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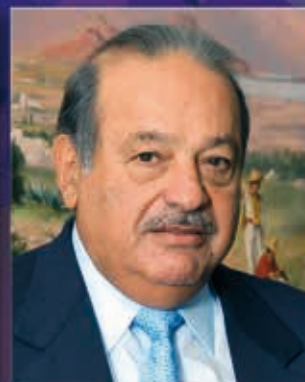


**WTDC
2014**

UNITED ARAB EMIRATES
DUBAI, 30 MARCH - 10 APRIL

Special report from Dubai

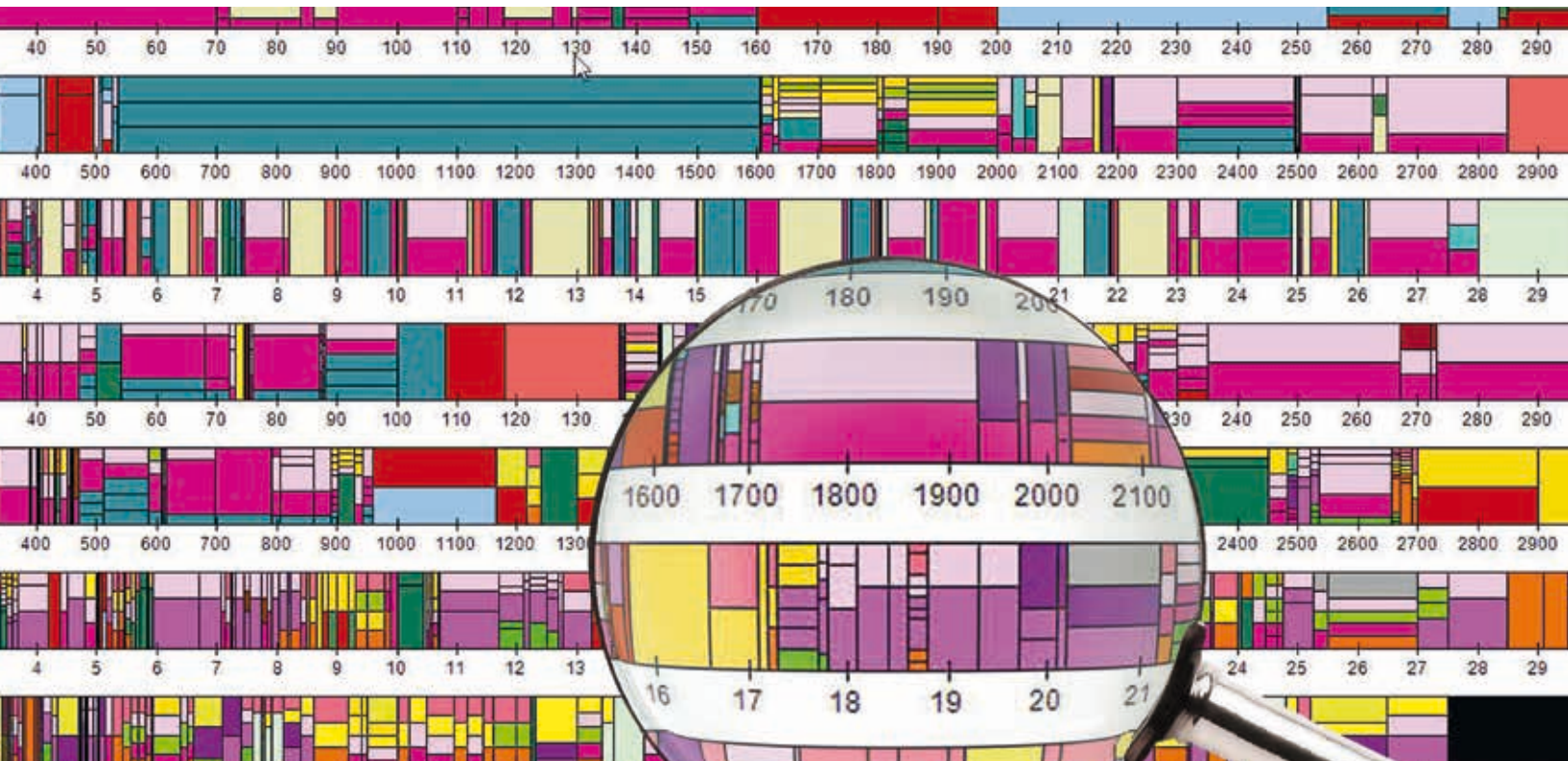
Broadband for sustainable development



Three laureates honoured for their leadership



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Broadband for sustainable development

World Telecommunication and Information Society Award

Dr Hamadoun I. Touré
ITU Secretary-General



Honouring three laureates for their leadership in broadband and ICT for sustainable development

On the occasion of the 17 May celebrations marking the World Telecommunication and Information Society Day (celebrated this year on 16 May, 17 May being a Saturday), I presented the World Telecommunication and Information Society Award 2014 to three leaders who have dedicated themselves to promoting information and communication technologies (ICT) and broadband connectivity as a means of achieving sustainable development: Paul Kagame, President of Rwanda; Park Geun-hye, President of the Republic of Korea (represented by Choi Mun-kee, Minister of Science, ICT and Future Planning); and Carlos Slim Helú, Chairman of Grupo Carso and President of the Carlos Slim Foundation.

Each year, ITU celebrates World Telecommunication and Information Society Day on 17 May to mark its founding in 1865. This year our theme, as adopted by the ITU Council in 2013, was “Broadband for Sustainable Development” — which was also the theme of the World Telecommunication Development Conference (WTDC-14). Eminent representatives of ITU Council Member States, including Council 2014 Chairman Aboubakar Zourmba, attended the World Telecommunication and Information Society Day celebrations.

Our distinguished laureates have inspired us all, and they have supported ITU's work with tremendous commitment and leadership. They have pushed for high-speed broadband connectivity, opening up new avenues to communicate anytime, anywhere. Broadband connectivity is a critical element in ensuring that ICT can be used for the effective delivery of a vast range of services including health, education, governance, trade, commerce and so much more. Broadband-based networks are powerful cross-cutting enablers to achieve the three pillars of sustainable development — economic growth, social inclusion and environmental balance. This is why ITU is committed to achieving universal access to broadband connectivity — and to fostering the political will needed to achieve this objective.

United Nations Secretary-General Ban Ki-moon shared a message with us stating categorically that information and communication technologies are powerhouses of the global economy, offering solutions for sustainable economic growth and shared prosperity. Mr Ban emphasized that broadband networks provide smart eco-friendly ways of managing cities and transport systems, enhance the efficiency of manufacturing industries, and make it possible to conduct long-distance diagnosis and treatment of



From left to right: Brahima Sanou, Director of the ITU Telecommunication Development Bureau; Houlin Zhao, ITU Deputy Secretary-General; Carlos Slim Helú, Chairman of Grupo Carso and President of the Carlos Slim Foundation; Paul Kagame, President of Rwanda; Dr Hamadoun I. Touré, ITU Secretary-General; Choi Mun-kee, Minister of Science, ICT and Future Planning, Republic of Korea (representing President Park Geun-hye); Malcolm Johnson, Director of the ITU Telecommunication Standardization Bureau; and François Rancy, Director of the ITU Radiocommunication Bureau

patients in remote locations. He recognized that broadband also enables innovative educational applications worldwide.

ITU and the Broadband Commission for Digital Development are at the forefront of advocating the roll-out of broadband. President Kagame and Mr Slim co-chair this Commission, and together they have convinced governments, experts, academics and citizens in United Nations Member States that broadband and ICT are vital for the future of our planet. To serve humanity, we must ensure that broadband is a central element of the post-2015 sustainable development agenda.

We need to identify gaps in broadband research and development, infrastructure, and applications and services. We need to set policy priorities for allocating

radio-frequency spectrum for broadband and fulfilling universal access obligations. And we need innovative financing mechanisms and leading edge technological solutions, particularly in extending broadband access to rural areas, least developed countries and small island developing States.

The right to communicate is synonymous with the information society. It is a key principle for equitable, affordable and universal access to information and knowledge that in turn empower people to meet their aspirations and achieve their development goals. For nearly 150 years, ITU has been the one organization devoted to making it possible for people everywhere — wherever they may be, even in the remotest corners of the world — to communicate.

This year's Council session decided that the Union's 150th anniversary celebrations in 2015 will focus on ITU's innovative achievements and their impact on daily life throughout history and in the future. It also decided that the theme to mark the 150th anniversary celebrations and World Telecommunication and Information Society Day 2015 itself is, "Telecommunications and ICTs: Drivers of innovation".

Let me therefore invite all our members to celebrate ITU's 150th anniversary by organizing, under this theme, activities worthy of the achievements we have made so far and to continue to innovate for a better future for all. ■

**World
Telecommunication
and Information
Society Day**

17 May 2014

BROADBAND FOR SUSTAINABLE DEVELOPMENT

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Special report from Dubai

Broadband for sustainable development

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Dr Hamadoun I. Touré, ITU Secretary-General

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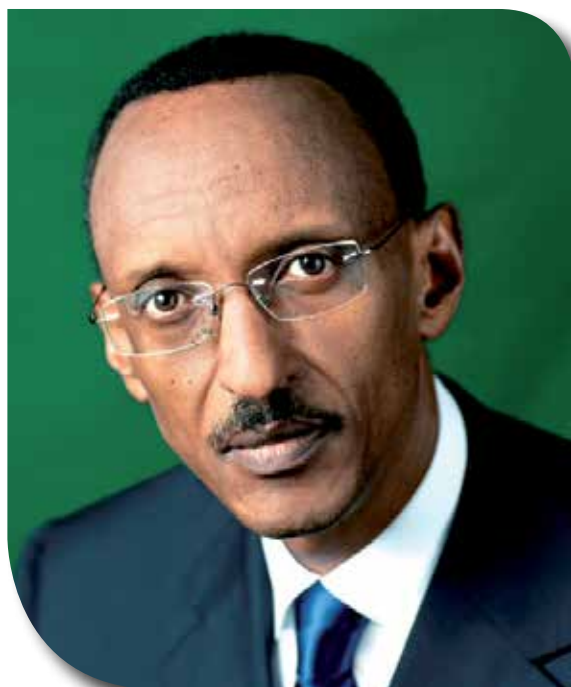
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Paul Kagame President of Rwanda

Paul Kagame, President of Rwanda, was born in October 1957 in Rwanda's Southern Province. His family fled pre-independence ethnic persecution and violence in 1960, crossing into Uganda where Mr Kagame spent 30 years as a refugee.

In 1990, Mr Kagame returned to Rwanda to lead the Rwandan Patriotic Front's four-year struggle to liberate the country and set it on its current course towards reconciliation, nation building and socio-economic development.

Mr Kagame took the Oath of Office as President of the Republic of Rwanda on 22 April 2000 after being elected by the Transitional National Assembly. He won the country's first-ever democratically contested multi-party elections in August 2003 and was re-elected to a second seven-year mandate in August 2010.

President Kagame has received recognition for his leadership in peace building and reconciliation, development, and advancement of education and of information and communication technologies (ICT). His leadership has guided African development overall, and promoted the ICT sector as a dynamic industry as well as an enabler for Africa's socio-economic transformation. In 2013, Mr Kagame co-hosted the Transform Africa Summit.

President Kagame currently co-chairs the United Nations Secretary-General's MDG Advocacy Group and the United Nations Broadband Commission for Digital Development.



President Paul Kagame receiving the Award from ITU Secretary-General, Dr Hamadoun I. Touré

► *Transforming Rwanda*

The Award — a sense of honour

Accepting the 2014 World Telecommunication and Information Society Award, President Kagame said "I want to express my gratitude and the sense of honour I feel in receiving this award. I do it in the humblest of ways knowing that this is an award of value that builds on the efforts of all Rwandans that have worked hard and embraced the policies and strategies of our development... This is the result of their efforts and progress and working together in our

country, and also working notably with ITU that has been very supportive of efforts in Rwanda."

President Kagame went on to emphasize the importance of information and communication technologies (ICT) in driving his country's development. He commended United Nations Secretary General Ban Ki-moon and ITU Secretary General, Dr Hamadoun I. Touré, for keeping the ICT agenda relevant to the socio-economic development of countries.

As he later explained, his country's ICT strategy is based on integrating key sectors

in a system that combines connectivity, enabling policy and regulatory framework, as well as skills development and networks. A documentary featuring concrete examples of how the ICT and broadband revolution was changing the lives of Rwandans was shown during the award ceremony.

President Kagame, who co-chairs the Broadband Commission for Digital Development with Carlos Slim Helú, Chairman of Grupo Carso and President of the Carlos Slim Foundation, pointed out that public-private partnerships are a

win-win situation, because no one entity can, alone, do everything that needs to be done.

Smart Africa

Since the Connect Africa Summit in 2007, which President Kagame hosted, the private sector has invested USD 70 billion in Africa's ICT sector. Since this summit, Africa has witnessed unprecedented increases in mobile penetration and broadband connectivity. The continent has received a number of submarine cables on its shores, including SEACOM, EASSy, TEAMS, West African Cable System (WACS) and Africa Coast to Europe (ACE).

President Kagame was also the patron of the Transform Africa Summit, held in October 2013 in Kigali, which closed with the adoption of the Smart Africa Manifesto. Smart Africa aims to accelerate sustainable socio-economic development in Africa through affordable access to broadband and appropriate use of information and communication technologies. A novelty of the manifesto is the prominence given to the private sector. The Smart Africa Manifesto tackles challenges such as e-waste and the empowerment of previously marginalized groups. It also emphasizes cybersecurity, and the need to embrace more cost-effective innovations such as cloud computing, mobility, shared infrastructure and shared services.

To make the Smart Africa Manifesto more actionable, an implementation framework — the Smart Africa Alliance — is annexed to the manifesto. This envisages a partnership between each African country that adheres to the manifesto, the African Development Bank, the World Bank, ITU and the private sector.

Vision 2020

In 2000, President Kagame launched Vision 2020 — a road map to transform Rwanda, by 2020, from a low-income agrarian economy to a middle-income information-rich knowledge-based society. Vision 2020 was launched following a national consultative process conducted between 1997 and 2000 involving Rwandans from all walks of life, including leadership of all levels in the business community, government, academia and civil society.

Vision 2020 comprises six interlinked pillars, including good governance, an efficient State, skilled human capital, a vibrant private sector, a world-class physical infrastructure and modern agriculture and livestock, all geared towards national, regional and global markets.

The Government of Rwanda strongly believes that ICT can enable the country to leap-frog the key stages of industrialization and has invested heavily in this area since 2000. It has also integrated ICT through the

national information and communication infrastructure process as a key driver for socio-economic development and as a tool to fast-track Rwanda's transformation to a knowledge-based society.

Through this process, Rwanda has already established an enabling legal and regulatory environment, deployed world-class infrastructure and is developing a highly skilled human resource base — all are further positioning the country to increase its competitiveness and to achieve the United Nations Millennium Development Goals.

A competitive economy

Rwanda's economy has continued to grow at comparably good rates, averaging 8 per cent per annum, despite the global recessionary period that started in 2008. The country's continuing growth in the midst of the global downturn can be attributed to its good governance and sound fiscal discipline, as well as to the commitment of its public and private sectors to build a more equitable country.

The 2013 World Bank Doing Business Report ranked Rwanda 52nd out of 185 countries. In overall performance, Rwanda is still the best performing country in the east African region as well as the 3rd easiest place to do business in sub-Saharan Africa.

The 2013 Global Competitiveness Report, published by the World Economic Forum, ranked Rwanda the most competitive economy in the East African Community, third in sub-Saharan Africa, and raised its global ranking from 70 in 2012 to 63 in 2013.

Rwanda — a landlocked country — is now internationally connected by two submarine cables: the Eastern Africa Submarine Cable System (EASSY) through Uganda to Mombasa, Kenya; and The East African Marine System (TEAMS) submarine cable to Dar-es-Salaam, Tanzania.

Broadband infrastructure

The construction of the national fibre-optic backbone was completed in 2010. The backbone connects all urban districts as well as districts in remote and rural areas. The total network comprises 5003 km of fibre, of which 2503 km belong to the private sector. The quick roll-out was facilitated because the independent regulator reinforced the legal and regulatory framework to promote open competition and infrastructure sharing.

Besides laying a national fibre backbone underground, Rwanda has also rolled

out fibre above ground on its electricity national grid network. This creates extra coverage and reduces the risk of interrupted services if cables are cut.

With nationwide fibre-optic coverage, the country is embarking on ensuring that last mile access is provided to fully maximize the opportunity at hand. A study has been commissioned with the aim of mapping out Rwanda's broadband needs across the entire country in order to bridge the digital divide through last mile broadband connectivity. The plan is to install fibre to some premises and wireless broadband



A secondary school in a rural area connected to Internet through a very small aperture terminal (VSAT)

for the rest. A new market structure for better service provision will include rural and remote areas, taking into account affordability and digital literacy in regard to the uptake and adoption of broadband services.

New investment currently focuses on fourth-generation Long-Term Evolution (4G LTE) wireless broadband. Rwanda has adopted 4G LTE wireless broadband network as the last mile solution for urban and rural areas. It will be operated on a wholesale basis, with open access to all operators. The infrastructure will boost access to various broadband services, such as e-governance, e-banking, e-learning and e-health. The network connects more than 360 institutions — both government and private — in all 30 districts of the country, and connects all nine Rwandan borders.

Inclusiveness

President Kagame has led his country towards inclusiveness and open access to knowledge. In a practical move to bridge the digital divide, four buses are crossing the countryside to take computing and Internet services to remote and under-served areas. The buses are mobile telecentres as well as computer labs, and they offer convenient and affordable services and training to farmers, traders, students, women, youth groups, entrepreneurs and other rural inhabitants.

Rwanda has 94 telecentres located throughout its 30 districts, the target being to connect all villages using telecentres

by 2020. The telecentres provide training in computer use and have allowed local enterprises such as agricultural co-operatives, handicraft industries, artisans, shops, garages and tourist facilities to gain access to accurate market and pricing information. These multi-purpose telecentres are strategically located where people, especially in rural areas, can gain access to information and learn how to use the Internet. The Universal Access Fund subsidized bandwidth for telecentres, educational institutions, health institutions and other public institutions, totalling 110 Mbit/s of bandwidth from Intelsat.

Digital public information kiosks have also been installed at several sites. They are normally composed of touch screens and printers, and they are connected to the Internet. People can check basic information online, saving time that would have been spent physically going to different institutions.

Currently, a national literacy and awareness campaign is focusing on rural people to raise their awareness of online services such as social media, electronic banking (for example, mobile money) and other Internet services. This campaign aims, by 2018, to make 50 per cent of the population aged 15 years and above computer literate, and to increase the use of information services among at least 60 per cent of the same population.

In a bid to increase digital television penetration in the country, the government has started a special programme to facilitate affordable access to digital

television sets, again with a special focus on rural areas. This programme is called Tunga TV, which means “Own a TV”. To start with, 700 viewing centres will be set up across the country, and the number of such centres will keep growing. Each centre will be equipped with a cable television, two computers connected to the Internet, as well as a fixed telephone to help people without mobile phones. The centres will be powered by solar energy where the electrical grid is not yet available. It is expected that the programme will push television penetration from the current 6 per cent to 40 per cent in the next five years.

Partnerships

President Kagame has sought partnerships to boost Rwanda’s own efforts to achieve development by spreading the use of information and communication technology. For example, the Rwanda Development Board, in partnership with volunteers from the Korea International Cooperation Agency, has started a digital e-library to be used in all the 30 business development centres countrywide. Physical libraries at telecentres will be equipped with Samsung Galaxy tablet computers, which will offer a suitable way of accessing information.

Another example is the One Laptop per Child project, which aims to enhance education by introducing information technology in primary schools. The project gives primary school students early access to computer skills and computer science,



Children using One Laptop per Child

Rwanda's country report on the WSIS+10

while expanding their knowledge on specific subjects such as science, mathematics, languages and social sciences through online research or content hosted on the server. The One Laptop per Child project was launched in June 2008 and started with two pilot projects. The first pilot project distributed 8150 laptops in 10 public schools, while 1800 laptops were bought by parents from 12 private schools. In the second pilot project, the Government of Rwanda entered into partnership with the Microsoft Corporation to train teachers and local school technicians. As part of this pilot project, electrical installations and

Internet access were set up in classrooms, and content servers were installed.

President Kagame is aware of the need for an enabling environment. With the establishment of the Kigali Free Trade Zone, Rwanda again looks at moving forward and fast-tracking development in all sectors. The zone will be home to various industries, including an information and communication technology park. It will provide tax incentives for businesses situated there, especially those targeting the export market. These incentives include zero per cent corporate tax, exemption from value-added tax, zero per cent import duty,

and write-off of 100 per cent of research and development costs, among other advantages. At the core of the technology park will be Carnegie Mellon University, with which the government of Rwanda has partnered to establish a centre of excellence that will develop highly skilled information and communication technology professionals. The technology park, which will be oriented towards research and development, is expected to cover areas such as business process outsourcing, cloud computing, technological education and training, e-government, cybersecurity, and mobile solutions. ■

Source: Rwanda's country report on the WSIS+10: Overall Review of the implementation of the WSIS outcomes.



Park Geun-hye **President of the Republic of Korea**

Park Geun-hye, President of the Republic of Korea, was born on 2 February 1952. She graduated from Sogang University, Seoul, in 1974 with a Bachelor of Science in Electronic Engineering. Since then, she has been awarded Honorary Doctorates by several universities, including an Honorary Doctorate in Science by the Korea Advanced Institute of Science and Technology, Daejeon, and an Honorary Doctorate in Politics by both Pukyong National University, Busan, and Sogang University. During her high-flying career, Ms Park has been Director of the Yukyoung Foundation, and has chaired Youngnam University in Daegu and the Korea Culture Foundation. From 1974 to 1979, she was Acting First Lady of the Republic of Korea and also served as Honorary President of the Girl Scouts of Korea. From 2000-2004 she was Member of the Gender Equality and Family Affairs Committee, and Member of the Science, Technology, Information and Telecommunication Committee.

From 2004 to 2008, Ms Park was a lawmaker in the 17th National Assembly and served on the Committee for National Defense, Government Administration and Local Autonomy, and the Committee for the Environment and Labour. In 2012, she was a lawmaker in the 18th National Assembly and served on the Committee for Health, Welfare and Family Affairs, and the Committee for Strategy and Finance. She was also Chairman of the Emergency Committee of the Saenuri Party. In December 2012, Ms Park was elected as the 18th President of the Republic of Korea and took up office in February 2013. She is the Republic of Korea's first female President.

The goal of her administration is "to work together with the people to realize economic prosperity, happiness and cultural enrichment". In this context, her administration will ensure a prosperous life for Koreans by revitalizing the economy. It will also "strive to make life comfortable and happy with tailored welfare programmes and education that nurtures dreams and talents".



▶ **Republic of Korea, world leader in ICT**

Choi Mun-kee, Minister of Science, ICT and Future Planning, receiving the Award from ITU Secretary-General, Dr Hamadoun I. Touré, on behalf of President Park Geun-hye of the Republic of Korea

President Park Geun-hye's vision for humanity is built on sustainable development. Speaking via video as a winner of the World Telecommunication and Information Society Award during the World Telecommunication and Information Society Day celebrations held at ITU headquarters on 16 May 2014, President Park said that she sees broadband as essential to achieving this vision because it serves as an enabler of innovation and growth. Recognizing that broadband adds value across the entire spectrum of industries, creating new jobs, the Republic of Korea as an early adopter has been rolling out broadband networks, boosting competition and encouraging investment in the telecommunications market, fostering the information and communication technology industry, and providing education to enhance computer literacy.

