnika i Veze* (JP ETV) built a network of 13 transmitters and two repeaters operating on the same frequency as the parent transmitter (gap filler), meeting the deadline for the start of digital broadcasting in Serbia. Coordinated by Serbia's Digital Agenda Authority, most of the equipment for this phase was acquired thanks to funds allocated by the European Union under the Instrument for Pre-Accession Assistance.

Looking ahead, it is clear that the assistance of the international community is indispensable in rebuilding the Serbian

national broadcasting system. Serbia presented its overall achievements and plans for the road ahead at the 17th meeting of the ITU Telecommunication Development Advisory Group (TDAG), held in Geneva from 27 to 29 June 2012.

JP ETV has prepared a project proposal with updated requirements, including cost estimates for BDT's consideration and further action. The proposal is made taking into account obligations from the Final Acts of the Regional Radiocommunication Conference, held in Geneva in 2006 (RRC-06); all equipment donated by the European Union through its Instrument for Pre-Accession Assistance, as well as investments and activities undertaken by the government and JP ETV.

Serbia has submitted a document requesting the ITU Council 2012 session (Geneva, 4–13 July) to consider allocating the necessary funds, within available resources, to help continue rebuilding its destroyed public broadcasting system successfully.

Broadband in Poland

A survey of infrastructure

Magdalena Gaj, President of the Polish Office of Electronic Communications

Poland's Office of Electronic Communications (UKE) carries out an annual survey in order to ascertain the extent to which existing telecommunication infrastructure and public telecommunication networks ensure or support broadband Internet access. The data indicate fibre and wireless network coverage, as well as coverage with buildings that support co-location.

UKE has performed this stocktaking exercise for the second time, but it was the first time that data have been collected on such a large scale. The information gathered has made it possible to perform a detailed assessment of the current status of broadband infrastructure and to indicate specific, long-term investment and development targets.

Scope of the survey

The inventory is made in accordance with the Act on supporting the development of networks and services. Related regulations define the scope of the survey, the electronic form to be used for submitting data, and the formats for reporting the data.

UKE collected details on the current status of infrastructure and on investment projects in the areas of fibre-optic network terminations, telecommunication network nodes, access nodes, coverage of cable and wireless networks, penetration of cable connections or wireless terminals in buildings (including



Magdalena Gaj, President of the Polish Office of Electronic Communications

UKE

in residential buildings), and existence of buildings enabling co-location.

A dedicated database was developed for the purposes of this exercise. The database is one of the outcomes of a project financed by European Union funds and implemented by the Telecommunication Institute in Poland, UKE and the Ministry of Infrastructure (currently the Ministry of Administration and Digitization).

Strategic development to boost Internet access

A detailed understanding of current coverage with existing telecommunication infrastructure and available technologies will show where telecommunication companies and local government, with the support of UKE, can make effective investments in infrastructure. Such an understanding will also be a starting point for a strategy for the further development of a broadband

Internet access network in Poland. The information collected will allow for detailed long-term planning of telecommunication infrastructure development at local level. The data gathered by the survey will be useful for:

- telecommunication operators, as well as other entities possessing or investing in telecommunication infrastructure, allowing them to make business decisions on new investment projects and on the competitiveness of the market, or to modify existing infrastructure;
- other investors, indicating the attractiveness of a given location from the point of view of accessibility to telecommunication technologies;
- local government, providing a basis not only for making decisions on publicly financed investment projects, but also highlighting current amenities and prospective plans that increase the attractiveness of the region;

- consumers, enabling them to select the most attractive telecommunication technologies, and the most competitive market offer.

Managers of regional operational programmes can also use the information gathered by the survey to notify the European Union of plans for the roll-out of regional broadband networks. The survey data will also assist in allocating financial resources to small and medium-sized enterprises in rolling out the last mile, and enable local authorities to justify spending public resources on deploying telecommunication networks.

Sharing experience of infrastructure mapping

Poland's experience with infrastructure mapping has been presented in Europe during various conferences and meetings, for example at a Digital Agenda Assembly event in Brussels, in June 2011 and at a Working Group on Numbering and Networks meeting in Riga, in June 2011, where it generated considerable interest.

Following another Working Group on Numbering and Networks meeting in Bucharest in October 2011, UKE joined a process for drafting recommendations for European regulators on infrastructure mapping. A meeting between UKE and the European Regional Information Society Association (ERISA) in November 2011 resulted in ERISA proposing that Poland lead an infrastructure mapping project in the European Union.

Poland presented its survey to the 17th meeting of the ITU Telecommunication Development Advisory Group (TDAG), held in Geneva from 27 to 29 June 2012. The country has also submitted the survey to ITU's Telecommunication Development Bureau as best practice that other regions could consider.



Thinkstock

E-education opportunities for Africa

United Kingdom Telecommunications Academy offers training and scholarships

Professor David P. Mellor OBE
Chairman of the United Kingdom Telecommunications Academy, and ITU Special Envoy for Academia



Professor David P. Mellor OBE

ITU/R. Farrell

The United Kingdom Telecommunications Academy (UKTA) started implementing Master's degree programmes in Rwanda in 2005 and Tanzania in 2009. To date, more than 200 students have benefited from our work in Africa. Although we have had participants from Nigeria, Zambia, Kenya, Tanzania, Burundi, Malawi, Uganda and Sudan, our challenge is to achieve an even wider reach. UKTA has also offered training courses to delegates from some 180 countries.

On-line Master of Laws in Information Technology and Telecommunications

In the upcoming academic year, UKTA professors will deliver two new programmes based on our on-line teaching experience. Our on-line Master of Laws in Information Technology and

Telecommunications (eLLM in IT & T) continues to go from strength to strength, and is now being supported by our new associate member, the University of Southampton. UKTA professors will be offering at least one eLLM in IT & T scholarship for Africa at the University of Southampton in the coming year. The value of the on-line scholarship will be USD 12 000.

Although a United Kingdom qualification from such a prestigious university is much sought after, UKTA is keenly aware of the cost constraints that students face. Our partner in Tanzania, the Open University, is always eager to pass on savings to the students.

The new eLLM programme at the Open University of Tanzania will save students an estimated 40 per cent of current costs if they study the whole programme on line. In September 2012, UKTA will offer

at least three modules on line, together with three modules by blended learning as at present. On-line modules will each cost USD 500, while blended modules will each cost USD 1000. The supervision and assessment of the final dissertation will cost USD 1000 irrespective of the mode of study.

Learning content for the eLLM modules will be hosted on Moodle (an open source course management system) at the Open University Campus in Dar es Salaam, but for those with poor Internet connectivity the content will be supplied — on registration for each module — on a compact disk.

