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INTERNATIONAL TELECOMMUNICATION UNION

REPORT
ON THE ACTIVITIES OF
THE INTERNATIONAL
TELECOMMUNICATION UNION
IN
1983

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1. INTRODUCTION

This Report is published pursuant to the provisions of No. 306 of the International Telecommunication Convention (Nairobi, 1982) which provides that the Secretary-General shall "... with the assistance of the Coordination Committee, prepare an annual report on the activities of the Union which, after approval by the Administrative Council, shall be sent to all Members."

2. MEMBERSHIP OF THE UNION

1. At 31 December 1983, the number of Members of the Union was 158, namely:

- a) the 140 countries mentioned in Annex 1 to the Malaga-Torremolinos Convention, 1973;
- b) the following 2 countries which became Members on the deposit of an instrument of accession to the International Telecommunication Convention of Montreux, 1965:

which became
a Member on

Republic of the Gambia	27. 5.74
Commonwealth of the Bahamas	19. 8.74

- c) the following 16 countries which became Members on the deposit of an instrument of accession to the International Telecommunication Convention of Malaga-Torremolinos, 1973:

which became
a Member on

State of Bahrain	1. 1.75
Democratic People's Republic of Korea	24. 9.75
Papua New Guinea	31.10.75
People's Republic of Mozambique	4.11.75
Islamic Federal Republic of the Comoros	5. 1.76
Republic of Guinea-Bissau	15. 1.76
Republic of Suriname	15. 7.76
Democratic Republic of Sao Tome and Principe	1. 9.76
Republic of Cape Verde	10. 9.76
People's Republic of Angola	13.10.76
Republic of San Marino	25. 3.77
Republic of Djibouti	22.11.77
Republic of Zimbabwe	10. 2.81
Grenada	17.11.81
Belize	16.12.81
Saint Vincent and the Grenadines	25. 3.83

2. On 31 December 1983, 156 countries had ratified or acceded to the International Telecommunication Convention, Malaga-Torremolinos, 1973.

3. The position of Members on 31 December 1983, with respect to the Malaga-Torremolinos Convention, 1973, and to the Administrative Regulations annexed thereto is shown in Table 1 of Annex 1 to this Report. Annex 1 also gives information relating to a number of other conventions and agreements concerned with telecommunications.

4. The position with respect to the Final Acts of Nairobi, 1982 - on 1 January 1984 - is shown in Annex 1 bis to this Report. Annex 1 bis also gives the list of countries which signed:

- The Final Acts of the World Administrative Radio Conference for the Mobile Services, Geneva, 1983, which will come into force on 15 January 1985, and
- The Final Acts of the Regional Administrative Conference for the Planning of the Broadcasting-Satellite Service in Region 2, Geneva, 1983.

3. ADMINISTRATIVE COUNCIL

3.1 The Administrative Council held its 38th session at ITU Headquarters from 2 to 20 May 1983.

The session was attended by representatives of the 41 Members of the Council, namely:

People's Democratic Republic of Algeria, Federal Republic of Germany, Kingdom of Saudi Arabia, Argentine Republic, Australia, People's Republic of Benin, Federative Republic of Brazil, United Republic of Cameroon, Canada, People's Republic of China, Republic of Colombia, Arab Republic of Egypt, Spain, United States of America, Ethiopia, France, Republic of India, Republic of Indonesia, Italy, Japan, Republic of Kenya, State of Kuwait, Lebanon, Kingdom of Morocco, Mexico, Federal Republic of Nigeria, Islamic Republic of Pakistan, Peru, Republic of Philippines, German Democratic Republic, Socialist Republic of Rumania, United Kingdom of Great Britain and Northern Ireland, Republic of Senegal, Sweden, Confederation of Switzerland, United Republic of Tanzania, Thailand, Union of Soviet Socialist Republics, Republic of Venezuela, Socialist Federal Republic of Yugoslavia, Republic of Zambia.

3.2 Mr. F. Molina Negro (Spain) and Mr. N. Bouhired (Algeria) were elected as Chairman and Vice-Chairman of the Council, respectively, at the inaugural session which took place during the Plenipotentiary Conference at Nairobi. At the 38th session, the Council set up the following Committees and Working Groups:

Committee 1 - Finance

Chairman : Mr. T. V. Srirangan (India)
Vice-Chairman : Mr. J. Gilbert (Canada)

Committee 2 - Staff and Pensions

Chairman : Mr. H. L. Venhaus (Federal Republic of Germany)
Vice-Chairman : Mr. J. A. Msambichaka (United Republic of Tanzania)

Committee 3 - Technical Cooperation

Chairman : Mr. M. Samoura (Republic of Senegal)
Vice-Chairman : Mrs. D. Miličević (Socialist Federal Republic
of Yugoslavia)

Working Groups PL-A
(Annual revision of the Volume
of Resolutions and Decisions)

Chairman : Mr. M. Ghazal
(Lebanon)

Working Group PL-B
(Matters relating to
Conferences)

Chairman : Mr. A. Ituassu
(Federative Republic
of Brazil)

Working Group PL-C
(Extended use of the computer
by the IFRB)

Chairman : Mr. M. P. Davies
(United Kingdom)

3.3 The resolutions and decisions adopted by the Council are summarized below:

3.3.1 Financial matters

3.3.1.1 Financial Operating Report of the ITU for 1982

The council approved the Financial Operating Report and the Management Report of the ITU Staff Superannuation and Benevolent Funds for 1982.

(Resolution No. 878)

3.3.1.2 External audit of ITU accounts for the period 1 January to 31 December 1982

The Council approved the accounts of the ITU for the period from 1 January to 31 December 1982, as drawn up and audited by the external auditor appointed by the Swiss Confederation.

(Resolution No. 883)

3.3.1.3 Final budget of the ITU for 1983

The Council, having regard to Additional Protocol I to the Nairobi Convention, 1982, which sets out the conditions governing the establishment of the annual Union budget for 1983, decided to approve the 1983 budgets, namely:

the budget of the Union amounting to 83,046,000 Swiss francs;

the Technical Cooperation special accounts budget amounting to 9,450,000 Swiss francs;

the supplementary publications budget amounting to 7,258,000 Swiss francs.

The contributory unit for 1983 was finally set at

- for Members 176,600 Sw. fr.
- for recognized private operating agencies, etc. 35,320 Sw. fr.

(Resolution No. 888)

3.3.1.4 Budget of the Union for 1984

The Council, having regard to the provisions of Additional Protocol I to the Nairobi Convention, 1982, decided to approve the budgets for 1984, namely:

the ordinary budget of the Union amounting to 90,201,000 Swiss francs

the Technical Cooperation special accounts budget amounting to 9,987,000 Swiss francs;

the supplementary publications budget amounting to 8,205,000 Swiss francs.

(Resolution No. 894)

3.3.1.5 Special interest account

The Council, having regard to Resolution 53 of the Plenipotentiary Conference, decided that the special interest account amounting to 334,394 Sw. fr. shall be paid off from the funds available in the interest account.

(Resolution No. 876)

3.3.1.6 Contributory shares in Union expenditure

The Council, having noted that the Plenipotentiary Conference had instructed it at each session to review the situation of small countries not included in the United Nations list of the least developed countries which may encounter financial difficulties in contributing in the 1/4 unit class and which so request in order to decide which of them may be considered as being entitled to contribute to Union expenditure in the 1/8 unit class, established the list of such countries for 1983 and 1984.

(Resolution No. 886)

3.3.1.7 Contribution from Guatemala for 1976

The Council, having examined the request submitted by the Government of Guatemala in connection with its contribution for 1976, resolved exceptionally:

1. to use the entire 1976 contribution paid by Guatemala in 1976 to cover its contributions for 1979 and 1980 and part of its contribution for 1981;
2. to exempt Guatemala from the payment of its contribution for 1976;

3. to offset that amount by withdrawing 111,800 Swiss francs and the interest thereon from the ITU Reserve Account.

(Resolution No. 884)

3.3.1.8 Revision of the Financial Regulations of the Union

The Council approved the amendments proposed by the Secretary-General to the 1979 edition of the Financial Regulations of the Union.

(Resolution No. 882)

3.3.2 Staff matters, pensions

3.3.2.1 Abolition of posts

The Council, having examined the Report by the Secretary-General on the measures taken in order to achieve a 10% reduction in Headquarters' resources, approved the abolition of:

- | | |
|-----------------------------------|-------------|
| - with effect from 1 January 1983 | 1 D.1 post |
| - with effect from 1 April 1983 | 1 P.4 post |
| - with effect from 15 April 1983 | 2 P.4 posts |

(Resolution No. 875)

3.3.2.2 Continuation of posts in the Interim System Management Team, creation of one post in the Computer Department and continuation and creation of posts in the IFRB

The Council decided to approve the continuation of the following fixed-term posts to 31 December 1986:

- I. Interim System Management Team and System Design Team
- | | |
|---|-----|
| FMS Project Manager | D.1 |
| Head - Data Administrative Division | P.5 |
| FMS Project Coordinator | P.5 |
| Head - User Requirements Division | P.5 |
| EDP - Environment Division | P.4 |
| Systems Analyst - Data Administration | P.4 |
| Systems Analyst - System Maintenance and Training | P.4 |
| Head - System Design Team | P.5 |
| Systems Analyst | P.4 |
- II. Computer Department

Creation of the following fixed-term post for 3 years with effect from 1 January 1984: 1 P.3 Analyst/Programmer.

III. IFRB

- continuation of the following fixed-term post until 31 December 1984:
 - 3 P.4 Engineers/Analysts
 - 2 G.4 Data-capture Operators
- creation of the following posts on a permanent basis:
 - with effect from 1 October 1983: 1 P.3 Administrative Officer
 - with effect from 1 July 1984: 1 Engineer/Analyst (post to be filled on fixed-term basis subject to confirmation by the Administrative Council at its 39th session),
- creation of the following posts on a fixed-term basis:
 - with effect from 1 January 1984 (for one year):
 - 1 P.4 Engineer/Analyst
 - 1 G.7 Senior Examiner
 - with effect from 1 April 1984 (until 31 August 1988)
 - 1 P.4 Engineer/Analyst
 - with effect from 1 July 1984 (until 30 June 1985)
 - 1 P.4 Engineer/Analyst
 - 1 P.2 Programmer
 - 1 G.6 Assistant
- recruitment of 4 G.4 Data-capture Operators for 6 months during 1984.

(Resolution No. 889)

3.3.2.3 Regularization of the situation of staff employed on short or fixed-term contracts against posts which do not appear on the Manning Table

The Council, having regard to Resolution No. 59 by the Plenipotentiary Conference on the updating of the Manning Table, decided to approve the inclusion in that Table of 83 unestablished posts in order to regularize the situation of the staff which has been supernumerary (temporary) for several years.

(Resolution No. 890)

3.3.2.4 Technical Cooperation - List of posts to be created/transferred in application of Resolution No. 18 of the Plenipotentiary Conference (Nairobi, 1982)

The Council decided to approve:

I. the creation of the following fixed-term posts:

- Posts at Headquarters - Ordinary Budget
 - 2 P.5 Engineers/Specialists (2-year trial period, contracts could be extended to 5 years)

1 P.5 Administrator of the Voluntary Programme (5-year period and renewal for a further period)

1 P.5 Telecommunication Economist (3 years, subject to annual review by the Administrative Council)

1 G.6 Secretary/Assistant (3 years, subject to annual review by the Administrative Council)

- Posts in the field - Ordinary Budget

4 D.1 ITU Senior Regional Representatives (recruitment for up to 5 years)

4 G.5/G.6 Assistants to the Representatives (5-year period)

II. the transfer from Headquarters to the field of the following posts (Technical Cooperation special accounts budget):

- 8 P.5 ITU Area Representatives (duration to be decided later)

- 8 G.5/G.6 posts (duration to be decided later)

III. the continuation of the following posts to be charged to the ordinary budget (for 5 years):

- 1 P.5 Coordinator

- 4 P.5 Regional Field Training Development Experts

(Resolution No. 892)

3.3.2.5 Amendments to the Staff Regulations

The Council made certain amendments to Staff Regulation VIII.3 (Elected Officials) and Staff Regulations 4.7 and 9.4 (Appointed Staff).

(Resolution No. 879)

3.3.2.6 Amendments to the Staff Regulations

The Council made certain amendments to Staff Regulation XI.2 (Elected Officials) and Staff Regulation 12.2 (Appointed Staff).

(Resolution No. 881)

3.3.2.7 Rental subsidies

The Council approved the introduction of the extension of the rental subsidy scheme as laid down by the International Civil Service Commission and instructed the Secretary-General to amend the Staff Regulations and Staff Rules accordingly.

(Resolution No. 880)

3.3.2.8 Staff representation

The Council, recognizing the importance of staff representation decided that the official designated by the Staff Council to assume the largest workload as staff representative could be released from his/her assigned duties for a reasonable portion of his/her normal working hours up to a maximum of 30%.

(Decision No. 399)

3.3.2.9 Membership of the ITU Staff Pension Committee

The following persons were appointed to represent the Administrative Council on the ITU Staff Pension Committee:

Members	Alternate members	Term of office
Mr. S.S. Albasheer	Mr. P.E. Dapkounas	Until the 39th ordinary session of the Council
Mr. P.A. Gagne	Mr. G. Blaurock	Until the 40th ordinary session of the Council
Mr. I. Girmaw	Mr. A. Ribas	Until the 41st ordinary session of the Council

(Resolution No. 885)

3.3.3 Conferences

3.3.3.1 Methods of work of conferences and meetings

The Council, having regard to the need to reduce the cost of conferences and meetings to the maximum possible extent, decided to entrust the drafting of brief summary records of both the Plenary and Committee meetings of the Administrative Council to the secretaries of such meetings, thus eliminating the need to recruit précis-writers, and recommended to Administrative Conferences that in their methods of work consideration should be given to achieving the maximum savings in the administrative support services, including as regards the preparation of summary records. It also instructed the Secretary-General to examine all possible steps within his purview in order to achieve maximum savings during conferences and meetings.

(Resolution No. 893)

3.3.3.2 Limitation on volume of documentation and cost of meetings

The Council, considering the high cost of documentation and servicing of meetings, urged all Administrations, Chairmen and participants of Plenary Assemblies and Study Groups of the CCIs to assist in achieving maximum savings by restricting the length and number of documents.

(Resolution No. 899)

3.3.3.3 World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It

In consultation with the Members of the Union, the Council decided that the first session of the Conference should be convened in Geneva on 8 August 1985 for a duration of five and a half weeks. It also established its agenda (which is not reproduced in this report). The Council further decided that the Conference should consider the relevant decisions of the Regional Administrative Radio Conference for the Planning of the Broadcasting-Satellite Service in Region 2 and incorporate them in the Radio Regulations, as appropriate, revising the Radio Regulations only for these purposes as necessary. The First Session of the Conference is to adopt appropriate Final Acts to achieve that objective.

The Council invited the CCIR to complete the necessary studies for the First Session of the Conference so that they may be available to Administrations approximately ten months prior to the opening of the Conference.

The Council invited the IFRB:

1. to prepare a report on the operation of the procedures of Articles 11 and 13 including information about difficulties which may be reported to the IFRB by Administrations in gaining access to suitable orbital locations and frequencies, and to circulate that report to Administrations;
2. to carry out technical preparations for the Conference in accordance with the provisions of the Radio Regulations.

(Resolution No. 895)

3.3.3.4 Regional Administrative Conference for FM Sound Broadcasting in the VHF Band (Region 1 and certain countries concerned in Region 3)

In consultation with the Members of the Union, the Council decided that the Second Session of the Conference should be held in Geneva from 29 October 1984 for a maximum period of six weeks, and established its agenda.

(Resolution No. 896)

3.3.3.5 Regional Administrative Radio Conference for the Maritime Mobile Service and the Aeronautical Radionavigation Service in certain parts of the MF Band in Region 1

In consultation with the Members of the Union, the Council decided that the Conference should be convened in Geneva on 25 February 1985 for a duration of three weeks. It also established its agenda (not reproduced in this report).

The Council instructed the IFRB to invite the Administrations of Region 1 to communicate at an appropriate date their requirements on the basis of the information listed in the appropriate sections of Appendix 1 to the Radio Regulations.

(Resolution No. 897)

3.3.3.6 Regional Administrative Radio Conference for the Planning of Frequencies for Maritime Radiobeacons in the European Maritime Area

In consultation with the Members of the Union, the Council decided that a Regional Administrative Radio Conference for the Planning of Frequencies in the Band 283.5-315 kHz used by maritime radiobeacons in the European maritime area be convened in Geneva on 4 March 1985 for a duration of ten days, and established its agenda.

The Council invited the CCIR to prepare during the interim meeting of Study Group 8 in 1984 a report on the technical parameters to be taken into account by Administrations.

The Council instructed the IFRB to invite the Administrations of the European maritime area to communicate, at an appropriate date, their requirements on the basis of the information listed in the appropriate section of Appendix 1 to the Radio Regulations.

(Resolution No. 898)

3.3.4 Administrative Council

3.3.4.1 Revision of the Rules of Procedure of the Administrative Council

The Council approved the amendments proposed by the Secretary-General to the Rules of Procedure of the Administrative Council and instructed him to publish a revised edition of the Rules.

(Resolution No. 891)

3.3.4.2 Date and duration of the 39th session

The Council decided to hold its 39th session from Monday, 2 April to Thursday, 19 April 1984.

(Decision No. 400)

3.3.5 Extended use of the computer by the IFRB - Voluntary Group of Experts from Administrations

The Council decided to establish a small Voluntary Group of Experts comprising nominees from Administrations which are Members of the Administrative Council, and established its terms of reference (the Group will elect its Chairman from among its Members). It invited Administrations wishing to nominate experts for membership of the Group to bear in mind the need for continuity in the membership of the Group and in the post of Chairman.

The Council further decided that no costs should fall upon the Union from the establishment of the Group except as may be necessary for interpretation and the production, including translation, of any report made by the Group to the Council, and that, in the interests of economy, the provision of interpretation facilities should be limited to those essential for the Group to function effectively.

(Resolution No. 887)

3.3.6 Independent International Commission for World-Wide Telecommunications Development

The Council, recalling Resolution No. 20 of the Plenipotentiary Conference of Nairobi, decided on the membership of the Independent International Commission for World-Wide Telecommunications Development and established its mandate.

The Council instructed the Secretary-General to provide every assistance to enable the Commission to fulfil its mandate, to continue his endeavours to raise resources for financing the Commission and to circulate the Report of the Commission to all Administrations for their comments, so as to assist the Council in reviewing the Report.

(Resolution No. 900)

3.3.7 Conditions for the renting of rooms and offices in the ITU buildings

The Council approved the new rates fixed and decided that no rent should be charged for the conferences and meetings of the Union or for meetings connected with the activities of the Staff Association. The rents collected should be entered in the accounts as income of the fund for the upkeep and renewal of simultaneous interpretation equipment.

(Resolution No. 877)

3.4 Other main issues considered by the Council which were not the subject of resolutions or decisions

3.4.1 Staff

- Application of the 10% reduction in Headquarters resources
- In-service training

3.4.2 United Nations, specialized agencies, other international organizations

- Activities of the Joint Inspection Unit
- World Communications Year
- United Nations Conference on Science and Technology for Development
- Transport and Communications Decade in Africa

3.4.3 Technical Cooperation

- Integrated rural development
- Activities of regional experts/counsellors
- Strengthening of ITU regional presence
- Special voluntary programme of technical cooperation
- Assistance to the least developed countries

3.4.4 Other business

2nd ITU Centenary Prize.

4. WORLD ADMINISTRATIVE RADIO CONFERENCE FOR THE MOBILE SERVICES

Geneva, 1983

1. The World Administrative Radio Conference for the Mobile Services (MOB-83) opened in Geneva on 23 February 1983.

2. More than 500 delegates from 89 countries took part in the Conference which was convened by the ITU in response to Resolution No. 202 of the World Administrative Radio Conference, Geneva, 1979 (WARC-79). WARC-79 had decided that the Conference should take place to revise the provisions of the Radio Regulations which relate specifically to the Mobile Services.

3. The agenda of the Conference is contained in Resolution No. 853 (amended) adopted by the Administrative Council at its 35th and 36th Sessions (1980 and 1981 respectively).

4. Mr. V. R. Y. Winkelman (Netherlands) was elected Chairman of the Conference and Messrs. N. Bouhired (Algeria), H. J. Vergara (Argentina), Y. Liu (China), F. P. Schubert (United States) and A. L. Badalov (USSR) were elected Vice-Chairmen.

5. The Conference set up the following Committees:

Committee 1 - Steering Committee

(Consisting of the Chairman and Vice-Chairmen of the Conference and the Chairmen and Vice-Chairmen of the Committees)

Committee 2 - Credentials Committee

Chairman: Mr. G. L. Mutti (Zambia)

Vice-Chairman: Mr. J. Székely (Hungary)

Committee 3 - Budget Control Committee

Chairman: Mr. S. Ghandourah (Saudi Arabia)

Vice-Chairman: Mr. J. G. De Matos (Angola)

Committee 4 - Frequency and Regulatory Committee

Chairman: Mr. K. P. R. Menon (Malaysia)

Vice-Chairman: Mr. K. Björnsjö (Sweden)

Committee 5 - Operational and Administrative Committee

Chairman: Mr. E. D. DuCharme (Canada)

Vice-Chairman: Mr. B. G. Yao (Ivory Coast)

Committee 6 - Editorial Committee

Chairman: Mr. P. Abouardham (France)

Vice-Chairmen: Mr. A. Marshall (United Kingdom)

Mr. F. Molina Negro (Spain)

6. The Conference adopted the partial revision of the Radio Regulations and of certain Appendices to these Regulations.

6.1 The Articles concerned were:

- Article 1 on definitions;
- Article 8 on frequency allocations;
- Article 12 on the notification and recording of frequency assignments;
- Article 25 on the identification of stations;
- Article 35 on the Radiodetermination and Radiodetermination-Satellite Services;
- Chapter IX on Distress and Safety Communications, including Articles 37, 38, 40, 41 and 42;
- Chapter X on the Aeronautical Mobile and the Aeronautical Mobile-Satellite Services, including a new Article 42A and Articles 43, 44, 46, 47, 48, 49, 50, 51 and 52;
- Chapter XI on the Maritime Mobile and Maritime Mobile-Satellite Services, including Articles 55, 59, 60, 62 and 65.

6.2 The Appendices concerned were:

- Appendix 13 on the Q-Code;
- Appendix 14 on the Q-Code;

- Appendix 16 on SSB frequencies;
- Appendix 18 - Table of transmitting frequencies (156-174 MHz);
- Appendix 31 - Table of frequencies (4-23 MHz);
- Appendix 33 - Table of ship station transmitting frequencies;
- Appendix 37 - Technical characteristics of EPIRBs on 2182 kHz;
- Appendix 37A - Technical characteristics of EPIRBs on 121.5 and 243 MHz;
- Appendix 43 on Maritime Mobile Service Identities.

7.1 The Conference adopted 14 new Resolutions and amended two Resolutions adopted by the WARC-79.

7.2 It also adopted five new Recommendations and amended five Recommendations adopted by the WARC-79.

8. Furthermore, the Conference decided that the revised provisions should come into force on 15 January 1985.

9. The Conference completed its work on 18 March 1983 with the signing of the Final Acts.

5. REGIONAL ADMINISTRATIVE CONFERENCE FOR THE PLANNING OF THE BROADCASTING-SATELLITE SERVICE IN REGION 2

Geneva, 1983

1. The Regional Administrative Conference for the Planning of the Broadcasting-Satellite Service in Region 2 opened on 13 June 1983 in Geneva.

2. Some 170 delegates from 26 countries took part in the Conference which was convened by the ITU in response to Resolution No. 701 of the World Administrative Radio Conference, Geneva, 1979 (WARC-79). WARC-79 had decided that the Conference should take place to:

- divide the band 12.1 - 12.3 GHz into two sub-bands and allocate the lower sub-band to the fixed-satellite service and the upper sub-band to the broadcasting-satellite, broadcasting, mobile except aeronautical mobile, and fixed services, all services being on a primary basis;
- draw up a detailed frequency assignments and orbital positions plan for the broadcasting-satellite service in Region 2 in the band 12.3 - 12.7 GHz and in that portion of the band 12.1 - 12.3 GHz which it should allocate to the broadcasting-satellite service;

- plan feeder links in a part of the band 17.3 - 18.1 GHz, of a bandwidth equal to the total bandwidth allocated to the broadcasting-satellite service in the 12 GHz band;
- establish procedures to govern the use of the bands mentioned in the second sub-paragraph above by the broadcasting-satellite service and, as necessary, procedures for the corresponding feeder links.

3. The agenda of the Conference is contained in Resolution No. 865 adopted by the Administrative Council at its 36th Session.

4. Mr. L. Valencia (Mexico) was elected Chairman of the Conference and Messrs. A. Washburn (United States), R. García González (Cuba) and J. Taboada (Argentina) were elected Vice-Chairmen.

5. The conference set up the following Committees:

Committee 1 - Steering Committee

(Consisting of the Chairman and Vice-Chairmen of the Conference and the Chairmen and Vice-Chairmen of the Committees)

Committee 2 - Credentials Committee

Chairman: Mr D. Paredes (Ecuador)

Vice-Chairman: Mr. J. R. Neede (Suriname)

Committee 3 - Budget Control Committee

Chairman: Mr. P. R. H. Balduino (Brazil)

Vice-Chairman: Mr. J. M. Cijntje (Netherlands)

Committee 4 - Technical Committee

Chairman: Mr. S. E. Aguerrevere (Venezuela)

Vice-Chairman: Mr. R. Avalos Manco (Peru)

Committee 5 - Planning Committee

Chairman: Mr. P. D. Cross (Jamaica)

Vice-Chairman: Mr. R. Zeitoun (Canada)

Committee 6 - Procedures Committee

Chairman: Mr. J. A. Zavattiero Cordoves (Uruguay)

Vice-Chairman: Mr. I. A. Mazzei Haase (Chile)

Committee 7 - Editorial Committee

Chairman: Mr. D. Sauvet-Göichon (France)

Vice-Chairmen: Mr. A. Marshall (United Kingdom)

Mr. M. A. Solano Rosero (Colombia)

6. The Conference adopted the following:

- provisions and an associated Plan for the broadcasting-satellite service in the frequency band 12.2 - 12.7 GHz in Region 2;
- provisions and an associated Plan for the feeder links for the broadcasting-satellite service (12.2 - 12.7 GHz) in the frequency band 17.3 - 17.8 GHz;

- nine Resolutions on the following subjects: effects of atmospheric absorption, bi-directional sharing between earth stations, inter-system interference levels, interim procedures before the entry into force of the Final Acts of WARC-ORB (1), compatibility of Plan with Appendix 30, use of the 12 GHz band by terrestrial services, Interim Systems, sharing of the 17 GHz band between space and terrestrial services, and the incorporation into the Radio Regulations of provisions and the associated Plan;
- seven Recommendations on the following subjects: protection ratios between television systems, additional propagation studies, inter-regional sharing problems, interpretation of the terms "allotment" and "assignment", incorporation into the Radio Regulations of provisions and the associated Plans, application to Regions 1 and 3 of the limits adopted for Region 2, limitations of power and direction of maximum radiation for stations of the fixed and mobile services.

7. The Conference decided that the decisions adopted above be transmitted to the First Session (1985) of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (WARC-ORB (1)) for the latter's consideration with the objective of incorporating them in the Radio Regulations, and of adopting resolutions in order to make them applicable to all countries of Region 2 and when appropriate to all Members of the Union.

8. In this connection, in its Resolution No. COM 6/7, the Conference instructed the Secretary-General to prepare a draft consolidated text containing the provisions and associated Plans for the Broadcasting-Satellite Service in the band 11.7 - 12.5 GHz for Region 1 and in the band 11.7 - 12.2 GHz for Region 3, as appearing in Appendix 30 to the Radio Regulations, and the provisions and associated Plans for the Broadcasting-Satellite Service in the band 12.2 - 12.7 GHz for Region 2, as appearing in the Final Acts of this Conference.

9. Furthermore, the Conference instructed the Secretary-General to send the draft consolidated text to all administrations not later than twelve months before the opening of the WARC-ORB (1), inviting them to comment on the text as prepared, and to publish as a conference document of WARC-ORB (1) at least six months before the opening of that conference the text as prepared together with any comments thereon that had been received from administrations.

10. The conference closed on 17 July 1983 with the signing of the Final Acts.

6. ACTIVITIES OF THE PERMANENT ORGANS

6.1 ACTIVITIES OF THE GENERAL SECRETARIAT

The General Secretariat comprises six departments - Personnel, Finance, Conferences and Common Services, Computer, External Relations and Technical Cooperation, together with a Communications Service.

6.1.1 Personnel Department

The number of established posts in the 1983 budget was increased from 634 to 746, mostly as a result of the Administrative Council's decision to regularize 82 posts which, although unestablished, had been occupied permanently for many years. However, more than 50 posts had to remain frozen because of the budgetary constraints. The average monthly total staff strength was reduced from 900 in 1982 (a figure reflecting inter alia the number of reinforcement staff needed for the Plenipotentiary Conference) to 865. Yet the Department did not have less to do with the recruitment and management of short-term staff since the number of contracts was slightly greater; furthermore, its work was considerably increased as regards the recruitment of staff for fixed-term or probationary contracts and the advertisement of "regularized" posts.

The volume of its work, on the one hand, and insufficient staffing on the other, made it impossible for the Department to implement fully Resolution 57 of the Plenipotentiary Conference dealing with Grading Standards and Post Classification. The International Civil Service Commission (ICSC) standards were used exclusively as from 1 January 1983 and the classifier endeavoured to keep job descriptions up-to-date; however, when the Department's recommendations were positive and should have resulted in upgrading of posts, these could not be proposed to the Administrative Council in the case of the Professional category or decided as regards the General Service category because of budgetary restrictions. There was no possibility of attempting a "rationalization of all grades" (Resolution 57) which is a full-scale exercise entailing a rewriting of all job descriptions on the ICSC form and a re-evaluation of all posts, at least in the Professional category; some progress was nevertheless achieved in individual sectors.

A new Personal Report form - an improved and indispensable tool for personnel management, verification of job descriptions, human resources planning partly through training and supervisor/official dialogue, etc., - was put into force as recommended by the ICSC; the ITU form is an adaptation of the Commission's proposed text. The effectiveness of this exercise depends to some extent on the application of Nairobi Resolution 60 dealing with In-Service Training which can bear results only if sufficient credits are available and sufficient time can be devoted to it (which was not the case in 1983).

Inter-organization meetings dealing with the conditions of employment and pension questions were attended by officials of the Department and their outcome is reported upon in separate documents submitted to the Council. Recommendations or proposals made by the boards concerned were approved by the United Nations General Assembly which entrusted them with more studies of measures designed to reduce the actuarial deficit of the Pension Fund. One of the main studies requested of ICSC will relate to the remuneration of officials in the Professional category whose purchasing power has steadily declined over the years.

6.1.2 Finance Department

The Finance Department continued with its regular duties of dealing with the accounts of the Union, of Technical Cooperation and of the ITU Staff Superannuation and Benevolent Funds, preparation of the Union budgets, control and supervision of the available credits, payment of salaries and allowances to Headquarters staff and to experts and the sale and storage of Union publications.

6.1.3 Department of Conferences and Common Services

In 1983, the Department provided support services and facilities for the following meetings:

499 days of CCITT Meetings (both in Geneva and outside)	throughout 1983
OCIR Interim Study Group Meetings (Series A1)	29.8-30.9.83 and
(Series A2)	2.11-7.12.83
and other OCIR meetings (totalling 238 days)	
Administrative Council (38th Session)	2-20.5.83
World Administrative Radio Conference for Mobile Services	28.2-18.3.83
Regional Administrative Radio Conference for the Planning of the Broadcasting-Satellite Service in Region 2	13.6-15.7.83
IFRB Seminar, HFBC Seminar and WARC-79 Final Acts Resolution 7 meeting	10-28.10.83
IFRB - 4th Panel of Experts, SAT-R2	21-30.3.83
Regional Seminars	during 1983

6.1.3.1 In 1983, the Language Division translated 66,311 pages net, or 22.7% more than the previous year. Of this total, 28,667 pages (43%) were translated into French, 6640 (10%) into English and 31,004 (47%) into Spanish. The first (net) translation figure breaks down as follows:

General Secretariat	3,104	4-½%
IFRB	5,521-½	8%
CCITT	31,608-½	48%
CCIR	9,553-½	14%
Journal	3,411-½	5%
Information	648	1%
World Comm. Year	513	1%
Admin. Council	2,335	3-½%
Tech. Cooperation	4,000-½	6%
MOB-83	1,817	3%
SAT-R2	2,974	4-½%
PP	257-½	½%
HFEC	567	1%

Totals:	66,311
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It is estimated that the reference service was able to save the translation sections an amount of time equivalent to some 5,244-½ pages. The Division also provided ad hoc interpretation, précis-writing and detached some staff on missions, which represents some 4,174 pages of translation. If this figure is added to the net production, the total becomes 70,485 pages, an increase of 14.75% over 1982. Work on terminology and the preparation of glossaries continued. A new glossary on space terms will be published early in 1984 to assist in preparations for the World Administrative Radio Conference on the use of the geostationary-satellite orbit and the planning of the space services utilizing it.