President Park's award was collected on her behalf by Minister Choi Mun-kee. "As the Minister of Science, ICT and Future Planning in charge of the Korean ICT Authority, it is truly an honour to accept the World Telecommunication and Information Society Award on behalf of the President of the Republic of Korea. Broadband has been a key infrastructure driving our country's economic growth since the late 1990s.

We are also harnessing broadband as a foundation for convergence and innovation to move beyond the informatization era and realize the vision of 'creative economy'. Drawing from our experience and capacity, the Republic of Korea now feels a responsibility bestowed on us to participate in international efforts to promote broadband across the world. We will step up efforts towards globalized ICT development as an ITU member and Council Member State." He added that he would share the highlights of the day's deliberations with President Park "to help further advance discussions on sustainable development".

The Ministry of Science, ICT and Future Planning was created under a reorganization plan initiated by President Park in an effort to generate new sources of economic growth in the areas of science and information technology. Having pledged to create the ministry during her election campaign, President Park announced its creation in February 2013 when she was sworn in. The ministry plans to cement the foundation of science and technology in the Republic of Korea by boosting progress in the fields of basic science and software. ICT is seen as a future growth engine for the country and this ministry will be the main government agency responsible for the nation's future economic growth and job creation.

Connecting all citizens

The Republic of Korea has made information and communication technologies

a national priority, and has demonstrated clear leadership both in developing and using such technology, and in formulating targeted policies that have driven growth and uptake.

Some 97 per cent of homes have a broadband Internet connection — and the country enjoys one of the highest average advertised broadband speeds in the world, according to the 2013 edition of ITU's report: *Measuring the Information Society*. Published in October 2013, the report features the latest ICT Development Index and ICT Price Basket — two benchmarking tools to monitor information society developments worldwide.

The Index ranks 157 economies, and the Republic of Korea was world number one, for the third consecutive year, in terms of overall development of ICT.

The country was one of the first worldwide to adopt mobile broadband third-generation technologies. It has now passed the 100 per cent penetration rate for active mobile-broadband subscriptions.

Various telecommunication and broadcasting services such as Internet protocol television (IPTV), e-learning and e-health have become common for those living in urban areas, thanks to a high-speed broadband network. But so far, delivery of such services to small rural communities has been a challenge. The government has recognized the vital importance of improving the network as a way to deliver high-quality education and healthcare services to farmers and fishermen.

To ensure that all people have Internet access, the government initiated a public Wi-Fi project in 2012, providing free-of-charge Wi-Fi service in public places such as parks, museums and libraries. In cooperation with operators, the government is implementing Wi-Fi networks in public places, sharing the networks to reduce service costs and manage mobile data traffic. Three mobile carriers have already built 2000 public Wi-Fi zones, and plans are under way to deploy 10 000 in total by 2017.

Digital natives

Internet usage among young people in the Republic of Korea is high: by 2012, almost 100 per cent of the country's young population qualified as digital natives (defined as networked youth aged 15–24 years with five or more years of online experience). Digital natives account for 13.5 per cent of the population of the Republic of Korea, compared to 5.2 per cent globally.

The government has made extensive efforts to adapt its education system to the needs of digital natives and to take advantage of information and communication technology to transform the way students learn. Its Self-directed, Motivated, Adaptive, Resource-enriched and Technology-embedded learning (SMART) Education project aims, by 2015, to ensure that all students will be able to access cloud-based educational services via wireless Internet in school, and use the learning



materials whenever and wherever they want. Teachers will also have opportunities to further develop their skills in this area.

Robust ICT industry, robust economy

The country has a strong domestic ICT industry with a number of large manufacturers and operators, including Samsung, LG, KT, Hanaro Telecom and LG Telecom. Other factors that contribute to the country's strong performance include high educational levels, government awareness and support for ICT projects, as well as an

ICT culture — people are ICT savvy and eager to adopt new technologies.

The Republic of Korea has achieved a robust economy, and is one of the world's key exporters of information and communication technology. Samsung has had the biggest market share in the global flat-panel television market for seven consecutive years. The company has also grown at an astonishing rate to become the world's largest phone manufacturer, overtaking Nokia. In 2013, its share of the overall handset market grew to 24.6 per cent, having sold around 450 million handsets — almost twice as many handsets as the

number-two vendor, Nokia. Samsung also extended its dominance in smartphones to 31.1 per cent, having sold a record 300–314 million smartphones — more than twice as many as the number-two vendor, Apple — according to IDC and Gartner. One in three smartphones sold in 2013 was a Samsung.

The Electronics and Telecommunications Research Institute in the Republic of Korea predicts that the domestic market in information and communication technology will increase in value from USD 36.5 billion in 2010 to USD 123.7 billion in 2020.

Smart society

In New Songdo City, the government is creating a “ubiquitous city” on a 1500-acre manmade island off the Republic of Korea’s Incheon coast. When completed in 2015, New Songdo City will include 350 buildings, housing 65 000 residents and a workforce of 300 000 people. A single smart card, created through the innovative use of information and communication technology, will enable residents to take advantage of various transport options. The card will be usable on the subway, to pay for parking at a meter, to see a movie, or to borrow a free public bicycle. Broadband applications will also support municipal services such as a water re-use network, pneumatic waste collection and the energy network.

Mitigating climate change

The rapid industrialization and urbanization induced by the Republic of Korea’s remarkable economic growth has led to significant pressure on its environment and natural resources. Priorities currently include green information and communication technologies, such as green personal computers, telecommunications and servers. Advanced industries relying on information and communication technologies, for example e-health, smart grid, smart waste management and smart public transport, are also priority areas.

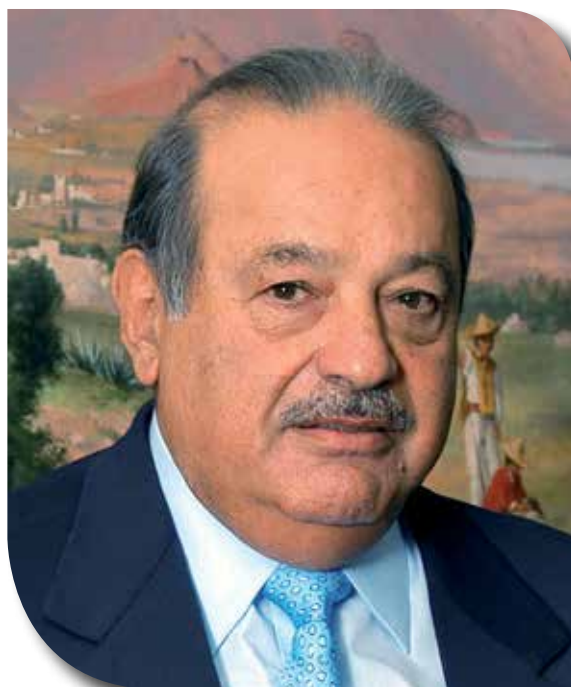
Unlike conventional “dumb” electricity grids, smart grids allow two-way communication between electricity suppliers and consumers, as well as enabling more dispersed generation and storage of power. The smart grid test bed on Jeju Island is expected to become the world’s largest smart grid community for testing advanced smart grid technologies and for the development of new business models.

Since 2012, the Republic of Korea has hosted the secretariat of the United Nations

Climate Fund (the Green Climate Fund), a United Nations fund established to distribute some of the aid pledged by developed countries to relatively poorer countries. In future, the Republic of Korea is expected to play a bigger role on the international stage in tackling global challenges, and to become the centre for global efforts to move towards mitigating climate change and promoting green growth.

Sustainable development

Inviting delegates to the 19th ITU Plenipotentiary Conference, to be held in Busan, Republic of Korea, from 20 October to 7 November 2014, President Park said that the government is working on presenting a vision and path for development that would benefit humanity in a hyper-connected digital world based on the Internet of things. She emphasized that in deciding on the future development and strategies of the ICT sector, the ultimate goal of the conference should be sustainable development. ■



Carlos Slim Helú
Chairman of Grupo Carso and President
of the Carlos Slim Foundation

Carlos Slim Helú, Chairman of Grupo Carso and President of the Carlos Slim Foundation, studied Civil Engineering at the National Autonomous University of Mexico, where he also taught Algebra and Linear Programming while studying for his degree. A Mexican, son of Lebanese immigrants and a self-made man, Mr Slim is a widely known successful businessman and philanthropist.

Mr Slim's interest for technology is long standing. He has achieved success in the world of business through investments in a diverse range of industries, as reflected in the portfolio of the Carso Group, which include infrastructure and construction, financial services, retail and commercial services, as well as telecommunications, where his América Móvil is currently the leading supplier of telecommunication services (fixed line, mobile, Internet, and television) in Latin America. The company also operates in the United States and Europe. He is committed to the promotion of technologies for development and has been co-chairman of the United Nations Broadband Commission for Digital Development since 2010.

Carlos Slim Helú promotes social development in Mexico and Latin America through the Carlos Slim Foundation, which has changed the lives of millions of people. The foundation's initiatives include early childhood development, providing over 360 000 scholarships to students and young entrepreneurs, setting up over 3600 digital classrooms and libraries in Mexico, the rehabilitation of Mexico City's historic district, the preservation of Mexico's natural areas and the construction of Museo Soumaya, home to one of the finest art collections in the world. Mr Slim has received a number of awards for his business and social activities, including the Lebanese Gold Order of Merit, the Order of Leopold II (awarded by the Belgian Government), and the Red Cross Badge of Honour and Merit.



*Carlos Slim Helú, receiving the Award
from ITU Secretary-General,
Dr Hamadoun I. Touré*

► *Changing the lives of millions*

Entrepreneurship plus philanthropy

In his acceptance speech as winner of World Telecommunication and Information Society Award 2014, Carlos Slim Helú said "This is a true honour and a real pleasure and pride for me to receive an award together with her Excellency Park Geun-hye, President of the Republic of Korea and his Excellency President Paul Kagame of Rwanda, who, furthermore, has been a very dear colleague in the work of the Broadband Commission for Digital Development, which we both co-chair."

Speaking of "Broadband for sustainable development" — this year's theme of World Telecommunication and Information Society Day — Mr Slim stated "it is clear that sustainable development is a real global need, and a real regional need... and broadband is the strategic tool to achieve these needs". He described how using broadband in the areas of education, health care, finance, the environment, and innovation, could "lead to vigorous economic growth that is both sustained

and sustainable, with social advancement, offering equal opportunities for all".

Participants in the World Telecommunication and Information Society Award ceremony were shown a documentary featuring examples of Carlos Slim Helú's activities, including his Foundation's social, high-impact programmes focused on the most vulnerable populations to ensure digital inclusion for all. Here we share some of the highlights from the documentary.

In 1965, at the age of 25, Carlos Slim Helú laid the foundations for *Grupo Carso* and *Grupo Financiero Inbursa*. In the following years he embarked on activities in several different sectors and by the end of the 1980s his holdings had grown to become one of the largest business conglomerates in Latin America. In December 1990, in a partnership with France Telecom, Southwestern Bell and a group of Mexican investors, he bought 20.4 per cent of Telmex stock and gained control of the company. In 2002, he founded *América Móvil*, which is now the leading company in Latin America and is present in 26 American and European countries (including the United States). In terms of population access, *América Móvil* is the second largest telecommunication operator in the world excluding China. A noteworthy innovation by Carlos Slim Helú in his telecommunications business is Telcel — his pioneering prepaid system for mobile phones.

Telmex's growth in Mexico increased fixed broadband access from 67 000 in 2002 to nearly 9 million now, representing an annual growth rate of 56 per cent. Regarding mobile broadband, *América Móvil* data traffic has increased more than 15-fold since 2008 — at a rate of about 80 per cent per year — increasing Internet penetration, supporting economic growth, and reducing inequality, unemployment and poverty.

"Our main challenges today, in all countries, are high-quality digital education and offering good jobs to everyone", says Mr Slim. In line with this view, Telmex has been active in providing training in the area of information and communication technologies. Since 1991, Telmex has built state-of-the-art educational facilities in different venues, making modern technologies available to low-income communities. Telmex has installed more than 3600 digital classrooms and public digital libraries throughout Mexico, in addition to innovation hubs (technological innovation spaces) that provide free access to computer equipment, high-speed Internet, and introductory courses and training on information and communication technologies. Mr Slim says that operators have to offer customers the best conditions in quality, price and technology over multiple platforms. In Latin America, we are creating free digital libraries mainly in public schools where people can go to learn and surf the web for free with loaned computer equipment at high speeds. In Telmex's *bibliotecas digitales*, IT training is provided, while people can borrow laptops and take them home. The company is developing thousands of Wi-Fi hot spots for its customers.



In 1986, Mr Slim created the Carlos Slim Foundation. In 1995, he created the Telmex Foundation. These two foundations are the largest in Latin America, and they have provided support to millions of people in Mexico and throughout the American continent. Created to provide high impact programmes focused on the most vulnerable segments of society, the Carlos Slim Foundation alone has benefited over 29.7 million people. Based on the principles of social responsibility, efficiency and opportunity, the foundation supports initiatives in education, health, nutrition, social justice, culture, human development, natural disaster relief, economic development, environmental protection and conservation. Its programmes contribute to improving the quality of life of people in all age groups, fostering human capital development and providing opportunities for the growth of individuals and their communities.

In 2013, the Carlos Slim Foundation and the Khan Academy joined forces to provide access to world class education to Mexican and Latin American people, free of charge, through online training courses on the web. More than 4200 educational videos are currently accessible online.

In January 2014, the Carlos Slim Foundation and *Coursera* joined together as partners to deliver graduate studies in the Spanish language, online at no cost, to millions of people. The partnership will focus on three objectives: improving access to high-quality Spanish educational content; creating educational content aimed at improving the possibilities for individuals

to find a job; and increasing access to physical venues where students can personally attend *Coursera* training courses. The initiative includes a major project to translate the best courses from Spanish. A network of learning centres will be created to provide students with a rich educational experience, combining on-line and off-line courses to improve retention of knowledge and learning outcomes.

The learning centres will take advantage of existing Telmex infrastructure, with the support of the Carlos Slim Foundation's programmes for digital education and culture. The programmes operate digital libraries, fourteen of which are located in highly populated low-income areas. The centres will have access to the Telmex Hub, a technological innovation pole located in Mexico City.

In March 2013, Mr Slim played host to the ITU's seventh meeting of the Broadband Commission for Digital Development, which he co-chairs with Rwanda's President Paul Kagame. "The Broadband Commission is documenting best practices, so we can know and learn from what is being done in different countries. However, with such rapid technological change, serious challenges are arising, due to a lack of the deep structural changes accompanying civilizational change. We are seeing very high unemployment, especially among youth. What activities will create new jobs? Where are these new jobs being formed? We need to promote sectors which will create these new jobs. Governments should introduce IT in their activities, and promote digital culture

and economic activities that are creating new jobs. It is clear that IT is a key tool for economic growth. There are huge vistas of opportunity opening up to create millions of jobs, with the possibility of developing hundreds of thousands of apps and content that can be used by everyone connected via the web", said Mr Slim.

The Broadband Commission's meeting was held in parallel to the 2013 Digital Village, which was attended by ITU Secretary-General Dr Hamadoun I. Touré and many commissioners. That year, the Digital Village attracted an audience of over 154 000, becoming the largest digital inclusion world event. The Digital Village was open to all kinds of people, regardless of age or level of technological skill.

A year later, in 2014, the Carlos Slim Foundation, Telmex and Telcel again organized the Digital Village in Mexico City's main square. This edition offered an even wider array of digital training and educational activities including workshops, support to entrepreneurs, introductory courses on computers and the Internet, as well as courses on robotics, three-dimensional (3D) animation, advanced programming, and healthcare applications. During the 2014 edition of the Digital Village, Mr Slim announced the training for employment initiative; a platform to provide online courses making it possible to learn 20 different skills, for example to work as a computer technician, or to take up a job in the field of construction, electricity or carpentry.

The 2014 Digital Village was attended by 49 global leaders who spoke to the



participants and to the millions who connected live online. The videoconferencing facilities offered Internet connection of 100 Gbit/s. The Digital Village broke its own record as the world's largest digital inclusion event, with more than 258 000 participants in 2014, including children, young adults and senior citizens. The youngest participant was only 2 years old and the oldest was 97.

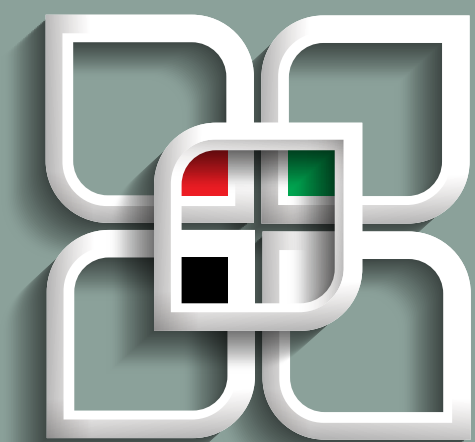
"Telecommunications are the nervous system of this new civilization, they are fundamental for the growth and development of all countries", says Mr Slim who, as a philanthropist, has contributed to the economic and social development of Mexico and Latin America.

Mr Slim takes the view that "Technology and innovation are what makes it possible for human civilization to advance." As he noted in "The State of

Broadband 2012: achieving digital inclusion for all," report (published by ITU in September 2012), throughout history, technology and innovation have transformed the way we live and brought about civilizational change. "Today, the digital revolution is transforming our world and our societies even faster, some of which are now connected through voice data and video at the speed of light... The telecommunication network represents the circulation system of the knowledge society, with advances in IT and computing leveraging our knowledge and brainpower. The development of the Internet has triggered profound socio-economic and political changes, and is transforming the services industry. Broadband Internet should be accessible to all — this is the aim of work under way at the United Nations and ITU. In 2010, ITU and UNESCO launched the Broadband

Commission to provide universal access to broadband and universal access to connectivity. Today, being connected is crucially important — everyone has to be connected; everyone should have access to knowledge and understanding — for education, health, business and entertainment. The Broadband Commission is working for digital inclusion for all by 2015," Mr Slim wrote in the report's "Featured insight 1: How broadband is changing our society."

An entrepreneur with a heightened sense of social responsibility, Carlos Slim Helú is also passionate about history, the arts, astrophysics, nature and sports but above all he is devoted to his family. "Our will must always overcome our weaknesses," he says at the end of the documentary. ■



WTDC
2014

UNITED ARAB EMIRATES
DUBAI, 30 MARCH - 10 APRIL



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From left to right: François Rancy, Director of the ITU Radiocommunication Bureau; Mohamed Nasser Al-Ghanim, Director General of the Telecommunications Regulatory Authority of the United Arab Emirates and Chairman of WTDC-14; Brahima Sanou, Director of the ITU Telecommunication Development Bureau; Dr Hamadoun I. Touré, ITU Secretary-General; Mohamad Ahmad Al-Qamzi, Chairman of the Telecommunications Regulatory Authority of the United Arab Emirates; Houlin Zhao, ITU Deputy Secretary-General; and Malcolm Johnson, Director of the ITU Telecommunication Standardization Bureau



Mohamed Nasser Al-Ghanim,
Chairman of WTDC-14



BDT Director Brahima Sanou and
Dr Abdulqader Al Khayyat, Chairman of the Executive
Committee overseeing the hosting of WTDC-14



Paarock VanPercy, Chairman of
Committee 2 (Budget Control)



Mário Canazza, Chairman of
Committee 3 (Objectives)



Nur Sulyna Abdullah, Chairman of
Committee 4 (ITU-D Working Methods)



Laurence Barriac, Chairman of
Committee 5 (Editorial Committee)



Fabio Bigi, Chairman of the Working Group on ITU-D
Strategic Plan and Declaration



Carmen Ball, a Vice-Chairman of the Working Group
on ITU-D Strategic Plan and Declaration



Cosmas Zavazava, ITU/BDT, Secretary of the Plenary
and Committee 1 (Steering Committee)



► Executive summary

Dubai Action Plan charts a broadband-powered future for all

The sixth quadrennial World Telecommunication Development Conference reaffirmed ITU's commitment to the delivery of universal and affordable access to telecommunications and information and communication technologies (ICT) as an essential element of socio-economic advancement in an increasingly interconnected world.

Convened under the theme *Broadband for Sustainable Development* in Dubai, United Arab Emirates, from 30 March to 10 April 2014, the conference charted a course to accelerate and expand broadband uptake and digital literacy worldwide, particularly in the least developed countries.

In adopting the Dubai Action Plan, a blueprint for telecommunications/ICT development over the next four years, the more than 1300 participants, including over 1100 government delegates from 137 countries and 9 representatives from Palestine; 89 representatives from 42 public and private-sector entities; 32 participants representing 14 telecommunication-related entities; and 73 representatives from 33 regional and international organizations,

renewed their pledge to spread connectivity to all corners of the planet.

The message — one that resonated throughout the conference — was clear: in a world in which ICT play an increasingly important role in socio-economic development and in building a knowledge-based information society, no one should be left offline, regardless of their circumstances or the remoteness of their place of origin.

Opening of the conference

Mohamad Ahmad Al-Qamzi, Chairman of the United Arab Emirates Telecommunications Regulatory Authority, bid a warm welcome to all delegates and expressed the hope that WTDC-14 would achieve its lofty goals and noble aims of promoting sustainable development through the optimum use of information and communication technologies (ICT), notably broadband (see related article on pages 31–32).

Conference participants were then shown a documentary featuring concrete examples of how ITU is helping countries

around the world to ensure that all segments of their societies have access to the benefits of ICT.

Filmed in Bulgaria, Costa Rica, Japan, Jordan, Moldova and Tanzania, the documentary illustrated the role of ICT in saving lives, particularly in the immediate aftermath of disasters. As an example, the documentary showed how ITU assistance in providing mobile satellite communication equipment helped Japanese authorities coordinate the relief operation in the wake of the earthquake and tsunami which struck the country in 2011. ITU assistance is helping remote schools and communities in developing countries to access the Internet, to bridge the gender connectivity gap by enabling increasing numbers of girls and women to acquire ICT skills, and to enable persons with disabilities to better integrate society was also highlighted. In another example, a man in Costa Rica explained how he was able to quit smoking through access to an m-health initiative known as m-cessation, implemented jointly by ITU and the World Health Organization (WHO).