The purpose of making the content modular is to spread the cost over the



time that an individual is studying for the degree. UKTA is already committed to supporting transfer of knowledge to Tanzania until at least 2015. By using on-line supervision from the United Kingdom, this transfer of knowledge can continue beyond 2015 and be extended to achieve the wider reach that we seek.

To encourage more least developed countries to strengthen their legal departments, UKTA will award two on-line scholarships for the new eLLM in IT & T programme at the Open University of Tanzania, which will commence in September 2012.

We have now seen seven cohorts of students complete the Master of Communications Management (MCM) at Kigali Institute of Science and Technology, and we have also now developed a Master of Science in Operational Communications, as a sister programme using five common modules.

Over the past seven years, many students have asked how they can achieve a United Kingdom Master's Degree at a reasonable cost. This has been our challenge. When we started the MCM in 2000 we had ten modules each worth 12 credits, giving a total of 120 credits. This allowed students to achieve a post-graduate diploma. If students continued to study, by writing a 20 000-word

thesis they could obtain a further 60 credits and be awarded a full United Kingdom level Master's degree.

In 2010, we remodelled the MCM, in conjunction with our then new member Bucks New University. One of UKTA's professors, Derek Godfrey, became Deputy Vice Chancellor of Bucks New University, bringing with him a commitment to helping the Academy realize its goal of high-quality degrees at a realistic cost. For the past three years, UKTA has been delivering a blended learning model of the MCM course at Great Missenden Abbey, which is less than an hour's drive from London Heathrow.

The model we adopted was based on four 30-credit modules, followed by a dissertation of 20 000 words. The benefit of four modules was that it was realistic for students from countries such as Nigeria, Ghana, Zambia and of course the United Kingdom to participate in intensive study weekends at the start of each module. Although this arrangement reduced the price of academic study from USD 15 000 to USD 7500, that amount is still beyond the reach of many students if you have to add four return air fares from their home countries to the United Kingdom. Full board accommodation has been provided at USD 75 per night at Great

Academia

Missenden Abbey, but this is still expensive for some individuals. So what does UKTA offer in 2013?

The eMCM will be available from January 2013 in parallel with the MCM. All learning content, including lectures for the four modules, will be available on the Bucks New University Blackboard. For the MCM and eMCM, we will have the same professors supervising the content and answering your questions. The on-line programme will be exclusive to UKTA, and discounts will be available for groups of five or ten students registering for the programme. For any students experiencing Internet download delays, the content can be made available on either flash or compact disk.

We will continue to develop the student experience of on-line learning as the programme progresses. But with the final reward of a full United Kingdom Master's degree recognized by both UKTA and the ITU Telecommunication Development Sector (ITU-D), we are confident that many Africans will relish this opportunity to join the Academy and Bucks New University in this exciting adventure.

We recognize that students may wish to spread the cost and time-frame over which they follow this programme, so we have allowed a three-year window to complete the study. Students can pay on a module-by-module basis, and start in January, April, July or October. Because the content of each module is completely separate from the content of the other modules, the modules can be combined in any order.

The module that starts in January covers legal, regulatory, policy and environment matters. The topics of the April module

are project management and risk analysis. In the July module, we focus on human capital development, and procurement of both technology and employees. In October, the focus is on business management and strategy.

Students who complete and pass all four modules can submit a proposal for a topic of their choice that attempts to resolve a business challenge. To complete the Master's degree, students must provide a critical analysis of the approved topic in a 20 000-word dissertation. To kick-start this programme, UKTA is offering two fully funded scholarships, at a total value of USD 18 000 (USD 9000 per scholarship).

UKTA sincerely hopes that students from least developed countries will welcome the opportunities described in this article. If you are interested in the University of Southampton eLLM, Bucks New University MCM or eMCM, the Kigali Institute of Science and Technology MCM or MOC, or the Open University of Tanzania LLM or eLLM, please visit our website at www.ukta.co.uk for further details.

How to apply for scholarships

If you would like to apply for one of the scholarships mentioned above, then please write a short paper of not more than 500 words and forward it to chairman@ukta.co.uk for consideration. Successful applicants for the scholarships will be announced in August 2012.



Thailand hosts ITU Asia-Pacific Regional Development Forum 2012

■ An ITU Asia-Pacific Regional Development Forum was held on 16–18 May 2012 in Bangkok, Thailand, and attracted some 140 participants from 24 countries, 18 international, regional or sub-regional organizations, 5 ambassadors, and 16 representatives of the private sector, research and development institutes, non-governmental organizations and academia. The Forum was organized by ITU in close collaboration with the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), and hosted by Thailand's Ministry of Information and Communication Technology, with the support of Australia's Department of Broadband, Communications, and the Digital Economy.

The Forum provided a platform for decision-makers from ITU Member States, Sector Members and various other partners to review, discuss and recommend priority areas for programmes

and initiatives in the Asia-Pacific region. The aim of these programmes and initiatives is to develop telecommunications as well as information and communication technologies (ICT) to facilitate and accelerate the achievement of the Millennium Development Goals and the targets of the World Summit on the Information Society in order to attain a sustainable and inclusive information, knowledge and smart society.

Four major themes were discussed. The first was the challenge of transparent and effective governance in the digital age. Participants reviewed infrastructure and applications of ICT, in particular in the era of broadband, and noted the requirements for an enabling environment, and for investment in infrastructure, applications and content, along with the need to respond to demands from users.

The second theme concerned a safer and greener digital society. Participants discussed a range of topics including the environment, health, cybersecurity, disaster and emergency communications, and marginalized groups such as women and girls, the elderly, and people with disabilities. Speakers recognized the importance of standardization, as well as effective and harmonized use of the radio-frequency spectrum.

The third theme related to bridging the digital divide. Here participants thought that the gap would be narrowed by an innovative and creative digital economy. Focusing on the need for an enabling environment to pave the way for such an economy, they mentioned various components of an enabling environment, such as incentives, ICT literacy, and close collaboration and partnership among regional and international organizations.

The fourth theme was the goal of moving towards a smart society. Participants considered mechanisms or means to bridge the divide between cities and rural areas, not forgetting the divide within urban areas between affluent residents and slum dwellers. Human capacity building was seen as a way to reduce disparities, provided that it embodied the values of inclusiveness and resilience, in a knowledge and information society.

The Forum identified key areas for future ITU activities, for example building partnership among policy-makers, regulators, industry and civil society. Particular emphasis was placed on ITU's role in supporting the ICT business world. Speakers called for enabling policy and regulatory frameworks to provide incentives and a level playing field for industry, pointing out that companies are already very competitive. Participants also called for more job opportunities for young people, age-sensitive devices for the elderly, gender-sensitive policies, and safer and greener environmental policies, for a truly inclusive and sustainable society.





