|  |  |  |
| --- | --- | --- |
|  |  **Radiocommunication Advisory Group Geneva, 10-13 May 2016** |  |
| **INTERNATIONAL TELECOMMUNICATION UNION** |  |
|  |  |
|  | **Revision 1 to****Document RAG16/1-E** |
| **18 April 2016** |
| **Original: English** |
| Director, Radiocommunication Bureau |
| report TO the twenty-THIRD meeting of the radiocommunication advisory group |

# 1 Introduction

This document provides status reports and background information on some of the issues that appear on the draft agenda for the 23rd meeting of RAG (see [CA/227](http://www.itu.int/md/R00-CA-CIR-0227/en) of 25.01.2015). This document is intended to assist the meeting in considering the relevant agenda items.

Separate reports will be submitted for some of the agenda items.

# 2 Council issues

This section covers and updates the issues addressed by the 2015 session of the Council (see: <http://www.itu.int/council/>).

## 2.1 Free on-line access to ITU-R Publications

The free online access policy continues to provide a very large dissemination of ITU standards to a broader public, especially in developing countries with financial and technical constraints. This wide outreach via free online access is helping to build the visibility of ITU’s mission and mandate and reinforce ITU as a global telecommunication authority.

By Decision 12 (Guadalajara, 2010), PP-10 adopted a free online access policy to include, inter alia, ITU‑R Recommendations and Reports. This policy was expanded by Council 2012 Decision 571, revised by Council 2013 and 2014 , and confirmed by PP-14 revised Decision 12, which provides free online access for the general public, on a permanent basis, to ITU‑R, ITU‑T and ITU‑D Recommendations and Reports; ITU‑R handbooks on radio-frequency spectrum management[[1]](#footnote-1); ITU publications concerning the use of telecommunications/ICTs for ensuring disaster preparedness, early warning, rescue, mitigation, relief and response; the International Telecommunication Regulations (ITRs); the Radio Regulations; the Rules of Procedure; the basic texts of the Union (Constitution, Convention, General Rules of conferences, assemblies and meetings of the Union, decisions, resolutions and Recommendations); the final acts of plenipotentiary conferences; the final reports of WTDCs; the ITU Council resolutions and decisions; the final acts of world and regional radiocommunication conferences; and the final acts of world conferences on international telecommunications.

The impact of these Decisions is well reflected by the large number of downloads of these publications, as shown in Section 8.1.4.

## 2.2 Cost recovery for satellite network filings

The application by the Radiocommunication Bureau of Decision 482 (modified 2012) and Decision 482 (modified 2013) has not given rise to any difficulty or created any problems either internally or with administrations notifying satellite networks.

## 2.3 Conformance and interoperability (C&I)

Resolution 177 (Rev. Busan, 2014) endorsed the objectives of WTSA-12 Resolution 76, RA-12 Resolution 62, WTDC-14 Resolution 47, recognizing 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”, and resolved to continue implementing the ITU C&I Action Plan reviewed by the ITU Council.

The ITU C&I programme mandated by Resolution 177 (Rev. Busan, 2014) is still based on four pillars: Pillar 1: Conformity assessment (CA); Pillar 2: Interoperability events; Pillar 3: Human resource capacity building; and Pillar 4: Assistance in the establishment of test centers and C&I programmes in developing countries.

Actions under Pillars 1 and 2 are led by the Telecommunication Standardization Bureau (TSB), actions under Pillars 3 and 4 by the Telecommunication Development Bureau (BDT). ITU‑R continues to collaborate with, and provide information when requested by, ITU‑T and ITU‑D on C&I testing, as indicated in the resolves section of Resolution ITU‑R 62. There have been no inputs to the ITU-R Study Groups on this topic since the last RAG.

## 2.4 Space Protocol

Council 2015 continued to show interest for ITU to take on the role of Supervisory Authority of the International Registration System for Space Assets under the Space Protocol and indicated that it was time to decide on the substance of the matter. Some elements that would allow the Council to take a fully informed decision were not yet finalized and therefore Council 2015 postponed its decision on the matter to its next session, bearing in mind that the final decision would be taken by PP-18.

In line with its previous decisions, Council 2015 noted the information submitted by the secretariat and authorized the Secretary-General to continue to express ITU's interest in becoming the supervisory authority, noting that the matter of whether or not ITU could become the supervisory authority should not be prejudged at that stage. The Council also authorized the Secretary-General or his representative to continue to participate in the work of the preparatory commission and its working groups as an observer, in accordance with the relevant decision taken by PP-14.

The fourth session of the Preparatory Commission for the establishment of the International Registry for Space Assets to the Space Protocol took place at the headquarters of UNIDROIT in Rome on 10 and 11 December 2015. After consideration of the explanatory note to the revised draft space regulations and the note on linked asset prepared by Prof. Sir Roy Goode, and further changes proposed by the German delegation, the draft Space Regulations was unanimously approved. Regarding the request for proposal for the selection of a Registrar, the Preparatory Commission agreed with a simplified and more efficient approach to initiate discussions with the two current Registrars (Aircraft and Rail). The draft Rules of Procedure for the Commission of Experts of the Supervisory Authority established by the Protocol was discussed and further agreed by correspondence.

The Preparatory Commission, established pursuant to Resolution 1 of the diplomatic Conference held in Berlin in February 2012, achieved all the preliminary work for adopting the first regulations, initiating negotiation of the contract to establish and maintain the Registry and appoint the first Registrar. The Preparatory Commission, acting with full authority as provisional Supervisory Authority, is continuing working under the assumption in Resolution 2 of the 2012 Diplomatic Conference that ITU would become the supervisory Authority and would be soon in a position to hand over responsibility to ITU, if ITU decides to assume the office of Supervisory Authority, when the Protocol enters into force.

## 2.5 Budget for 2016-2017 period

Council 2015 adopted the following budget for the ITU-R in the 2016-2017 timeframe.

|  |
| --- |
| **Budget 2016-2017 - Radiocommunication Sector** |
|  |  | **In thousands of Swiss francs** |
| **Operating expenses by section** | **Actual** | **Budget** | **Actuals** | **Budget** | **Estimated** | **Estimated** |
|  |  | **2012-2013** | **2014-2015** | **2016** | **2017** | **2016** | **2016-2017** |
|  |  |  |  |  |  |  |  |
| Section 3.1 | World Radiocommunication conferences | 2 619 | 2 811 | 1 | 0 | 0 | 0 |
|  |  |  |  |  |  |  |  |
| Section 3.2 | Radiocommunication assemblies | 360 | 368 | 0 | 0 | 0 | 0 |
|  |  |  |  |  |  |  |  |
| Section 4.1 | Regional Radiocommunication conferences | 0 | 0 | 0 | 0 | 0 | 0 |
|  |  |  |  |  |  |  |  |
| Section 5.1 | Radio Regulations Board | 925 | 1 462 | 77 | 705 | 705 | 1 410 |
|  |  |  |  |  |  |  |  |
| Section 5.2 | Radiocommunication Advisory Group | 105 | 143 | 2 | 74 | 75 | 149 |
|  |  |  |  |  |  |  |  |
| Section 6 | Study groups | 503 | 1 963 | 1 | 735 | 735 | 1 470 |
|  |  |  |  |  |  |  |  |
| Section 7 | Activities and programmes | 801 | 1 500 | 0 | 592 | 608 | 1 200 |
|  |  |  |  |  |  |  |  |
| Section 8 | Seminars | 337 | 943 | 0 | 438 | 438 | 876 |
|  |  |  |  |  |  |  |  |
| Section 9 | Bureau | 53 472 | 52 993 | 2 013 | 26 058 | 26 338 | 52 396 |
|  |  - Common expenditure | 1 991 | 1 949 | 3 | 896 | 934 | 1 792 |
|  |  - Office of the Director | 1 190 | 1 273 | 54 | 655 | 629 | 1 309 |
|  |  - Study Groups Department | 5 655 | 5 070 | 273 | 2 839 | 2 839 | 5 684 |
|  |  - Space Services Department | 17 289 | 16 615 | 657 | 7 888 | 8 161 | 16 049 |
|  |  - Terrestrial Services Department | 13 557 | 13 086 | 475 | 6 217 | 6 303 | 12 520 |
|  |  - Informatics, Administration & Publications Department | 13 790 | 15 000 | 551 | 7 563 | 7 479 | 15 042 |
|   |   |   |   |   |  |   |   |
| **TOTAL** |  | **59 122** | **62 183** | **2 094** | **28 603** | **28 898** | **57 501** |

## 2.6 Implementation of the GMPCS-MoU Arrangements and GMPCS-MoU Mark

This topic is presented in Addendum 3 to this document.

# 3 Results of RA-15 and WRC-15 and consequential actions

## 3.1 RA-15

As per Council Resolution 1343, the Radiocommunication Assembly 2015 (RA-15) was held in Geneva from 26 to 30 October 2015 with 457 participants representing 96 Administrations and 38 Sector Members and Academia.

**Dr Akira Hashimoto (Japan)** was elected as Chairman of RA-15, together with five Vice-Chairmen:

 Dr. E. Azzouz (Egypt)

 Mr. M. Girouard (Canada)

 Mr. A. Kühn (Germany)

 Mr. L. Momba (Malawi)

 Mr. M. Simonov (Russian Federation)

Five Committees were established to facilitate the work of the Assembly:

Committee 1 – Steering Committee

This Committee was made up of the Chairman and Vice-Chairmen of the Assembly and the Chairmen and Vice-Chairmen of the Committees.

Committee 2 – Budget control

Chairman Mr. D. Obam (Kenya)

Committee 3 – Editorial Committee

Chairman Mr. C. Rissone (France)

Vice-Chairmen Mr. A. Majeed (Lebanon)

 Mr. C. Menéndez Argüelles (Spain)

 Mr. P. Najarian (United States)

 Ms. H. Zhang (China)

 Mr. A. Zhivov (Russian Federation)

Committee 4 – Structure and work programme of the Study Groups

Chairman Dr. S. Y. Pastukh (Russian Federation)

Vice-Chairmen Mr. A. El Hadjar (Cameroon)

 Dr. H. Mazar (ATDI)

 Dr. H. Seong (Korea (Rep. of))

 Mrs. L. Soussi (Tunisia)

Committee 5 – Working methods of the Radiocommunication Assembly and Study Groups

Chairman Mr. C. Hofer (United States)

Vice-Chairmen Mr. R. Chang (China)

 Mr. A. Kesse (Côte d'Ivoire)

 Mr. M. Ouhamou (Morocco)

RA-15 was a fully paperless assembly, with all of the detailed drafting activities being conducted using the RA-15 SharePoint web site. An RA-15 Mobile App and Sync Application were also provided.