Speaking at the opening ceremony, ITU Secretary-General, Dr Hamadoun I. Touré



WTDC-14 presiding officers

Chairman of the Conference: Mohamed Nasser Al-Ghanim (United Arab Emirates)	Vice-Chairmen of the Conference: <ul style="list-style-type: none">▪ Ms Margaret Chalwe-Mudenda (Zambia)▪ Ms Hillary Stuart-Alexander (Jamaica)▪ Ms Nermine El Saadany (Egypt)▪ Mr Chakrya Moa (Cambodia)▪ Mr Rashid Ismailov (Russian Federation)▪ Mr Frédéric Riehl (Switzerland)
Committee 1: Steering Committee	
Composed of the Chairman and Vice-Chairmen of the Conference and of the Chairmen and Vice-Chairmen of the Committees	
Committee 2: Budget Control	
Chairman: Mr Paarock VanPercy (Ghana)	Vice-Chairmen: <ul style="list-style-type: none">▪ Mr Meshari Al Saab (Saudi Arabia)▪ Mr Soichiro Seki (Japan)▪ Mr Sohrab Yarahmadov (Azerbaijan)
Committee 3: Objectives	
Chairman: Mr Mário Canazza (Brazil)	Vice-Chairmen: <ul style="list-style-type: none">▪ Mr Patrick Mwesigwa (Uganda)▪ Mr Mohamed Ben Amor (Tunisia)▪ Mr Kishore Babu (India)▪ Mr Almaz Tilenbaev (Kyrgyzstan)
Committee 4: ITU–D Working Methods	
Chairman: Ms Nur Sulyna Abdullah (Malaysia)	Vice-Chairmen: <ul style="list-style-type: none">▪ Ms Lolia Emakpore (Nigeria)▪ Mr Cecil McCain (Jamaica)▪ Mr Adel Darwish (Bahrain)▪ Dr Vadym Kaptur (Ukraine)
Committee 5: Editorial Committee	
Chairman: Ms Laurence Barriac (France)	Vice-Chairmen: <ul style="list-style-type: none">▪ Mr Paul Najarian (United States)▪ Mr Babiker Saeed (Sudan)▪ Ms Yapeng Wang (China)▪ Prof. Vladimir Minkin (Russian Federation)▪ Ms Blanca Gonzalez (Spain)
Working Group on ITU–D Strategic Plan and Declaration	
Chairman: Mr Fabio Bigi (Italy)	Vice-Chairmen: <ul style="list-style-type: none">▪ Mr Abraham Djékou (Côte d’Ivoire)▪ Ms Jinane Karam (Lebanon)▪ Ms Carmen Ball (Australia)▪ Mr Daryn Tuyakov (Kazakhstan)

called on participants to work together with ITU to ensure universal broadband connectivity, stressing the importance of public-private partnerships towards achieving this goal. "ICT — and in particular broadband networks — offer perhaps the greatest opportunity we have ever had to make rapid and profound advances in global social and economic development," he said.

High-Level Segment Policy Statements

Interest in the High-Level Segment of WTDC-14 was remarkable, with a total of 72 registered speakers. All in all, 62 high-level speakers addressed the conference (with nine having their statements delivered on their behalf). Speakers for the most part were ministers, deputy ministers or vice-ministers, the remainder being ambassadors, chairmen or directors-general of regulatory bodies, and secretaries-general and chief executive officers from ITU-D Member organizations. The High-Level Segment provided a platform for these high-ranking officials to express their views on emerging trends and on matters of strategic importance to the development of the telecommunication and information and communication technology sector.

Policy statements are available at <http://www.itu.int/en/ITU-D/Conferences/WTDC/WTDC14/Pages/PolicyStatements.aspx>



APF

Progress in implementing Hyderabad Action Plan acclaimed

The conference applauded ITU's achievements over the past four years in implementing the Hyderabad Action Plan adopted at the World Telecommunication Development Conference in Hyderabad, India, in 2010. In his progress report to the conference, ITU's Telecommunication Development Bureau (BDT) Director, Brahim Sanou, singled out many achievements, noting in particular that ITU had:

- ▶ continued to convene the world's largest gathering of regulators and to track and influence the ICT regulatory environment;
- ▶ continued to provide assistance in disaster-risk reduction, preparedness and response through the design of national emergency telecommunication plans, the setting up of emergency early warning systems and the development of emergency telecommunication equipment;
- ▶ trained over one million women in the use of ICT under a women's digital literacy campaign launched in partnership with the Telecentre.org Foundation;
- ▶ quantified for the first time the size of the digital gender gap;
- ▶ assisted 25 countries in transitioning from analogue to digital broadcasting and 43 countries on spectrum management and monitoring.

The BDT Director also highlighted three initiatives launched since WTDC-10 which have met with considerable success, namely the m-Powering Development Initiative to extend the benefits of mobile technology to all segments of society; the Smart Sustainable Development Model to establish a link between rural telecommunication/ICT development and disaster-risk reduction and management; and the ITU Academy which integrates all ITU training activities under one umbrella.



Conference results in a nutshell

Dubai Action Plan

While recognizing the progress made in helping developing countries to harness the benefits of ICT since WTDC-10, however, the conference emphasized the need to close the remaining connectivity gaps between and within countries that condemn millions of people, particularly women youth, children, indigenous people and persons with disabilities to digital exclusion.

The Dubai Action Plan adopted by the conference is the culmination of regional preparatory meetings that took place in Chisinau, Moldova, for the Commonwealth of Independent States; Phnom Penh, Cambodia, for Asia-Pacific; Montevideo, Uruguay, for the Americas; Accra, Ghana, for Africa; Manama, Bahrain, for the Arab States; and Belgrade, Serbia, for Europe.

The plan consists of a package of activities designed to help countries promote sustainable development of their ICT networks and services. Five fundamental objectives were set for ITU's Telecommunication Development Sector (ITU-D) as the main focus of its work for the next four years.

- ▶ **Objective 1:** Foster international cooperation on telecommunication and ICT issues.
- ▶ **Objective 2:** Foster an enabling environment conducive to ICT development

and the development of ICT networks as well as relevant applications and services, including bridging the standardization gap.

- ▶ **Objective 3:** Enhance confidence and security in the use of information and communication technologies and the roll-out of relevant applications and services.
- ▶ **Objective 4:** Build human and institutional capacity, promote digital inclusion and provide concentrated assistance to countries in special need.
- ▶ **Objective 5:** Enhance climate change adaptation and mitigation, and disaster management efforts through telecommunications and information and communication technologies.

These objectives together with their 15 corresponding "outputs" are featured in both the Dubai Action Plan and the ITU-D draft strategic plan for 2016–2019. Outputs were defined by the conference as "all the products and services ITU-D will develop and deliver to members through the implementation framework agreed in the Dubai Action Plan". This framework encompasses regional initiatives, programmes, study group questions (see related articles on pages 46–50, 51–59, and 60–61, respectively), WTDC resolutions and recommendations and facilitation of World Summit on the Information Society (WSIS) action lines.

The Dubai Action Plan is premised on a results-based structure, with outcomes defined for each objective, and key performance indicators defined for each output. The results-based management methodology is being implemented throughout the United Nations system and aims to improve effectiveness, efficiency, transparency and accountability. A special session was held on 29 March 2014 on the eve of WTDC-14 to inform conference participants on how the shift in focus from activities to results will help to better articulate strategic goals, objectives, outcomes and outputs, and to better evaluate their achievement using indicators and targets.

Results-based management is defined as "a management approach that directs organizational processes, resources, products and services towards the achievement of measurable results. It provides the management frameworks and tools for strategic planning, risk management, performance monitoring and evaluation and financing activities based on targeted results".

Outcomes provide an indication as to whether the objective is being achieved. Outcomes are usually partly, but not entirely, within the control of the organization.

Performance indicators are the criteria used to measure the achievement of outputs or outcomes. These indicators may be qualitative or quantitative.

Dubai Declaration reinforces support for ITU–D mission

Another major outcome is the Dubai Declaration reinforcing political support for ITU's development mission and strategic objectives (see article on pages 39–42). The Dubai Declaration states, *inter alia*, that "promoting and making available, affordable and accessible broadband infrastructure, with appropriate policy and strategy, is a fundamental enabling platform that fosters innovation and drives the development of national and global economies and the information society".

Strategic plan outlined for development

WTDC-14 developed and adopted a draft strategic plan for ITU–D (see article on pages 43–45), which will feed into the overall ITU draft strategic plan for 2016–2019, to be adopted at the forthcoming Plenipotentiary Conference to be held in Busan, Republic of Korea, from 20 October to 7 November 2014.

Closing ceremony and the challenge to connect everyone to broadband by 2020

WTDC-14 ended on an upbeat note with the showing of a video clip featuring conference delegates going about their business and joining in a "Broadband makes me happy" refrain reflecting the Broadband for Sustainable Development theme of the conference.



"The decisions we have taken, reflected in the Dubai Action Plan, will pave the way forward for our work. They will give us direction, a shared vision and a clear plan of action."

Brahima Sanou, Director of the ITU Telecommunication Development Bureau



Mohamed Nasser Al-Ghanim, Chairman of WTDC-14, and Director General of the Telecommunications Regulatory Authority of the United Arab Emirates, being presented with the ITU Gold Medal by Dr Hamadoun I. Touré, ITU Secretary-General

Speaking at the closing ceremony, Dr Touré noted that the conference had forged a common vision and plan of action, a strategic plan and a financial plan for the coming years. In emphasizing the critical role of broadband for national development, he said: "My view is that it is about time we challenged ourselves to connect everyone to broadband by 2020."

Mr Sanou noted that WTDC-14 had broken several records, including a record participation of 1311 delegates representing 137 Member States and 82 Sector Members, along with 52 VIPs. Captioning was provided for plenary and committee meetings. ITU offered members a mobile application for accessing WTDC-14 documents and consulting them offline, as well as an application for accessing the conference webcast on tablets and smartphones. Finally, the conference finished its work half a day early.

All speakers warmly praised the United Arab Emirates and ITU for the smooth running of the conference.

Dr Touré honours WTDC-14 Chairman

The Secretary-General awarded the ITU Gold Medal to Mohamed Nasser Al-Ghanim, Chairman of WTDC-14 and Director General of the Telecommunications Regulatory Authority of the United Arab Emirates, praising him for his wisdom, punctuality, wit and humility. Mr Al-Ghanim thanked participants for their efforts, in particular the ITU Secretary-General, the Deputy Secretary-General, the three Directors of the Bureaux, and the chairmen of the conference's five committees and the working group (see table of WTDC-14 presiding officers on page 26). ■



► ***Sustainable development – challenges and opportunities***

Mohamad Ahmad Al-Qamzi

Chairman of the Telecommunications Regulatory Authority of the United Arab Emirates



The World Telecommunication Development Conference 2014 (WTDC-14) addressed development challenges on a huge scale. Its lofty goals and noble aims were nothing less than to promote sustainable development through the optimum use of information and communication technologies (ICT).

This gathering of experts and specialists, representing various regional and international groups, States, the private sector, international organizations and academia, was successful in adopting resolutions that established firm foundations on which to build the programmes and plans to support development in regions that are in dire need of help. These outcomes will enable countries to employ their resources in order to serve their peoples and build their future.

In this regard, I am reminded of the words of the great Arab poet, Abu at-Tayyib al-Mutanabbi, who wrote that “Resolutions are measured according to those who take them”. Many communities labouring under a whole range of problems gaze upon ITU’s resolve and look to its resolutions and initiatives. The successes of previous WTDCs, the last of which was held in India in 2010, as well as the numerous events and meetings held under the auspices of ITU,

provided a sound basis for the discussions and deliberations at WTDC-14, leading the conference to decide on general principles, programmes, strategic goals and development strategies for the different regions, as well as the Dubai Action Plan, which is tantamount to a road map for the future.

Closing the digital divide

The different radio frequencies are a resource for people across the world to make use of in sustaining the Earth and supporting development programmes. The use of this scarce resource is a basic human right, so it is regrettable that destabilizing social unrest and other problems continue to prevent many communities from benefiting from this fundamental natural resource.

The lack of equal opportunities to access and use modern digital technologies is an obstacle that must not be ignored or glossed over. The huge discrepancy between countries in this area has created what has come to be called the digital divide, which represents an impediment, indeed an impenetrable barrier, to the development programmes that developing societies desire. Add to

that the problems of poverty, unemployment, social marginalization, illiteracy and natural disasters, and we find ourselves faced with considerable challenges that require of us a high degree of cooperation and solidarity, as well as innovative solutions that are practical and realistic.

With regard to the scale of the challenges, it is fortunate that in today's world we have a number of strengths to help us achieve many of our human aspirations. Perhaps a brief glance at the ICT sector today might help to spread a generous measure of optimism about the possibility of achieving the success to which we aspire. Thus, by the end of 2013, the number of mobile telephone subscriptions had exceeded 6.8 billion. The number of Internet users was over 2.7 billion, which is 40 per cent of the Earth's population. Turning to broadband use, which was the theme of the WTDC-14 discussions, we find that it is steadily growing, with 2 billion users by the end of 2013.

Together, these developments represent a positive feature of the world today. They provide us with the means of making it possible to help communities caught up in social unrest and other problems. And extending the hand of assistance to these communities is a humanitarian duty, given concrete form through the successive sessions of the conference.

We hope for much more than what has been achieved in the past. The list is long. In the sphere of health, for example, the possibility exists of using advanced telecommunication systems to provide solutions remotely and across borders, ensuring the continuous improvement of health systems and practice. The same

applies in education, social integration, bridging the digital divide, interaction and information exchange programmes, upgrading systems, disaster management and relief operations.

Supporting ITU's mission

The lofty mission of ITU, based upon fostering links between people through ICT, is one that strikes a chord with the Emirati people. As a Member State and prominent player, the United Arab Emirates will continue to work effectively with ITU in many of the Union's bodies. We shall spare no effort to benefit from the experience of others in the interests of our society and country, and to place our own successful national expertise at the disposal of others as a concrete expression of the global human dimension on which the mission of ITU is founded.

We in the United Arab Emirates feel enormously grateful for all the appreciation we received for hosting WTDC-14, and we are supremely proud because we consider it a testament of trust. We look upon our hosting of the conference as crowning our close cooperation with ITU and the members of the Union, and consider that our successful hosting of three major ITU events in 2012 — ITU Telecom World, the World Telecommunication Standardization Assembly and the World Conference on International Telecommunications — is evidence of our belief in the mission of ITU as the pre-eminent organization that leads the world in the ICT field. ■



► **Chairman of WTDC-14 offers his views**

Interview with Mohamed Nasser Al-Ghanim

Director General of the Telecommunications Regulatory Authority of the United Arab Emirates and Chairman of WTDC-14



ITU News catches up with Mohamed Nasser Al-Ghanim, Chairman of the sixth ITU World Telecommunication Development Conference (WTDC-14), which was held in Dubai, United Arab Emirates from 30 March to 10 April 2014. Mr Al-Ghanim is Director General of the Telecommunications Regulatory Authority of the United Arab Emirates, a country that successfully hosted three major ITU events in 2012 – ITU Telecom World, the World Telecommunication Standardization Assembly and the World Conference on International Telecommunications.

Why has Dubai become such a popular venue for ITU global events?

Mohamed Nasser Al-Ghanim: As you know, the United Arab Emirates is centrally located and is becoming a hub where countries from the east and west, north and south, can come to exchange ideas and do business. At the same time, telecommunications have been advancing very fast in the United Arab Emirates, and we are now one of the world leaders in telecommunications infrastructure,

services and even regulations. And of course it is a huge advantage for all visitors that the United Arab Emirates is a safe country, with airlines that connect it to countries all over the world. The United Arab Emirates is also one of the most attractive tourist destinations.

Back in 2006 our aim was to start attracting ITU events by hosting ITU Telecom World. Although we competed to host that prestigious event, we were unsuccessful in 2006 and again in 2009. But we kept on trying, and at last we were successful



in 2012. Because the World Telecommunication Standardization Assembly (WTSA) and the World Conference on International Telecommunications (WCIT) were to take place at around the same time as ITU Telecom World, we decided that we should offer to host those events as well, and make the United Arab Emirates a hub for ITU events in 2012. We had the support of the Board of Directors of our Telecommunications Regulatory Authority, who had the foresight to envisage a future partnership with ITU.

What do you see as the most significant achievements of WTDC-14?

Mohamed Nasser Al-Ghanim: Everybody came together in a spirit of agreement to move forward on the agenda that was established for the conference. We approved over 60 revised and new resolutions, five recommendations and several study topics. There was a huge difference between the spirit of participants at WCIT, which I also chaired, and WTDC-14.

The resolutions touch on so many fronts. One, for example, deals with information and communication technologies (ICT) and climate change. A second looks into cybersecurity and combating spam. Another resolution deals with people with disabilities, and so on and so forth. So WTDC-14 took many important decisions and approved important resolutions that will guide the future work of the Telecommunication Development Bureau (BDT) and the next study period in the ITU Development Sector (ITU-D).

What were the greatest challenges you faced in conducting this conference?

Mohamed Nasser Al-Ghanim: My greatest challenge was ensuring the cooperation of the administrations involved in any decision. The role of the chairman of a conference is to facilitate dialogue between different parties. When you are chairing a small meeting, you generally have to deal with just two or three people who have different opinions, coming from different backgrounds with different positions. When you chair a world conference, you are faced with a large number of participants — taking WTDC-14 for the sake of an example, nearly 140 administrations. So you really need to bring them all around the table. You need to give them the chance to be heard, and allow them to give their opinion, and you need to make them listen to the opinions of others. You have to be very balanced in your approach in order to make things happen. And you need to be very positive.

Sometimes the chairman has to come up with a solution and recommendations to the meeting in order to bridge differences. Respect for the chairman is so important in this regard. If the meeting respects the chairman's opinion, this can help in moving forward. I was lucky to have chaired WCIT, which was a very difficult conference — possibly the most difficult conference ITU has ever held — yet we came up with a treaty that was signed by 89 countries. In my opinion WCIT was a big success because, although it raised such difficult questions, it achieved a positive outcome.

For me, chairing WTDC-14 was a very good experience. At WTDC-14, there was much less stress on me to do things, compared with my role at WCIT. The chairmen and the vice-chairmen of



ITU/I. Wood

the committees did a great job at this conference. In general, the debates moved along very smoothly. There were only one or two resolutions that I had to get seriously involved in, where I had to sit with different administrations and try to resolve things.

The first was the Palestine resolution, which was negotiated between the Arab countries and the United States. They sat around the table in good faith and they negotiated the resolution — and we concluded it very quickly, and the matter was closed. That result is great and positive.

The second was the cybersecurity resolution, which took a very long time to resolve. People stayed in the meeting rooms until the early hours of the morning. This matter also came to a successful conclusion. Some of the difficulties popped up again in the plenary meeting but were resolved very quickly, and the text was approved.

There were a lot of contentious opinions about these two resolutions, but the good thing is that all the administrations involved were positive and they reached agreement on the texts in a timely manner.

ITU held regional preparatory meetings in the six regions of its Development Sector — Africa, the Americas, the Arab States, Asia-Pacific, the Commonwealth of Independent States, and Europe — where many topics were discussed. Did the interplay between these regions help to achieve the progress that we saw at WTDC-14?

Mohamed Nasser Al-Ghanim: Yes of course. Instead of negotiating with more than 190 countries at a world conference, you negotiate with regional groups. In each region, the countries get together and



agree on their common position. They then go to the other regions and try to negotiate. Opinions become consolidated, with two or three regions taking one position, and maybe three regions taking another position. We then come to the conference, where we all have to reach agreement with each other. On the agenda of any conference there will be common agreement on a lot of items, and there will be some issues on which there is no agreement among the regional groups. So, in the end, the conference will decide.

Without the regional groups, any conference would be very tough for a chairman. Regional

group meetings make it easier for conferences to conduct their business because administrations come along at least with an agreement among themselves at a regional level, before they present their views to the other regions. At conferences, we normally see regional coordination meetings between different groups. We have seen it at WTDCs and at world radiocommunication conferences, and even at WCIT and WTSAs. The regional groups meet to resolve their differences, reducing the amount of work for the conference as a whole.

There is one thing I want to add — ITU itself plays an essential role. In particular, the Directors of



the Bureaux work with the regional groups prior to conferences. So, for example, the Director of BDT, Brahim Sanou, played a massive role in WTDC-14 in bridging a lot of the differences between regional groups. Mr Sanou did a fantastic job, resolving many issues himself, trying to coordinate the regional groups and helping to bridge any gaps.

How do you see the future of the partnership between Dubai and ITU?

Mohamed Nasser Al-Ghanim: WTDC-14 is our fourth event in a row with ITU, following ITU Telecom World, WTSa and WCIT in 2012, and both parties — the United Arab Emirates and ITU — recognize that we have a very successful partnership. These major conferences concluded very successfully. Previously, by the way, we hosted the Global Symposium for Regulators (GSR) in 2007.

Although I would not want to try to predict the future, I think that the United Arab Emirates will continue to work closely with ITU. We are putting forward our candidature for the Council. We cooperate with the ITU management team during Council meetings, as well as in the study groups, and so on and so forth. We have representatives in Geneva who work full time with ITU. We have supported the Secretary-General and the Deputy Secretary-General and the Directors of the Bureaux over the past eight years. The Plenipotentiary Conference, to be held in Busan, Republic of Korea, in October-November this year, will elect (or re-elect in some cases) an ITU management team for the next four years. Of course we will need to sit with the new team and discuss the future of our partnership with ITU. We hope to continue working

with ITU on topics of importance, and to host further meetings in the United Arab Emirates, whether major conferences like WTDC-14 or study group meetings (which we have also hosted previously).

The overarching theme of WTDC-14 was “Broadband for sustainable development”. In Dubai, and in the United Arab Emirates in general, a lot of effort has gone into broadband. Could you tell us about your country’s experience with broadband?

Mohamed Nasser Al-Ghanim: Broadband is one of our success stories. More than 85 per cent of households have fibre connectivity. We have an average speed today which is in excess of 4 megabits per second, and we expect to double it soon. Speeds exceeding 100 megabits per second — and even 300 megabits per second — are now being deployed for individuals. We have one of the most widely deployed 4G networks globally, with more than 90 per cent population coverage (and 100 per cent 3G coverage). We will soon be going beyond 4G. The theme for our national policy is “broadband”, and we have a high penetration rate both for mobile and for triple play (voice, data and television on one platform).

The Government of the United Arab Emirates understands the importance of broadband and has decided to adopt this technology in its day-to-day business. The Prime Minister has declared that all government services will migrate to become smart government services available on smart phones. This is a huge step forward in transforming government services — even their look and feel — into something very innovative. We have issued guidelines for



Dr Hamadoun I. Touré, ITU Secretary-General (left); Houlin Zhao, ITU Deputy Secretary-General (right); and Mohamed Nasser Al-Ghanim, Director General of the Telecommunications Regulatory Authority of the United Arab Emirates and Chairman of WTDC-14 (centre)

launching smart services, and we already have plans for 110 apps for government institutions, including a specialized app that is available on iPhone and Android smartphone platforms. The Prime Minister has also declared that Dubai is going to be a smart city very soon. Over the next 12 months we will see a lot of advances in the United Arab Emirates.

What is your message to ITU top management?

Mohamed Nasser Al-Ghanim: I would like to thank ITU for entrusting the United Arab Emirates with the responsibility of hosting WTDC-14 in Dubai. The Secretary-General, the Deputy Secretary-General and the Directors of the Bureaux did a fantastic job. This is the last term of office for Dr Hamadoun I. Touré as Secretary-General of ITU. What he has done with the management team over the past eight years is a story to tell. He has given a good example of how a team can work together as one. ■



► **Dubai Declaration**

What it says

The Dubai Declaration is one of the major outcomes of the sixth ITU World Telecommunication Development Conference (WTDC-14), which took place from 30 March to 10 April 2014 in Dubai, United Arab Emirates.