World Telecommunication and Information Society Day 2012 celebration in Bangkok (from left to right): Xuan Zengpei, Director of the Information and Communications Technology and Disaster Risk Reduction Division of the United Nations Economic and Social Commission for Asia and the Pacific; Woravat Auapinyakul, Minister attached to the Prime Minister's Office, Thailand; and Eun-Ju Kim, Regional Director of the ITU Regional Office for Asia and the Pacific

The Forum hoped that its findings and comments would be reflected in ITU's development initiatives and projects, and especially those of its Regional Office for Asia and the Pacific. The Forum encouraged Member States, Sector Members and all development partners to apply within their countries and organizations the lessons that had been learned, shared and exchanged. All Forum presentations and other related materials can be found at: <http://www.itu.int/ITU-D/asp/CMS/Events/2012/RDF/index.asp>

World Telecommunication and Information Society Day 2012 celebration in Bangkok

On 17 May 2012, during the Forum, ITU along with UNESCAP and Thailand's Ministry of Information and Communication Technology organized a World Telecommunication and Information Society Day 2012 Bangkok Celebration at the United Nations Conference Centre.

This year's theme, "Women and Girls in ICT", aims to ensure that the vulnerable female half of the world's population will

march forward as equals to men. Messages by United Nations Secretary-General Ban Ki-moon, ITU Secretary-General Dr Hamadoun Touré and the Prime Minister of Thailand Yingluck Shinawatra, among others, were addressed to the Bangkok celebration ceremony.

As part of the celebration, a panel discussion focused on ICT opportunities for a new generation of women and girls, as well as related subjects such as the role of ICT in ageing societies, and how ICT can empower people with disabilities. Panellists included ambassadors, as well as representatives from United Nations agencies, non-governmental organizations, academia and the private sector.

The Ministry of Information and Communication Technology organized an e-women exhibition as a side event. The exhibition was officially opened by Woravat Auapinyakul, Minister attached to the Prime Minister's Office, Thailand; Eun-Ju Kim, Regional Director of the ITU Regional Office for Asia and the Pacific; and Xuan Zengpei, Director of the Information and Communications Technology and Disaster Risk Reduction Division, UNESCAP.

Arab Book 2012



Thinkstock



Arab Book 2012

A vibrant ICT market in the Arab region *The impact of regulation*

The Arab Book 2012, to be launched by ITU before the end of the year, chronicles the dramatic growth in the information and communication technology (ICT) sector over the past decade in the Arab region. In contrast to the trends outlined in the Arab Book 2002 — when Arab States were in the initial stages of

restructuring their telecommunication sector to expand access to basic services — current trends show that telephony and basic data services are largely available, with some countries nearing or surpassing 100 per cent penetration for mobile services. Regulators, operators and consumers are now turning their attention towards seeking greater access to broadband services.

“Policy-makers are shifting focus from simply establishing policies to facilitate growth in telephony and basic data services to more advanced communication services. Due to the growth in Internet services and applications, and broadband access in particular, the Arab Book 2012 includes several topics not addressed in the previous editions, including spectrum management in the

Arab Book 2012 was prepared by ITU experts, with Taieb Debbagh, Amr Hashem and Bouchaib Bounabat as lead authors, under the supervision of the ITU Regulatory and Market Environment Division, and in close coordination with the ITU Arab Regional Office. The report was edited by the consulting firm Telecommunications Management Group, Inc. (TMG).

digital economy, broadband strategies and plans, the impact of ICT on cross-sector issues and policies for converged services, applications and content,” says Brahima Sanou, Director of the ITU Telecommunication Development Bureau (BDT).

While liberalization and regulatory independence are discussed in the Arab Book 2002, the Arab Book 2012 puts even greater emphasis on maintaining a pro-competition environment, encouraging innovation, and expanding affordable ICT access for all. It also goes into greater depth on the regulatory challenges of converged services, such as rules for voice over Internet Protocol (VoIP) and voice over broadband (VoB). It looks at social media, protection of intellectual property rights, climate change and the environment, cybercrime and cybersecurity, financial and banking services, free open-source software, education and professional training, health care and e-government.

The Arab Book series serve as a dynamic tool for Arab States and should continue to be reviewed and updated, as needed.

Affordability and growth

Many countries in the Arab region are now focusing on ensuring that citizens and businesses are able to enjoy access to high-speed broadband networks through the development of national broadband plans that build on ICT strategies. In this vein, 50 per cent of Arab countries have adopted or plan to adopt a national broadband plan, strategy or policy by the end of 2011.

Cost is one of the major barriers to ICT access. Arab leaders identified affordable access to ICT as the fifth pillar of the Arab ICT Strategy 2008–2012, which mandates “assuring the balance between tariffs for services and level of income, to make it affordable to the majority of the citizens of the Arab States, especially in less developed States.”

Jordan’s strategy considers the digital divide to be mainly a matter of tariffs, in particular for broadband access. In Bahrain, despite witnessing a 40 per cent decline in broadband tariffs, the regulator still perceives affordability as the primary barrier to greater penetration and a more equitable spread of ICT services.

A March 2011 benchmarking study conducted by the Bahraini regulator on tariffs for basic access to broadband revealed that the average tariff for mobile broadband in the Arab States is 40 per cent cheaper than fixed broadband packages.

Evidence from several countries shows that price reductions in services were accompanied by sharp growth rates in the number of subscribers. Saudi Arabia witnessed a 90 per cent reduction in mobile broadband tariffs in 2010 as a result of growing competition between the three licensed operators. This triggered 400 per cent growth in the number of mobile users and a doubling of the volume of traffic on mobile networks. At the end of 2011, Saudi mobile operator, Mobily, reported that it had 8.7 million mobile broadband subscribers, compared to 2.3 million at the end of 2010. In addition, the volume of data traffic grew from 85 terabytes per day in 2010 to 163 terabytes per day in 2011, while



Image Source

Internet traffic increased 87 per cent in 2011, with a 475 per cent increase in BlackBerry data traffic alone.

Mobile devices

Feature phones that allow only for voice and basic data services continue to dominate the Arab market. In 2011, smartphones comprised just 18 per cent of the 200 million mobile devices sold throughout the Arab States and Africa. The good news is that the penetration rate for smartphones is set to increase throughout the Arab region because of falling prices for devices and greater consumer demand. In the United Arab Emirates, for example, 70 per cent of mobile devices are forecast to be smartphones by the end of 2016, compared with 47 per cent at the end of 2011. In Saudi Arabia, smartphone penetration is expected to increase from 25 per cent in 2011 to 49 per cent by 2016.

