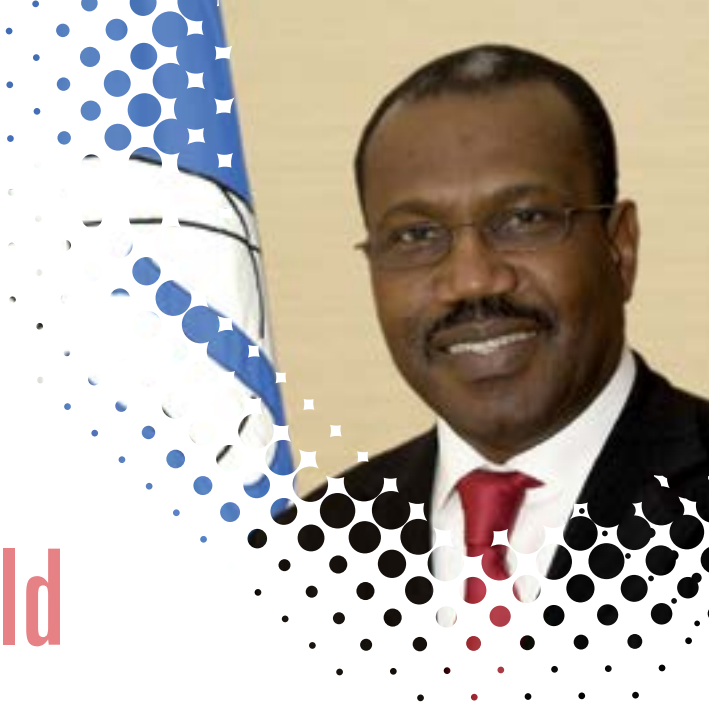
ITU-R Radiocommunication

Committed to connecting the world



Connecting the World

Radiocommunication services assist the world in building the information and communication infrastructure and are an essential foundation for the information society by ensuring international allocation of spectrum and orbital resources and other related activities.

ITU's Radiocommunication Sector (ITU-R) is committed to building confidence and security in the use of ICT by creating an enabling environment through management of the international radio-frequency spectrum. Since the global use and management of frequencies requires a high level of international cooperation, one of our principal tasks in the ITU-R is to facilitate the complex intergovernmental negotiations needed to develop legally binding agreements between sovereign states. These agreements are embodied in the Radio Regulations and in world and regional plans adopted for different space and terrestrial services.

Today, the Radio Regulations apply to frequencies ranging from 9 kHz to 3000 GHz, and incorporate over 1000 pages of information describing how the spectrum must be used and shared around the globe. In an increasingly "unwired" world, some 40 different radio services compete for allocations to provide the spectrum needed to extend applications or support a larger number of users.

ITU-R specializes in developing and strengthening national, regional and international broadband network infrastructure. This includes providing the capacity to countries and their citizens for new ICT-based services through satellite systems and other means.

ITU-R investigates ways to broaden access to orbital resources, global frequency harmonization and global systems standardization. It encourages public/private partnerships, promotes the provision of high-speed satellite services for underserved areas such as remote or sparsely populated areas, and explores other systems that can provide high-speed connectivity.

ITU-R also undertakes studies on the use of radiocommunication systems for public protection, disaster prediction, detection, alerting and relief.

Radiocommunications, including terrestrial and space services, are critical and increasingly important for the development of the global economy in the 21st century.

Dr Hamadoun I. Touré
Secretary-General
International Telecommunication Union (ITU)

Welcome to ITU-R

Building on Broadband in the wireless world

As Director of the Radiocommunication Bureau (BR), it is an honour for me to welcome the readers of this ITU-R Sector brochure.

The beginning of my mandate was dominated by RA-12 and WRC-12, the two main events of the ITU-R Sector to allow the Membership to collectively adjust the regulatory and technical framework for the rational, equitable, efficient and economical use of radio frequency spectrum required in the rapidly changing world of international radiocommunications.

As the secretariat and operational arm of the Sector, BR has important duties to perform for Member States. It administers the international spectrum regulatory procedures set forth in the ITU Radio Regulations, from which the rights of administrations to access orbit and spectrum resources are established, and it plays a key role in shaping the technical and regulatory framework for the provision of radiocommunication services.

The BR regularly disseminates important information to the Membership relating to Recommendations intended to assure the necessary performance and quality in operating radiocommunication systems. It also regularly publishes Reports and Handbooks on spectrum usage to meet Membership requirements in this domain.