6.1.3.2 The Publications, Text Composition and Typing Division

The Typing Pool produced 114,110 pages of documents and worked in shifts over a period of 21 weeks during the major meetings held at Headquarters. The service also worked 2,168 hours of overtime. Of the total production, 48% was for the CCITT, as will be seen from the following details:

General Secretariat	3,110	3%
IFRB	6,055	5%
CCITT	55,187	48%
CCIR	22,306	20%
Journal	307	-
Information	281	-
World Comm. Year	1,288	1%
Forum	447	-
Tech. Cooperation	4,011	4%
Admin. Council	4,548	4%
SAT-R2	8,096	7%
PP	2,016	2%
MOB-83	5,394	5%
HFBC	856	1%
CARR-1+	76	-
CARR-1(2)	131	-
ORB-85	1	-
Total:	114,110	

Of the above total, 15,183 pages of typing were placed outside.

The Typing Pool also assisted the Text Composition Service by preparing certain tables and formulae for insertion in documents. The Text Composition Service produced the originals for publications listed in Annex 3. In 1983, 11,115 photocomposed pages were processed and 9,782 A4 pages of documents were captured for future re-use as publications. In collaboration with the Computer Department, the Service made encouraging progress towards inhouse capture and composition of both tables and mathematical formulae. Implementation on a trial basis will commence in 1984. A further step towards full storage of texts and insets was made in the study of preparing graphics by computer. Towards the end of 1983, the ITU photocomposer was equipped to produce originals on film as well as on paper, in A3 format in addition to the existing A4 format. It is expected that the foregoing will lead to improvements in productivity and cost reductions in the preparation of manuscripts especially in the production of publications.

The Publications Service handled 457 publications, totalling 56,030 pages in 832,315 copies. The costs incurred with outside printers amounted to 5,423,358 Swiss francs. The Volumes of the XVth CCIR Plenary Assembly were completed in the first quarter of the year. The full details of publications issued in 1983 is given in Annex 3.

6.1.3.3 The Reprography Division handled 63,766,986 A4 format pages, of which 500,000 were printed outside. In comparison with 1982, the total production increased by 21% in 1983. Some equipment was replaced by models

giving improved performance. The Division worked in shifts for 21 weeks and effected 2,490 hours of overtime. The Drawing Office provided services for all organs, particularly for technical cooperation activities which absorbed 51% of its resources.

A4 page impressions

General Secretariat	8,014,359	12-½%
IFRB	2,897,748	4-½%
CCITT	27,835,527	44%
CCIR	9,428,975	15%
Admin. Council	1,561,264	2-½%
Techn. Cooperation	5,405,756	8-½%
SAT-R2	3,238,686	5%
PP	888,407	1%
MOB-83	2,854,846	4-½%
HFBC	1,181,522	2%
CARR-1+	138,396	-
CARR-1(2)	2,860	-
ORB-85	318,640	½%

Total: 63,766,986

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6.1.3.4 The Dispatch/Transport Service sent out from various printers' workshops 192,000 kilos of publications, to a value of 4,800,000 Sw.frs. at a cost of 120,000 Sw.frs.; from ITU Headquarters, it dispatched miscellaneous printed matter (223,000 items) at a cost of 819,000 Sw.frs., and 91,000 packets of conference documents at a cost of 534,000 Sw.frs. There were 12,000 registered items, for which a surcharge of 13,000 Sw.frs. was paid, reductions of 5.5% and 5.8% respectively over 1982.

6.1.3.5 The Conference Documents Service handled 4,981,649 documents (an increase of 23% over 1982), of which 1,612,150 were dispatched (8.4% more than in 1982) and 2,574,393 were distributed (11% more than in 1982). The remaining documents were placed in stock. The "Addressograph" system ran off 129,445 addressed labels from a bank of 91,603 addresses. More modern techniques are being studied for introduction in 1984.

6.1.3.6 The Buildings, Supplies and Stores Division provided all material arrangements for conferences, as well as for the regular activities required at Headquarters. The search for office space continued, but some outside rentals were still necessary. Upkeep of the two buildings amounted to 1,440,900 Sw.frs. Office supplies to the value of 1,684,330 Sw.frs. were purchased and office furniture cost 1,450,000 Sw.frs. to satisfy the minimum requirements. Inventories were maintained in order. On several occasions, the security team was called upon for assistance. Technical services kept installations in working order and were on call over weekends and official holidays.

6.1.3.7 The Telephone Service maintained regular services at Headquarters and were detached to various meetings held in ITU premises. Major repairs had to be carried out to the telephone exchange, but a permanent service was continued. Lists of internal telephone numbers were up-dated and distributed from time to time.

6.1.4 Computer Department

6.1.4.1 "The dependence of ITU Headquarters upon computer assistance is growing quickly. The competence and confidence of staff in using computers is also growing. A set-back such as would result from a shortage of computing power would seriously affect the efficiency and effectiveness of all the Permanent Organs". This quotation from the Report to the 39th Session of the Administrative Council by the Voluntary Group of Experts reflects a reality quite different from a few years ago when computers were used mainly in batch mode and users were almost unaware of problems when the machine was unavailable. Today, some ITU Services stop working when the computing facilities are not available.

6.1.4.2 The increase in the utilization of the computing resources in 1983 was significant, an increase of more than 50% in relation to 1982 (see Annex 4, Section 2.1.3). This extra workload, especially in the second half of the year, was too heavy to absorb and led to a degradation of the service performance. For this reason, one of the computers which was supposed to be upgraded to a faster model in March 1984, had to be upgraded in November 1983; the result was a very clear improvement in the service performance.

6.1.4.3 The application development efforts of the Computer Department were concentrated on two database/transaction processing systems for the Common Services, Finance and Personnel Departments: Sales/Debtors Accounting and Short-Term Payroll. Maintenance of existing systems continues to absorb a considerable share of the developmental resources. Improvements have continued to be made in text treatment, photocomposition and other phases of the publication process.

6.1.4.4 Resolution 66 of the Plenipotentiary Conference calls for the use of modern office technology to make the most effective use of manpower and financial resources. An important step towards this goal is the installation of the new programmable workstations selected by the ITU. An extensive training programme has been started since good user training is a prerequisite for the expected productivity gains of the various application areas.

6.1.4.5 The Computer Department plays an active role in planning for increased communications activities and services at the ITU. Areas addressed include telex and telegram handling (including cooperation with the Communications Service in selection and installation of an optical character recognition page/reader); internal data communications via individual lines, concentrators, and local area networks; and external data communications.

6.1.4.6 The staff resources available to the Computer Department limit its ability to respond to the increasing demands for computerization to improve the productivity in all sectors of ITU activities.

6.1.4.7 Details of the Department's activities are given in Annex 4 to this document.

6.1.5 Department of External Relations

Following measures aimed at the rationalization of work, the duties of the Administrative Council and Conferences Division were progressively incorporated in the Relations between the Members Division with the result that finally the Department of External Relations comprises three Divisions: Relations with the United Nations and other international organizations, Relations between the Members of the Union and Public Relations. The Legal Adviser is also attached to this Department.

6.1.5.1 In 1983, the staff of the Department continued to keep in close touch with the work of the United Nations on matters of common interest and coordination between the specialized agencies and also participated in the work of the United Nations Committee on the Peaceful Uses of Outer Space and the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space.

In pursuance of the relevant United Nations resolutions, the General Secretariat, in cooperation with the Members of the Union, prepared the Twenty-Second Report by the International Telecommunication Union on Telecommunication and the Peaceful Uses of Outer Space.

The Department pursued its activities with a view to strengthening cooperation with certain regional organizations.

Activities of the Department concerning relations with the United Nations and other international organizations are covered in detail in Section 9 of this Report.

Legal activities covered a wide and constantly increasing range of subjects, some of them essentially legal and others having legal implications. They included application of the provisions of the Convention and other legislative texts of the Union, drafting of agreements and administrative arrangements, preparation, examination and final drafting of contracts, service agreements and various technical cooperation contracts, replies by the Union to questions from outside and preparatory documents for the Administrative Council and administrative radio conferences, as well as studies of issues and follow-up action related to the decisions taken by the Council and the Nairobi Plenipotentiary Conference. They also included the participation of the Legal Adviser, on behalf of the Union, in meetings of the Legal Advisers of the United Nations system of organizations, in New York and in Geneva, on issues of common concern.

The activities of the Department concerning Relations between Members of the Union and Public Relations are outlined in the paragraphs that follow.

6.1.5.2 During 1983, following measures aimed at the rationalization of the work, the duties of the Administrative Council and Conference Division were progressively incorporated in the Relations between Members Division which finally comprises the following Services:

- Maritime mobile,
- Radio Regulations and associated administrative matters,

- Telegraph and Telephone Regulations, public correspondence and statistics,
- Convention, preparation and servicing of Administrative Council and Administrative Conferences.

The Division continued to deal with matters concerning the relations that Members maintain with one another through the medium of the General Secretariat acting in close cooperation with the other permanent organs of the Union as appropriate. Further progress has been achieved in introducing automation in the storing and processing of information received and disseminated to Members enabling the Division to deal effectively with the ever increasing flow of data.

In addition to assuming ultimately the responsibilities concerned with the practical preparation and running of Conferences, the staff of the Division were committed to providing support whenever required as secretaries to Conference Committees and Working Group Chairmen as well as continuing to service working groups of the Administrative Council. These commitments, together with work to be carried out as a follow-up to decisions or resolutions of the Members, grew in step with the increased programme of Conferences and meetings of the Union.

Activities arising out of the implementation of World Communications Year (WCY) constituted an exceptional charge on the Division during 1983. The Chief of the Division was responsible for coordinating the work of a small group created to examine WCY project activities and to monitor the progress of these projects. The organization and implementation of the three WCY seminars, held in the Americas, Africa and in the Asia-Pacific regions, were also coordinated through the Division.

Brief comment concerning the salient features of the work of the Services of the Division is contained in the following sections.

6.1.5.2.1 Service responsible for maritime matters

The volume of work in this area of activities has continued to increase and a certain amount of rationalization has been introduced in order to respond to the greater work load. Under the Chief of the Service the work has been allocated to two Sections, one dealing with the Maritime Mobile Services and the other with Miscellaneous and Special Services. The redistribution of the work in a rational manner is a gradual process due to the need to ensure the continued quality and continuity, in accordance with the Radio Regulations, of the publications of the Union.

As regards the activities of the Maritime Mobile Service Section during the year 1983, the following items should be noted.

The Section has:

- a) participated in conferences and meetings concerning administrative and operational matters relevant to the activities of the Service (notably the 26th Session of the IMO Sub-Committee on Radiocommunications, and the CCITT JWP SMM);
- b) provided secretarial backing for the WARC MOB 1983;

- c) handled matters pertaining to the centralizing and processing of operational information concerning the maritime mobile services and the following stages of publication of such information in an appropriate form;
- d) implemented important steps towards a rationalized organization in accordance with decisions taken during the last Plenipotentiary Conference, such steps being in principle based on a redistribution of actual work load and simplified administrative procedures with a view to achieving economies;
- e) reviewed with the concerned administrations matters concerning the application of Radio Regulations and appropriate CCITT Recommendations in an effort to bring the publications handled by the Service up to date and in full compliance with all regulations and recommendations;
- f) continued to examine and process notifications from administrations concerning operational and related matters for updating of the following registers:
 - Coast Stations, I
 - Coast Stations, II
 - Ship Stations
 - Call Signs
 - Radiodetermination and Special Service Stations, II;
- g) been responsible for the publication of the following service documents:
 - List of Coast Stations (List IV);

Volume I: the 9th edition and the Supplements Nos. 1 and 2 to this edition,

Volume II: Supplement No. 3 to the 8th edition, the 9th edition and the Supplement No. 1 to this edition.
 - List of Ship Stations (List V);

the 23rd edition and the Supplements Nos. 1, 2 and 3 to this edition.
 - List of Radiodetermination and Special Service Stations (List VI);

Volume II: Supplement No. 5 to the 7th edition, the 8th edition and the Supplement No. 1 to this edition.
- h) maintained contacts with other specialized agencies on aspects of matters under the responsibility of the Service;

- i) supplied data-base extractions from the Ship Stations Register to the Dover Coast Guard for the up-dating of their computerized vessel traffic safety system;
- j) performed two specific investigations requested by Clyde Coastguard MRCC one of which was a priority message concerning a MAYDAY case;
- k) planned for a computer-assisted production of the Map of Coast Stations, due to be published in a simplified, more accurate and less expensive version during the first part of 1984.

The collection of data, the examination and verification of notifications in order to ensure their accuracy and consistency with official texts, the detection of misinterpretations, ambiguities or errors, as well as the coordination between files involved considerable correspondence with administrations.

The publishing process of the above-mentioned service documents involved tasks ranging from the initial planning and scheduling of each publication, up to and including the final authorization for distribution.

In the year 1983 the Section responsible for Miscellaneous and Special Services continued its efforts to effect the coordination between Members of the Union on matters relating to the application and interpretation of the Radio Regulatory and operational data necessary for reciprocal exchange of information.

During this period this Section continued to examine and process notifications from administrations concerning operational and related matters for updating the following operation registers:

- List of Radiodetermination and Special Service Stations (List VI - Vol. I).
- Alphabetical List of Call Signs of Stations used by the Maritime Mobile Service, Ship Station Selective Call Numbers or Signals and Coast Station Identification Numbers or Signals (List VII A)
- Alphabetical List of Call Signs of Stations other than Amateur Stations, Experimental Stations and Stations of the Maritime Mobile Service (List VII B)
- List of International Monitoring Stations (List VIII)
- Optional Provisions (2nd Series) (Radio Regulations)

This Section examined and verified notifications received from administrations to ensure their accuracy and consistency with official texts, the detection of misinterpretations, ambiguities or errors which resulted in the exchange of considerable correspondence with Administrations.

a) Publications

During 1983, the publication of the following service documents was completed:

- List VI - Volume I
 - Suppl. No. 1 to the 8th edition (May 1983)
 - Suppl. No. 2 to the 8th edition (November 1983)
- List VII A
 - Suppl. No. 7 to the 10th edition (January 1983)
 - 11th edition (May 1983)
 - Suppl. No. 1 to the 11th edition (July 1983)
 - Suppl. No. 2 to the 11th edition (October 1983)
- List VII B
 - Publication was discontinued (ref. Resolution 8 of the RR)
 - Studies for preparation of the new format and for the revalidation programmes are in progress and will be operational when the IFRB List I restarts its publication.
- List VIII
 - 5th Edition (March 1983)

b) Other activities

A comprehensive study was made between List VI-Vol. I, Section 2a, and various national publications (Admiralty List of Radio Signals, England; Radiosignaux, France; Radioseñales, Spain). It was discovered that 220 radiobeacon stations which were registered in these publications were not included in the ITU Listing. There were also many differences in technical data concerning 450 radiobeacon stations included in the ITU List as well as in these publications. In view of this the 105 Administrations concerned have been addressed requesting verification and confirmation of the data notified.

c) Computer application

With the cooperation of the Computer Department the initial data entry for the computerization of the List of Radiodetermination and Special Service Stations - Volume I, Section 2a, has begun. The programme has the capability of providing a listing of the radiobeacon stations in frequency/area order, as well as a list by country and beacon name order. A revised format for the next edition (1985) of the List has been partially defined. Other sections of this List are now under study for computerization to meet the deadline for the next edition (1985) with the objective of undertaking photocomposition in house, which should considerably reduce the cost of this publication.

6.1.5.2.2 Service responsible for the Radio Regulations and associated administrative matters

The tasks and responsibilities of this Service were previously included, together with those incumbent on the Maritime Services, in the area entitled, "Service responsible for the Radio Regulations". The work of the Division has evolved in such a manner as to fully justify a separate Service dealing with the application of the Radio Regulations and associated administrative matters. A more logical distribution of the work of the Division is now possible with a more effective control of the output from the different services.

In 1983 this Service continued to effect the coordination between Members of the Union on questions relating to the application and interpretation of radio regulatory and operational matters necessitating a reciprocal exchange of information. The use of computerized techniques was extended to facilitate the work of the Service.

The Service continued to participate in conferences and meetings and to perform tasks concerning the implementation of certain decisions of administrative radio conferences and CCI Plenary Assemblies.

This work is summarized in the following breakdown:

a) Radio Regulations

In accordance with Nos. 2086 and 2143 of the Radio Regulations, one series of call signs, several blocks of ship station selective call numbers and coast station identification numbers were allocated provisionally to countries.

The Analytical Table for the Radio Regulations (edition of 1982) was published, as well as an Analytical Index of WARC-79 Resolutions and Recommendations. In addition, the Section "Notes" of the 1982 edition of the Radio Regulations was published and contains a table on call sign formation possibilities, as well as a list of provisions of the Radio Regulations containing references to CCIR Recommendations (prepared in accordance with WARC-79 Resolution No. 65).

The Analytical Table for the Manual for Use by the Maritime Mobile and Maritime Mobile-Satellite Services (edition of 1982) was also published.

b) Tasks emanating from the WARC-79

The draft Table of Nationality Identification Digits (NIDs) prepared by the Service was submitted to the WARC for the Mobile Services, Geneva 1983. It was amended by that Conference to become the "Table of Maritime Identification Digits" and subsequently approved for inclusion in Appendix 43 to the Radio Regulations.

c) Special projects

In the framework of World Communications Year, the Service, in collaboration with the Department of Technical Cooperation prepared three seminars (Costa Rica, Lomé and Kuala Lumpur).

At the invitation of the Administration of the Federal Republic of Germany, the Chief of the Service gave a series of lectures at a seminar in Bonn on ITU Conference Procedures.

d) Participation at Conferences and Meetings

The Service provided secretariat support for WARC MOB-83 for Committee 5 (Operational and Administrative Committee) and its Working Group 5C (Selective Calling), as well as for the Administrative Council Plenary Working Group on the Extended Use of the Computer by the IFRB.

e) Preparatory work for Conferences and Meetings

The Service prepared Circular-letters and documents concerning conference structures.

Preparatory work for the First Meeting of the Voluntary Group of Experts on the Extended Use of the Computer by the IFRB and the First Meeting on the Development of National Frequency Management was undertaken.

f) Computer applications

The Service gave advice on and coordinated the application of electronic data-processing techniques for the work of the Division.

g) Other activities

Assistance was rendered to administrations, RPOAs, technical enterprises and individuals by replying to numerous requests for information relating to the application and/or interpretation of legal or quasi-legal international texts concerning radiocommunications in general and operational and administrative matters in particular.

6.1.5.2.3 Service responsible for the application of the Telegraph/Telephone Regulations, questions relating to public communications and statistics

As a result of the deployment of the activities of the RM Division, all the duties that the General Secretariat has to perform to ensure coordination between the Members of the Union with regard to questions relating to public communications (operation of the international telegraph, telematic and telephone services) and to statistics have been centralized in a single service.

The year 1983 thus marked a basic redefinition of the activities of this Service. To comply with the prevailing budgetary restrictions, priorities had to be established in drawing up a new calendar of service publications, while endeavouring to maintain their continuity. The rationalization of methods of preparing these documents by means of computer techniques was pursued with the help of the Computer Department, particularly in the case of the Yearbook of Common Carrier Telecommunication Statistics, for which a special program was developed.

a) Publications

The following documents were prepared for publication:

- Operational Bulletins (26 issues);
- Table of International Telex Relations and Traffic (1982);

- 25th edition of the List of Telegraph Offices;
- TA Booklet, 1983 edition;
- 6th edition (1983) of the TA Table;
- 23rd edition of the List of International Telephone Routes;
- Supplements Nos. 3 and 4 to the 2nd edition (1981) of General Information Relating to the Operation of the International Telegraph and Telematic Services;
- Supplement No. 7 to the 4th edition (1979) of the List of Indicators for the Telegram Retransmission System (TRS) and Telex Network Identification Codes (TNIC).

b) Other activities

In the context of the relations maintained with the UPU under Resolution 42 of the Plenipotentiary Conference, Nairobi, 1982, the ITU was invited to send representatives to the annual meeting (Berne, October 1983) of the consultative Council for Postal Studies (CCPS) of the UPU, during which a Resolution was adopted with a view to strengthening collaboration between the CCITT and the CCPS in the study of new services relating to both the postal and the telecommunication sectors.

The Head of the Service acted as Secretary of the Editorial Committee at the:

- World Administrative Radio Conference for Mobile Services, and the
- Regional Administrative Conference for the Planning of the Broadcasting-Satellite Service in Region 2.

6.1.5.2.4 Service responsible for the Convention, preparation and servicing of the Administrative Council and administrative conferences

The former "AC and Conference Division" has been progressively incorporated into this Service which continues to be responsible for the functions of the Secretary-General with respect to various protocol aspects concerning the Convention and Acts of the Union. The Service also has a number of other duties which fall within the responsibility of the RM Division.

The Service was also involved in the 38th session of the Administrative Council and the following Conferences:

- 38th session of the Council: administrative arrangements, executive secretariat and publication of the Volume of Resolutions and Decisions and the Report on Activities;
- World Administrative Radio Conference for Mobile Services (MOB-83): administrative arrangements, executive secretariat and secretariat of the Credentials Committee, preparation and publication of the Final Acts;

- Regional Administrative Conference for the Planning of the Broadcasting-Satellite Service in Region 2 (SAT-R2): administrative arrangements, executive secretariat and secretariat of the Credentials Committee, preparation of the Final Acts for publication;
- World Administrative Radio Conference for the Planning of HF Bands Allocated to the Broadcasting Service (HFBC-1): matters relating to invitations and the publication of preparatory documents;
- Second session of the Regional Administrative Conference for FM Sound Broadcasting in the VHF band (Region 1 and certain countries concerned in Region 3) (CARR-1+(2)): matters relating to invitations.

The Service also prepared the volume of Minutes of the Nairobi Plenipotentiary Conference.

Throughout the transition period (integration of the duties and responsibilities of the AC and Conference Division into the Service), the Service:

- carried out routine tasks relating to the function of depositary of the Acts of the Union, namely, registration of the deposit of instruments of ratification or accession to the International Telecommunication Convention, registration of approval of other acts of the Union and processing consultations, notifications and relevant communications, etc.;
- dealt with questions relating to requests for (or waivers of) participation in the work of the International Consultative Committees submitted by recognized private operating agencies, scientific or industrial organizations and international organizations;
- prepared for publication the Notification (12 issues) and three Supplements to the List of Addresses.

6.1.5.3 The ITU Public Relations Division comprises four sections: Information, Telecommunication Journal, Audio-Visual and Central Library, Documentation and Archives. The Division carried out its regular duties, which are summarized below, and also assumed responsibility for such special projects as World Communications Year - Development of Infrastructures - and the 4th World Telecommunication Exhibition, TELECOM 83.

6.1.5.3.1 Regular activities

a) Information

The Information Section prepared the necessary documentation for the 15th World Day (17 May 1983) on the theme "One world, one network". The following documentation was distributed:

- a series of press releases;
- a series of photographs illustrating the theme chosen;

- a production of a short television film for the Secretary-General's message;
- a sound recording of the Secretary-General's message;
- circulation of a poster specially designed for World Communications Year to the Administrations of the ITU Member countries and United Nations Information Centres.

The Information Section also published 11 press releases on the activities of the Union and prepared articles at the request of the specialized press and broadcasts and interviews for broadcasting stations.

The press room was used extensively either to receive groups of visitors or for meetings held by other departments of the General Secretariat or other organs of the Union.

b) Telecommunication Journal

The Telecommunication Journal published 724 pages and the following supplements:

- list of satellites launched in 1982;
- maps of the PANAFTEL and MEDARABTEL networks.

In pursuance of Administrative Council Resolutions 636 and 637 on the dissemination of information on the activities and role of the ITU in space telecommunications, the Journal published a number of articles and news items on the subject. It also gave considerable space to accounts and reports of the technical cooperation activities of the Union, including detailed information each quarter on each region and a global report on technical cooperation activities.

Two issues of the Journal were devoted to tariffs and one issue to telecommunications in the Argentine Republic. It will be recalled that the following special issues have already been published: Cameroon in 1976; Canada in 1977; India in 1978; France in 1979; United States of America in 1980; Poland in 1981; the Federal Republic of Germany in 1982.

c) Audio-visual

In addition to its routine work of assisting other sections of the Division (layout of the Journal, preparation of Library catalogues and information pamphlets), the Audio-visual Section did a certain amount of work for other organs and departments of the ITU, such as preparing audio-visual programmes, arranging displays of publications, photographic reporting and preparing exhibitions. It also participated in work relating to the projects described in Section 6.1.5.3.2 of this report (TELECOM 83 and World Communications Year).

d) Central Library Documentation and Archives Service

Central Library

During 1983, the Central Library acquired 373 volumes, 85 purchased and 288 donated (as against 466 volumes in 1982, 80 purchased and 386 donated). Also acquired by the Library were 4,800 ITU documents and publications (two sets in English, French and Spanish), 388 governmental publications (such as annual and financial reports), 3,700 documents and publications of the United Nations and the specialized agencies, 1,300 periodicals and 2,191 issues of newspapers discarded 30 days after receipt). The Library also subscribes to 70 periodicals and seven newspapers (used for Teleclippings).

During the year, the Library provided loan and reference services to Headquarters staff, to delegates to ITU conferences and meetings in Geneva and to outside users (professors, interpreters, fellowship holders, researchers, etc.). It loaned 7,660 books and publications to Headquarters staff in 1983. The number of readers using the Library was 4,800, against 4,600 in 1982, an increase of some 5%. The Library also dealt with 2,050 requests for information by telephone in 1983.

The Library updated and produced three publications to facilitate consultation of its stocks and to inform readers of the most recent acquisitions and of changes in collections of periodicals and annual publications. These three publications are: the List of Recent Acquisitions and the List of Periodicals (10th edition, 1983) (circulated to libraries and Headquarters staff); and Current Contents (bi-monthly publication for Headquarters staff).

One hundred and ninety book reviews prepared by the Librarian were published in the Telecommunication Journal in 1983 (180 in 1982).

Film Library

The ITU Film Library, during 1983, met more than 200 requests for the loan of films. This included requests for the two films produced for World Communications Year.

Archives

Printed archives

The volume of this series is increasing in step with the steadily growing rate of production of Union documents and publications, which are all subjected to careful bibliographical processing by the Service. The Kardex file, in which Union publications are indexed by series and in chronological order, continued to be compiled. These publications are all bundled, labelled and filed. The Archives Service dealt with 245 requests to consult printed documents (160 requests from Headquarters staff) and made 3,200 photocopies, most of them for sale.

Side-by-side with this research work, which calls for a great deal of time if the requests are to be met properly, the Service continued to draw up the analytical tables for the Council, which now cover the period 1967 to 1983. The file classifying all Union conferences by subject was continued; administrative conferences have been dealt with since their origin. This work has now reached the year 1981.

The reading room is used by officials in the Tower, who can avoid stocking too many documents in individual offices by using these facilities. Finally, mention should be made of visits from university researchers preparing theses on subjects within the purview of the ITU.

Semi-active and retired files

Clearance operations are being continued, in the context of the overall task of gradually establishing for every administrative unit accurate table of the period of preservation of all documents. The various services of the Organization have consigned 99 linear meters of files; this year again, the Finance and Technical Cooperation Departments were the chief contributors, together accounting for some 66 linear metres. The Archives Service responded to 422 requests for files.

Microfilms

In 1983, this unit produced 79 rolls of film and made 206 jackets which remain the property of the ITU Archives Service, and 291 microfiche copies for sale outside the Union.

Missions

At the request of the Venezuelan Administration, the Chief of the Central Library, Documentation and Archives carried out a mission in Caracas from 4-14 January 1983, to assist the Dirección General Sectorial de Comunicaciones of Venezuela in re-organizing its newly-established Information and Documentation Centre (CEDINCO).

6.1.5.3.2 Special projects

a) World Communications Year - Development of Communications Infrastructures

Following the adoption by the United Nations General Assembly on 19 November 1981 of Resolution 36/40 proclaiming 1983 "World Communications Year: Development of Communications Infrastructures", the Public Relations Division assisted the Secretary-General of the ITU in coordinating the activities of the Year at the international level. This world-wide action was conducted in cooperation with the ITU departments concerned and the organizations of the United Nations system and with the support of a small secretariat.

A separate document on the World Year is being submitted to the Administrative Council.

b) TELECOM 83

Preparations for the 4th World Telecommunication Exhibition, TELECOM 83, continued until October, and the exhibition was held from 26 October to 1 November. As for the previous exhibitions, TELECOM 71, TELECOM 75 and TELECOM 79, a specialized secretariat was set up, entirely financed by income from the exhibition.

6.1.6 Technical Cooperation Department

The activities of this Department are described in Section 7 of this report.

6.1.7 Communications Service

6.1.7.1 Mail

This section received and sorted 143,863 incoming items of correspondence i.e. a daily average of 575 items.

The number of outgoing items of correspondence processed and franked was 101,695, i.e. a daily average of 406 items (excluding the parcel-post sent by the Despatch Service), while 2,640 items were sent by the United Nations diplomatic pouch.

Whilst the quantity of outgoing items increased slightly there was a small decrease in postage costs. The total of these costs for 1983 was 159,544 Swiss francs.

Sales of ITU stamps to collectors and Union officials amounted to 7,037 Swiss francs.

6.1.7.2 Telex

In 1983, 19,125 outgoing and 25,252 incoming messages were processed making a daily average of 178 messages. In addition, 156 circular telegrams were sent to Administrations Members of the Union. This figure represents a substantial increase over the 114 sent in 1982.

To handle the increasing volume of telex traffic and to improve the operation of the Communications Service, a detailed study of new methods was undertaken in cooperation with the Computer Department.

As a result of this study an Optical Character Recognition (OCR) page reader is to be installed at the end of February 1984. In the initial stage, this device will read typed telex text which has been prepared in the originating department and produce punched tapes which can be read by the existing telex machines. Further improvements are being explored.

6.1.7.3 Facsimile

An increasing number of documents and messages are sent and received by facsimile; the Communications Service has recently been equipped with automatic CCITT Group 2/3 machines which permit a more rapid transmission of improved quality. This facility proves to be particularly useful for the transmission of texts when ITU conferences and meetings are held outside Geneva and is also used by delegates attending meetings at ITU Headquarters.

In 1983, 8,425 pages were despatched and received making an average of 34 pages a day.

6.2 ACTIVITIES OF THE INTERNATIONAL FREQUENCY REGISTRATION BOARD (IFRB)

6.2.1 This Section of the Report covers the substantive activities of the IFRB in 1983. In summary, the year was marked by:

- a) the intensive work resulting from WARC-79, including
 - urgent follow-up action on certain decisions of WARC-79 relating to the review of the Master Register (Resolution No. 9);
 - computer analysis and design for the search for replacement frequencies, (Resolution No. 8);
 - preparations for conversion and transfer of the Master International Frequency Register (MIFR) resulting from the revision of Appendices 1, 1A and 9 (International Frequency List - IFL), in particular reformatting the Magnetic Reference File (MRF), IFL and frequency assignment notices and related computer analysis/design/programming;
 - preparation for conversion of the MIFR to the new method of designating emissions (Resolution No. 36, Article 4);
 - preparations for the review of the MIFR resulting from revision of Article 8 and pursuant to Resolution No. 30;
 - preparation of the Handbook on Procedures pursuant to Resolution No. 6.
- b) activities related to the preliminary and later the detailed design of the Interim System (see the related Joint Progress Report in Council Document 6102);
- c) follow up action on decisions of the Administrative Regional MF Broadcasting Conference, Region 2, Rio de Janeiro, relating to the verification and correction of the Plan pursuant to Resolution No. 2 (COM 4/2);
- d) follow up action on decision of first session of the Regional Administrative Conference for FM Sound Broadcasting in the VHF Bands (Region 1 and certain countries concerned in Region 3), Geneva, August-September, 1982;
- e) preparation for and participation in the World Administrative Radio Conference for Mobile Services, Geneva, 1983, and implementation of its decisions;
- f) participation in the meetings of the CCIR Study Groups;
- g) preparation for and participation in the Regional Administrative Conference for the Planning of the Broadcasting-Satellite Service in Region 2 (SAT-R2) and immediate post-Conference work;

- h) Organisation of an HFBC Seminar preparatory to the Conference, of the regular IFRB Seminar and of a meeting between representatives of Administrations, the CCIR and the IFRB concerning national frequency management (Resolution No. 7, WARC-1979);
- i) preparation for the first session of the World Administrative Radio Conference for the HF Broadcasting;
- j) organization of and participation in the ad hoc meeting on International Monitoring System under Resolution No. 39 (MOB-83).

