INTERNATIONAL TELECOMMUNICATION UNION

Radiocommunication Bureau
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Administrative Circular
CA/54

4 March 1998

To Administrations of Member States of the ITU and Radiocommunication Sector Members

Subject: 1998 Operational Plan for the ITU-R Sector

Reference: CA/47 of 16 December 1997

1. Please find enclosed the definitive version of the 1998 Operational Plan for the ITU-R Sector. A draft of this plan was submitted to the Radiocommunication Advisory Group (RAG) at its 6th regular meeting held in Geneva from 12 to 16 January 1998 and the advice received from the RAG has been incorporated into this final version.

2. I would like to reiterate, at this point, my concern expressed on earlier occasions that the greatly increased workload in the Radiocommunication Bureau, due largely to the decisions of WRC-97, is not yet balanced by the provision of adequate budgetary resources. This concern, which will be raised in the 1998 session of Council, has been fully shared by the Radiocommunication Advisory Group.

Robert W. Jones
Director, Radiocommunication Bureau

Enclosure: 1998 Operational Plan

Distribution:
- Administrations of Member States of the ITU
- Radiocommunication Sector Members
- Chairmen and Vice-Chairmen of Radiocommunication Study Groups and the Special Committee on Regulatory/Procedural Matters
- Chairman and Vice-Chairmen of the Radiocommunication Advisory Group
- Chairman and Vice-Chairmen of the Conference Preparatory Meeting
- Members of the Radio Regulations Board
- Secretary-General of the ITU, Director of the Telecommunication Standardization Bureau, Director of the Telecommunication Development Bureau

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1998 OPERATIONAL PLAN OF THE RADIOCOMMUNICATION SECTOR

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1 Introduction

This 1998 operational plan, for the ITU-R Sector and, in particular, for the Radiocommunication Bureau, sets out the activities planned to be undertaken during the year. In the Bureau, the activities fall into two general categories: ongoing work and special projects or studies having a fixed duration. This document will be used as the basis for the effective management of the Bureau's activities. The progress in the organizational units of the BR in achieving these objectives are assessed by means of their quarterly reports, which are an additional internal management tool. The operational plan flows from the strategic plan as adopted by the Kyoto Plenipotentiary Conference in its Resolution 1.

The year 1998 will be even more challenging for the Bureau and for the Sector than previous years. In terms of ongoing activities, the workload placed upon the Bureau, most of which is treaty-based, has been increased considerably by WRC-97. In addition to these growing demands in the ongoing activities of the Bureau, work is also expected to continue on the special projects and studies requested by the World Radiocommunication Conference. Greater use of computer-based tools is being pursued. Only very limited additional budgetary resources have been made available by the 1996 session of Council and these expired at the end of WRC-97. The priorities set in preparing previous operational plans have been reviewed and this plan again sets out areas where activities will have to be curtailed due to lack of resources. This operation will have a severe impact on all of the Bureau's activities.

The Radiocommunication Advisory Group (RAG) has reviewed this plan and the priorities set out in it. The group expressed its concern on the large dependency of this plan on adequate support from the Member States and the Sector Members to achieve the expected results, in particular with respect to anticipated results from the work of the Study Groups.

The RAG also evaluated the potential consequences of a lack of adequate resources, in view of the likely difficulties to obtain all necessary funds. It advised to give priority to the ongoing processing of frequency notifications, but recognised the importance of the other activities.

Every effort will be made to obtain additional resources, including through the provision of voluntary contributions both in kind and cash. Despite the uncertain results of such efforts, the Bureau will do its best to maintain the level of quality for which it is known but, generally speaking, there is little doubt that the level and quality of service in 1998 will not be as one would wish.

2 Treatment of frequency notifications

2.1 Space notifications

2.1.1 Tasks and objectives

2.1.1.1 Ongoing tasks

The main tasks of the Space Services Department are directly related to the application of the Radio Regulatory procedures. These tasks are the reception, capture, validation and publication of notices through the Space Network System (SNS) containing all space-related data (characteristics of stations in space networks) as well as the regulatory and technical examination of the notices with a view to their inclusion in the Master International Frequency Register (MIFR). The processing of

frequency assignment notices for space radiocommunication services falls into the following general categories:

- advance publication of information pertaining to satellite networks;
- coordination requests pertaining to satellite networks;
- modifications to frequency assignment/allotment Plans;
- notifications for recording in the Master Register;
- establishment and maintenance of the space databases;
- assistance to administrations in the above activities;
- participation in the ITU-R conference and Study Group activities.

The general objective is to process the above notices and to undertake the activities in a timely manner and, in all those cases when there is a regulatory time limit specified, to satisfy this requirement. It should be noted that in the last years, due to the rapidly increasing volume of notices and resources problems, the Bureau has had to take some decisions on prioritisation of the tasks of the Space Services Department. Consequently, the Bureau will not be able to process any more RR1107 type coordination requests (Earth station coordination) and cannot provide technical assistance particularly to developed countries on such complex issues as search for or optimisation of orbit positions, or complex interference calculations, etc. Also, all activities concerning Article 13 were already put on a lower priority in 1996 resulting in significant backlogs in this domain.

2.1.1.2 Post Conference activities

As with past Conferences, WRC-97 also charged the Bureau, and through it, the Space Services Department with important post-Conference tasks. The following is a summary of these tasks:

- Art. S9 (S9.30): As of 1 January 1999, space-to-space coordination requests will no longer be sent by the requesting administration to other potentially affected administrations. The Bureau's publications will become the only starting point of the coordination procedure. This puts on the Bureau the burden to try to eliminate, by the end of 1998, most of its backlog and be ready to process coordination requests (including all regulatory and technical examinations) within the statutory 3 month period for all RR1060 (S9. - S9.11A) type coordination requests (Resolution 33, Resolution 46, etc.). As a consequence, and in order to assure the proper protection of some network/station types (non-GSO networks, Earth stations vis-à-vis terrestrial stations and vice-versa), the elimination of the processing delays in the area of Article 13 (notification) would also be an important factor. The general objective would be to have a unique processing queue for all related cases in the coordination and notification procedures.
- Resolution 32/PLEN-3 contains decisions related to a possible new, complete revision of AP30/AP30A for Regions 1 and 3. The organisation of the work related to these "replanning" studies will represent a considerable task for the Bureau.
- Resolution 533/PLEN-4 (Implementation of the decision of WRC-97 relating to AP S30 and S30A) includes the following tasks:
  - to review all previously published AP30/E and AP30A/E Special Sections against the Plan adopted by WRC-97and publish corrigenda when required;
  - to continue to process Article 4 (AP30/AP30A) modifications in the backlog;
  - to review all previously published coordination requirements (AP30/C and AP30A/C) between FSS and the new version of AP30/AP30A adopted by WRC-97 and publish corrigenda where required.

- Resolution 73/COM4-15 tasks the Bureau to take several measures to try to resolve the incompatibility problems between BSS in Region 1 and FSS in Region 3 in the band 12.2-12.5 GHz.
- Resolution 49/GT PLEN2-1 introduced as of 22 November 1997 the administrative due diligence procedures applicable to FSS, BSS and MSS services. This implies the development of appropriate internal procedures, the adaptation of databases and the processing of data and their publication in new Special Sections.
- Resolution 130/COM5-18 and Resolution 538/COM5-19 implement new procedures for the utilisation of non-GSO networks in certain FSS frequency bands and also in the frequency bands AP30/30A applies. There will be a need to:
  - develop rules;
  - develop new software, and
  - apply the new procedures to submissions received after 22 November 1997.
- Resolution 132/COM 5-27 regulates the use of the bands 18.8-19.3/28.6-29.1 GHz by networks operating in the FSS. The application of the Resolution implies the review of findings for non-GSO systems in these bands notified before18.11.1995.

The general objective is to follow the instructions of the above Resolutions and to undertake the activities in a timely manner.

2.1.2 Workload situation

Over the last several years, there has been a regular increase in the workload associated with space services with a very high level of increase in 1995, 1996 and 1997 (see **Figure 1** below). The increasing number of submissions is accompanied by growing complexity of the space networks reflecting the technological and commercial evolution. In addition, there is also an increasing workload associated with conference decisions. Due to the above evolution and the fact that, in recent years, staff resources and software assistance could not follow the rate of the increasing workload and in spite of the measures taken and the resulting higher rate of productivity, delays in treatment of material received represent a continuing problem. The most critical areas of processing delay is the satellite network coordination (examination and publication of AR11/C type Special Sections) and Plan modification procedures where the publication delay (at the end of 1997) is still about 18 to 24 months, respectively.

