The global framework for radiocommunications

By Robert W. Jones

The ITU Radio Regulations

Radio frequencies often propagate across national borders, either intentionally or unavoidably. This makes it necessary to ensure that signals do not interfere with each other. It is also important to harmonize the use of the radio-frequency spectrum internationally because many radiocommunication applications are used on the move; for example, radio equipment on board ships and aircraft, or mobile phones. International harmonization can reduce equipment costs and lead to economies of scale. The ITU Radio Regulations provide the international framework for such harmonization. Within this framework, which is fairly flexible, countries are able to develop and adopt their own national legislation and regulations for radio spectrum usage.

It is important to recognize that ITU is not a global regulator in the way that a national spectrum regulator is domestically. The Radio Regulations, the international treaty governing the use of the radio-frequency spectrum and the geostationary-satellite and non-geostationary-satellite orbits, are written and updated by ITU Member States at world radiocommunication conferences (WRC). These regulations also provide rules for the maintenance of registers of frequencies and satellite orbits in use by administrations. While ITU's Radiocommunication Bureau (BR) administers the Radio Regulations, conformity with this international treaty is ultimately based upon goodwill rather than on the kinds of regulatory sanctions found at the national level.

The World Radiocommunication Conference

The world radiocommunication conference is a key feature of one of ITU's core responsibilities; namely, ensuring the rational, equitable, efficient and economical use of the radio-frequency spectrum by all radiocommunication services, including those using the geostationary-satellite or other satellite orbits.

The WRC is a part of ITU's Radiocommunication Sector (ITU–R) — the only Sector within the ITU that has, as one of its outputs, international treaty text. Other bodies that produce treaty texts are the Plenipotentiary Conference, world conferences on international telecommunications (WCIT), and regional radiocommunication conferences (RRC).

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From WARCs to WRCs

A High-Level Committee reviewed the structure and functioning of ITU in 1990–1991. One of its recommendations was that all of ITU's radiocommunication-related activities should be brought under a single sector. It also recommended that world administrative radio conferences (WARC) should become world radiocommunication conferences (WRC). These, and other recommendations of the committee, were adopted by ITU Member States at the Additional Plenipotentiary Conference in 1992.

World radiocommunication conferences are normally convened every currence of a majority of ITU Member States. This agenda also includes any matter which a plenipotentiary conference directs to be placed on it.

Broadly, a WRC can

• revise the Radio Regulations either partially or, in exceptional cases, completely;

• deal with any radiocommunication matter of a worldwide character within its competence;

• instruct the Radio Regulations Board and the Radiocommunication Bureau to carry out certain, specific activities and review those activities;

• determine topics for study by the Radiocommunication Assembly and ITU–R study groups;

and the Sectors of the Union to undertake specific activities.

Good preparation is the key to success

The importance of good preparations for WRCs cannot be overstated. Preparations involve a large number of people and take place at many levels: national, sub-regional, regional and global.

Much of the preparatory work at the global level takes place in ITU–R's study groups (for technical and operational matters) and its Special Committee (for regulatory and procedural matters). These activities are managed by the Radiocommunication Assem-

Table 1— Statistics of recent world radiocommunication conferences

	WRC-95	WRC-97	WRC-2000	WRC-03
Member States	140	142	148	145
Delegates	1223	1800	2043	2112
Observer organizations	30	37	94	83
Observers	83	143	261	179
Cost (millions of Swiss francs)	4.529	5.597	5.581	4.801
Pages of documentation (millions)	n/a	15.243	14.868	11.677

two-to-three years. The general scope of the agenda of a WRC should be established four-to-six years in advance. As a first step, a WRC recommends to the ITU Council a preliminary agenda for a future conference, together with an estimate of the financial implications. The final agenda is set by the Council, preferably two years before the conference, with the con-

• identify matters that the Assembly should consider in preparation for future radiocommunication conferences.

In addition, the conference considers and approves the report of the Director of BR on the activities of the Radiocommunication Sector since the previous WRC. It may also include in its decisions instructions or requests to the Secretary-General

bly working through its Conference Preparatory Meeting (CPM), which prepares a consolidated report that is used in support of the work of a WRC. As much as possible, the report reconciles differences in the approaches contained in the input material. When this cannot be done, the differing views are included for consideration in the report to the WRC.

Typically, the CPM meets twice between WRCs, beginning with a session immediately after a WRC to plan the preparatory work for the next conference. This meeting assigns responsibility for specific studies to the appropriate study groups and the Special Committee. In the CPM's second meeting, it finalizes its consolidated report.

Regional and sub-regional telecommunication organizations play a key role in facilitating discussions of national proposals to an upcoming WRC. In this process, views are harmonized and, when consensus is achieved, it is reflected in "common proposals" that are submitted to the conference.

At the national level, most Member States have specific processes for gathering and harmonizing input from interested parties. Such processes can involve requests for written submissions, establishment of (and participation in) national preparatory committees, and the commissioning of studies. Each sovereign Member State then decides what proposals to put forward at the sub-regional, regional and global levels, including ultimately to a WRC.

The Challenges

In the past, the agendas of world administrative radio conferences usually focused on a specific radio service or services. Nowadays, WRC agendas cover almost every radio service and every frequency range. The thinking of the High-Level Committee was that the agendas of WRCs should respond to pressing radiocommunication issues across all radio services, but that they should be reasonably limited in their scope. However, what has transpired is that WRCs have very extensive agendas, with many issues being carried over from one conference to the next while new items are added. Clearly, this has presented many challenges for the ITU membership as well as its secretariat. For one thing, the size of WRCs has increased in recent years, as can be seen in Table 1. All of the conferences it details were four weeks in duration. With a greater reliance on electronic distribution of documentation at WRC-03, significant savings were achieved.

Such large conferences dealing with long agendas, covering many different and complex items, suggests that Member States should include in their delegations experts in many fields of radiocommunications. This can be a problem for reasons of cost, and because it may be difficult for these experts to be absent for four weeks from their normal responsibilities. Also, due to the large number of agenda items, there is the real possibility of a conference taking only partial or interim decisions and referring any outstanding aspects to a subsequent WRC. This practice can lead to further difficulties. And, while some ideas for dealing with the problem have been advanced, none has found general acceptance.

Conclusion

The ITU Radio Regulations provide the framework for global harmonization of the use of the radio-frequency spectrum. The WRC process for reviewing and updating these regulations has been an effective means of ensuring a timely and responsive mechanism to accommodate new and advanced radiocommunication applications, while respecting existing spectrum use. However, the challenge of an increasingly complex WRC has to be faced. Good preparation at the national, sub-regional, regional and global levels is the key to maintaining a successful WRC process. ■