6.2.2 In 1983, the daily activities of the IFRB in relation to frequency matters are summarized as follows:

- a) examination of frequency assignments and changes in frequency assignments notified by administrations, their entry in the Master Register, as well as the application of co-ordination procedures, in accordance with the provisions of the Radio Regulations;
- b) other tasks assigned to the Board by the World or Regional Administrative Radio Conferences such as
 - the European VHF/UHF Broadcasting Conference, Stockholm, 1961;
 - the African VHF/UHF Broadcasting Conference, Geneva, 1963;
 - the Regional Administrative LF/MF Broadcasting Conference (Regions 1 and 3), Geneva, 1975;
 - the World Administrative Radio Conference for the Broadcasting-Satellite Service (12 GHz), Geneva, 1977;
 - the World Administrative Radio Conference on the Aeronautical Mobile (R) Service, Geneva, 1978;
 - the World Administrative Radio Conference, Geneva, 1979;
 - the Regional Administrative Radio Conference for the MF sound broadcasting Region 2, Rio de Janeiro, 1981;
 - the Regional Administrative Radio Conference for FM sound broadcasting in the frequency band 87.5 - 108 MHz (Region 1 and certain countries of Region 3) Geneva, 1982;
 - the World Administrative Radio Conference for the mobile services (MOB-83), Geneva, 1983;
 - the Regional Administrative Radio Conference of the planning of the Broadcasting-Satellite Service in Region 2 (SAT-R2), Geneva, 1983.

6.2.3 Maintenance of the Master International Frequency Register (Master Register), the International Frequency List and related service documents

a) In accordance with the relevant provisions of the Radio Regulations, the Board deals with the frequency assignment notices submitted by Administrations with a view to recording them in the Master Register; the Findings, issued by the Board in connection with these notices and also recorded in the Master Register, provide Administrations with information on the occupancy of the frequency spectrum and constitute a useful basis for the solution of problems of harmful interference. The Master Register at present contains particulars of some 800,000 assignments representing about 2,000,000 line entries which are published in the International Frequency List and its quarterly Recapitulative Supplements.

b) The Radio Regulations adopted by the WARC Geneva 1979 entered into force on 1 January 1982. Consequently, notices concerning new frequency assignments or changes to assignments already recorded in the Master Register were to be submitted in accordance with the provisions of the revised Appendices 1 and 3 and were subject to the application of the provisions of Articles 12 and 13 of the revised Radio Regulations. However, due to the extraordinary inflow of notices which has been received during the year preceding the entry into force of the new Radio Regulations, backlogs in the handling of notices had occurred and at the end of 1982 there were still about 4,674 notices which in view of their date of receipt, had to be dealt with in accordance with the provisions of the Radio Regulations, Geneva, 1959. These notices had previously received an unfavourable finding after their technical examination and had been resubmitted by Administrations under the provisions of RR 515 (1959) within the time limit prescribed in RR 518. The treatment of these notices was completed by the end of May 1983.

c) This situation resulted in withholding the treatment of notices received in the course of the years 1982 and 1983 which were to be dealt with under the provisions of the Radio Regulations, Geneva, 1979, and consequently could not be published in Part IA of the IFRB weekly Circular until the treatment of the last notices to be dealt with under the 1959 Radio Regulations had been completed. However, measures had been taken in order to ensure that a preliminary examination was made of all notices received after 1 January 1982 so that incomplete notices or notices needing clarification could be referred to the administrations concerned.

d) In April 1983, some components of the Interim System developed by an outside consultant in the framework of the Extended Use of the Computer by the IFRB (see paragraphs 79 to 83) were made available. These facilities permitted the data capture and publication of notices concerning frequency assignments to terrestrial services received after 1 January 1982. Some 5,000 such notices have been captured and published in Part IA of the IFRB weekly Circular in the new layout adopted by the IFRB and published in the Annex to IFRB Circular-letter No. 536 of 28 February 1983. They were examined by the Board in accordance with RR 1240 and RR 1241 or RR 1242. However, the facilities available at that time did not permit the publication of the findings adopted by the Board with respect to these assignments in Part II or Part III of the Circular nor the updating of the Master Register.

e) It is to be noted that, for reasons explained in IFRB Circular-letter No. 532 of 31 January 1983, notices concerning assignments to stations in the space radiocommunication service as well as in the band allocated exclusively to the aeronautical mobile (R) service have continued to be published in 1983 in the 13 Column format. It is expected that the new layout adopted by the Board can be used for all notices early in 1984 and that the delay in the treatment of notices will gradually be reduced in the course of the year 1984.

6.2.4 Examination of frequency assignments to terrestrial stations in frequency bands between 9 kHz and 28 MHz

a) The Board carried out the technical examination, in accordance with RR 1241 or RR 1242 of Article 12 of the Radio Regulations, Geneva, 1979, of notices relating to new frequency assignments or to changes in assignments already recorded in the Master Register in the bands between 9 kHz and 28 MHz. In 1983 technical examination was made of 940 such notices. It should be noted, in this connection that in accordance with resolves 2 of Resolution No. 8 of the WARC-1979, the procedure of Article 12 concerning the examination and recording of assignments in the bands between 4000 kHz and 27,500 kHz allocated to the fixed service is suspended between 1 January 1982 until 30 June 1984. 1,606 notices submitted in 1983 by administrations under the provisions of resolves 3 of the same Resolution concerning urgent requirements in these bands are being dealt with in accordance with the interim procedure described in Annex B to Resolution No. 8. In addition to that, 109 notices received by the Board before 1 January 1982 were examined during 1983 under the provision of RR 501 or RR 502 of the Radio Regulations, Geneva, 1959. Eighty-three of these notices related to assignments resubmitted under RR 515.

b) During 1983, 6,093 frequency assignments to aeronautical stations in the HF bands allocated exclusively to the Aeronautical Mobile Service between 2,850 kHz and 22,000 kHz were notified to the Board and examined according to the provisions of RR 1333 to RR 1349 (Geneva, 1979).

c) During 1983, 336 frequency assignments to coast stations in the HF bands between 4,000 kHz and 27,500 kHz allocated exclusively to the maritime mobile service were notified to the Board and examined according to the provisions of RR 1241 and RR 1315 to RR 1332 (Geneva, 1979).

6.2.5 Examination of frequency assignments to terrestrial stations in the bands above 28 MHz (Article 12 of the Radio Regulations)

In the bands other than those shared with space radiocommunication services, 7,680 assignment notices were received in 1983; in the bands shared with space radiocommunication services, 2,317 assignment notices were received. For the same reasons given in paragraphs 6.2.3 b) and c) the treatment of these notices was delayed in 1983.

6.2.6 Examination of frequency assignments to stations in Space Radiocommunication Services (Article 11, 13, 14 and 15 of the Radio Regulations and WARC Resolution No. 33)

a) The IFRB received information relating to 60 new satellite networks which it published, under the advance publication procedure, in Special Sections of the IFRB weekly Circular (a satellite network consisting of one space station and its associated earth stations).

In 21 Special Sections of its weekly Circular, the IFRB published comments submitted by the other administrations as a result of the publication referred to in paragraph 20 above, of information concerning planned satellite systems in the form of a summary of the progress made in solving the difficulties encountered. In eight Special Sections of its weekly circular, the IFRB published, in accordance with Section I of Article 7 of Appendix 30 to the Radio Regulations, advance information on eight satellite networks in the fixed-satellite service. In one Special Section of its weekly circular, the IFRB published information on comments submitted by other administrations as a result of the publication referred to above.

b) In 140 Special Sections of its weekly circular, the IFRB published the characteristics which Administrations provide when coordinating between themselves the use of frequency assignments to space stations on board geostationary satellites, or to earth stations intended to communicate with such space stations. In 25 Special Sections of its weekly Circular, the IFRB published information on progress made in effecting coordination and agreements reached on requests for coordination.

c) Pursuant to the provisions of Sections A of Resolution No. 33 of the WARC-1979, the IFRB published in two Special Sections of its weekly Circular, requests for coordination of frequency assignments to space stations in the broadcasting-satellite service with respect to stations in the terrestrial radiocommunication services.

d) In accordance with the procedure prescribed in Article 14 of the Radio Regulations, requests for agreement were published in nine Special Sections of IFRB weekly Circular. In two Special Sections of its weekly Circular, the IFRB published information on the successful completion of the procedure prescribed in Article 14.

e) In accordance with the provisions of RR 1089, 1130, 1528 and 1532, the IFRB continued in 1983 to assist administrations, on request, in effecting the coordination of frequency assignments to stations in the space radiocommunication service and to related terrestrial stations. This assistance took the form of the identification and acquisition of the required data, the conduct of detailed regulatory and technical analysis, the identification of, and communication with, other concerned administrations and the provision of advice and assistance to the parties concerned in endeavouring to effect the required coordination. During 1983, the Board provided assistance to 32 administrations in effecting this coordination. In addition to thirty-five unresolved cases carried from the previous years, forty-four new requests for assistance were received during the year and coordination was completed in thirty-eight cases, representing increases of 160 and 170 per cent respectively over the previous year. At the year's end the IFRB was providing assistance to administrations in forty-one cases.

f) The IFRB received 4,400 frequency assignment notices for stations in Space Radiocommunication Services. These notices concerned mainly the establishment or modification of space systems and the implementation of experimental programmes. The treatment of such notices could not start in 1982 for the reasons given in paragraphs 6.2.3 b) and c).

6.2.7 High Frequency Broadcasting Schedules (Article 17 of the Radio Regulations)

a) The Board continued to apply the procedure specified in Article 17 of the Radio Regulations for the HF bands allocated exclusively to the Broadcasting Service. In conformity with its terms of reference, it published the four Tentative High Frequency Broadcasting Schedules together with recommendations with a view to improving the utilization of the spectrum. The volume of these Schedules varied from season to season and the number of frequency-hours included in each HF Broadcasting Schedule has increased from approximately 16,700 in November 1960 to approximately 26,300 in that of November 1983.

b) From the monitoring information it received, the Board noted that, as in previous years, nearly 90 per cent of the frequency assignments with a transmitter power of 50 kW or more in the tentative HF broadcasting schedules for the period September 1982 to August 1983 were actually used. However, a certain number of assignments having lower power for local services were not monitored. The same information showed that the Board had not received notices for certain emissions. These emissions, in frequency-hours, correspond to about 10 per cent of those appearing in the schedules. Each time the Board was able to ascertain that a specific frequency assignment had been in use during a season without prior notification, the Administration concerned was requested to supply appropriate information with a view to publication in the final schedule.

c) Since the adoption of incompatibility calculation by computer, it seems that the number of incompatibilities gradually increased season by season particularly in the March and September Schedules because certain administrations in Europe shifted some of their assignments according to the time change adopted in Western Europe on Sunday immediately after the Equinox. In addition to the indications of incompatibilities published in the Tentative Schedule, the Board drew the attention of some administrations to the fact that frequency assignments entered on their behalf in the tentative schedules were clearly incompatible with those included on behalf of other administrations and that it seemed impossible in those circumstances to provide a satisfactory service. The number of such assignments was about 480 for the four tentative schedules for the periods from May 1983 to March 1984.

d) The 7th Edition of the Annual HFBC List was prepared. It comprises all seasonal information between September 1967 and December 1981. An index was also prepared showing the first and last year in which any particular frequency was notified.

e) The data capture through terminals for Article 17 procedure was fully implemented as from the September 1983 Schedule.

6.2.8 Regional Agreements for the Broadcasting Service in the VHF/UHF bands

The procedures applying in the bands between 41 MHz and 960 MHz allocated to the Broadcasting Service prescribed in the Regional Agreement for the European Broadcasting Area, Stockholm, 1961, or in the Regional Agreement for the African Broadcasting Area, Geneva, 1963, were applied in respect of 6,611 assignments to stations in the European Broadcasting Area and 86 assignments to stations in the African Broadcasting Area. Fifty-one ST61 Special Sections and fourteen GE63 Special Sections of the IFRB Circular were published.

6.2.9 Bringing up to date of the Frequency Allotment Plan for HF coast radiotelephone stations contained in Appendix 25 (Article 16 of the Radio Regulations)

a) The information received from eight Administrations under RR 1682 to RR 1684 was published in accordance with RR 1685 in Part A of Special Sections Nos. MAR/39, 40 and 42 to 47. These publications related to proposals to insert 41 allotments in the Plan.

b) Under RR 1688, four Administrations requested the Board to carry out the complete procedure for seeking the agreement of other Administrations to which the channels concerned by the additional allotments are allotted. The consultations related to 15 channels involving 73 Administrations.

c) Six Administrations requested the Board to endeavour, under RR 1700 to RR 1703, to obtain the agreement of 86 Administrations which either had not made their decisions known within the prescribed time-limits, or had indicated disagreement as to the sharing possibilities.

d) Three allotments were entered in the Plan pursuant to the provisions of RR 1717. Particulars of these allotments were published in Part B of Special Section No. MAR/41 and the Plan was updated.

6.2.10 Special assistance to Administrations

a) The Board studied, under the relevant provisions of the Radio Regulations or Regional Agreements, ten requests for special assistance received from Administrations. The studies carried out as a consequence covered a wide variety of problems ranging from search of suitable frequencies, determination of probability of harmful interference or need for co-ordination and determination of incompatibilities and covered both terrestrial and space radiocommunication services.

b) The Board also responded to requests to advise many Administrations on the procedures to be followed mainly in relation to space radiocommunication services.

6.2.11 Cases of harmful interference

a) In 1983, the Board dealt with a total of 24 cases of harmful interference which had been reported by Administrations under RR 1962. Six of these cases had been reported in 1982 and were not yet solved at the end of that year. Eighteen new cases of harmful interference were reported to the IFRB in the year 1983. Out of the 24 cases, 11 cases concerned aeronautical mobile service exclusive bands, five cases concerned maritime mobile service

exclusive bands, six cases concerned broadcasting service exclusive bands of which four cases concerned bands governed by the Regional Agreement on LF/MF Broadcasting (Regions 1 and 3), and finally two cases concerned the bands allocated to the fixed service. At the end of 1983, 13 cases had been successfully resolved while appropriate action was being taken in the remaining 11 cases.

b) The solution of these cases proved to be slow and difficult, mainly owing to the lack of response from some Administrations whose stations were causing interference by using frequencies not notified to the IFRB, or operating out of band or transmitting with characteristics different from those notified.

c) In cases where the source of harmful interference reported to the IFRB could not be identified, the Board asked some Administrations to carry out monitoring observations in accordance with RR 1964, making use also of radio directional finders, in order to identify the interfering station.

6.2.12 International monitoring

Pursuant to RR 1885, four periodic summaries of monitoring information, numbered 216 to 219 (which cover the period 3 October 1982 to 5 November 1983) and totalling 648 pages, were issued in 1983. Each summary contained the results of monitoring observations in the frequency bands between 2,850 kHz and 28,000 kHz including information concerning broadcasting stations; each covered a period of three months and included all the information received by the Board concerning the last month of the summary immediately preceding the summary under preparation. (For further detailed explanations in this connection, reference may be made to IFRB Circular-letters No. 241, dated 25 May 1970, and No. 248, dated 23 November 1970).

6.2.13 Aeronautical Mobile (R) Service

a) The procedure for the implementation of the Frequency Allotment Plan in the bands allocated exclusively to the aeronautical mobile (R) service between 2850 kHz and 22,000 kHz prescribed in Resolution No. 401 of the WARC-79 continued during 1983. Until 1 February 1983, date of entry into force of the Allotment Plan contained in Appendix 27 Aer2 to the Radio Regulations, the Board received some 2,000 frequency assignment notices relating to the modifications necessary to bring the existing assignments into conformity with the Plan. In accordance with paragraph 2.1 of resolves 2 of Resolution No. 401, in June 1983 the Board sent to the Administrations concerned extracts from the Master Register containing their assignments existing on 1 February 1983 which were not in conformity with the Plan and asked the Administrations to transfer the assignments in question to the appropriate frequencies. Up to 31 December 1983 the Board received more than 4,000 notifications of such transfers.

b) With respect to the use of frequencies allotted to Worldwide Allotment Areas in the new Allotment Plan contained in Appendix 27 Aer2, the Board published IFRB Circular-letter No. 533 dated 1 February 1983 containing a list of frequencies to be used by the Administrations for the purpose of long-distance aeronautical operational control communications. This list had been established within the framework of Recommendation No. 402 of the WARC-79, in close collaboration between the IFRB and the International Civil Aviation Organization (ICAO) on the basis of requirements submitted by Administrations to the IFRB or the ICAO.

6.2.14 Application of the decisions of the Regional Administrative LF/MF Broadcasting Conference (Regions 1 and 3), Geneva, 1975

On the basis of Article 4 of the Regional Agreement, the Board dealt with 139 proposed modifications or proposed new assignments relating to the Plan. The Board sent the results of its calculations to the Administrations concerned and published nine Special Sections according to the procedures contained in Article 4. The Board continued to assist Administrations in seeking new frequencies and applying the procedure set out in Article 4 of the Agreement. The Board also sent detailed explanations on the results of its calculations to those Administrations who requested clarification.

6.2.15 Application of the decisions of the World Administrative Radio Conference, Geneva, 1979 (WARC-79)

a) A provisional Section of the Master Register was compiled under the terms of paragraph 6 of the Annex to Resolution No. 9 (CT). However, for practical reasons, this Provisional Section is being published in two Volumes, namely:

*) Volume I : particulars of frequency assignments between 3000 kHz and 9000 kHz

Volume II : particulars of frequency assignments between 9000 kHz and 27,500 kHz.

In view of action required under Resolution No. 8 (CV), priority was given to the preparation of Volume II concerning assignments in frequency bands, the limits of which were modified by WARC-79. Volume II therefore has been published first. In paragraph 8.1 of the Annex to Resolution No. 9 (CT), provision is made for the publication of a Supplement to the Provisional Section containing those assignments for which notices were received between 12 January 1980 and 31 December 1981 and recorded in the Master Register. The number of notices received during this period was far greater than anticipated and included a large number of modifications to entries existing in the Master Register and therefore appearing in the Provisional Section. The inconvenience of having entries in the Provisional Section modified by entries in a separate Supplement has been overcome by bringing the contents of the Provisional Section up to date with the modifications and additions which would have appeared in the Supplement. The result of this action will be published in another Volume II under the title "Provisional Section (updated with the Supplement) of the Master International Frequency Register". This publication will be ready for dispatch to Administrations in January 1984.

b) The 36th Session of the Administrative Council in 1981 provided funds for an in-house team to pursue its work on a detailed design for the computerized execution of the tasks related to the WARC-79 Resolution No. 8 (CV), that is to assist the Administrations in finding replacement frequencies for several thousand assignments, mainly in the Fixed Service, which have to be displaced as a consequence of the revision of the Table of Frequency Allocations. The necessary programming was finalized early 1983, but the final tests on the real data base could start only when the corresponding Resolution No. 9 files became available. Nevertheless, by the end of the year, the computer had successfully completed the main portion of the task, and

*) N.B.: The question of publication of Vol. I is still under consideration.

replacement frequencies had been found for 10,136 assignments (representing more than 25,000 entries) to be relocated. Due to an accumulation of circumstances, the implementation is 7 to 8 months behind the schedule foreseen in paragraph 7 of Annex A to Resolution No. 8.

c) In implementation of Resolution No. 6 of WARC-79, the Board prepared the first draft of Part VII of the IFRB Handbook on Regulatory Procedures dealing with the Master International Frequency Register, the International Frequency List, the IFRB weekly Circular and the Forms of Notice. In view of the fact that the first draft of Parts V, VI and VII covered certain important aspects of the procedures which could be useful to Administrations, the Board sent the first draft of Parts V and VI to Administrations through IFRB Circular-letter No. 548 of 11 July 1983. Likewise, the first draft of Part VII was sent to Administrations through IFRB Circular-letter No. 561 of 28 November 1983. The Board is now engaged in preparing the final texts of the various Parts of the Handbook and hopes to publish the Handbook in its entirety during the course of 1984.

d) In implementation of Resolution No. 36 of WARC-79, the Board continued to provide advice to Administrations on the use of the new method of designation of emissions. In IFRB Circular-letter No. 511 of 8 July 1982 the IFRB had informed Administrations of the action it proposed to take on the conversion of the designation of emissions appearing in the assignments recorded in the Master Register. In effect, the Board decided to make this conversion in parallel with the restructuring of the Master International Frequency Register following the new layout, which the Board had defined, and consulted Administrations individually in respect of cases for which such conversion presented difficulties due to lack of complete data.

e) The WARC-79 modified the Table of Frequency Allocations and extended the frequency limits from 10 kHz - 275 GHz to 9 kHz - 400 GHz. The Board thereupon noted that a large number of entries in the Master Register would no longer be in conformity with the 1979 Radio Regulations, which came into force on 1 January 1982. The Board hence decided on its own initiative (since no specific provisions had been adopted by WARC-79) to undertake a review of assignments in the Master Register in accordance with provisions of RR 1421 sub-paragraph c) and RR 1564, with a view to modifying their findings and informing the Administrations concerned, where appropriate. Preparatory review work for frequency bands up to 399,9 MHz was completed by the end of 1983, resulting in IFRB Circular-letters Nos. 537, No. 562 and No. 564. The work is continuing for the higher frequencies.

f) Studies have been pursued with a view to revise and, as required, to develop IFRB Technical Standards.

g) The Board continued studies on certain procedures of Articles 11, 12, 13, 14 and 27 of the Radio Regulations, in particular:

- a procedure for the choice of a frequency assignment to a fixed station in any of the bands allocated to this service between 3000 kHz and 27,500 kHz (RR 1218). Studies indicate that this procedure is complex from the technical and administrative standpoints and its application calls for an extensive use of computer facilities; for an interim period the Board has developed a manual procedure;

- the procedures for investigating and reviewing unfavourable findings under RR 1255 to RR 1264, RR 1427 and RR 1428 of the Radio Regulations, Geneva, 1979;

- the method for calculating the parameters to determine whether the antenna of a terrestrial station points towards the geostationary satellite orbit and whether the regulatory limit for the equivalent isotropically radiated power is observed in the case under consideration;

- the procedures for determination of affected Administration in pursuance to RR 1616;

- the computer program App.28 for the calculation and drawing the coordination contours of earth stations in accordance with Appendix 28 to the Radio Regulations.

h) The Board completed the following studies related to the entry into force of the revised Radio Regulations, Geneva, 1979 and the implementation of the Interim System (see paragraph 6.2.27):

- definition of the new format to be adopted for the Master Register, for the IFL and for the IFRB Circular, in accordance with the Appendices 1 and 3 to the Radio Regulations, Geneva, 1979. A detailed description of the new layout of the IFRB weekly Circular was communicated to Administrations in IFRB Circular-letters No. 532 of 31 January 1983 and No. 536 of 28 February 1983;

- the measures to be taken with a view to transferring the information contained in the existing MIFR into the reformatted MIFR, taking into account the existing provisions of the Radio Regulations, in particular the Table of Frequency Allocations, and the necessary conversion of all symbols appearing in the various columns of the MIFR, in accordance with the new numbering contained in the Radio Regulations, Geneva, 1979.

6.2.16 Implementation of the decisions of the Regional Administrative MF Broadcasting Conference (Region 2), Rio de Janeiro, 1981

a) Post Conference work has been continued by:

- analysis of the results of site to site nighttime calculations after correction of the Plan, in comparison with the calculations provided in Rio de Janeiro,
- study of the files necessary for the calculations and correction of these files (ground conductivity, border, groundwave curves),
- preparation of programs for the calculation of groundwave interference,
- publication in Part I of the IFRB weekly Circular of all stations of the Plan and in operation, in accordance with Resolution No. 1 of the Conference.

b) A study of a complete system for the treatment of the modifications to the Plan has been made, and parts of this system have been realized. The system will be using both a Rainbow 100 microcomputer with a 20 Mbytes hard disc for the maintenance of the Plan, and the ITU computer for the long calculations. The preliminary analysis, for verification of the correctness of the data furnished in the forms for modifications, is under test in the microcomputer.

c) 1380 requests for modification of the RJ81 Plan have been received, 50% of them have been manually validated, pending the complete availability of the preliminary analysis on the microcomputer.

d) Assistance has been provided to Administrations, either in the form of computer magnetic tapes containing the information of the Plan and of nighttime calculations, or in the form of special calculations.

e) The Technical Standards for the frequency bands 525 - 1705 kHz are under preparation. General principles for the preparation of the findings with respect to the probability of harmful interference have been determined. Simplified criteria for a preselection have been prepared, and tested on the 9,800 stations of the Plan which have been published in Part I of the IFRB weekly Circular.

6.2.17 Application of the decisions of the World Administrative Radio Conference for Mobile Services, Geneva, 1983 (MOB-83)

a) Although the provisions of the Radio Regulations which were revised by the MOB-83 shall enter into force on 15 January 1985, some Resolutions and Recommendations of the same Conference needed action already in 1983.

b) In accordance with Resolution No. 39 (MOB-83), the Board, in collaboration with the CCIR, organised an Ad Hoc Meeting between monitoring experts from Administrations, the IFRB and the CCIR in order to discuss questions relating to the International Monitoring System with a view to making the system more effective.

c) Within the framework of Resolution No. 318 (MOB-83), the Board prepared IFRB Circular-letter No. 550 dated 5 August 1983 which described the procedure to be applied by the Administrations and the IFRB as a result of the designation by the MOB-83 of the frequency 518 kHz for transmitting by coast stations of navigational and meteorological warnings and urgent information to ships (NAVTEX).

d) In IFRB Circular-letters Nos. 554 and 555 the Board drew the attention of Administrations to Resolution No. 704 (MOB-83) and Recommendation No. 602 (MOB-83) which refer to the Regional Administrative Radio Conferences for the Maritime Mobile Service and for the Planning of Frequencies for Maritime Radiobeacons, and requested the Administrations concerned to submit their requirements to the IFRB for the preparation of these Conferences.

6.2.18 Development of National Radio Frequency Management (Resolution No. 7 of WARC-79 - Resolution No. 12 of the Plenipotentiary Conference, Nairobi, 1982)

Within the framework of the above Resolutions the Board, in collaboration with the CCIR, organised the first meeting on the Development of National Radio Frequency Management. The meeting held from 24 to 28 October 1983 with the participation of 140 participants from 75 Administrations and one international organization, considered twenty-four contributions submitted by

Administrations, the IFRB and the CCIR, and reached conclusions on various items relating to national frequency management, such as international obligations under the Convention and the Radio Regulations, general objectives of the organizations, training of personnel, data base for spectrum management, use of computer technology, etc. The meeting determined the future tasks to be accomplished in the frame of the above Resolutions and charged the IFRB and the CCIR to undertake various actions with a view to preparing for a second meeting on the subject. The IFRB and the Director CCIR prepared a Report on the meeting for consideration by the 39th Session of the Administrative Council, 1984.

6.2.19 Regional Administrative Conference for the Planning of the Broadcasting-Satellite Service in Region 2 (SAT-R2)

a) Team Structure

In January 1982, a Team was assigned the task to prepare the Regional Administrative Conference for the Planning of the Broadcasting-Satellite Service in Region 2 (SAT-R2). This Team continued its work in 1983, until the end of the Conference.

b) Main Tasks

The following tasks were carried out and completed before the Conference:

- 1) Participate in the work of the Panel of Experts (POE) and provide administrative and technical support for the POE meetings;
- 2) Participate actively in the development of the software system through the Software Working Group;
- 3) Adapt computer programs to the ITU Computer;
- 4) Design and develop a requirements maintenance program;
- 5) Design and develop a computer report generator for the Conference;
- 6) Design and develop graphics reports;
- 7) Provide support in the preparation of a Regional Seminar.

c) Panel of Experts (POE)

Based upon Administrative Council Resolution No.865 (1981), the POE held its last meeting in 1983, following the program of work that was established at its first meeting in Rio de Janeiro, in December 1981. Its final Report was despatched under IFRB Circular-letter No. 544 of 16 May 1983.

One of the major tasks of the Panel of Experts was to develop the computer programs to be used by the Conference to synthesize and analyse the various plans under consideration. At the first POE meeting, the Panel realized that the amount of work necessary to develop these programs would require a significant effort by members of the Panel and by the IFRB. It was realized that this work would have to be well coordinated because the computer programs were being developed on four different computers and would have to function as a single package on the ITU Computer, and that this integration could be performed only in Geneva.

d) Preparatory Seminar

At its third meeting, the Panel recognized the need for a Seminar for the Administrations of Region 2 to provide information on the software prepared by the Board and the Panel of Experts for the Conference. Following the kind invitation of the Peruvian Administration, this Seminar was held in Lima in April 1983. The Board adopted the Programme of the Seminar and contributed three papers.

e) The Conference

The Board participated in the Conference and supplied the Technical Secretariat in particular Technical Secretary of the Conference and Technical Secretaries for Committees 4 (Technical), 5 (Planning) and 6 (Procedures). The IFRB Conference Team was responsible for the various computer analyses and reports. The Conference also requested the IFRB to protect the interests of those Administrations that were not represented at the Conference. The Board, in addition to its Report to the Conference and the publication of the List of Requirements, submitted seven documents to the Conference, covering the following subjects:

- The use of the terms "allotment" and "assignment" as pertaining to the frequency Plans
- Interregional interference
- Procedures to be applied before the entry into force of the Final Acts of the 1985-Orbit Conference
- Interregional sharing
- Power flux-density over Regions 1 and 3
- Post-Conference work (Budget Control Committee)
- Procedure to be followed in case of modifications to the Plan adopted at the last Plenary Meeting of the Conference.

f) Immediate Post-Conference Work

As described in Administrative Council Document 6086, the modifications to the Plan, adopted at the Seventeenth Plenary Meeting, were carried out together with the preparation of texts for the printing of the Plans in their definitive form.

6.2.20 Regional Administrative Conference for FM Sound Broadcasting in the frequency band 87.5 - 108 MHz (Region 1 and certain countries concerned in Region 3)

a) Based on the Report of the First Session, the plan of activities was established early in the year. Detailed executive time scale and appropriate workload distribution was reexamined and finalized in October 1983.

- b) Following the Recommendations CC and DD of the Report, OCIR established a number of Interim Working Parties to consider compatibility problems between broadcasting and aeronautical radionavigation services. Meetings have been held in which the IFRB participated. Possible consequences of the OCIR studies on the work of the planning procedure are under study within the IFRB.
- c) According to the Recommendations AA and BB of the Report, further studies on propagation were undertaken within OCIR Interim Working Party 5/5. The results of Interim Working Party 5/5 have been analysed and the IFRB has prepared appropriate software packages for use if the second session decides to adopt them.
- d) The conclusions of OCIR Study Group 10 on protection ratios may have a significant effect on the IFRB software program if the Second Session decides to adopt the proposed amendments to Tables II and III of Chapter 3 of the Report of the First Session. This matter is under study by the IFRB.
- e) In accordance with the Resolution D, a contact with ICAO has been established in order for the IFRB to be in a position to provide the necessary assistance foreseen for the African and Middle East Countries prior to the Second Session. An ICAO expert is expected to visit the IFRB in April 1984 to study this question in more detail.
- f) The details concerning the preparation of the software for compatibility calculation with aeronautical radionavigation services to be furnished by the French Administration have been agreed with that Administration on the basis of the Report to the Second Session.
- g) With a view to establishing the Reference Situation envisaged in the Report, television broadcasting stations and sound broadcasting stations situated in the coordination area have been identified on the basis of the present files and IFRB Circular-letter No. 557 and appropriate multi-address letters have been sent to the Administrations concerned.
- h) Two existing programs developed for the purpose of introduction of the FMS (Frequency Management System) have been adapted to restructure the existing files in the present format to the format required by the Conference.
- i) An existing geographical index file (coast, frontier, index) has been corrected, completed, restructured for the use during the Conference.
- j) Data capture and validation programs for batch and interactive mode were developed and tested.
- k) The IFRB participated actively at the workshop organized by ASBU during July 1983, in order to coordinate the requirements among the Administrations concerned, prior to despatch them to the IFRB.
- l) In November 1983, a similar multilateral meeting was held in Botswana for the Southern African Countries in which the IFRB participated as well.

6.2.21 Preparation for the World Administrative HFBC Radio Conference - First Session, Geneva, January-February, 1984

a) On the basis of Resolution No. 874 of the 38th Session of the Administrative Council, containing the agenda of the First Session of the WARC HFBC, Geneva (10 January - 11 February 1984) the Board undertook a number of in-house studies, with the objective of determining the resources required for the design, development, implementation and operation of a computerized system to be used for planning purposes before and during the second session of the WARC HFBC Conference. The detail of these studies was communicated as Document 5968 to the 38th Session of the Administrative Council.

b) Also in accordance with this Resolution, the Board prepared a report, dated 20 July 1983, which was distributed to Administrations as IFRB Circular-letter No. 549 and supplemented with an Addendum and Corrigendum dated 30 September 1983. This report was also submitted to the First Session of the WARC HFBC Conference as Document No. 6, dated 19 October 1983. It is divided into three parts. The first part contains a description of the operation of the Article 17 procedure during previous years. The second part, prepared in accordance with No. 1771 of the Radio Regulations, provides statistical information on the degree of spectrum occupancy. The third part describes the preparatory work carried out by the Board insofar as the requirement for a computerized system, to be used for planning of the HFBC bands, is concerned. An Addendum to the report issued on 28 November 1983 contained an index providing for each station name, information on the first and last years for which the use of each frequency assignment was notified to the IFRB.

c) In preparation for the First Session of the Conference, the Board studied all documents submitted by Administrations and prepared for its internal use a comparative compilation of proposals on every agenda item as well as a comparative table of the technical criteria and planning principles developed by the CCIR.

