

RESOLUTION 9 (Rev. Dubai, 2014)

Participation of countries, particularly developing countries, in spectrum management

The World Telecommunication Development Conference (Dubai, 2014),

considering

- a)* that the continuing growth in demand for spectrum, from both existing and new radiocommunication applications, places ever greater requirements on a scarce resource;
- b)* that, because of the investment in equipment and infrastructures, major changes in the existing use of the spectrum are often difficult to achieve, except in the long term;
- c)* that the marketplace drives the development of new technologies to find new solutions to address development problems;
- d)* that national strategies should take into account international commitments under the Radio Regulations;
- e)* that it is recommended that national strategies should also take into account global changes in telecommunications/information and communication technologies (ICTs) and developments in technology;
- f)* that increased spectrum access may be facilitated through technical innovation and greater sharing capabilities;
- g)* that, based on its ongoing work, the ITU Radiocommunication Sector (ITU-R) is well placed to provide worldwide information on radiocommunication technology and spectrum utilization trends;
- h)* that the ITU Telecommunication Development Sector (ITU-D) is well placed to facilitate the participation of developing countries in ITU-R activities, and, for those developing countries that so request, to distribute to them the results of particular ITU-R activities;
- i)* that such information would assist spectrum managers in developing countries to develop their own national medium- or long-term strategies;
- j)* that such information would enable developing countries to benefit from sharing studies and other technical studies in ITU-R, including new spectrum sharing approaches such as dynamic spectrum access (DSA);
- k)* that, within spectrum management, one of the most pressing concerns of many developing countries, including least developed countries, small island developing states, landlocked developing countries and countries with economies in transition, is the difficulty of elaborating methods for the calculation of fees for use of the radio-frequency spectrum;
- l)* that regional, bilateral or multilateral agreements could be a basis for fostering cooperation in the field of the radio-frequency spectrum;
- m)* that spectrum rearming¹ could accommodate the increasing demand for new and existing radiocommunication applications;
- n)* that spectrum monitoring includes effective use of spectrum monitoring facilities to support the spectrum-management process, the evaluation of spectrum utilization for the purpose of spectrum planning, the provision of technical support for frequency allocation and assignment and the resolution of cases of harmful interference;
- o)* the need, in studying spectrum-management best practices, to make broadband access more affordable to lower-income populations, especially in developing countries,

¹ As noted in Recommendation ITU-R SM.1603, redeployment is also referred to as rearming.

recognizing

- a) that it is the sovereign right of every State to manage spectrum use within its territories;
- b) that there is a strong need for the active participation of developing countries in ITU activities, as expressed in Resolution 5 (Rev. Dubai, 2014) of this conference, Resolution ITU-R 7-2 (Rev. Geneva, 2012) of the Radiocommunication Assembly and Resolution 44 (Rev. Dubai, 2012) of the World Telecommunication Standardization Assembly, which may be represented individually and through regional groups;
- c) that it is important to take into consideration the ongoing work in ITU-R and ITU-D, and the need to avoid duplication of effort;
- d) the successful cooperation between ITU-R and ITU-D to produce the reports entitled "WTDC-98 Resolution 9: Review of national spectrum management and use of the spectrum – Stage 1: 29.7-960 MHz", "WTDC Resolution 9 (Rev. Istanbul, 2002): Review of national spectrum management and use of the spectrum – Stage 2: 960-3 000 MHz"; "WTDC Resolution 9 (Rev. Doha, 2006): Review of national spectrum management and use of the spectrum – Stage 3: 3 000 MHz – 30 GHz"; and "WTDC Resolution 9 (Rev. Hyderabad, 2010): Participation of countries, particularly developing countries, in spectrum management";
- e) the considerable support given by the Telecommunication Development Bureau (BDT) in the compilation of these reports, supporting developing countries;
- f) the successful development of the Spectrum Fees Database (SF Database) and the initial compilation of guidelines² and case studies to assist administrations in extracting information from the SF Database for use in the preparation of fee-calculation models that suit their national requirements;
- g) that, in connection with the ITU-R Handbook on National Spectrum Management and Report ITU-R SM.2012, additional guidelines have been compiled offering various national approaches to spectrum-management fees for spectrum use;
- h) that there is significant activity across multiple ITU-R study groups to address spectrum sharing, which may have implications for national spectrum management and which may be of particular interest to developing countries;
- i) that ITU-R continues to update Recommendation ITU-R SM.1603, which provides guidelines for spectrum redeployment;
- j) that the ITU-R Handbook on Spectrum Monitoring provides guidelines for the installation and operation of spectrum-monitoring infrastructures and the implementation of spectrum monitoring, while Recommendation ITU-R SM.1139 prescribes administrative and procedural requirements for international monitoring systems,