In recent years, radiocommunication systems and services have become a major contributor to social and economic development around the world. Member States expect more assistance from the ITU-R Sector as they face a growing range of difficult choices, and notably access to spectrum for the provision of high-quality (broadband) communications, transition to digital TV and future generations of mobile radiocommunications and bridging the digital divide. These represent not just technical or financial challenges but also social and political ones.

During the next four years, the BR will have a central role to play in ensuring that the ITU-R Sector successfully addresses the above challenges. To meet Membership's expectations and to reach the objectives of the Sector within more constrained budgetary resources, the BR has positioned itself to work more efficiently to provide the Membership with better service in all respects.

While the ITU in general, including the ITU-R Sector, will be facing financial challenges in the coming years, at the same time many countries will also have to make difficult choices in the field of radiocommunications.

You can be assured that the Bureau will continue to play its role as an interactive working mechanism with Membership to respond in a timely manner to its needs and expectations as reflected in the ITU-R strategic goals and objectives identified in the Strategic Plan for the Union for 2012-2015 in Resolution 71 (Rev. Guadalajara, 2010). The Bureau will provide the necessary logistics and secretariat support to the Sector, including reliable and efficient information system operations and development and human and financial resources management.

François Rancy
Director
ITU Radiocommunication Bureau

The ITU-R is the global forum on the evolution of radio technologies and uses, where spectrum allocations and provisions necessary to this evolution are decided.

Today, ITU and Radiocommunications

Over the past 20 years, telecommunications have grown from a tool that facilitated person-to-person communications to the foundation that underpins a huge number of human activities, from international trade and commerce to health and education. Fast, reliable telecommunication networks are now a vital ingredient in the trans-border delivery of services such as banking, transport, tourism, online information and electronic home shopping. At the same time, the Union's client base is also evolving, due to changes in the way telecommunication services are delivered and the convergence of the communication, computing and audio-visual (multimedia) entertainment industries.

Liberalization and deregulation of the telecommunication sector in many countries have prompted ITU Members to look to the ITU to provide new services that place greater emphasis on policy development and regulatory guidance.

The mission of ITU-R lies within the broader framework of the purposes of the ITU, as defined in Article 1 of the ITU Constitution and is, in particular, to "maintain and extend international cooperation among all the Member States of the Union for the improvement and rational use of telecommunications of all kinds".

The specific roles of ITU-R within the framework of this mission are:

- to effect allocation of bands of the radio frequency spectrum, the allotment of radio frequencies and the registration of radio frequency assignments and of associated orbital positions in the geostationary satellite orbit in order to avoid harmful interference between radio stations of different countries;
- to coordinate efforts to eliminate harmful interference between radio stations of different countries and to improve the use made of radio frequencies and of the geostationary-satellite orbit for radiocommunication services.
- to create the regulatory and technical basis for the development and effective operation of satellite and terrestrial climate monitoring and data systems.

Radiocommunications Tomorrow

Global standards development and spectrum identification for International Mobile Telecommunication (IMT) systems will continue to be a key area of activity in ITU-R for years to come.

We are witnessing a phenomenal increase in the use of wireless systems in a myriad of applications. International radiocommunication standards (such as the ITU-R Recommendations) underpin the entire global communications framework — and will continue to serve as the platform for a whole range of new mobile applications.