6.2.22 Revision of IFRB Circular-letters

The Board continued work on revising the current IFRB Circular-letters with a view to updating them according to the revised Radio Regulations which entered into force on 1 January 1982.

6.2.23 IFRB training and familiarization for Administration officials

In 1983, the Board received for training and familiarization officials from State of Kuwait and the Republic of Chad with the main purposes of familiarizing themselves with the administrative and technical procedures, as well as computer applications, used by the Board. They stayed for periods up to one month.

6.2.24 IFRB Seminars

a) The IFRB Seminars were announced in IFRB Circular-letter No. 534 dated 1 February 1983.

b) The special HFBC Seminar preparatory to the First Session of the HFBC Conference was held from 10 to 14 October 1983, in which 117 participants from 64 countries were present. Twelve documents were issued.

c) The regular IFRB Seminar, reduced to one week, took place from 17 to 21 October 1983, in which 159 participants from 74 countries were present. Twenty one documents were issued.

6.2.25 Publications and correspondence with Administrations

a) Pursuant to the provisions of the Radio Regulations, Geneva, 1959 and 1979, and related Appendices, the Board prepared a number of service documents and other publications for reproduction and despatch by the Secretary-General to Administrations and other subscribers. The titles of the publications produced in 1983 are listed hereunder:

- IFRB Circular (weekly, airmail) and Special Sections
- Provisional Section of the Master Register (Volume II)
- Summaries of IFRB Monitoring Information (Nos. 216 to 219 inclusive)
- Prefaces to the documents mentioned above, in three languages
- Tentative High Frequency Broadcasting Schedule (May, September, November 1983 and March 1984)
- Final High Frequency Broadcasting Schedule J(80) to S(81)
- IFRB Circular-letters Nos. 532 to 563 inclusive

b) The more elaborate information required by Appendices 1 and 3 to the Radio Regulations, 1979, for frequency assignments notified to the IFRB and the introduction in 1983 of the Interim System, which constitutes the initial phase of the IFRB Frequency Management System adopted by the Administrative Council and by the Plenipotentiary Conference, Nairobi, 1982, resulted in a new layout of the weekly IFRB Circular since the vertical column layout became inadequate. The reasons for and the detailed information on the new layout of the IFRB weekly Circular were given in IFRB Circular-letters No. 532 and No. 536 respectively. The use of the new layout of the IFRB weekly Circular, restricted for the time being to the terrestrial radiocommunication services, was introduced from Part I of the IFRB Circular No. 1565 dated 19 April 1983.

c) The IFRB weekly Circular contains:

- details of frequency assignment notices received by the IFRB;
- additions and modifications made in the Master International Frequency Register as a result of the Findings by the IFRB with respect to frequency assignment notices;
- frequency assignment notices returned to the notifying Administrations as a result of unfavourable Findings by the IFRB;

- changes in the Tentative High Frequency Broadcasting Schedules for the current and/or forthcoming seasons;
- information and coordination data on the projected use of frequencies by stations in the space radiocommunication services in bands shared with terrestrial radiocommunication services;
- information submitted by Administrations concerning projected allotments to HF coast radiotelephone stations to be inserted in the Frequency Allotment Plan contained in Appendix 25, and Findings of the Board concerning the application to this effect of the procedure of Article 16;
- information on stations operating in bands covered by Regional Broadcasting Agreements, for purposes of coordination between Administrations.

The IFRB Circular was prepared weekly and airmailed to the Administrations of all Members of the Union and to other subscribers. In addition to the weekly IFRB Circular, 32 IFRB Circular-letters were issued in 1983 covering different projects and procedures entrusted to the Board on a recurring basis or of a special character.

6.2.26 Use of the ITU computer

The IFRB used the ITU computer in 1983 about 59 per cent of its total utilization time and to carry out the following applications, tests and developments:

a) Maintenance of the Magnetic Reference File (MRF)

- 1) Due to the entry into force of the Appendix 1 to the Radio Regulations and the step-by-step introduction of the Interim System, the following parts of the Magnetic Reference File (MRF) had to be "separated" from the main MRF:
 - the bands covered by Resolution No. 9 (CT) were extensively processed and updated, but still in the "old" format;
 - the exclusive aeronautical (R)-HF bands were modified with "new" content of Columns 7 and 8, and updated;
 - all space assignments were modified with "new" content of columns 7 and 8, and updated;
 - assignments for Region 1 and AFG and IRN, frequency range 82.25 - 100 MHz were extracted and updated, and the contents of columns 7 and 8 changed into the new format;
 - note that all assignments mentioned above are still available on the "old" MRF tapes, but not updated;
- 2) Publication of Supplements to the IFL and of the weekly IFRB Circular;
- 3) Work in relation to Resolution No. 9;

- 4) Work in relation to Resolution No. 8;
- 5) Work in relation to reformatting and restructuring the MRF to be in conformity with the revised Appendices to the new Radio Regulations, Geneva, 1979;
- 6) Work in relation with automated Review of Findings;
- 7) A new set of technical examination programs, designed to work with the files delivered by the Interim System, was written. The first input from the Interim System was delivered in November and the new technical examination programs are currently being tested. They are expected to be ready for use at the time of cutover in the beginning of 1984.

b) LF/MF Broadcasting Service

- 1) The main activity was the revision of programs, for studies and correction of the Rio de Janeiro Plan, 1981;
- 2) For Regions 1 and 3, programs were applied for technical examinations. All programs were converted to BS2000.

c) HF Broadcasting Service

Programs were applied to compute incompatibilities in the four seasonal Tentative Schedules and to print Tentative and Final Schedules. New transmitter stations were added to the existing data bank. The master tape of the Annual List has been updated, and the Master Copy of the 7th Edition of the Annual High Frequency Broadcasting Frequency List has been prepared for distribution at the beginning of the First Session of the HFBC Conference (January - February 1984).

d) Maritime Mobile Service

Programs are applied to make technical examination of frequency assignment notices.

e) Space Radiocommunication Service

Further refinements were incorporated into the computer program used for the calculations required by Appendix 28 to the Radio Regulations in order to:

- facilitate the input of data;
- augment the data being stored in the files; and
- improve the accuracy of the calculations in regions of the world in which a propagation path may include a large number of coast line crossings.

The work on the development of the space services system (Satellite Network File - SNF) compatible with the FMS continued. The system is presently in the final stages of tests. The installation of a production version is planned for the end of January 1984. The work on the new version of List VIIIA has started. The physical layout of the List is currently under study. The programs to prepare List VIIIA will use the contents of the SNF data base.

f) Monitoring

Programs were applied to produce the Monitoring Summaries.

g) Geographical Index and Mapping

Programs were applied to keep the internal Geographical Index of the IFRB up to date. The mapping programs were also used, for example for Appendix 28 calculations and to prepare maps of coast stations for the RM Division of the General Secretariat.

6.2.27 IFRB Frequency Management System - The Interim System

a) The purpose of the Interim System is to facilitate the work of the staff of the IFRB Specialized Secretariat as far as possible by providing them with a number of new facilities through the use of computer terminals. The development of this system, approved by the Administrative Council in 1981, marks the first stage of the extension of these computer applications in the IFRB, the Plenipotentiary Conference, Nairobi 1982, having adopted an "Incremental Plan for Extending the Use of the Computer by the IFRB" which will lead after a period of eight years, to the establishment of an integrated system to be known as the IFRB Frequency Management System (IFRB-FMS).

b) The development and establishment of the Interim System covers a period of about two years from the signature in January 1982 of a contract with a consultant outside the ITU at a fixed price of 2.57 million Swiss francs. The Interim System will offer the following facilities, among others:

- the input of a notice in the ITU computer, checking the validity of the data contained in each notice and then using the computer to retrieve the notice at different stages of the processing cycle;
- direct consultation of the Magnetic Reference File (MRF), which is a computerized version of the Master International Frequency Register (MIFR) to be used for reference purposes;
- routing a frequency notice automatically to a computerized sub-system for publication in the appropriate service documents (e.g. the weekly IFRB Circular).

c) In the the early stages the Interim System will not process all types of notices. Moreover, it will not be possible to automate all manual procedures straightaway: this will require further work under the incremental plan.

d) In 1983, the software design was completed and the programs were written and tested. Their volume proved to be much greater than expected, amounting to some 500 000 lines of COBOL, which were executed without any change in the cost of the contract concluded with the consultant.

The various components and sub-systems were tested in turn, and the System was also tested as a whole. The acceptance tests proved to be most satisfactory.

Two training courses designed to help selected IFRB staff members to take charge of the Interim System were held during 1983. The courses were held at two levels, one series devoted to an introduction to the System and the other to practical work on the terminals.

Two studies were conducted, one on the preparation of a list of additional tasks to be performed in 1983 and early 1984 by the present Consultant under the contract and the other on the preparation of tenders for work in connection with Phase I of the extension of the IFRB-FMS project.

e) The Joint Report of the Secretary-General and the IFRB on the Extended Use of the Computer by the IFRB, published in the Circular-letter No. 545 of 29 July 1983 contains a detailed presentation of activities in this area.

6.2.28 Collaboration with other permanent organs and international organizations

The Board continued to maintain close collaboration with the CCIR, the CCITT and the General Secretariat, including Technical Cooperation Department, within the ITU as well as maintained its relations with international organizations such as the ICAO, IMO and Regional organizations such as CITEL, EBU, ASBU, URINA, PATU, etc.

It participated actively in meetings of CITEL, EBU, ASBU and URINA with a view to assisting these organizations in their preparation for the ITU Broadcasting Conferences (Broadcasting-Satellite Conference for Region 2, the VHF Sound Broadcasting Conference for Region 1, the World Administrative Radio Conference for HF Broadcasting, etc.).

As regards cooperation with ICAO, see paragraph 6.2.13 b).

6.2.29 Inter-organ Committees

The Chairman of the Board or a member participated regularly in meetings of the Coordination Committee, the Joint Advisory Committee, the Appeals Board (assuming the Chairmanship) and the Editorial Board of the Telecommunications Journal. The IFRB was represented regularly on the Appointment and Promotion Board, the Contracts Committee, the Technical Co-operation Selection Panel for Expert's Posts, the Technical Co-operation Selection Panel for the Purchase of Equipment and the Material Preparation for Conferences Committee.

6.2.30 Participation of the IFRB in ITU Technical Co-operation activities

a) In accordance with No. 312 of the Convention, important questions concerning ITU technical co-operation are dealt with by the Coordination Committee. The IFRB therefore participated in dealing with those questions concerning technical co-operation which had been submitted by the Secretary-General to the Coordination Committee. The IFRB representatives assist in selection panels for choice of experts and equipment. In addition, in 1983, the Board also studied 12 reports by ITU experts from the point of view of their conformity with the provisions of the Convention and the Radio Regulations as well as their relevance to the needs of the recipient countries in matters related to radiocommunication services including training of personnel, network planning, pre-investment surveys and financial and economic factors.

b) The IFRB assisted in briefing of experts and in finalizing Agency Terminal Reports on matters related to frequency spectrum management.

6.2.31 Other activities

In accordance with the Convention and the Radio Regulations, members of the IFRB and staff members of its specialized secretariat attended conferences and meetings as representatives of the Board, to assist and collaborate in the treatment of questions concerning frequency utilization.

6.3 INTERNATIONAL RADIO CONSULTATIVE COMMITTEE (CCIR)

6.3.1 Introduction

Publication was completed for the remaining Volumes of the XVth Plenary Assembly, as well as the CCIR Handbook on Spectrum Management and Computer-Aided Techniques, and the special report on Satellite-Broadcasting Systems. Interim Meetings of eight Study Groups were held with preliminary revisions of and draft new Recommendations and Reports. Important further progress was made in the study of standards for satellite broadcasting, high definition television, digital television transmission and recording. An improved and simplified propagation calculation method was developed for HF broadcast planning, and a comprehensive set of technical criteria and characteristics for HF broadcasting presented to the HF Broadcasting Conference. Improvements of compatibility were studied between aeronautical radionavigation reception in the band above 108 MHz and broadcasting in the band below 108 MHz. Further studies are to be carried out in a Joint Interim Working Party of Study Groups 8 and 10. In anticipation of the Interim Study Group Meetings to be held in 1984, important further progress was made in fixed-satellite service studies on the satellite hypothetical reference path (HRDP) in the ISDN reference connection (HRX), and the related satellite circuit error performance criteria. Trials were coordinated of satellite emergency position indicating radio beacons with results of the analyses to be considered at the Study Group 8 Meeting in early 1984. Technical preparatory work was underway for the World Administrative Radio Conference on the use of the geostationary satellite orbit and the planning of the space services using it. Seminars were held on propagation in tropical regions (Lome) and domestic satellite communications (Shanghai). Substantial assistance continued to the ITU technical cooperation activities.

6.3.2 The Study Groups

A meeting of Chairmen and Vice-Chairmen of the Study Groups for which the CCIR is responsible was held in Geneva from 11 to 15 July 1983. Chairmen consulted on Study Group matters, discussed a number of inter-Study Group questions, and worked with the Secretariat to prepare Study Group meetings.

A schedule of Final Study Group Meetings to be held in 1985 was considered. The Chairmen took note of the budgetary reduction affecting documentation, interpretation and services for the meetings. While expressing

concern as to the effect on the results of the meetings, the Chairmen recognized the need for the economies imposed and considered measures to improve the efficiency of working methods, to reduce documentation and to use minimum interpretation. Particular attention was devoted to means of limiting documentation. [For the eight Study Groups which met in 1983, there was a slight reduction of input documentation in comparison with previous Interim Meetings of the same Study Groups. While small, it was significant in relation to the expected increase from meeting to meeting. The volume of documentation during the meetings was reduced by some 10% due to several measures taken. The corresponding Interim Booklets showed a reduction of 30% over the corresponding Booklets for the preceding period.] The meeting considered various aspects of the CPM-ORB-85, now scheduled to be held from 25 June to 20 July 1984, as the CPM will be a joint meeting of Study Groups concerned with space services.

It should be noted that this meeting was attended by 29 of the 35 Chairmen and Vice-Chairmen, i.e. 83%, notwithstanding the wide geographical distribution.

During 1983, two series of Interim Study Group Meetings were held according to the following schedule:

Study Group 6	(Propagation in ionized media)	29 August-13 September
Study Group 10	(Broadcasting service (sound))	14-29 September
Study Group 11	(Broadcasting service (television))	13-30 September
CMITT	(CCIR/CCITT Joint Study Group for television and sound transmission)	29 August-13 September

This block of Study Group meetings was attended by 570 participants and 443 contributions were considered.

Study Group 1	(Spectrum utilization and monitoring)	2-18 November
Study Group 2	(Space research and radio-astronomy services)	21 November-7 December
Study Group 5	(Propagation in non-ionized media)	2-22 November

Study Group 7 (Standard frequencies and time- 23 November-2 December
 signals)

This block of Study Group meetings was attended by 329 participants and 259 contributions were considered.

Details on participation, registration for each of these meetings and the number of contributions considered by the various meetings are given in Table 1. Technical work of the Study Groups is given in the paragraphs which follow.

The Interim Booklets resulting from the Interim Study Group Meetings of Block A1 were prepared in the latter part of 1983 and those for the Study Groups of Block A2 in early 1984.

TABLE I

[illegible]

TABLE I (continued)

Administrations	Study Groups								
	1	2	5	6	7	10	11	CMTT	TOTAL
Qatar			x	x		x	x		4
German Democratic Republic	x		x	x	x	x	x	x	7
United Kingdom	x	x	x	x	x	x	x	x	8
Senegal			x						1
Singapore	x								1
Sweden	x		x	x	x	x	x	x	7
Switzerland	x		x		x	x			4
Czechoslovakia				x		x		x	3
USSR	x	x	x	x	x	x	x	x	8
Venezuela	x	x					x		3
Yugoslavia	x		x		x		x		4
Totals: 44	31	15	30	24	17	32	31	24	

TABLE I (continued)

Recognized private operating agencies, etc.	Study Groups								
	1	2	5	6	7	10	11	CMTT	TOTAL
Recognized private operating agencies	11	3	15	11	1	19	27	14	
International organizations	1	3	4		1	5	5	4	
Specialized agencies of the United Nations		1							
Scientific and industrial organizations	2					1	2	3	
Other organs of the ITU	2	1	2	1	2	2	3	1	
Registration	100	61	122	84	46	227	238	121	
Contributions	48	34	129	69	48	90	143	68	702
						73 Joint 10-11			

6.3.2.1 Study Group 1 (Spectrum utilization and monitoring)

Chairman: K. OLMS (Germany (Federal Republic of))

Vice-Chairmen: M.J. HUNT (Canada)
R.G. STRUZAK (Poland (People's Republic of))

As in the past, attention was devoted mainly to the development of mathematical models to facilitate studies of interference and electromagnetic compatibility, development of the main criteria of frequency sharing, problems of the effective utilization of the radio spectrum, including usage of computers for this purpose, means against interference and methods for monitoring and measuring emission parameters and spectrum occupancy.

Three Recommendations, 18 Reports and 5 Questions were amended, partially by the merging of several existing texts. Four draft new Reports adopted by the Interim Meeting concern assessment of the interactive effects between spread spectrum interferers and conventional receivers, on a systematic planning method, based on a grid of rhombs for frequency allotments, the determination of the peak power responses to intermittent interference signals and on monitoring techniques for the detection and identification of sources of interference likely to disturb the satellite emergency position, indicating radiobeacon system of the mobile satellite service in the band 406-406.1 MHz.

Participants in the work of Study Group 1 took an active part in the first meeting on the development of national radio frequency management (Resolution 7 of WARC-79), Geneva, 24-28 October 1983, and in the ad hoc meeting on an improved use of the international monitoring system (Resolution 39 of MOB-WARC 1983), Geneva, 14-17 November 1984.

IWP 1/2, under the chairmanship of Mr. R. MAYHER (USA) has accomplished the main task assigned to it by the publication in 1983 of the "Handbook on Spectrum Management and Computer-Aided Techniques". This handbook, together with five additional contributions prepared by IWP 1/2, has already played an important role in the above-mentioned meeting under Resolution 7 of WARC-79. Future work in the IWP will amongst other tasks, cover the review of computer programs and development of "generic" computer configurations.

IWP 1/4, under the chairmanship of Prof. R.G. STRUZAK (Poland), has studied the main factors relative to the protection of radio services from ISM equipment radiation. A draft Recommendation on the matter is under intensive study.

IWP 1/5, under the chairmanship of Mr. R. LEFORT (France), is intensively working on the updating of the Handbook for Monitoring Stations. New subjects will cover, in particular, space monitoring, use of computer techniques and essential propagation laws. Several Recommendations and Reports of Volume I have been identified, the substance of which may be considered for transfer into the Handbook.

In preparation for the Conference Preparatory Meeting for the ORB-85, Study Group 1 has reviewed its material and has completed an input document for that meeting.

The work of Study Group 1 is carried out in close collaboration with the CCIR Study Groups devoted to specific radio services and with a number of international organizations, especially the IEC and CISPR. Its work is also expected to become of increasing importance in the future to the planning and management of the radio-frequency spectrum.

6.3.2.2 Study Group 2 (Space research and radioastronomy services)

Chairman: F. HORNER (United Kingdom)

Vice-Chairman: H.G. KIMBALL (USA)

Since the XVth Plenary Assembly, the trend towards the consideration of data relay satellite techniques has been accentuated. Study Group 2 is expanding Section 2D of Volume II dealing with this subject. A new draft Report setting out the basic considerations relative to the minimum longitudinal separation necessary for frequency sharing between two data relay satellites was adopted, and is of value to all space services using data relay satellites. Another draft new Report concerns satellite systems for geodesy and geodynamics, inter alia describing a system for high-precision positioning of points on the surface of the Earth.

Interim Working Parties

A considerable amount of the work in the Study Group context was directed at the input necessary for the CCIR CPM scheduled for June/July 1984. IWP 2/2 was established under the chairmanship of Mr. H. KIMBALL, the Vice-Chairman of Study Group 2. Meeting in December 1983, the IWP completely updated its material to be presented to the CPM, thus terminating its work.

6.3.2.3 Study Group 3 (Fixed service at frequencies below about 30 MHz)

Chairman: H. KAJI (Japan)

Vice-chairman: A. GUEYE (Senegal (Republic of))

Interim Working Party 3/1 (Required signal-to-notice ratios and protection ratios in the Fixed Service in the bands between 3000 and 27 000 kHz) (Chairman: Dr. H. KAJI (Japan)) held its second meeting in Tokyo at the invitation of KDD.

Study Group 3 should provide the IFRB with information needed to carry out its work, especially as a consequence of the decisions of WARC-79. In application of the decisions of this Conference approximately 1300 kHz of the spectrum below 28 MHz originally allocated to the Fixed Service is now allocated to other services and the IFRB has to find replacement frequencies for the assignments of the Fixed Service which are presently registered in the bands affected by this change.

Japan had been entrusted by the first meeting of the Interim Working Party to carry out measurements of steady state protection ratios for class of emission J3E. On the basis of extensive measurement results, the Interim Working Party calculated the values for protection ratios and included them in Table I of Recommendation 240. It is hoped that in the near future measurements for other classes of emission be made, in order to permit Study Group 3 to complete Recommendation 240.

6.3.2.4 Study Group 4 (Fixed-satellite service)

Chairman*: open

Vice-Chairmen: E. HAUCK (Switzerland)
G. MESIAS (Colombia (Republic of))
P. REMIDI (Indonesia)

Interim Working Party 4/1, under the chairmanship of D.J. WITHERS (United Kingdom), met in Melbourne, Australia from 23 to 27 May 1983. 23 documents, containing much new material on how to improve the efficiency of use of the geostationary satellite orbit, have been considered. In the light of the forthcoming CPM for WARC-ORB-85, several topics that need urgent study have been proposed, as such: radiation patterns of earth station antennas less than 150 wavelength in diameter; maximum permissible off-axis radiation density for earth station antennas transmitting in the 14 GHz frequency band, a standard on radiation patterns of satellite antennas; flexibility of satellite position; multi-coordination; guidelines for frequency band pairing; characteristics of systems operating at 30 and 20 GHz frequency bands; interference between FSS (Region 1) and BSS (Region 2) in the 12.2 - 12.7 GHz frequency band; interference in the 17.7 - 18.1 GHz band between earth stations transmitting feeder links and earth stations receiving emissions for the fixed-satellite service; and equitable access to the geostationary satellite orbit.

According to discussion in the Conference Consultative Group, Geneva, 18-22 July 1983, Doc. PLEN./10, the material contained in the CCIR Provisional Report from all CCIR Study Groups concerned, should be amended as necessary, replaced, or confirmed to be still satisfactory for submission to the CPM. IWP 4/1 was asked to take part in this work and prepare draft documents covering, if possible, the whole range of material which Study Group 4 should submit to the CPM, especially the material which will be appropriate for inclusion in the Annexes to the CPM Report.

* Mr. Eric Craig, Australia, Chairman of Study Group 4 since the XIVth Plenary Assembly (Kyoto, 1978), died on the 22 January 1983. Mr. Craig had served the CCIR with distinction for many years, including his vice-chairmanship (1974-1978) of Study Group 4 before being elected Chairman.

Interim Working Party 4/2, under the chairmanship of J.B. POTTS (United States) was held in Geneva from 17 to 21 January 1983. All problems which cause differences of understanding between Study Group 4 of the CCIR and Study Group XVIII of the CCITT on the satellite hypothetical reference digital path (HRDP) in the ISDN hypothetical reference connection (HRX) have been reviewed and discussed. After having confirmed the essential difference, it also discussed very carefully methods of reconciliation and coordination with CCITT Recommendation (G.821). As a result of the meeting, the IWP 4/2 prepared an information document for CCITT Study Group XVIII on the application of satellites in the ISDN HRX and the allocation of error performance to the satellite HRDP. Another document indicates to CCITT Study Group XVIII the achievable error performance of satellite systems within an international ISDN connection. Further studies are being continued towards a draft new Recommendation specifying the performance for a satellite HRDP in an ISDN HRX and a draft new Report to address many of the issues which Administrations should consider.

The MSFS ad-hoc Group (Fixed-Satellite Service Handbook Group), under the chairmanship of J. Salomon (France), held a meeting in Geneva from 21 to 25 February 1983. After having approved the table of contents of this handbook, several sections have been discussed and given preliminary approval. Remaining tasks have been requested to be done for completion before the Final Meeting. Since then, the ad-hoc Group has been making good progress and a meeting for the final approval of this handbook is planned in February 1984.

6.3.2.5 Study Group 5 (Propagation in non-ionized media)

Chairman: A. KALININ (USSR)

Vice-Chairman: H.T. DOUGHERTY (USA)

The Study Group is making a particular effort to encourage the participation of the developing countries in propagation research, with a view to enabling them to solve more and more of their own problems in the planning of radiocommunications. Delegations from African, Mediterranean and Latin American countries participated in the Interim Meetings and contributed technical data. As a result of this participation and the addition of new information, the overall validity of such Volume V data as rainfall characteristics in tropical areas and ducting in the Eastern Mediterranean and the area between the Shatt-al-Arab and the Gulf of Oman have been enhanced.

The Study Group has been much involved in providing propagation information to planning Conferences, and the Interim Working Parties have continued to work to this end. Within the Study Group itself, research continues towards the perfecting of the worldwide classification of rainfall characteristics to aid in the planning of space and terrestrial systems, and also towards the elaboration of more detailed information concerning television coverage in the presence of severe ducting such as occurs in the area between the Shatt-al-Arab and the Gulf of Oman and West Africa. Additional data for a worldwide atlas of ground conductivities have now been assembled and this is to be reviewed for publication in 1984. Data bases for satellite slant-path propagation, terrestrial microwave propagation, and for trans-horizon paths have been established, and it is expected that these will be computerized

during 1984, in any case prior to the Final Meeting of the Study Group. In response to much demand, a draft new Report on statistical methods used in propagation analysis was drawn up, and an overall draft new Report on reflectivity of the surface of the Earth was adopted and will be circulated to all Study Groups concerned with the space disciplines.

Interim Working Parties

Interim Working Party 5/1 (Chairman: A. BLUMQUIST, Sweden) which dealt with ground-wave propagation had its mandate extended to cover also general matters of interest to several sections of Volume V; this resulted at once in the production of the above new draft Report on statistical methods. This IWP met in May 1983 and prepared the publication of the ground-wave conductivity atlas.

Interim Working Party 5/2 (Chairman, M.P.M. HALL, United Kingdom), which covers propagation data for satellite-based systems and terrestrial point-to-point systems and also with interference propagation met in March 1983, dealing with urgent problems concerned with general interference propagation data and also with rain effects on the slant path. It reported on these matters to the Study Group, and has now been charged with analysing the propagation section of Appendix 28 of the Radio Regulations with a view to proposing appropriate modifications as called for in Resolution No. 60.

Interim Working Party 5/3 (Chairman, F. FEDI, Italy) met in June 1983, as part of its programme of investigation into the presentation of rainfall data either as rain climates or as intensity contours and also analysed further the limited input of tropical data that is available. This work is of critical importance to the planning of radiocommunications in the tropical developing countries.

Interim Working Party 5/5 (Chairman: H. BERTHOD, France) met in January and in October 1983, being charged with the urgent work of providing data for the Second Session of the Regional Administrative Radio Planning Conference for Sound Broadcasting in Band II (87.5 - 108 MHz) for Region 1 and certain countries concerned in Region 3. As measurement programmes are continuing in these areas, Study Group 5 charged the IWP to update its information if necessary during the first half of 1984. Finally, the Study Group, having reviewed propagation data contained in the IWP 4/1 Report (Doc. PLEN./10), authorized that this be reviewed and updated and modifications, if any, be presented to the CPM in June/July 1984.

6.3.2.6 Study Group 6 (Propagation in ionized media)

Chairman: L.W. BARCLAY (United Kingdom)

Vice-Chairman: G. PILLET (Ms.) (France)

As in the past, studies of ionospheric propagation were carried out with particular reference to their relevance to LF, MF and HF sound broadcasting, maritime mobile communications, HF fixed point-to-point communications and space communications.

The predominant concern at the Interim Meeting was the preparation of material for the First Session of the World Administrative Radio Conference for the planning of HF bands allocated to the broadcasting service. In accordance with Resolution 508 of the WARC-79 and Resolution 75 of the CCIR XVth Plenary Assembly (Geneva, 1982), Study Group 6 has been intensely studying methods of propagation prediction suitable for use for broadcast planning, mainly through IWP 6/12 under the chairmanship of Mr. D. LUCAS (United States of America). The IWP studied a number of possible methods, developed and tested a suitable method and also prepared an associated computer program. The Study Group adopted a major revision of Report 894, based largely on the work of IWP 6/12 and an extract of this Report has been submitted as a contribution to the First Session of the Conference. Having successfully completed its task, IWP 6/12 was deactivated.

The Study Group recommended that a major part of the existing texts of Volume VI (1982) be revised in the light of new material. Draft texts on new subjects were also prepared and approved. These covered three Reports and one Opinion.

The new draft Reports concern artificial modification of the ionosphere by chemical injections, operational modelling of HF radio propagation conditions at high latitudes and MF propagation curves for maritime mobile, aeronautical radionavigation and maritime radionavigation services.

The Study Group also looked ahead to the Planning Conference for the broadcasting service in the band 1605-1705 kHz in Region 2. Further studies are desirable for which new and extended measurement results are required of the propagation characteristics in this frequency band. IWP 6/4 has been reactivated now under the chairmanship of Mr. J.C.H. WANG (United States of America) to make these studies for Region 2. Also included in the heavy conference programme are two Regional Administrative Radio Conferences concerned with the maritime mobile and aeronautical radio-navigation services and with maritime radio beacons in LF and MF frequency bands. The Study Group prepared the above-mentioned draft new Report based upon existing material, which illustrates the propagation characteristics in appropriate conditions. The studies will be continued.

Some revisions were made to Report 263 (Ionospheric effects upon Earth-space propagation) and the Study Group concluded that this Report is appropriate for submission to the forthcoming Conference Preparatory Meeting of the CCIR for the World Administrative Radio Conference on the use of the geostationary satellite orbit and the planning of the space services utilizing it.

Two substantial Reports which are issued separately, namely Report 322-2 "Characteristics and applications of atmospheric radio noise data" and Report 340-4 "CCIR Atlas of ionospheric characteristics" were republished in 1983 in a new extended format.

6.3.2.7 Study Group 7 (Standard frequencies and time-signals)

Chairman: J. McA. STEELE (United Kingdom)

Vice-Chairman: S. LESCHIUTTA (Italy)

Study Group 7 held its Interim Meeting in November/December 1983 and considered three main areas of activity:

- progress towards the goal of a worldwide system of time and frequency dissemination;
- the necessary coordination between the time scales of remotely-situated time and frequency laboratories;
- the characteristics and stability of the standards which form the basis of these time scales.

A number of existing Reports have been revised and new Questions on precise time transfer and coordination over short ranges and on synchronization at sub-nano-second levels have been adopted.

Interim Working Party 7/4 (Chairman: Mr. R. BEEHLER (United States)) dealing with methods of satellite time and frequency dissemination revised the text of Chapter 15 of the provisional CCIR Report in preparation of the WARC-ORB-85.

6.3.2.8 Study Group 8 (Mobile, radiodetermination and amateur services)

Chairman: G. HEMPTON (United States of America)

Vice-Chairmen: E. GEORGE (Germany (Federal Republic of))
K.P.R. MENON (Malaysia)

The Sub-Group of Interim Working Party 8/7 (Chairman: Mr. J.T. GILSENAN (United States)) set-up to coordinate trials of Satellite Emergency Position Indicating Radio Beacons (Satellite EPIRBs) Systems, operating through geostationary satellites at 1.6 GHz, completed its work during 1983.

In January-February a research ship, put at the disposal of the Group by the Administration of Germany (Federal Republic of), sailed from Scotland to the North Cape in order to test under severe sea and weather conditions the various satellite EPIRBs.

In a meeting held in Leningrad, at the invitation of the Administration of Soviet Socialist Republics, the Sub-Group analysed the test results. The test showed extremely satisfactory results. In the last meeting of the

Sub-Group held at the IMO Headquarters in London, the Final Report of the coordinated trials was approved and a draft Recommendation on the technical characteristics of a satellite EPIRB system operating a through geostationary satellite at 1.6 GHz, was prepared.