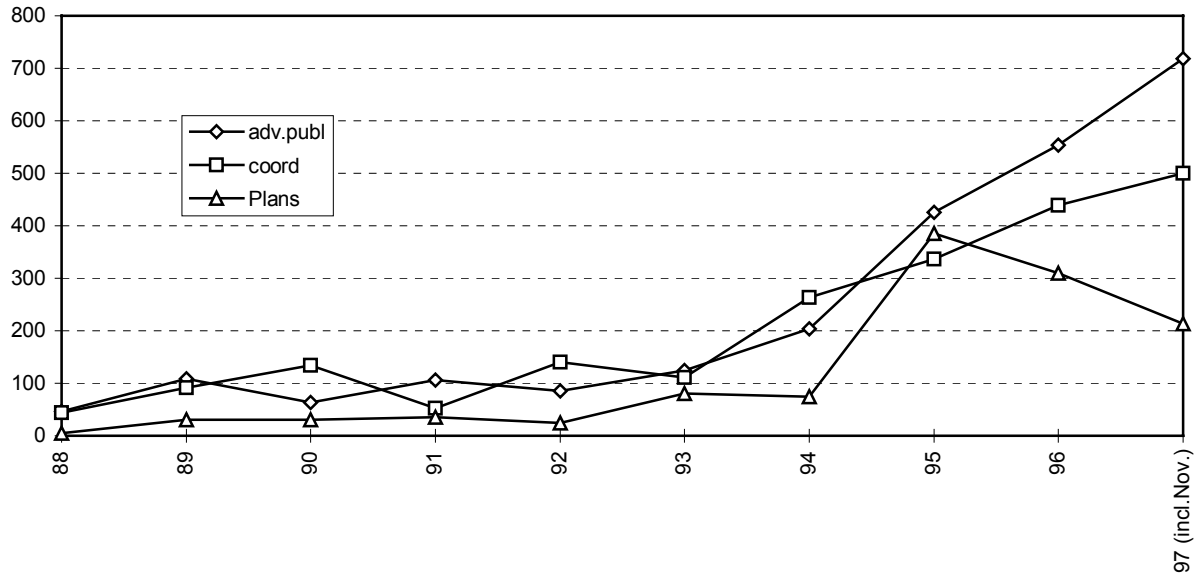

FIGURE 1

Evolution of the number of space networks (submissions received)

2.1.3 Measures taken

To absorb the above workload in 1997, the Bureau undertook several measures. It reassessed its priorities in order to reinforce and better streamline the activities of the Space Services Department. Also the Council in 1995 and 1996 decided to allocate some additional financial provision for processing space-related notices and software development. This measure, combined with the partial freezing of some posts becoming vacant in 1998 and 1999, permitted the Bureau to fund some fixed-term staff who have been working on the two most critical areas of space coordinations and Plan modifications (5 x P4 and 11 G4/G5, each under an 11 month short-term contract).

The productivity in the field of processing notices (coordination and notification procedures, data capture, and regulatory and technical examinations) and the rate of publications have considerably increased. This result was, however, counterbalanced by the even greater increase of the workload. The Bureau is implementing other measures to cope with this situation of increasing input notice flow and to diminish the processing delay by the Bureau. Such measures are: electronic submission of information, direct “read only” access to the MIFR and to satellite network files. These measures will, hopefully in the medium term, speed up the processing of data and will be very useful also to administrations in their own activities.

In this context, it should be noted, that the ever growing workload in terms of the increasing number and complexity of space networks communicated to the Bureau does not necessarily represent real telecommunication requirements. The over-filing phenomenon does not only load the coordination capacity of the Administrations, but it particularly affects the Bureau and misuses its scarce resources.

2.1.4 Resources

In spite of all the efforts in recent years, the working environment and conditions of the Space Services Department (manpower and computer support) could not evolve proportionally with the growing workload of recent years. The decisions of the last two WRCs charged the Bureau with such additional tasks that added further difficulties and complexity to the already difficult situation.

Present studies on trends of the volume of satellite coordination submissions (for Resolution 18 and other studies) indicate that there will be no reduction in the number of coordination requests to be processed by the Bureau. It should also be realised that the use of electronic notification and access to the ITU database by administrations will not yield any significant alleviation in the very short term. It is worth mentioning that a further possibility for prioritisation of the work in SSD has been examined. It was found that none of the remaining tasks still being executed after the prioritisation already undertaken in 1995 and 1996 can be suspended. The fact is that close to 30 % of the staff working on space matters is employed on the basis of short term contracts which may be discontinued in 1998 if there is no continuing support (additional budget allocation) for these activities (see also the general remarks on the advice from the RAG in the introduction).

Depending on the additional resources possibly made available for SSD, the following scenarios may be envisaged:

a) if, because of the non-availability of additional funds, the short term contracts mentioned in § 2.1.3 above are not extended (or transformed into 2 year fixed term contracts), SSD will only be able either to continue to support the "replanning" exercise of Appendices 30/30A stipulated by Resolution 532/PLEN-3 (WRC-97) or (but not both activities) to continue the ongoing activities by processing notices for Article 4 of these Appendices. In addition, because of the growing input, all the other processing delays (Articles 11/13, and Plan modifications) will continue to increase. None of the other post-conference activities can be undertaken.

b) if, the Council makes a limited allocation to cover the extension of the currently available and trained staff having short term contracts (about 2 millions) for the remaining 1 year and a half in 1998 and 1999, SSD will be able to cover both the "replanning" work and also to continue processing coordination requests and plan modifications to the same extent as at present (with the known delays in treatment). Such a limited budget allocation will not, however, permit to undertake the other activities listed in § 2.1.1.2 above and will not allow the reduction of the processing delays of the Bureau's ongoing activities.

c) in order to undertake all the post-Conference tasks and to achieve a substantial reduction of the processing delays, a major investment would be needed (~200 P4/P3 person-months and ~200 G4/G5 person-months) for each of the coming two years. It should, nevertheless, be mentioned that, due to recruitment and accommodation difficulties, the results of such an exercise would be seen only gradually after 1998. A detailed analysis of the required additional resources is contained in the Council document on the subject.

2.2 Terrestrial notifications

2.2.1 Tasks and objectives

In 1998, the Terrestrial Services Department (TSD) will continue to process notices for terrestrial services, i.e. capture and validate data, apply the regulatory procedures including examination of conformity with the Radio Regulations and various frequency assignment and allotment plans as contained in the Radio Regulations or annexed to Regional Agreements. This processing also involves, for specific bands, the calculation of probability of harmful interference. Terrestrial notices cover the terrestrial broadcasting services, the fixed and mobile services as well as other services such as radionavigation, standard frequency and time signal, and meteorological aids. As a result of successful regulatory and, where required, technical examinations, the assignments are recorded in the Master International Frequency Register.

Other objectives pursued in the Terrestrial Services Department concern assistance to administrations, monitoring, allocation of international means of identification, seminars, editing and publication of service documents and ITU-R Recommendations, Handbooks, etc. These are reported on in the respective sections of this operational plan.

As reflected in **Figure 2** below, the workload over the last six years has considerably increased (more than 100% between 1990 and 1997). This trend is expected to continue in 1998 with the prospect of, as a result of decisions taken by WRC-97, an increase in the number of terrestrial notifications in the bands shared with the space services.