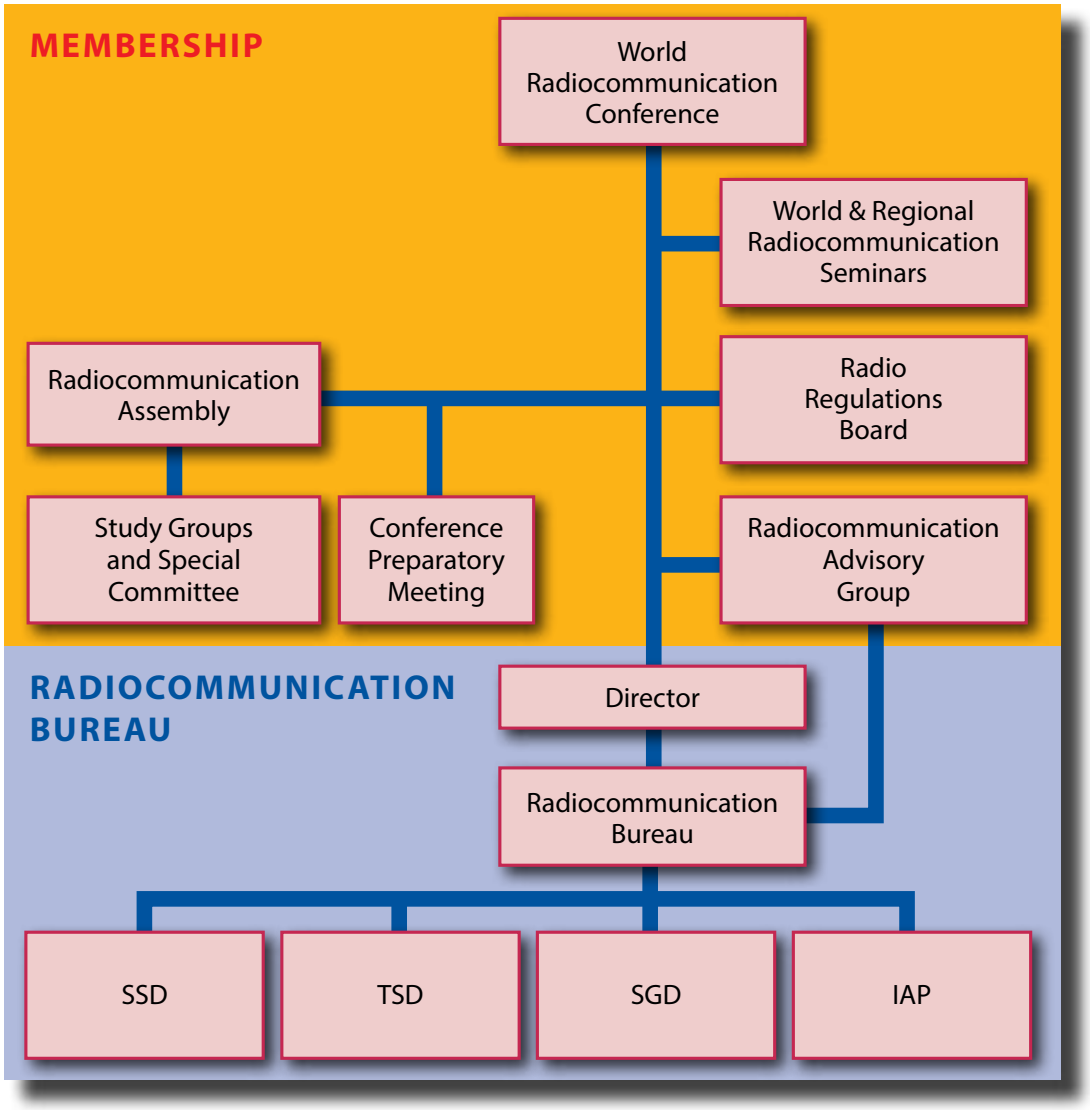
There are two major tasks of ITU-R that concern all radiocommunication services: continuing to ensure the effective use of the radio-frequency spectrum and carrying out studies concerning the development of radiocommunication systems.

Moreover, ITU-R Study Groups conduct studies related to the continuing development of radiocommunication systems used in disaster mitigation and relief operations.

Telecommunication is critical at all phases of disaster management. Aspects of emergency radiocommunication services associated with disasters include, *inter alia*, disaster prediction, detection, alert and disaster relief. In certain cases, when the "wired" telecommunication infrastructure is significantly or completely destroyed by a disaster, only radiocommunication services can be employed for disaster relief operations.

One of the Radiocommunication Sector's most important recent achievements has been the development and establishment of the IMT-2000 global standard for cellular communications. IMT-2000 is now widely deployed and being rapidly enhanced. IMT-Advanced provides a global platform on which to build the next generation of mobile services — fast data access, unified messaging and broadband multimedia — in the form of exciting new interactive services.

Structure of
ITU Radiocommunication Sector (ITU-R)



SSD – Space Services Department
TSD – Terrestrial Services Department
SGD – Study Group Department
IAP – Informatics, Administration and Publications Department

World Radiocommunications Conferences

World Radiocommunication Conferences (WRCs) review and revise the Radio Regulations, the international treaty governing the use of the radio frequency spectrum and the satellite orbits. Revisions are made on the basis of an agenda determined by the ITU Council, which takes into account recommendations made by previous world radiocommunication conferences.

WRCs consider the results of the studies on options to improve the international spectrum regulatory framework based on the effectiveness, appropriateness and impact of the Radio Regulations with respect to the evolution of existing, emerging and future applications, systems and technologies. WRCs make decisions on the most profitable and efficient ways to exploit the limited resource of radio frequency spectrum and manage satellite orbits, which will be critical and increasingly valuable for the development of the global economy in the 21st century.