Interim Working Party 8/10 (Chairman: Mr. K.W. OBORNE (United Kingdom)) had coordinated during October/November tests of the digital selective calling system and analysed the results during a meeting held in Boulder, Colorado (USA). The tests also showed very encouraging results.

Both series of tests, the Satellite EPIRB and the digital calling system had been carried out at the request of the International Maritime Organization (IMO). The test results after consideration by Study Group 8 will be communicated to IMO.

Interim Working Party 8/11 (Chairman: Mr. T. de HAAS (United States)) held its second meeting in Gothenburg (Sweden) and completed its work on a new draft Recommendation for direct printing telegraph equipment employing automatic identification in the maritime mobile service.

Interim Working Party 8/12 (Chairman: Mr. R. FAVRE (United Kingdom)) was set-up in response to Recommendation COM 4/3 of the first session of the Regional Administrative Conference for FM Sound Broadcasting in the VHF Band to undertake urgent studies in relation to compatibility problems between the FM broadcasting service in the band 87.5 to 108 MHz and the aeronautical services in the bands 108 to 137 MHz.

The Interim Working Party held its first meeting in Annapolis (USA) at the invitation of Aeronautical Radio Inc.

The meeting proposed some improvement of the immunity of airborne radionavigation equipment to interference from FM broadcasting stations. The Report of the meeting was communicated to the administrations concerned. A number of administrations of Region 1 considered that the improvements proposed were not sufficient to permit broadcast planning of the band near 108 MHz. They invited the CCIR to set-up a Joint Interim Working Party of Study Groups 8 and 10 to investigate the problem again. Interim Working Party 8-10/1 will hold a meeting in 1984.

6.3.2.9 Study Group 9 (Fixed service using radio-relay systems)

Chairman: J. VERREÉ (France)

Vice-Chairmen: M. MUROTANI (Japan)
H. WILLENBERG (Germany, (Federal Republic of))

Study Group 9 deals with the technical problems of the terrestrial fixed service using line-of-sight and trans-horizon radio-relay systems in the troposphere. Radio-relay systems have been a major telecommunication media for several decades even after the appearance of satellite telecommunications. Currently deliberation has been concentrated on the digital technique. Studies on the use of frequencies above 10 GHz and on sharing frequencies with other services are also very extensive.

Study Group 9 did not hold any meetings during 1983. However, its IWP and correspondents to other Study Groups of CCIR and CCITT and to other international organizations worked very hard.

Interim Working Parties

Interim Working Party 9/3 (Chairman: Mr. O. LANGER, Germany (Federal Republic of)): its report on the protection of the fixed service in the band 12.2 - 12.7 GHz, with a view to the efficient planning of the broadcasting-satellite service in Region 2 was taken into account in the Regional Administrative Radio Conference for planning the broadcasting service in Region 2 (Geneva, 13 June-15 July 1983).

Interim Working Party 9/4 (Chairman: K.S. McCORMICK, Canada) on redrafting CCIR Report 784-1 on the effects of propagation on the design and operation of line-of-sight radio-relay systems worked very actively in 1983. A draft revision of the Report, which consists of about ten chapters, was redrafted more than six times by October and sent to IWP 5/2 meeting which discusses partner report on propagation in Study Group 5, for mutual coordination. The Chairman of the IWP attended the meeting of the latter.

Coordination with other Study Groups

Study Group 9 nominated four correspondents to Study Groups 1, 2, 5 and the CMV. Twelve texts have formally been brought to the attention of other Study Groups.

The problem of frequency sharing with the fixed-satellite service is studied by a Joint Working Group of Study Groups 4 and 9.

Coordination with the CCITT

Study Group 9 nominated two correspondents to Study Group XVIII of the CCITT and CMBD, and sent seven texts and three letters to Study Group V, and Study Group XVIII, CMBD, GAS 3 and GAS 7.

Coordination with other organizations

A correspondent to the IEC (International Electrotechnical Commission) was nominated. He attended several meetings of the IEC TC12 in 1983.

6.3.2.10 Study Group 10 (Broadcasting service (sound))

Chairman: C.TERZANI (Italy)

Vice-Chairmen: H. EDEN (Germany (Federal Republic of))
O.P. KHUSHU (India)

At its Interim Meeting held in Geneva from 14-29 September 1983, Study Group 10 concentrated on updating existing texts, on drafting new texts and particularly on preparations for future ITU conferences.

In the second context, Study Group 10 prepared and approved four draft new Recommendations, eleven draft new Reports, one draft new Question and two draft new Study Programmes, in addition to texts on satellite broadcasting.

Important results were obtained with regard to the definition of planning parameters in band 7 (signal/noise ratio), a set of antenna patterns, SSB systems, etc., and also for FM sound broadcasting with respect to planning, transmission of several programmes by a single transmitter and transmission of several sound channels or other signals in television.

Studies of audio digital techniques were centred on the definition of audiodigital interfaces in studios, methods of measuring digital sound quality and the interconnection between studios and digital transmission networks.

Special publications

In pursuance of Resolution 33 of the XIVth Plenary Assembly and of Resolutions of WARC-79, Study Group 10 decided to prepare a Handbook on sound and video recording on magnetic tape. The work has nearly been finished and the Handbook is expected to be published during 1984.

Similarly, under Recommendation No. 500 of WARC-79, the CCIR Secretariat continued work on a new edition of the CCIR Book of Antenna Diagrams. Drafting has already been completed, so that copies of the Book will be made available during the first session of the HFBC Conference.

Interim Working Parties

Study Group 10 deactivated IWP 10/5, established by Decision 39-1 under the chairmanship of Professor J.J. GELUK (Netherlands) to prepare the technical bases for planning the HF bands allocated to the broadcasting service. The Report prepared by IWP 10/5, as amended by Working Group 10-D, was approved for transmission to the Conference.

IWP 10/6, set up under Decision 40-1 to determine parameters and tolerance limits for the technical quality of programmes intended for international exchange, has submitted two Reports to Study Group 10 and is continuing its work under the chairmanship of Mr. N.H.C. GILCHRIST (United Kingdom).

IWP 10/7, established under Decision 52 to identify and define the characteristics of sound/broadcasting receivers and to prepare the performance specifications of a reference receiver, submitted two Reports and a draft amendment to a Report for the HFBC Conference. It is continuing its work under the chairmanship of Mr. M. SCHNEIDER (Switzerland).

IWP 10/8, set up on the basis of Recommendation COM/DD of the First Session of CARR-1 on VHF sound broadcasting under the chairmanship of Mr. A. KELLER (France) to study the means of reducing the level of spurious emissions in the bands allocated to the aeronautical services from broadcasting stations operating in the band 87.5 - 108 MHz, submitted its Final Report which was

unanimously approved by Study Group 10 for transmission to the Second Session of CARR-1 on VHF sound broadcasting. Study Group 10 then deactivated this IWP.

Coordination with other Study Groups

Study Group 10 maintains close links with:

- Study Group 1 on common problems relating to the use of the spectrum and particularly studies of the limits to be imposed on radiation from ISM equipment and protective measures against atmospheric electricity;
- Study Group 4 on contributions from CPM-ORB-85;
- Study Groups 5 and 6 on propagation problems;
- Study Group 8 to coordinate work for the Second Session of RABC-1;
- COMIT, particularly on digital technology;
- COMV on questions of vocabulary.

Joint activities of Study Groups 10 and 11

Study Group 10 carries out many of its studies jointly with Study Group 11. The studies relate to two main areas, namely sound and video recording and satellite broadcasting.

The problems of sound and video recording were considered at the final meeting in Joint Working Group 10-11R, which prepared a draft new Recommendation on digital recording of audio signals and revised the Reports on methods of synchronizing various recording and reproducing systems, supplementing them with a new text on the time code.

Broadcasting-satellite service

Work in this area is carried out jointly by Study Groups 10 and 11. CCIR Recommendations and Reports have outlined the system characteristics for use in satellite broadcasting, the elements necessary for planning the use of the geostationary orbit and frequency utilization, and criteria for sharing frequency bands with other services where provided for by frequency allocations.

Four major new Reports were drafted by Joint Working Group 10-11S which treats the broadcasting-satellite service, during the Interim Meetings of Study Groups 10 and 11 in September 1983:

[illegible]

- Draft new Report AB/10-11: Satellite transmission of multiplexed analogue component (MAC) television signals
- Draft new Report AC/10-11: High definition television by satellite
- Draft new Report AD/10-11: Considerations affecting the accommodation of spacecraft service functions (TTC) within the broadcasting satellite and feeder-link service bands.

The detailed specifications for the C-MAC packet system and digital sub-carrier system which appear in draft new Report AA/10-11 are expected to be of great importance in preparing for first generation satellite broadcasting services. Since high definition television may also assume major importance in the use of broadcasting satellites, a new Study Programme on satellite broadcasting of high definition television was adopted.

Major revisions were made to several existing Reports. Among these was Report 952, which covers the technical characteristics of feeder links to the broadcasting-satellite service. It was completely reorganized and rewritten to reflect the experience gained from the planning of feeder links during the Region 2 Conference in 1983 and to prepare for planning feeder links in Regions 1 and 3 which may be done by the geostationary orbit Conference (1985/88).

Draft new Recommendations were attached to Report 810 covering the reference patterns for earth station receiving antennas and satellite transmitting antennas operating in the 12 GHz band. The modified patterns take into account recent experimental results, as do the modified patterns of feeder-link antennas covered in Report 952.

The definitions of polarization factors contained in Report 814 were improved and experimental results of comparative studies of circular and linear polarization were presented. Digital formats and modulation techniques also received considerable attention, in close coordination with the work being done in Study Groups 10 and 11, which is aimed at a single international standard for digital television broadcasting. Multiplexing of digital audio and data signals were treated more extensively in Reports 632 and 954 and new experimental results were given. Technical factors relating to satellite sound broadcasting in the vicinity of 26 MHz were added to Report 955.

Interim Working Party 10-11/1 held an informal meeting in Paris in September 1983, immediately before the Interim Meetings of Study Groups 10 and 11 to discuss preparations for the 1985 geostationary orbit Conference. A formal meeting was subsequently held in Geneva immediately after the conclusion of the Interim Meetings of Study Groups 10 and 11, under the new chairmanship of Mr. D. SAUVET-GOICHON (France). An outline of the contribution from the broadcasting-satellite service to the Report of the CCIR Conference Preparatory Meeting was prepared and tasks were assigned to complete the work in time for a meeting scheduled for Washington in January 1984.

Interim Working Party 10-11/3 started its work on the study of unified standards for the accommodation of several audio signals in terrestrial and satellite television channels. With the exception of discussions held during the Interim Meetings of Study Groups 10 and 11, all of the work has progressed by correspondence and is continuing in this fashion, under the Chairmanship of Mr. O. MAKITALO (Sweden).

6.3.2.11 Study Group 11 (Broadcasting service (television))

Chairman	M.I. KRIVOCHEEV (USSR)
Vice-Chairmen	S. AGUERREVERE (Venezuela) C.A. SIOCOS (Canada) WU XIAN LUN (China (People's Republic of))

In accordance with the decisions of the XVth Plenary Assembly, Study Group 11 continued its work concentrated on preparatory work for Administrative Radio Conferences as requested in Resolutions and Recommendations of the WARC-79 and in studying technical aspects of the broadcasting service (television).

The conclusions of the Interim Meeting of Study Group 11 held from 13 to 30 September in Geneva, reflect the results achieved in 1982. The following major achievements should be mentioned:

- In the field of digital television it was agreed to substantially extend Recommendation 601. A new Recommendation for a bit-parallel digital interface is proposed to support the practical implementation of Recommendation 601.
- Based on the progress on High Definition Television a newly established IWP was charged to finalize a Draft Recommendation before the Final Meeting of Study Group 11.
- Drafting Report AB/11, Study Group 11 embarked on Enhanced Television recognizing that digital processing technology applied to analogue TV systems will enable many of the quality improvements of HDTV and digital TV to be available through conventional TV systems.

Special publications

Study Group 11 contributed to the preparation of the handbook on magnetic tape recording (sound and television) so that this could be nearly finished and will be published in 1984.

Interim Working Parties

Interim Working Party 11/3 on broadcasting services intended for alphanumeric and/or pictorial display, chaired by F. CAPPUCCINI (Italy) recognizing that several countries have developed and established satisfactory broadcast videography (teletext) systems, considering that a proliferation of systems would add further complications to the interconnection of such systems proposed a new Recommendation on this item.

Interim Working Party 11/5 on protection ratios for colour television systems is now chaired by S. DINSEL (Germany (Federal Republic of)). Study Group 11 encouraged the IWP to send a revised Report 306 "Ratio of wanted-to-unwanted signals for AM vestigial sideband television systems" to all administrations for comments. This will be the basis for a new Recommendation on this subject which is urgently needed for future television broadcasting planning conferences.

Study Group 11 established the following new Interim Working Parties with the mandate of preparing draft Recommendations to the Final Meeting of Study Group 11:

- IWP 11/6 "High Definition Television Standard", chaired by Y. TADOKORO (Japan) (Decision 58)
- IWP 11/7 "Digital Television Standards", chaired by A.N. HEIGHTMAN (United Kingdom) (Decision 60) and jointly with Study Group 10
- JIWP 10-11/4 "Digital Television Tape Recording", chaired by P. ZACCARIAN (NANBA) (Decision 59)

Joint Study Group activities

Study Group 11 maintains very close contact and coordinates its work on satellite broadcasting and recording with Study Group 10. All important decisions in this matter are adopted at the joint plenary meetings of these Study Groups.

6.3.2.12 OMIT (Joint CCIR/CCITT Study Group for television and sound transmission)

Chairman: Y. ANGEL (France)

Vice-Chairman: W.G. SIMPSON (United Kingdom)

The terms of reference of the OMIT are to study, in cooperation with the Study Groups of the CCIR and the CCITT, the specifications to be satisfied by the transmission of sound and television broadcasting programmes over long distances. The OMIT held its Interim Meeting from 29 August to 13 September 1983.

Salient results of the meeting are as follows:

With regard to analogue video signals, work was continued on the updating texts relating to transmission performance and insertion signals in the field blanking interval, progress was made in seeking criteria to determine the automatic switching of transmission channels and some progress was also made in the study of standard converters using field stores.

No modification was proposed to Recommendation 604 containing the general principles of digital transmission when the original signal is presented in digital form.

On the other hand, conspicuous progress was made for mixed analogue-and-digital television transmission and a draft new Recommendation entitled "Mixed analogue-and-digital transmission of composite analogue television signals, which avoids most of the objections made previously, was annexed to Report 646.

To deal with the problems which are beginning to arise with regard to network development and the emergence of new sound broadcasting and television systems, the CMTT re-examined the general strategy to be adopted in order to obtain a consistent set of Recommendations on television transmission.

Remarkable progress was also made in the field of digital sound-programme signal transmission. It was thus possible to propose two draft new Recommendations, one on the general principles of digital sound-programme transmission and the other on transmission by mixed analogue-and-digital circuits using 384 kbit/s channels.

Having noted that new systems were being proposed using multiplex signals which might require a wider band for their transmission than that provided for in Recommendation 567, the CMTT drew up a new Study Programme on the subject and set out the initial outlines of a reply in a draft Report. Action in this area is urgent, because such a new system ("C-MAC") has been proposed to Study Groups 10 and 11 for satellite broadcasting.

Interim Working Parties

Interim Working Party CMTT/1 (Chairman: W.G. SIMPSON (United Kingdom)) met on the day after the closure of the CMTT Interim Meeting, in order to take advantage of the presence of the experts attending the meetings of CCIR Study Groups 10 (Broadcasting service (sound)) and 11 (Broadcasting service (television)), which began at that time. Participants of CCITT Study Group XV (Transmission systems) and XVIII (Digital networks) also attended that meeting. The principal item on the agenda was the updating of Decision 18, in which the terms of reference of the IWP are defined as well as the sharing of responsibilities between certain CCIR and CCITT Study Groups and the CMTT with respect to digital video and sound signals.

Coordination with other Study Groups

Coordination is done mainly in the activity of IWP CMTT/1 (see above).

Coordination with the CCITT

Five correspondents were nominated to Study Groups IV, XV and XVIII of the CCITT and CMBD.

The CMTT received six texts from the CCITT and sent six texts to the latter during the Interim Meeting.

6.3.2.13 CMV (Joint CCIR/CCITT Study Group for vocabulary and related subjects)

Chairman: M. THUÉ (France)

Vice-Chairmen: S.J. ARIES (United Kingdom)
M. DUCOMMUN (Switzerland)
J.M. PARDO HORNO (Spain)

The CCIR/CCITT/IEC Joint Coordination Group (JCG) for telecommunications terminology (Chairman: Mr. M. THUÉ (France)) was established by Resolution 66-1. A meeting of the JCG Steering Committee was held in Geneva from 6 to 7 June 1983, followed by a meeting of the JCG Working Group A "General terms" from 8-10 June.

The JCG Steering Committee examined the Working Groups' activity reports on the state of progress of work of the International Electrotechnical Vocabulary (IEV). It was noted that Chapters 725 "Space radiocommunications" and 736 "Waveguides" were already published and several documents sent for comments. The JCG decided that two Working Groups should be set up:

- Working Group B "Electrical networks and network elements" to prepare Chapter 703 of the IEV and
- Working Group P "Teleprocessing technology and telematics services" which will include experts from CCIR (Study Group 11), CCITT (Study Groups I and VIII), IEC (TC 83) as well as from ISO.

Working Group A "General terms" reviewed and revised two documents on "Telecommunications, channels and networks" (Chapter 701 of the IEV) and "Oscillations and signals" (Chapter 702 of the IEV).

6.3.3 Activities connected with Administrative Radio Conferences

6.3.3.1 World Administrative Radio Conference for Mobile Services, Geneva, 1983

This Conference adopted almost entirely the conclusions of the CCIR Report, which had been prepared by a special meeting of Study Group 8.

6.3.3.2 Regional Administrative Radio Conference for the planning of the broadcasting-satellite service in Region 2, Geneva, 1983

The Report of the CCIR Conference Preparatory Meeting that was held in Geneva in June and July served as the basis for the work of the Technical Committee of the Conference. The Chairman and most of the Chairmen of the working groups and sub-working groups of that Committee had participated extensively in the work of the CCIR CPM. In addition, the CCIR Senior Counsellor who had been responsible for the CPM served as Secretary to the Technical Committee of the Conference.

The work of the Conference was greatly facilitated by the early agreement on most of the fundamental technical parameters, as presented in the CCIR Report. A few parameter values had not received final agreement in the work of the CCIR, and discussion of these occupied a good deal of the time of the Technical Committee.

Perhaps the most significant technical result of the Conference was the simultaneous planning of feeder links and down links, which proved to be a complex activity that drew heavily upon the preparatory work of the CCIR.

The Conference considered that the CCIR is required to act in five problem areas related to the implementation of the Region 2 Plans and future planning, especially of feeder links in Regions 1 and 3:

- further information on protection ratios between television systems of different standards and bandwidths (Recommendation COM4/1);
- accelerated studies on rain attenuation in tropical and equatorial zones of Region 2, including the relationship between worst month and annual distributions, and extend them in particular, to zones with the greatest rain intensity (Recommendation COM4/2);
- urgent studies relating to inter-regional problems of sharing between Region 2 broadcasting-satellite space stations and certain terrestrial services in Region 1 east of 30° east longitude in the band 12.2 to 12.7 GHz (Recommendation COM4/3);
- urgent studies relating to the limitation of power and the direction of maximum radiation for stations of the fixed and mobile services in the band 17.3 to 17.8 GHz (Recommendation COM6/4); and
- studies related to sharing between earth stations of the fixed-satellite service in those frequency bands which are allocated on a bi-directional basis (Resolution COM4/2).

The Resolutions and Recommendations related to the work of Study Groups 5, 10 and 11 were considered during their Interim Meetings in September and November 1983 and were assigned to the concerned working groups and Interim Working Parties. Study Groups 4, 8 and 9 will likewise examine the relevant portions during their Interim Meetings in April and May 1984.

6.3.3.3 World Administrative Radio Conference for Sound Broadcasting in the HF bands - first session, 1984

The preparatory work for this Conference was started in Interim Working Parties 6/12 and 10/5 in 1981 and their Report was presented to the Interim Meetings of Study Groups 6 and 10 which continued the work on this subject and completed the CCIR Report to the first session of the WARC.

The parts of this Report dealing with propagation, radio noise and the solar indices were approved by Study Group 6 which made modifications to the chapters concerning definitions and propagation, in accordance with the next text approved by Study Group 6. It also modified the chapter on interference and reliability and it added to the Report a text on sensitivity limited by receiver noise, drafted by IWP 10/7. The paragraph concerning simplified antenna patterns proposed for planning was replaced by a new text. Modifications were also made to planning methods 5 and 6 and to the paragraph on reception in SSB.

The modified Report was approved by Study Groups 6 and 10 which requested the Director of the CCIR to send it to the Conference.

6.3.3.4 Regional Administrative Conference for FM Sound Broadcasting in the VHF band (Region 1 and certain countries concerned in Region 3) second session, Geneva, 1984

The problem of compatibility of VHF broadcasting services and the aeronautical mobile services in the adjacent bands assigned to these services was not definitely resolved during the first session of the Conference.

Two Interim Working Parties were established to find an appropriate solution:

- Interim Working Party 10/8: to study techniques for reduction of non-essential radiation from FM transmitters in the VHF band, and
- Interim Working Party 8/12: to study techniques for reducing the vulnerability of aeronautical landing-aid equipment to interference caused by non-essential radiation produced by FM transmitters in the VHF band.

These IWPs prepared their respective reports which were submitted as documents to the second session of the CARR-1 (2).

Nevertheless, Study Group 1 indicated during its Interim Meeting in November 1983 that it would be difficult to realize compatibility between the two services, even impossible at some geographic points, taking into account the existing interference rejection capabilities of aeronautical receivers. Even the interference rejection characteristics for future receivers mentioned in IWP Report 8/12 would probably not permit a definitive planning of frequency modulation in certain areas. In consequence, following the Interim Meeting of Study Group 1, consultations were held on the desirability of further joint study of this problem to see if further improvements could be obtained.

In accordance with Resolution 24-5 of CCIR, and in consultation with the Chairmen of Study Groups 8 and 10, it was decided to set up a Joint Interim Working Party 8-10/1. This decision took into account that IWP 10-8/1 had been disbanded. The new JIWP under the chairmanship of Mr. K. OLMS (Germany (Federal Republic of)) replaces IWP 8/12; its work will supersede that of IWP 8/12 and IWP 10/8.

The objectives of the new JIWP will be to determine if it is possible to obtain additional improvement in the compatibility and to prepare a combined Report which will be submitted by the CCIR to the second session of the Regional Administrative Conference for FM Sound Broadcasting in the VHF Band (Region 1 and certain countries concerned in Region 3). The JIWP will report to the Interim Meeting of Study Group 8 (May-June 1984).

6.3.3.5 World Administrative Radio Conference on the use of the geostationary orbit and the planning of the space services using it, Geneva, 1985

Preparatory work for this Conference is well advanced in all of the concerned CCIR Study Groups. Consolidation of this work will take place in a Conference Preparatory Meeting of the CCIR, a joint meeting of Study Groups concerned, to be held in Geneva from 25 June to 20 July 1984.

In accordance with the provisions of CCIR Resolution 24-5, administrations were invited to participate in a Conference Consultative Group (CCG). The CCG was held during the period 18-22 July 1983 and attended by representatives of thirteen administrations and the Chairmen and/or Vice-Chairmen of nine CCIR Study Groups.

Its main task was to prepare an outline of the Report and a structure for the CPM, based on the agenda of ORB-85. The outline so established was dispatched as Administrative Circular A.C./254 on 22 August 1983 to all members of the CCIR and other participants in its work. This circular also gives information on the convening of the CPM and requested documentation for consideration by the CPM to be received by 27 February 1984 to ensure the usual preparation and dispatch in advance of the opening of the CPM.

6.3.4 Seminars

6.3.4.1 Lome

During 1983 the CCIR Seminar on Radio Propagation in Tropical Regions took place at Lome, organized as part of the World Communications Year Seminar/Meeting. The CCIR Seminar was planned as the first step in the implementation of a CCIR Radio Propagation Measurement Programme for Africa. The CCIR Seminar was supported strongly by experts from Study Group 5, and as well was notable because a majority of the lecturers were from African countries. Topics covered related to the propagation of frequencies above about 100 MHz both for terrestrial and space applications, specifically dealing with measurements for ducting and rainfall observations.

6.3.4.2 Seminar on domestic satellite communications, Shanghai, October 1983

An international seminar on domestic satellite communications was held in Shanghai, China, from 5 to 12 October 1983. Sponsored jointly by the First Research Institute of the Ministry of Posts and Telecommunications of the People's Republic of China and the CCIR, the seminar was attended by about 80 delegates and representatives, including 22 from the People's Republic of China, 19 from developing countries in Asia, the Pacific basin, the Middle East and North Africa, and 29 specialist lecturers from all over the world.

The programme was divided into nine major topic areas: domestic satellite systems, systems development and planning, rural and light traffic systems, small earth stations, modulation and multiple access, antennas, propagation and interference, geostationary satellite orbit, economics, planning and implementation and Chinese domestic satellite development.

A special session on CCIR progress in television, including satellite broadcasting, was presented by the Chairman of CCIR Study Group 11, who summarized recent developments, such as the new draft reports on enhanced television systems, C-MAC and high definition television systems for satellite broadcasting.

The proceedings of the Seminar were assembled by the CCIR Secretariat in a bound volume and may be obtained from the Publications Service of ITU.

6.3.4.3 Future seminars

Propagation seminars - In a separate document (CA/6100), the CCIR is proposing two additional seminars on propagation, similar to the one in Africa in 1983. The first would actually take place in Latin America late in 1984, in order to provide sufficient time in advance of the 1985 geostationary orbit Conference to assimilate information on propagation work in heavy-rainfall areas of Region 2 (see Section 6.3.3.2, above). The second would take place in the region of Asia and the Pacific early in 1985. As in the case of the African seminar, the technical programme would be organized by the CCIR and participants would be sponsored either by their administrations or organizations or by technical cooperation fellowships.

6.3.5 Technical cooperation

Two special CCIR publications of particular interest to developing countries were issued in 1983:

- Handbook on spectrum management and computer-aided techniques.
- Broadcasting-satellite systems.

A third special publication, "Antenna diagrams (LF, MF and HF arrays) for broadcasting", provided to the HF Broadcasting Conference was in the final stages of preparation for issue early in 1984. Regular publication of basic indices for ionospheric propagation was continued in 1983.

CCIR played a major role in organizing and conducting two seminars of special interest to developing countries (see Section 6.3.4). The Director, Senior Counsellors or Counsellors participated in a number of conferences and seminars in developing countries:

- ECA meetings on a regional satellite for Africa, Addis Ababa, Ethiopia, January 1983.
- International training course on specialized applications of satellite communication systems, Ahmedabad, India, February 1983.

- 23rd international conference on cooperation between developing and industrialized countries in space activities, Rome, Italy, March 1983.
- Fourth joint meeting of the permanent technical committees on radiobroadcasting and radiocommunications of the Inter-American Telecommunications Conference (CITEL), Lima, Peru, April 1983.
- Seminar on satellite communications for development, Center of Telecommunications for the Third World (CETTEM), San Jose, Costa Rica, May 1983.
- World Communications Year - 83 International Telecommunication Forum, Seoul, July/August 1983.
- Seminar on propagation for African countries, Lome, Togo, August 1983.
- Seminar on domestic satellite communications, Shanghai, China, October 1983.
- First meeting of the permanent technical committee on radiobroadcasting of the Inter-American Telecommunications Conference (CITEL), Lima, Peru, November 1983.
- Global Communications Conference of the Institute of Electrical and Electronic Engineers, session on rural telecommunications, San Diego, California, December 1983.

The CCIR continued its regular participation in the Selection Panel for Experts convened by the Technical Cooperation Department and reviewed eight project documents and reports during 1983. Representative titles included:

- Guidelines for the preparation of survey and engineering reports.
- Djibouti - Report on telecommunication planning (DJI/82/006).
- Kuwait - Final Report of Mr. H.V. Badrinath (KUW/65/001).
- ESCAP - Final Report on development of telecommunications in Asia (RAS/75/051).
- Saudi Arabia, Bahrain, United Arab Emirates, Iraq, Kuwait, Oman and Qatar - Final Frequency Plan Project (RAB/78/06).
- Tanzania, Uganda - Microwave Link Report (Panaftel).
- Sri Lanka - Final Report on digital switching and transmission (SRL/80/003).
- Nigeria - Report on system parameters of a domestic satellite communication system.

In addition, the CCIR Secretariat assisted the Technical Cooperation Department to evaluate offers of equipment from suppliers to technical cooperation projects by participating in equipment selection panels and tender evaluations.

Examples of major equipment purchases reviewed by the CCIR Secretariat include:

- Indonesia (INS/78/049) - Telecommunication Test and Development Centre.
- Korea (ROK/75/020) - Assistance in the establishment of the Korean Electrotechnology and Telecommunications Research Institute.
- India (IND/72/037) (IND/82/028) - Optical fiber equipment for the Advanced Level Telecommunication Training Centre.
- Brazil (BRA/82/032) - Research and development in telecommunication.
- People's Republic of China (CPR/79/010) - Improvement of training capability of the Beijing Institute of the P&T.
- Bangladesh (BGD/82/054) - Telecommunications Training Centre.
- Jordan (JOR/81/004) - Development of Telecommunication Training Centre.
- Bulgaria (BUL/81/007) - Computer supported line testing system.
- Tokelau (TOK/83/001) - High frequency transmission and reception equipment.
- Gambia - Voice frequency telegraph system.
- Mali - Send/receive teleprinter, HF radiocommunication receiver.
- Benin - HF radiocommunication equipment.
- Nepal (NEP/81/027) - Telecommunication maintenance and management.
- Maldives (RAS/81/075) - Coastal radio station equipment.

During 1983, the CCIR Secretariat was active on a consultative basis in the following areas, in association with the Technical Cooperation Department:

- the reviewing of propagation reports by field experts;
- the development of the Gulfvision programme of propagation measurements including its elaboration to include radio-meteorological measurements, and the analysis of the data;

- advice in the acquisition of measuring instruments related to propagation research;
- advice on television system planning;
- participation in the fourth annual review meeting of MEDARABTEL.

6.3.6 Publications

6.3.6.1 Volumes of XVth Plenary Assembly, last Volumes appearing in early 1983

- VOLUME I Spectrum utilization and monitoring.
- VOLUME II Space research and radioastronomy.
- VOLUME III Fixed service at frequencies below about 30 MHz.
- VOLUME IX-1 Fixed service using radio-relay systems.
- VOLUME XIII Vocabulary (QMV).
- VOLUME XIV-1 Information concerning the XVth Plenary Assembly
Minutes of the Plenary Sessions
Administrative texts
Structure of the CCIR
Lists of CCIR texts.

Others

Report 322-2 - Characteristics and applications of atmospheric radio noise data.

Broadcasting-satellite systems.

Report 340-4 - CCIR Atlas of ionospheric characteristics.

Handbook on spectrum management and computer-aided techniques.

Report on Technical bases for the First Session of the World Administrative Radio Conference for the planning of HF bands allocated to the broadcasting service.

Interim Booklets - Study Groups 1, 6, 10, 10/11 (Part 2), 11 and QMTT.

6.3.6.2 Spectrum management and computer-aided techniques

OCIR Handbook on "Spectrum Management and Computer-Aided Techniques" has been prepared according to OCIR Resolution 24-5 and Decision 27-1 by the OCIR Interim Working Party 1/2. Recommendation 31 of the World Administrative Radio Conference, 1979, specified that such a Handbook should be prepared describing the various aspects involved in applying computer-aided techniques to radio frequency management as well as providing guidelines for various levels of practical application.

The Handbook describes engineering analysis techniques required for spectrum management including frequency files, computer applications and examples of automated aids for spectrum management. The Annexes contain a listing of frequency data files, computer models, and data base management systems. Examples are given of spectrum optimization techniques as well as indications where the data elements described in the Handbook are applied in the Radio Regulations.

6.3.6.3 Broadcasting-satellite systems

The OCIR special publication Broadcasting Satellite Systems, which was prepared by Plenary Working Party PLEN./3, (Chairman: Mr. T.V. Srirangan (India)) draws heavily upon the work of Study Groups 10 and 11. It was issued in 1983 and is expected to serve as an important reference source for use in system planning and development, as well as a guide for seminars and training courses.

6.3.6.4 Publications in hand

- Antenna Diagrams.
- Volume XIV-2 - Alphabetical index of technical terms appearing in Volumes I to XIII.
- Handbook on Fixed-Satellite Service.