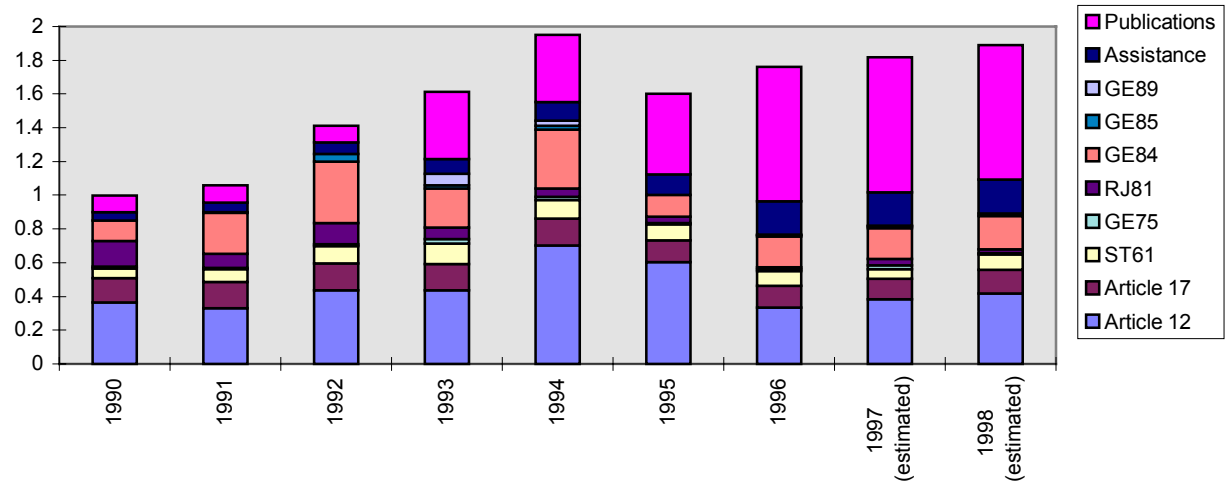

FIGURE 2

Terrestrial Services Department relative workload

2.2.2 Tasks related to registration and publication of frequency assignment notices

It is estimated that some 50 000 notices (RR Article 12) will be received in 1998. The Bureau expects to process each notice within the maximum regulatory period allowed of six weeks following its receipt.

In addition, some 7 800 notices dealing with the various plans **(AP25, AP26, AP27, ST61, GE75, RJ81, GE84, GE85MM, GE85EMA, GE89, RJ88)** will require treatment in 1998. The Bureau should be able to treat each notice within the maximum regulatory period of four weeks following its receipt. However, owing to the priority given to the development of the new planning system for HFBC, as decided by WRC-97, some backlog may arise.

The processing of notices for the High Frequency Broadcasting Service (HFBC) is currently governed by **RR Article 17** until the end of 1998. This processing, which deals with 40 000 notices per year, is carried out on a weekly basis resulting in the publication, every month, of the Tentative Schedule on diskette (see also § 3.8 below).

The organization of regular **monitoring** reports will be carried out on a yearly basis.

Most of the above procedures are currently under review as part of the development of a new frequency management system for the terrestrial services **(TerRaSys)**. More resources will have to be devoted in 1998 for the provision of specific user requirements, review of design concepts and testing of software developed to ensure that the project will be advanced as much as possible in 1998 (see also § 2.3). The rapid evolution of computer technology over the last 15 years, when the existing system was introduced, facilitates the adoption of new approaches which, however, will necessitate staff training and adaptation.

2.2.3 Tasks related to broadcasting services

The regulatory and technical examination of broadcasting notices to modify the broadcasting **Plans** will continue to be carried out within a period of three months following the receipt of complete notices. **Table 1** shows the estimated number of notices foreseen in 1998.

TABLE 1

Estimated number of notices for broadcasting Plans

Plan	No. of notices
ST61	3600
GE75	150
RJ81	200
GE84	3500
GE89	400

In addition, approximately 6 000 notices will be examined through the application of **RR Article 12** for their conformity to the Plan and/or to other provisions of the Agreement before they are recorded in the Master International Frequency Register.

The technical examination of high-frequency broadcasting notices under Article 17 involves the identification of severe incompatibilities, the selection of appropriate bands and frequencies when requested by administrations and the preparation of the Tentative Schedules.

Some 80 notices will require the application of Article 14 for the coordination of broadcasting assignments in the bands shared with broadcasting or other services.

2.2.4 Tasks related to the fixed and mobile services

Notices received under **RR Article 12** for the fixed and mobile services will be examined within the regulatory time-frame established in the Radio Regulations. In 1998, TSD will continue to be responsible for the examination of terrestrial notices for assignments in the bands shared with the space services. Although WRC-95 decided to suspend the technical examinations in the non-planned bands below 28 000 kHz, this examination is still required for the planned bands.

Other regulatory procedures related to the fixed and mobile services and described in the Radio Regulations as well as in relevant Resolutions and Regional Agreements are expected to generate the workload indicated in **Table 2**.

TABLE 2

Estimated number of notices for fixed and mobile services under Regional Agreements and certain Resolutions

RR Provision	No. of notices
AR14	10
AR16	30
GE85	20
RS300	50
RC402	10

In accordance with Resolution COM4-7(WRC-97) the Bureau will issue, in 1998, appropriate guidelines concerning the notification of frequency assignments to adaptive systems.

2.2.5 Tasks related to the administrative and operational procedures

The Bureau will continue to provide assistance to administrations in the application of administrative and operational procedures which constitute a significant part of the Radio Regulations. It is expected that, in 1998, the Bureau will receive about 200 requests dealing with the allocation of series of call signs, blocks of selective call numbers and Maritime Identification Digits (MID). This examination is undertaken in accordance with Article 25, Appendix 43 and Resolution 13 (Rev. WRC-97) as well as ITU-R and ITU-T Recommendations. The Bureau will continue to monitor the status of the MMSI resource, as requested by Resolution 344/COM4-5(WRC-97), so as to propose appropriate remedial action before the resources are exhausted.

Other requests under Articles 55 and 56 (30 cases), AP43 (30 cases), Resolution 331 (10 cases), and Article 32 (10 cases) are also foreseen.

The Bureau will also review the provisions of the Radio Regulations containing references to ITU-R or ITU-T Recommendations, as requested by Resolution 27(Rev.WRC-97).

2.2.6 Post-Conference Activities

The following tasks, decided by WRC-97, will also have an impact on the workload of the Terrestrial Services Department:

- Resolution 644/PLEN-1 requests the Bureau to support the work related to the proposed Convention on the Provision of Telecommunication Resources for Disaster Mitigation and Relief Operations. The Bureau may be required to take over the tasks of Technical Coordinator which involves the development and maintenance of a number of databases.
- Resolution 535/COM4-6 gives the Bureau the task to develop Rules of Procedures as well as software to implement the new Article S12.

  Work is required to complete a data capture module that permits the capture of all data elements detailed in Description 2 of Resolution 535/COM4-6. This module must be modified and be distributed to administrations in February or March 1998 for testing. Substantial work is required to reduce the amount of data produced, format the data for CD-ROM distribution and to complete a user program to easily view results and perform "what-if" simulations. A complete analysis of this module will be developed based on the work of

the NTIA/ITS and their REC533W program. Some work is required to use of the data in the format produced by the data capture program. Finally, a technical analysis module is required to assess the compatibility of a requirement in the presence of other requirements.

Depending on the resources allocated to this project and of assistance provided by administrations, the implementation of parts of this software might be delayed. In that case, only part of the software package would be available at the date of implementation of Article S12.

An important task given to the Bureau will consist of coordinating the requirements submitted by Administrations requesting it.

- Resolution 537/COM4-14 requests the Bureau to conduct, as a matter of urgency, the first survey of transmitter and receiver statistics called for in Resolution 517.
- Resolution 29/COM4-16 also requests the Bureau to consult Administrations concerning the use of the WARC-92 extension bands and to present a report to CPM-99.
- With Resolution 30/COM4-17, the Conference adopted a new approach to the publication of the Weekly Circular, including the Special Sections. The Bureau will undertake the software development as well as a testing program to introduce the new CD-ROM formats.
- The Bureau will have to undertake a review of the Master Register with a view to reflecting the changes to the Table of frequency allocations (e.g. suppression of S5.148 and consequential actions relating to Resolution 8) as well as those decisions that are related to the adoption of new procedures (e.g. Resolution 122/COM5-7).

2.3 Software development

In order to accommodate the increasing volume and complexity of space notices and following the provision of software for electronic notifications including graphical data that will enable administrations and allow the Bureau to capture, validate and correct space notices on a PC, emphasis in 1998 will be put on the improvement of the Bureau's infrastructure to process the notifications and to publish the results more rapidly. Development and implementation of the new terrestrial application software will concentrate on the biweekly terrestrial CD-ROM publication combining the IFL and Plan data, the complete VHF sound broadcasting and television broadcasting portions of ***TerRaSys***, including data capture of paper notices, receipt of electronic notices, validation, examinations, etc. (for *beta* testing within the Bureau) and distribution to administrations of a Windows NT program which tests for proper syntax, consistency, and completeness of VHF sound broadcasting and television broadcasting electronic notices prior to submission to ITU (for *beta* testing). For space applications, emphasis will be put on the integration of all notification data, the accessibility of that data by all relevant production systems a global publication system and, last but not least, the completion of the migration from the Siemens' environment to the PC/network environment.