Overall, the declaration reinforces political support for ITU's development mission and strategic objectives. It recognizes, among other things, the essential role of telecommunications and information and communication technologies in the world's economic, social and cultural development. It also notes that widespread conformance and interoperability of equipment and systems can increase market opportunities and reliability, and encourage global integration and trade.

Participants at WTDC-14 considered that governments, in collaboration with other stakeholders, should provide applications such as e-government, e-health, e-education and e-waste management. Applications like these improve transparency and accountability, and optimize access to and use of public services.

While welcoming the innovative and beneficial services for users that telecommunication and information and communication technology applications provide, the declaration draws attention to the ethical dimension of the information society and warns that the increasing spread of such applications also increases the challenge of building confidence and trust in their availability, reliability, security and use.





The declaration acknowledges that with the implementation of the five previous four-year action plans since 1994, the Connect the World initiative, and follow-up to Action Lines C2 (information and communication infrastructure), C5 (building confidence and security in the use of information and communication technologies) and C6 (enabling environment) subsequent to the World Summit on the Information Society, the ITU Telecommunication Development Sector (ITU-D), together with partners and other stakeholders, has made significant progress towards universal access and to the emergence of a global economy and information society.

Yet despite this progress, the digital divide still remains, with disparities in access, use and skills between and within countries, especially between urban and rural areas. Women, youth, children, indigenous people and persons with disabilities (including age-related disabilities) tend to be particularly disadvantaged in terms of accessible and affordable telecommunications and information and communication technologies.

Looking ahead to the next four years, delegates at WTDC-14 declared their continued support for ITU's work on various fronts, in particular the following.

Social and economic progress

Affordable and accessible broadband infrastructure fosters innovation and drives the development of national and global economies and the information society. More generally, access to affordable, reliable and secure telecommunication and information and communication technology networks, services and applications has the power to facilitate economic, social and cultural development, and achieve digital inclusion.

ITU-D must therefore focus its resources on reducing significant disparities in access, particularly to broadband, experienced by developing countries, especially the least developed ones. Delegates at WTDC-14 committed themselves to accelerating the expansion and use of telecommunication and information and communication technology infrastructure, services and applications, in particular broadband, because these are powerful tools for economic growth and innovation.

Policy and regulation

Policy-makers and regulators should promote access to telecommunication and information and communication technology infrastructure, services and applications, in particular broadband. In the context of convergence, this means implementing fair, transparent, stable, predictable and non-discriminatory policy, and legal and regulatory frameworks

that create enabling environments. These should include common approaches to conformance and interoperability that promote competition, increase consumer choices, foster continued technological and service innovation, and provide investment incentives at national, regional and international levels.

To ensure that developing countries experience the economic benefits associated with technological development, and to better reflect their requirements and interests when standards are being set, these countries should increase their participation in ITU activities.

Radio-frequency spectrum and satellite orbits are limited resources, yet they are subject to increasing demands. Policy-makers, regulators, operators, broadcasters and others must therefore focus on effective and efficient spectrum management, including measures for avoiding harmful interference, and for implementing the transition from analogue to digital broadcasting.

Digital literacy and employment

Digital literacy opens the door to the knowledge society and enables people to contribute information and ideas. More training is needed, including in local languages. This can take place not only through international initiatives, but also through the educational capacity of local facilities, such as schools, libraries, content

providers, multipurpose community centres and public access points. It should be borne in mind that the telecommunication and information and communication technology ecosystem offers new opportunities to empower youth for employment or self-employment.

Technical support

To assist in formulating national policies, and to monitor the digital divide as well as progress towards achieving

internationally agreed goals in the post-2015 development agenda, indicators and statistics are needed to measure the adoption of telecommunication and information and communication technologies, and to analyse their role in supporting socio-economic growth.

ITU-D study groups should continue to share knowledge and build capacity in the international community. Enhanced cooperation among the three ITU Sectors (Radiocommunication, Standardization and Development) — and with other

organizations and expert groups — will support this objective.

Building confidence, trust and security in the use of telecommunications and information and communication technologies is a priority. This calls for all stakeholders — governments, and relevant organizations, private companies and entities — to cooperate in building capacity and exchanging information on best practices for developing public policies and legal, regulatory and technical measures to address personal data protection and child online protection.





Disaster-risk response

Telecommunications and information and communication technologies play a critical role in disaster-risk reduction, prediction, preparedness, mitigation and response. ITU Member States should develop disaster preparedness plans and strategies, taking account of the need for resilient and redundant infrastructure and systems.

ITU should support Member States in building capacity for responding to disasters, including in the area of early warning. ITU should also encourage regional and international cooperation and information sharing.

All countries, particularly small island developing States, least developed countries, landlocked developing countries and low-lying coastal countries, which are vulnerable to global climate change and rising sea levels, should have the means to use telecommunications and information and communication technologies to mitigate and address the effects of climate

change, and to reduce the negative impact of human activities on the environment.

ITU-D will continue to address special needs of these countries, because they are generally the ones that face the most challenges in the development and use of telecommunications and information and communication technologies.

Regional initiatives and public-private-partnerships

At WTDC-14, the regions articulated their specific priorities in a set of regional initiatives, reflected in the Dubai Action Plan. ITU-D and other development partners should give high priority to implementing these regional initiatives (see article on pages 46–50).

Public-private-partnerships need to be strengthened in order to explore and further develop new and innovative ways of investing and financing development initiatives and projects. International, regional

and national financing and investment institutions need to collaborate closely in such partnerships.

A call to join hands in implementing the Dubai Action Plan

The Dubai Action Plan (see pages 51–59) is acclaimed in the Declaration as a “comprehensive package” that will promote equitable, affordable, inclusive and sustainable development of telecommunication and information and communication technology networks, applications and services. It consists of a set of five strategic objectives supported by 15 outputs.

In the Dubai Declaration, WTDC-14 calls upon ITU Member States, Sector Members, Associates, Academia and all other partners and stakeholders to contribute towards the successful implementation of the Dubai Action Plan. ■



► **Strategic objectives**

The forthcoming Plenipotentiary Conference — to be held in Busan, Republic of Korea, from 20 October to 7 November 2014 — is expected to approve a strategic plan for ITU for the four-year period 2016–2019, consisting of an ITU-wide vision, mission and values for the better world the organization wants to see. The plan will also contain ITU-wide strategic goals and targets, as well as objectives, outcomes and outputs of the individual ITU Sectors and of the General Secretariat.

In the case of ITU's Telecommunication Development Sector (ITU-D), the World

Telecommunication Development Conference (WTDC-14) in Dubai developed and agreed on five objectives and fifteen associated outputs (see box) that form the Sector's component in the overall draft ITU strategic plan. WTDC-14 also endorsed the ITU-wide vision and mission, as cited below.

ITU vision

"An information society, empowered by the interconnected world, where telecommunication/information and communication technologies enable and accelerate

social, economic and environmentally sustainable growth and development for everyone."

ITU mission

"To promote, facilitate and foster affordable and universal access to telecommunication/information and communication technology networks, services and applications and their use for social, economic and environmentally sustainable growth and development."



Development Sector objectives in the draft ITU strategic plan for 2016–2019

Objectives	1	2	3	4	5
	Foster international cooperation on telecommunication/ ICT development issues	Foster an enabling environment conducive to ICT development and foster the deployment of telecommunication/ ICT networks as well as relevant applications and services, including bridging the standardization gap	Enhance confidence and security in the use of telecommunications/ ICT, and roll-out of relevant applications and services	Build human and institutional capacity, provide data and statistics, promote digital inclusion and provide concentrated assistance to countries in special need	Enhance environmental protection, climate change mitigation and adaptation, and disaster management efforts through telecommunication/ ICT
Outputs	1.1 World Telecommunication Development Conference	2.1 Policy and regulatory frameworks	3.1 Building confidence and security in the use of information and communication technologies	4.1 Capacity building	5.1 Information and communication technologies and climate-change adaptation and mitigation
	1.2 Regional preparatory meetings	2.2 Telecommunication/ ICT broadband networks, including conformance and interoperability and bridging the standardization gap	3.2 ICT applications and services	4.2 Telecommunication/ ICT statistics	5.2 Emergency telecommunications
	1.3 Telecommunication Development Advisory Group	2.3 Innovation and partnership		4.3 Digital inclusion of people with specific needs	
	1.4 Study groups			4.4 Concentrated assistance to least developed countries, small island developing States and landlocked developing countries, including countries in special need	

Scope and thrust

Goals

WTDC-14 endorsed the goals of growth, inclusiveness, sustainability, innovation and partnership. The conference defined growth as enabling and fostering access to, and increased use of, telecommunications and information and communication technologies. It understood inclusiveness to mean bridging the digital divide and providing broadband for all.

Growth

Telecommunications and information and communication technologies are increasingly being recognized by governments around the world as the key engine for economic growth and social development. The work of ITU, as the United Nations specialized agency in this area, has become even more vital in recent years, given that advanced telecommunication technologies now underpin every aspect of human life.

To continue the progress that has been made since the establishment of the United Nations Millennium Development Goals in 2000 and of the connectivity targets set by the World Summit on the Information Society in 2003 and 2005 requires the development of infrastructure (in particular

for broadband), the provision of applications and services, human capacity building, and a predictable, enabling regulatory environment to ensure that technological development is sustainable.

Inclusiveness

Generating local content is an enabler for the deployment and penetration of broadband services. Countries with similar or common culture and language — especially those facing cultural and linguistic barriers — should get together to construct local content, in particular for e-health, e-learning and e-commerce, to satisfy demand for local content.

Sustainability

In view of the borderless nature of cyberspace, international cooperation is important in enhancing reliability, availability and security in the use of modern technologies. ITU-D will facilitate such cooperation, recognizing the urgent need to support countries in implementing their national cybersecurity frameworks in the light of best practices.

Other priorities in ITU-D work include least developed countries, small island

developing States, landlocked countries and countries with economies in transition, as well as emergency telecommunications and gender equality.

Given the magnitude of the tasks facing ITU-D, success will depend on working closely with ITU members and mobilizing resources through public-private partnerships.

Innovation

ITU-D and in particular the Telecommunication Development Bureau (BDT) should continue to be innovative in order to remain competitive. ITU-D aims to promote innovative uses of telecommunications and information and communication technologies to improve people's lives.

Innovation is also essential for countries and firms if they are to recover from the global economic downturn and thrive in today's highly competitive and connected global economy.

Innovative broadband-fuelled services such as m-payments, m-health and m-education can empower individuals, communities and societies, especially in developing countries, to enhance their own social and economic well-being. ■

► Regional initiatives

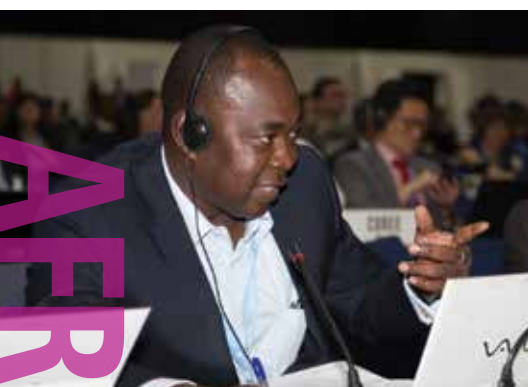
Regional initiatives guide ITU and countries themselves in developing and implementing specific projects to address priority needs in the area of telecommunications and information and communication technologies. The Dubai Action Plan includes 30 regional initiatives, five for each of the six regions of ITU's Telecommunication Development Sector (ITU-D) as described in this article (see also box on pages 48–49).

Development of broadband access and adoption of broadband

All regions accord priority to the initiative for the **development of broadband access and adoption of broadband**. This initiative has, for all regions, the objective of assisting Member States in the development of broadband infrastructure and access thereto. The regions nevertheless adopted this initiative with some nuances.

For Africa, there is a particular emphasis on subregional and continental interconnection, as well as on urban and rural areas. Increasing uptake is a particular objective of the Americas.

The Arab States and Asia-Pacific are concerned with urban and rural areas, while the objectives of the Arab States also include a focus on least developed countries and issues related to conformance and interoperability. The Asia-Pacific region





wants support for system construction with a view to resolving social issues by leveraging the benefits of telecommunication and information and communication technology applications. The Commonwealth of Independent States (CIS) is concerned with remote areas and with using energy-efficient technologies.

For Europe, the objectives are prompted by the significant differences in European countries, leading to an urgent need to assist administrations in every aspect of the practical implementation and development of high-speed networks. This action may also comprise the establishment of local or regional broadband roll-out plans. The development of communication networks would be boosted by using the experience in infrastructure sharing with the energy sector (smart grids) and should aim to benefit from cross-sectoral synergies. Because the degree of progress in this field varies considerably between Member States in the European region, sharing best practices and regulatory policies and providing assistance would help countries to use resources most effectively.

Capacity building

Capacity building was another priority for all regions. For Africa, the initiative of **strengthening human and institutional capacity building** was set with the objective of providing stakeholders in that region, on a sustainable basis, with human

resources and skills needed for harmonious development of the telecommunication and information and communication technology sector. For the Americas, the initiative of **capacity building was set to engage in global policy for information and communication technology, with a special focus on improving cybersecurity and the participation of developing countries in the existing Internet governance institutions**. The objective is to enhance the capacity building of Member States in that region with a view to promoting an enabling environment, supporting the implementation of initiatives related to information and communication technology, and encouraging developing countries to participate actively in forums on global policy for information and communication technology, in close collaboration with existing institutions.

The CIS favoured a specific approach with an initiative to **introduce training technologies and methods using telecommunications and information and communication technologies for human capacity building**, with the objective of assisting ITU Member States in the CIS region in setting up and developing national programmes for introducing telecommunications and information and communication technologies into education.

A related initiative for **harnessing the benefits** of new technologies was set for the Asia-Pacific region with the objective of

assisting Member States in the use of new technologies to address human and technical capacity challenges.

Similarly, the **smart learning** initiative was set for the Arab States, with the objective of bringing about a shift from traditional methods of teaching in schools and universities, using books and paper-based sources, to smart learning with the use of tablet computers, the latest software and modern telecommunication and information and communication technology techniques to provide access to a range of academic information, resources and subject matters.

Building confidence and security

With the exception of Asia-Pacific, the other five regions accorded priority to **building confidence and security in the use of telecommunications and information and communication technologies**.

The Africa region set the objective of assisting Member States in defining and implementing appropriate strategies for the protection of information and communication technology infrastructure, and building confidence in the use of these technologies and their applications. The objective set by the Arab States focuses on building confidence and security in the use of e-commerce in the Arab region, and on combating all forms of cyberthreats, including the misuse of information and

communication technologies. The focus of the European objective is on children and young people in Europe.

For the CIS, the objective is to build the capacity of Member States in the region to implement the initiative, within the framework of the concept of information ecology for sustainable development and combating the potential negative consequences of the impact of the information environment. A separate but related CIS initiative is to **create a child online protection centre for the CIS region**, with the objective of providing ITU Member States in the CIS region with centralized advisory and technical assistance on various aspects of child online protection. In the Americas region, improving cybersecurity will receive special attention under the initiative on capacity building to engage in global ICT policy, as stated above.

Spectrum management and transition to digital broadcasting

An initiative common to Africa, the Americas and Europe concerns **spectrum management and transition to digital broadcasting**, with the objective of assisting Member States of these regions in these areas. The European slant on this objective is to foster regional cooperation, mainly supplemented by direct assistance to administrations in the process

Regional initiatives at a glance

Africa	Americas	Arab States
Strengthening human and institutional capacity building	Emergency telecommunications	Development of broadband access and adoption of broadband
Strengthening and harmonizing policy and regulatory frameworks for the integration of African telecommunication and information and communication technology markets	Spectrum management and transition to digital broadcasting	Building confidence and security in the use of telecommunications and information and communication technologies
Development of broadband access and adoption of broadband	Development of broadband access and adoption of broadband	Use of telecommunications and information and communication technologies for smart and sustainable development and protection of the environment
Spectrum management and transition to digital broadcasting	Reduction of telecommunication service prices and Internet access costs	Smart learning
Building confidence and security in the use of telecommunications and information and communication technologies	Capacity building to engage in global ICT policy, with special focus on improving cybersecurity and developing countries' participation in the existing Internet governance institutions	Ensuring access to telecommunication and information and communication technologies, in particular for persons with disabilities

Asia-Pacific	Commonwealth of Independent States (CIS)	Europe
Special consideration for least developed countries, small island developing States, including Pacific island countries, and landlocked developing countries	Creating a child online protection centre for the CIS region	Spectrum management and transition to digital broadcasting
Emergency telecommunications	Ensuring access to telecommunication/ICT services for persons with disabilities	Development of broadband access and adoption of broadband
Harnessing the benefits of new technologies	Introduction of training technologies and methods using telecommunications and information and communication technologies for human capacity building	Ensuring access to telecommunications and information and communication technologies, in particular for persons with disabilities
Development of broadband access and adoption of broadband	Development of broadband access and adoption of broadband	Building confidence and security in the use of telecommunications and information and communication technologies
Policy and regulation	Building confidence and security in the use of information and communication technologies	Entrepreneurship, innovation and youth

of analogue television switch-off, and management of the frequencies in the digital dividend bands, which are to be used bearing in mind the most effective use of radio spectrum.

Persons with disabilities

The Arab States, CIS and Europe all have as an initiative **ensuring access to telecommunications and information and communication technologies, in particular for persons with disabilities**. The Arab States set the objective to ensure the right of access for persons with disabilities in the Arab region. The objective of CIS is to assist ITU Member States in the CIS region in developing regulations and technical solutions, as well as in implementing specialized training programmes, to ensure the accessibility and user-friendliness of these technologies for persons with disabilities. In Europe, the objectives are to further promote e-accessibility in the information and communication technology ecosystem, and provide the administrations with the most suitable solutions available. Both objectives may comprise assistance to national regulatory authorities and sharing of best practices in cooperation with relevant institutions.



Emergency telecommunications

Emergency telecommunications is an important initiative for the Americas and the Asia-Pacific regions, and was set with the objective to provide assistance to Member States at all phases of disaster management, for example in disaster preparedness including early warning, disaster response and relief, and rehabilitation of telecommunication networks. To that objective, the Americas add a particular focus on small island developing States and the least developed countries in the region.

A mixed bag

The remaining initiatives reflect priorities set by different regions. An initiative for Africa seeks to **strengthen and harmonize policy and regulatory frameworks for the integration of African telecommunication and information and communication technology markets**. The objective is to facilitate and promote the reform of Africa's national telecommunication and information and communication technology sectors, and the implementation of

strategies relating to those sectors, in order to achieve subregional and regional integration of related infrastructure, services and markets.

The Americas have the **reduction of telecommunication service prices and Internet access costs as an initiative**, with the objective of providing assistance to Member States in the region in defining and coordinating policies, ways and means to reduce the cost of access and interconnection, as well as the prices of telecommunication and Internet services and Internet for users, through necessary investments.

The Arab States set as an initiative the **use of telecommunications and information and communication technologies for smart and sustainable development and protection of the environment**.

The objective of this initiative is to raise awareness of the importance of sustainable development and environmental protection, and formulate legislation and regulatory frameworks in order to achieve smart and sustainable development.

The Asia-Pacific region gives priority to an initiative on **special consideration for least developed countries, small**

island developing States, including Pacific island countries, and landlocked developing countries, with the objective of providing special assistance to these countries in order to meet their priority requirements regarding information and communication technologies. Further, in its **policy and regulation initiative**, the Asia-Pacific region sets the objective to assist Member States in developing appropriate policy and regulatory frameworks, enhancing skills, increasing information sharing and strengthening regulatory cooperation.

Finally, the initiative set by Europe on **entrepreneurship, innovation and youth** has the objective of fostering the creation of an enabling environment and building capacities at the regional level, aimed at growth of entrepreneurship and increased innovation in the information and communication technology ecosystem, while encouraging empowerment of young men and women and creating new opportunities for them in the sector. Strengthened cooperation with diverse stakeholders, including academia and the private sector will be necessary. ■



APF

► Programmes as an implementation framework

The sixth World Telecommunication Development Conference (WTDC-14) approved the programmes outlined below as a concrete framework for the fulfilment of the five objectives and fifteen associated outputs (products and services) set for ITU's Telecommunication Development Sector (ITU-D) to fast-track global connectivity over the next four years.

When implementing these programmes, the Telecommunication Development Bureau (BDT) will, where appropriate, collaborate with other organizations, including Sector Members, academia, non-governmental organizations and other United Nations agencies, in order to combine expertise and avoid duplication of work.

Programme: Policy and regulatory environment

Under this programme, research and analysis will be conducted at global and regional levels on the latest policy, regulatory, economic, financial and market trends in telecommunications and information and communication technologies (ICT). Annual surveys and other means will be used to measure the social and economic impact of being connected.



Along with reports, studies and benchmarking tools, ITU will produce recommendations and guidelines, and identify best practices. ITU will also assist individual countries in specific matters of interest to them, such as regulatory and institutional reform, competition, investment and financing, new business models, high- and ultra-high-speed broadband deployment, consumer protection (online security and safety), data (including Internet of Things and machine-to-machine), cost modelling for cost-based regulated services (wholesale and retail), scarce resources (such as spectrum), telephone numbering and signalling point codes, infrastructure sharing (including use of smart grids), cost-effective solutions for remote and rural areas, number portability, Internet protocol (IP) interconnection, mobile roaming, universal and affordable access to ICT services and smart cities.

Publications will include the annual *Trends in telecommunication/ICT reform* report, the ICT regulation toolkit, the broadband series of thematic reports, and the regulatory and tariff policies database.

ITU will provide global platforms (face-to-face and online) for policy-makers, regulators and the private sector to address topical issues, share experiences and best practices, and discuss ways to help countries achieve their goals of growing digital economies. In this context, ITU will continue to organize global and regional events, forums, training workshops and

seminars, such as the Global Symposium for Regulators.

Programme: Telecommunication/ ICT networks, including conformance and interoperability

This programme will assist ITU Member States and ITU–D Sector Members and Associates in maximizing the use of appropriate new technologies for the development of their information and communication infrastructure and services. Some specific areas of work are listed below.

Spectrum management and radio monitoring

BDT provides assistance in various aspects of spectrum management, including producing specialized tools for this purpose. BDT will, in particular, continue to maintain, update and expand the Spectrum Management for Developing Countries (SMS4DC) software, providing technical assistance and conducting training activities for its deployment and use. It will provide spectrum management assessments and recommend action plans for the further development of spectrum management structures, procedures and tools, including new spectrum sharing approaches, such as dynamic spectrum access. It will also provide assistance on spectrum fee regimes, the harmonization of regional

spectrum allocations (including coordination procedures in border areas), and the use of spectrum monitoring systems and networks.

Broadcasting

The transition from analogue to digital broadcasting, already begun in many developing countries, is expected to peak over the next few years in Regions 2 (Americas) and 3 (Asia and Australasia), and to be completed in Region 1 (Africa and Europe) by the June 2015 deadline set in the GE06 Agreement. BDT will assist developing countries to achieve smooth migration from analogue to digital broadcasting and offer support in post-transition activities, such as the introduction of new broadcasting services and allocation of the digital dividend. In particular, BDT will continue to provide assistance on policy and regulatory frameworks for digital broadcasting, and will organize regional meetings between ITU members on the use of spectrum for broadcasting or other services.