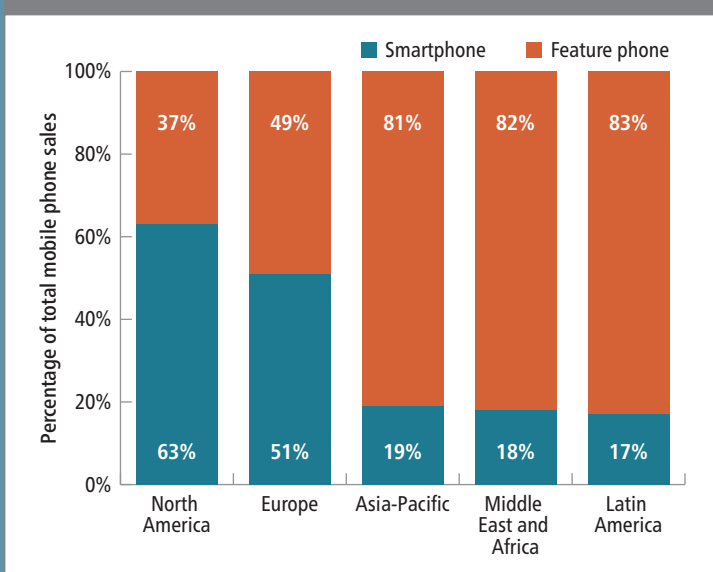
Better quality of life

Countries throughout the Arab region have made great strides in using ICT to address the Millennium Development Goals, as well as the goals set by the World Summit on the Information Society, Connect Africa Summit, Connect Arab Summit and the United Nations Convention on the Rights of Persons with Disabilities. Broadband is viewed as a critical component for achieving various development targets aimed at improving the quality of life for all, and promoting cultural diversity and human rights.

For example, Bahrain has used ICT to help achieve health-related goals by establishing electronic health records and interconnected data systems that link all hospitals, health centres and clinics. In particular, the system tracks child immunizations, enabling doctors to more easily follow up on vaccinations.

The Qatar Assistive Technology Center (Mada) showcases a host of assistive technologies, such as text-to-speech software for the blind. The United Arab Emirates has implemented the Echo of Silence project, which provides training and assistive technologies to people with hearing and speech disabilities. And an ICT project in Oman trains teachers to enable children with disabilities to use computers.

Figure 1 — Smartphones and feature phones as percentage of total mobile phone sales, 2011



Source: Vision Mobile, "Mobile Platforms: The Clash of Ecosystems," Market Research Report, November 2011.

Protecting the environment

Several Arab countries have launched specific initiatives to ensure that ICT applications can help protect the environment. For example, in Egypt, the Green ICT Strategy adopted by the Ministry of Communications and Information Technology in August 2010 is composed of three main programmes: raising awareness of green ICT; electronic waste management; and ICT solutions for a more sustainable future. In Qatar, ictQATAR has developed green ICT policies and guidelines with the aim of providing incentives for ICT growth while reducing greenhouse gas emissions and energy consumption.

In the United Arab Emirates, the Emirates Energy Star initiative was introduced by Etisalat and Pacific Controls in October 2010, and inaugurated by the Minister of Environment. The programme aims to reduce the consumption of energy and the carbon footprint of organizations in the country. This involves retrofitting existing buildings with ICT-enabled machine-to-machine systems to increase energy efficiency through managed energy services.

Many programmes have been initiated in the Arab region in order to deal with the negative impacts of ICT on the environment. These programmes mainly target the assessment of e-waste and the establishment of e-waste recycling structures, for example the programmes in Algeria, Jordan, Morocco, the Syrian Arab Republic, Egypt, Tunisia and Saudi Arabia.

Other Arab initiatives aim at recycling used computers and digital equipment. These include the Moroccan Green Chip project for the collection of used digital equipment and e-waste recycling and the Jordanian project for reusing computers, which is overseen by the Jordan Environment Society.

There are also innovative public-private partnership initiatives, for example, Qtel's e-waste recycling programme. Launched under the auspices of the Ministry of Environment and the Qatar National Campaign for the Recycling of Mobile Phones, the aim is for all Qtel shops in Qatar to provide dropboxes for e-waste.

The changing role of regulators

The establishment of regulatory authorities in the Arab region over the past decade has resulted in 16 of the 22 economies in the region having a regulatory authority. In the light of rapid technological development and service innovations, countries are increasingly moving towards the adoption of technology-neutral and unified authorization frameworks. These frameworks allow licensees to provide all forms of services under the umbrella of a single authorization, using any type of communications infrastructure and technology capable of delivering the desired service. Licences (typically coupled with unrestricted entry) provide a platform for better competition.

Universal access strategies

Many governments have taken a more pro-active role to promote ICT in order to ensure universal access and reduce or eliminate the digital divide within their borders. For example, the Egyptian Ministry of Communications and Information Technology has initiated several projects to minimize the digital divide. Most notably, this ministry has established community centres as part of its "IT Clubs" initiative, which aims to make ICT available throughout the country. Working with the private sector, non-governmental organizations and the educational sector, the ministry makes available laboratories fully equipped with computers, printers, networks, access to the Internet, and trained instructors. These computer laboratories are mainly located in schools, clubs, universities and youth centres.

Sometimes market forces are not enough to ensure access in rural areas. In Saudi Arabia, for example, licence obligations for mobile operators used to exclude areas with fewer than 5000 inhabitants from the coverage obligations. This left almost 18 per cent of the population distributed over more than 13 000 localities without access to telecommunication services. In 2006, the Saudi Ministry of Communications and Information Technology issued a Universal Service Policy to extend universal service to localities of more than 100 inhabitants, with services to be made available — within 10 kilometres — to communities of fewer than 100 inhabitants. Under the policy, any award of universal service funds should encourage competition between licensed operators. The resulting competition between the three mobile operators has resulted in technology innovations, particularly in using 900 MHz spectrum to deliver high-speed packet access services.

Other Arab countries are pursuing a hybrid approach, combining universal service that directly reaches all homes and businesses, with community centres. The Omani Telecommunications Regulatory Authority is seeking to expand access by establishing telecentres and by implementing universal service obligation projects — through a public tendering process — to cover rural areas.



Infrastructure sharing

Most Arab countries have established regulations for infrastructure sharing. Co-location and site sharing are mandated in more than half the countries, while sharing among mobile operators is permitted in two-thirds of the countries. In 2009, Delta Partners estimated that about 200 000 towers were in operation in the region, with this number expected to increase by 50 per cent during 2010–2015. Mobile operators in the region could save USD 8 billion in capital expenditure through tower-sharing arrangements, and a further USD 1 billion annually on the construction of new towers. Regulators in several Arab States are starting to support this new trend.

Mobile roaming

International mobile roaming among the Arab States is plagued by high charges. The Arab Regulators Network has tried to address this, but proposals made to the Council of Arab Ministers have not yet been accepted.