taking into account

- a) No. 155 of the ITU Convention, defining the aim of studies conducted within ITU-R;
- b) the current scope of ITU-R Study Group 1, as defined by the Radiocommunication Assembly in Resolution ITU-R 4-6,

resolves

1 to prepare a report within the next study period on national technical, economic and financial approaches to, and challenges of, spectrum management and spectrum monitoring, taking into consideration development trends in spectrum management, case studies on spectrum redeployment, licensing processes and best practices implemented in spectrum monitoring around the world, including consideration of new spectrum-sharing approaches;

2 to continue the development of the SF Database, incorporating national experiences, and provide additional guidelines and case studies, based on contributions from administrations;

² Here, "guidelines" refers to a range of options that may be used by ITU Member States in their domestic spectrum-management activities.

3 to update the information available in national frequency allocation tables and make the Resolution 9 and ICT Eye portals complementary;

4 to compile case studies and collect best practices regarding national uses of shared spectrum access, including DSA, and study the economic and social benefits arising from the effective sharing of spectrum resources;

5 to continue to gather the necessary information on activities carried out by ITU-D Study Groups 1 and 2, ITU-R Study Group 1 and relevant BDT programmes,

instructs the Director of the Telecommunication Development Bureau

1 to continue to provide the support described in *recognizing e)* above;

2 to encourage Member States from developing countries, at national and/or regional level, to provide ITU-R and ITU-D with a list of their needs with respect to national spectrum management, to which the Director should endeavour to respond, and an example of which is given in Annex 1 to this resolution;

3 to encourage Member States to continue to provide ITU-R and ITU-D with practical examples of their experiences of using the SF Database, development trends in spectrum management, spectrum redeployment and the installation and operation of spectrum-monitoring systems;

4 to take appropriate measures so that work in accordance with this resolution is carried out in the six official and working languages of the Union,

invites the Director of the Radiocommunication Bureau

to ensure that ITU-R continues the collaboration with ITU-D in the implementation of this resolution.

ANNEX 1 TO RESOLUTION 9 (Rev. Dubai, 2014)

Specific needs in spectrum management

The main types of technical assistance which developing countries expect from ITU are as follows:

1 Assistance in raising the awareness of national policy-makers as to the importance of effective spectrum management for a country's economic and social development

With the restructuring of the telecommunication sector, the emergence of competition, high demand for frequencies from operators, disaster mitigation and relief operations and the need to combat climate change, effective spectrum management has become indispensable for States. ITU should play a key role in raising the awareness of policy-makers by organizing special seminars designed specifically for them. To this end:

- In view of how important the regulators have become, ITU might include them in its regular distribution list for circulars providing information about the different education programmes and modules organized by the Union.
- ITU should include dedicated spectrum-management modules in the programmes of meetings (colloquiums, seminars) bringing together regulators and ministries responsible for spectrum management, with private-sector involvement.
- Within the limits of available resources, ITU should make fellowships available for least developed countries' participation at those meetings.

2 Training and dissemination of available ITU documentation

Spectrum management must be in accordance with the provisions of the Radio Regulations, regional agreements to which administrations are parties, and national regulations. Spectrum managers must be able to provide frequency users with relevant information.

Developing countries would like to have access to ITU-R and ITU-D documentation, which must be available in the six official languages of the Union.

Developing countries would also like to see suitable training provided in the form of specialized ITU seminars, in order to help frequency managers gain a thorough knowledge of ITU-R Recommendations, Reports and Handbooks, which are constantly changing.

Through its regional offices, ITU could set up an effective system to provide frequency managers with real-time information on existing and future publications.

3 Assistance in developing methodologies for establishing national tables of frequency allocations and spectrum redeployment

Tables of frequency allocations form the mainstay of spectrum management; they identify the services provided and their category of use. ITU could encourage administrations to make available national frequency allocation tables to the public and stakeholders and facilitate administrations' access to information available in other countries, in particular by developing links between its website and the websites of administrations which have produced national tables of frequency allocations available to the public, allowing developing countries to obtain information on national allocations in a rapid and timely fashion. ITU-R and ITU-D could also compile guidelines for the development of the above-mentioned tables. Spectrum redeployment is sometimes necessary to allow the introduction of new radiocommunication applications. ITU could provide support in this regard by compiling guidelines for the implementation of spectrum redeployment, on the basis of practical experience of administrations and based on Recommendation ITU-R SM.1603 – Spectrum redeployment as a method of national spectrum management.