Future BDT activities will focus mainly on policy and regulatory frameworks for digital terrestrial broadcasting, including frequency planning and optimization of spectrum use; digital broadcasting guidelines and master plans for the transition from analogue to digital broadcasting; conversion of analogue to digital archives; and new broadcasting services and technologies.



Next-generation networks

The architecture of information and communication infrastructure is continuously changing to accommodate new requirements for new services and applications, along with evolution to next-generation (and future) networks. BDT will assist Member States in moving to future network architectures and technologies, applying the standards (Recommendations) developed in the ITU Telecommunication Standardization Sector (ITU-T) and the ITU Radiocommunication Sector (ITU-R).

BDT will, in particular, assist Member States to deploy and migrate their existing

networks to next-generation networks and beyond and to digitize analogue networks, applying affordable wired and wireless technologies, including interoperable infrastructure.

Broadband networks: wired and wireless technologies, including IMT

BDT will provide developing countries with an understanding of the different technologies available for broadband using both wired and wireless technologies for terrestrial and

satellite telecommunications, including International Mobile Telecommunications (IMT).

Specific activities will include providing assistance to developing countries in planning the implementation and development of national broadband networks; collecting and disseminating information and analyses on the current status of broadband backbone and submarine cables, in order to assist members in network planning, avoiding duplication of efforts and resources; and promoting Internet exchange points, as well as supporting the transition to IPv6.



Rural communications

Rural areas remain sparsely covered, and telecommunication operators do not consider rural coverage a viable business case. Recent growth of teledensity in urban areas, fuelled by mobile technology, has widened the digital gap between rural and urban areas. Setting up backhaul connectivity remains a high-cost exercise. Erratic power supply or complete lack of energy sources is a major barrier, although photovoltaic power is increasingly becoming a viable alternative.

BDT's focus will be to provide information on suitable technologies for access, backhaul and source of power supply to bring telecommunications to rural, unserved and underserved areas; implement projects on public/community broadband access points; and disseminate information and analyses of the latest technologies (including satellite) and best practices.

Conformance and interoperability

Conformance with international standards maximizes the probability that an ICT vendor's products will interoperate with those of other vendors. This interoperability is addressed by international standards such as ITU Recommendations, which enable communications between the ICT of different manufacturers, countries

and continents. Mutual recognition arrangements between the test centres of different countries or regions give consumers confidence in tested products, increase market opportunities, encourage trade and technology transfer, and contribute to the removal of technical barriers to trade. The ITU Conformance and Interoperability Programme seeks to increase conformance with ITU Recommendations and, in turn, the interoperability of ICT globally (assessed according to global standards such as those of the International Organization for Standardization and International Electrotechnical Commission — ISO/IEC).

BDT will educate technicians, policy-makers and businesses on the importance of conformance and interoperability procedures and testing, and of mobilizing resources for regional and national programmes. BDT will help developing countries to establish conformance and interoperability programmes, assessing the possibility of establishing regimes at national, regional and subregional level, and preparing guidelines on this process.

Programme: Innovation and partnership

This programme will identify best practice and coherent policy approaches to ICT innovation, to be integrated into national

development agendas. It will also identify ways and means to develop partnerships among various organizations, in line with the focus of the post-2015 development agenda on a new global partnership.

Along with developing internationally comparable measurements of innovation capabilities for use at national level, guidelines will be drafted on fostering innovation in the public sector at all levels of government to enhance the delivery of public services, improve efficiency, coverage and equity. Guidelines will also be produced on creating ICT incubators that are sustainable and on how to enhance the competitiveness and sustainability of small and medium-sized enterprises.

A study will be carried out on resource mobilization and access to investment financing, with the objective of developing a strategy for building effective partnerships and furthering ITU-D's objectives. Among other things, the study will examine ways of overcoming challenges in translating memoranda of understanding and partnerships into actual resource mobilization and project implementation. It will also look into how to obtain favourable lines of credit for developing countries from various sources, including international and regional financial and developmental institutions. The study will also recommend a strategy for building effective partnerships.

Programme: Cybersecurity

This programme aims to support the ITU membership, in particular developing countries, in building trust and confidence in the use of information and communication technologies, taking into account the global, transnational nature of cyberthreats. Assistance will be focused on capacity building and outreach activities on legal, technical and procedural measures, organizational structures and international cooperation.

The programme will collaborate with all relevant organizations to avoid duplication of effort. In particular, it will support ITU Member States in developing their national or regional cybersecurity strategies as an essential step towards building national capabilities for dealing with cyberthreats. It will also support ITU Member States, in particular least developed countries, in their efforts to build capacity, and will facilitate their access to resources developed by other international organizations working on national legislation to combat cybercrime.

The programme will assist Member States, in particular developing countries, in elaborating appropriate and workable legal measures on protection against cyberthreats; establishing technical and procedural measures aimed at securing national ICT infrastructure; and establishing organizational structures, such as computer incident response teams, to identify, manage and respond to cyberthreats. In addition, the programme will help Member States to contribute to the implementation of ITU's global initiatives to combat cyberthreats and to protect children online — currently, the Global Cybersecurity Agenda (GCA) and Child Online Protection (COP).

Member States are encouraged to share, through the programme, both their best practices for implementing ITU Recommendations (such as Recommendations ITU-T X.1057 and ITU-T X.1055) and their national experiences in preventing, mitigating, responding to and recovering from cyberincidents. This will assist developing countries in protecting their telecommunication/ICT networks against cyberattacks and cyberthreats.





Programme: ICT applications and services

The purpose of this programme is to support ITU Member States in the use of telecommunications and ICT to develop the various facets of the information society, in particular in underserved and rural areas, in order to attain the United Nations Millennium Development Goals and the targets of the World Summit on the Information Society (WSIS). Such support will be given in collaboration and partnership with other United Nations organizations and the private sector.

Three approaches will be taken. In the first, support will be provided in elaborating national strategic planning frameworks and associated toolkits for selected ICT applications and services, in close collaboration with the relevant United Nations specialized agencies and other international organizations.

The second approach will involve supporting the deployment of ICT/mobile applications to improve the delivery of value-added services in high-potential areas, such as disaster management, e-health, education, agriculture, governance, environmental protection and mobile payment applications. The programme will launch appropriate partnership platforms — involving public and private partners — in order to foster the deployment of innovative ICT applications.

The third approach will consist of continuing to conduct detailed studies and facilitating the sharing of knowledge and best practices on various ICT applications, particularly using broadband, mobile communication, open source, and new technology advances and innovations, taking into account the means available for implementation (be they wireline, wireless, terrestrial, satellite, fixed, mobile, narrow-band or broadband).

Programme: Capacity building

Under this programme, ITU expertise will be used to enhance capacity-building policies, especially in developing countries and to provide guidelines to implement such policies. The programme will raise awareness among governmental and private-sector decision-makers of the importance of capacity building.

BDT will implement a wide range of practical measures, including face-to-face learning, training of trainers, and disseminating high-quality training materials. BDT will continue to enhance the ITU Academy portal and to promote the Centres of Excellence network and Internet Training Centres as indispensable components of ITU capacity building. It will also continue to be organize periodic regional and global meetings, workshops and seminars as platforms for knowledge sharing.

A training programme will be developed through the ITU regional offices in collaboration with relevant stakeholders to provide human capacity building in order to equip ITU members with greater knowledge about Internet governance.

The programme will encourage the establishment of cooperative partnerships with all stakeholders specializing in telecommunication/ICT education, training and development activities, and the engagement of qualified and experienced experts from academia, private sector, government and international organizations, in order to build human and institutional capacity.

The programme will further promote and support research on and analysis of the latest sector trends and priorities through regular surveys and data collection. It will also promote linkages between educational institutions and the telecommunication/ICT sector to ensure that graduates are better matched with sector needs.

Programme: Telecommunication/ICT statistics

This programme will seek to ensure that ITU maintains its current global leadership as the main source of international telecommunication and information and communication technology data and statistics. This will be done in the following ways.

The programme will collect, harmonize and disseminate data and official statistics using a variety of data sources and dissemination tools, such as the World Telecommunication/ICT Indicators Database, the ICT Eye ITU online portal, and the United Nations data portal.

BDT will analyse trends and produce regional and global research reports, such as *Measuring the Information Society*. This will include benchmarking developments in the telecommunication and information and communication technology sector, and clarifying the magnitude of the

digital divide using such tools as the ICT Development Index.

BDT will continue to develop international standards, definitions and methodologies on telecommunication and information and communication technology statistics, in close cooperation with other regional and international organizations, including the United Nations, Eurostat, the Organisation for Economic Co-operation and Development (OECD) and the Partnership on Measuring ICT for Development.

BDT will also continue to organize the World Telecommunication/ICT Indicators Symposium and its related statistical expert groups, providing a global forum enabling ITU members and other national and international stakeholders to discuss measurement of the information society.

ITU will encourage Member States to bring together different stakeholders in government, academia and civil society to raise national awareness about the importance of producing and disseminating high-quality data for policy purposes.





The programme will contribute to monitoring — and to developing frameworks for measuring progress towards — internationally agreed goals and targets, including the United Nations Millennium Development Goals and WSIS targets, as well as the targets set by the Broadband Commission for Digital Development.

ITU will maintain a leading role in the global Partnership on Measuring ICT for Development and its relevant task groups.

Countries will be encouraged to produce high-quality data based on internationally agreed standards and methodologies. The data will serve to quantify national digital divides, the impact of efforts to close the gaps and, as far as possible, the social and economic effects associated with being connected.

Programme: Digital inclusion

This programme will develop policies, strategies and guidelines to ensure universal access to telecommunications and ICT, in particular for persons with disabilities, ageing populations, indigenous communities, and women and girls. These measures will address social and economic challenges, such as the need to promote youth employment and entrepreneurship and the empowerment of women and girls.

More specifically, the programme will produce public policy recommendations for the development of telecommunications and ICT in indigenous communities. It will also provide model national strategies to ensure that women and men enjoy equal access to ICT and that these technologies are used for the social and economic empowerment of women and girls.

Outputs will include gender mainstreaming guidelines for regulatory agencies and ministries of communication, guidelines for gender-sensitive project development and evaluation in the telecommunication sector, and guidelines on updating universal access/service mandates and funds to promote accessibility and digital inclusion of people with specific needs.

The programme will draft comprehensive digital inclusion policies, strategies and guidelines, including input to national broadband plans. It will develop products and services to enhance the ability of members to provide digital literacy training to people with specific needs; and develop national programmes on the use of telecommunications and ICT for social and economic development. The programme will also raise awareness of the need for digital inclusion.

Programme: Concentrated assistance to least developed countries, small island developing States and landlocked developing countries

Under this programme targeted assistance will be provided to least developed countries, small island developing States, landlocked developing countries, and countries with economies in transition for the development of broadband infrastructure, ICT applications, cybersecurity, policy and regulatory frameworks, and human capacity building. Through the programme, universal access to telecommunications and ICT will be promoted in all these countries, and assistance will be provided to them in disaster monitoring and mitigation, with the aim of helping them attain, by the year 2015, internationally agreed objectives such as the Millennium Development Goals.

Programme: Climate-change adaptation and mitigation using ICT

As part of its mandate, BDT will assist developing countries in using ICT to mitigate and address the effects of climate change, while taking care to avoid damaging the environment.

Assistance will include mapping areas vulnerable to natural disasters; developing information systems for such areas; and using data from active and passive



satellite-based remote sensing systems and other systems or applications for climate monitoring, disaster prediction, and detection and mitigation of the negative effects of climate change.

Assistance will also be provided to help Member States to participate in bilateral, regional and global research, assessments, monitoring and mapping of climate impacts, and the development of response strategies; and adopt metrics and common standards for evaluating the environmental impact of the use of telecommunications and ICT and their positive contribution to the broader economy. In evaluating the impact on greenhouse gas emissions, e-waste will be taken into account.

Programme: Emergency telecommunications

Emergency telecommunications is a priority area for all ITU Member States, and this programme will provide assistance in the use of telecommunications and ICT in preparing for, and responding to, disasters (including early warning and disaster preparedness plans). Regional and international cooperation, collaboration and information sharing will be encouraged.

Other programme activities include ensuring that disaster-resilient features are incorporated in telecommunication networks and infrastructure; assessing infrastructure damage after disasters strike, and assisting countries to reconstruct and

rehabilitate telecommunication infrastructure; providing training on the use of emergency telecommunication equipment when disaster strikes; strengthening and expanding initiatives such as e-health to provide humanitarian assistance in disasters and emergencies; and developing partnerships with vendors dealing with emergency telecommunication equipment and renewable energy solutions.

The programme will promote and support research on, and analysis of, the latest sector trends and priorities through regular surveys and data collection. ■



▶ ITU–D study groups and their areas of study

The conference agreed to maintain the two study groups of ITU's Telecommunication Development Sector (ITU–D) and decided on their terms of reference. It also agreed on new and revised questions (see box) for the 2014–2018 study period, starting in September this year.

ITU–D study groups are responsible for developing reports, guidelines and recommendations, based on input from the membership. Information is gathered

through surveys, contributions and case studies. The study groups examine specific task-oriented matters relating to telecommunications and information and communication technologies. The questions are of priority to developing countries, and the findings of the study groups support these countries in achieving their development goals. These findings also serve to strengthen the shared knowledge base of the ITU membership.

Participation of countries, particularly developing countries, in spectrum management

Apart from the study questions, ITU–D Study Group 1 will also take on board the tasks in revised Resolution 9 (Rev. Dubai, 2014) on "Participation of countries, particularly developing countries, in spectrum management".

Study Group 1 Questions	Study Group 2 Questions
Policy, regulatory and technical aspects of the migration from existing networks to broadband networks in developing countries, including next-generation networks, m-services, OTT (over-the-top) services and the implementation of IPv6	Creating the smart society: Social and economic development through ICT applications
Broadband access technologies, including IMT, for developing countries	Information and telecommunications/ICTs for e-health
Access to cloud computing: Challenges and opportunities for developing countries	Securing information and communication networks: Best practices for developing a culture of cybersecurity
Economic policies and methods of determining the costs of services related to national telecommunication/ICT networks, including next-generation networks	Assistance to developing countries for implementing conformance and interoperability programmes
Telecommunications/ICTs for rural and remote areas	Utilization of telecommunications/ICTs for disaster preparedness, mitigation and response
Consumer information, protection and rights: Laws, regulation, economic bases, consumer networks	ICT and climate change
Access to telecommunication/ICT services by persons with disabilities and with specific needs	Strategies and policies concerning human exposure to electromagnetic fields
Examination of strategies and methods of migration from analogue to digital terrestrial broadcasting and implementation of new services	Strategies and policies for the proper disposal or reuse of telecommunication/ICT waste material
Resolution 9: Participation of countries, particularly developing countries, in spectrum management	Identification of study topics in the ITU–T and ITU–R study groups which are of particular interest to developing countries

One of the most pressing concerns in the spectrum management of many developing countries, including least developed countries, small island developing States, landlocked developing countries and countries with economies in transition, is the difficulty in elaborating methods to calculate fees for use of the radio-frequency spectrum. Resolution 9 as updated by WTDC-14 considers that regional, bilateral or multilateral agreements could be a basis to foster cooperation in this area. It also highlights, among other things, the need to study spectrum-management best practices in order to make broadband access more affordable to lower-income populations, especially in these countries.

Under the revised resolution, a report will be prepared within the next study period on national technical, economic and

financial approaches to, and challenges of, spectrum management and spectrum monitoring, taking into consideration development trends in spectrum management, case studies on spectrum redeployment, licensing processes and best practices implemented in spectrum monitoring around the world. In addition, information available on national frequency allocation tables will be updated and Resolution 9 and ICT Eye portals will be made complementary. Case studies will be compiled and best practices collected regarding national uses of shared spectrum access, including new spectrum sharing approaches such as dynamic spectrum access (DSA). The economic and social benefits arising from the effective sharing of spectrum resources will be studied.

Telecommunication Development Advisory Group

During the four-year study cycle, the Telecommunication Development Advisory Group (TDAG) will periodically evaluate the working methods and functioning of the ITU–D study groups and find options to maximize programme delivery. TDAG will also approve any programme of work that may arise from the review of existing and new questions, and determine the priority and estimated financial implications and time-scale for the completion of the studies.

The Chairmen and Vice-Chairmen of the two ITU–D study groups and of TDAG are given in the table below. ■

Telecommunication Development Advisory Group	Study Group 1	Study Group 2
Chairman: Professor Vladimir Minkin (Russian Federation)	Chairman: Ms Roxanne McElvane (United States)	Chairman: Dr Ahmad Reza Sharafat (Islamic Republic of Iran)
Vice-Chairmen: <ul style="list-style-type: none"> Mr Elie Djerambete (Chad) Mr Ahmadou Traoré (Mali) Mr Nicolás Karavaski (Argentina) Mr Héctor Edmundo Valdés Moreno (Mexico) Mr Mohamed Saeed Ali Al Muathen Al Mazrooei (United Arab Emirates) Mr Al-Ansari Al-Mashagbah (Jordan) Dr Bohyun Seo (Republic of Korea) Mr Kishore Babu (India) Mr Rufat Taghizadeh (Azerbaijan) Ms Nurzat Bolzhobekova (Kyrgyzstan) Mr Fabio Bigi (Italy) Mr Dominique Würges (France) 	Vice-Chairmen: <ul style="list-style-type: none"> Ms Regina Fleur Assoumou-Bessou (Côte d'Ivoire) Mr Peter Ngwan Mbengie (Cameroon) Mr Victor Martinez (Paraguay) Ms Claymir Carozza Rodriguez (Venezuela) Mr Wesam Al-Ramadeen (Jordan) Mr Ahmed Abdel Aziz Gad (Egypt) Mr Nguyen Quy Quyen (Viet Nam) Mr Yasuhiko Kawasumi (Japan) Mr Vadym Kaptur (Ukraine) Mr Almaz Tilenbaev (Kyrgyzstan) Ms Blanca Gonzalez (Spain) 	Vice-Chairmen: <ul style="list-style-type: none"> Ms Aminata Kaba-Camara (Guinea) Mr Christopher Kemei (Kenya) Ms Celina Delgado (Nicaragua) Mr Nasser Al Marzouqi (United Arab Emirates) Mr Nadir Ahmed Gaylani (Sudan) Ms Ke Wang (China) Mr Ananda Raj Khanal (Republic of Nepal) Mr Evgeny Bondarenko (Russian Federation) Mr Henadz Asipovich (Belarus) Mr Petko Kantchev (Bulgaria)

► **Success breeds success**

Interview with Nasser A. Bin Hammad on WTDC-14 coordination

Senior Manager of International Affairs in the Director General's Office of the Telecommunications Regulatory Authority, United Arab Emirates, and Coordinator of WTDC-14



Negotiations are an important step in hosting an event. What was your experience in negotiating the Host Country Agreement with ITU for WTDC-14?

Nasser A. Bin Hammad: Three major ITU high-level events were held for the first time in the United Arab Emirates in 2012. These were ITU Telecom World, the World Telecommunication Standardization Assembly, and the World Conference on International Telecommunications, and all three events were successfully hosted in Dubai. Representing the Telecommunications Regulatory Authority of the United Arab Emirates, I had the honour of being the national coordinator for these three events. This provided me and my team with valuable experience

in responding to ITU's requirements for hosting a major event for the Union in 2014, namely the ITU World Telecommunication Development Conference (WTDC-14). The experience gained in 2012 enabled the Government of the United Arab Emirates, through its Telecommunications Regulatory Authority, to take a fast decision to offer to host WTDC-14.

The ITU's requirements were very familiar to us in the Telecommunications Regulatory Authority and this helped a lot in our negotiations with the ITU team. Another advantage was that WTDC-14 could be hosted in the same premises — the Dubai World Trade Center — where the three events had been held in 2012. This was an important factor in helping us to finalize the Host Country Agreement.



What was the biggest challenge you faced in making the event happen?

Nasser A. Bin Hammad: As you know, the original dates set for the conference were 31 March to 11 April 2014. The United Arab Emirates could only offer slightly different dates because of the availability of the Dubai World Trade Center. Furthermore, ITU had to consult the membership of the Union on the new venue and dates of the conference, according to due procedure. We had to wait for the official result of the consultation and the announcement that the United Arab Emirates would be hosting the event.

As project manager, I would say that time was the most critical constraint for me and my team in the Telecommunications Regulatory Authority. It was the biggest challenge we faced — having to fulfil all the requirements within the short time available, not only those arising from the Host Country Agreement with ITU, but also the internal requirements of the Telecommunications Regulatory Authority and the other entities in the United Arab Emirates that were also involved in the conference. We had a period of just three months of intensive work to organize this important international conference, with a huge number of participants, in a critical year for ITU because of the forthcoming Plenipotentiary Conference to be held in Busan, Republic of Korea, later in 2014 (20 October to 7 November).

What technical challenges had to be overcome?

Nasser A. Bin Hammad: According to the Host Country Agreement, we had to guarantee to meet many requirements relating to the operation of the event. In this respect, our biggest challenge was the short duration of time that suppliers had to equip the Dubai World Trade Center.

With regard to the logistical and protocol arrangements, which again were an obligation on the host country under the terms of the Host Country Agreement, we took advantage of the positive experience gained in 2012 and were successful in making timely arrangements. In fact, the Telecommunications Regulatory Authority hired the same logistics company, Pearl of Arabia, which was the official logistical organizer back in 2012.

How important was capacity building in preparing for the event?

Nasser A. Bin Hammad: In my opinion, capacity building was the key strategy that enabled the success of the conference. Success in holding such a prestigious event requires staff to have support, trust, confidence, encouragement and motivation at all times. This enabling environment very much exists within the Telecommunications Regulatory Authority, starting from its Chairman, who was strongly in favour of the United Arab Emirates hosting the event. The Director General and the top management of the Telecommunications Regulatory Authority were unfailingly supportive, monitoring progress and taking



a close interest in all the activities of the internal team involved. The support that we got from top management on logistical and technical matters, coupled with the commitment and efforts made by my team in the Telecommunications Regulatory Authority international affairs department, were the real assets that enabled us to host the conference successfully.

What were your expectations for this event, and have they been met?

Nasser A. Bin Hammad: Our expectations were very high from the beginning, even though they were tempered with a little fear. Participation was high, with over 1300 delegates, including 52 VIPs, representing 137 Member States. The running of the conference was smooth from beginning to end, and there were no complaints from the ITU membership. I think that these facts are evidence that WTDC-14 was another success story for both the United Arab Emirates and ITU.

How do you see the future of the relationship between the United Arab Emirates and ITU?

Nasser A. Bin Hammad: The cordial and long-term relationship between ITU and the Government of the United Arab Emirates, especially the Telecommunications Regulatory Authority, has certainly been enhanced by our experience of WTDC-14. The Telecommunications Regulatory Authority management's vision is to keep the United Arab Emirates at the forefront of the activities of the Union in all three ITU Sectors and in all areas. The Government of the United Arab Emirates is planning to participate actively in the upcoming Plenipotentiary Conference in Busan, as well as in the ITU Council. The Telecommunications Regulatory Authority will continue to work with all Sectors of the Union, doing its utmost to support and cooperate with the ITU membership in order to achieve the goals of the Union.

Any final thoughts?