In February 2012, the Ministerial Committee of the Gulf Cooperation Council decided to introduce a price cap for all mobile operators to reduce prices for roaming among its six countries. In this context, Bahrain's Telecommunications Regulatory Authority has reduced roaming tariffs across Gulf Cooperation Council countries by 75 per cent.

Bahrain and the United Arab Emirates had already imposed transparency measures on licensed operators, requiring them to send text messages with pricing information to their roaming customers.

Arab countries should envisage handling international roaming rates on a regional basis among governments and regulators.

Refarming spectrum for new technologies

Regulatory approval for deployment of newer technologies on the same spectrum (referred to as spectrum refarming) is essential for the roll-out of wireless broadband services. For example, the Communications and Information Technology Commission of Saudi Arabia has adopted a technology-neutral

approach in its spectrum policy for universal service providers to allow the provision of high-speed access in rural areas. In 2010, it authorized universal service providers to deploy 3G services over the 900 MHz band, which had previously been allocated for 2G operations only.

Many countries have adopted plans for digital broadcasting transition, with the main objective of freeing up spectrum that can then be used for telecommunication services, particularly mobile broadband. Digital terrestrial television is already available in six countries, with the analogue switch over having taken place in these countries, and set to occur by 2015 in an additional seven countries. More than 80 per cent of households in the Arab region are expected to receive digital television by 2015. Policy-makers throughout the region have plans to release an unprecedented amount of spectrum over the next few years for new mobile services.

Internet exchange points

Ten Arab countries have set up Internet exchange points, while only two have taken part in regional projects. As a result, most Arab Internet traffic is exchanged outside the Arab region, through access points in the United States and Europe. However, there have been some direct exchanges between service providers within the region, and some recent experiments on Internet exchange through access points. The need to expedite Arab cooperation in this area is clear.

Transition from IPv4 to IPv6

Few Arab countries have a national plan for the transition from IPv4 to IPv6, and — among those that do — implementation is still in the early stages. The ITU Arab Regional Office has initiated strategic efforts to assist Arab countries to promote and accelerate the transition. These efforts include capacity building, reviewing current national plans, and assisting in drawing up

national plans based on stakeholder commitment and international best practice.

Cloud computing

Cloud computing initiatives in the Arab countries are still in their early stages, and are generally being led by local operators. This is the case with Etisalat in the United Arab Emirates and Mobily in Saudi Arabia. Meanwhile, the Qatar Cloud Computing Initiative, the first cloud platform in the Arab region, developed by IBM in 2009 is being driven by three universities, led by Carnegie Mellon University in Qatar. The objectives of the initiative are to advance research previously constrained by time, resources and overburdened systems, and to open the cloud infrastructure to local businesses and industries in order to support oil and gas exploration. This platform is fitted with an Arabic language web search engine.

Social media

With a critical mass of Arab users in many countries, governments have begun to recognize social media's potential to develop more transparent, participatory and inclusive governance models.

Some Arab government officials and politicians are active contributors to social networking platforms such as Twitter and Facebook. For example, the Bahraini telecommunications regulator launched its Twitter presence in April 2011 as part of an initiative to promote openness and transparency, noting that "the usage of social media such as Twitter is growing tremendously, as it is complemented by the affordability of broadband services in Bahrain. The online community has become a popular new medium for people's communications, and the telecommunications regulatory authority understands the importance of adopting the new technology to interact with individuals both online and offline."



Arab blogospheres and communication networks create a space in which citizens are able to engage in debate on social and political issues, and even hold discussions with national leaders. From Morocco to Bahrain, the Arab world has witnessed the rise of independent vibrant social media and steadily increasing citizen engagement on the Internet, which is expected to attract 100 million Arab users by 2015.

Governments and authorities use different measures to regulate Internet access and online activities. These include print and publication laws, penal codes, emergency laws, anti-terrorism laws, the terms and conditions of Internet service providers' licences, as well as telecommunication decrees. Some Arab countries have enacted temporary blocking measures in response to the perceived threats from social media. For example, Twitter was

blocked in January 2011 in Egypt in an effort to stop protesters from using the site to organize, and to get information out to the public.

Recommendations

The Arab Book 2012 includes recommendations to help guide policy-makers and stakeholders as they seek to adapt regulatory structures to new and innovative technologies. These recommendations focus on policies to promote ICT access and adoption; creating an enabling environment; spectrum management in the digital economy; universal access strategies; policies for new and converged services, applications and content; and, ICT and cross-sectoral matters.

Building an ethics culture in ITU through training

■ An ethics culture helps build closer bonds between organizations and their staff members, stakeholders and the larger communities of which they are a part. Experience shows that organizations with a strong ethics culture are better able to fulfil their mandates.

But an organization doesn't make decisions — individuals do. So the ITU Ethics Office has launched a training programme in the belief that, through a strong ethics culture, ITU staff will reach their full potential.

True nature of responsibility

The Ethics Office is expanding the effectiveness of its training programme to assert ITU's values and principles, in order to develop an ethics culture that will empower and protect ITU staff.

The programme encourages staff members to go beyond mere compliance in order to understand the true nature of the responsibilities of public international civil servants. This approach develops a culture and an environment of personal accountability, which will be in the long-term interests of individual staff members as well as the Union as a whole.

Learning from real-world cases

The first ITU Ethics training seminar was launched in November 2011 in cooperation with the Human Resources Management Department. The seminar included two-day and one-day sessions conducted by an external facilitator and the ITU Ethics Officer. The training introduced participants to the fundamentals of ethics, with a focus on business ethics in the

workplace. The ITU Ethics Service Orders as well as administrative procedures were discussed in detail.

Cases with a real-world context, as well as examples from within the United Nations system and ITU, were carefully selected to illustrate the most complex concepts. This practice-based approach enabled participants to become familiar with what ethics is about and what it means to behave ethically in a work environment.

Most of the feedback from participants in the seminar was positive. Some said that the training had given them a better understanding about why the policies existed, and how they should react in situations where there is a potential for ethical risks to arise. Others expressed strong interest in knowing more about ethics, and asked for access to flexible and practical sources of information.

Participants agreed that ethics is a positive tool, and that ethical behaviour is an individual responsibility. Some also explicitly recognized their responsibilities towards ITU, and the role that tolerance and awareness must play in a multicultural environment. As one participant put it, "holding training seminars on ethics for ITU staff is a good initiative of ITU".

Communicating ethical values

The Ethics Office will continue to deliver training to empower each staff member. Through their learning, ITU staff as individuals will be able to shape the ethical environment in the Union. The Ethics Office will now start to use innovative and mainstream communication tools, drawing on the knowhow of the Communication, Promotion and Partnership Division.

Interactive interfaces could be an effective way of providing case-by-case training. Such interfaces would enable staff members to test the limits of ethical behaviour for international civil servants. Self-training can also be provided through web links to

Contributed by Max-Henri Cadet, Head of the ITU Ethics Office.



public, private and academic resources, with sample cases to assist with specific ethics problems.