As decided during the opening plenary and in line with the decisions of PP-14, all input documents were freely accessible by the public in advance of the assembly since no Member State considered that their disclosure would cause potential harm to a legitimate private or public interest that outweighs the benefits of accessibility. The ITU-R Resolutions, Recommendations and Questions, as the main outputs of the assembly, are also available for public access.

The Plenary sessions, as well as those of committees, were webcast in the six official languages and provided with captioning in English, and the corresponding files (archives) are available on the RA-15 website.

Full information on RA-15 can be found at: <http://www.itu.int/en/ITU-R/conferences/RA/2015>

The Radiocommunication Assembly made substantial revisions to Resolution ITU-R 1 "Working methods for the Radiocommunication Assembly, the Radiocommunication Study Groups, the Radiocommunication Advisory Group and other groups of the Radiocommunication Sector" to streamline and clarify the procedures used by the ITU-R Study Groups.

Resolution ITU-R 2 "Conference Preparatory Meeting" was also updated and Resolution ITU-R 38 "Study of regulatory/procedural matters" was suppressed.

The structure of the ITU-R Study Groups was not changed, so the existing 6 ITU-R Study Groups continue into the new study Period (2015-2019) with the same scopes of activity. In accordance with the provisions of Resolution ITU-R 15, "Appointment and maximum term of office for Chairmen and Vice‑Chairmen of Radiocommunication Study Groups, the Coordination Committee for Vocabulary and of the Radiocommunication Advisory Group", the Chairman/Vice- Chairmen for these Groups were appointed as appropriate. The structure of Radiocommunication Study Groups, including their scopes, chairmen and vice-chairmen, can be found in Resolution ITU-R 4 ([http://www.itu.int/pub/R-RES-R.4](http://www.itu.int/pub/R-RES-R.54) ).

RA-15 approved the work programme and Questions of the Radiocommunication Study Groups (see Resolution ITU-R 5, <http://www.itu.int/pub/R-RES-R.5>) as well as six draft ITU-R Recommendations and a draft ITU-R Question submitted to the Assembly.

In total, 36 new or revised ITU-R Resolutions were approved, including:

**Resolution ITU-R 55** - ITU-R studies of disaster prediction, detection, mitigation and relief (<http://www.itu.int/pub/R-RES-R.55>)

**Resolution ITU-R 65** - Principles for the process of future development of IMT for 2020 and beyond (<http://www.itu.int/pub/R-RES-R.65>)

**Resolution ITU-R 66** - Studies related to wireless systems and applications for the development of the Internet of Things (IoT) (<http://www.itu.int/pub/R-RES-R.66>)

**Resolution ITU-R 67** - Telecommunication/ICT accessibility for persons with disabilities and persons with specific needs (<http://www.itu.int/pub/R-RES-R.67>)

**Resolution ITU-R 68** - Improving the dissemination of knowledge concerning the applicable regulatory procedures for small satellites, including nanosatellites and picosatellites. (<http://www.itu.int/pub/R-RES-R.68>)

**Resolution ITU-R 69** -Development and deployment of international public telecommunications via satellite in developing countries(<http://www.itu.int/pub/R-RES-R.69>).

The decisions of RA-15 of particular relevance to WRC-15 were reported in Document WRC-15/216 (<http://www.itu.int/md/R15-WRC15-C-0216/>)

## 3.2 WRC-15

### 3.2.1 Final preparations for WRC-15

It should be noted that after the 22nd RAG meeting in 2015 the preparations for WRC 15 continued, taking into account Resolution 80 (Rev. Marrakesh, 2002), in particular through BR’s active participation in the final preparatory meetings of the regional groups, APT, ASMG, ATU, CEPT, CITEL and RCC. ITU has been assisting these preparations wherever possible and, noting in particular WRC Resolution 72 (Rev. Geneva, 2007), organized the [3rd ITU Inter-regional Workshop on the WRC-15 preparation](http://www.itu.int/en/ITU-R/conferences/wrc/2015/irwsp/2015/Pages/default.aspx) on 1 to 3 September 2015.

### 3.2.2 Results of WRC-15

Further to Resolution 807 of the WRC-12 (Geneva, 2012), and in accordance with Council Resolution 1343, the World Radiocommunication Conference 2015 (WRC-15) was held in Geneva from 2 to 27 November 2015.

A total of 3,275 participants representing 162 Member States and 130 observer organizations attended WRC-15.

At the first Plenary Meeting, Mr Festus Yusufu Narai Daudu (Nigeria) was elected as Chairman of the WRC-15. Six Vice-Chairmen were elected as follows:

|  |  |
| --- | --- |
| Mr A. Jamieson (New Zealand) | Mrs D. Tomimura (Brazil) |
| Mr Y. Al-Bulushi (Oman) | Mr A. Kühn (Germany) |
| Mr D. Obam (Kenya) | Mr N. Nikiforov (Russian Federation) |

The following committees were established (see also WRC-15 structure in WRC-15 Doc.20):

|  |  |
| --- | --- |
| Committee 1 (Steering) | (composed of the Chairman and Vice-Chairmen of the Conference and of the Chairmen and Vice-Chairmen of the other committees) |
| Committee 2(Credentials) | **Chairman**: Mr N. Meaney (Australia)**Vice-Chairmen**: Mr M. Omer (Sudan); Mr H. Kanor (Ghana; Mr H. Budé (Uruguay); Mr G. Osinga (Netherlands); Mr G. Abdullaev (Azerbaijan) |
| Committee 3(Budget Control) | **Chairman**: Mr A. Kadirov (Uzbekistan)**Vice-Chairmen**: Ms H. Seong (Rep. of Korea); Mr A. Nwaulune (Nigeria); Mr M. Soliman (Egypt); Mr G. Malcolm (Jamaica); Mr A. Jonsson (Sweden) |
| Committee 4(Specific agenda items) | **Chairman**: Mr M. Fenton (United Kingdom)**Vice-Chairmen**: Mr F. Xie (China); Mr A. Belkhadir (Morocco); Mr W. Sayed (Egypt); Mrs C. Beaumier (Canada); Mr V. Poskakukhin (Russian Federation) |
| Committee 5(Specific agenda items) | **Chairman**: Mr K. Al Awadhi (United Arab Emirates)**Vice-Chairmen**: Mr P.N. Phuong (Viet Nam); Mr M. Abdelhafiz (Sudan);Mr J. Levi (Argentina); Mr E. Fournier (France); Mr T. Kim (Kazakhstan) |
| Committee 6 (Specific agenda items) | **Chairman:** Mrs A. Allison (USA)**Vice-Chairmen:** Mrs K. Kim (Rep. of Korea); Mr M. Al-Badi (Oman);Mr K. Niane (Senegal); Mr A. Calinciuc (Romania); Mr D. Korzun (Belarus) |
| Committee 7 (Editorial) | **Chairman:** Mr C. Rissone (France)**Vice-Chairman:** Mr M. Abdulrahman (Lebanon); Mr J.G.Orea Sanchez (Spain); Ms M. Donde (United Kingdom); Mr G. Cai (China); Mr A. Zhivov (Russian Federation) |

WRC-15 was a fully paperless conference. In order to facilitate the handling of the 1,008 documents submitted to the conference containing 6,047 proposals, the Proposals Management System was further developed in advance of WRC-15, after its successful use during PP-14 and previous ITU conferences.

The Conference Proposals Interface was also further developed in order to assist Member States in creating and submitting their proposals for the work of the conference. This system was extensively used by the membership the leading period towards WRC-15.

Other electronic tools used during the conference were: the WRC-15 SharePoint, the WRC-15 Mobile App, the Radio Regulations Navigation Tool, and the Sync Application.

Pursuant to PP-14 decision, all input documents were freely accessible by the public in advance of the conference, since no Member State considered that their disclosure would cause potential harm to a legitimate private or public interest that outweighs the benefits of accessibility. The Provisional Final Acts of WRC-15 are also available for public access as they are considered the main output of the conference.

The Plenary sessions, as well as those of committees and working groups, were webcasted and captioned for TIES users during the conference, and the corresponding files (archives) are available for TIES users on the WRC-15 website.

Full information on WRC-15, including the Provisional Final Acts as well as all documents, photos and videos can be found at: <http://www.itu.int/en/ITU-R/conferences/wrc/2015>

### 3.2.3 Financial implications of WRC-15 decisions

WRC-15 revised existing resolutions and adopted new ones that have financial consequences for the Union in terms of additional expenditure. These Resolutions are as follows:

* **Resolution 907 (Rev. WRC-15)**: Use of modern electronic means of communication for administrative correspondence related to advance publication, coordination and notification of satellite networks including that related to Appendices 30, 30A and 30B, earth stations and radio astronomy stations;
* **Resolution 908 (Rev. WRC-15)**: Electronic submission and publication of satellite network filings;
* **Resolution 238 (WRC-15)**: Studies on frequency-related matters for IMT identification including possible additional allocations to the mobile services on a primary basis in portion(s) of the frequency range between 24.25 and 86 GHz for the future development of IMT for 2020 and beyond.

The following table summarizes these decisions and their respective financial implications:

|  |  |
| --- | --- |
| Resolution | Amount (CHF) |
| Use of modern electronic means of communication for administrative correspondence related to advance publication, coordination and notification of satellite networks including that related to Appendices 30, 30A and 30B, earth stations and radio astronomy stations. **Resolution 907 (Rev. WRC-15)** | 350 000 |
| Electronic submission and publication of satellite network filings. **Resolution 908 (Rev. WRC‑15)** | 200 000 |
| Studies on frequency-related matters for IMT identification including possible additional allocations to the mobile services on a primary basis in portion(s) of the frequency range between 24.25 and 86 GHz for the future development of IMT for 2020 and beyond. **Resolution 238 (WRC‑15)** (formerly Res. COM6/20) | 280 000 |
| **Total** | **830 000** |

Based on the above analysis of the financial consequences resulting from the various decisions and resolutions, the total amount is estimated at CHF 830 000. The implementation of these activities will initially be covered from savings within the allocated budget. However, in the event that the Bureau is not able to accommodate these activities within its current allocation, other funding sources may be envisaged.