All software will be developed for Windows NT only, a decision which the Radiocommunication Advisory Group accepted in view of the lack of adequate resources to also cover other operating systems. However, every effort will be made within the resources available, to also cover Windows 95. Respective workplans for all development work related to the processing of notices are shown in **Table 3**. These workplans are based on several assumptions, the most important being that the existing personnel and structures remain operational throughout the year.

TABLE 3

Workplans for the provision of application software for the processing of notifications

For terrestrial applications:

Milestone or Product Delivery	Quarter
Completion of all **FMS** → ***TerRaSys*** data conversion programs. Completion of FM/TV data capture screens.	March 1998
FM/TV data capture for *beta* testing, integrated in ***TerRaSys* Mæstro**. FM/TV examinations integrated in ***TerRaSys* Mæstro**.	June 1998
Distribution to administrations for *beta* testing of the new, biweekly terrestrial CD-ROM publication for use with Windows NT.	September 1998
Provision for *beta* testing within the BR of the complete VHF sound broadcasting and television broadcasting portions of ***TerRaSys***. Distribution to administrations for *beta* testing of a Windows NT program which tests VHF sound broadcasting and television broadcasting electronic notices prior to submission to ITU.	December 1998

For space applications:

Provision of integrated database on PC/network Completion of PC data capture system Extension of WWW to Plan data and enhanced query tools Provision of tools to support BR production and administrations	March 1998
Provision of publication system for Plans Special Sections as part of Global space publication system Provision of GUI for IDWM Provision of tools to support BR production and administrations	June 1998
Integration of GIMROC and GIMS on PC Interface between MSPACE and SNS/SPS database Reference data on PC	September 1998
Integration of GIMS on PC with SNS/SPS Accommodate Space Plans Art. 4 in SNS processing Complete migration from Siemens to PC	December 1998

3 Study Group Activities

The current work programme of the ITU-R Study Groups is defined by some 400 Questions approved at RA-97 and by those Resolutions and Recommendations, approved by WRC-97, which request studies by ITU-R.

Sections 3.1 - 3.8 below describe the priority items within the Study Group work programme to be undertaken in 1998. The related studies will be managed in the BR Study Group Department (BR/SGD). Its role will be to stimulate, guide and monitor the work, and subsequently to process the results into the desired form. Where necessary, Counsellors will ensure liaison with other entities, including ITU-T and ITU-D. Counsellors will also undertake the technical editing of the foreseen handbooks.

To address the foreseen work programme and to maintain an acceptable standard of resulting documentation, each Study Group will require the full-time employment of a Counsellor - a requirement that is not currently met for Study Groups 1 and 7. Moreover, the servicing of the CPM and the Special Committee will represent an additional load on existing resources. For the management of the busier Study Groups (e.g. SG 8), additional professional support (one P3) is required in SGD if the full work programme is to be accomplished.

The complete schedule of 1998 ITU-R Study Group Meetings, as decided at the meeting of the ITU-R Study Group Chairmen and Vice-Chairmen (25 and 27 November 1997) can be found on the ITU WWW site under "Radiocommunication", then "Meetings Schedule".

3.1 Activities related to Study Group 1 - Spectrum management

3.1.1 Studies related to CPM-99

Material will be prepared on unwanted emissions, including the development of spurious emission limits for space services (WRC-99 agenda item 1.2); development of method(s) for the determination of the coordination area around Earth stations (agenda item 1.3).

3.1.2 On-going studies

New and revised Recommendations will be developed on multi-service telecommunication systems; the performance of digital communications systems in the presence of Gaussian noise, unwanted transmissions and unintentional emissions; classification of DF-bearings; method of measuring the maximum frequency deviation of FM broadcast emissions at monitoring stations; exchange of information between monitoring stations; essential (minimum) requirements for a spectrum monitoring station for developing countries; low-power radar gauge devices; Radiocommunication Data Dictionary.

Amongst the assistance provided to developing countries, the SG will place emphasis on the use of the Basic Automated Spectrum Management System (BASMS) including its improved multi-language version in Windows (WINBASMS), and the development of a new spectrum management booklet and a brochure describing spectrum management information available from the BR.

A Handbook on “Computer Aided Techniques for Spectrum Management” will be completed for intended publication in the fourth quarter of 1998.

3.2 Activities related to Study Group 3 - Radiowave propagation

3.2.1 Studies related to CPM-99

Material will be prepared in response to requests by other Groups on propagation aspects of various WRC-99 agenda items; particular emphasis will be placed on the propagation bases for the revision of Appendix S7 (WRC-99 agenda item 1.3).

3.2.2 On-going studies

New or revised Recommendations will be developed on ionospheric effects on satellite-to-satellite paths; obstacle diffraction; global mapping of radiometeorological parameters; digital databases of terrain features; vegetation loss; fade-duration modelling; refraction on Earth-space paths; propagation aspects of earth station coordination; propagation effects on the performance of digital terrestrial links; improved models for low and varying elevation angles on Earth-space paths (non-GSO FSS and MSS); improved modelling of transionospheric effects.

Studies by correspondence will also be undertaken on: general curve-based method for point-to-area prediction at VHF and UHF for terrestrial broadcasting and mobile services; outdoor short-path propagation prediction; deterministic prediction using a digital terrain database; system performance and reliability for digital modulation techniques at HF.

In addition to CPM-99 studies, the WPs will respond to requests for propagation information relating to: IMT-2000; diffraction calculation in interference studies; interference into spaceborne passive sensors; stratospheric relay stations; wide-band HF channel simulation.

SGD will finalise the handbook “The ionosphere and its effects on radiowave propagation” for publication in the first quarter of 1998. Also, the handbook "Radiowave propagation information for predictions for terrestrial path communications" will be completed for publication in the last quarter of 1998.

All WPs, supported by SGD, will continue to collect measurement data, particularly from tropical, low latitude regions, to augment the existing databanks of Study Group 3 used in the development and testing of prediction methods.

3.3 Activities related to Study Group 4 - Fixed-satellite service

3.3.1 Studies related to CPM-99

Material will be prepared on sharing between the FSS and other services in the band 40.5 - 42.5 GHz (Resolution 129/COM5-17 (WRC-97), WRC-99 agenda item 1.4); the development of interference criteria and methodologies for FSS coordination between feeder links of NGSO networks in the MSS and GSO networks in the FSS in the bands 19.3 - 19.7 GHz and 29.1 - 29.5 GHz (Resolution 121 (Rev. WRC-97), agenda item 1.12); studies of the feasibility of implementing feeder links of NGSO networks in the MSS in the band 15.43 - 15.63 GHz (space-to-Earth) while taking into account the protection of the radio astronomy service, the earth exploration-satellite (passive) service and the space research (passive) service in the band 15.35 - 15.4 GHz (Resolution. 123/ COM5-8 (WRC-97), agenda item 1.14); the use of the frequency bands covered by Appendices 30 and 30A by NGSO Systems in the FSS (Resolution 538/COM 5-19 (WRC-97)).

3.3.2 On-going studies

New or revised Recommendations will be developed on frequency sharing of NGSO MSS feeder links and the aeronautical radionavigation service in the 5 GHz band to resolve any remaining difficulties; on the sharing between stations in the fixed-satellite service and earth exploration satellite service near 19 GHz; performance requirements for satellite systems handling digital transmission links in general and ATM traffic in particular; a third edition of the Handbook on satellite communications (FSS) to include recent developments in the field of satellite communications - intended publication in the third quarter of 1998.

3.4 Activities related to Study Group 7 - Science Services

3.4.1 Studies related to CPM-99

Material will be prepared on protection of the RAS in the band 42.5 - 43.5 GHz (Resolution 128/ COM5-16, WRC-99 agenda item 1.4); allocation to NGSO MSS in the MetAids band 405 - 406 MHz (Resolution 219/COM5-25, agenda item 1.11); allocation of bands above 71 GHz to EES and RAS (Resolution 723/COM5-1, agenda item 1.16); world-wide allocation for EES and SRS in band 18.6 - 18.8 GHz (agenda item 1.17); telecommand links in SRS and SOS in range 100 MHz - 1 GHz (agenda item 8.6); EES in band 420 - 470 MHz (agenda item 8.7).