Posters and screens offer a proactive way of sharing ethical values and principles with ITU staff during the work day. They are a cost-efficient way of raising staff awareness in a visual and friendly manner. This approach, if combined with an annual Ethics Day — held at headquarters with the remote participation of regional and field offices — would serve to reinforce awareness of the importance of ethics for the success of the Union.

A Code of Ethics for ITU staff

Educating and training staff members on their ethical obligations presupposes a policy framework. Training, in turn, is an essential component in maximizing the effectiveness of ethics policies and minimizing potential risks to the Union.

The ITU Code of Ethics is inspired by a draft system-wide Code of Ethics for United Nations personnel, approved by the United Nations Secretary-General in February 2009 and submitted

to the United Nations General Assembly at its 64th session, in September 2009, for consideration and endorsement.

The ITU Code of Ethics was formulated as a concise statement of the values and principles reflected in the United Nations Charter, the ITU Constitution, the ITU Staff Regulations and Staff Rules, as well as the Code of Conduct for the International Civil Service.

The ITU Code of Ethics consists of six fundamental values and six principles, specifying ethical conduct within ITU. The Code of Ethics, as well as the two other Ethics Policies (on financial disclosure and reporting misconduct, discussed below), was published on 22 February 2011.

Avoiding corruption — the ITU Policy on Financial Disclosure

The ITU Policy on Financial Disclosure was published as Service Order No. 11/03. It is based on the basic elements for an ITU Policy on Financial Disclosure adopted by the ITU Council at

its 2009 session. The purpose of the policy is to ensure full compliance with the relevant ITU Staff Regulations and Staff Rules.

This policy aims to ensure that ITU's financial management is conducted in line with the strictest ethical standards, in the best interests of ITU. It describes the procedures that have been put in place for filing financial disclosure statements and for reporting conflicts of interest.

The policy stresses that ITU staff members have a responsibility to disclose all situations with the potential for a conflict of interest, or a perception thereof, and to refrain from any further involvement in such situations.

Protecting whistleblowers

The ITU Policy for the Protection of Staff against Retaliation for Reporting Misconduct was published as Service Order No. 11/04. It aims to ensure that ITU functions in an open, transparent and fair manner.

The policy protects individuals from any direct or indirect detrimental action that might be recommended, threatened or taken because the individual has reported misconduct or cooperated with a duly authorized audit or investigation. The policy also reaffirms an earlier ITU Policy on Harassment and Abuse of Authority adopted by Service Order No. 05/05, noting that any behaviour that constitutes harassment or abuse of authority will not be tolerated either at headquarters or in any other ITU offices and, therefore, will incur the full disciplinary measures described in Chapter X of the Staff Regulations and Staff Rules.

The Ethics Officer is authorized to conduct confidential reviews of any reported cases in order to prevent unethical situations from occurring within ITU. If such cases do occur, the necessary support will be provided by the Ethics Office.

Establishment of the ITU Ethics Office

Starting in 2008, the Tripartite Group on Human Resources Management (merged since 2011 into the Council Working Group on Financial and Human Resources) began to address ethics issues of concern to the ITU membership, management and staff. While there was general consensus on the need to strengthen management accountability in the area of ethics, it was emphasized that an ethics function must be adapted to the size and circumstances of ITU.

The ITU management drafted proposals for the establishment of an ethics function in the Union, including ethics policies. These proposals were then presented to the Tripartite Group.

The policy proposals contained two main components: financial disclosure; and protection of ITU staff against retaliation for reporting misconduct (whistle-blowing protection). As explained above, these policies are now in force.

At its 2009 session, the ITU Council established the Ethics Office to function independently of any official, department, Bureau or other organizational entity of ITU. The Council also created the post of Ethics Officer within the Office of the Secretary-General.

The mandate of the ITU Ethics Office includes the duty to function independently; provide confidential advice; administer a financial disclosure programme; administer the policy on protection from retaliation (whistleblower); and develop standards, training and education on ethics.

Aligning ITU with the United Nations ethics benchmarks

The 56th Session of the United Nations General Assembly (2001–2002) adopted Resolution 56/244, endorsing the "Standards of conduct in the international civil service". These standards had previously been drawn up and adopted by the International Civil Service Commission, in consultation with participating organizations. The standards were a precursor to the current United Nations initiative on ethics. This initiative was endorsed by national leaders attending the 2005 World Summit



as well as the 60th Session of the General Assembly. The United Nations initiative on ethics was conceived as part of a reform agenda to promote transparency and good governance.

The ethics function of the United Nations Secretariat was established on 1 December 2007, and opened up the way for separately administered organs to designate their own ethics officers who would report directly to the executive head of the organ concerned.

ITU, like some other United Nations specialized agencies, took the initiative of adopting its own ethics policies and created an Ethics Office.

In the United Nations context, an ethics function generally assists the executive head of each body to ensure that all staff members observe and perform their work in a way that is consistent with the highest standards of integrity.

An ethics office is an effective management tool to prevent problems from arising. Its functions include giving confidential advice to staff members, awareness-raising on potential ethics

problems and risks, and training staff members about their obligations as international civil servants.

Ethics offices offer a wide range of services, from access to hotlines or helplines for reporting misconduct and filing complaints, to offering advice in response to inquiries about accepting specific gifts. Staff members can also seek advice about their financial disclosure obligations or whether they could benefit from whistle-blower protection policies.

Given the complexity of conflicts of interest within the United Nations system, staff members need a place to seek advice in order to avoid or manage such conflicts.

Today, an ethics office is not only a resource for those who seek advice before engaging in an activity, but it also provides professional and pro-active advice. It helps staff members carry out their jobs professionally and fairly, and enables them to manage their private lives in a way that does not interfere with their official duties.

Obituary



Richard Butler

An exceptional and inspiring man

Rejuvenating ITU for an evolving environment

Richard Butler, Secretary-General of ITU from 1 January 1983 to 31 October 1989, and Deputy Secretary-General from 1968 to 1982, was born in Australia on 25 March 1926 and died on 23 June 2012 at the age of 86.

Before joining ITU, Richard Butler was already immersed in telecommunications, holding various senior posts in the Australian telecommunication Administration. He worked on corporate planning and investment in international communication facilities. He coordinated domestic and international public telecommunication service policies, as well as bilateral and multilateral technical cooperation arrangements. And he acted as a policy adviser for both the public and private sectors in regard to the planning, regulation and development of Australian broadcasting and television services. He was also deputy leader of Australian delegations to major United Nations and ITU conferences.