### 3.2.4 Software development to implement WRC-15 decisions

The BR is pursuing software design and development to implement WRC-15 decisions. The table below presents a summary of the main tasks under consideration.

**Software development activities to implement WRC 15 decisions**

|  |
| --- |
| Resolution 907 (Rev. WRC-15): Use of modern electronic means of communication for satellite network –related administrative correspondence Status: In design phase (in collaboration with the IS department for security infrastructure aspects). |
| Resolution 908 (Rev. WRC-15): Electronic submission of satellite network filings Status: The SpaceWISC application has been in production since 1 March 2015 and has been used to submit and publish over 1600 APIs. WRC-15 decided to extend the scope of Res. 908 and also to change the way APIs are produced and published. Consequently, the BR is redesigning SpaceWISC to satisfy the new requirements. The system is expected to be in production in 2017. |
| Implementation of space network-related WRC-15 decisions: The implementation is taking place in two phases:Phase 1: Implementing the decisions that entered into force at the end of WRC-15 and the related RoP. Production date: April 1, 2016Phase 2: Implementing the remainder of WRC-15 decisions, entering into force on January 1, 2017. Production date: January 1, 2017. |
| Review and update of the validation software and reference tables for Terrestrial Services, as a result of changes in allocation situations or the introduction of additional conditions, e.g. in Res. 205;Production date: January 1st, 2017. |
| Review and update of the examination software modules and associated and reference tables, as a result of change in allocation situations, mainly in the frequency bands shared between space and terrestrial services.Production date: January 1st, 2017. |
| Alignment of the terrestrial portion of the MIFR with ICAO database: the Bureau continues to develop the appropriate software tools allowing administrations to align their data in the MIFR with their relevant data in the ICAO database. For that purpose, comparison software and notice generation prototypes have been completed, allowing administrations to identify the need for the MIFR update and automatically generate the necessary electronic notices to be notified to BR. This is now in test phase, and further interaction with ICAO is ongoing. The progress depends considerably on availability of the ICAO database on the web, which is currently under development. |

### 3.2.5 Other actions to implement WRC-15 decisions

As instructed by the conference, the Bureau compiled all decisions of WRC-15 which do not appear in the Final Acts but were reflected in the minutes of WRC-15 plenary sessions, and published them in Circular Letter **CR/389** (29.01.2015).

The Bureau will also submit documents to the May 2016 meeting of the RRB, containing a list of existing Rules of Procedure that may need to be reviewed following WRC-15 decisions, as well as a preliminary list of those provisions and plenary decisions adopted by WRC-15 which may require consideration by the Board and preparation of new Rules of Procedure.

After the completion of the review of WRC-15 provisional Final Acts, the Bureau plans to inform administrations of the measures taken to implement the new and revised provisions of the Radio Regulations, through circular letters.

# 4 Study Groups activities

This topic is presented in Addendum 1 to this document.

# 5 WRC-19 preparation

The WRC-19 Agenda, as contained in Resolution 809 (WRC-15) [COM6/16], will be considered at the 2016 session of the Council, which will be invited to adopt a Resolution containing that Agenda, as well as the venue and exact dates of WRC-19 and RA-19.

The first session of the Conference Preparatory Meeting for WRC-19 (CPM19-1) was held from 30 November to 1 December 2015 to organize the preparatory studies for WRC-19, based on the WRC-19 Agenda prepared at WRC-15 and taking into account relevant WRC-15 resolutions calling for urgent and other ITU-R studies to be reported by the Director at WRC-15.

Circular letter [CA/226](http://www.itu.int/md/R00-CA-CIR-0226/en) of 23 December 2015, contains the results of CPM19-1, with the responsible and concerned ITU-R groups identified for each of the WRC-19 agenda items and identified study issues, and including the CPM19-1 Decision to invite Study Group 5 to establish a Task Group (TG 5/1) as the responsible group for WRC-19 agenda item 1.13 with the agreed Terms of Reference. All responsible groups were requested to follow the guidelines for the preparation of the draft CPM texts as contained in Annex 2 to Resolution ITU-R 2-7.

CA/226 and its corrigendum 1 also provide information on the structure and outlines of the draft CPM Report to WRC-19, with its six chapters, as well as on the six Chapter Rapporteurs appointed to assist the Chairman in managing the flow of contributions and the development of the draft CPM texts.

# 6 Operational planning

As reported to the 22nd meeting of the RAG, further to the approval of the strategic plan of the Union for 2016-2019 by PP-14, the ITU‑R Operational Plan has been structured based on a results-based management concept so as to ensure complete linkage with the budget and other financial tools of the Union. The ITU-R Operational plan for the period 2016-2019 was approved by Council-15 ([http://www.itu.int/oth/R0B05000019/en)](http://www.itu.int/oth/R0B05000019/en%29).

The draft ITU‑R Operational Plan for the period 2017-2020 is presented in Addendum 2 to this document, for review and comments by RAG.

# 7 BR information system

RAG-19 (2012) advised the Director to implement recommended actions within the proposed time-frame, as described in the agreed roadmap, comprising: Phase 1 (Implementation of WRC 12 decisions) up to 31 December 2012; Phase 2 (Rewrite some existing software) up to 31 December 2015; and Phase 3 (Set up a project team to implement a common framework, security system and centralized space database) from 1 January 2016 to 31 December 2018. RAG encouraged Member States and Sector Members to submit their comments on Phase 3.

The progress report on this topic is presented in Annex 1 to this document. Other on-going developments are addressed hereafter.

## 7.1 Implementation of Res. 186 (Busan)

The BR is developing the Space Interference Reporting and Resolution System (SIRRS) to satisfy Res. 186 (Busan), to maintain a database on cases of harmful interference, reported in accordance with relevant provisions of the Radio Regulations and in consultation with Member States concerned. The SIRRS system will feature a secure web front end for submission and consultation of interference reports. It is expected to be in production in July 2016.

## 7.2 EPFD software

In order to perform the examination relating to the compliance with the equivalent power flux-density (epfd) limits in Article 22 of the Radio Regulations, the Bureau has contracted in 2015 two specialized software development companies to complete the development of the epfd validation software tools for the analysis of non-GSO fixed-satellite service (FSS) systems, in accordance with the software specifications of Recommendation ITU R S.1503-2.

The two companies provided test versions of the software to the Bureau in mid-February 2016. Both software are currently under in-depth testing for the cases established in 2000 (Skybridge and Boeing) as well as new cases utilizing different orbits (USCSID-P, CANPOL-2, O3B). The Bureau will also undertake additional tests for some new constellations submitted at the end of 2014 (L5, MCSAT-2 LEO…). Due to extensive time required to run all test examination and validation, the Bureau expects to be ready to report the results in time for the next Working Party 4A meeting in April 2016.

## 7.3 Other developments

### 7.3.1 Further development of the ITU-R documents database search facility

Please refer to 8.1.5.2 for detailed information regarding this project.

### 7.3.2 Intellectual Property Rights (IPRs)

In a joint project with the Telecommunication Standardization Bureau (TSB) and the IS Department, the Bureau pursued its work on the necessary alignments of the ITU-R/ITU-T patents databases. This activity is still ongoing (See [www.itu.int/ipr](http://www.itu.int/ipr)).

### 7.3.3 Development of SharePoint data views

SharePoint data views are modules that can be integrated into webpages in order to allow them to display dynamic contents, i.e. data coming from (and managed within) databases, SharePoint lists, and XML/RSS feeds. The BR is continuously developing and enhancing these data views, which allows to display new and updated dynamic contents on the different ITU-R web pages.

# 8 Membership outreach

Outreach activities include the information and assistance to membership, the publication of ITU-R outputs and their dissemination, the organization of, and the participation in, seminars and workshops, and the development and maintenance of communication and promotion tools. The purpose of these activities is to ensure that the outputs produced by the ITU-R Sector (regulations, recommendations, reports and handbooks) are disseminated worldwide and familiar to the ITU membership and to stakeholders of spectrum, and that they form the basis for the formulation of spectrum management policies and decisions and for the use of radiocommunications in general. To carry out these activities, the BR relies on close cooperation with the other Bureaux and Sectors, the ITU regional and area offices and the relevant international organisations and national authorities.

## 8.1 Publications

### 8.1.1 Regulatory publications

During the 2012-2015 time-frame, the preparation of the regulatory publications followed the standard pattern, as foreseen in the Operational Plan, notably:

– the edition of the Radio Regulations reflecting the changes decided by WRC‑12 was published during the fourth quarter of 2012 in all ITU languages;

– the consolidated version of the Rules of Procedure reflecting the WRC‑12 decisions was published during the fourth quarter of 2012. Since then, seven updates have been published with the modifications decided by the RRB. The Rules of Procedure and their updates are published in all ITU languages.

Table 8.1.1-1 summarizes the Bureau’s activities on other statutory publications resulting from the application of the Radio Regulations in the period 2012-2015.

Table 8.1.1-1

Summary information regarding the publications resulting from the application of the Radio Regulations

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 2012 | 2013 | 2014 | 2015 |
| BR IFIC | 25 issues (on DVD-ROM) | 25 issues (on DVD-ROM) | 25 issues (on DVD-ROM) | 25 issues (on DVD-ROM) |
| HFBC schedules | 11 issues (on CD-ROM) | 11 issues (on CD-ROM) | 11 issues (on CD-ROM) | 11 issues (on CD-ROM) |
| IFL (terrestrial services) | 25 issues (incorporated within each BR IFIC) | 25 issues (incorporated within each BR IFIC) | 25 issues (incorporated within each BR IFIC) | 25 issues (incorporated within each BR IFIC) |
| Terrestrial plans | 25 issues (incorporated within each BR IFIC) | 25 issues (incorporated within each BR IFIC) | 25 issues (incorporated within each BR IFIC) | 25 issues (incorporated within each BR IFIC) |
| Preface to the IFL | 25 issues (incorporated within each BR IFIC) | 25 issues (incorporated within each BR IFIC) | 25 issues (incorporated within each BR IFIC) | 25 issues (incorporated within each BR IFIC) |

### 8.1.2 Service publications

#### 8.1.2.1 Background and general observations

The Bureau prepares and issues various service publications, as specified in Article 20 of the Radio Regulations (RR).