3.4.2 On-going studies

New or revised Recommendations will be developed on preferred frequency bands and typical bandwidths for the transmission of space VLBI data; typical characteristics of data relay satellite systems; high data rate transmission in future lunar missions; harmful interference acceptable by the radio astronomy service; the protection of radioastronomical measurements above 60 GHz; the quasi-quiet zone in the vicinity of the L_2 Sun-Earth Lagrangian point; sharing between the NGSO MSS downlink and Earth exploration satellites (Earth-to-space) and meteorological satellites (Earth-to-space); sharing and coordination criteria for data dissemination and direct data readout systems in the Earth exploration-satellite and meteorological-satellite services using satellites in geostationary orbit; spectrum requirements for satellite passive remote sensing in the bands above 70 GHz.

3.5 Activities related to Study Group 8 - Mobile, Radiodetermination, Amateur and related Satellite Services

3.5.1 Studies related to CPM-99

Material will be prepared on additional spectrum for IMT-2000 (WRC-99 agenda item 1.6); use of HF bands by aeronautical and maritime mobile services (Resolution 346/COM4-9, agenda item 1.7); additional allocations to MSS and related sharing studies (Resolutions 213, 214, 218/COM5-24, 220/COM5-31, agenda items 1.9, 1.10 and 1.11); additional allocations for RNSS (agenda item 1.15); VHF maritime MS (Resolution 342/COM4-3, agenda item 1.18); aeronautical and maritime MS at 500 kHz and in HF bands, and aeronautical MSS in 14 GHz band (agenda items 8.3, 8.4 and 8.5).

3.5.2 On-going studies

New or revised Recommendations will be developed on digital dispatch traffic systems; RLANs; sharing between BSS and land MS in 1.4 and 2.3 GHz bands; improvement of disaster communications using amateur, aeronautical and maritime mobile services; WLL; related topics on GMDSS; sharing among BSS/MSS/aeronautical telemetry in 1.4 and 2.3 GHz bands; Automatic Identification System (AIS) standard being coordinated by IALA to meet the IMO Operational Performance Standards; next generation digital maritime mobile technology; spurious emissions of radars above 6 GHz; effects of propagation in the design of NGSO systems with satellite diversity; spurious emission limits for MSS stations; performance objectives for MSS, including feeder links; sharing model for NGSO FDMA MES/land MS below 1 GHz; sharing aspects of RNSS; sharing between NGSO MSS/FS (e.g., SCP methodology); evaluation of radio transmission technologies and consensus building process on the key choices for radio interfaces for IMT-2000; methodology for the calculation of IMT-2000 satellite spectrum requirements.

Volume 3 of the Land Mobile (including Wireless Access) Handbook on Engineering Models will be prepared as well as a revised edition of Volume 1 (WLL systems), for publication in the third quarter of 1998.

3.6 Activities related to Study Group 9 - Fixed Service

3.6.1 Studies relating to CPM-99

Material will be prepared on stratosphere repeaters (Resolution 122/COM5-7, WRC-99 agenda item 1.5); the use of the bands above 30 GHz by high density systems in the fixed service (Resolutions 126/COM5- 11, 726/COM5-12 and 133/COM5-28, agenda item 1.4); the determination of coordination area for earth stations, which are to be used as a basis for a revised Appendix S7 of the Radio Regulations (agenda item 1.3).

3.6.2 On-going studies

New or revised Recommendations will be developed on performance limits for bringing-into-service and maintenance of digital radio-relay systems (DRRS) compatible with SDH network and ATM traffic; error performance objectives for real DRRS at constant bit rates digital paths at or above the primary rate and below primary rate; availability requirements for DRRS aligned to ITU-T Recommendation G.827; evaluation of effects of propagation on error performance and availability of DRRS; fixed service systems using relays located at fixed points in the stratosphere; use of frequency bands above 30 GHz and radio-frequency channel arrangements; fixed wireless access issues; radio-relay systems for SDH-based systems and telecommunication management networks; use of adaptive spread spectrum communications in the HF bands by the FS; simulation of HF transmission through an ionospheric channel; sharing criteria for the FS systems operating in frequency bands below 1 GHz; planning and design of new FS systems in the bands 2 025 - 2 110 MHz; sharing studies between MSS and FS below 3 GHz; sharing between BSS(sound) and FS in the 1 452 - 1 492 MHz band; sharing between FSS and FS operating on the same frequencies in the range 30 - 52 GHz; sharing criteria for stratospheric high density systems using the same frequency bands with systems in the FSS; sharing between non-GSO FSS networks and radio-relay systems; determination of coordination area for earth stations.

Preparatory work will commence on a Handbook on adaptive HF systems and networks, for eventual publication in 1999.

3.7 Activities related to Study Group 10 - Sound Broadcasting

3.7.1 Studies relating to CPM-99

Although not directly referred to CPM-99, WRC- related studies will be undertaken to define a set of Recommendations specifying a digital sound broadcasting system (at HF, MF and LF) leading to a single common world-wide receiver.

3.7.2 On-going studies

New or revised Recommendations will be developed on the definition of recommended planning procedures for terrestrial digital sound broadcasting up to 1.5 GHz (including sharing conditions with other services); multichannel sound broadcasting systems, subjective sound quality assessment and suitable coding systems for digital sound broadcasting at frequencies below 30 MHz; objective perceptual methods for sound quality assessment; high-capacity data multiplexing with FM emissions.

A Handbook on LF-MF system Design (of particular importance to developing countries) will be finalised in 1998 for publication in 1999, and preparatory work will commence on a future Handbook on FM sound broadcasting.

3.8 Activities related to Study Group 11 - Broadcasting Service-Television

3.8.1 Studies related to CPM-99

Material will be prepared on the review and possible revision of the 1997 BSS Plans for Regions 1 and 3 (Resolution 532/PLEN 3); studies relating to the use of the frequency bands covered by Appendices 30 and 30A by non-GSO systems in the fixed-satellite service (Resolution 538/ COM5-19).

3.8.2 On going studies

New or revised Recommendations will be developed on the definition of planning parameters and procedures for analogue and digital terrestrial television broadcasting; digital TV taking into account the introduction of bit-rate reduction coding techniques and computer based broadcasting equipment into broadcasting chains; quality evaluation for television; interactive television services; provision of digital and analogue broadcasting using direct broadcasting satellites; standardised parameters important for the transmission of recorded signals and for international programme exchange; the field of audio, television recording and archival and on the use of film in television; parameters for digital systems for ancillary information accompanying the signals of TV programmes.

3.9 Conference Preparatory Meeting (CPM)

The first Conference Preparatory Meeting for WRC-99 has decided that all inputs from Study Groups for the purpose of developing the CPM Report to the 1999 World Radiocommunication Conference must be completed by 9 November 1998. A meeting of Study Group/responsible Group Chairmen, CPM Chapter Rapporteurs and CPM Chairman and Vice-Chairmen will be held in mid-November 1998 to prepare a draft CPM Report according to the structure adopted by the first CPM.

3.10 Special Committee (SC)

In line with instructions outlined in Resolution ITU-R 38-1, and in accordance with the decisions of the WRC-97 and CPM-99, all appropriate regulatory/procedural studies on relevant agenda items of WRC-99 and WRC-01 will be carried out by the Special Committee on the basis of proposals from membership of the ITU and input from the relevant ITU-R Working Parties/Task Groups/Joint Rapporteur Groups. The SC will act as responsible body for consideration of the issues related to agenda item 1.20 (“to consider the issues related to the application of Nos. S9.8, S9.9 and S9.17 and the corresponding parts of Appendix S5 with respect to Appendices S30 and S30A, also taking into consideration Recommendation 35(WRC-95”).

The Bureau will continue to support the work of the four Rapporteur groups, which are established with a view to study the regulatory/procedural aspects of the various agenda items of WRC-99 and WRC-01.

4 Radio Regulations Board (RRB)

The Radio Regulations Board will meet four times in 1998. Input to the meetings will be prepared by the Secretariat in the form of reports and draft Rules of Procedure. Each meeting is supported by the Director in his function as Executive Secretary and by the staff of the Bureau as required. The 1998 work programme will include a review of the entire set of the Rules of Procedure in the light of the decisions of WRC-97, including the provisional application of the simplified Radio Regulations as from 1 January 1999.

5 Radiocommunication Advisory Group (RAG)

The RAG met in January 1998 to review relevant decisions of 1997 Council, the outcome of the RA-97 and WRC-97 and reviewed once more the priorities and strategies for ITU-R activities for the forthcoming plenipotentiary period 1999-2003. Effective coordination of activities among the advisory bodies of the three Sectors will be ongoing in the forthcoming year. The Bureau will support the work of the RAG through the submission of documents such as this operational plan, the draft ITU-R input to the new ITU strategic plan, material on post conference work and by providing administrative assistance. It is expected that the advice provided by the RAG to the Director will contribute to enhance services to Member States and Sector Members.