Mr Butler was involved in the establishment and early activities of INTELSAT, and helped negotiate international agreements on submarine cables. Between 1959 and 1968, he participated in various national committees dealing with matters concerning ITU, notably in its radiocommunication conferences, and in its International Telephone and Telegraph Consultative Committee (CCITT) and International Radio Consultative Committee (CCIR)

— today's ITU Telecommunication Standardization Sector (ITU-T) and Radiocommunication Sector (ITU-R), respectively.

On 27 May 1968, while he was in Melbourne serving as Deputy Assistant Director-General of the Australian Post Office, Mr Butler was chosen by the ITU Administrative Council to be Deputy Secretary-General. He was elected for a further term as Deputy Secretary-General by the Plenipotentiary Conference held in Malaga-Torremolinos, Spain, in 1973.

While at ITU, Mr Butler encouraged cooperation between Member States, particularly in the organization of ITU administrative radio conferences. He made sure that the United Nations system took account of the growing importance of telecommunications in social and economic development. He also promoted modern management methods within ITU for the treatment and processing of information exchanged by Member administrations.

Richard Butler's work was recognized by the Plenipotentiary Conference, held in Nairobi, Kenya, in 1982, which on 6 October elected him ITU Secretary-General. His acceptance speech was characteristic of such a modest and far-sighted man: "Forgive me

The first TELECOM exhibition in 1971 (Richard Butler in the centre)



if I am a little emotional at this point in time but I do wish to thank you warmly for the honour which you have extended to me, my family, my country and the Australian Government in your decision to choose me to lead the ITU Secretariat". He went on to outline the challenges facing the Union, saying that a new world information and communication order would be heavily dependent upon telecommunication infrastructure.

The Nairobi Plenipotentiary Conference also decided to set up an Independent International Commission for World-Wide Telecommunications Development recognizing, for the first time in the Union's history, "the fundamental importance of communications infrastructure as an essential element in the economic and social development of all countries".

The Commission's report, *The Missing Link*, finding that two-thirds of the world's population had no access to telephone services, set the goal that by the early part of the 21st century all of humankind should be within easy reach of a telephone and of all the benefits this could bring. Through his lifelong work in telecommunications, Richard Butler helped to make that happen.

Another example of the way in which Mr Butler changed the telecommunications world was through ITU TELECOM, launched in Geneva in 1971 as an exhibition of equipment to promote the benefits of telecommunications and demonstrate recent technological advances. In 1983, under the leadership of Richard Butler, TELECOM became "an exhibition for all", an event designed to contribute towards the accelerated transfer of information and the development of telecommunications infrastructure. His insight was that the development of global telecommunications was no longer led by technology but by policy.

Two landmark events later came to prove this point and cement Richard Butler's legacy as a great visionary. One was the World Administrative Telegraph and Telephone Conference (WATTC-88), held in Melbourne, Australia, in 1988 — a predecessor to the upcoming World Conference on International Telecommunications (WCIT-12), to be held in Dubai, in the United Arab Emirates, from 3 to 14 December 2012. The other was the Plenipotentiary Conference, held in Nice, France, in 1989.

Obituary

As Mr Butler put it in his opening speech to WATTC-88, the two key objectives for agreement in Melbourne were: “the establishment of an adequate framework for international telecommunication services for the public on a global scale; and the development of suitable arrangements that would foster connectivity as well as increased availability of telecommunication capabilities among all information applications, be they shared through public or private networks or established for specialized uses.”

On 9 December 1988, representatives of 113 nations adopted the world’s first treaty for integrated international telecommunication services and networks, the International Telecommunication Regulations (ITRs), which took effect on 1 July 1990. These Regulations — a landmark in the field of telecommunications and international law — were a response to the new and rapidly changing telecommunication environment.

Richard Butler in an editorial in the *Telecommunication Journal* recalls that at the opening of WATTC-88, “it was not surprising that delegations held divergent positions based on individual national perceptions of the integrated global instrument they had the task of creating. The challenge, therefore, was of finding unity in diversity.” With the exchange of views as the days went by, however, it became apparent that interests overlapped in this new unfolding environment. A balanced text, based on common ground, began to see the light of day. In the end, the product of WATTC-88, the International Telecommunication Regulations together with the Final Protocol and associated Resolutions, Recommendations and Opinion, successfully accommodated the varied perspectives of the participants.

The general principle established for the operation and use of all types of telecommunication services, including advanced services, was to enable the harmonious development of international services of all kinds, while at the same time allowing each Member country to choose the policy and technological approaches best suited to itself. WATTC-88 also set out the

responsibilities of all parties in cooperating in the establishment of international services, systems and networks, and their related obligations to users large or small.

In that period of remarkable change, the onus was on the Nice Plenipotentiary Conference “to rise to the challenge of our times, to reaffirm and further strengthen the Union’s mandate and its primacy in the global arena,” Mr Butler wrote in an editorial in the *Telecommunication Journal*.

The Nice Conference created a Telecommunication Development Bureau (BDT) as a permanent organ, explicitly identified the Union’s mission in the standardization of telecommunications, and formally recognized the principle of equitable access to all radio-frequency bands. The Nice Conference also established a High-Level Committee to review the structure and functioning of the Union so as to face the challenges of the future. Mr Butler’s hope was that the High-Level Committee would “have the insight, wisdom and courage to take all measures necessary to give the Union the wherewithal to assume its leadership role in the Information Age.”

Other landmarks during the seven years Richard Butler was at the helm of ITU include the achievements of major world conferences for mobile services, and improved planning for the high frequency (shortwave) broadcasting services. There were also the two sessions of the Orbit Conference which, in addition to the establishment of the World Plan for direct satellite broadcasting in the 12 GHz band, developed new concepts for planning and procedures which in practice guarantee assured access to the geostationary orbit for domestic and fixed-satellite services for all Members.

In his farewell editorial in the *Telecommunication Journal* as Secretary-General, Richard Butler wished the Union “continued success in carrying out its assigned mandate of facilitating peaceful relations, international cooperation and economic development among peoples by means of telecommunication services.”

Richard Kirby

An outstanding radio man



Richard Cyril Kirby, Director of the International Radio Consultative Committee (CCIR) from 1 September 1974 to 28 February 1993 and of the Radiocommunication Bureau (BR) from 1 March 1993 to 31 December 1994, died on 26 January 2012 at the age of 89.

Richard Kirby's lifelong passion was radio telecommunications. When he was just 14 years old he was employed by Western Union, where he learned about telegraphy and earned his first amateur radio licence. His engineering studies at the University of Minnesota were interrupted by World War II, and he finally graduated in 1951. International radiocommunication standards became an important part of his career when, in 1948, he joined the United States National Bureau of Standards (NBS) in Washington DC. He worked in the Central Radio Propagation Division where he coordinated ITU studies in frequency management for worldwide high frequency (HF).