In view of the importance of the operational information contained in the maritime-related service publications, particularly with regard to safety, administrations are required to communicate the necessary amendments, as stipulated in No. 20.16 of the RR. It should however be noted that the concerns raised during WRC‑12 about the fact that administrations do not always provide regular updates of the information to BR, are still valid.

Furthermore, information contained in the maritime-related service publications, in particular the List of Ship Stations and Maritime Mobile Service Identity Assignments (List V), are also used for other administrative procedures (e.g. eligibility for additional MID).

#### 8.1.2.2 List of Coast Stations and Special Service Stations (List IV)

Two editions of List IV have been prepared during this reporting period. This List is composed of a paper booklet containing the Preface and Reference tables and a CD‑ROM (in pdf format) containing the information notified to BR, on coast stations, pilot stations, port stations, VTS stations, etc.

Information pertaining to this list is also made available via the online information system ITU Maritime mobile Access and Retrieval System (MARS).

The ITU MARS webpage has been enhanced to allow administrations to download files containing all their coast stations notified to the ITU and to search and retrieve coast station(s) based on a frequency or frequency bands.

A new feature to download, via ITU MARS, a compilation of all changes notified to the ITU, was implemented. The Bureau continues to provide, every six months, such a compilation.

#### 8.1.2.3 List of Ship Stations and Maritime Mobile Service Identity Assignments (List V)

Four editions of List V have been prepared during this reporting period. This List is composed of a paper booklet containing the Preface and Reference tables and a CD‑ROM (in pdf format and MS access database) containing the information notified to BR on ship stations, coast stations assigned an MMSI, search and rescue (SAR) aircraft assigned an MMSI, etc.

Information pertaining to this list is also made available via the online information system ITU Maritime mobile Access and Retrieval System (MARS), on a daily basis.

The feature to download, via ITU MARS, a compilation of all changes notified to the ITU, continues to be provided, every three months.

#### 8.1.2.4 List of International Monitoring stations (List VIII)

WP 1C, during its June 2012 meeting, decided to proceed with the update of List VIII in a new format. As a consequence, the BR prepared Circular letter CR/348 issued on 10 May 2013 related to the preparation of edition 2013 of this List. Administrations were invited to review their data and submit the relevant amendments. This List (edition of 2013) was issued in December 2013.

#### 8.1.2.5 List of service publications issued

Table 8.1.2.5-1 below summarizes the different publications prepared and delivered during the period 2012-2015:

Table 8.1.2.5-1

Summary information regarding the service publications issued in the period 2012-2015

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **2012** | **2013** | **2014** | **2015** |
| List IV (List of Coast Stations and Special Service Stations) | - | Edition of 2013(November) | - | Edition of 2015(November) |
| List V (List of Ship Stations and Maritime Mobile Service Identity Assignments) | Edition of 2012(March) | Edition of 2013(March) | Edition of 2014(March) | Edition of 2015(March) |
| List VIII (List of International Monitoring Stations) | - | Edition of 2013(December) | - | - |
| Maritime Manual |  | Edition of 2013(October) |  |  |

### 8.1.3 Study Groups and other publications

Since WRC-12, the preparation of ITU‑R Study Groups and other publications followed the standard pattern, as foreseen in the Operational Plan, notably:

– ITU-R Recommendations: 355 were published (posted) on the ITU website in English (E). All Recommendations issued from 2005 to 2013 are available in the six ITU languages (A/C/E/F/R/S), and translation to the remaining five languages is in progress for those Recommendations issued since 2014.

– ITU-R Reports: 202 were published (posted) on the ITU website (E).

– ITU-R Handbooks (published; by default the English version, unless otherwise indicated):

– Climate Change – Edition of 2012.

– Propagation prediction methods for interference and sharing studies Handbook - Edition of 2012.

– National Spectrum Management – Edition of 2015 (initially in E, other languages in preparation)

– Computer-aided Techniques for Spectrum Management (CAT) – Edition of 2015 (initially in E, other languages in preparation)

– Spectrum Monitoring Handbook (A/C/F/R/S).

– Manual for Use by the Maritime Mobile and Maritime Mobile-Satellite Services,

– DTTB Handbook (Digital terrestrial television broadcasting in the VHF/UHF bands), Revision 1.02.

– Radio Astronomy Handbook, Edition of 2013

– Radiometeorology.

– Amateur and amateur-satellite services - Edition of 2014.

– Ground wave propagation - Edition of 2014.

– Handbook on Amateur and amateur-satellite services (A/C/F/R/S).

– Space Research Communications (Edition of 2014).

– Radiometeorology (R).

– Satellite Time and Frequency Transfer and Dissemination (A/C/F/R/S).

– Ground Wave Propagation (A/S/F/R).

– Other publications (A/C/E/F/R/S):

– Book of ITU-R Resolutions 2012.

– Provisional final Acts WRC-12.

– Final Acts WRC-12.

– Rules of Procedure - Edition of 2012.

– ITU-R Rules of Procedure 2012 - Update 1.

– ITU-R Rules of Procedure 2012, Update 2.

– ITU-R Rules of Procedure 2012, Update 3.

– ITU-R Rules of Procedure 2012, Update 4.

– ITU-R Rules of Procedure 2012, Update 5.

– ITU-R Rules of Procedure 2012, Update 6.

– ITU-R Rules of Procedure 2012, Update 7.

– ITU-R Radiocommunication: Committed to connecting the world.

– CD-ROM and DVD-ROM of Recommendations and Reports. (seven issues) corresponding to this period (January 2012 – March 2015).

### 8.1.4 ITU-R Publications Downloads

#### 8.1.4.1 Radio Regulations and the Rules of Procedure

Concerning these regulatory documents, Table 8.1.4.1-1 compares the number of sales for the RR‑2008 edition (released in September 2008) and the RR-2012 (released in December 2012), as of 31December 2015. This comparison shows that the free online access policy had no impact on the level of sales. The sales of RR-12 overpassed those of RR-08 (29% more). The large number of free downloads (roughly 37% more than sold versions) illustrates the positive impact of this policy. Also, downloads were made from 182 countries, representing 94% of ITU Membership.

Table 8.1.4.1-1

Comparison of the number of deliveries of the Radio Regulations and RoP since 2008

|  |  |  |
| --- | --- | --- |
|  | **Sold** | **Free Download** |
| *RR-08 (51 months deliveries)* | 15,178 | 973 |
| *RR-12 (36 months deliveries)* | 19,593 | 26,799 |
| *RoP 2012* ***(****since Council 2014 decision)* | 25 | 2,011 |

#### 8.1.4.2 ITU-R Recommendations

As a result of the free online access policy, ITU-R Recommendations have been disseminated worldwide, becoming a universal reference, reaching all audiences, regardless their economic situation. In a 36-month period (January 2013 to December 2015), more than ten million downloads of ITU-R Recommendations from ITU web site were recorded. Table 8.1.4.2-1 summarizes their distribution by year and series. At this time there are 1,155 ITU-R Recommendations in force, hence the average number of downloads is 9,300 per Recommendation.

Table 8.1.4.2-1

Distribution of ITU-R Recommendations

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **SERIES** | **2013** | **2014** | **2015** | **Total** | **%** |
| **P** | 1,474,978 | 1,355,667 | 997,851 | **3,828,496** | **35.7%** |
| **BT** | 678,265 | 594,916 | 432,080 | **1,705,261** | **15.9%** |
| **M** | 619,938 | 544,416 | 458,858 | **1,623,212** | **15.1%** |
| **SM** | 384,600 | 336,767 | 309,149 | **1,030,516** | **9.6%** |
| **BS** | 323,804 | 315,991 | 230,649 | **870,444** | **8.1%** |
| **F** | 270,692 | 254,728 | 222,474 | **747,894** | **7.0%** |
| **S** | 171,095 | 124,307 | 108,522 | **403,924** | **3.8%** |
| **BO** | 39,365 | 25,336 | 29,521 | **94,222** | **0.9%** |
| **SA** | 29,350 | 29,885 | 32,827 | **92,062** | **0.9%** |
| **RS** | 28,490 | 22,725 | 32,220 | **83,435** | **0.8%** |
| **V** | 29,038 | 25,437 | 19,552 | **74,027** | **0.7%** |
| **TF** | 19,708 | 15,209 | 20,242 | **55,159** | **0.5%** |
| **SF** | 19,738 | 15,383 | 20,007 | **55,128** | **0.5%** |
| **BR** | 12,627 | 9,239 | 12,321 | **34,187** | **0.3%** |
| **RA** | 9,283 | 7,879 | 10,083 | **27,245** | **0.3%** |
| **SNG** | 4,809 | 2,929 | 3,930 | **11,668** | **0.1%** |
|  |  |  |  |  |  |
| **TOTAL** | **4,115,780** | **3,680,814** | **2,940,286** | **10,736,880** | **100.00%** |
| **year %** | **38.3%** | **34.3%** | **27.4%** | **100.0%** |  |

#### 8.1.4.3 ITU-R Reports

As ITU-R Recommendations, ITU-R Reports have been disseminated worldwide, becoming a universal reference, reaching all audiences, regardless of their economic situation. In a 36-month period (January 2013 to December 2015), more than 4.5 million downloads of ITU-R Recommendations from ITU web site were recorded. Table 8.1.4.3-1 summarizes their distribution by year and series. At present, there are 410 ITU-R Reports in force, with an average download of 8,000 per Report.

Table 8.1.4.3-1

Distribution of ITU-R Reports

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **SERIES** | **2013** | **2014** | **2015** | **TOTAL** | **%** |
| **M** | 395,360 | 515,745 | 636,116 | **1,547,221** | **33.2%** |
| **BT** | 363,675 | 342,768 | 330,089 | **1,036,532** | **22.3%** |
| **SM** | 224,747 | 293,305 | 320,550 | **838,602** | **18.0%** |
| **BS** | 106,279 | 156,835 | 166,269 | **429,383** | **9.2%** |
| **BO** | 78,401 | 104,646 | 128,055 | **311,102** | **6.7%** |
| **P** | 57,317 | 79,659 | 93,578 | **230,554** | **5.0%** |
| **S** | 27,643 | 29,009 | 38,545 | **95,197** | **2.0%** |
| **F** | 17,971 | 21,030 | 31,778 | **70,779** | **1.5%** |
| **RS** | 12,049 | 12,476 | 22,542 | **47,067** | **1.0%** |
| **RA** | 8,542 | 6,575 | 8,791 | **23,908** | **0.5%** |
| **SA** | 4,190 | 7,690 | 11,291 | **23,171** | **0.5%** |
| **SF** | 490 | 533 | 695 | **1,718** | **0.0%** |
| **BR** | 132 | 103 | 178 | **413** | **0.0%** |
|  |  |  |  |  |  |
| **TOTAL** | **1,296,796** | **1,570,374** | **1,788,477** | **4,655,647** | **100.00%** |
| **year %** | **27.9%** | **33.7%** | **38.4%** | **100.0%** |  |

#### 8.1.4.4 Handbooks on radio-frequency spectrum management

Since the Council 2013 Decision, the quantity of downloads continues to increase, as reflected in Table 8.1.4.4-1.