6.3.6.5 Other separate publications

Two substantial Reports of OCIR Study Group 6 which are published separately, namely Report 322-2 "Characteristics and applications of atmospheric radio noise data" and Report 340-4 "OCIR Atlas of Ionospheric Characteristics" have been republished in 1983 in a new, considerably extended, "format".

6.3.7 Relations with other organs of the ITU

6.3.7.1 IFRB

Close contacts were maintained with the IFRB, especially in the process of the preparatory work for conferences and seminars.

Cooperation between the OCIR and the IFRB was very close at both the ITU Conferences MOB-83 and SAT-R2.

The OCIR actively participated in the IFRB preparatory seminar to the HFEC Conference, Geneva, 10 a 14 October 1983. Four papers by the Chairmen of certain OCIR Study Groups and Interim Working Parties were presented. The

papers concern the CCIR field strength prediction method, suitable for use at the WARC for HF Broadcasting, CCIR technical standards for HF broadcasting, technical aspects of the introduction of SSB operation in HF broadcasting and features of modern broadcasting receivers.

The IFRB participated with CCIR in the Seminar on Domestic Satellite Communications held in Shanghai.

The CCIR and the IFRB jointly prepared and conducted the first meeting between representatives of the IFRB, the CCIR and Administrations on the development of national radio frequency management (Resolution 7 of WARC-1979), Geneva, 24-28 October 1983. Mr. K. OIMS (Federal Republic of Germany), Chairman of Study Group 1, was invited to chair this meeting. Five papers were presented at the meeting on behalf of CCIR IWP 1/2 which concern general objectives of national spectrum management, monitoring as a part of national spectrum management, spectrum management organizational structure, data bases for national spectrum management and application of computers to spectrum management.

Another meeting jointly prepared by the IFRB and the CCIR was the first ad hoc meeting between monitoring experts from administrations, the IFRB and the CCIR on the improved use of the international monitoring system (Resolution 39 of the WARC-MOB-83), Geneva, 14-16 November 1983. A document was presented on behalf of the CCIR Secretariat which concerns CCIR publications relevant to international monitoring.

At present the CCIR and the IFRB are jointly conducting some work on the implementation of the decisions of these meetings.

6.3.7.2 CCITT

As in the past, the CCIR maintained a close relationship with the CCITT on topics concerning radiocommunications in telecommunication networks.

CCIR representatives participated in the RA/TV Working Party of Study Group IV in Geneva from 23 to 26 August 1983, discussing in particular:

- Report of CCIR IWP 10/6 on the characteristics and tolerance limits applicable to the technical quality of programmes intended for international exchange was taken into account in the proposed new version of CCITT Recommendations N.10, N.21 and N.23.
- Recommendation 468-3 of Study Group 10 and Recommendations 502-2, 571-1 and 605 of the CCITT were also referred to in the above-mentioned Recommendations.
- CCIR Recommendation 468-3 was adopted as a standard of audio-frequency noise measurement in draft new Recommendation on specification for automatic equipment for rapidly measuring monophonic and stereophonic pairs of sound-programme circuits, links and connections.

CCITT Study Group XVIII met in Geneva from 20 June to 8 July 1983. Salient points with regard to the CCIR were:

- Two contributions from CCIR IWP 4/2 on satellite system error performance within an international ISDN connection and its allocation to the satellite HRDP were discussed very extensively. Their major philosophy was fully adopted in the revised version of Recommendation G.821 which has been submitted as a contribution to the Interim Meetings of CCIR Study Groups 4 and 9.
- Hypothetical Reference Digital Path (HRDP) is subject to further study in Study Group XVIII. However, they have recognized that CCIR Recommendations 502-2, 521-1 and 556 are indeed relevant.
- Proposed modifications to Recommendations dealing with digital sections of the 2 Mbit/s hierarchy (G.912, G.914, G.916, G.918) were sent to Study Group 9 as a contribution to its Interim Meeting.

It was decided that the Annex to Recommendation G.811 on reliability of reference clocks would be updated in accordance with the latest version of CCIR Report 898.

Seven documents were sent from the CMIT Interim Meeting to CCITT Study Group XV which was held in Geneva from 26 September to 7 October 1983.

Salient conclusions were:

- Proposed amendments in revised version of CCIR Recommendations 503-2 and 505-2 referring to digital transmissions were agreed and would be included in the revised version of Recommendations J.23 and J.21.
- A new signal for carrying out alignment of international sound programme connections proposed in draft CCIR Report 820 (MOD I) was referred to in the revised version of Recommendations J.14 and J.15.
- The new Recommendation J.41 entitled "Characteristics of equipment for the coding of analogue high quality sound-programme signals for transmission on 384 kbit/s channels" was drafted by using draft new Recommendation AB/CMIT.
- Recommendations G.737, G.739 and G.7XX were also amended in the light of a very important step made by draft Recommendation AB/CMIT.

OMBD is a joint CCIR/CCITT Study Group administered by the CCITT. CCIR has prepared comments on the organization, structure and future activities of OMBD which are presently under discussion.

OMBD Working Party B relating to reliability and availability met in Geneva from 14-18 March 1983. Chairmen or Vice-Chairmen of CCIR Study Groups 4 and 9 were present at the meeting. It was pointed out that in the Recommendations presented to the OMBD by CCIR Study Group 9, that such concepts

as "the intervals of occurrence of transmission interruptions" are not taken into consideration, so that care should be taken to ensure that there is no incompatibility between the CCIR Recommendations and future CCITT Recommendations on interruption objectives.

The manuscript of the Appendix on radio propagation for the GAS-3 Handbook, covering both tropospheric and ionospheric propagation and relative to all space and terrestrial applications, was submitted to the CCITT Secretariat who are responsible for the publication. This Appendix is based on the latest CCIR information as approved at the XVth Plenary Assembly and has been edited by experts of Study Groups 5 and 6.

In the third meeting of GAS 7, which met in Geneva from 5 to 8 April 1983, a new working party was set up to include in the Rural Telecommunications Handbook new articles concerning "drop-insert" system referred to in Report 380-1 of CCIR Study Group 9.

Good coordination has been maintained between CCIR ad hoc FSSH Group which is responsible for drafting a handbook on the fixed-satellite service and GAS 8 responsible for a handbook on regional satellite network which held its last meeting in Geneva from 14 to 18 March 1983.

6.3.8 Relations with International Organizations

6.3.8.1 Broadcasting Organizations

Close contact was maintained with most of the international broadcasting organizations such as EBU, OIRT, ABU, ASBU, URINA, NANBA and others. The representatives of these organizations participated actively in the work of CCIR Study Groups and Interim Working Parties. Contributions of EBU and OIRT to the preparatory work for the VHF Broadcasting Conference, and of the EBU to the HF Broadcasting Conference deserve particular attention. The representative of NANBA also assumes the role of coordinator of the work on the CCIR Handbook on Sound and Video Recording.

On the other hand, CCIR representatives participate in some of the meetings of these organizations (e.g. Coordination meeting of Gulfvision which is part of ABU).

However, because of budgetary restrictions, CCIR Secretariat participation in many important meetings was not possible.

6.3.8.2 Standardization Organizations

Close contact is maintained with the International Electrotechnical Commission (IEC) and its organs and to some extent with the International Organization for Standardization (ISO). The CCIR regularly exchanges relevant technical documentation with these organizations and mutual participation of representatives of the CCIR and IEC/ISO in meetings is assured in most important cases (especially in the work of IEC TC 1, 12, 60, 77 and 83 and CISPR (International Special Committee on Radio Interference) and in the IEC/ISO/CCIR/CCITT Informal Group on Information Technology).

Particularly close cooperation exists between CISPR and the CCIR within CCIR Interim Working Party 1/4 on the limits of radiation from ISM (industrial, scientific and medical) equipment, which practically functions as a joint CCIR/CISPR group in accordance with the provisions of Resolution 63 of the WARC-79. The draft CCIR Recommendation on the limits of radiation from ISM equipment is now under consideration by IWP 1/2 and Study Group 1.

6.3.8.3 Scientific Organizations

Regular contact and exchange of information are maintained with the international scientific organizations involved in research of mutual interest to the CCIR.

The closest cooperation is maintained with the International Union of Radio Science (URSI) for which a Coordination Committee is chaired by Mr. M. Thué (France). URSI contributes to the work of many CCIR Study Groups (mainly in radio-wave propagation and communications theory research).

Among other organizations with which such contact is maintained are: Bureau International de l'Heure (BIH), International Council of Scientific Unions (ICSU), URSI Ionospheric Network Advisory Group (INAG), Inter-Union Commission on Frequency Allocations for Radio Astronomy and Space Science (IUCAF), International Astronomical Union (IAU) and the World Meteorological Organization (WMO).

6.3.8.4 Maritime Organizations

Close cooperation was maintained with the International Maritime Organization (IMO) specially with regard to the introduction of the Future Global Maritime Distress and Safety System (see also Section 6.3.2.8).

The International Maritime Satellite Organization (INMARSAT) continued to give full support to the trials programme of Satellite Emergency Position Indicating Radio Beacons reported under IWP 8/7 in Section 6.3.2.8.

6.3.9 Specialized Secretariat

6.3.9.1 Structure

With the filling of the post of Chief Editor, the Editorial Department in the CCIR Secretariat was reactivated. Provisionally, the Chief Editor carries out also the tasks of the Engineer-Editor (French), and short-term arrangements are made as needed for the Engineer Editor (English), as these posts were abolished in connection with the 10% financial reduction for staff. The need for these posts will arise again strongly as from 1986 and the XVth Plenary Assembly. The post of Senior Counsellor, Head of Department B remains frozen through 1984.

6.3.9.2 Use of computers

The scope and objectives of CCIR computer use have been outlined in earlier documents reviewed by the Council. Briefly, the requirements and activities are:

- administrative applications;
- support of technical work of Study Groups;
- dissemination of programs for carrying out CCIR technical calculations.

To support these activities, the ITU computer is used in addition to a minicomputer (LSI-11) and microcomputer systems.

Administrative applications include text processing and data base systems for document control, lists, and indexes. These applications use the ITU central computer, Zentec stand-alone microprocessors, and a multi-user (Televideo) network system. Program development for the latter is compatible with the new ITU Rainbow terminals which will come into use in CCIR as they become available. A particular multi-user application is the CCIR document control network. Primary entries are made by the receiving Technical Department to a shared data-base. The Document Services Section updates the data base with processing information, translated titles, etc. The method allocates responsibilities and workload more efficiently, and provides screen information and reports to all users. It is anticipated that this network concept can be expanded and applied to other administrative processes with the networking of the Rainbow system.

The support of Study Group work and dissemination of technical programs uses several systems, languages and formats, depending on the requirement. Examples include: SKYWAV - a large system based on the supplement to Report 252-2 developed and extensively updated in the CCIR Secretariat; ORBIT - software optimizing orbital position, developed by KDD in participation in Study Group 4 work; LIL 252 - this system designed for minicomputer use by Study Group 6, recently installed, tested and being updated; WAGNER - a propagation calculation system being made available currently; GRWAVE - propagation method now available; ANTI-DIAG - program available on ITU computer and in basic language on diskettes, HF antenna diagrams. Other programs include solar index prediction.

6.3.9.3 Editorial work

See Sections 6.3.6 (Publications) and 6.3.9.1 (Structure) above.

6.4 INTERNATIONAL TELEGRAPH AND TELEPHONE CONSULTATIVE COMMITTEE (CCITT)

6.4.1 General information

The various CCITT Study Groups and Working Parties have been extremely active, owing to the advances in technology in many telecommunication sectors and to the profound changes in the services that this technology has entailed.

In view of its role in the development of telecommunications, particularly in establishing standards and specifications, and in order to finalize a large number of Recommendations for approval by its next Plenary Assembly, the CCITT held 100 meetings in 1983, representing a total of 499 meeting days (see Table I - List of CCITT meetings held in 1983, on page 122 of this report).

It is already foreseen that at the final Study Group meetings over 330 radically revised Recommendations and over 255 new Recommendations will be submitted to the next Plenary Assembly.

Table II gives information on participation in the meetings and on the number of contributions and reports issued in 1983 (see page 128).

6.4.2 New organizations admitted to the CCITT

In 1983, two recognized private operating agencies and six scientific or industrial organizations were permitted to participate in the work of the CCITT. By the end of 1983, the number of organizations participating in the work of the CCITT amounted to:

- Recognized private operating agencies: 56
- Scientific or industrial organizations: 147
- International organizations: 36

The new admissions are:

a) Recognized private operating agencies

United States: Central Services Organization,
Basking Ridge, New Jersey (3 units)

United Kingdom: Mercury Communications Limited,
London (½ unit)

b) Scientific or industrial organizations:

Canada: ESE Limited,
Rexdale, Ontario (½ unit)

Microtel Pacific Research,
Burnaby, British Columbia (½ unit)

United States: Corning Glass Works,
Corning, New York (½ unit)

Delta Information Systems, Inc.,
Jenkintown, Pennsylvania (½ unit)

Granger Associates,
Santa Clara, California (½ unit)

United Kingdom: Matsuchita Graphic Communication
Systems, Inc.,
Maidenhead, Berkshire (½ unit)

6.4.3 Summary of the main activities of the CCITT

6.4.3.1 Study Group 1 - Definition and operational aspects of telegraph and telematic services (facsimile, Teletex, Videotex, etc.)

The work of Study Group I has been organized into five Working Parties and a number of Rapporteur Groups, covering the following activities.

- WP I/1: Telex, radiotelex and mobile telematic services
- WP I/2: Telegram service and message switching
- WP I/3: Teletex service
- WP I/4: Telewriting and facsimile services
- WP I/5: Videotex service
- Rapporteur Groups - Data transmission services; phototelegraph service; interworking between telematic services.

The work of all of the Groups has almost been concluded for this study period and their achievements are summarized in the following sections.

6.4.3.1.1 Telex, radiotelex and mobile telematic services (Working Party I/1)

i) The following new Recommendations have been developed:

- new Recommendation on "International telex store-and-forward", defining the general principles and operational aspects for telex access from one country to a store-and-forward facility in another country, and for the interconnection of store-and-forward units from one country to another;
- new Recommendation on "Operational procedures for the maritime satellite data transmission service", defining the procedures for PDN subscribers calling ship earth stations and vice versa, using the packet-switched data transmission service.

ii) A number of Recommendations dealing with the maritime mobile service and the telex service were updated, including the Plan for telex destination codes.

6.4.3.1.2 Telegram and message switching service (Working Party 1/2)

i) The Recommendation on the telegram service was extensively reviewed, in order to simplify the operational procedures and to bring the Recommendation in line with present-day requirements for drastic economy measures.

ii) A new Recommendation applying to the operation of an international public automatic message switching service was elaborated.

6.4.3.1.3 Teletex service (Working Party I/3)

i) A new section dealing with Teletex mixed mode of operation (which provides for image as well as character-coded communications) was developed, and the requirements for interchange of documents between Teletex and Group 4 facsimile machines working in the mixed mode, were identified. Close liaison and cooperation was required with Study Group VIII.

ii) A new Recommendation defining Teletex to telex interworking using both one- and two-stage selection was elaborated in close collaboration with other technical Study Groups, mainly Study Group IX.

6.4.3.1.4 Facsimile and telewriting (Working Party I/4)

i) New Recommendations were developed as follows:

- a new Recommendation on operational requirements for an international store-and-forward facsimile switching service;
- a new Recommendation for an international facsimile service between public bureaux and subscriber stations and vice versa;
- finally, a new Recommendation on an international Group 4 facsimile service.

ii) In close collaboration with the Universal Postal Union (UPU), an extensive review was carried out on the recommendation for an international public facsimile service between public bureaux (Bureaufax), which provides the basis for standardization of an electronic mail service.

6.4.3.1.5 Videotex service (Working Party I/5)

In close cooperation with Study Group VIII, the Recommendation on the Videotex service was extensively revised.

6.4.3.2 Study Group II - Telephone operation and quality of service

The work of Study Group II has been carried out in five Working Parties, as follows:

- WP II/1: Operation and supplementary services
- WP II/2: Human factors;
- WP II/3: Telephone routing, numbering and interworking
- WP II/4: Traffic engineering, network planning and forecasting
- WP II/5: Quality of service and network management

6.4.3.2.1 Operation and supplementary services (Working Party II/1)

i) Refinements were introduced to the "Instructions for the international telephone service" and the accelerated procedure was used to obtain provisional approval for amendments to the Recommendation on the use of credit cards, mainly in extending the period of validity of credit cards from one to five years.

ii) A new Recommendation on the use of computerized information services was developed.

iii) Good progress was made in further standardizing additional supplementary services which can be offered to telephone users.

6.4.3.2.2 Human factors (Working Party II/2)

i) The following new Recommendations were produced:

- three new Recommendations dealing with harmonization of information pages of telephone directories, pages in directories intended for foreign visitors and leaflets to be distributed to foreign visitors were developed;
- a new Recommendation on means to discourage frivolous international calls to recorded announcements without charge was prepared;
- studies on standardization of pictograms and symbols to assist users of the telephone service were further advanced, including agreement of the pictograms to be used to indicate emergency services (police, ambulance, fire);
- standardization of payphone recognition tone and other tones used in the telephone service were further advanced;

- progress was made in identifying human factors aspects of the ISDN to be studied in the next period;
- in liaison with the ISO, good progress was made on ergonomic aspects of visual display units and on human factors issues of the MML (in collaboration with Study Group XI).

6.4.3.2.3 Telephone routing, numbering and interworking
(Working Party II/3)

i) A new Recommendation on the international telephone routing plan was elaborated, including a table of "transit capabilities" to be distributed by administrations to encourage the use of alternative routings.

ii) Two new Recommendations on public land mobile systems (viz. an identification plan and telephone numbering plan) were prepared.

iii) A draft Recommendation on the future ISDN numbering plan was drafted in liaison with other Study Groups.

iv) A draft Recommendation on models for international network planning was prepared.

6.4.3.2.4 Traffic engineering, network planning and forecasting
(Working Party II/4)

i) A number of new Recommendations were prepared on: estimation of traffic offered; grade of service and performance criteria of exchanges under failure conditions; traffic and operational requirements for SPC telecommunications exchanges.

ii) Extensive revisions and refinements were agreed to existing Recommendations on traffic measurements; on grade of service standards in international telephone exchanges; on forecasting of international traffic.

6.4.3.2.5 Quality of service and network management
(Working Party II/5)

i) Refinements have been introduced in the quality of service Recommendations to take into account sophisticated automated computer measuring techniques.

ii) A Quality of Service Development Group has been established to promote and refine quality of service studies with the view to improving the service offered to customers and the efficient utilization of the international network.

iii) The Network Management Development Group attracted growing interest and involvement. Three new Recommendations on international network management were developed, and in collaboration with Study Group XI, requirements were defined for the use of network management signals in CCITT-defined common signalling systems.

iv) In collaboration with Study Group IV, a Handbook on "Quality of Service, Network Management and Network Maintenance" was finalized.

6.4.3.3 Study Group III - General tariff principles

Study Group III held a plenary meeting at the beginning of 1983.

The five standing Working Parties of this Study Group and some Ad Hoc Groups each held a meeting in September/October 1983.

Two of the Regional Tariff Groups which come under Study Group III also met during 1983:

- the Tariff Group for Africa (TAF Group),
- the Tariff Group for Europe and the Mediterranean Basin (TEUREM Group).

The results of the activities of Study Group III and its subsidiary bodies in 1983 are summarized below.

6.4.3.3.1 Plenary meeting of Study Group III

At the plenary meeting of Study Group III early in 1983, the standing Working Parties it had set up at the beginning of the study period and the Special Rapporteurs to whom it had assigned the study of specific Questions submitted reports on their activities since the beginning of the study period showing the progress made in the work and eliciting new directives for further studies. Study Group III noted that some draft revisions of existing Recommendations and new draft Recommendations had already been finalized and approved those drafts.

6.4.3.3.2 Working Party III/1 (Leasing of private international circuits)

Working Party III/1 met to complete the existing Recommendation D.3 on special conditions for the lease of intercontinental telecommunication circuits for private service by adding a new section defining basic principles for leasing digitized circuits.

It also considered the evolution of customers' requirements for specialized telecommunication services and a proposed revision of Recommendation D.6. This proposal, which was discussed at length, was not accepted.

6.4.3.3.3 Working Party III/2 (Charging for data transmission services over public data networks)

In view of the development of data transmission services at the international level, Working Party III/2 had to consider a large number of problems which gave rise to lengthy exchanges of views. These problems include:

- charging for unsuccessful calls,
- multi-tier charging,
- tariff arrangements for the different public network interworking options.

Working Party III/2 prepared two new draft Recommendations, relating to:

- the implementation of reverse charging on public-switched data communication services,
- guiding principles to govern the apportionment of accounting rates in international packet-switched public data communication services.

It also carried out a complete and coordinated restructuring of Recommendations D.10, D.11 and D.20.

6.4.3.3.4 Working Party III/3 (Tariff and accounting arrangements in the international telegram service and the telematic services)

With regard to the international public telegram service, Working Party III/3 took note of Study Group I's intention to simplify Recommendation F.1. It expressed no objection to the simplification of the charging system now in force, based on counting of words, but asked if it could be given time to study a different system.

It continued the study of the tariff problems raised by the introduction on an international scale of the "store and forward" service for telex messages and expressed opinions on some of these problems.

Lastly, Working Party III/3 continued its study of tariff principles for international public facsimile services and supplemented the relevant Recommendations in certain respects.

6.4.3.3.5 Working Party III/4 (Tariffs and accounting for the international telephone service and international sound- and television-programme transmissions)

With regard to the international public telephone service, Working Party III/4 agreed to:

- supplement an existing Recommendation and another in the process of drafting to take account of the problems raised by temporary alternative routing used in international telephone network management;

- amend certain provisions of Recommendation D.106 in order to specify the conditions for the introduction of reduced rates during periods of light traffic;
- introduce a number of changes in Recommendations relating to charging in the telephone service, to take account of certain decisions taken by Study Group II with respect to operation.

Working Party III/4 also carried out a complete revision of Recommendation D.4 on the lease of international sound- and television-programme circuits.

6.4.3.3.6 Working Party UMI (International monetary unit)

Working Party UMI took note of the contents of the new Article 30 of the International Telecommunication Convention, Nairobi, 1982, which provides that, as from 1 January 1984, one of two international monetary units may be used in international relations in the composition of accounting rates and in the establishment of international accounts.

To deal with the new situation thus created, Working Party UMI was obliged to revise Recommendation D.195 on the settlement of international telecommunication balances of accounts.

6.4.3.3.7 Ad Hoc Group on charging for the ISDN

An Ad Hoc Group of the Special Rapporteur for the study of the Question concerning tariffs for the future integrated services digital network (ISDN) also met in September 1983. It took note of the results of technical studies in progress and undertook to define the main guidelines that could serve as a basis for establishing general tariff principles applicable to the ISDN.

6.4.3.3.8 Tariff Group for Africa (TAF)

The TAF Group, which met in Libreville in June 1983, agreed on a short- and medium-term programme of action comprising the following two main points:

- a) in the short term, development of a provisional charging system on the basis of the standards already applied in the sub-regions and likely to be acceptable to all the African Administrations;
- b) in the medium term, a further comprehensive cost study should be made, the results of which would be used to develop a final charging system applicable in all relations between the countries of Africa.

6.4.3.3.9 Tariff Group for Europe and the Mediterranean Basin (TEUREM)

The TEUREM Group, which held a meeting in late November/early December 1983, completed the cost price studies it had undertaken during the study period and finalized the texts of draft Recommendations to be submitted to the VIIIth Plenary Assembly of the CCITT.

6.4.3.4 Study Group IV - Transmission maintenance of international lines, circuits and chains of circuits; maintenance of automatic and semi-automatic networks

In 1983, Study Group IV completed a large number of the studies begun in 1981 and 1982, while pursuing the long-term tasks which will have to be continued during the next CCITT study period.

The work done in the Study Group's six Working Parties related to the following subjects:

6.4.3.4.1 Maintenance of telephone-type circuits (Working Party IV/1)

Working Party IV/1 completed some Recommendations on specifications of leased circuits by including in them limits for permissible variations of overall loss with time and amplitude hits. With regard to the other parameters specified for international leased circuits, it was considered that the specifications drawn up are adapted to the technical potential of the existing equipment. Following its studies of phase jitter, Study Group IV discontinued its studies on the definition of laws of addition for phase jitter appearing on different sections of a leased circuit.

A great effort was also made to complete draft Recommendations relating to the characteristics, line-up and maintenance of leased international circuits forming part of private switched networks.

Working Parties IV/1 and IV/5 completed the study of a draft Recommendation on the characteristics, line-up and maintenance of TDM (time division multiplex) telegraph links.

A clause on the effects of amplitude hits, short breaks and phase hits on VF telegraph links will be proposed for insertion in Recommendation M.810.

The Working Party completed the study of various Recommendations relating to:

- specifications of international data transmission systems operating in the range 2400 bit/s to 64 kbit/s,
- setting up, lining up and maintenance of international data transmission systems operating in the range 2.4 to 9.6 kbit/s.

6.4.3.4.2 Specifications of transmission measuring instruments and automatic measuring equipment (Working Party IV/2)

The studies completed during 1983 include:

- a specification for equipment to measure the performance of the send and receive sides of primary multiplexes (PCM encoders and decoders),

- a specification for an instrument to measure bit error ratio on 64 kbit/s digital paths,
- a complete revision of Recommendation O.121 entitled "Measuring arrangements to assess the degree of unbalance about earth",
- a revision of Recommendation P.53 on specifications of psophometers (apparatus for the objective measurement of circuit noise),
- draft modifications to ATME No. 2 (CCITT automatic transmission measuring and signalling testing equipment to allow for tests on circuits using echo cancellers.

6.4.3.4.3 Maintenance organization (Working Party IV/3)

Working Party IV/3 has partly completed studies on specifications of MML functions for maintenance of lines and associated equipment between exchanges. Several draft Recommendations on the use of the MML for maintenance have been prepared and will be submitted to the next Plenary Assembly.

During 1983, two Special Rapporteurs appointed by the Working Party were instructed to study all the amendments to be made to the M.700-series Recommendations. The results of this study will be submitted to Working Party IV/3 at its final meeting, in 1984.

6.4.3.4.4 Network investigation and measurements, drafting of a maintenance Handbook and study of availability of international leased circuits (Working Party IV/4)

The results obtained in 1983 may be summarized as follows:

No investigation was undertaken, in the absence of a formal request in that regard. This state of affairs is due, not to any lack of interest in the results, but rather to the enormous amount of work required from Administrations during these investigations.

Working Party IV/4 completed a draft of the "Maintenance" chapter of the Handbook on "Service quality, network maintenance and management"; this draft will be submitted to Study Group IV for approval.

To conclude the study conducted in Working Party IV/4, a draft Recommendation was prepared, describing the procedure of assessing the availability of international leased circuits. The Recommendation contains guidelines for the collection and analysis of basic data and proposals for the presentation of the results.

6.4.3.4.5 Systems maintenance (Working Party IV/5)

Working Party IV/5, which deals with this broad area of activity, continued its studies with respect to:

- maintenance of groups, supergroups, etc.,
- maintenance of mixed analogue/digital circuits and networks,

- maintenance of leased circuits for 50/56 kbit/s data transmission,
- maintenance of common channel signalling systems (System No. 6),
- maintenance of maritime satellite systems.

These studies led to the preparation of a large number of draft Recommendations, which will be submitted to Study Group IV at its final meeting in 1984.

Among the draft Recommendations that are being prepared, special attention is drawn to the ten new Recommendations relating to the maintenance of mixed analogue/digital circuits and networks and to the revision of Recommendations on the bringing into service and maintenance of maritime satellite systems.

6.4.3.4.6 Maintenance of international sound-programme circuits and international television transmissions (RA/TV Working Party)

Apart from the amendments proposed to the N-Series Recommendations relating to the maintenance of sound-programme circuits, the RA/TV Working Party has undertaken studies on the following matters:

- maintenance of digital sound-programme circuit sections,
- fault-finding, fault clearance and periodicity of maintenance,
- application of the laws of addition for the estimation of the transmission performance of sound-programme circuits.

One of the goals achieved in 1983 was the preparation of a new Recommendation on the maintenance of permanent international television circuits.

6.4.3.5 Study Group V - Protection against dangers and disturbances of electromagnetic origin

Study Group V did not hold any meetings in 1983. The studies carried out by Special Rapporteurs nominated for the study of particular Questions resulted in draft texts for a modified version of Recommendation K.11 - Principles of protection against overvoltages and overcurrents, a supplement to Recommendation K.14 - Provision of a metallic screen in plastic-sheathed cables, and a new Recommendation on the resistibility of telecommunications switching equipment to overvoltages and overcurrents. Those texts will be discussed at the final meeting of Study Group V in 1984.

6.4.3.5.1 The Working Party on a new edition of the "Directives concerning the protection of telecommunication lines against harmful effects from electricity lines" met twice in 1983. A number of chapters for different volumes were elaborated and submitted to Study Group V for examination.

6.4.3.5.2 Questions concerning lightning protection and geo-magnetic storms are being studied in close collaboration with the CCIR.

6.4.3.6 Study Group VI - Protection and specifications of cable sheaths and poles

6.4.3.6.1 Study Group VI did not hold a meeting in 1983. The Working Party on a new edition of the "Recommendations concerning the construction, installation and protection of telecommunication cables in public networks" met in October 1983 and elaborated the structure of the new handbook. The complete text will be ready during the next study period.

6.4.3.6.2 Questions concerning optical fibre cables are being studied in close contact with Study Group XV. The Ad Hoc Working Party on Questions 15, 16, 17, 18/VI met twice in 1983. The Working Party drafted a complete text of a handbook, which will be submitted to the final meeting of Study Group VI in 1984 for examination before submission to the Plenary Assembly for approval.

6.4.3.7 Study Group VII - Data communication networks

All the Working Parties of Study Group VII met in the course of 1983 with a view to completing their work on questions assigned to them in preparation for the forthcoming CCITT Plenary Assembly. A summary of the principal results achieved is given below:

6.4.3.7.1 Network service classes and facilities (Working Party VII/1)

The main output was the revision of Recommendation X.1 for international user classes of service and the elaboration of a new draft Recommendation X.10 entitled "Categories of access for data terminal equipment to public data transmission services provided by PDNs and ISDNs through terminal adaptors".

As for the international user facilities, it was agreed to delete the datagram service from the list of the packet-switched services in Recommendation X.2; correlatively the datagram protocol was removed from Recommendation X.25 (the packet-mode interface).

6.4.3.7.2 Network access interfaces (Working Party VII/2)

A considerable amount of work was done on ISDN matters in conjunction with the work done within Study Groups XVIII and XI. The main result of this work was the drafting of new Recommendations X.30 and X.31 covering the support on an ISDN of circuit-switched terminals employing Recommendation X.21 and X.21bis, and packet-mode terminals utilizing Recommendation X.25 procedures.

Further enhancements to all levels (physical, link and packet) of Recommendation X.25 were agreed upon. A new draft Recommendation (X.32) entitled "Interface between DTE and DCE for terminals operating in the packet-mode and accessing a packet-switched public data network through a public-switched network" has also been drafted.

As for the study of the packet assembly/disassembly facility, a number of enhancements to the related Recommendations were approved in principle. The text of a new draft Recommendation (X.351) covering "Packet assembly/disassembly facility in the maritime satellite service" was elaborated.

6.4.3.7.3 Network interworking, switching and signalling (Working Party VII/3)

General principles and arrangements for international interworking between different types of networks providing data transmission and telematic services have been specified in a new draft Recommendation X.300.

Administrative procedures for international permanent virtual circuits have been specified in the form of a draft Recommendation in order to provide such a new service.

For the purpose of aligning with the outputs of other Study Groups or Working Parties concerned, the relevant Recommendations have been reviewed thoroughly and amended.

6.4.3.7.4 Network transmissions and maintenance (Working Party VII/4)

In order to enhance the scope of the network transmission scheme, the following new draft Recommendations have been drawn up:

- X.55 and X.56 : Interface between SCPC satellite channels and synchronous data network using (6+2) and (8+2) envelope structures, respectively;
- X.57 : Method of transmitting a low-speed data channel on a 64 kbit/s carrier.

Study of the question of interconnecting data networks and the maritime mobile satellite service gave rise to two new draft Recommendations X.350 on general requirements and X.352 on interface requirements.

Studies conducted on the quality of service in public data network produced extensive results and elaborated three new Recommendations X.135, X.136 and X.140 which specify various aspects of grade of service.

As a result of the studies on integration of satellite systems in public data networks, a new Recommendation X.141 was prepared outlining the general principles for the detection and correction of errors.

6.4.3.7.5 Network aspects (Working Party VII/5)

Intensive studies on message handling yielded satisfactory results and produced eight new draft Recommendations X.400, X.401, X.408, X.409, X.410, X.411, X.420 and X.430.