In 1955, Mr Kirby was appointed Chief of the Ionospheric Research Section at NBS, and became Chief of the NBS Radio Communications Systems Division in 1959. As a physicist and

research engineer, he contributed to the development of communication systems using scatter propagation. From 1965 to 1968, he was head of the Ionospheric Telecommunications Laboratory of the Institute for Telecommunications Sciences. From 1971 to 1974, he was Associate Director of the United States Department of Commerce, Office of Telecommunications. He also served as Adjunct Professor of Electrical Engineering at the University of Denver from 1969 to 1974.

As Director, Mr Kirby was instrumental in achieving CCIR's broad objective of providing information for the efficient use of the radio-frequency spectrum (and subsequently satellite orbits) — an objective that was reached through studies of technical and operational questions relating to radiocommunication in any or all of the frequency bands. Information from these studies was disseminated widely for the development, planning and operation of radio systems. Under Mr Kirby's leadership, special measures were taken to facilitate the use of such information in developing countries. A good example of this are the many handbooks that have been written to serve as tutorial material to meet the needs of engineers from developing countries.

Mr Kirby was very much a driver of the marked increase in attention being paid to telecommunication development.

Richard Kirby passed away during the World Radiocommunication Conference (WRC-12), as sadly noted in Issue No. 2 of the WRC-12 Weekly, and it would have been appropriate to publish his obituary in the WRC-12 Special Supplement of ITU News to be released in September 2012. But rather than wait, we have decided to mark his passing here.

Obituary

This interest arose both from the need to plan expanding services within developing countries (often for the first time), and from the opportunity to introduce new systems, for example mobile, and thereby enable countries to exercise a “technology leap-frog” towards present-day technologies.

During his tenure as Director of CCIR and BR he also worked with others to develop global standards for high-definition television (HDTV), digital sound broadcasting, and mobile and satellite communications. Following retirement he continued to work as a consultant in international communications.

Mr Kirby was a Life Fellow of the Institute of Electrical and Electronic Engineers (IEEE), former Chairman of the IEEE Communications Technology, and a member of the editorial

board of IEEE Spectrum. During his career, he was awarded many honours including: the US Department of Commerce Gold Medal Award in 1956 for outstanding contribution in the science of radio wave propagation; a second US Department of Commerce Gold Medal Award in 1968 for outstanding contribution in the field of telecommunications in the Federal Government; the IEEE Award in International Telecommunications in 1981; the ITU Silver Medal in 1992; the Emmy Award in 1993 for outstanding efforts in telecommunications and broadcasting technology; and the IEEE 3rd Millennium Award in 2000 for outstanding achievements and contribution. He belonged to and served on the boards of numerous professional organizations during his career and was author of many technical articles, studies and books.



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Official Visits

During April, May and June 2012, courtesy visits were made to ITU Secretary-General Hamadoun Touré by the following ministers, ambassadors to the United Nations Office and other international organizations in Geneva, and other important guests.



April



Houlin Zhao, Deputy Secretary-General of ITU; Sha Zukang, United Nations Under-Secretary-General for Economic and Social Affairs; and Dr Hamadoun Touré, Secretary-General of ITU



Achim Steiner, Executive Director of the United Nations Environment Programme (UNEP) and Under-Secretary-General of the United Nations



Irina Bokova, Director-General of the United Nations Educational, Scientific and Cultural Organization (UNESCO)



Ertharin Cousin, Executive Director of the United Nations World Food Programme



Professor Mark I. Krivocheev, Chief Scientist at the Radio Research and Development Institute in Moscow, Russian Federation



Kathryn C. Brown, Senior Vice President of Public Policy Development and Corporate Responsibility at Verizon, United States



Housseynou Hamady Ba, Mauritania's Minister of Health

May



Dr Hamadoun Touré, Secretary-General of ITU; Eugene Kaspersky, co-founder and Chief Executive Officer of Kaspersky Lab; and Brahim Sanou, Director of the ITU Telecommunication Development Bureau



David Williams, co-founder and Chief Executive of Avanti Communications



Nicolas Niemtchinow, Ambassador of France



Liu Zhenmin, Ambassador of China



Alexey Borodavkin, Ambassador of the Russian Federation

All photos are by P.M. Virot/ITU and Rowan Farrell/ITU.



Datuk Mohd Noor Amin, Chairman of the International Multilateral Partnership Against Cyber Threats (IMPACT); Dr Hamadoun Touré, Secretary-General of ITU; and Brahim Sanou, Director of the ITU Telecommunication Development Bureau



Maria Ciobanu, Ambassador of Romania



Ana María Menéndez Pérez, Ambassador of Spain



Leda Muñoz, Executive Director of the Omar Dengo Foundation, Costa Rica



Colonel Panji Kaunda, Zambia's Deputy Minister for Transport, Works, Supply and Communications



Gilbert Noël Ouedraogo, Burkina Faso's Minister for Transport, Posts and the Digital Economy



Petro Yatsuk, Chairman of Ukraine's National Commission for the State Regulation of Communications and Informatization



Mignon Clyburn, Commissioner at the Federal Communications Commission of the United States



Romain Bausch, President and Chief Executive Officer of SES



Elisabeth Neasmith, Senior Engineering Specialist, International Coordination at Telesat, Ottawa, Canada, presenting Dr Hamadoun Touré with a new model satellite

June



Shanker Das Bairagi, Ambassador of the Republic of Nepal



Jean-Marie Ehouzou, Ambassador of the African Union



Ivan Piperkov, Ambassador of Bulgaria



Rytis Paulauskas, Ambassador of Lithuania

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Abdul Samad Minty, Ambassador
of South Africa



Nakpa Polo, Ambassador of Togo



Thérèse Baptiste-Cornelis, Ambassador
of Trinidad and Tobago



Cheikh Ahmed Ould Zahaf, Ambassador
of Mauritania



Ricardo Ehrlich, Uruguay's Minister of
Education and Culture



Ambassador Michele Cosentino
representing the Italian *Corte dei
conti* — an institution with the role
of safeguarding public finance and
guaranteeing the respect of the
jurisdictional system



Tom Mboya Okeyo, Ambassador of Kenya



Houlin Zhao, Deputy Secretary-General of ITU; Yahya Salim Al-Wahaibi, Ambassador of Oman; and Dr Hamadoun Touré, Secretary-General of ITU



Jasna Matić, Serbia's Secretary of State for the Digital Agenda, Ministry of Culture, Media and Information Society; Dr Hamadoun Touré, Secretary-General of ITU; and Irena Posin, Assistant Minister for International cooperation in Serbia's Ministry of Culture, Media and Information Society



Amadeo Perez, Ambassador of Switzerland

All photos are by P.M. Virot/ITU and Rowan Farrell/ITU.

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