Nasser A. Bin Hammad: The excellent coordination and preparations on the logistical and technical front by the staff of ITU and the United Arab Emirates Telecommunications Regulatory Authority paid off, and the conference went without a hitch. In my view, the mutual understanding, joint efforts and spirit of good will that were evident throughout the conference led to this most successful WTDC. ■



ITU/Wood

All signs point to Busan as Council 2014 wraps up

Highlights

At the helm

The ITU Council met from 6 to 15 May to finalize preparations for the forthcoming Plenipotentiary Conference, to be held in Busan, Republic of Korea, from 20 October to 7 November 2014. "We stand on the threshold of a bright and extraordinary future, delivered by the power of information and communication technologies. This is an important moment for ITU", said ITU Secretary-General Dr Hamadoun I. Touré in his State of the Union address.

There were 421 participants from 48 countries representing ITU's total membership of 193 Member States at this year's session. They were joined by 40 Member State observers, five Sector Member observers and representatives of three regional telecommunication organizations. Also in

attendance were ministers from Australia, Cameroon, Jamaica, Mali, the Philippines and Tunisia, as well as vice-ministers from China and Costa Rica.

Opening the session, outgoing Council Chairman Marius Cătălin Marinescu, President of Romania's National Authority for Management and Regulation in Communications, said that "Each day we lay the foundations for the future, each task we complete opens doors towards new challenges, each problem we solve just brings along other questions to answer. This is what our lives should be about — our struggle to leave the world we live in a better place, at least from the telecommunications point of view, should be our mission".

Aboubakar Zourmba, Deputy Director-General of Cameroon's Telecommunications

Regulatory Agency, was elected as Chairman of the 2014 session of the Council, having served as Vice-Chairman in 2013. Mr Zourmba emphasized the importance of digital inclusion and said that care should be taken to ensure that populations with literacy gaps are not condemned to digital exclusion. In the light of consultations with countries of Region E (Asia and Australasia), Wonki Min from the Republic of Korea was elected Vice-Chairman of the 2014 session of the Council.

Caroline Greenway from Australia was re-appointed Chairman of the Standing Committee on Administration and Management, and Marcin Krasuski from Poland and Vernita Harris from the United States were re-appointed Vice-Chairmen.

Implementing the 2012–2015 Strategic Plan

ITU Deputy Secretary-General, Houlin Zhao, presented the report on the implementation of the 2012–2015 Strategic Plan of the Union. The activities undertaken to date show how ITU has continued to provide a forum for debate and for international agreements on information and communication technologies (ICT). ITU has also continued to establish innovative standards, follow up on spectrum management matters, and work to strengthen capacity and provide technical assistance, all in the interests of Member States.

In approving this report, the Council authorized the Secretary-General, under the supervision of the Council Chairman, to update it in the light of councillors' observations, and add the results of the World Telecommunication Development Conference (WTDC-14), held in Dubai in the United Arab Emirates from 30 March to 10 April 2014, the Global Symposium for Regulators (Manama, Bahrain, 3–5 June 2014), the World Telecommunication and Information Society Day celebrations, and the WSIS+10 High-Level Event (Geneva, 10–13 June 2014). The final version of the report will be submitted to PP-14.

ITU Strategic Plan and Financial Plan for 2016–2019

In discussing the report of the Council Working Group on the Elaboration of the Strategic and Financial Plans for the Union for 2016–2019, presented by its Chairman

Mario Canazza from Brazil, councillors stressed the importance of following the results-based management and budgeting methodology, of ensuring coherence between the financial plan and the strategic plan, and of the need for the latter to be made flexible enough to ensure that it did not undermine the balance in the financial plan.

The Council endorsed Resolutions 71 (Strategic Plan), 72 (Linking strategic, financial and operational planning in ITU) and 151 (Implementation of results-based management in ITU), and will submit these resolutions to PP-14. It fixed the provisional amount of the contributory unit at CHF 318 000.

Draft revisions to Decision 5 (Revenue and expenses for the Union for the period 2016–2019) were agreed, subject to final decision by PP-14. Member States are encouraged to identify additional measures for balancing revenue and expenses. Brazil proposed a series of measures for reducing expenditure, and these will be transmitted to PP-14.

The Chairman of the Council Working Group on the Elaboration of the Strategic and Financial Plans, was authorized, under the supervision of the Chairman of the Council, to incorporate the results of any subsequent discussions, for example, in the Radiocommunication Advisory Group (RAG) or in the Telecommunication Standardization Advisory Group (TSAG), into a revised version of the report for submission to PP-14.

China to increase its financial contribution to ITU

During the discussion on the financial plan, the Deputy Minister of China's Industry and Information Technology, Lihua Liu, announced that, as of 2016, China would raise its financial contribution to the Union's budget from 12 to 14 contributory units, that is from CHF 3.816 million to CHF 4.452 million.

Council Working Group on Financial and Human Resources

Following a report from the Chairman of the Council Working Group on Financial and Human Resources, Bruce Gracie from Canada, the Council instructed the secretariat to provide a comprehensive report to PP-14 on rights, obligations and conditions for participation of Sector Members, Associates and Academia, as appropriate, in meetings of all three Sectors and in the Council and Plenipotentiary Conferences. The Council adopted a new draft resolution concerning the review of the current methodologies and development of a future vision for the participation of Sector Members, Associates and Academia in the activities of ITU. This resolution will be submitted to PP-14.

ITU's operational plans for 2015–2018

The Council considered and unanimously approved the Union's four-year



rolling operational plans for 2015–2018, as outlined in the examples below.

Radiocommunication Sector (ITU-R)

In ITU-R, the period starting in 2015 will be marked by the transition from analogue to digital terrestrial television broadcasting, especially in countries subject to the GE06 Agreement deadline of 17 June 2015. Work to complete this transition on schedule and to facilitate the implementation of the resulting digital dividend will be a priority, and assistance will be provided in cooperation with ITU's Telecommunication Development Bureau (BDT) and the regional organizations. The need to compile information on experiences with the digital transition for the use of all those engaged in the process was stressed.

The World Radiocommunication Conference in 2015 (WRC-15) will decide on the future of radiocommunications in areas ranging from mobile and satellite services and broadcasting to emerging spectrum requirements and regulatory and procedural matters. Implementing WRC-15 decisions and preparing for the following WRC will constitute some of the Sector's key tasks in the coming period. Other tasks for ITU-R include delivering relevant recommendations, reports and handbooks in a timely manner, and continuing to assist the membership in implementing best practices in spectrum usage.

Telecommunication

Standardization Sector (ITU-T)

With the convergence of the telecommunication and information technology sectors, the ITU-T operational plan for 2015–2018 aims to ensure that ITU-T continues to adapt to the changing environment. The first part of ITU-T's strategic goal is to develop interoperable, non-discriminatory, international standards that can be implemented on a worldwide basis. Therefore, any patents in the standards must be made available either free of charge or on reasonable and non-discriminatory terms. The second part is to bridge the standardization gap by involving as many ITU Member States as possible in developing standards. The third part is to collaborate with other national and regional standards bodies, forums and consortia.

Telecommunication

Development Sector (ITU-D)

The four-year rolling operational plan for ITU-D provides the framework for implementing the Sector's mission and objectives during 2015–2018. These years will be dominated by the implementation of WTDC-14 outcomes and of resolutions and decisions emanating from PP-14. A number of councillors laid emphasis on the assistance to be given to countries making the digital transition and the steps to be taken for countries unable to meet the deadline of 17 June 2015. Others drew attention to the assistance to be provided to developing countries in the areas of cybersecurity, broadband development and bridging the digital divide.

General Secretariat

The General Secretariat aims for effectiveness and efficiency in the planning, management, coordination and delivery of services to support the Union and its membership. It ensures the implementation of the financial and strategic plans of the Union, and coordinates intersectoral activities. In the years 2015–2018, the General Secretariat will aim, among other things, to implement a resource mobilization policy, foster the implementation of the human resources strategic plan, maintain and continue to improve the conference and publications-related services to the membership, enhance security and assurance of ICT infrastructure and information assets, and foster greater understanding of the role of

ITU, promoting its activities and mission to core constituencies.

International cooperation to enhance cybersecurity

Councillors expressed their appreciation for the work of ITU in helping to combat threats such as denial-of-service attacks, identity and data theft, and increasingly destructive and sophisticated malware. This work is aligned with ITU's Global Cybersecurity Agenda, which is built around legal measures, technical and procedural measures, organizational structures, capacity building and international cooperation.

Illicit use of ICT

Algeria, a prime mover in the adoption of Resolution 174 (Guadalajara, 2010) on ITU's role with regard to international public policy issues relating to the risk of illicit use of ICT, noted that the resolution was yet to be implemented. Algeria, backed by Saudi Arabia, would therefore put forward a proposal to PP-14 to revise the current text.

Child online protection

The Council Working Group on Child Online Protection emphasized the importance of international cooperation in addressing child online safety. Several councillors encouraged ITU to continue its action in this field.

ITU's activities for youth

Some of ITU's activities on youth fall within the Five-Year Action Agenda launched

in 2012 by United Nations Secretary-General Ban Ki-moon to encourage and guide the work of the United Nations system. The agenda advocates the empowerment of young people, as does the System-wide Action Plan for Youth Development (SWAP), which the United Nations launched in 2013. ITU plays an active role in implementing SWAP and in inter-agency activities on youth. Other activities include the Young Innovators Competition, held every year as an integral part of ITU Telecom World events.

Councillors acclaimed the BYND2015 Summit on Youth, held in September 2013 in San Jose, Costa Rica, where young people were able to advocate for the inclusion of information and communication technologies in the United Nations post-2015 global development frameworks. Several countries that had sent young participants commended ITU and Costa Rica for this initiative.

Noting that there is no ITU-wide coordination and reporting mechanism on activities for youth, Costa Rica announced its intention to put forward a resolution to PP-14 to create such a mechanism. Poland offered its support. Bulgaria encouraged the ITU membership to increase the number of youth in their delegations. Saudi Arabia requested that indicators and benchmarks be developed to provide a baseline for the purpose of measuring and reporting.

The ITU secretariat appealed to national administrations to include young people and ensure a gender balance in their delegations to PP-14. It was agreed that an annual

report on ITU's activities on youth will be presented to each session of the Council.

ITU's Internet-related activities

The Council noted a report summarizing ITU's activities within the scope of Resolutions 101 on "Internet Protocol-based Networks", 102 on "ITU's role with regard to international public policy issues pertaining to the Internet and the management of Internet resources, including domain names and addresses", 133 on the "Roles of administrations of Member States in

the management of Internationalized (multilingual) domain names", and 180 on "Facilitating the transition from IPv4 to IPv6".

Councillors welcomed the role of various forums in facilitating discussions on Internet-related public policy issues, including ITU's World Telecommunication/ICT Policy Forum, the Internet Governance Forum (IGF) and NETmundial, hosted by the Government of Brazil in Sao Paulo in April 2014.

The Secretary-General congratulated the Government of Brazil for hosting NETmundial — an event he and United Nations Department of Economic and Social

Affairs (UNDESA) Under Secretary-General Wu Hongbo had attended as representatives of the United Nations, at the request of United Nations Secretary-General Ban Ki-moon. "I believe that NETmundial is an important milestone in the global dialogue on Internet governance, and I am pleased that this meeting demonstrated the continuing desire for dialogue between all parties," Dr Touré told the Council, adding that he and Mr Wu had delivered a common message from the United Nations system, namely that "as a global public good, the Internet should be open, fully inclusive, free, reliable, robust,

Aboubakar Zourmba, Chairman of Council 2014, was awarded the ITU silver medal and certificate by Dr Hamadoun I. Touré, ITU Secretary-General



secure and trustworthy. It should ensure human rights online, and stakeholders from all nations should have a say in its running and development.”

Councillors supported the principle of a multistakeholder approach to Internet governance, and several councillors also congratulated Brazil on hosting the successful multistakeholder event NETmundial. Turkey invited everyone to attend the 9th IGF in Istanbul in September 2014.

Council Working Group on International Internet- related public policy issues

Recent activities of the Council Working Group on International Internet-related public policy issues were reported on by the group's Chairman, Majed Almazyed from Saudi Arabia.

The group's third meeting had examined the results of the consultations held with all the stakeholders concerning the fight against spam, international public policy issues relating to IPv4, and the development of Internet networks. The fourth meeting had examined the replies to the questionnaire which the third meeting had agreed to send out, and which had provided useful information on States' practices in the area of international public policy in regard to the Internet.

Councillors expressed their support for the group's activities, especially as a platform that fosters dialogue and experience sharing among Member States with regard to issues pertaining to international

Internet-related public policy. They also welcomed the various online open consultations with stakeholders throughout the working period of the Council Working Group. In this regard, all Member States are invited to participate actively in the deliberations and contribute to the work of the group.

World Telecommunication Development Conference

Convened under the overarching theme of “Broadband for Sustainable Development” in Dubai, United Arab Emirates, from 30 March to 10 April 2014, WTDC-14 charted a course to accelerate and expand broadband uptake and digital literacy worldwide, particularly in the least developed countries. The key outcomes of WTDC-14 are the Dubai Declaration, the ITU–D contribution to the draft ITU Strategic Plan, and the Dubai Action Plan (see special report on pages 23–64).

Councillors congratulated the Director of BDT and his team for the excellent results obtained at WTDC-14, and thanked the host country, the United Arab Emirates. They also expressed full support for the Dubai Declaration and Action Plan, which opened up new horizons. Several councillors highlighted the importance of Objective 5 “Enhance environmental protection, climate change mitigation and adaptation, and disaster management efforts through telecommunication/ICT,” emphasizing that the measures needed to tackle climate change were at the heart of many countries' concerns.

The Secretary of Science and Technology of the Philippines, Mario G. Montejo, said that he had come to the Council to first and foremost deliver a message of gratitude for the assistance extended to his country by ITU in the aftermath of Typhoon Haiyan. “ITU's response of immediately sending its experts with satellite phones and data terminals played critical roles at hospitals and evacuation and relief operation centres. ITU's assistance saved lives,” he said, explaining that cell towers rated for 180 kilometres per hour winds had been no match for Typhoon Haiyan's greater than 300 kilometres per hour winds, and that the typhoon even affected an undersea cable, with the result that all communications were lost. “We are currently updating our policies on emergency communications, and are now in the process of putting in place resilient communications systems with valuable input from the ITU's real-world example,” he said.

The Director of BDT, referring to his efforts to link action in emergency situations to sustainable development, drew attention to the difficulties in shipping equipment following the occurrence of a disaster, and to the need for rapid delivery of useful equipment to the most vulnerable populations and to isolated areas.

Councillors underlined that WTDC-14 had set the tone for the year and hoped to see the positive atmosphere and constructive spirit experienced in Dubai continue at PP-14. The Council agreed that the ITU–D strategic component, developed at WTDC-14, should be incorporated into the overall draft



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strategic plan of the Union for 2016–2019 to be submitted to PP-14 for approval.

Climate change and protection of the environment

A report was presented to the Council on ITU's activities on climate change and the protection of the environment, ITU's contribution to the United Nations environmental agenda (with a particular focus on the ongoing negotiations within the United Nations Framework Convention on Climate Change), and progress achieved by ITU itself in approaching climate neutrality.

Cameroon called for further action to reinforce Resolution 79 of the World Telecommunication Standardization Assembly 2012 (WTSA-12) on "The role

of telecommunications/information and communication technology in handling and controlling e-waste from telecommunication and information technology equipment and methods of treating it", observing that the transition from analogue to digital television will result in a significant increase in the quantity of e-waste. Cameroon — supported by Rwanda, Egypt, Mali, Italy and France — proposed that the Council ensure the effective implementation of the measures taken for the treatment of e-waste and protection of the environment.

The Council invited the ITU membership to contribute to the work of the Union as well as to the broader United Nations process on climate change, as envisaged in Resolution 182 (Guadalajara, 2010) on "The role of telecommunications/information

and communication technologies on climate change and the protection of the environment".

ITU's conformance and interoperability programme

ITU's conformance and interoperability (C&I) programme is based on four pillars: 1) Conformity assessment; 2) Interoperability events; 3) Capacity building; and 4) Establishment of test centres and C&I regimes in developing countries. Pillars 1 and 2 are led by the ITU Telecommunication Standardization Bureau (TSB) and pillars 3 and 4 by BDT.

Cameroon's request to BDT for assistance in implementing the subregional telecommunication maintenance centre was supported. Councillors also emphasized

the importance of test centres and virtual laboratories, and considered that ITU should formalize procedures, recommendations and guidelines for certifying such establishments vis-à-vis ITU-T standards. They welcomed the recognition by WTDC-14 of the importance of conformance and interoperability, in devoting a new Question to the issue in its programme of studies, and stating in the Dubai Declaration that “widespread conformance and interoperability of telecommunication/ICT equipment and systems through the implementation of relevant programmes, policies and decisions can increase market opportunities and reliability and encourage global integration and trade”. The United States said it would provide a rapporteur for this new study question on “Assistance to developing countries for implementing conformance and interoperability programmes”, assigned to ITU-D Study Group 2.

Tunisia recalled that it had hosted several C&I workshops and seminars. The Russian Federation stated that the C&I programme was one of the most important activities in ITU, while China offered to make its C&I expertise available to developing countries. Several councillors from developing countries urged ITU to accelerate the programme to eliminate the risk of non-compliant or counterfeit equipment and devices.

The Council decided that a report from the ITU secretariat on the progress made over the past four years in implementing

the C&I programme should be submitted to PP-14.

..... **International numbering resources**

The Council considered a document on International Numbering Resources (INR) and agreed with the view of TSB Director Malcolm Johnson that the assignment criteria for INR ranges that ITU assigns directly should be aligned more closely with criteria that national administrations have introduced to allow number ranges to be used more flexibly.

The Council instructed the Director of TSB to invite ITU-T Study Group 2 to set up an expert group to review the assignment criteria for INR ranges that ITU assigns. Further, the Council requested the Director of TSB to forward a report to the final session of the Council on 18 October 2014 on the advantages and disadvantages of using revenue generated from international numbering resources for the purpose of balancing revenue and expenses.

..... **ITU's potential role as supervisory authority of the future international registration system for space assets under the draft Space Protocol**

The Council considered a report on follow-up to the discussions that took place at its 2012 and 2013 sessions on the possible role of ITU as supervisory authority of the

international registration system for space assets under the Space Protocol.

The second session of the preparatory commission for the establishment of the International Registry for Space Assets, held in Rome on 27 and 28 January 2014, considered that 90 per cent of the draft Space Regulations were already approved in principle. The entire Regulations will be presented for final approval at the September session of the commission, which will also consider selecting the space assets registrar. The commission is working on the assumption that ITU will eventually accept the role of supervisory authority.

Pending the entry into force of the Space Protocol, the preparatory commission will act as the provisional supervisory authority. If the governing bodies of ITU decide that ITU should not become the supervisory authority, the commission will appoint another international organization or entity for that role.

Annexed to the report was a note from the secretariat of the International Institute for the Unification of Private Law (UNIDROIT) clarifying the role of the supervisory authority of the international registration system for space assets.

Japan said that before deciding whether or not ITU should become the supervisory authority it was necessary to clarify such matters as how ITU's mandate and activities correlated with the role of supervisory authority, and what the consequences would be if ITU decided to refuse that role.

The United States considered that ITU is at present the appropriate organization to serve as the supervisory authority, and called for an assessment of the feasibility of ITU performing that role, having regard to the financial, juridical and technical implications. The United States and others proposed that if PP-14 did not have sufficient information to decide on the matter, then it should authorize the Council to do so. Other councillors considered that the decision had to be taken by the plenipotentiary conference.

China was in favour of ITU agreeing to become the supervisory authority, provided

that the financial, juridical and technical implications of that function were considered. One possibility would be for ITU to take on the role on a trial basis after the entry into force of the Protocol.

Councillors noted with satisfaction that the secretariat's report clarified numerous points raised during previous sessions of the Council. They also welcomed the fact that the preparatory commission was proceeding on the assumption that ITU would be the supervisory authority of the international registration system for space assets.

The Council recommended that a full report clarifying all the legal, financial and technical questions raised by councillors should be submitted to PP-14 for action, as appropriate.

Meanwhile, the Council authorized the Secretary-General to continue to express ITU's interest in becoming the supervisory authority, without prejudging whether or not ITU should take on that role. Further, it authorized the Secretary-General or his representative to continue to participate as an observer in the work of the preparatory commission.



Preparations for RA-15 and WRC-15

Preparations for the Radiocommunication Assembly 2015 (RA-15) and the World Radiocommunication Conference 2015 (WRC-15) are well under way. The following dates and venues for these events have been confirmed: RA-15 will be held in Geneva from 26 to 30 October 2015, followed by WRC-15, also to be held in Geneva from 2 to 27 November 2015.

The Radiocommunication Bureau (BR) was commended for holding regional preparatory meetings. The Director of BR, François Rancy, confirmed that BR would continue to support regional preparatory meetings. He informed the Council that an International Civil Aviation Organization (ICAO) meeting had discussed the recent Malaysia Airlines aircraft loss and that ICAO intended to ensure that the matter was brought up at WRC-15, which might well be requested to allocate frequency for the monitoring of flight data. The matter would probably be raised at PP-14, with a view to adding an item to the agenda of WRC-15.

ITU Telecom World

The Council took note of the outcomes of ITU Telecom World 2013 and preparations for ITU Telecom World 2014, which will take place in Doha (Qatar) from 7 to 11 December 2014.

The model for Telecom events — comprising a forum, an exhibition/showcase area, and interaction, dialogue and networking spaces and activities — was perfected

at ITU Telecom World 2013. A post-event survey of participants demonstrates the success of ITU Telecom World 2013, a result reinforced by the surplus of almost CHF 2 million generated by the event, net of ITU Telecom secretariat operating costs, event costs and salary costs reimbursed to the secretariat.

China noted the immense progress made between 2011 and 2013 in ITU Telecom events in terms of scale, influence, participation and financial outcome, stressing the importance of considering new approaches to organizing the event to better respond to the different needs of participants. China called on all Member States to endeavour to increase ITU's visibility and influence, learning from the lessons of Telecom between 2011 and 2013, and invited the Secretary-General to consider the appropriate future direction of ITU Telecom events and report to PP-14. Councillors endorsed China's proposal, which should lead to revision of Resolution 11 (Rev. Guadalajara, 2010) on "ITU Telecom events" at PP-14.

Speakers welcomed the trend of growing revenue from ITU Telecom World events and the surplus of almost CHF 2 million resulting from the 2013 event, recognizing that such surpluses were in principle earmarked for assistance to least developed countries.

Remote participation

ITU efforts to promote remote participation and electronic working methods

were highly acclaimed, following a report on work undertaken since the previous Council session in June 2013. A pilot project, now in its fourth phase, was one response to Plenipotentiary Resolution 167 (Guadalajara, 2010) on "Strengthening ITU capabilities for electronic meetings and means to advance the work of the Union".

Councillors welcomed the report, noting the benefits of remote participation in particular for developing countries. Several councillors highlighted challenges, including the importance of ensuring that the status and rights of a remote participant were equal to those of an onsite participant, the need to revise existing rules of procedure devised on the basis of physical rather than virtual participation, the need to ensure that the six official languages were used on an equal footing, the potential adverse effects of different time zones on participation, and the lack of opportunities to resolve difficulties during coffee breaks.