6 1998 Session of the Council and PP98

The Bureau will contribute to the report on the activities of the Union. In this context, it will report on RA-97 and WRC-97 as well as on the work of the RRB and the RAG. The Bureau will also report on the proposed procedures for cost recovery under Council Resolution 1113. The Director and staff of the Bureau will provide assistance to the Council as required and contribute to the preparations for the 1998 Plenipotentiary Conference.

6.1 Cost Recovery (Council Resolution 1113)

6.1.1 The 1997 Session of the ITU Council adopted the principle of full recovery of processing costs for the production of the Special Sections of the Weekly Circular for space radiocommunication services concerning advance publications, requests for coordination or agreement (Radio Regulations Art. 11, Art. 14, Resolutions 33, 46, etc.) and requests for modification of space service Plans contained in AP30/30A/30B. The Council invited the Director of the Radiocommunication Bureau to conduct a cost recovery study to include detailed costs and draft provisions as well as the appropriate procedures so that the cost recovery principle can be implemented at the earliest possible date. In considering the issues related to Resolution 18 (PP-94), WRC-97 took note of the above decision of the Council.

6.1.2 In implementing the above decision of Council, the Director, with the assistance of a Working Group including the concerned Departments of the General-Secretariat, has undertaken the necessary costing study and is developing fee schedules based on full cost allocation. A proposal for the implementation of the Council's decision on the cost recovery principle will be submitted for consideration to the 1998 session of the Council. The Radiocommunication Advisory Group expressed its expectation that Council will decide to implement this cost recovery system as soon as possible. The basic objective is to establish a relatively simple system by which, at the reception of a notice, the expected total costs leading to publication in a Special Section of a given satellite network (including all direct notice processing costs and all over-heads) can be assessed and communicated to the responsible administration. The schedule of processing charges is being established on the basis of an investigation of staff costs covering the period 1996 - 1997. The processing costs include all staff time involved in the treatment and publication (including all related activities) of space submissions. The methodology for the determination of the unit costs is similar to the costing study undertaken in 1995 (Council Document C97/57 on cost analysis of the processing by the Radiocommunication Bureau of space and terrestrial notifications).

6.1.3 The date of application of the cost recovery system will be an important question to be considered. The Council will have to decide whether notices in the backlog at the time of implementation of the cost recovery procedure are subject to payment. In fact, some reasonably fear that, if this is not done, one might expect no cleaning out of the enormous volume of space networks in the pipeline (most of them possibly "paper satellites") and perhaps another avalanche of

notices while their processing is still seen as “free”. Indeed, this is probably already occurring given the decision of the last session of the Council.

7 Special projects and studies

7.1 Technical assistance, seminars and cooperation with other organizations

7.1.1 Technical assistance

The treatment of cases of harmful interference is a special case of assistance which is defined in the Radio Regulations. Owing to the nature of some services dealing with safety of life, the Bureau's objectives is to process these cases within 48 hours. The Bureau anticipates dealing with approximately 60 such cases in 1998.

The Bureau expects to receive 150 requests for assistance in dealing with frequency selection or in applying the technical plan procedures for the broadcasting services.

Also in the domain of frequency selection, it is expected that requests to find some 20 assignments under RR 1218 will be received in 1998. Other assistance for AP26 (Aeronautical) may concern ten allotments.

Although this assistance is aimed mostly at developing countries, there is also demand from developed countries for assistance during bilateral space systems coordination meetings, as well as assistance in space matters in the form of meetings and training missions.

7.1.2 Seminars and training sessions

The Bureau will organize the regular bi-annual Radiocommunication Seminar in Geneva (28 September to 2 October 1998) and three Regional Radiocommunication Seminars in 1998. Dates and venues will be determined early in 1998 and communicated to administrations. Special attention will be paid to the implementation of the new Radio Regulations as well as the use of the CD-ROM formats (as instructed by Resolution 30/COM4-17) and to the implementation of Article S12 procedure for HF broadcasting, including presentation of software as soon as it is available.

Each year, the Bureau also organizes two training sessions in the Bureau in Geneva, one in the spring and one in autumn. These sessions of one week are addressed to developing countries who need special assistance on specific problems such as notification, software, etc. In 1998, the training sessions organized at ITU headquarters are planned for April (if required) and September after the seminar.

7.1.3 Cooperation with the ITU-T Sector

Concerning issues of mutual interest (i.e. performance and availability (ITU-T SG 13), SDH matters (ITU-T SG 15), bringing into service and maintenance (ITU-T SG 4) and radio local area networks (RLAN) issue (ITU-T SG 7)), liaison statements are regularly being interchanged with these ITU-T Study Groups. Liaison Rapporteurs to relevant ITU-T Study Groups are appointed to closely follow these topics.

7.1.4 Cooperation with the ITU-D Sector

Liaison will be maintained in areas of common interest, in particular ITU-D Questions 1/2 (concerns of developing countries in relation to the R and T Sectors) and 2/2 (Handbooks). Relevant liaison will be established, as required, in relation to any new areas of study identified at WTDC-98. Radiocommunication Bureau staff will attend ITU-D SG, WP and Rapporteur Group meetings. Bureau staff will liaise with BDT in providing advice and assistance to countries on issues such as propagation and spectrum management; help will also be offered to countries wishing to establish

propagation experiments and in the subsequent analysis of data. The Bureau will continue its association with the International Centre for Theoretical Physics (ICTP) (Trieste) in the area of consultancy/training of scientists/engineers from developing countries.

The Bureau will also participate and contribute to the ITU-D Virtual Training Centre in organizing Distance Learning Courses on spectrum management and services planning. The experiment carried out with remarkable success in 1996 and 1997 will be repeated in 1998.

7.1.5 Cooperation with international and regional organizations

The Radiocommunication Bureau will take part in the work of the United Nations' Committee on the Peaceful Uses of Outer Space (UN-COPUOS).

Necessary liaison with IMO, Inmarsat, Cospas-Sarsat, CICR and ICAO will be provided with regard to the application of the ITU treaty texts. The Bureau will be involved in the preparation of input documents and participation in the meetings of COMSAR 3 (Sub-Committee on Radiocommunication and Search and Rescue, February 1998) and MSC (Maritime Safety Committee, May 1998) of IMO.

The Radiocommunication Bureau will continue to collaborate with regional organizations specializing in radiocommunications, such as CEPT, CITEL, APT, etc., particularly with a view to ensuring the effective preparation of WRC-99, as requested by Resolution 72/PLEN-2(WRC-97).

Similarly, close cooperation with the major broadcasting unions, such as the EBU, ABU and ASBU and the World Broadcasting Union will continue to be maintained including participation in 1998, as resources permit, in their respective Technical Committee meetings.

Article S12 will enter into force on 1 January 1999 and participation by Bureau staff in regional coordination groups, as requested by this Article, will be necessary before 1999. There may also be a need to organize a joint meeting of representatives of these regional coordination groups.

The Bureau will continue to monitor the activities of URSI and to stimulate liaison between ITU-R Study Groups and URSI Commissions in topics of mutual interest. The Bureau will aim to monitor those COST (European Cooperation in the field of Scientific and Technical Research) Projects of relevance to its work.

7.2 Plenipotentiary Resolutions

7.2.1 Resolutions 32, 33 and 34

These Resolutions request the Radiocommunication Bureau to cooperate with and assist the BDT in providing assistance to specific countries. Meetings will continue to be held to identify the needs for assistance and to provide possible technical support as required. Although no definite tasks are planned for 1998, the Bureau may be required to provide specific assistance and training on different frequency management issues.

7.2.2 Resolution 36

The ITU-R will continue to study those aspects of radiocommunications that are appropriate and generally available for disaster mitigation and for relief operations, as instructed by this Resolution and Resolution 644/PLEN-1(WRC-97), The Bureau will continue to act as the contact point for a UN Committee on this matter. A conference to adopt a "Convention on the provision of telecommunication resources for disaster mitigation and relief operations" will take place in 1998. The Bureau may be requested, as the proposed Technical Coordinator for the Convention, to maintain and disseminate appropriate information related to telecommunication resources for disaster mitigation and relief operations.