WRCs also address any radiocommunication matter of worldwide character, instruct the Radio Regulations Board (RRB) and the Radiocommunication Bureau, review their activities and suggest suitable topics for the agenda of future WRCs.

At the dawn of a new radio century

The 2012 World Radiocommunication Conference (WRC-12), (23 January to 17 February, Geneva) with over 3000 participants addressed more than 30 agenda items related to almost all terrestrial and space radio services and applications, including inter alia, aeronautical mobile systems, satellite services, mobile communications, maritime safety systems, digital broadcasting, fixed service and radiolocation service.

The 2015 World Radiocommunication Conference (WRC-15) will be held in Geneva from 2-27 November 2015 and will address new spectrum requirements for most of the radio services, as well as the related consequential review of the ITU Radio Regulations for an efficient use of the spectrum and satellite orbits.

For more information: **www.itu.int/go/ITU-R/WRC-15**

Radiocommunication Assemblies

Radiocommunication Assemblies (RAs) are responsible for the structure, programme and approval of radiocommunication studies. They are normally convened every four years and may be associated in time and place with WRCs. The Assemblies determine the Questions for study by the Study Groups, assign conference preparatory work and other questions to the Study Groups and respond to other requests from ITU conferences. They also approve and issue ITU-R Recommendations and Questions developed by the Study Groups, set the programme for Study Groups and can disband or establish Study Groups.

For more information: **www.itu.int/ITU-R/go/RA/**

Radio Regulations Board

The twelve members of the RRB are elected at the Plenipotentiary Conference. They perform their duties on a part-time basis, normally meeting up to four times a year, in Geneva.

The RRB:

- approves Rules of Procedure, used by the BR in applying the provisions of the Radio Regulations and registering frequency assignments made by Member States;
- addresses matters referred by the BR that cannot be resolved through application of the Radio Regulations and the Rules of Procedure;
- considers reports of unresolved interference investigations carried out by the BR at the request of one or more administrations and formulates recommendations;
- provides advice to Radiocommunication Conferences and Radiocommunication Assemblies.

The Director of the BR is the Executive Secretary of the RRB.

For more information: **www.itu.int/ITU-R/go/RRB**

Radiocommunication Advisory Group

The Radiocommunication Advisory Group (RAG) is tasked to:

- review the priorities and strategies adopted in the Sector;
- monitor progress of the work of the Study Groups;
- provide guidance for the work of the Study Groups;
- recommend measures to foster cooperation and coordination with other organizations and with the other ITU Sectors.

The RAG provides advice on these matters to the Director of the BR. Radiocommunication Assemblies may refer specific matters within its competence to the RAG.

For more information: **www.itu.int/ITU-R/go/RAG**

Radiocommunication Bureau

The Radiocommunication Bureau is the executive arm of the Radiocommunication Sector, and is headed by an elected Director who is responsible for the coordination of the work of the Sector. The Director of the BR is assisted by a team of high-calibre engineers, computer specialists and managers who, together with administrative staff, make up the Radiocommunication Bureau.

The Radiocommunication Bureau:

- provides administrative and technical support to Radiocommunication Conferences, Assemblies and Study Groups, including Working Parties and Task Groups;
- applies the provisions of the Radio Regulations and various Regional Agreements;
- records and registers frequency assignments and also orbital characteristics of space services, and maintains the Master International Frequency Register;
- provides advice to Member States on the equitable, effective and economical use of the radio frequency spectrum and satellite orbits, and investigates and assists in resolving cases of harmful interference;
- coordinates the preparation, editing and dispatch of circulars, documents and publications developed within the Sector;
- provides technical information, organizes seminars on national frequency management and radiocommunications, and works closely with the ITU Telecommunication Development Bureau (BDT) in assisting developing countries.

For more information: **www.itu.int/ITU-R/**

The BR will strive to work in closer interaction with the Membership, in particular by participating more actively in assistance and capacity building in radiocommunications, through an increased number of workshops and seminars and through closer cooperation with the other ITU Sectors. The BR also intends to streamline its activities through regular review of its processes, with a view to continuously improving them by making them more transparent, resilient and efficient and more responsive to the needs and expectations of the Membership.