Responding to comments, the secretariat explained that the current regulatory and procedural framework, developed for onsite participants, does not cater for the full exercise of all the rights deriving from the status of delegate in a remote participation scenario. There are procedural and technical difficulties, for example in calculating the quorum, voting by a show of hands or secret ballot, in the impact of a lost connection during a vote, and in the exercise of all prerogatives by a remote chairman. The General Rules of Conferences, assemblies and meetings of the Union, the Rules of

Procedure of the Council and resolutions of World Radiocommunication Conferences, World Telecommunication Standardization Assemblies and World Telecommunication Development Conferences would require revision if remote participation was to be applied to all ITU meetings and conferences.

The Council requested the secretariat to prepare a detailed report to PP-14 on the legal, technical and financial challenges of remote participation, as a basis for discussion of the direction to be taken and the procedural changes that would be required for remote participation to be institutionalized. The report should also address the equal use of languages, and access for participants with disabilities and specific needs.

ICT access for persons with disabilities

Promoting accessibility to ICT for persons with disabilities (Resolution 175, Guadalajara, 2010) has been at the heart of ITU's activities in the past year. The Council noted with appreciation a voluntary contribution of USD 15 000 made by Rwanda Utilities Regulatory Authority to the ITU Accessibility Fund for the Digital Inclusion of Persons with Disabilities.

Indonesia, supported by Cameroon, China, India, Kenya, Romania and Turkey, proposed that adequate resources should be devoted to providing assistance to ITU Member States, particularly developing countries, in establishing the necessary mechanisms to fast-track the

implementation of Resolution 175. The Council decided that it will put this proposal before PP-14 and also noted that its Working Group on the Strategic Plan and the Financial Plan had agreed to incorporate a new intersectoral objective on ICT accessibility in the draft Strategic Plan for the Union for 2016–2019. If PP-14 approves that objective, then resources will have to be allocated to this area of activity.

Meanwhile, the United Arab Emirates suggested that the phrase "persons with disabilities" be changed to "persons with disabilities and specific needs" in line with the agreement reached by WTDC-14 regarding ITU-D documents.

Working definition of the term "ICT"

A Correspondence Group on the Elaboration of a Working Definition of the Term "ICT", set up in September 2012 by ITU-D Study Group 1 at the request of the Telecommunication Development Advisory Group (TDAG), agreed on the following working definition of ICT: "Technologies and equipment that handle (e.g., access, create, collect, store, transmit, receive, disseminate) information and communication".

TDAG in 2013 received liaison statements from the Telecommunication Standardization Bureau (TSB), ITU-T Study Group 12 and the Chairman of ITU-T Study Group 2 voicing concerns about the proposed working definition. TDAG concluded

that any further comments should be submitted directly to the Council.

So when this working definition was presented to Council 2014, the United States and others proposed that if the Council decided to transmit that definition to PP-14 (a step that it was not obliged to take), it should do so by sending the final report of the chairman of the correspondence group. That report included the definitions and all relevant guidelines and parameters under which the working definition was to be understood.

The United Arab Emirates and others considered the definition to be a work in progress, and stated that a definition not agreed by all Sectors should not be forwarded to PP-14 by the Council.

Among other views expressed, one councillor said that it would be preferable to define ICT in fundamental terms, observing that the proposed definition was somewhat tautological, since it used the words "technologies", "information" and "communication" to define ICT. Another councillor recalled that ITU had been trying to define ICT since PP-06. Noting that many ITU member organizations had "ICT" in their titles, he proposed asking them (by letter) what they meant by the term. A report giving all the different responses should then be submitted to PP-14.

After a long debate, the Council agreed to transmit the definition drawn up by the correspondence group, together with the group's report, to PP-14.



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Free online access to ITU publications

Over a 17-month period to the end of April 2014, there were more than 14 000 free downloads of the 2012 edition of the Radio Regulations yet sales of that edition are more than 9 per cent higher than sales of the previous edition.

Cameroon proposed that free online access should be extended to other documents of the Union. The Russian Federation proposed that the Rules of Procedure approved by the Radio Regulations Board, the Radio Regulations, and ITU publications concerning the use of telecommunications and information and communication technologies in emergency situations should be made available to the general public free of charge on a permanent basis.

These proposals were supported but some councillors wanted any final decision on document access policy to be deferred pending consideration of all relevant information, including the report of the Council Working Group on Financial and Human Resources.

The Council revised its Decision 571 to provide the general public with free online access to the following publications on a permanent basis: International Telecommunication Regulations; Radio Regulations; Rules of Procedure; Council Resolutions and Decisions; ITU–R Handbooks on radio-frequency spectrum management (these include the ITU–R Handbooks on National Spectrum Management, Computer Aided Techniques for Spectrum Management, and Spectrum

Monitoring); and ITU publications concerning the use of telecommunications and information and communication technologies for ensuring disaster preparedness, early warning, rescue, mitigation, relief and response. The Secretary-General will report to PP-14 and Council 2015 on the impact of this decision on revenues.

Access to the reports of the Internal Auditor, the External Auditor and Independent Management Advisory Committee

The Council debated at length the subject of public disclosure of reports of the Internal Auditor, the External Auditor and the Independent Management Advisory Committee (IMAC).

While a number of councillors supported the public disclosure of these documents to enhance the transparency of ITU decisions, improve decision-making and help ensure accountability, some emphasized that caution must be applied in public disclosure of such information and that the documents must be carefully verified to avoid incorrect conclusions being drawn.

The United States proposed that the reports of the Internal Auditor and IMAC be made publicly accessible, highlighting the importance of transparency of financial management practices to build confidence among all stakeholders and to ensure continued support of the organization and its mandates.

Some councillors supported the United States proposal, others expressed reservations, and a number wanted to defer the discussion to allow ample time to study the matter.

In the end, the Council approved the publication on a temporary and exceptional basis of the report of the IMAC for 2013, the report of the external audit for 2013, and a summary of the internal audit report for 2013. Such temporary arrangements should in no way create any precedent, leaving it to PP-14 to decide on the general policy of accessing ITU information and documents.

Use of the six ITU official languages on an equal footing

Resolution 154 (Rev. Guadalajara, 2010) on use of the six ITU official languages on an

equal footing mandates the Council Working Group on Languages (CWG-LANG) to monitor progress and report to the Council on the implementation of this resolution. A report from the Chairman of CWG-LANG, Imad Hoballah from Lebanon, acknowledges that the secretariat has implemented equal treatment of languages in terms of structure, processes, working methods, tools and resource allocation. However, the report notes two major items — Arabic terminology and use of languages on the ITU website — as requiring particular attention and improvement.

Cameroon proposed that the website be translated into the six languages, in application of Resolution 154. A number of countries, including Saudi Arabia, India, Mali, the Russian Federation, Spain and Switzerland, supported Cameroon's proposal. The Russian Federation emphasized that timely and simultaneous delivery of documentation is an important factor for equality of treatment and said it would submit proposed revisions to Resolution 154 to PP-14.

Saudi Arabia, backed by Kuwait and others, stressed the need to complete the Arabic terminology project and expressed the hope that the report to PP-14 would provide assurances that the use of the six official languages on an equal footing had finally become a reality. Others sought to know the financial implications of the recommendations set out in the report of CWG-LANG.

The secretariat explained that ITU clearly did not have sufficient financial resources to

translate the entire website, given its volume and the cost of translation. All possibilities to make savings were being explored, and the secretariat would continue to do its best within the limited resources available.

The Council endorsed the report's recommendations, and adopted a set of updated measures and principles for interpretation and translation. Member States may wish to use a draft revision of Resolution 154 (contained in Document C14/INF/10) in preparing for PP-14.

Preparations for PP-14

Several presentations were made on the preparations for the Plenipotentiary Conference (PP-14) in Busan. First was a status report from the ITU secretariat, which also outlined a proposed structure of the conference as follows: four standing committees (steering, budget control, credentials, and editorial) and two substantive committees — on policy and legal matters (Committee 5) and administration and management (Committee 6) — as well as a plenary working group.

The Republic of Korea highlighted some of Busan's attractions and provided information on the conference venue and facilities. The United States put forward a proposal and draft decision on providing webcasting and captioning during PP-14. The United Arab Emirates presented a document containing proposals to amend provisions 229 and 231 of Article 55 of the Constitution in order to accomplish a stable ITU Constitution.

All speakers thanked the authorities of the Republic of Korea for the preparations for the conference. Clarification was sought on the financial implications of the United States' proposal. Both the secretariat and the authorities of the Republic of Korea were urged to facilitate the granting of visas, particularly for citizens of those countries without consular representation of the Republic of Korea on their territory.

Responding to questions, the secretariat said that while webcasting could be made available for all the main conference rooms, captioning in all meeting rooms had not been foreseen when the Host Country Agreement had been signed and would cost approximately USD 49 000. Should the Council wish to proceed with the United States' proposal, Member States would be invited to make voluntary contributions to offset the cost of captioning.

The secretariat further said that ITU and the Republic of Korea were working to anticipate and resolve difficulties associated with the granting of visas. The Host Country Agreement allows, on an exceptional basis, for visas to be issued free of charge on arrival. For countries in which the Republic of Korea has no diplomatic representation, the possibility is being studied of issuing visas through a third State in which the Republic of Korea has diplomatic representation.

Regarding the proposal by the United Arab Emirates on the entry into force of constitutional amendments, the secretariat anticipated that the report of the Council Working Group on a Stable ITU Constitution would be considered by Committee 5 of PP-14.

The Council noted the secretariat's report and the proposed structure of PP-14. It was agreed that captioning will be provided as far as possible within the budgetary

restrictions for PP-14. The Council also noted the proposal by the United Arab Emirates to facilitate and accelerate procedures for the entry into force of amendments to the ITU Constitution. The United Arab Emirates will submit its proposal to PP-14.

Project to replace the ITU Varembe building and study on relocation of ITU headquarters

The Council instructed the Secretary-General to submit a report to PP-14 for a decision on whether or not to replace or renovate the Varembe building, to rent premises locally or to relocate the headquarters of the Union. Councillors agreed that the report should cover all the current ITU buildings and should include a time-frame for action and a cost-benefit financial analysis for every option.



Heads of delegation and ITU staff wearing 150th anniversary t-shirts at the closing ceremony of Council 2014 on 15 May

In brief

World Telecommunication and Information Society Day

The Council took note of the report on World Telecommunication and Information Society Day 2014 and approved "Telecommunications and ICTs: Drivers of Innovation" as the theme for 2015.

ITU's 150th anniversary celebration

The Council approved a report from the Chairman of the Committee for the preparation of the 150th anniversary celebrations in 2015, Nasser A. Bin Hammad from the United Arab Emirates. Essentially, the 150th anniversary celebrations should focus on ITU achievements in innovation and its impact on daily life throughout history and in the future. The Council also approved "Telecommunications and ICTs: Drivers of Innovation" as the

overarching theme for the 150th anniversary of the Union, aligning it to that of World Telecommunication and Information Society Day 2015. Finally, the Council approved a draft resolution proposed by the committee to hold the anniversary celebrations throughout the entire year in 2015.

Council Working Group on the World Summit on the Information Society

The Chairman of the Council Working Group on the World Summit on the Information Society, Professor Vladimir Minkin, reported on the group's two recent meetings, which focused on ITU's role in the Overall Review of the WSIS Implementation. The Council considered the report and commended the multistakeholder approach being used for the WSIS+10 Multistakeholder Preparatory Platform (MPP) for its inclusiveness, effectiveness and cost efficiency.

Connect the World initiative

Councillors welcomed a report on the series of regional summits held as part of the Connect the World initiative, along with updates on progress in implementing the outcomes.

Cameroon presented a document describing the achievements in his country following the Connect Africa Summit, and proposing that ITU monitor project performance and check that the commitments of financial and other international institutions were being fulfilled.

Many councillors expressed appreciation for ITU's Connect the World initiative and supported Cameroon's proposal. Some emphasized the importance of public-private partnerships. Others advised ITU to report on progress under the Connect the World initiative (including projects) to Council 2015.



Information and Communication Technologies Development Fund

The Council approved the withdrawal of USD 2 million from the Exhibition Working Capital Fund to be transferred to the ICT Development Fund (ICT-DF) Capital Account. This approval follows a recommendation from the Secretary-General to transfer this amount, taking into account the high demands from the membership for support to various projects at national, regional and global levels.

Future reports on ICT-DF will provide more details about projects supported by the fund, including the Regional Initiatives approved by WTDC-14.

Strengthening ITU's regional presence

The Council saluted progress made over the past four years by ITU in implementing Resolution 25 (Rev. Guadalajara, 2010) on strengthening its regional presence. In particular, councillors appreciated the new approach promoted by the Director of BDT, whereby the regional initiatives are considered the main deliverables of BDT at country level. They also welcomed the new focus of regional development forums, now being used as tools to inform the membership about the activities carried out at regional level and to get feedback on the approach to be followed according to each region's needs and priorities. Several councillors supported a contribution from Cameroon calling

for further reinforcement of the regional presence.

BDT will continue to enter into partnerships with entities, in particular the private sector, governments and nongovernmental organizations, in order to implement activities, including projects identified by the Connect summits.

Mainstreaming gender in ITU

During 2013–2014, much has been achieved in "Gender mainstreaming in ITU and promotion of gender equality and the empowerment of women through information and communication technologies" (Resolution 70, Rev. Guadalajara, 2010). The Council welcomed the progress made in implementing the ITU Gender Equality and Mainstreaming Policy (GEM) that it approved last year. Among the steps taken to implement the new policy is the creation of a Gender Task Force, which is preparing an ITU-wide action plan.

Some councillors hoped to see more being done within ITU and its membership. Switzerland encouraged the ITU management to introduce more flexible working arrangements, and requested that more detailed statistics be included in the annual report, such as the number of applicants by grade and gender who are pre-selected, shortlisted and then selected for posts.

Australian Minister emphasizes the need for innovation

Australian Communications Minister Malcolm Turnbull recalled that Australia has been a Council Member State for 55 years, saying "It is a position that we greatly value. We value the ITU's work in radiocommunications, its work in telecommunications development and in reducing the digital divide, and the opportunity Australia has had to work together with the ITU Regional Office in Bangkok on furthering these issues."

Mr Turnbull noted that the Dubai Declaration recently adopted at WTDC-14 describes telecommunications and ICT infrastructure, services and applications as powerful tools for economic growth and innovation. "This is true of course, and yet infrastructure, services and applications will not foster innovation and — from that — economic growth if innovation is hampered in other ways. Governments cannot legislate innovation, but what we can and should do is make it much easier for businesses in our countries to innovate," he said.

Malian Minister commends ITU officials for their great achievements

Mali's Minister for the Digital Economy, Information and Communication, Mahamadou Camara, said that Council Chairman Aboubakar Zourmba, who represented not only Cameroon but also Africa as a whole, could count on Mali's full support. He congratulated the Secretary-General

and all the elected officials and their colleagues on the excellent work they had accomplished.

Qatar invites Council Member States to ITU Telecom World 2014 in Doha

Ambassador Faisal bin Abdullah Al-Henzab, Permanent Representative of Qatar to the United Nations Office and other international organizations in Geneva, said that his country, which had successfully organized numerous regional and world events, was looking forward to hosting Telecom World 2014 from 7 to 10 December. He invited all councillors to participate actively in that highly influential event for the global ICT community and to take advantage of the many opportunities offered by Qatar for cultural and recreational activities.

Tunisia committed to maintaining its close relations with ITU

Tunisia's Minister of Higher Education, Scientific Research and Information and Communication Technologies, Tawfik Jelassi, was pleased to announce that, following the adoption of a new constitution and installation of a government of technocrats, Tunisia was now a stable State. Tunisia was committed to maintaining its close relations with ITU and was ready to host meetings and conferences of the Union.

Jamaica's competitive environment

Jamaica's Minister of Science, Technology, Energy and Mining, Phillip Paulwell, said that Jamaica had led the Caribbean region in deregulating telecommunications, and that the competitive environment had resulted in a 100 per cent increase in teledensity. Speaking as President of the Caribbean Telecommunications Union, he saluted the Secretary-General for his tremendous work in enabling people to become part of the knowledge-based world. ITU had supported CARICOM in areas such as Internet governance and spectrum management, and through a range of projects, in particular to eliminate roaming charges and to provide access to persons with disabilities.

155th anniversary of Russian radiocommunication pioneer Alexander Popov commemorated in ITU headquarters meeting room bearing his name

ITU Secretary-General Dr Hamadoun I. Touré launched celebrations on 7 May 2014 to commemorate the 155th anniversary of Russian radiocommunications pioneer Alexander Popov and "Radio Day" in the Russian Federation.

"Radio Day" is celebrated in the Russian Federation on 7 May each year to mark the day in 1895 when the Russian

scientist gave what is widely regarded as the first demonstration of communication over radio waves. Addressing the Council to mark the occasion, Alexey Borodavkin, Permanent Representative of the Russian Federation to the United Nations Office and other International Organizations in Geneva, gave a brief outline of the career of Alexander Popov and his impact on the development of radiocommunications. Tributes to the Russian scientist were also expressed by Ms Lyudmila N. Bakayutova, Director of the A.S. Popov Central Museum of Communications in St Petersburg, and Rashid Ismailov, Director of the Department of International Cooperation at the Ministry of Communication and Mass Media of the Russian Federation.

Silver medal for Council Chairman

ITU Secretary-General Dr Hamadoun I. Touré presented Council Chairman Aboubakar Zourmba with the ITU Silver Medal for brilliantly chairing the session and for outstanding service to the Union.

Next Council meetings

The final meeting of this year's session of the Council will be held on 18 October in Busan, Republic of Korea. The Council agreed to the following dates and duration for its session next year: Tuesday 12 May to Friday 22 May 2015.



► ***Real-time monitoring of flight data***

ITU to develop international standards

An “Expert Dialogue on Real-time Monitoring of Flight Data, including the Black Box – the Need for International Standards in the Age of Cloud Computing and Big Data”, took place in Kuala Lumpur, Malaysia on 26/27 May 2014, facilitated by ITU and hosted by Malaysia’s Ministry of Communications and Multimedia. This followed the complex investigation into the disappearance of Malaysia Airlines flight MH370 which departed Kuala Lumpur on

8 March 2014 with 239 people on board. Underlining the difficulties surrounding the search for the missing aircraft, Ahmad Shabery Cheek, Malaysia’s Minister of Communications and Multimedia, speaking at the World Telecommunication Development Conference in Dubai, United Arab Emirates, had called upon ITU to develop leading-edge standards to facilitate the transmission of flight data in real time, noting that locating and

searching for the black box should be a thing of the past, especially with the advent of cloud computing in the age of big data.

“I believe that data from aircraft, including from the black box could be continuously transmitted and stored in data centres on the ground. I urge ITU to work with industry to develop a better way to constantly monitor flight data and what is happening in the cockpit. With the advancements in ICT today, we should be

able to retrieve and analyse these data without necessarily locating the black box. I believe that this simple change may have brought a different outcome today. In this context, I cannot help but note that whilst communications technologies have evolved drastically in the past five years, the story of the black box remains unchanged from 30 years ago.

Responding to this call, ITU Secretary-General Dr Hamadoun I. Touré said, "I would like to express my heartfelt sympathy and concern for the uncertainty surrounding the fate of so many people on board MH370. We must ensure that aircraft can be tracked in real time so that such an unprecedented and tragic incident does not occur again. ITU is committed to work on the standards that will take advantage of big data and state-of-the-art cloud computing."

Proposed actions from the Kuala Lumpur meeting

The May meeting brought together experts from AirAsia, Axiata Group, Boeing, Celcom, the Civil Aviation Authority of Singapore, the Department of Civil Aviation Malaysia, Deutsche Lufthansa, the German Aerospace Center (DLR), Embraer, EUROCONTROL, Flight Focus, FLYHT Aerospace Solutions, Globalstar, the International Air Transport Association (IATA), the International Civil Aviation Organization (ICAO), the International



Federation of Airline Pilots' Associations (IFALPA), IMPACT, Inmarsat, Intelsat, Iridium, ITU, L-3 Communications, Lufthansa Systems, Malaysia Airlines, the Malaysian Communications and Multimedia Commission, the Ministry of Communications and Multimedia Malaysia, Panasonic Avionics, Rolls-Royce, SAP, SITA, SkyTrac Systems, Star Navigation Systems, Syphax Airlines, Teledyne Controls, Telnet, Thales, and Thales Alenia Space. They all called on ITU to allocate the necessary spectrum as soon as possible to meet emerging aviation needs. This includes spectrum for satellite and radio services used for safety of life aviation services.

The experts encouraged ITU to continue its work on spectrum requirements for flight tracking and real-time flight data monitoring, with a view to making appropriate allocations at world radiocommunication conferences, including the upcoming conference in 2015.

Participants considered that ICAO and ITU need to facilitate an open, multidisciplinary, multistakeholder and performance-based approach towards establishing international standards for the use of an aviation cloud for real-time monitoring of flight data. They invited the organizations present at the meeting to collaborate (according to their respective expertise, roles and responsibilities) to avoid duplication of efforts and to make the voices of all relevant stakeholders heard.

The experts identified the following long-term tasks for ITU and ICAO. First, ICAO should investigate the operational needs for real-time monitoring of flight data and identify minimum requirements. ICAO should identify the operational concepts, including communications requirements, and work with ITU to determine the necessary telecommunication standards, including spectrum requirements. ICAO and ITU should then work together with industry to estimate the associated cost implications and develop appropriate business models to ensure cost-effectiveness. ICAO and ITU should identify the standards, policies and regulations that need to be developed. This would include studying requirements for the protection of flight



data, information security, privacy, appropriate use of flight data, and data ownership, in the context of using an aviation cloud for real-time monitoring of flight data. A road map will be needed to ensure that these tasks are implemented.

The experts urged ITU and ICAO to collaborate closely (within their remits) and facilitate participation by all interested parties.

"Information and communication technologies are instrumental to the safe and efficient operation of tens of thousands of flights each day," said Malcolm Johnson, Director of ITU's Telecommunication Standardization Bureau. "The challenge is to bring the capabilities of the rapidly advancing telecommunication and ICT technology to the aviation sector in a coherent and coordinated manner. ITU has a long history of harmonizing the use of the radio spectrum and developing international telecommunication/ICT standards and is offering to bring this competence to assist aviation, in partnership with ICAO, to consider alternative ways of using technology such as cloud computing and big data, to provide these solutions."

Nancy Graham, Director of ICAO's Air Navigation Bureau, said that an aircraft tracking task force will address the near-term needs for flight tracking and that ICAO in partnership with the task force will develop guidance material based on available flight tracking best practices. She called for the global tracking of airline flights as a priority to provide early notice of and response to abnormal flight behaviour.

Participants took note of the preliminary report on MH370 by the Chief Inspector of Air Accidents, Ministry of Transport, Malaysia, dated 9 April 2014, and its recommendation that ICAO examine the safety benefits of introducing a standard for real-time tracking of commercial aircraft.

The experts welcomed the consensus reached at ICAO's Special Meeting on Global Flight Tracking, held on 12–13 May 2014 in Montréal, on the near-term priority to track airline flights irrespective of their global location or destination. Given that flight tracking technical solutions are — or soon will be — available on a majority of aircraft on transoceanic routes, they stressed the need for international standards, policies and regulations, and harmonized spectrum, to ensure worldwide interoperability and compatibility, as well as to optimize costs through economies of scale. ■

► Theodor Irmer

Standardization visionary and father of ISDN departs

Theodor Irmer, former Director of ITU's International Telegraph and Telephone Consultative Committee (known under its French acronym CCITT) and the Telecommunication Standardization Bureau (TSB), was born on 20 January 1932 and passed away on 27 February 2014.