The study of protocols for Open Systems Interconnection gave rise to a systematic set of Recommendations which is composed of 11 new draft Recommendations X.200, X.210-X.217, X.224 and X.225. The basic Recommendation X.200 for a Reference Model of Open Systems Interconnection was provisionally approved in the course of 1983 in accordance with CCITT Resolution No. 2.

The extension of public data services to the maritime mobile system led to the revision of the existing Recommendations on international numbering plan and routing and the elaboration of a new draft Recommendation X.352 on routing principles for the maritime satellite data transmission service.

6.4.3.8 Study Group VIII - Terminal equipment for telematic services (facsimile, Teletex, Videotex, etc.)

All the Working Parties of Study Group VIII met in the course of 1983 with the main results as summarized below.

6.4.3.8.1 Teletex terminals

In accordance with CCITT Resolution No. 2, draft Recommendation S.90 on interworking between Teletex and telex was provisionally approved in order to meet the urgent need of a number of countries.

Another draft Recommendation on real-time interworking with the telex service in a packet-switching network environment has also been drafted.

A document interchange protocol for the Telematic services when a document structure is required for mixed mode Teletex and Group 4 facsimile has been elaborated in the form of a draft Recommendation.

Technical requirements unique to the Teletex terminals supporting mixed mode of operation has been incorporated in Recommendation S.60 on Teletex terminal equipment.

Various points arising from the implementation of Teletex service were reviewed thoroughly and the relevant Recommendations on Teletex character repertoire, control procedures, transport service, etc. have been amended.

6.4.3.8.2 Facsimile apparatus

The standardization of Group 4 facsimile apparatus including coding schemes and control functions has been completed in the form of two draft Recommendations.

In order to meet the severe requirements of ISO and United Nations layout key, the question of the guaranteed reproducible area of Group 3 facsimile was studied and it was decided to add an appendix to Recommendation T.4 on this subject.

6.4.3.8.3 Videotex terminals

On the basis of three Videotex standards which have been implemented in certain countries or regions, the technical aspects of interworking of these different Videotex services were considered in a new Recommendation entitled "International interworking for Videotex services".

6.4.3.8.4 Others

In order to clarify the relationship of various coded character sets used for telematic services, a draft Recommendation on general graphical character sets and code extension technique has been worked out.

The study of terminal equipment for the telewriting service gave rise to a new draft Recommendation.

6.4.3.9 Study Group IX - Telegraph networks and terminal equipment

Study Group IX carried out studies on the following subjects in the 1981-1984 study period:

- a) Terminals and customer facilities,
- b) Signalling and interworking,
- c) TDM multiplex systems,
- d) Transmission standards,
- e) Telex store-and-forward (in association with Study Group I).

To conclude the work in the period, some new Recommendations and revisions of Recommendations in the areas a), b), c) and d) above will be submitted to the VIIIth CCITT Plenary Assembly for approval. Regarding e), Recommendations will be submitted later on.

- General principles and operational aspects of international and interconnected telex store-and-forward
- Telex store-and-forward international telex access
- Delivery of international telex messages by a store-and-forward unit (SFU)
- International interconnection of telex store-and-forward units.

6.4.3.10 Study Group XI - Telephone switching and signalling

Study Group XI continued studies on the following main subjects in 1983:

- a) Interworking of signalling systems,
Signalling via satellites,
Updating of Recommendations
- b) Signalling System No. 7
- c) SPC Languages

- d) Digital switching
- e) National switching
- f) Digital subscriber line signalling

To conclude the work of the Study Period, the Study Group is submitting to the VIIIth Plenary Assembly for approval Recommendations in the following main areas:

6.4.3.10.1 Interworking

Interworking of Signalling System No. 7 with other systems, using SDL. Signalling on leased circuits. Interworking with the maritime mobile-satellite service. Interworking with the land mobile service. Revision to the Signalling System R2 specification.

6.4.3.10.2 Signalling System No. 7

Use for PABX application. Modification to the Message Transfer Part. Signalling Connection Control Part. ISDN User Part. Monitoring, operations and maintenance. Trials of the Systems are being made between several countries.

6.4.3.10.3 SPC Languages

Extensions to SDL, CHILL and MML. User Manuals for SDL and CHILL. Courses on SDL and CHILL. Coordination with IEC and ISO has been maintained in respect of SDL. The use of CHILL is becoming widespread. Publicity of the CCITT languages has been made in several Congresses.

6.4.3.10.4 Digital Switching

Digital transit exchanges. Digital local and combined exchanges. These Recommendations should form the basis for digital switching in ISDN.

6.4.3.10.5 National Switching

Automatic Switching functions for national networks.

6.4.3.10.6 Digital subscriber line signalling

Specification of ISDN user-network interface data link layer protocol. General aspects and structure of ISDN user-network interface procedures. Procedures for establishing, maintaining and clearing of network connections at the ISDN user-network interface.

6.4.3.11 Study Group XII - Telephone transmission performance and local telephone networks

6.4.3.11.1 Study Group XII held one meeting in 1983. The draft Recommendations referred to in the previous Report on activities were completed and improved with a view to adoption at the forthcoming final meeting. Various Recommendations were amended to take account of changes in the NOSFER equipment and of the new draft Recommendations on sidetone.

6.4.3.11.2 New digital processes were evaluated in terms of their transmission performance. Study Group XII also successfully undertook the study of the telephone transmission performance of cordless telephones and links with mobile stations. Finally, Study Group XII decided to propose the study of the highly important question of voice synthesis and voice recognition systems.

6.4.3.12 Study Group XV - Transmission systems

Study Group XV and its Working Parties and Ad Hoc Groups met in 1983. At this meeting the work performed at a previous meeting of seven Working Parties and Ad Hoc Groups was also examined.

6.4.3.12.1 The final text of the booklet on optical fibres for telecommunications, largely based on the two special issues (November 1981 and February 1982) of the ITU Telecommunication Journal, was approved. The publication was announced in Circular No. 2 of 10 January 1984 and it is devoted mainly to practical aspects, in order to allow the choice among various solutions and to give guidance for projects involving optical fibre installations.

6.4.3.12.2 Another publication, drafted by Study Group XV and due for publication in 1984, is the compendium on cable measurement methods. The publication, drafted by the Working Party on cables, will be divided into three main parts: the first covering general aspects of cable measurement methods, the second dealing with measurements made on symmetric cable pairs and the third dedicated to measurements made on symmetric cable pairs.

6.4.3.12.3 Draft Recommendation G.65X gives the characteristics for monomode fibres, having a nominal cladding diameter of 125 μm and optimized for use at a wavelength of around 1300 nm, which may also be used at around 1550 nm, for analog and digital transmissions.

The Working Party on optical fibres also recognized the need to initiate the study of fibres to be used in the local networks.

6.4.3.12.4 The Working Party on digital line systems agreed to propose a new structure of the G.900 series of Recommendations by separating those relevant to digital line sections from the others dealing with digital line systems. In practice, for the digital line systems, there will be one Recommendation for each transmission medium to cover all bit rates within a given hierarchy in that medium.

6.4.3.12.5 The Working Party on digital equipments agreed to propose an amendment to Recommendations G.737 and G.739 in order to provide accesses at 384 kbit/s for sound programme channels and to improve the draft text of a new Recommendation to be further studied giving the characteristics of external access equipment operating at 1544 kbit/s and offering synchronous digital accesses at 64 and 384 kbit/s.

6.4.3.12.6 The Working Party for sound programme and television transmission has revised several Recommendations of the J-series, considering also the results obtained at the interim meeting of CMTT. In particular, in the light of their draft Recommendation, the transmission of analogue high quality sound

programme signals on mixed analogue and digital circuits using 384 kbit/s channels, draft Recommendations J.41 and J.42 have been drafted in reply to Question 2/XV (Equipment for digital transmission of sound programme signals).

6.4.3.12.7 The Working Party on visual telephony has refined the draft Recommendation giving the frame structures for use in international interconnection of digital codecs for video conferencing or visual telephony and has agreed on the layout of a new draft Recommendation for a codec for videoconferencing using primary digital group transmission.

6.4.3.12.8 The Working Party on voice processing agreed to introduce some amendments to existing Recommendations G.164 (echo suppressors) which will now be applicable to echo suppressors that employ fixed differential sensitivity and those that employ adaptive differential sensitivity and G.165 (echo cancellers).

6.4.3.12.9 All questions dealing with analogue systems will be answered by the end of this study period. It is proposed that only a general question in this respect will continue to be studied during next period.

6.4.3.13 Study Group XVI - Telephone circuits

Study Group XVI held one meeting in 1983. Since this Study Group is mainly concerned with the planning and transmission performance of the world network, one of its tasks is to assess the effect of new devices, instruments and technologies on transmission performance. In this context, apart from the collaboration with other Study Groups mentioned in the last Report on activities, Study Group XVI has finalized and amended a large number of Recommendations on the planning of the transmission of international connections. Finally, a new draft Recommendation on the "Transmission plan aspects of international conference calls" will be submitted for adoption at the forthcoming final meeting.

6.4.3.14 Study Group XVII - Data communication over the telephone network

All three Working Parties of Study Group XVII met in the course of 1983 in order to complete work assigned to them in the current study period. A summary of the main results achieved is given below:

6.4.3.14.1 Modems

A draft Recommendation V.32 for a family of duplex modems operating at 4.8 and 9.6 kbit/s has been completed in addition to other two draft Recommendations V.22 bis and V.26 ter for 1200/2400 bit/s duplex modems.

In order to meet the new V.32 modem characteristics and also taking account of the study results of Study Group XV regarding echo suppressors/echo cancellers, Recommendation V.25 on automatic calling and answering equipment has been amended.

6.4.3.14.2 Interworking with digital networks

A new Recommendation (V.110) which could ensure the connection of terminals with V-series type interface to the ISDN has been drafted in collaboration with Study Groups VII and XVIII.

Study of the question on data transmission on digital facilities and in digital networks yielded successful results and prepared two draft Recommendations, one on a general data communication interface (common physical interface) and the second on interconnection between PDNs and PSTN.

6.4.3.14.3 Interface

A new Recommendation (V.31 bis) entitled "Electrical characteristics for single current interchange circuits using opto couplers" has been elaborated.

A new Recommendation (V.25 bis) on automatic calling/answering equipment using the 100-series interchange circuits has been drafted.

The study of various points arising from the implementation of the interface Recommendations led to the improvement and expansion of the scope of these Recommendations.

6.4.3.15 Study Group XVIII - Digital networks

6.4.3.15.1 Study Group XVIII and its Working Parties and Working Teams met in 1983. At this meeting the work performed at a previous meeting by the Group of Experts on ISDN matters was also examined.

As agreed by Study Group XVIII in June 1983, a meeting of Working Party XVIII/2 (speech processing) and Working Teams 2 (layer 1 characteristics), 3 (network) and 4 (services) of the Group of Experts on ISDN matters took place in Geneva from 21 November to 2 December 1983.

6.4.3.15.2 Study Group XVIII agreed to propose that the CCITT should establish a new Recommendation series (the I-series) to cover overall network aspects, user related aspects and protocols specific to the ISDN. The I-series will give an overview of essential ISDN characteristics for easy reference in order to assist the user as well as the provider of ISDN.

6.4.3.15.3 The following main items could be quoted in ISDN studies:

Considerable progress has been made in defining the primary rate B-channel structures and the 384 kbit/s channels and structures. These are now included in draft Recommendation I.412 (ISDN user-network interfaces - Interface structures and access capabilities).

Agreement has been reached on layer 1 characteristics of the basic user-network interface and on layer 1 specification for the primary rate user-network interface at both 1544 and 2047 kbit/s rates.

Several draft Recommendations will be proposed to cover all related ISDN network aspects. These draft Recommendations will deal with network connection types, numbering and addressing principles, ISDN protocol reference model and network functional principles.

The problem of establishing a maintenance philosophy for ISDN and the internetwork interfaces between ISDN and dedicated networks should be studied further.

According to the proposed general structure of the I-series of Recommendations, two types of Recommendations are foreseen in the field of services: one containing principles for defining services supported by an ISDN and another containing particular services. For the time being, only bearer services have been considered in detail and they will be described in draft Recommendation I.2XX.

As regards telecommunication services, the relation with existing services should be studied further.

6.4.3.15.4 The Working Party on speech processing has further refined the text of the draft Recommendation giving the algorithm structure and detail for an unambiguous single worldwide coding method at 32 kbit/s suitable for transmission application in a mixed analogue/digital network as well as in all digital networks, by using an ADPCM transcoding technique.

Another draft Recommendation will describe the general characteristics of a 60-channel transcoder equipment implementing the conversion between two 30-channel 2048 kbit/s PCM streams and one 60-channel 2048 kbit/s ADPCM stream.

It has been further decided to make a thorough investigation of wideband speech coding in order to propose, if possible, a standard for the coding technique to be used for wideband speech within 64 kbit/s by the end of 1985.

6.4.3.15.5 Considering comments received from different Study Groups, the Working Party on network performance objectives decided to revise Recommendation G.821 (error performance of an international digital connection forming part of an ISDN). The performance objectives are stated for each direction of a 64 kbit/s circuit-switched connection used for voice traffic or as a "bearer channel" for data-type services. The 64 kbit/s circuit-switched connection is an all-digital HRX encompassing a total length of 27,500 km. The revised Recommendation gives the performance objectives in terms of an error performance parameter and the allocation of overall objectives.

Agreement has been reached on draft Recommendation G.82X (the control of jitter and wander within digital networks which are based on the 2048 kbit/s hierarchy). A similar separate Recommendation G.82Y will be developed for 1544 kbit/s-based equipments.

The text of Recommendations G.912, G.914, G.916 and G.918 has been revised to make it common to digital line and radio sections. The parts dealing with digital line systems have been deleted from these Recommendations, since they are the responsibility of Study Group XV and of CCIR Study Group 9.

6.4.3.15.6 In studying Question 3/XVIII (synchronization in digital networks), Study Group XVIII proposes some revision to Recommendations G.811 (timing requirements at the output of reference clocks and network nodes suitable for plesiochronous operation of international digital links), G.822 (Controlled slip rate objectives on an international digital connection) and the new draft Recommendation G.82Y.

6.4.3.15.7 Finally, Working Party XVIII/5 (digital equipments) agreed on a preliminary proposal for restructuring the interface Recommendations and the G.700-G.900-series of Recommendations. According to this proposal, the interface Recommendations will give the electrical and physical characteristics of interfaces, the functional aspects of interfaces associated with network nodes and the characteristics required to terminate digital paths on a digital exchange. All equipment Recommendations in the G.700-G.900 series could therefore refer to these three proposed Recommendations for defining their interfaces.

In the framework of Question 16/XVIII (Performance characteristics of PCM channels at audio frequencies) Study Group XVIII agreed on the text of draft Recommendation G.71X (separate performance characteristics for the send and receive sides of PCM channels at audio frequencies) and G.71Y (performance characteristics for PCM multiplex equipment between 2-wire interfaces at audio frequencies).

6.4.3.16 Joint CCITT/CCIR Study Group on circuit noise and availability (CMBD)

The CMBD did not hold a meeting in 1983, but an interim meeting of the "Availability" Working Party was held in Geneva from 14 to 18 March 1983, followed by a meeting of Special Rapporteurs in Tokyo from 24 to 28 October 1983. At these meetings, considerable progress was made in the study of the difficult questions of telephone network reliability and availability. The draft Recommendations mentioned in the last Report on activities were improved and supplemented. Some new draft Recommendations, particularly on connection models, were studied and Recommendation G.106 was completely revised.

In addition to these Recommendations, the CMBD collected a large amount of information on the interruption values of certain international calls and the unavailability of some local networks. This information should help to establish reliability and availability limits and objectives for the telephone service at the beginning of the next study period.

Lastly, the CMBD will propose to the VIIIth Plenary Assembly that activities relating to circuit noise should be discontinued.

6.4.3.17 Joint Working Party LTG - Use of telephone-type lines for purposes other than telephony

The final meeting of Joint Working Party LTG took place in Geneva from 5 to 7 December 1983.

The four Questions assigned to JWP/LTG by the VIIth CCITT Plenary Assembly were studied and agreement was reached on various amendments to the following Recommendations:

- H.12 (Characteristics of telephone-type leased circuits) concerning in particular clauses dealing with nominal overall loss and variations of overall loss with time;
- H.14 (Characteristics of group links for the transmission of wide spectrum signals) relating in particular to a revision of the structure;
- H.34 (Subdivision of the frequency band of a telephone-type circuit between telegraphy and other services), in particular to meet requirements for modems operating at speeds from 2400 up to 9600 kbit/s.

For several study periods, Joint Working Party LTG has played a coordinating role in the studies undertaken by a number of Study Groups (IV, VIII, IX, XV, XVII and CMBD), working under the final responsibility of Study Group XV, with a view to setting up the characteristics of lines used for the transmission of non-telephone signals. At present, this type of coordination does not appear to be necessary any longer in the analog field and the job could be done by establishing liaison between interested Study Groups, instead of creating a separate coordinating group.

6.4.3.18 Joint Working Party SMM - Maritime mobile service

The SMM Joint Working Party has concentrated on the following activities in this study period:

- i) monitoring and refining the operating procedures and charging and accounting methods for public correspondence in the maritime mobile service, as specified in the relevant CCITT Recommendations;
- ii) making amendments to the existing CCITT Recommendations to take account of the new maritime mobile service introduced by INMARSAT;
- iii) drafting a new Recommendation for a single operator service for radiotelegrams (called RADIOTELEXOGRAM).

6.4.4 Activities of the Plan Committees

6.4.4.1 Meeting of the Plan Committee for Africa (Libreville, 1-8 June 1983)

6.4.4.1.1 The deliberations of this Committee were opened by Mr. L. Mebiame, Prime Minister and Head of Government, in the presence of several members of the Government of Gabon, ambassadors accredited to Libreville and some eminent Gabonese personages.

6.4.4.1.2 Replies from Administrations to the Plan Questionnaire (Plan Data) and the documents submitted by various Administrations under the agenda item on the exchange of information on telecommunication development in the region

gave the Committee a sound basis for preparing during the meeting a plan for the years 1983-1987 and forecasts for the years 1987-1990. The Plan Book for Africa (Libreville, 1983) was published early in 1984.

The Committee also examined the special reports on network development in the various sub-regions:

- East and Southern Africa - Indian Ocean network;
- West Africa network;
- Central Africa - Atlantic Ocean network;
- North Africa network;
- National and international (regional) communication-satellite systems;
- Submarine cables connecting Africa to other regions.

The Committee also took note of the development of the sub-regional telephone routing plan and discussed in general terms the problem of tariffs in Africa and the role of the regional Tariff Group (TAF Group), for which it formulated some suggestions.

6.4.4.1.3 In pursuance of CCITT Resolution No. 12, special sessions were organized during the meeting, particularly on matters having a direct effect on planning and decisions concerning the development of national and regional networks. The following subjects were discussed at these special sessions:

- Maintenance;
- Planning and management of local and rural networks;
- Energy;
- Introduction of digital systems into the network.

6.4.4.1.4 The Committee renewed the terms of reference and composition of its Coordination Committee, which will follow the instructions of the Plan Committee in the intervals between its meetings.

6.4.4.1.5 The closing meeting was presided over by Mr. Zacharie Myboto, Minister of Information, Posts and Telecommunication of the Gabonese Republic.

It was stressed at this meeting that the members of the Committee had been faced with a task which was both far-reaching and painstaking in examining, discussing and clarifying telecommunication data from over 30 of the countries of the continent. The uncompromising analysis of the difficulties encountered and the search for practical solutions bore witness to the excellent work of the special rapporteurs.

6.4.4.2 Meeting of the Plan Committee for Europe and the Mediterranean Basin (Nicosia, 28 September-4 October 1983)

The inaugural session of this meeting was presided over by Mr. St. Catsellis, Acting Minister of Communications and Works, Honourable Minister of Education of Cyprus.

At this meeting, the Committee held a broad exchange of information on the development of telecommunications in the region. In addition to data from individual countries and documents on planning trends, the Committee considered four important reports, prepared by special rapporteurs, on signalling systems, the submarine cable network of the region, the regional satellite network and the data transmission network.

On the basis of replies to the Plan Questionnaire, the Committee drew up a plan for the years 1983-1986. The results of its deliberations are published in the Plan Book for Europe and the Mediterranean Basin (Nicosia, 1983) and in the Committee's reports PLAN EU-Nos. R2 and R3.

The CCITT Secretariat, in collaboration with the Computer Department, presented to the Committee a computer system developed for processing Plan data. That system would permit information to be updated by the programmable terminal in the CCITT Secretariat (decentralized data bank) with possible access to the central computer. The Committee expressed interest in the development of this system, particularly with respect to more rapid updating of information and direct access to the computer.

The Committee also discussed questions relating to planning trends in network digitalization in the region and to new services and their impact on network planning. Detailed reports on these questions were submitted to the Committee.

One day of the meeting was devoted to a Round Table on "The ISDN in the Europe of Tomorrow". This Round Table, in which four European experts participated, was presided over by Mr. H. Venhaus (Federal Republic of Germany). After the discussions the Committee concluded that the important role of the CCITT in ensuring continuing compatibility of networks and services while international standards are being prepared must be fully supported.

The Committee invited the Administrations of the region to contribute actively in essential areas in order to ensure that ISDN services in the region should develop smoothly with regard to, for instance, tariffs, the numbering plan, operation and maintenance, human factors and so forth.

6.4.4.3 Meeting of the Working Party of the World Plan Committee

The Working Party of the World Plan Committee held a short meeting in Geneva, at which it considered proposals for modifications of the Plan Guide and Questionnaire and technical preparations for the next meeting of the World Plan Committee.

The Working Party also considered methods of publishing Plan data more quickly by means of a data bank containing the Plan data stored in the ITU computer. It drew up a preliminary draft agenda for the next meeting of the World Plan Committee.

6.4.5 CCITT technical assistance activities - Work of the Special Autonomous Groups (GAS) (including CCIR participation)

6.4.5.1 GAS 3 - Economic and technical aspects of the choice of transmission systems

The final meeting of GAS 3 was held in Geneva from 11 to 14 April 1983. The Handbook on "General network planning" has just been published.

The final draft texts of the new edition of the Handbook on "Economic and technical aspects of the choice of transmission systems" were adopted, except for some final details of a section on the economic advantages of the integration of digital switching and transmission systems, which a small drafting group will finalize during February 1984.

6.4.5.2 GAS 4 - Primary energy sources

The last meeting of GAS 4 was held in Geneva from 17 to 20 May 1983. At this meeting and some meetings of Drafting Groups, GAS 4 completed and finalized all the texts of the Handbook on "Primary energy sources". These texts are to be adopted at the final meeting of the GAS 4 Drafting Group, to be held in Geneva on 16 and 17 May 1984.

6.4.5.3 GAS 5 - Economic and social problems relating to telecommunication development

GAS 5 held its last meeting of the present study period in July 1983. During this meeting, it finalized five texts prepared as the result of the study of subjects assigned to it by the VIIth Plenary Assembly of the CCITT.

The titles of these five texts are as follows:

- Optimum allocation and use of scarce resources in order to meet expressed or potential telecommunications needs in urban or rural areas of a country;
- Study of the financial and accounting problems relating to the effects of inflation on telecommunications organizations;
- Study of management information systems for telecommunication undertakings and appropriate application of the information technology;
- A preliminary assessment of the socio-economic implications of teleprocessing and other new technologies for national economies at various stages of development;

- Determination of the economic impact of new services (in particular data services) on telecommunication undertakings.

These five texts are being processed for publication. They will be issued as individual booklets which can be sold separately and should be available at the time of the VIIIth Plenary Assembly of the CCITT.

One subject was not considered by GAS 5 during this study period, because no author or co-authors volunteered to undertake the study. This subject is:

- Assessment and possible quantification of the social and economic advantages of telecommunications at various stages of national development.

6.4.5.4 GAS 7 - Rural telecommunications

Texts for Supplement No. 2 to the Handbook on Rural telecommunications, relating to criteria, instructions and suggestions for the maintenance of rural telecommunication systems have been adopted and are now being edited.

Additional texts on other important subjects, such as low-consumption transmission equipment, were prepared at various drafting group meetings.

Finally, users' reactions to the first edition of the Handbook and the need to incorporate further texts have led to the preparation of a revised and amplified new edition. All the studies are expected to be completed by the VIIth Plenary Assembly of the CCITT.

6.4.5.5 GAS 8 - Economic and technical impact of implementing a regional satellite telecommunication network

GAS 8, which held its first meeting in October 1981, completed the Handbook assigned to it by the VIIth Plenary Assembly (1980) at its meeting in March 1983. The GAS 8 Handbook will thus be published within the time limit set by the Assembly.

Details concerning the chapters of the Handbook appear in the Report on activities in 1982.

The development of studies and technology of satellite communications may require some passages of the Handbook to be updated, but GAS 8 considered at its last meeting that it need not be reconvened after the VIIIth Plenary Assembly. The Handbook as it stands is a useful and objective tool for countries wishing to conduct studies on the subject of regional satellite telecommunications.

6.4.5.6 GAS 9 - Economic and technical aspects of transition from an analogue to a digital telecommunication network

6.4.5.6.1 Special Autonomous Group No. 9 held its final meeting in Geneva from 17 to 21 October 1983. At this meeting, the work performed at a meeting of authors and co-authors of the GAS 9 Handbook (Münich, 2-5 May 1983) was also examined.

The task assigned to GAS 9 by the VIIth CCITT Plenary Assembly was complicated by the fact that the requested Handbook on economic and technical aspects of the transition from analogue to digital telecommunication networks was designed to deal with matters still being studied by the technical CCITT Study Groups.

GAS 9 was also asked to complete two case studies (a rural and an urban case study) already initiated during the previous study period under the joint responsibility of GAS 3 and GAS 6.

In performing its work, GAS 9 has always stressed the need to have good liaison with other GAS and Study Groups in order to avoid any duplication of work.

6.4.5.6.2 The final structure of the GAS 9 Handbook is as follows:

Chapter I - Introduction

Chapter II - General aspects of network digitalization, gives a general description of various types of telecommunication networks and outlines possible transitions between these types. It also gives the motivation for digitalization.

Chapter III - Evaluation of parameters influencing the transition from analogue to digital networks, discusses various aspects to be considered when planning the digitalization to the network, such as technical, operation and maintenance, planning and service and features aspects, as well as a possible local manufacture of equipment.

Chapter IV - Strategies for transition to a digital telecommunication network, outlines first the influence of the existing network, then discusses the choice of target network and the various strategies and finally, gives guidance in the form of specific examples.

Chapter V - Process for selecting, implementing and controlling a strategy, gives guidance for the process to be adopted when selecting and implementing a transition strategy and for the project control necessary.

GAS 9 has also completed its work on case studies. This has been possible thanks to the dedication and voluminous work of a few experts and to the good cooperation with the Administrations which have provided the basic data for the cases.

The final GAS 9 meeting approved the English version of the urban case study. After translation and editing, this case study will also be ready for publication in 1984.

6.4.5.7 Participation in seminars

The CCITT Secretariat participated in and delivered statements at seminars held in connection with World Communications Year and ITU technical assistance activities.

It also collaborated with the Technical Cooperation Department at ITU Headquarters, by examining a number of experts' reports and participating in inter-agency meetings on Technical Cooperation.

6.4.6 Laboratory activities

6.4.6.1 Subjective tests and special objective measurements

Table III attached to this Report gives a list of subjective tests and special measurements (confidential) carried out in 1983 at the request of Administrations Members or non-Members of the ITU, private operating agencies and industrial organizations.

This kind of work is done by the CCITT Laboratory in response to any written request, priority being given to work concerning Study Group XII.

6.4.6.2 Work concerning Study Group XII

In 1983, the CCITT Laboratory continued the work undertaken for Study Group XII. At its latest meeting, held in Geneva in June 1983, this Study Group examined the results of the work done by the Laboratory up to that date.

At its meeting in January 1984, the Laboratory Working Party, a subsidiary group of Study Group XII, examined and approved the results of the work done by the Laboratory up to the end of 1983.

The Laboratory takes part in the research conducted by Study Group XII by supplying the Group with experimental data obtained by its specialized team and equipment. These data serve as a basis for the study of such problems as:

- evaluation of certain transmission network factors from the standpoint of transmission performance with a view to establishing international standards;
- introduction of new equipments and methods for subjective measurements, and
- development of instruments and methods for objective measurements.

The CCITT Laboratory works to meet the needs of Study Group XII on the basis of a programme drawn up at each meeting of that Group and/or of the Laboratory Working Party.

At each meeting, Study Group XII approves the operating report of the CCITT Laboratory and examines the results of the tasks performed on the basis of the previously established programme.

For these purposes, the Laboratory set up various installations and made various purchases in 1983. The expenditure on the CCITT Laboratory is given in Table IV.

6.4.7 CCITT publications and associated activities

6.4.7.1 The preparation of CCITT publications is the prime responsibility of a department which has the additional responsibilities of coordination of CCITT terminology and the application of computer techniques in text treatment and CCITT publications.

Following its creation in 1975, the department comprised a head of department, three engineer/editors, three editorial assistants and three draughtsmen, remaining thus until 1981 when a departmental secretary/assistant was added. In addition, during periods of very heavy workload (e.g. in producing OCITT Book), temporary personnel have been engaged under short-term contracts.

The activities of the group during 1983 are described below.

6.4.7.2 Publication activities

In the 1977-1980 study period, the department processed some 3500 pages of OCITT Recommendations (Orange Book) plus two manuals containing 600 pages of text.

As a result of the publication activity authorized by the VIIth Plenary Assembly (1980), the department continued to face an unusually heavy workload in 1983. Besides the Yellow Book which contained some 6400 pages (per language), six GAS groups and six Study Groups originated sixteen manuals and seven case studies plus there are two manuals and five case studies from the 1977-1980 period, all of which (5850 pages) normally should be processed before the 1984 Plenary Assembly.

Many improvements in working methods have enabled the department to improve its productivity since 1975, but the procedures used to ensure the indispensable concordance of meaning among the three working languages are not amenable to mechanization. These procedures, which are essentially "manual" have apparently reached an "irreducible minimum" (i.e. cannot be further reduced without the risk of introducing serious - and therefore unacceptable - degradation to the quality of the texts).

At a meeting of OCITT Study Group Chairmen in December 1983, it was decided that the foregoing problems and those of producing the next OCITT Book (whose volume is estimated to be between 9500 and 10500 pages) should be the object of further study. A meeting of Chairmen in January 1984 will perform this study and will recommend solutions.

The following manuals were processed by the department during 1983:

Title/Type of Publication	No. of Pages	Origin
CHILL: formal definition, Vol. 1	92	Study Group XI
CHILL: formal definition, Vol. 2	190	Study Group XI
Methods used in long-term forecasting	111	GAS 5
Socio/economic aspects of telecommunication development	57	GAS 5
Procedure for establishing a budget model	42	GAS 5
Conditions for a national telecommunication equipment manufacturing industry	101	GAS 5
Introduction to CHILL	98	Study Group XI
Rural telecommunication: Supplement No. 1	142	GAS 7
Amendments, additions to the Directives	72	Study Group V
General network planning	540	GAS 3
Economic/technical impact of implementing a regional satellite network	290	GAS 8
Fibre optics	125	Study Group XV
TOTAL	1860	

6.4.7.3 Computer applications (in text treatment and CCITT publications)

The heavy workload in technical revision of texts as noted above and the failure to obtain Administrative Council approval (or specialized manpower has inhibited the ability of the department to achieve as much as it would have wished in computer applications. Nevertheless, the department engineers have made optimum use of any opportunities to institute new or improved computer procedures (e.g. the creation of a glossary as noted in the following section "Terminology") and to coordinate with the computer department.

The major long-term goal remains to utilise the resource represented by the magnetically stored text of the CCITT Book. Although a number of problems remain, the work of CCITT technical departments could be simplified and access could be provided to Administrations to both submit and withdraw, by electronic means, stored texts.

The major obstacle goal to such access for the moment is incompatibility of the various "systems" used and attempts to solve this problem have advanced considerably during 1983. On the recommendation of an Ad Hoc group comprising representatives of this department, the computer department and Study Group XI, a software system called "TEX" was installed in ITU which will permit Administrations to submit compatible texts. A driver, currently being developed for the "TEX" system, will enable it to drive the ITU electronic photocomposition equipment and produce masters of such texts for publication.

This interim solution will be in service early in 1985 but the Ad Hoc Group is investigating solutions for the long term and it appears possible that the CCITT standardized service "Teletex" could be the means for exchange of data between the ITU and its Members.

6.4.7.4 Terminology

The role of the department in terminology, which is to advise, liaise and coordinate was also restricted by the priority of the technical revision work.

The major task in this field was accomplished at the beginning of 1983 with the appearance of Fascicle X.1 "Terms and Definitions" which assembles the terms and their definitions from all other fascicles of the Yellow Book. During the year, the department was able, in spite of limited time available, to provide assistance to a number of Study Groups, including establishing contact with Special Rapporteurs to resolve problems and the extraction of specific material from the CCITT terminology data base for use in their meetings.