Radiocommunication Seminars

The BR organizes seminars and workshops on general spectrum management issues, including transition to digital broadcasting aiming in particular at the needs of developing countries. The main objectives of BR seminars and workshops are: to give assistance to Member States in spectrum management activities, e.g. through training, information meetings, seminars, development of handbooks and the provision of tools for automated spectrum management; to expand the assistance offered to Member States in coordinating and registering frequency assignments and in applying the Radio Regulations, with special attention to developing countries and Member States that have recently joined the Union. One of the objectives of the BR is to hold seminars in the regions in a way to equitably cover all ITU Regions. Administrations that are interested in hosting a regional seminar may contact the BR and, subject to availability of time and resources, the BR will undertake all the necessary steps to organize the event. The BR also organizes, upon request, individual training sessions in Geneva with the objective to provide direct assistance to administrations on issues relating to general spectrum management and the application of the ITU Radio Regulations.

For more information: **www.itu.int/go/ITU-R/seminars**

Publications

ITU-R publications constitute an essential reference source for all those wishing to remain abreast of the rapid and complex changes occurring in the world of international radiocommunications, such as government agencies, public and private telecommunication operators, manufacturers, scientific or industrial bodies, international organizations, consultancies, universities, technical institutions, etc.

Over 4500 titles in printed form and growing number on CD-ROM, DVD and online, in the ITU official languages (Arabic, Chinese, English, French, Russian and Spanish).

The BR publishes regulatory texts such as the Radio Regulations, the Final Acts of World and Regional Radiocommunication Conferences and the Rules of Procedure, as well as ITU-R Recommendations, Reports and Handbooks drawn up by the Radiocommunication Study Groups.

ITU-R publications account for approximately 70 per cent of the ITU publications revenue.

ITU Radiocommunication publications, Recommendations and handbooks can be ordered directly via our website at:

www.itu.int/publications/

Member States, Sector Members, Associates and Academia

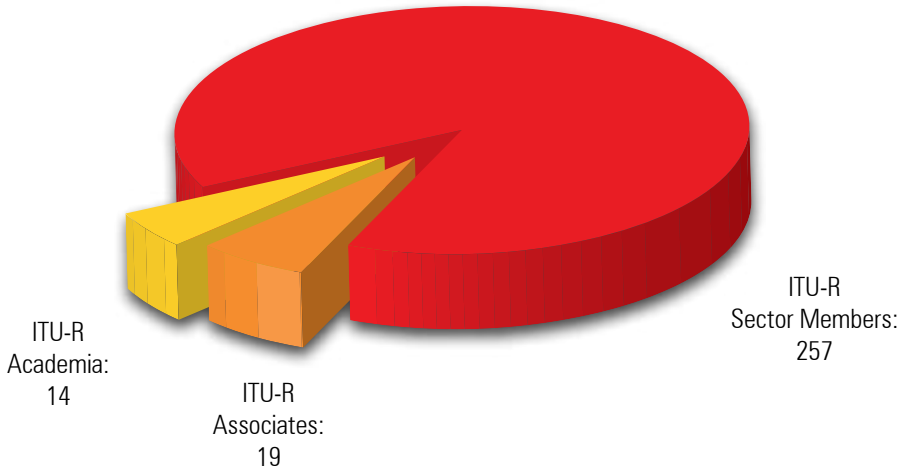
*ITU-R **Sector Members** include: regional and other international organizations, regional telecommunication organizations, recognized operating agencies, intergovernmental organizations operating satellite systems, and scientific or industrial organizations.*

*Interested entities or organizations may join the Radiocommunication Sector as **Associates**, and be entitled to take part in the work of a selected single Study Group and its subordinate groups.*

***Academia**, Universities and Associated Research Establishments concerned with the development of telecommunications/ ICTs are also admitted to participate in the work of the three Sectors of ITU.*

ITU brings together more than 700 Sector Members and Associates from industry, international and regional organizations, as well as academia. Founded on the principle of international cooperation between governments and the private sector, ITU represents a global forum through which government and industry can achieve consensus on a wide range of issues affecting the future direction of the telecommunications and information technology industry, from the world's largest manufacturers and carriers to small, innovative new players.

ITU-R Sector Members, Associates and Academia:



ITU Membership Statistics as of February 2014

ITU's vocation underpins all sectors of the economy and its consensus-based approach gives a voice to all its members. ITU's work helps deploy infrastructure, achieve connectivity, provides efficient telecommunication services worldwide and provides ICT access to all.

For more information on joining our Membership, visit the ITU-R website page: **www.itu.int/members/**

International Telecommunication Union (ITU)
Radiocommunication Sector (ITU-R)
Place des Nations
CH-1211 Geneva 20
Email: **brmail@itu.int**
Tel: +41 22 730 5560
Fax: +41 22 730 5785

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International Telecommunication Union (ITU)
Place des Nations
1211 Geneva 20 – Switzerland

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