Theodor Irmer studied in his home country, Germany, attaining a degree in communication engineering from Karlsruhe Technical University and being awarded an honorary doctorate by Kaiserslautern Technical University for outstanding contributions to the development of digital networks. While working for the *Deutsche Bundespost*, he managed its largest project: Conversion of the analogue telephone network with 24 million subscribers to digital operation, and its further development.

Theo, as his friends and colleagues called him, was Director of CCITT from 7 January 1985 to 28 February 1993, and of TSB from 1 March 1993 to 31 January 1999. He was the driving force behind many of the reforms that took place during his tenure.



The Melbourne Assembly, held in 1988, sparked a complete overhaul of CCITT's general structure, reflecting Theo's view that "standardization is team-work".

He pushed for a change from technology-driven to market-driven standardization, with the aim of concentrating on the standards required by operators, service providers and manufacturers. He also considered that the people who develop and implement the standards should have a say in their approval. Another of his concerns was that developing countries should participate more actively in standardization.

Recognizing the value of regional standardization efforts, he concluded that "Global standardization is more needed than ever in view of globalization of telecommunication networks and services, and I would like to contribute my modest share to this goal".

"Global standardization is more needed than ever in view of globalization of telecommunication networks and services, and I would like to contribute my modest share to this goal."

The views aired in Melbourne were taken up by the Additional Plenipotentiary Conference in 1992, which adopted structural reforms to give the Union more flexibility to adapt to an increasingly complex environment, leading to the transformation in 1993 of CCITT into the Telecommunication Standardization Sector (ITU-T) and to the establishment of the Telecommunication Standardization Advisory Group (TSAG). The Kyoto Plenipotentiary Conference in 1994 then approved new strategies and priorities for the period 1995–1998, pushing ITU further along the road to reform.

At the second World Telecommunication Standardization Conference (WTSC-96), held in Geneva in October 1996, Theo summed up the aim of ITU's standardization work: "Our mission is to develop on-time, market-oriented, high-quality Recommendations which meet the demands of customers". Of course his own view was that the term "Recommendations" was misleading, since ITU-T Recommendations were in fact standards.

He saw that rapid changes in telecommunication technologies (initiated by the "digital revolution") and trends in the telecommunications environment (including deregulation, liberalization, privatization, regionalization and globalization) presented new opportunities and challenges to global telecommunication standardization. Theo enthusiastically took on those challenges on ITU's behalf.

No longer a specialist backwater, telecommunication standardization had become a multimillion dollar business involving hundreds of experts, doing work that was of vital interest to an increasing number of network and service providers, manufacturers and customers. Among the most influential standards produced by ITU during Theo's directorship were the following.

Integrated services digital network (ISDN) became the international communications standard for allowing

voice and data to be transmitted simultaneously across the world, using end-to-end digital connectivity. Work on this first fully digital, circuit-switched telephone system started in 1984, resulting in the I-series family of Recommendations. During the late 1970s and early 1980s, with the shift to digital technologies, computers and communications became bound together. Long-distance communications became much cheaper as capacity increased via submarine cables and satellites, and there was dramatic progress in public-switched data networks and other areas. This progress relied on ISDN, and ITU's standardization work was crucial.

Theo admitted in an interview with what was then *ITU Newsletter* (Issue No. 3, 1995) that ISDN was one of the areas of work closest to his heart, emphasizing that "I am delighted to see the dreams some of us had, as young enthusiasts in the 1970s, come true today. There was a lot of misunderstanding about the ISDN because it was seen as a short-term product. In 1980, we had said in our first standard on the evolution of the ISDN that it would take some 10 to 20 years to evolve. Unfortunately, many people seem to have overlooked this statement and were disappointed when ISDN was taking off rather slowly. Today, we see that it is really breaking through as predicted in 1980 and as I have been called jokingly, the father of ISDN (certainly, I share this fathership with many of my friends and experts) it is really a good feeling", he said.

The Joint Photographic Expert Group (JPEG) was founded in 1986 by ITU, the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC) to establish a standard for the sequential progressive encoding of continuous tone grayscale and colour images. The JPEG standard is a widely used format for storing and transmitting images online, in digital photography and in many other image compression applications.

The international mobile subscriber identity (IMSI) codes used in SIM cards, along with a security standard providing electronic authentication over public networks (Recommendation X.509), audio coding (G.711 and G.72x series of Recommendations), and the Telecommunications Management Network (TMN) all emerged in 1988.

In 1989, CCITT issued synchronous digital hierarchy (SDH) standards (G.707-G.803) for synchronous data transmission over fibre-optic networks.

The first standardization of digital subscriber line (DSL) technology occurred in 1993. ADSL, defined in the ITU-T G.992 series of Recommendations, used

the discrete multi-tone technique (DMT) to allow a greater variety of services to be provided over traditional copper-based telephony networks.

In 1996, the first international standard for universal international freephone numbers (UIFN) was adopted. The same year also saw the start of the H.323 family of standards, which facilitate the delivery of voice, video and data over computer networks, and have been crucial in fostering the development of voice over Internet protocol (VoIP) services. Passive optical network (PON) technology was standardized (G.983.1, G.984.1/2) during the period 1996–2006. Standards for asynchronous transfer mode (ATM) technology also date back to 1996.

In 1997, “The international public telecommunication numbering plan” (E.164) was approved for numbers worldwide. It provides the structure and functionality for the four categories of numbers used for international public telecommunication: geographic areas; global services; networks; and groups of countries.

In 1998, the V.90 standard appeared for the new generation of 56 kbit/s dial-up mode (before the advent of ISDN or broadband technologies). Work on the V.92 standard began in 1999, and the standard was approved in 2000, achieving a two-fold improvement in incoming data speeds. The J.112 standard for interactive cable

television services was approved in 1998, fixing modulation protocols for high-speed, bi-directional data transmissions, and allowing the transfer of IP traffic over all-coaxial or hybrid fibre/coaxial networks. Recommendation J.117, approved in 1999, covers the connection of cable television feeds into digital television sets. This can be used in high-definition tel-

evision (HDTV) and conventional sets, anywhere in the world, as well as for terrestrial and satellite television feeds. It allows for the passage of large amounts of data at 200 million bit/s, which is important for digital video and data services.

In 1998, ITU-T developed principles for negotiating interconnection rates, and measures to help developing countries adjust to the changing market (Recommendation D.140). It also introduced a new concept of international remuneration, moving from an accounting rate system to a termination rate system (Recommendation D.150).

Other standards approved during that period include the V-series for computer modems and more than 70 standards on cybersecurity, such as X.805.

In 2002, Dr Irmer received the International Multimedia Telecommunications Consortium (IMTC) Leadership and Service Awards. ■

“Our mission is to develop on-time, market-oriented, high-quality Recommendations which meet the demands of customers.”

Official Visits

During March, April and May 2014 courtesy visits were made to ITU Secretary-General Dr Hamadoun I. Touré by the following ministers, ambassadors to the United Nations Office and other international organizations in Geneva, and other important guests.

ITU headquarters



Malcolm Johnson, Director of the ITU Telecommunication Standardization Bureau; Yusuf Mohamed Ismail, Ambassador of Somalia; Houlin Zhao, ITU Deputy Secretary-General; Abdiweli Sheikh Ahmed, Prime Minister of Somalia; Brahim Sanou, Director of the ITU Telecommunication Development Bureau; and François Rancy, Director of the ITU Radiocommunication Bureau



Jean-Marie Idrissa Sangaré,
Mali's Minister of Communication and
New Information Technologies



Faisal Bin Hassan Trad,
Ambassador of Saudi Arabia



Houlin Zhao, ITU Deputy Secretary-General
and Wonki Min, Chairman-Designate for the
ITU Plenipotentiary Conference (PP-14)

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Simon Paris,
Global Head of Strategic Industries, SAP



Ado Elhadji Abou,
Ambassador of Niger



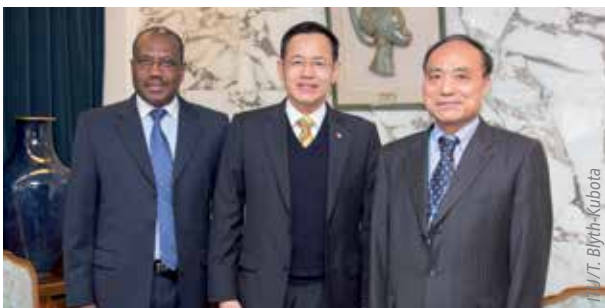
Matthew Kirk,
Group External Affairs Director,
Vodafone Group Services



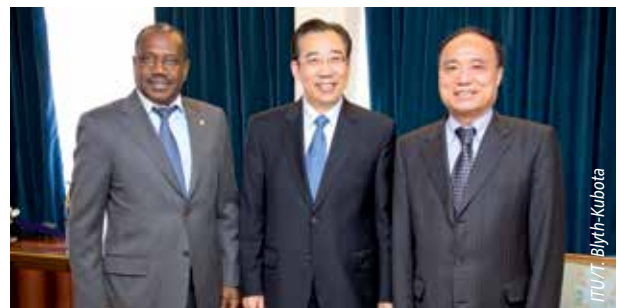
Bishar Hussein,
Director General of the Universal Postal Union



Bertrand de Crombrughe,
Ambassador of Belgium



From left to right: Dr Hamadoun I. Touré, ITU Secretary-General;
Dr Suthiphon Thaveechaiyagarn, Commissioner, Thailand's National
Broadcasting and Telecommunications Commission (NBTC);
and Houlin Zhao, ITU Deputy Secretary-General



From left to right: Dr Hamadoun I. Touré, ITU Secretary-General;
Hailong Wu, Ambassador of China;
and Houlin Zhao, ITU Deputy Secretary-General

MEETING WITH THE SECRETARY-GENERAL

Official Visits



Alexandros Alexandris,
Ambassador of Greece



Houlin Zhao, ITU Deputy Secretary-General
and Feliksas Dobrovolskis, Director of
Lithuania's Communications Regulatory
Authority



Abdul Rahim Mohamad Radzi,
Secretary General of Malaysia's Ministry
of Communications and Multimedia



Michael Moller,
Acting Director-General of the United Nations Office
at Geneva (UNOG)



From left to right: Malgorzata Olszewska, Undersecretary of
State, Poland's Ministry of Administration and Digitization;
Dr Hamadoun I. Touré, ITU Secretary-General; Magdalena Gaj,
President of Poland's National Regulatory Office of Electronic
Communications



Liu Lihua,
Vice Minister of China's Ministry of Industry
and Information Technology (MIIT)



Lyudmila Bakayutova,
Director of the A.S. Popov Central Museum
of Communications in Saint-Petersburg,
Russian Federation



Lakshmi Puri,
Deputy Executive Director of UN Women

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Héctor Carril,
Adviser, Argentina's Secretariat for
Communications (SECOM)



Jurate Ciociene,
Head of International and Public Relations
Division, Lithuania's Communications
Regulatory Authority



Yurii Klymenko,
Ambassador of Ukraine



Mario G. Montejo,
Secretary of the Department of Science and Technology,
Philippines Information and Communications Technology
Office



Robert Hensler,
Attorney-at-law and former State Chancellor,
Fontanet & Associés



Kemal Ilter,
Chief Advisor to the President and Head of
Corporate Communications Department,
Turkey



Axel M. Addy,
Liberia's Minister of Commerce and Industry



Tawfik Jelassi,
Tunisia's Minister of Higher Education,
Scientific Research and Information and
Communication Technologies

MEETING WITH THE SECRETARY-GENERAL

Official Visits



Dr Fatimetou Mohamed-Saleck, Professor, International Consultant, Head of telecommunication services company and former Mauritanian Secretary of State for New Technologies



Carlos Martínez Albuerne, *Especialista Superior, Dirección de Cooperación y Organismos Internacionales*, Cuba's Ministry of Communications



Dr Mohammed Al Amer, Chairman of Bahrain's Telecommunications Regulatory Authority Board



Associate Professor Veselin Bozhkov, PhD, Chairman of Bulgaria's Communications Regulation Commission



Dr Minendra Rijal, the Republic of Nepal's Minister of Information and Communications



Víctor Martínez Vanegas, Director of international Politics, Mexico's Secretariat of Communications and Transport, and Karel Elizabeth Ochoa Reyes, Deputy Director General of International Affairs



Phillip Paulwell, Jamaica's Minister of Science, Technology, Energy and Mining



Daniel A. Sepulveda, Ambassador, Deputy Assistant Secretary of State and United States Coordinator for International Communications and Information Policy

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Filloreta Kodra,
Ambassador of Albania



Kathy Calvin,
President and CEO of the United Nations
Foundation



Ivo Ivanovski,
Minister of Information Society and
Administration of the Former Yugoslav
Republic of Macedonia



From left to right: Juan Corro, Head of Cabinet of the Secretary of State for Telecommunications and the Information Society, Spain's Ministry of Industry, Energy and Tourism; Victorio Redondo, Ambassador of Spain; Dr Hamadoun I. Touré, ITU Secretary-General; and Blanca Gonzalez, Regional Chief, Secretary of State for Telecommunications and Information Society, Spain's Ministry of Industry, Energy and Tourism



Lenín Voltaire Moreno Garces, the United Nations Secretary-General's
Special Envoy on Disability and Accessibility



Associate Professor Veselin Bozhkov,
PhD, Chairman of Bulgaria's Communications
Regulation Commission



Dr Walid M. Abdelnasser,
Ambassador of Egypt



Dr Udo Helmbrecht,
Executive Director of the European Network
and Information Security Agency

ITU World Telecommunication Development Conference (WTDC-14), Dubai, United Arab Emirates



Houlin Zhao, ITU Deputy Secretary-General and Bing Shang, China's Vice Minister of Industry and Information Technology



Ali Abassov, Azerbaijan's Minister of Communications and Information Technologies



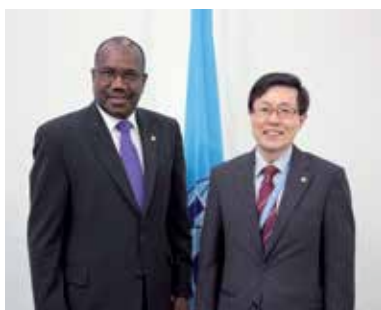
Ismail Boddé Cheikh Sidiya, Mauritania's Minister of Employment, Training and Information and Communication Technologies and Dr Hamadoun I. Touré, ITU Secretary-General



Omobola Johnson, Nigeria's Minister of Communication Technology



Dr Mohammed Al Amer, Chairman of Bahrain's Telecommunications Regulatory Authority Board



Jong-lok Yoon, Republic of Korea's Vice Minister of Science, ICT and Future Planning

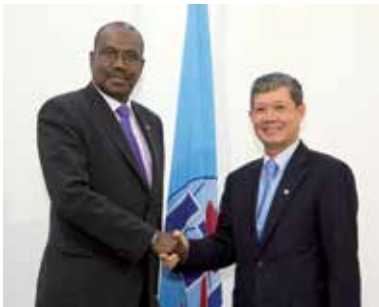


Anastasia P. Ositis, President of the Russian Federation's International Telecommunication Academy



Dmytro Protsenko, Deputy Head, Radio Frequency Assignments Directorate of the Ukrainian State Centre of Radio Frequencies

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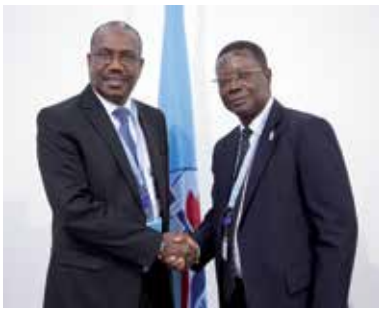
Nguyen Thanh Hung,
Viet Nam's Deputy Minister of Information
and Communications



Zohra Derdouri,
Algeria's Minister of Post and Information
and Communication Technologies



Nicolás Karavaski,
Deputy Controller of Argentina's National
Communications Commission



Lazare Aka Sayé,
Administrator, *Agence Ivoirienne de Gestion
des Fréquences Radioélectriques (AIGF)*,
Côte d'Ivoire



Mohamed Assoweh Bouh,
Managing Director, Djibouti Télécom



Michalis Papadopoulos,
Greece's Deputy Minister of Infrastructure,
Transport and Networks



Rizat Nurshabekov,
Chairman of the Communication and
Informatization Committee at Kazakhstan's
Ministry of Transport and Communications



Anusha Rahman Ahmad Khan,
Pakistan's Minister of State for Information
Technology



Dumisani C. Ndlangamandla,
Swaziland's Minister of Information,
Communication and Technology

MEETING WITH THE SECRETARY-GENERAL

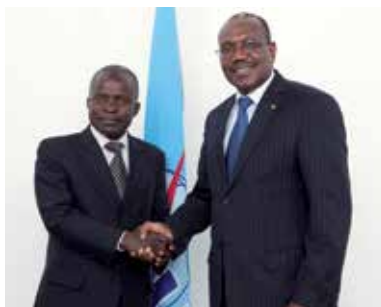
Official Visits



From left to right: Mohamed Ben Amor, Special Advisor to the Minister, Tunisia's Ministry of Higher Education, Scientific Research and Information and Communication Technologies; Dr Hamadoun I. Touré, ITU Secretary-General; and Belhassen Masmoudi, Ambassador of Tunisia



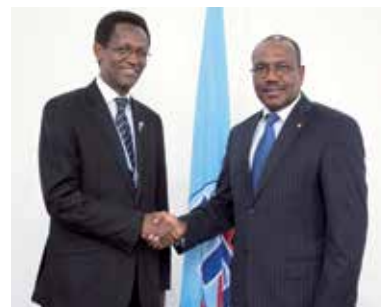
Koné Siaka,
Director General, *Agence Ivoirienne de Gestion des Fréquences Radioélectriques (AIGF)*, Côte d'Ivoire



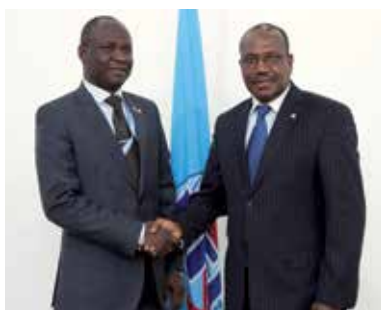
Albertine Bawota Bope,
Administrative Director, Posts and
Telecommunications Regulatory Authority
(ARPTC), Republic of the Congo



Mohamadou A. Saibou,
Managing Director, *Ecole Supérieure
Multinationale des Télécommunications
(EMST)*, Senegal



Révérien Ntogyaye,
Technical Advisor, Burundi's National Office
of Telecommunications (ONATEL)



Abdalla-Kadre Assane,
the Central African Republic's Minister of
Telecommunications and New Technologies



Bahiat Massoundi,
the Comoros Minister of Posts and
Telecommunications, the Promotion of New
Information Communication Technology, in
charge of Transport and Tourism



Pastor Ngoua N'Neme,
Gabon's Minister of the Digital Economy,
Communication and Post

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Kathy Brown,
Chief Executive Officer of the Internet Society



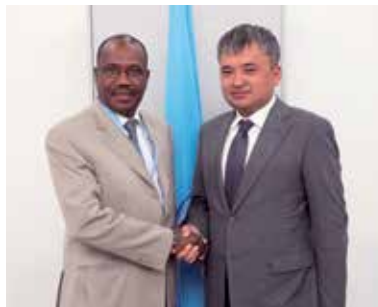
Dr Frederick B. Norkeh,
Minister/Postmaster-General, Liberia's
Ministry of Posts and Telecommunications



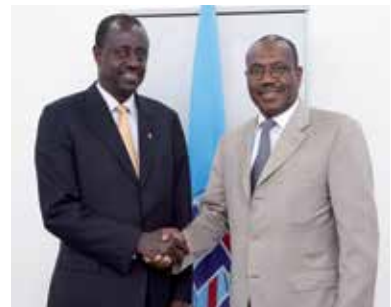
Bradley P. Holmes,
United States Ambassador



Jean-Pierre Biyiti Bi Essam,
Cameroon's Minister of Posts and
Telecommunications



Almaz K. Tilenbaev,
Head, International Cooperation Department,
State Communications Agency, Kyrgyzstan



John Nasasira,
Uganda's Minister of Information and
Communications Technology



Charles Sipanje,
Permanent Secretary, Zambia's Ministry
of Transport, Works, Supply and
Communications



Magdalena Gaj,
President of Poland's National Regulatory
Authority Office of Electronic Communications



Chakrya Moa,
Chairman of the Telecommunication
Regulator of Cambodia

MEETING WITH THE SECRETARY-GENERAL

Official Visits



Amr Badawi,
Board member and former Executive
President of Egypt's National
Telecommunication Regulatory Authority
(NTRA)



V. P. K. Anusha Palpita,
Director General of Telecommunications,
Sri Lanka's Telecommunications Regulatory
Commission



Robert Ordanoski,
Agency for Electronic Communications
(AEC), The Former Yugoslav Republic of
Macedonia



From left to right: N.K. Goyal, President, CMAI Association
of India; Dr Hamadoun I. Touré, ITU Secretary-General; and
Anil Prakash, Secretary General, ITU-APT Foundation, India



Jimmy Miringtoro,
Papa New Guinea's Minister of Communication and
Information Technology



Andrey V. Krutskikh, Special representative
of the President of the Russian Federation
for international information security
cooperation, Ambassador at large,
Ministry of Foreign Affairs



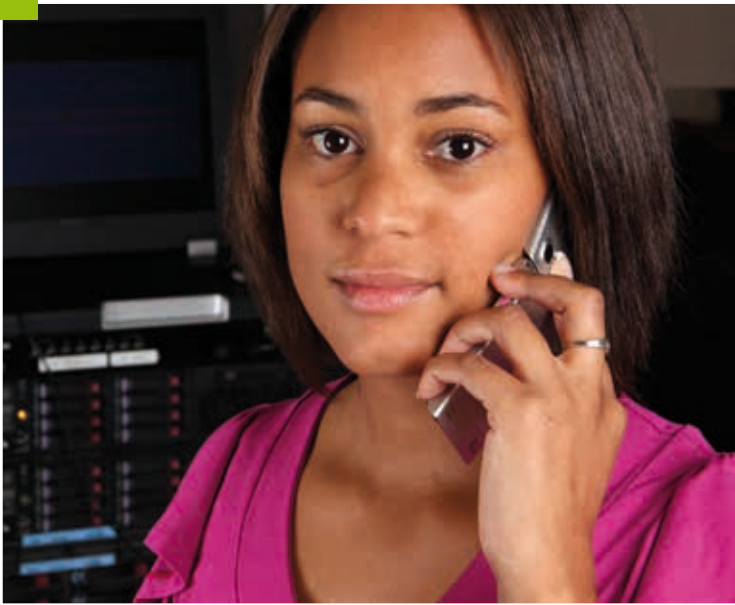
Ousmane Camara,
Directeur National, Télédiffusion et Réseau
Officiel, Guinea's Ministry of Posts,
Telecommunications and New Information
Technologies

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2014

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the conversation
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Doha, December