Table 8.1.4.4-1

Distribution of ITU-R Handbooks on spectrum management and monitoring

|  |  |  |  |
| --- | --- | --- | --- |
| **Handbook** | **Sold2005 to 2Q2013[[2]](#footnote-2)** | **Sold3Q2013 to 4Q2015[[3]](#footnote-3)** | **Downloads** |
| National Spectrum Management (Ed. 2005 & 2015) | 488 | 55 | 2,009 |
| Computer-aided Techniques for Spectrum Management (CAT) (Ed. 2005 and 2015) | 257 | 18 | 1,130 |
| Spectrum Monitoring, Ed. 2011 | 139 | 106 | 5,108 |
| **Grand Total** | **884** | **179** | **8,247** |

These numbers illustrate the very positive impact of this decision for the dissemination of the ITU‑R Handbooks:

– within 2.5 years (June 2013 to December 2015), the number of downloads was almost ten times the number of handbooks sold previously in 8.5 years;

– since the free on-line access policy decision, downloads represent nearly 98% of total deliveries;

– these downloads come from all 193 Member States.

### 8.1.5 Navigation and analysis tools for ITU-R electronic publications

#### 8.1.5.1 Radio Regulations tools

The Bureau is developing software tools to facilitate the use and analysis of the Radio Regulations:

1. A test version of **the Radio Regulations Navigation tool**, which was made available free of charge (<http://www.itu.int/pub/R-REG-RRX>) before WRC-15. The relevant enhancements were introduced according to the received feedback. It is expected to make this tool available for subscription and download during the first quarter of 2016.
2. A software tool to conduct detailed **search and analysis of the Table of Frequency Allocations** of Article 5 of the Radio Regulations, enabling filtering and reformatting by frequency range, service, category of service, footnote, country, etc.

The development of this tool is nearing completion and it is expected to become available for subscription during the third quarter of 2016, once the changes resulting from WRC-15 have been incorporated.

#### 8.1.5.2 ITU-R documents database search tool

At its 19th meeting, the RAG invited the BR Director to develop a database, within existing budgetary limitations, that would enable ITU-R Recommendations to be searched and filtered by categories such as the radiocommunication service(s) and applicable frequency band.

In April 2014, considering the importance of its early introduction, and the usefulness of expansion of this search function to the ITU-R documents such as Questions, Reports, Handbooks, Resolutions, the Ministry of Internal Affairs and Communications (MIC), Japan kindly provided a voluntary contribution of USD 290’000 to encourage and expedite this search database development, which BR is responsible for, and to make it accessible for ITU Members, including developing countries.

Since then, with the support of experts from the Japanese Administration and ITU’s IS Department, the development of the ITU-R documents database search facility has been progressed, in parallel with ITU’s on-going migration to the new Sharepoint platform.

The work has covered the following areas:

– Review all ITU-R documents and extract search elements.

– Use the ITU’s new SharePoint platform.

– Provide a synchronization function for maintaining the ITU-R documents and their search elements.

– Document the working procedures specifying roles and responsibilities of ITU/BR and ITU‑R SGs/WPs to maintain the database.

– Develop a search application accessible by mobile terminals.

In collaboration with ITU’s IS Department, the search tools for ITU-R Recommendations and ITU-R Questions became **operational** in **October 2015**, a search tool for the ITU-R Reports became available as a demonstration version in November 2015, and search tools for the ITU-R Resolutions and the Handbooks are expected to be available during the 2nd quarter of 2016.

The current main focus of this work is to develop the working procedures specifying roles and responsibilities of ITU/BR and ITU-R SGs/WPs to maintain the database. After verification of all functionalities of the database and its update mechanism, development of a search application accessible by mobile terminals will be also considered.

The database is available at <https://extranet.itu.int/brdocsearch/>.

The whole project is expected to be completed by the end of 2016.

## 8.2 Seminars and workshops

### 8.2.1 World Radiocommunication Seminars (WRS)

Since WRC-12, the biennial World Radiocommunication Seminar was held in Geneva:

**– WRS-12**, from 3 to 7 December 2012, attended by 394 participants from 96 countries;

**– WRS-14**, from 8 to 12 December 2014, attended by 357 participants from 104 countries.

The presentations and discussions during both events were in the six official languages of the ITU with simultaneous interpretation. Three-day workshops were held in parallel for both terrestrial and space services. Groups were divided up in accordance with the language requirements and available facilities. WRS-12 and WRS-14 were conducted in a “paperless” environment. The proceedings are available on the ITU website: [http://www.itu.int/ITU R/go/seminars](http://www.itu.int/ITU%20R/go/seminars).

The BR provided full fellowships for WRSs (limited to one per administration for eligible countries). 64 full fellowships were granted.

### 8.2.2 Regional Radiocommunication Seminars (RRS)

As a complement to the biennial Word Radiocommunication Seminars, the BR has implemented a strategy for regional outreach through the organization of yearly cycles of Regional Radiocommunication Seminars (RRS), held in different regions worldwide, fostering human capacity building on the use of the radio-frequency spectrum and the satellite orbits, in particular the application of the provisions of the ITU Radio Regulations.

RRSs include two days of theoretical sessions and two days of workshops on terrestrial and space services, which may be in parallel or in series according to the specific requirements of the region. RRSs are complemented with a one-day forum, dedicated to spectrum-related topics of particular interest to the region.

Table 8.2.2-1 provides a summary of the ten RRS which were held since WRC-12. These seminars are generally hosted by the government, the regulator or the spectrum management authority in the country, in cooperation with the relevant regional organizations and the ITU regional/areas offices. RRS were conducted in a “paperless” environment. The proceedings are available on the ITU website: <http://www.itu.int/ITU-R/go/seminars>. The BR provided partial fellowships for RRS (only one per administration for eligible countries). More than 80 partial fellowships were granted.

An analysis of the participation in WRSs and RRSs shows that these two types of seminars complement each other:

**– In two WRSs**: 751 participants from 121 countries (including 49 not coming to RRS)

**– In ten RRSs**: 824 participants from 115 countries (including 42 not coming to WRS)

**– Total:** 12 seminars, 1575 participants from 165 countries.

Table 8.2.2-1

ITU Regional Radiocommunication Seminars (2013-2015)

| **Date** | **RRS** | **Place** | **Host** | **Cooperation** | **Forum Topics** | **Languages** | **Participants/administrations** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 8-12 July 2013 | **RRS-13-Americas** | Asuncion, Paraguay | CONATEL Paraguay | ITU Americas Office | Digital Dividend in Latin America | **S, E** | **121/9** |
| 16-20 September 2013 | **RRS-13-Africa** | Yaounde, Cameroon | MINPOSTELCameroon | ATU, ITU Africa Office | UHF band in Africa | **F, E** | **135/33** |
| 28 October - 1 November 2013 | **RRS-13-Asia-Pacific** | Nadi, Fiji | Ministry of Communications Fiji | PITA, ITU Asia-Pacific Office | C Band in Asia-Pacific | **E** | **53/18** |
| 9-13 December 2013 | **RRS-13-Arab** | Tunis, Tunisia | ANF Tunisia | ASMG, ITU Arab Regional Office | Cognitive radio and TV White Spaces | **A, E** | **49/12** |
| 26-30 May 2014 | **RRS-14-Asia** | Ha Noi, Viet Nam | MICViet Nam | APT, ITU Asia-Pacific Office | New issues on Spectrum Management | **E** | **94/15** |
| 14-18 July 2014 | **RRS-14-Americas** | Island of Tobago, Trinidad and Tobago | Telecommunications Authority of Trinidad and Tobago | CTU, ITU Americas Office | WRC-15 Agenda: Regional mattersC-band registration | **E** | **46/19** |
| 2-6 March 2015 | **RRS-15-Eastern Europe and CIS** | Bishkek, Kyrgyz Republic | State Communications Agency - Kyrgyz Republic | RCC, ITU Offices for Eastern Europe and CIS | WRC-15 regional preparation | **R** | **56/8** |
| 20-24 April 2015 | **RRS-15-Africa** | Niamey, Niger | Autorité de Régulation des Télécommunications et de la Poste, ARTP, Niger | ATU, ITU offices for Africa | Emerging concepts in spectrum utilization and monitoring: Preparing for future spectrum management for the region | **F, E** | **100/36** |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 25-30 May 2015 | **RRS-15-Asia-Pacific** | Manila, Philippines | Information and Communications Technology Office, Department of Science and Technology (ICTO‑DOST), Philippines | APT, Dpt of Communications, Government of Australia, ITU offices for Asia and Pacific | Space Planned Services: current status and challenges | **E** | **70/20** |
| 27-31 July 2015 | **RRS-15-Americas** | San Salvador, El Salvador | Superintendencia General de Electricidad y Telecomunicaciones of El Salvador (SIGET) | COMTELCA, ITU area office for Central America | WRC15: Challenges and opportunities for the RegionC-band registrationUnlicensed Devices Regulations | **S** | **70/16** |

### 8.2.3 Planned WRS & RRS Cycle for 2016-2019

Planning of the WRS & RRS for the period 2016-2019 will be based on the following principles:

* During the quarter before and after a WRC, no Seminar is scheduled, in order to allow for the RR updates and the necessary changes to the Software Tools to be made,
* 2 WRS per cycle (every 2 years),
* the first WRS after a WRC will have a specific session devoted to explain in detail the modifications on the RRs introduced by the WRC,
* The two RRSs for Africa will be scheduled in different years than the WRS, considering that the participation in RRS Africa is nearly twice larger than in other RRSs, and to allow for an even distribution of the fellowship budget (Africa represents more than 50% of the eligible countries),
* A RRS will be scheduled on every quarter, ensuring an annual visit to every region,
* RRSs will be carried out in the predominant language of the region, which helps reduce interpretation costs and allows for an easier exchange of information during the event,
* The programs of the RRSs will be tailored to the specific needs of the region concerned,
* The last day of each RRS will be devoted to a Forum-type session, where panelists from outside the region could be invited to enlarge the scope of the discussions (provision of interpretation from/to English might become necessary for that day).