8 Publications

8.1 Regulatory publications

The following publications resulting from the application of the Radio Regulations are foreseen:

- Weekly Circulars on paper, microfiche, diskette and, for testing, on CD-ROM;
- 2 CD-ROMs containing updated versions of the IFL;
- 2 CD-ROMs with data of Space Radiocommunication Systems (SRS);
- 1 edition and 1 update to the Preface to the IFL;
- 1 CD-ROM containing all Terrestrial Plans;.
- 1 diskette containing a yearly Summary of Monitoring Information

8.2 Service documents

The following service documents are described in the Radio Regulations. In 1998, the Bureau will publish:

- List IV (Coast stations)
  one full edition (1 100 pages) and one supplement (200 pages);
- List V (Ship stations)
  one full edition (3 000 pages) and three supplements (500 pages);
- List VI (Radiodetermination and special service stations)
  two supplements (150 pages);
- List VIIA (Call signs and numerical identities used by the maritime services)
  four supplements (2000 pages);
- List VIIB (Other call signs)
  two supplements (100 pages).

8.3 The Final Acts and the Radio Regulations

The Final Acts of the WRC-97 will be published in the first quarter of 1998 (approximately 1 000 pages/language). They will also be made available through the Electronic Bookshop.

The Radio Regulations will be published in the fourth quarter of 1998 (approximately 2 700 pages/language). They will also be available on CD-ROM and through the Electronic Bookshop/Online services.

8.4 ITU-R Resolutions and Opinions

The Book of Resolutions and Opinions will be published in time for the RAG in January 1998 (approximately 125 pages/language). The text of these Resolutions and Opinions will also be made available online.

8.5 ITU-R Recommendations

All ITU-R Recommendations in force following RA-97 will be published in the 1997 Series Volumes during the first half of 1998 (approximately 7 000 pages/language).

Recommendations approved by correspondence during the year will be published progressively in the 1998 Series Fascicles (estimated at 800 pages/language).

An updated version of the CD-ROM of ITU-R Recommendations will be published in the second quarter of 1998. All Recommendations will be made available electronically through the Online and Electronic Bookshop services.

The list of all ITU-R Recommendations in force following RA-97 will be published in the first quarter of 1998 (approximately 50 pages/language). This list will be available and kept up to date on the ITU World Wide Web (WWW) server.

8.6 ITU-R Reports

The 1998 fascicles of ITU-R Reports will be published in the second half of 1998 (approximately 500 pages/language expected).

8.7 Preparation of Handbooks

The 1998/1999 programme for the publication of Handbooks is outlined in **Table 4**. In view of the high workload in 1998 (publication of the Final Acts, Radio Regulations, ITU-R Recommendation Volumes and the Recommendations approved by correspondence) the priorities in publishing these Handbooks may need to be reviewed in the BR, depending on the availability of the manuscripts.

8.8 Electronic publications

8.8.1 CD-ROMs and diskettes

Large volumes of data will continue to be published at least twice a year on CD-ROM and more frequently on diskette. Thus in 1998, the International Frequency List, the terrestrial frequency assignment Plans and the list of Space Radiocommunication Systems with all specific data including graphical data for the latter will be published on CD-ROM. These disks will also contain the Preface to the IFL and other software packages of interest to frequency managers. A CD-ROM of all ITU-R Recommendations in force will also be published.

In addition, the Weekly Circular and its Special Sections are made available on a weekly basis on paper and diskette. The latter version can be used together with the data on CD-ROM through the software package for local frequency management.

The HF Broadcasting Schedules will continue to be published regularly on diskette and the new CD-ROM format will be tested.

The Summary of Monitoring Information will continue to be published on diskette on a yearly basis.

TABLE 4

ITU-R Handbooks

Title	To be published in 1998	To be published in 1999 or later	Estimated number of pages
The ionosphere and its effects on terrestrial and Earth-space radiowave propagation from VLF to SHF	X		150
HF Broadcasting system design	X		100
Teletext handbook		X	600
Radiowave propagation information for predictions for signal levels likely to cause interference and for evaluation of coordination distances		X	150
Radiowave propagation information for predictions for terrestrial path communications	X		150
Operational forecasting and near-real-time assessment of ionospheric variability associated with radiocommunication		X	100
LF-MF system design		X	120
Land Mobile satellite communications	X		100
Handbook on satellite communications (fixed-satellite service)	X		650
Adaptive HF systems and networks		X	50
Computer-aided techniques for spectrum management	X		200
Broadcasting-satellite systems		X	200
Space research		X	100
Data relay satellites		X	100
Use of radio spectrum for meteorological activities		X	250
Digital terrestrial television broadcasting		X	130
Total number of pages per year	**1 350**	**1 800**	

8.8.2 TIES/ITUDOC

Substantial progress was made in improving the dissemination of information through electronic means in response to Kyoto Resolution 66 and to Resolutions ITU-R 19 and ITU-R 20. The following information is now accessible electronically through the ITU's TIES and WWW servers:

- general information on the Sector and official ITU-R publications;
- a complete list of Member States and Sector Members, i.e. ROAs, SIOs, regional telecommunication organizations, intergovernmental organizations operating satellite systems, etc.;
- circular letters concerning the general business of the Radiocommunication Sector (CA), Assembly and Study Group work (CACE), draft Recommendations and Questions (CAR), maritime affairs (CM) and Radio Regulation frequency registration matters (CR);
- documentation dealing with the Radiocommunication Advisory Group (RAG), Study Groups and the Special Committee on Regulatory/Procedural Matters;
- documentation of the Conference Preparatory Meeting (CPM);
- the complete text of all Resolutions and Opinions, as well as all Questions under study by each Study Group;
- accessible databases such as a list of ITU-R Recommendations, ship-station database with possible queries on relevant data (MARS), software for frequency management, etc.;
- the Space Network List (updated every two weeks) with detailed technical information on geostationary and non-geostationary-satellite networks and earth stations in coordination, notified or registered. This includes information on space stations in Plans (AP30/30A/30B), as well as data submitted in application of Resolution 33 (WARC-79) and Resolution 46 (WARC-92);
- access to the full SNS Space database including graphical data with inquiry facilities;
- the Satellite News Gathering (SNG) User's Guide;
- all ITU-R Recommendations in force are available online in both WinWord 7.0 and Adobe Acrobat PDF formats. New and revised Recommendations will be put online following their approval by correspondence or by a Radiocommunication Assembly. They are available through a subscription service (ITU-R Recommendations Online) or individually (ITU Electronic Bookshop);
- draft new and revised ITU-R Recommendations are now also available online in WinWord 7.0 format through the Electronic Bookshop.

In addition, a number of bulletin boards are in use with a variety of information posted, in particular meeting documents related to the work of a particular Working Party or Task Group.

The Bureau's resources provided within the budget for 1998/1999 do not provide specifically for any resources dedicated to this work. Consequently, special operational arrangements within the Bureau will continue for the posting of information. Concerning the additional search and rescue information, as requested by Resolution 340/COM4-1(WRC-97), the Bureau will consider options for providing such information on request to the rescue coordination centres, and/or to include it in its MARS system, for access only by authorized users.

Electronic document handling (EDH) practices will be expanded including electronic document submission (EDS) and electronic document exchange (EDE) following the guidelines in Circular-letter CA/17 (1995). Maintenance and improvement of the bulletin board and mailing list services is foreseen in the period as well as a substantial increase in the quantity and quality of ITUDOC document posting activities.

Various new publications and documents will become available online through the Online/Electronic Bookshop services, including the Final Acts of WRC-97 and the Radio Regulations.

9 Financial matters and resource distribution

The 1998-1999 ITU biennial budget, including the Radiocommunication Sector one, was established by the 1997 Council under **Resolution 1100**. The comparison between the 1996-1997 and the 1998-1999 biennial budgets shows an overall reduction of the Union's financial resources of about **-1.7%**.

The Radiocommunication sector is largely contributing to this effort with a reduction of about **3%** (1.8 million Swiss Francs compared with the 1996-1997 budget). This includes an "additional" appropriation of 500,000 Swiss Francs for the support of post conference work. The use of these resources was approved by WRC-97. Required additional resources will be justified in a separate submission to the 1998 session of the Council.

The 1998-1999 Radiocommunication Sector budget follows the new structure with six main sections, as decided in 1995. **Table 5** gives the distribution of budget appropriations for each main activity in the Sector.

This budget adopted by the Council is expected to match the forecasted workload for each of these activities for 1998 and 1999.

Table 6 reflects the workload distribution identified by the chairmen and vice-chairmen of the ITU-R Study Groups. This distribution has been used to allocate, as outlined in **Table 7**, the budget available for the Work in the ITU-R Study Groups.