In certain circumstances, the Telecommunication Development Bureau (BDT) could make available the assistance of its experts for the development of national tables of frequency allocations and for the planning and implementation of spectrum redeployments, at the request of the countries concerned.

To the extent possible, ITU-D should incorporate appropriate issues into its regional seminars on spectrum management.

4 Assistance in setting up computerized frequency management and monitoring systems

These systems facilitate routine spectrum-management tasks. They must be capable of taking local features into account. The establishment of operational structures also enables the smooth execution of administrative tasks, frequency allocation, spectrum analysis and monitoring. According to the specific features of individual countries, ITU can provide expert help in identifying the technical means, operational procedures and human resources needed for effective spectrum management. The ITU-R Handbook on Computer Aided Techniques for Spectrum Management and the ITU-R Handbook on Spectrum Monitoring may provide technical guidelines for setting up the above-mentioned systems.

ITU should improve the Spectrum Management System for Developing Countries (SMS4DC) software (including its availability in the other official languages), and ensure the necessary assistance and training in the implementation of the software in administrations' daily spectrum-management activities.

ITU should provide expert advice to administrations of developing countries and facilitate participation of developing countries in regional or international spectrum-monitoring activities, as necessary. ITU should also provide encouragement and assistance to administrations in setting up regional spectrum-monitoring systems, if required.

5 Economic and financial aspects of spectrum management

ITU-D and ITU-R could, together, provide examples of:

- a) reference frameworks for management accounting;
- b) guidelines for the implementation of management accounting, which could be very useful for calculating the administrative costs of spectrum management referred to in *recognizing g)* of this resolution;
- c) guidelines of the methods used for spectrum valuation.

ITU could further develop the mechanism set up under *resolves 2* of this resolution in order to enable developing countries to:

- learn more about practices in other administrations, which could be useful for defining spectrum fee policies tailored to each country's specific situation;
- identify financial resources to be allocated to the operational and investment budgets for spectrum management.

6 Assistance with preparations for world radiocommunication conferences (WRC) and with follow-up on WRC decisions

The submission of joint proposals is a way of guaranteeing that regional needs are taken into account. Alongside regional organizations, ITU could give impetus to the establishment and running of regional and subregional preparatory structures for WRCs.

With support from regional and subregional organizations, the Radiocommunication Bureau could communicate the broad outlines of decisions taken by the conferences, and thereby contribute to establishing a follow-up mechanism for such decisions at national and regional level.

7 Assistance with participation in the work of the relevant ITU-R study groups and their working parties

The study groups play a key role in the drafting of Recommendations which affect the entire radiocommunication community. It is essential that developing countries participate in study group work in order to ensure that their specific features are taken into account. For effective participation of those countries, ITU could – through its regional offices – assist in running a subregional network organized around coordinators responsible for the Questions under study within ITU-R, as well as by providing financial assistance in order for the coordinators to participate in meetings of the relevant ITU-R study groups. The designated coordinators for the different regions should also assist in meeting the desired needs.

8 Transition to digital terrestrial television broadcasting

Most of the developing countries are currently undergoing the transition from analogue to digital terrestrial television broadcasting. There is thus a need for assistance in many topics, including frequency planning, service scenarios and technology selection, which all in turn affect spectral efficiency and the resulting digital dividend.

9 Assistance in identifying the most efficient ways to utilize the digital dividend

Developing countries, upon completing digital switchover, will have some portions of a very valuable spectrum freed, which are known as the digital dividend. Different discussions are being conducted on how to optimally reallocate, and enable more efficient use of, the relevant part of these bands. In order to maximize both economic and social impacts, it will be appropriate to consider including potential use cases and best practices in ITU's library, and to hold regular international and regional workshops on that subject.

10 New spectrum-access approaches

With the ongoing demand for high data rates, there is pressure on the limited spectrum resource. Developing countries need to be aware of innovative schemes for improving spectrum efficiency and spectrum use, through training, seminars and case studies on actual deployments and trials. Areas of particular importance include:

- sharing information and best practice on the use of dynamic spectrum access (DSA) approaches;
- reviews around the possibility of applying DSA approaches to enable better and more cost-effective provision of services.

11 Online spectrum licensing

As part of smart government, public services are increasingly being offered over mobile and online platforms. The process of spectrum licensing can also be automated, and the process of receiving requests for spectrum use and licensing can be made available online and on smart devices. Training and case studies can be offered to the developing countries in order for them to benefit from the experience of countries that have deployed such systems.