WRS-16 is planned for the period 12 to 16 December 2016. Two RRSs are planned for the second semester of 2016, one for the Pacific Islands and one for the Caribbean countries.

### 8.2.4 Other Events

The period since WRC-12 witnessed a busy schedule of events organized entirely by BR or in cooperation with BDT/TSB and/or other bodies (see [http://www.itu.int/ITU‑R/go/seminars](http://www.itu.int/ITU-R/go/seminars)). A new series of workshops on the efficient use of the orbit and spectrum was organized with a view to openly discussing issues often qualified as “sensitive” and making progress on the exchange of ideas to adapt and improve the international satellite regulatory registration framework at the next WRC.

Within the framework of the ITU Centres of Excellence for Asia-Pacific Region, the Bureau organized the first online training program on "Satellite Network Registration Procedures and International Regulations" for the Asia-Pacific Region jointly with the ITU office in Bangkok (Thailand) and the State Radio Monitoring Centre (SRMC), MIIT, China, from 1st till 28th June 2015. The program focused on Satellite Network Registration Procedures and International Regulations and covered an introduction to satellite projects, the Radiocommunication Sector in the ITU & Orbit-Spectrum Regulations, Non-planned Space Services Procedures, Planned Space Services (BSS & FSS) Procedures and other topics.

The course objectives were to develop a basic knowledge of satellite projects, to understand the international regulations governing satellite network registration, to understand in detail, the coordination procedures concerning satellite registration and share experiences and challenges concerning satellite network registration.

An ITU Symposium and Workshop on small satellite regulation and communication systems was also held in Prague, Czech Republic, 2-4 March 2015. The three-day event focused on the regulatory aspects of the use of the radio-frequency spectrum and satellite orbits for small satellite communication systems, in particular on the application of the provisions of the [ITU Radio Regulations](http://www.itu.int/pub/R-REG-RR/en). It was organized by the ITU in cooperation with the Czech Technical University’s [Faculty of Electrical Engineering (CTU FEE)](http://www.fel.cvut.cz/en/), an ITU Academia Member. It was attended by more than 160 participants from around 40 countries.

The participants concluded the Symposium with the unanimous endorsement of the ‘[Prague Declaration](http://www.itu.int/en/ITU-R/space/workshops/2015-prague-small-sat/Documents/Prague%20Declaration.pdf) on Small Satellite Regulation and Communication Systems’, which urges the small satellite community to comply with the applicable international and national laws, regulations and procedures, indispensable to guarantee the long-term sustainability of small satellite projects, the avoidance of harmful interference and proper management of space debris. The declaration also recommends that ITU continue capacity-building activities on the regulation of satellite communication systems (see <http://www.itu.int/en/ITU-R/space/workshops/2015-prague-small-sat/Documents/Prague%20Declaration.pdf>).

The Bureau intends to continue its cooperation with the ITU Centres of Excellence for Asia-Pacific Region and to organize, on a regular basis, online courses on satellite network registration procedures. In view of the success of this activity, the Bureau intends also to develop the same online course for Africa and the Americas.

Table 8.2.4-1 summarizes the missions carried by BR staff for the above activities since WRC-12. For completeness, this table also includes the participation of BR staff in providing assistance to Member States (See Section 8.3).

Table 8.2.4-1

Participation of BR staff to events in order to disseminate information

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|   | **2012** | **2013** | **2014** | **2015**  | **TOTAL** |
| **Missions** | **Countries**  | **Missions** | **Countries**  | **Missions** | **Countries**  | **Missions** | **Countries**  | **MISSIONS** | **COUNTRIES** |
| ***SPECIALIZED UN AGENCIES***  | 14 | 9 | 16 | 12 | 17 | 12 | 24 | 9 | ***71*** | ***42*** |
| ***REGIONAL TELECOMMUNICATION ORGANIZATIONS***  | 23 | 17 | 34 | 27 | 33 | 25 | 74 | 34 | ***164*** | ***103*** |
| ***Non-ITU CONFERENCES & SYMPOSIA***  | 63 | 42 | 60 | 37 | 59 | 43 | 57 | 45 | ***239*** | ***167*** |
| ***ITU SEMINARS, WORKSHOPS & MEETINGS*** | 36 | 34 | 24 | 22 | 29 | 22 | 33 | 19 | ***122*** | ***97*** |
| ***ASSISTANCE REQUESTS*** | 9 | 9 | 21 | 15 | 9 | 6 | 14 | 7 | ***53*** | ***37*** |
| ***OTHER EVENTS*** | 5 | 5 | 11 | 8 | 10 | 8 | 31 | 14 | ***57*** | ***35*** |
| **TOTAL** | **153** | **119** | **168** | **123** | **159** | **118** | **233** | **128** | **713** | **176** |

## 8.3 Assistance to Member States

### 8.3.1 Assistance to administrations of developing countries

In the period between WRC‑12 and WRC‑15, the Bureau provided assistance to the administrations of developing countries in more than 40 instances, in areas such as:

* Supporting national spectrum management activities in the rapidly changing regulatory environment (see Resolution 7 (Rev.WRC‑03)) and providing technical assistance in the field of space radiocommunication (Resolution 15 (Rev.WRC‑03); to this end, missions were undertaken upon request by administrations or jointly organized with the BDT, including participation of BR experts to provide capacity building in regional seminars organized by BDT or regional organizations. Furthermore, experts from administrations of least developed countries were granted fellowships to attend BR radiocommunication seminars and workshops. Experts from administrations also received for individual or group in‑service training in the ITU headquarters on radio regulatory procedures;
* Participating in the meetings of the regional coordination groups, as requested by Article 12 of the Radio Regulations;
* Providing assistance in Long Term Frequency management and assignment for mobile broadband (IMT);
* Providing guidance and technical support for the transition to Digital Television and the allocation of the digital dividend.

Table 8.2.4-1 illustrates this activity.

### 8.3.2 Assistance to Regional Groups

In the period between WRC‑12 and WRC‑15, following the request of assistance from the Regional Groups ATU and ASMG in implementing the decisions of WRC-07 and WRC-12 on the allocation of the 700 and 800 MHz band, the Bureau provided technical expertise and the associated software to enable ATU and ASMG Administrations to plan additional channels in the frequency band 470‑694 MHz in preparation to the transition to digital TV and the allocation of these bands to the mobile service.

Assistance was also provided by the Bureau in support of frequency coordination between the administrations of smaller groups of countries.

#### 8.3.2.1 Assistance to ATU

The process of coordination was initiated in response to two African summits of Ministers conveyed by ATU: in Nairobi (December 2011) and Accra (September 2012), and included 47 Sub-Saharan countries. The intensive discussions and technical compatibility analysis of frequencies, based on the recommendations of ATU adopted in Bamako in March 2012, covered 18 months, during which 33 compatibility iterations were performed, based on the requirements submitted by administrations.

To enable the participating administrations to proceed with bilateral and multilateral coordination, ATU, with the assistance of the ITU, organized three planning and coordination meetings, respectively in Bamako, Kampala and Nairobi.

The average of satisfied requirements achieved was 97.37%. By the date of preparation of this report, 89% of ATU Administrations had successfully modified the GE06 Plan in line with the agreement reached.

#### 8.3.2.2 Assistance to ASMG

The process of coordination between ASMG countries was initiated in response to a recommendation from the 35th meeting of the Permanent Arab Committee for Communications and Information (Cairo: 4-5 March 2014) and involved 17 Arab Administrations (with the exception of the Arab countries also part of ATU).

The process covered eleven months, with the coordination criteria and establishment of the frequency requirements in the frequency band 470-694 MHz based on ASMG recommendations (Dubai, 2014). A total of 27 iterations were performed for the compatibility analysis, based on the requirements submitted by administrations. To facilitate bilateral and multilateral coordination, three meetings were organised successively in Dubai, Hammamet and Marrakech.

The average of satisfied requirements achieved was 76.87%. By the date of preparation of this report, ASMG Administrations were in the process of modifying the GE06 Plan according to the agreement reached channels. Coordination with several administrations outside the ASMG is still ongoing. It is be necessary to permit the corresponding modifications to the GE06 Plan.

#### 8.3.2.3 Assistance to CITEL

Following the development by BR of online tools for technical examinations in the scope of the RJ81 Plan, the BR provided remote training for the use of this software, on request from CITEL. In addition, the BR delivered four online training sessions on “Notification of frequency assignments (terrestrial services)” to participants from CITEL, which were followed by 139 participants from 25 countries. More information on this online training can be found at: <http://www.itu.int/en/ITU-R/terrestrial/workshops/trainingCITEL/Pages/default.aspx>

### 8.3.3 Assistance to other groups of countries

The Bureau hosted two sub-regional frequency coordination meetings in March 2013 and November 2014 at the ITU headquarters in Geneva, between the Administrations of Saudi Arabia, Bahrain, United Arab Emirates, Iran, Kuwait, Oman and Qatar. These meetings enabled the concerned administrations to conclude two agreements:

– Arrangement to control cross-border spillover and harmful interference to the Mobile service;

– Mechanism for coordinating the VHF Sound Broadcasting service;

The application of these agreements has significantly improved the coordination of frequencies used for the Mobile.

The Bureau hosted a coordination meeting between the Administrations of Egypt, Israel, Lebanon, Palestine and Syria on the Digital Television broadcasting frequency planning in the band 470‑694 MHz. This meeting took place in Geneva from 29th September to 1st October 2014 and agreement on some technical criteria for frequency coordination was reached, such as a limiting interfering margin between Israel and the Arab countries.

## 8.4 Inter-sector Cooperation

### 8.4.1 Cooperation with ITU‑D

As reported in Sections 8.1 to 8.3 above, the BR continues to pursue its objective of informing and assisting the ITU membership, in particular in developing countries, on issues relating to radiocommunication matters. For this purpose, the BR organizes and participates in a number of spectrum related workshops, seminars, meetings and capacity building activities. These actions are being carried out in close cooperation with the BDT and the ITU regional and area offices, and the relevant international organizations and national authorities.