The additional permanent or on-off workload generated by WRC-97 and to be carried out by the Radiocommunication Bureau is analysed in a separate document to be submitted to the1998 session of Council. The Radiocommunication Advisory Group has reviewed that document and, while noting the resource requirements outlined, expressed concern on the potential lack of adequate funds to carry out all assigned tasks (see also remarks in the introduction).

The actual distribution of the staff resources presently available in the Bureau is given in **Figure 3** No major organizational rearrangement is foreseen in 1998.

TABLE 5

Distribution of the Radiocommunication Sector budget by activity

(Swiss Francs x 1000) 1998-1999

DIRECT COSTS	budget	WRC-99	RA-99	Seminars	RRB	RAG	SG	BR	Publications
Staff costs									
Interpretation	2'198	987	186	108	30	130	757		
Staff	36'707							36'707	
Support staff	2'434	553	81	5	285	26	984	500	
Other staff costs	10'693	75	72		1	48	266	10'231	
Total staff costs	**52'032**	**1'615**	**339**	**113**	**316**	**204**	**2'007**	**47'438**	
Travel on duty	1'405	80	20	404	387		220	294	
Other direct costs	6'788	215	31		14	22	800	1'579	4'127
Total direct costs	**60'225**	**1'910**	**390**	**517**	**717**	**226**	**3'027**	**49'311**	**4'127**

INVOICED COSTS		WRC-99	RA-99	Seminars	RRB	RAG	SG	BR	Publications
Translation	3'138	813	90	49	52	55	1'319	760	
Typing	2'862	903	60	22	8	37	1'702	130	
Reproduction	2'048	652	55	9		17	1'173	142	
Information services	831							831	
Other invoiced costs	176							176	
Publications	5'918								5'918
Total invoiced costs	**14'973**	**2'368**	**205**	**80**	**60**	**109**	**4'194**	**2'039**	**5'918**
TOTAL COSTS	**75'198**	**4'351**	**522**	**598**	**775**	**335**	**7'221**	**51'351**	**10'045**

TABLE 6

Study Group workload distribution as identified by ITU-R Chairmen and Vice-Chairmen

No of meeting days	SG-1	SG-3	SG-4	SG-7	SG-8	SG-9	SG-10	SG-11	CPM	SC	CVC
With interpretation (SG)	3	3	4	4	5	4	5	5	14	5	4
Without interpretation (WG's, TG's)	54	50	55	57	97	44	44	98			
Total No of days	**57**	**53**	**59**	**61**	**102**	**48**	**49**	**103**	**14**	**5**	**4**

Production of documents (in pages)	SG-1	SG-3	SG-4	SG-7	SG-8	SG-9	SG-10	SG-11	CPM	SC	CVC
Translation	470	600	1'128	590	1'769	932	734	1'525	1'213	303	252
Typing	1'876	2'396	4'501	2'356	7'062	3'719	2'928	6'088	4'841	1'209	1'005
Reproduction (x 1000)	1'047	1'337	2'512	1'314	3'940	2'075	1'634	3'397	2'701	675	560

TABLE 7

Budget distribution by Study Group

(Swiss Francs x 1000)	1998-1999											
DIRECT COSTS	budget	SG-1	SG-3	SG-4	SG-7	SG-8	SG-9	SG-10	SG-11	CPM	SC	CVC
Staff costs												
Interpretation	757	41	41	54	54	68	54	68	68	189	68	54
Support staff	984	101	93	105	109	180	86	87	183	25	9	7
Other staff costs	266	27	25	28	29	49	23	23	49	7	2	2
Total staff costs	**2'007**	**169**	**159**	**188**	**192**	**296**	**163**	**177**	**300**	**221**	**79**	**63**
Other direct costs	1'020	105	97	109	113	186	89	90	189	26	9	7
Total direct costs	**3'027**	**275**	**255**	**297**	**305**	**483**	**252**	**267**	**489**	**246**	**88**	**70**

INVOICED COSTS		SG-1	SG-3	SG-4	SG-7	SG-8	SG-9	SG-10	SG-11	CPM	SC	CVC
Translation	1'319	65	83	157	82	246	129	102	212	166	42	34
Typing	1'702	84	108	202	106	317	167	132	273	214	54	45
Reproduction	1'173	58	74	139	73	218	115	91	188	147	37	32
Total invoiced costs	**4'194**	**208**	**265**	**498**	**261**	**781**	**411**	**324**	**674**	**527**	**134**	**111**
TOTAL COSTS	**7'221**	**482**	**521**	**795**	**566**	**1'264**	**663**	**591**	**1'163**	**774**	**222**	**182**

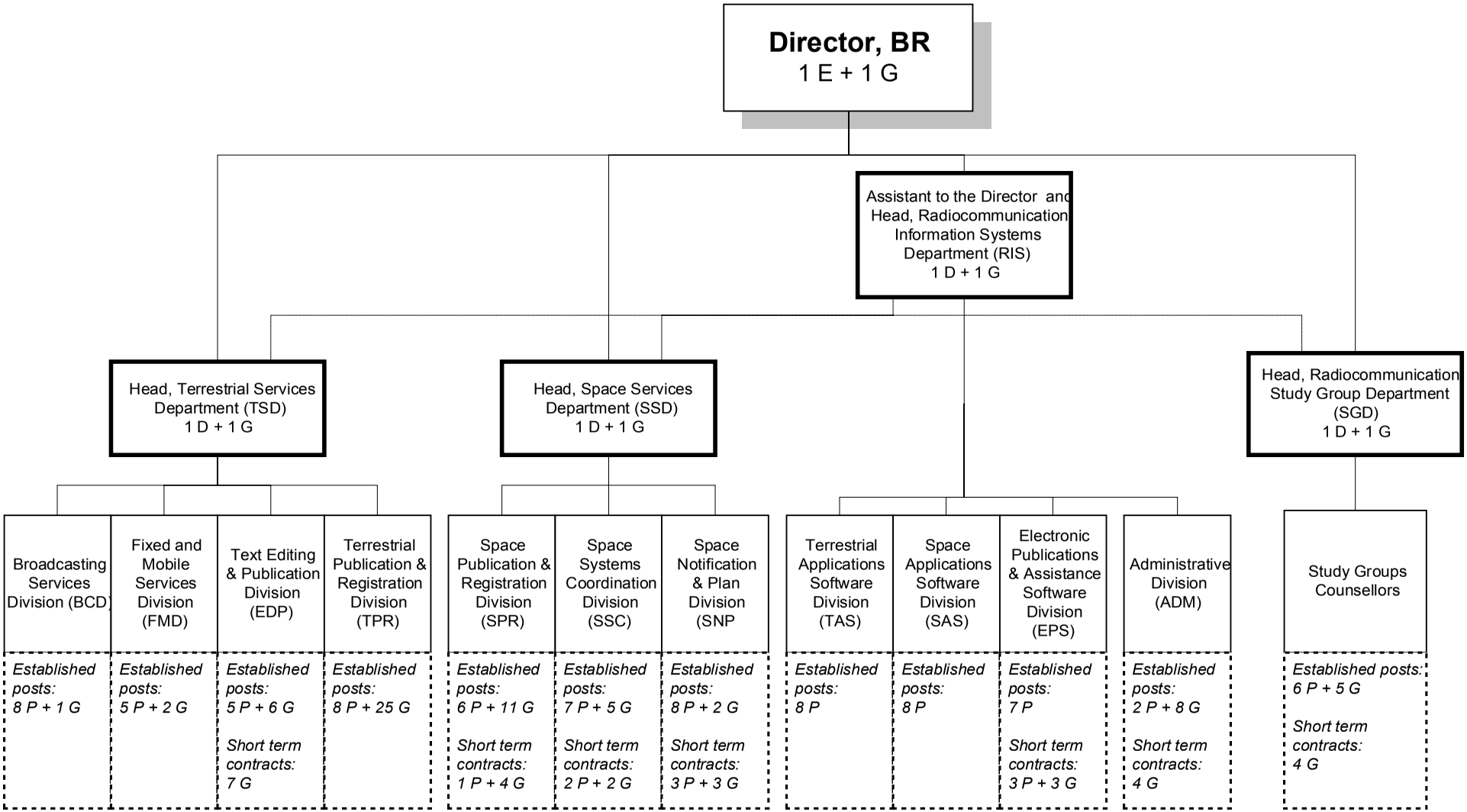

FIGURE 3

Organization of the Radiocommunication Bureau