#### 8.4.1.1 GSR

Recognizing the importance of expert information to Member States, the BR continues to support the BDT by providing technical expertise in relation to spectrum management, digital broadcasting and digital dividend. The BR contributed to the ITU Global Symposium of Regulators 2012, 2013, 2014, 2015) with the organization of, and participation in, sessions related to spectrum management.

#### 8.4.1.2 ICT Survey and ICT Eye

ICT-eye and its survey form an essential tool for gathering data from administrations on key ICT metrics. The BDT does the tracking of such data on a yearly basis, and displays the data results in a meaningful way in the statistics portal. In order to capitalize from the existing platform provided by ICT-eye, the BR cooperated with the BDT to expand the current survey and include a chapter on key spectrum-specific information (i.e. auctions, caps, mobile technologies/standards, spectrum licensing). The spectrum chapter was developed by BR and published in the ICT survey for first time in 2013.

#### 8.4.1.3. World Telecommunication/ICT Indicators Symposium, WTIS

The BR cooperated with the BDT on the indicators and definitions for gathering data on mobile broadband technologies, especially when referring to standards. In that context, the BR made presentations during WTIS-13 and WTIS-14. During WTIS-15, the roadmap for designing and measuring the indicators for 5G and wireless component of IoT were discussed, and the BR participated actively in this process, to ensure coordination with the on-going work of ITU-R on this important matter.

This activity also involved a similar work on indicators relevant to the ITU-R KPIs.

#### 8.4.1.4 Spectrum Management Training Programme (SMTP)

Close contact has continued with the BDT on work of mutual interest to ITU‑R and ITU‑D. The BR has participated in relevant meetings of ITU‑D Study Groups, Rapporteur Groups and TDAG, where liaison activities have involved topics such as spectrum management, digital broadcasting and migration from analogue systems, transition towards and implementation of IMT, and broadband wireless access technologies. These topics are in addition to the collaboration undertaken through ITU‑D Question 9-3/2 that calls for the identification of study topics in ITU‑R (and ITU‑T) considered of particular interest to developing countries.

In response to requests from the BDT, experts from ITU‑R and BR have participated in ITU seminars and workshops organized by ITU‑D (see also Section 8.2.4). Within the framework of Resolution ITU‑R 11-4 (Further development of the spectrum management system for developing countries), BR has been involved with the design, testing and training associated with the software SMS4DC (Spectrum Management System for Developing Countries), with advice provided on the use of relevant ITU‑R Recommendations. In addition, ITU‑R Study Group 1 has continued to work closely with the ITU‑D Study Groups in pursuing studies on spectrum usage in accordance with Resolution ITU‑D 9.

In 2013, the BR developed jointly with the BDT an ITU Report on the Digital Dividend. On this basis, ITU-R Study Group 1 has since developed and recently adopted an ITU-R Report on this subject.

With the needs of developing countries always in mind, the production of Handbooks has continued to be viewed as a major Study Group activity. In this respect, new or revised Handbooks have been developed on topics such as spectrum monitoring, radiowave propagation information for designing terrestrial point-to-point links, amateur and amateur-satellite services, migration to IMT-2000 systems and use of radio spectrum for meteorology – weather, water and climate monitoring and prediction.

Since 2013, the BR actively participated in a joint project with the BDT to develop the *Spectrum Management Training Programme (SMTP*) through its different phases: design, material preparation, peer review, pilot test (conducted in 2015 and now under evaluation). In 2016, it is planned to implement the full SMTP programme for training of the staff of a Spectrum Regulatory Authority in a developing country.

### 8.4.2 Cooperation with ITU-T

In addition to climate change and emergency communications, topics of mutual interest between ITU‑R and ITU‑T include IMT 2020, the effects of human exposure to radio frequencies, power line transmission systems, intelligent transport systems, common patent policy and intellectual property rights and audiovisual media accessibility.

SG 6 established a new Intersector Rapporteur Group (IRG) on Integrated Broadband Broadcasting (IBB) systems in addition to the two existing IRGs on audiovisual media accessibility (IRG‑AVA) and on audiovisual quality assessments (IRG-AVQA).

There continues to be a requirement for close coordination on the various topics being addressed by ITU‑T that impinge on radiocommunication issues to reduce the potential for overlap, duplication and conflict of work undertaken by the two Sectors.

### 8.4.3 Cooperation with international and regional organizations

The Bureau maintained close cooperation with many international and regional organizations with the following objectives: 1) to promote dialogue amongst bodies having common interests; 2) to help coordination leading to more effective preparation for events such as WRCs; and 3) to keep ITU‑R abreast of relevant activities in other organizations to help planning of work programmes.

The BR continues its close cooperation with the relevant international and regional organizations dealing with the use of spectrum (APT, ASMG, ATU, CEPT, CITEL and RCC) or more generally with the use of radiocommunications services (e.g. ICTO, ITSO, ESOA, GVF, GSMA, EBU) by organizing, promoting and participating in events to build capacity on the use of the RRs, including WRS and RRS, as indicated in Section 8.2.

In accordance with Resolution ITU‑R 9-4, liaison has been strengthened with several other standard-making organizations. For example, a memorandum of understanding has been developed between ITU and ARIB, CCSA, TTA and TTC to harmonize standardization activities, and the existing ITU‑R and ITU‑T MoUs with ETSI were reviewed and combined as a single ITU/ETSI MoU.

Attention to the activities of the Global Standards Collaboration (GSC) continues, to which ITU‑R/BR and ITU‑T/TSB contributions were made each year and ITU hosted the meeting of the GSC in July 2015. Involvement with the 3G partnership projects and IEEE has been pursued, given their importance and relevance to the work of Study Group 5. Other notable areas of liaison with Study Group activities include those with the World Meteorological Organization (through SG 7), CISPR (through SG 1), the World health Organization (through SGs 3 and 6), Space Frequency Coordination Group (through SG 7) and the European Broadcasting Union (through SGs 3 and 6).

The BR ensured liaison and cooperation with the UN Committee on the Peaceful Uses of Outer Space (UN-COPUOS), the International Maritime Organization (IMO), the International Maritime Satellite Organization (IMSO), the International Telecommunications Satellite Organization (ITSO), COSPAS-SARSAT, CICR and ICAO with regard to the application of ITU treaty texts. BR experts also participated in various meetings of these organizations.

The BR also ensured liaison and cooperation with IMO, WMO, CEPT, CITEL, APT, ASMG, ATU, RCC, EBU, ABU, ASBU and WBU, regarding effective preparation for WRC‑15. Appropriate liaison and cooperation was also maintained with IEC, ISO, ETSI, and IEEE.

## 8.5 Membership outreach

Table 8.5-1 shows the evolution of the number of ITU-R Sector Members, Associates and Academia during the period 2012 to 2015.

Table 8.5-1

Evolution of the ITU-R membership since 2012

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **2012** | **2013** | **2014** | **2015** | **2015 VS 2012** | **% Increase** |
| **Sector Members** | 255 | 259 | 262 | 276 | 21 | 8.2% |
| **Associates** | 21 | 18 | 19 | 22 | 1 | 4.8% |
| **Academia** | 14 | 15 | 30 | 109 | 95 | 678.6% |

These figures show a clear upwards trend, in contrast with the negative trend form the past period. It may be noted that:

– Among the associates which withdrew from ITU-R in the period, two became Sector Members.

– In accordance with Resolution 169 (Rev Busan 2014), a single ITU membership has been implemented since 1st January 2015. Consequently, academia members from other sectors are also counted as ITU-R academia members since that date.

– Before PP-14, ITU-R academia membership increase was significant however, with a 100% increase in 2014.

## 8.6 Communication and Promotion

In order to position the ITU-R in line with its strategic objectives (create brand value, strengthen reputation, mobilize internal and external stakeholders, engage supporters and advocate in the interests of membership). The Bureau works in close collaboration with the Corporate Communications Division (CCD) and ITU Press Office, the membership Department and the Publication and Composition Service (C&P/COMP) of the General Secretariat. This work has included several ITU Inter-Sector meetings: WSIS Implementation Task Force, Communications Groups, Web Editorial Board, ITU 150th Anniversary, Emerging Trends and Gender Task Force Group.

### 8.6.1 Website

As indicated to the 22nd meeting of the RAG, the migration to SharePoint of the [ITU‑R website](http://www.itu.int/en/ITU-R) has been completed. More than 300 pages have been considered as archives (no updates needed), so these pages have not been part of this migration and are still available with their old layout under the previous custom CMS (non-SharePoint) in read-only mode.

Concerning the translation of all level-0-and-1 webpages of [ITU‑R website](http://www.itu.int/en/ITU-R), their approximate status of the availability on the six ITU languages is as shown in Table 8.6-1 below. The development of the main data views for these web pages is now completed.

Table 8.6.1-1

ITU-R web pages languages statistics

|  |  |
| --- | --- |
|  | **Status of ITU-R web pages translations for levels 0+1 (Q4/2015)** |
| **E** | **F** | **S** | **A** | **C** | **R** |
| **SSD** | Space | 100% | 95% | 95% | 0% | 0% | 0% |
| **TSD** | Terrestrial | 100% | 30% | 30% | 30% | 30% | 30% |
| **SGD** | Study Groups | 100% | 50% | 50% | 50% | 50% | 50% |
| **Conf.** | Conferences/Meetings/Seminars/Workshops | 100% | 100% | 100% | 100% | 100% | 100% |
| **Others** | Information/Promotion/Events | 100% | 70% | 70% | 70% | 70% | 70% |
| **ITU-R website (total)** | 100% | 69% | 69% | 50% | 50% | 50% |

### 8.6.2 Promotion and media relations

#### 8.6.2.1 Media Communications

The BR continued to support the ITU-R strategic goals with the following communications issued through the ITU Press Office, #WRC15 hashtag on [social media](https://twitter.com/hashtag/wrc15), the ITU-R Newsroom on <https://twitter.com/ITU_R> and via the BR website. Communication highlights were:

* the [World Radio Day 2015](http://www.itu.int/net/pressoffice/press_releases/2015/Advisory-01.aspx), on 13 February 2015,
* the [ITU symposium addressing regulatory requirements for small satellite communication systems](http://www.itu.int/net/pressoffice/press_releases/2015/CM04.aspx) (Prague, 2-4 March 2015),
* the [CPM15-2 for the WRC-15](http://www.itu.int/net/pressoffice/press_releases/2015/08.aspx) (Geneva, 23 March- 2 April 2015),
* the [switchover from analogue to digital TV](http://www.itu.int/net/pressoffice/press_releases/2015/25.aspx) for 119 countries in Europe, Africa, Middle East and Central Asia, including the [ITU symposium to mark switchover from analogue to digital TV](http://www.itu.int/net/pressoffice/press_releases/2015/19.aspx) (17 June 2015),
* the [ITU Regional Radiocommunication Seminars](http://www.itu.int/en/ITU-R/seminars/Pages/default.aspx) (March, April, May and July 2015),
* the adoption of the ITU’s [roadmap for 5G mobile and development](http://www.itu.int/net/pressoffice/press_releases/2015/27.aspx) of [5G mobile systems or IMT-2020](http://www.itu.int/net/pressoffice/press_releases/2015/48.aspx) (19 June 2015)
* The adoption of [Recommendation ITU-R BS-2008-0 for advanced audio broadcasting technology](http://www.itu.int/net/pressoffice/press_releases/2015/47.aspx) (19 October 2015)
* [RA-15 and WRC-15](http://www.itu.int/en/newsroom/wrc15/Pages/default.aspx) (October-November 2015)

A number of communications on the World Radiocommunication Conference (WRC-15) and the Radiocommunication Assembly 2015 (RA-15) were issued on the [WRC-15 Newsroom](http://www.itu.int/en/newsroom/wrc15/Pages/default.aspx), providing useful background information to delegates and media. These included the [ITU News Magazine Special Edition on WRC-15](http://www.itu.int/en/itunews/Documents/2015_ITUNews05-en.pdf), the [RA-15](http://www.itu.int/net/pressoffice/press_releases/2015/49.aspx)  setting the direction for new wireless communication technologies to enhance connectivity and accessibility worldwide and [WRC-15](http://www.itu.int/net/pressoffice/press_releases/2015/56.aspx) allocating spectrum for future innovation and spurring long-term investments in ICT industry. Over 200 media queries were received, with over 70 media queries relating to WRC-15. Social media coverage of [#WRC15](https://twitter.com/hashtag/wrc15), including remote (Twitter) participation for press conferences – resulting in: 3708 tweets from 1804 contributors reaching 14.58 million people, for an exposure of 36.49 million potential views of [#WRC15](https://twitter.com/hashtag/wrc15) messages (tweets).

#### 8.6.2.2 FAQs

The BR has been developing and regularly updating various sets of Frequently Asked Questions (FAQs). They are available for the media, the industry and the general public and currently cover the following topics:

– RR, ITU-R SG, RRB, RAG, BR,

– IMT and Wireless Broadband,

– Transition to digital TV broadcasting and Digital Dividend,

– Universal Time Scale (UTC) – Leap Second,

– Satellite Filings and associated procedures.

They can be found on the right-hand top of the ITU-R web page (<http://www.itu.int/en/ITU-R/Pages/default.aspx>.

#### 8.6.2.3 Branding communications

During 2015, branding-communication were prepared for CPM15-2, WRC-15 and RA-15. These e-materials were distributed electronically online (website) and on e-screens at ITU and CICG buildings with visibility to over 3300+ delegates and to a much larger audience via social media.

#### 8.6.2.4 Exhibitions and Demos

During 2015, three exhibitions were organized by the BR at the request of the membership.

**WRC-15 EXPO** (2-27 November) attracted many visitors, largely due to its location within the CICG ‘Espace Polyvalent’ in the vicinity of the WRC-15. This exhibition hosted ATDI, EBU, ESOA, FACEBOOK, GLOBALSTAR, GOOGLE, GSMA, IARU, LS TELCOM, Saab MEDAV Technologies GmbH, SKAO - Square Kilometer Array Organization.

**CPM15-2 Exhibition** was organized in the CICG ‘Espace Polyvalent’ and hosted the following ITU-R Sector Members: CRFS, LSTELCOM, GSMA, COSPAS SARSAT, EBU, Airbus Defense & Space, Eutelsat, Inmarsat, ViaSat.

**GE-06 EXPO: ITU International Symposium on the Digital Switchover** (on 17 June 2015) was organized in the ITU 2nd basement and hosted ITU/BDT, DVB/EBU, Fraunhofer IIS, Dolby-(Atmos), ATDI, LStelcom, EBU, BBC with advanced demo prototype technology on display.

ANNEX 1

|  |
| --- |
| **BR Space Information Systems Progress Report** |
| **Phase 2: 1 April 2012 – 31 December 2015** |
| **Business Continuity and Disaster Recovery\***Strating January 2015, the Bureau adopted a two-phase approach (with both phases running in parallel) in order to identify and mitigate the relevant threats and vulnerabilities. With the help of external consultants and ISD, the Bureau conducted an assessment analysis of the infrastructure (servers, LAN, databases, etc.) used in accessing the BR databases, both from inside and outside the ITU. The Bureau also conducted its analysis and evaluation in order to establish the required BC/DR Plan, so as to minimize both the risks of data loss and the delays associated with the risk of loss of operations in the processing of frequency notifications. An established task group developed a plan to test the backup and recovery procedures. It listed the core software applications and data, extracted data categories (databases, files…) and created a disaster recovery plan for each category. Work shall continue with ISD during the coming period to finalize the testing and apply the resulting established measures.\*This work applies to both Space and Terrestrial Services |
| **Rewrite technical legacy software for technical examination**• Rewrite PFD for protection of terrestrial services calculation: Ongoing• Rewrite AP8 calculation: Ongoing• Rewrite PFD for protection of space services: Started• Migrate technical examination software written in Fortran from Compaq Visual Fortran compiler to Intel Fortran compiler  – GIBC/Appendix 30B, Mspace, GIBC/PowerControl: Completed – GIMS Fortran components: Not yet started• Mspace – migration of data access component from VB6 to Intel Fortran: Completed• GIBC/Appendix 7: Completed |
| **Design and develop the BR Space Information System (BR SIS)**Currently, BR Space has many standalone applications written in VB6 and VO with their own specific interfaces. The aim is to build one single user interface that will integrate in the future all BR Space services using state-of-the-art technologies. This task has been initiated and the proposed architecture validated with a prototype based on service-oriented architecture (SOA). The SOA separates the user interface from the service implementation. Each BR Space application will be exposed as an autonomous WCF (Windows Communication Foundation) service and could easily be deployed across both Windows and web platforms. WPF (Windows Presentation Foundation) technology, the leading modern user interface (UI) design tool, is being used for the design and development of the UI. WPF separates the presentation design layer from the logic layer. The whole system uses a composite application design pattern (Prism is the Composite Application Guidance for WPF). This improves the system modularity and allows developers to build and maintain system modules independently. SpaceQry is the first application rewritten in the BR Space Information System following the above architecture and will be used as a template for development of all BR Space applications. The querying service developed for SpaceQry may also be used by the future SNS Online as a web service. |
| **Rewrite SpaceQry written in Visual Objects** A production version has been made available on the BR IFIC DVD in April 2016. |
| **Rewrite SpaceCap written in Visual Basic 6**Integration of SpaceCap into BR-SIS has started and will be achieved by integrating one type of notice at a time. |
| **Migrate SRS.mdb to more modern technology**The database files on the BR IFIC are currently in Microsoft Access MDB format, the development of which stopped with the 2003 version of Microsoft Office. Several options have been evaluated, and SQLite has been chosen as the technology to replace MDB files. Connectivity is either achieved through direct connections (such as from C++ or .Net applications) or through ODBC. Test databases will be made available to external users in Q3 of 2016, and the applications shipped on the BR IFIC DVD will be SQLite-compatible as of January 2017, to coincide with version 8 of the SNS database. Backward compatibility with the MDB format, as well as conversion tools, will be retained for the foreseeable future, to allow external users sufficient time to adopt the new technology. |
| **Migrate SNS database on Ingres to SQL Server** Owing to costs and resources, the IS Department is migrating its Ingres databases to SQL Server, therefore the BR Space SNS database should also be migrated. No major changes would be required to BR Space Applications using ODBC to access the database. This work is expected to be completed in 2016. Since it is currently quite closely coupled with Ingres, SNS Online would need to be redone. In the interim, SNS data can be regularly copied from the SQL Server to a read-only SNS database on Ingres.The future version of SNS online can be based on ASP.NET MVC technology, which is currently used for the Space API Query part of the Space Network Systems web site. |
| **Review SNTrack** This task should be done in conjunction with the development of Resolutions 907 and 908.  |
| **Phase 3: 1 January 2016 – 31 December 2018**The main themes of Phase 3 are:* Design common conceptual database for terrestrial and space.
* Define standard application framework for Space and Terrestrial Systems including Maritime System (MARS) based on ITU maritime databases.
* Redesign Space System – (apply Service Oriented Architecture).
* Consider centralized risk, recovery and security management

The work done during the previous phases, as well as the design and technology choices made, are all an excellent foundation for successful completion of Phase 3, as follows:* The Space databases shall be migrated to the SQL Server platform by the end of 2016. At that time, the database schema shall be updated to the post-WRC-15 version 8 and presented at WRS-16, with a number of additions, deletions and changes of fields and tables.A schema redesign, preserving equivalence of data, but with the objective to eliminate certain redundancies and to align with a common Space/Terrestrial approach, could be rolled out in time for WRS-18.
* The desktop application frameworks for the Terrestrial System, the Space System and MARS have traditionally been quite different, and may continue to be so for the time being. The need to standardize on one framework diminishes as more and more functionality is offered through web applications. The standard web application framework used for new development (e.g. SIRRS) and for the redesign of existing Space System web applications (SNS online) shall be ASP.NET MVC, which is also endorsed and supported by the IS department and is the web application framework on which the MARS project is being re-implemented.
* The adoption of the .Net platform and the Prism design architecture will make it easier to transition from desktop applications to web applications, knowing that the preferred web application development framework is based on the same core technology and programming language.
* Activities on centralizing and streamlining risk, recovery and security management are on-going.
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1. These include the ITU‑R Handbooks on National Spectrum Management; Computer Aided Techniques for Spectrum Management; and Spectrum Monitoring. [↑](#footnote-ref-1)
2. Before Council 13 Decision 571 [↑](#footnote-ref-2)
3. After Council 13 Decision 571 [↑](#footnote-ref-3)