With regard to liaison, the department maintained the long established contacts with the joint CCIR/CCITT Study Group CMV and with the IEC/CCI Joint Coordination Group on matters of terminology and graphical symbols.

An additional activity at the end of 1983 was the production of a glossary of 5500 CCITT terms in three languages. This was accomplished by a relatively simple computer program developed in the department which gave a result which, nevertheless, is greatly appreciated, especially by the ITU linguistic division as an aid to interpreters and translators. This glossary which has been produced at low cost could also be made available to interested Administrations if provision were made in the budget to cover a major production run.

6.4.8 Cooperation with the CCIR

Cooperation with the CCIR is very active, not only in the Joint Study Groups (Plan Committees, CMBD, CMV, CMTT) and (GAS), but also with regard to all questions of common interest, especially those concerning the Maritime Mobile Service.

6.4.9 Cooperation with other international organizations

CCITT cooperation with other international organizations (IMO, WMO, INMARSAT, INTELSAT, CEPT, CITEL, IEC, ISO, EBU, UPU, etc.) requires a number of contacts.

Close relations have been established with organizations interested in CCITT studies. The Director and the Secretariat of the CCITT have participated in a number of meetings held by these organizations or have transmitted information to them, with a view to coordinating related activities as far as possible.

With regard to the UPU, a joint CCITT-UPU Sub-Group, chaired by a CCITT Rapporteur of Study Group I, worked in close liaison with members of both organizations to elaborate and refine the existing Recommendation on the BUREAUFAX service (electronic mail).

TABLE 1

List of meetings held in 1983

<u>Date</u>	<u>Meeting</u>
17-19 January	CCITT-UPU Ad Hoc Sub-Group on the electronic mail service (INTELPOST) - Study Group I
24-26 January	Laboratory Working Party of Study Group XII
24-26 January	Working Party III/2 (Charging and accounting principles applicable to the public international data networks)
24-28 January	Meeting of experts of Study Group XI on aspects of the ISDN relating to Signalling System No. 7
27 January-4 February	Study Group III (General tariff principles)
31 January-1 February	Drafting Group of Study Group IV (Transmission maintenance of international lines, circuits and chains of circuits; maintenance of automatic and semi-automatic networks)
2-4 February	Working Party IV/3 (Maintenance organization)
7-10 February	Study Group IV (Transmission maintenance of international lines, circuits and chains of circuits; maintenance of automatic and semi-automatic networks)
7-11 February	Special Rapporteurs' Groups of Working Party VII/5 (Question 27/VII)
7-18 February	Working Parties of Study Group I (Definition and operational aspects of telegraph and telematic services (facsimile, Teletex, Videotex, etc.))

10-11 February	Coordinating meeting of the Special Rapporteurs for Questions 1, 2, 4 and 5/XVIII and the Chairmen and Vice-Chairmen of Study Group XVIII
11 February	Meeting of Chairmen of the Working Parties of Study Group IV
11 February	Group of experts on Question 22/IV - Study Group IV
11 February	Group of experts on PCM (Pulse-code modulation) of Study Group IV
11 February	Drafting Group for Question 3/IV - Study Group IV
14-25 February	Group of specialists of Study Group XVIII on questions relating to the ISDN
7-11 March	Groups of the Special Rapporteurs of Working Party VII/3 (Questions 12, 15 and 18/VII)
9-15 March	Group of the Special Rapporteur for Group 4 facsimile equipments - Study Group VIII
14-18 March	GAS 8 (Economic and technical impact of implementing a regional satellite telecommunication network)
14-18 March	Working Party B on reliability - CMBD
21-25 March	Group of the Special Rapporteur for Question 23/VII - Study Group VII
22-25 March	Working Party SMM (Maritime Mobile Service)
22-30 March	Groups of the Special Rapporteurs of Working Party VII/5 (Question 5/VII)
23-25 March	Working Party of the World Plan Committee
5-8 April	GAS 7 (Rural telecommunications)
6-8 April	Working Party II/2 (Human factors)
11-15 April	GAS 3 (Economic and technical aspects of the choice of transmission systems)
11-15 April	Working Party XI/1 (Interworking, satellites, updating of the Q-series Recommendations)
11-19 April	Study Group II (Telephone operation and quality of service)
11-19 April	Working Party XI/6 (Digital signalling on subscriber lines)
18-20 April	Working Party XI/5 (National switching)

18-29 April	Working Party XI/2 (Signalling System No. 7)
19-22 April	Ad Hoc Group for Questions 15 to 18/VI of Study Group VI
20-29 April	Working Parties of Study Group IX (Telegraph networks and terminal equipment)
21-29 April	Working Party XI/4 (Digital switching)
25-28 April	Joint Group of Rapporteurs of Study Groups I and IX on the store-and-forward telex service
25-29 April	Working Parties of Study Group XV (Transmission systems)
2-5 May	Meeting of authors and co-authors of chapters of the GAS 9 Handbook
2-6 May	Meeting of Groups of Special Rapporteurs of Working Parties XVII/1, XVII/2 and XVII/3
2-6 May	Meeting of Groups of Special Rapporteurs on "Mixed-mode Teletex" and "Teletex-telex interworking" (Working Party I/3)
4-6 May	Working Party for Question 16/XVII - Study Group XVII
9-13 May	Working Parties XVII/1 (Voice-band modems), XVII/2 (Wideband modems and ISDN) and XVII/3 (Maintenance and interfaces)
9-13 May	Group of the Special Rapporteur for Question 7/VII
16-20 May	Drafting Group of Study Group IV
17-20 May	GAS 4 (Primary energy sources)
24 May-3 June	Working Parties of Study Group VIII (Terminal equipment for telematic services (facsimile, Teletex, Videotex, etc.))
25 May	"Manual Telephonometry" Group of Study Group XII
26-27 May	Laboratory Working Party of Study Group XII
30 May-3 June	Study Group XII (Telephone transmission performance and local telephone networks)
30 May-3 June	Groups of the Special Rapporteurs for Questions 23/VII and 24/VII - Study Group VII
30 May-10 June	Working Party XI/3 (SPC Languages)
31 May-3 June	Groups of the Special Rapporteurs of Study Group VII on the ISDN

1-8 June	Plan Committee for Africa
6-9 June	Study Group XVI (Telephone circuits)
6-24 June	Working Parties VII/3 (Interworking, switching and signalling in the network) and VII/5 (Network aspects)
8-10 June	Group of the Special Rapporteur for Question 1/VII - Study Group VII
9-10 June	Tariff Group for Africa
13-16 June	Working Party II/2 (Human factors) and Rapporteurs' Drafting Group
20 June-8 July	Study Group XVIII (Digital networks)
28 June-7 July	Group of the Special Rapporteurs of Working Party I/2 (Telegram and message switching services)
5-8 July	Drafting Group on Directives of Study Group V
12-15 July	Final meeting of GAS 5 (Economic and social problems relating to telecommunication development)
23-26 August	Working Party RA/TV (Maintenance of sound- and television-programme transmissions) of Study Group IV
23-26 August	Working Party II/1 (Operation and additional services)
25-26 August	Drafting Group for Question 7/VII - Study Group VII
29 August-2 September	Working Parties II/3 (Numbering, routing and interworking), II/4 (Traffic engineering, network planning, forecasts) and II/5 (Quality of service and network management)
29 August-2 September	Joint meeting of experts of Study Groups VII and VIII on Questions 5/VII and 27/VIII
29 August-9 September	Working Parties VII/1 (Categories of service and additional services), VII/2 (Network access interfaces) and VII/4 (Transmission and network maintenance)
31 August-2 September	Working Party IV/1 (Maintenance of telephone-type circuits)
5-9 September	Working Party IV/5 (Systems maintenance)
5-9 September	Working Party of the Tariff Group for Africa

5-9 September	Sub-Group XI/3-3 of Study Group XI
7-15 September	Working Party I/3 (Teletex)
13-15 September	Working Party IV/2 (Measuring equipments)
19-21 September	Working Party III/1 (Leasing of private international telecommunication circuits)
19-23 September	Drafting Group of Working Party XI/4 (Digital switching)
19-24 September	Working Party VIII/1 (Interactive Videotex)
21 September	Ad Hoc Group for Question 21/III - Study Group III
22-27 September	Working Party III/2 (Charging and accounting principles applicable to the public international data networks)
26-28 September	Group of experts on the ISDN of Working Party XI/2 (Signalling System No. 7)
26 September-7 October	Study Group XV (Transmission systems) and its Working Parties
28-30 September	Working Party III/3 (Charging and accounting in the international telegraph service and new international services)
28 September-4 October	Plan Committee for Europe and the Mediterranean Basin
30 September	Ad Hoc Group for Question 24/III - Study Group III
3-4 October	Working Party UMI of Study Group III
5-7 October	Working Party III/4 (Charging and accounting for the international telephone service and sound- and television-programme transmissions)
10-13 October	Ad Hoc Group for Questions 15 to 18/VI of Study Group VI
13-14 October	Working Party on Question 11/VI of Study Group VI
17-21 October	Final meeting of GAS 9 (Economic and technical aspects of transition from an analogue to a digital telecommunication network)
24-28 October	CMBD (Circuit noise and availability)

1-18 November	Working Parties XI/2 (Interworking, satellites, updating of Q-series Recommendations), XI/2 (Signalling System No. 7), XI/4 (Digital switching), XI/5 (National switching) and XI/6 (Digital signalling on subscriber lines)
2-11 November	Working Parties XVII/1 (Voice-band modems), XVII/2 (Wideband modems and ISDN) and XVII/3 (Maintenance and interfaces) and their Special Rapporteurs' Groups
7-11 November	Drafting Group on Directives of Study Group V
21 November-2 December	Working Parties XVIII/1 (ISDN) and XVIII/2 (Processing of voice signals)
29 November-2 December	Tariff Group for Europe and the Mediterranean Basin
5-7 December	Final meeting of Joint Working Party LTG (Use of telephone-type lines for purposes other than telephony)
5-16 December	Working Party XI/3 (SPC Languages)
8-9 December	Meeting of Chairmen of CCITT Study Groups
8-16 December	Study Group I (Definition and operational aspects of telegraph and telematic services (facsimile, Teletex, Videotex, etc.))
12-13 December	Coordinating meeting of Chairmen of Study Groups concerned with the ISDN

TABLE II

Participation in CCITT meetings by administrations, recognized private operating agencies, scientific or industrial organizations and international organizations, with the number of contributions and reports published in 1983

	Study Groups and their Working Parties																		Plan Committee or Working Group			Special Autonomous Groups							Joint Working Parties		
	I	II	III	IV	V	VI	VII	VIII	IX	XI	XII	XV	XVI	XVII	XVIII	CMBD	TEU- REM	TAF*	MON-DIAL			AF	EU	GAS 3	GAS 4	GAS 5	GAS 7	GAS 8	GAS 9	SMM	LTG
Administrations	28	20	30	21	8	2	21	19	16	24	17	27	18	18	30	9	17	21	10	31	24	4	9	8	6	6	10	18	5		
Recognized private operating agencies	18	12	22	14	5	3	15	12	10	17	10	14	9	11	18	8	8	3	5	7	6	5	4	6	5	5	5	8	5		
Scientific or industrial organizations	16	14	1	10	3	6	23	30	16	42	8	34	11	33	43	5	—	—	1	12	8	4	7	4	10	3	16	—	2		
International organizations	6	2	8	2	2	—	5	4	—	1	3	1	1	2	5	1	—	4	1	8	4	—	—	—	—	3	—	2	1		
Contributions received	Normal	58	80	48	45	34	16	119	72	26	72	70	89	24	36	64	30	10	8	—	11	33	—	—	4	2	—	11	6	5	
	Delayed	97	88	42	27	3	—	215	106	47	557	63	143	22	47	269	9	7	—	—	13	5	3	3	1	—	—	—	6	—	
Reports	7	11	11	11	2	3	28	5	6	22	3	27	1	5	14	2	1	2	1	2	2	1	3	1	1	1	2	1	1		

* Regional Tariff Groups of Study Group III.

TABLE III

Subjective and objective measurements carried out by the CCITT Laboratory for administrations, recognized private operating agencies and industrial organizations in 1983

Requested by: (1)	Dates of tests or measurements (2)	Total costs (Swiss francs) (3)
1. Sociedad CITESA S.A., Spain	10-14/1.83	7.525.—
2. Bell Northern Research (BNR), Canada	31/1-3/2.83	3.220.—
3. BNR Inc., California, U.S.A.	8-11/2.83	5.815.—
4. NIPPON (NTT-ECL), Japan	2-14/3.83	7.580.—
5. GNT Automatic A/S, Denmark	15-22/3.83	9.600.—
6. NIPPON ELECTRIC Company, Ltd., Japan	24-29/3.83	4.200.—
7. NAKAYO TELECOM. Inc., Japan	12-15/4.83	8.925.—
8. Panasonic Matsushita Comm. Industrial, Japan	5-13/5.83	4.200.—
9. NAKAYO TELECOM. Inc., Japan	8-15/6.83	8.925.—
10. NAKAYO TELECOM. Inc., Japan	10-18/5.83	8.925.—
11. NIPPON ELECTRIC Company, Ltd., Japan	16-20/6.83	2.520.—
12. ELEKTROTECHNIK, Berlin, DDR	27-29/6.83	3.360.—
13. KANDA TSUSHIN KOGYO Co., Ltd., (PONY), Japan	21-27/6.83	4.375.—
14. BANDO SANGSA Co., Ltd., Seoul, Korea	30/6-5/7.83	4.725.—
15. HPF (Bonneville) France	5-7/7.83	3.150.—
16. TELIC ALCATEL (Strasbourg) France	7-8/7.83	2.050.—
17. TELIC ALCATEL (Strasbourg) France	29/7.83	2.000.—
18. ANTEL, El Salvador	5-8/9.83	5.040.—
19. TELIC ALCATEL (Strasbourg) France	9/9.83	2.240.—
20. ISKRA, Kranj, Yugoslavia	26-27/10.83	1.450.—
21. ISKRA, Kranj, Yugoslavia	27-28/10.83	1.450.—
22. TAMURA ELECTRIC WORKS, Ltd., Japan	1/11.83	1.050.—
	GENERAL TOTAL:	102.325.—

TABLE IV

*Main expenses incurred by the CCITT
Laboratory in 1983*

	<i>Swiss francs</i>
1. Calibration microphone with Brüel & Kjaer preamplifier	4,067.45
2. Four transmission transformers — Gardners	422.70
3. Equipment and materials for the Laboratory	1,868.75
4. Transport of various items	830.80
5. Supplies and maintenance	544.—
6. Temporary staff salaries	18,780.40
Total	26,514.10

7. TECHNICAL COOPERATION ACTIVITIES

7.1 Introduction

7.1.1 The Union's technical cooperation activities continued in 1983, in conformity with the Convention and the directives of the Administrative Council.

7.1.2 In 1983 there was a certain slowing down during the course of the year in the United Nations Development Programme (UNDP) mainly due to financial stringency which gave rise to delays in the authorization of certain expenditures. The same constraints were experienced with Trust-Fund projects. Since ITU is the executing agency in the telecommunications sector for the UNDP, and the bulk of ITU's funds for technical cooperation are provided by, or through (in the case of cost-sharing), UNDP this reflected adversely on the implementation of many projects.

7.1.3 However, despite the above difficulties, the programme delivery for 1983 amounted to US \$ 28.3 million. Some of the projects spread over several years. The activities included expert missions, fellowships, purchase of equipment and related contract arrangements, seminars, etc.

7.1.4 There were other factors that affected the activities, including initiation of action flowing from the decisions of the Plenipotentiary Conference and related resolutions. In addition, substantial efforts were made available to the activities of World Communications Year (WCY).

7.1.5 This report outlines:

- Technical cooperation activities in the field through projects aimed at:
 - development of regional telecommunication networks
 - strengthening of national telecommunication technical and administrative services
 - development of human resources for telecommunications

- Technical assistance through the Group of Engineers
- Development of training standards, through the Training Division
- Seminars
- Special Fund for Technical Cooperation

7.2 Technical cooperation activities in the field

7.2.1 Development of regional telecommunication networks

Projects to promote the development of telecommunication networks in the developing regions of the world have continued throughout 1983, keeping constantly in mind the need to integrate the networks of these countries into the world-wide telecommunication system. The ITU has worked in close collaboration with Member Administrations in coordinating their national and international networks in accordance with the objectives established by the Union's World and Regional Plan Committees. Close cooperation has been maintained with the United Nations Regional Economic Commissions, regional and sub-regional telecommunications bodies and the World and regional banks. The following paragraphs give the outline of these activities in different regions:

7.2.1.1 Africa

The PANAFTTEL Network continued to extend across the African Continent. The network expansion continues to be supported by the regional implementation project and the regional maintenance project. As in preceding years, the most important activities of the PANAFTTEL project have been the promotion of the development of the principal international arteries and the resolution of interface problems, mainly in the western sub-region of Africa. In regard to operations and maintenance of the network, the projects' experts participated in, and contributed to, many important meetings and seminars: PANAFTTEL/ECCOWAS in Conakry, the African Regional Telecommunication Conference (ARTC) in Harare, Conférence des Administrations des Postes et Télécommunications de l'Afrique Centrale (CAPTAC) in Brazzaville, and a continent-wide seminar in Lomé under the WCY Programme.

Special attention was paid to the question of tariffs, especially in Central African countries, in order to promote a tariff structure that could be applied to all countries in the Continent. Work has started in the area of international accounting procedures with a survey of the situation in English-speaking countries and the publication of a draft manual on International Telecommunication Accounting.

With regard to maintenance, a global strategy has been finalized, with a large participation of the countries. This is elaborated in the manual guide "National Plan for Improvement of Maintenance" distributed to all countries. Three seminars, specially devoted to this important subject, were organized in Lomé, Dakar and Addis Ababa, and were very well received by the participating countries.

The Union extended assistance to the Panafrican News Agency (PANA) through a regional project for the establishment of a network for collection and dissemination of news. Preparatory activities related to the feasibility study of "The Regional African Satellite Communication System" have been completed.

Funding constraints have impeded faster and more effective implementation of PANAFTEL.

7.2.1.2 The Americas

Continuous progress has been made in the formulation of the Inter-American Plan for Telecommunications Development (PID-TEL). In this endeavour, there has been increased coordination between the Steering Committee of the Inter-American Telecommunication Conference (COM-CITEL) and the CCITT.

ITU has cooperated in CITEL activities, through the only Regional Adviser available during 1983 for the Americas Region. The IVth CITEL was held from 1 to 5 August in Mexico City, where the Permanent Steering Committee is now based, and the future plans for CITEL activities were agreed upon.

Permanent Technical Committee II (Broadcasting) met in Lima, Peru, in November for preparatory activities related to the World Administrative Radio Conference on HF Broadcasting (Geneva, January-February 1984) with the aim of unifying the criteria of the Administrations of the Region. An official from ITU (CCIR) provided technical backstopping at the meeting.

In Central America all activities related to telecommunications development have been carried out by the Central American Telecommunications Commission (COMTELCA) through its Supervisory Group, assisted by the ITU Regional Adviser. The following are main activities and results:

- Preparation of general technical specifications for international digital telephone exchanges for use by the Administrations of the 5 member countries of COMTELCA.
- Submission of several projects to the World Bank for financing.
- Continuation of negotiations with the World Bank and the Central American Bank for Economic Integration (BCIE) for the financing of Phase III of the Regional Network.
- Opening of two telex transit centres in Guatemala and Costa Rica.
- Integration of telex service into the Regional network, progressively abandoning the facilities provided by International Carriers.

7.2.1.3 Asia

The ITU collaborated with the Asia-Pacific Telecommunity (APT) on the preparation of a project for a network development survey with a view to extending and upgrading the regional network. During the annual meeting of the APT, the Union contributed actively when matters relating to the technical cooperation programme for the members of APT, particularly relating to network development were discussed.

The Union participated in the Ad Hoc Intergovernmental Meeting sponsored by ESCAP in October 1983 to prepare for the Transport and Communication Decade (1985-1994) for Asia and the Pacific. Subsequent to this meeting, the ITU prepared various proposals, inter alia, a long-term plan for the development of a regional telecommunications network including various options - terrestrial, satellite and submarine cable - for consideration by ESCAP.

The Union assisted the Least Developed Countries of the region in the development of rural networks. This activity was organised under the UNDP/ITU regional project (Rural Telecommunications).

The ITU collaborated actively with the Organization of Asian News Agencies (OANA) in the development of a news network.

7.2.1.4 The Pacific

The Rural Telecommunications Study of the South Pacific undertaken on behalf of SPEC by Australia and New Zealand, and in conjunction with ITU in 1981/82 recommended a programme of rural telecommunications development of the order of US \$100 million spanning more than a decade. These recommendations were eventually approved by the heads of governments in the region. A South Pacific Telecommunication Development Programme and a Programme Management Group was then established under the coordination of the Director of the South Pacific Bureau for Economic Cooperation (SPEC).

The fundamental objective of the Programme is to provide telephone communications to villages in South Pacific countries in order to strengthen economic and social integration of rural and urban sectors. The ITU/UNDP project "Development, Operations and Maintenance of Telecommunications in the South Pacific", will maintain close cooperation with the newly established Programme and its institutions.

The UNDP/ITU regional project (Development of Telecommunications in the South Pacific) assisted Papua New Guinea, Kiribati, Fiji and Tuvalu in assessing tender bids and in providing technical back-up and contract management. These countries are beneficiaries of the European Economic Community (EEC) grants and loans, totalling ECU 8.75 million to fund the procurement of satellite earth stations (standard B), extension of telex exchanges and equipment to upgrade HF facilities respectively.

7.2.1.5 In the Middle East, the Mediterranean Basin and Europe

Activities continued, under the MEDARABTEL project, to implement the regional network. This included assistance to implement the microwave network in Sub-Region I, the international switching centres in Aden, Djibouti and Nouackchott; some additional links within the region were also completed. Assistance was also given to draw up equipment supply contracts and sub-contracting agreements for the ARABSAT earth stations to be installed in Djibouti, Mauritania, Somalia, Sudan and Yemen (PDR). Mauritania received assistance to set up its "Standard A" earth station. The study of the Maghreb-Machrek submarine cable system was also carried out, jointly with Arab Telecommunication Union (ATU) experts.

In collaboration with GULFVISION, ITU carried out a very important study on radio propagation in the Area in Bands III, IV and V, using fixed and mobile measuring systems and computerized recording stations; the results of this study will enable the countries of the region to make the best use of the allocated bands for TV and Sound/FM broadcasting services.

UNDP agreed to finance assistance to 12 countries in East Europe and Mediterranean Basin in their effort to introduce new technology, and to modernize their planning and maintenance systems, through an ITU regional project entitled "European Regional Project for the Development of International Telecommunications".

7.2.2 Strengthening of national telecommunication technical and administrative services

Complementary to the development of the telecommunications infrastructure, many projects were undertaken, aimed at strengthening national telecommunication technical and administrative services. The projects with such objectives covered practically all branches of telecommunications providing expertise, fellowships and associated equipment.

The general trend has continued towards the use of short-term experts for periods of up to 3 months to provide highly specialized advice in specific sectors of an administration's activity which need to be strengthened. A list of countries which have benefitted from this type of project is given in Annex 5 (Table 1).

In addition to specific country projects, a number of regional projects have also benefitted the national telecommunication technical and administrative services. Among these projects maybe cited the PANAFTEL and MEDARABTEL projects and the joint ESCAP/ITU Study initiated in 1981 to identify the socio-economic factors conditioning the usage and development of telecommunication services in Thailand and Singapore which has now been extended to cover Malaysia and Sri Lanka. Under the aegis of ITU/UNDP regional projects, seminars and workshops on maintenance have been held in Asia and Africa to discuss common problems and share solutions to the problems. The regional project based in Rabat for translation and arabization of telecommunications terminology for the benefit of all the administrations of the Arab countries and their regional organizations should also be mentioned.

7.2.3 Development of human resources for telecommunications

Training continues to play a major role in the technical cooperation and assistance activities of the Union, in the form of support given for the establishment of training centres on a national or multinational basis, or in the execution of projects to provide fellowships for nationals of developing countries or in the form of in-service and on-the-job training in certain specialized fields where this form of training is the most appropriate. In 1983 much of the training took the form of seminars organized, either directly by the ITU or in conjunction with a Member Administration. Thirteen of these seminars or meetings were held under the aegis of World Communications Year. The major aim of three major seminars was to emphasize the importance of telecommunications as an essential element of the infrastructure necessary for socio-economic development. Linked to the World Communications Year seminars at which the report of the Joint ITU/OECD Study entitled "Telecommunications for Development" was presented, a technical seminar was held in the Latin America, African and Asia/Pacific regions covering a subject of particular importance to that region.

Recent rapid advances in technology have brought forth a number of requests, particularly from the more advanced developing countries, for missions by high-level specialists in the new technologies to advise on their introduction into the networks of the countries concerned and their relevance to the training programmes. Among the new technologies, the transition from analog to digital techniques was the topic of a regional seminar held in Baghdad in March 1983.

Practically all the Union's technical cooperation missions contain an element of training of local staff, be it on-the-job training, advice in regard to training, organization of training or direct instructional or lecturing duties. In this report special mention should be made of the very large-scale project to provide assistance in the overall training system of the Ministry of Posts and Telecommunications of Saudi Arabia.

A list of countries in which the Union acted as executing agency for important training projects is given in the Annex 5 (Table 2).

Work continued in the development of human resources in the field of telecommunications within the framework of the interregional project on course development in telecommunications (CCDEVTEL), Phase III of which commenced at the beginning of 1983. The Plenipotentiary Conference in Nairobi made provision in the regular budget of the Union for the financing of this Phase for the next five years.

7.3 Technical assistance through the Group of Engineers

The Group of Engineers continued to provide short-term assistance to developing countries, in most cases in the form of studies or advisory missions. Assistance was also provided by correspondence and by means of consultations. In carrying out their duties, the Engineers took due account of the relevant Recommendations of the CCIR and the CCITT and, where appropriate, sought the advice of the CCIs and the IFRB.

Requests for assistance are considered on the basis of urgency and priority, special attention being accorded to requests from the Least Developed Countries. The schedule of missions for the Group of Engineers and the specialists on short-term contract is established three months in advance and updated each month. This procedure permits the careful preparation of missions, which often require consultations and preliminary studies at Headquarters, while permitting the order of priority to be changed at any time in case of emergency.

The number of requests for short-term assistance received by the Group of Engineers during 1983 was higher than in 1982 (54 against 42). However, 20 requests could not be met due to lack of funds and the relevant missions were postponed.

The Group was not at full strength in 1983. During the whole year, only two Engineers were available full-time. From budgetary considerations, the third post of the Group (specialist in radio and satellite communication) was filled on an itinerant basis pending the selection of a new engineer in this field.

7.3.1 The main activities carried out at Headquarters by the Group are listed below:

- Advice/assistance to China, Congo, Lebanon, Morocco, Pacific Islands, Saudi Arabia, Sri Lanka, Syria, Tunisia, the Yemen Arab Republic and the Panafrican News Agency (PANA);
- preparation of equipment specifications;
- preparation of special reports on maintenance systems;
- evaluation of technical reports prepared by ITU experts and consultants in the field;
- coordination of World Communications Year activities and projects;
- assistance in the preparation of studies and reports concerning Djibouti;
- representation of ITU at meetings in Geneva, concerning ACC Task Force on Science and Technology;
- assistance in the preparation and reviewing of the ITU/OECD report, "Telecommunications for Development".

7.3.2 The Members of the Group carried out missions to:

- Bulgaria, Ethiopia, Iraq, Italy (telephone exchange FAO, Rome), Lebanon, Nigeria, Syria, Thailand, Togo, the Yemen Arab Republic and Yemen (PDR).

7.3.3 Short-term specialists

On 23 occasions, short-term specialists were engaged to undertake missions to Barbados, Cape Verde, Costa Rica, Ethiopia, Fiji, Kiribati, Gambia, Grenada, Haiti, Jordan, Lebanon, Malaysia (3), Nepal, Panama, Peru, Santa Lucia, Sao Tome, Sri Lanka, Upper Volta, Uruguay and Zambia.

7.4 Development of training standards through the Training Division

In line with the suggestion of the Second Coordination Meeting for the International Sharing System for Telecommunication Training, a working party met in May to prepare detailed guidelines for cooperation between Administrations and manufacturers. Sixteen training specialists took part, existing guidelines were refined and some new ones developed.

By the end of the year, 130 training packages were available within the Sharing System and information on these was disseminated by means of the Training Development Quarterly. The Quarterly also provided a forum for exchange of views and information on questions of interest to trainers.

Another important event was the fifth in the series of interregional seminars on training in telecommunications, held in Geneva in November. Its theme was the recruitment and basic training of a telecommunication technician.

124 training managers from 62 Administrations and 13 organizations took part. Eight recommendations were formulated covering the establishment and use of reference levels for the training of telecommunication technicians and for the establishment of a glossary of training terms.

Ten training workshops of different types were given by members of the Training Division in all four regions, with a total of 161 participants. In some cases the cost of the staff member's travel and subsistence was met by the requesting country.

Regional meetings to coordinate training activities were held by the countries of Eastern and Southern Africa and by French-speaking African countries, by the countries of the Asia and Pacific Region and those of Latin America.

Computerization of the work involved in the Sharing System continued throughout 1983. Work has started to adapt the application software to the new workstation terminals now in use at Headquarters.

Assistance in course development and advice on training problems was given by Training Division staff to 25 countries by means of brief missions.

A trilingual Catalogue of Telecommunication Training Opportunities was published, listing 259 courses planned by 32 different Administrations or organizations to take place from July 1983 to July 1984, where foreign trainees can be accepted.

A second edition of the trilingual Directory of Training Centres was published listing 231 training centres in 106 countries.

During 1983, the Training Division took over direct supervision of the TETRAPRO project which is developing a training system for Telecommunications Traffic engineering, in collaboration with, and financed by, Member Administrations and industry. The ITU is also collaborating with the Danish Technical University and the Helsinki Technical University in this project.

7.5 Seminars (see also 7.2.3)

7.5.1 1983 has been an active year for seminars (see Table 17) either organized by, or in cooperation with, the ITU. Many of these events were celebrated to mark World Communications Year and were attended by participants funded either by UNDP as part of particular programmes or from WCY sources.

7.5.2 The 1983 IFRB Regular Seminar, comprising the following series of short seminars:

- Seminar preparatory to the High Frequency Broadcasting Conference, Geneva, 10-14 October;
- Seminar of frequency management and the use of the radio frequency spectrum and geostationary satellite orbit, Geneva, 17-21 October;

- Meeting (IFRB/CCIR) on national frequency management under Resolution No. 7 of the WARC-79, Geneva, 24-28 October,

coincided with a period leading up to the TELECOM 83 Exhibition, while the seminar on Recruitment and Basic Training in Telecommunications followed immediately after TELECOM 83. This enabled certain participants to combine attendance at more than one event.

7.5.3 Lecturers were provided at no cost by Administrations and/or companies at many of the seminars organised as part of World Communications Year. In particular 10 lecturers were provided for the WCY seminar in San José, Costa Rica, 14 for that in Lomé, Togo and 15 for the seminar in Kuala Lumpur, Malaysia.

7.5.4 The list of seminars and meetings held during 1983 is given in Annex 5 (Table 17).

7.6 Special Fund for Technical Cooperation

During the year under report, the Government of the Netherlands contributed to the Fund 25,200 Swiss francs in cash and the Government of Spain contributed 8,158 Swiss francs, the latter amount being the proceeds of a concert organized under the patronage of the Compañía Telefónica Nacional de España during TELECOM 83 and donated to the Fund.

In addition, as in previous years, the Government of Belgium granted four fellowships as a contribution in kind to the Special Fund.

In 1983, the Fund provided the following assistance:

- expert services in the field of system analysis to Haiti at the cost of SFr 13,825;
- 4 fellowships for attendance at the IFRB Seminar for participants from Central African Republic, Djibouti and Yemen Arab Republic at a total cost of SFr 6,581;
- 2 fellowships for attendance at the "Recruitment and Basic Training in Telecommunications" Seminar for participants from Nepal and Samoa at a total cost of SFr 7,002;
- equipment provided to Somalia at a cost of SFr 8,206.

The total expenditure of the Fund in 1983 amounted to SFr 35,614. The non-utilized balance as at 31 December 1983 amounted to SFr 28,273.22.

7.7 Quantitative appraisal of 1983

7.7.1 In providing technical assistance to developing countries, the Union remains dependent on the following external resources (except for the assistance rendered through the funds made available by Chapter 7 of the ITU Regular Budget)

- UNDP;
- Trust Funds;

- Associate Experts (cost of missions borne by the donor countries);
- Special Fund for Technical Cooperation (Resolution No. 21 of Plenipotentiary Conference, Malaga, Torremolinos).

7.7.2 The main features of assistance, as shown in Annex 5 (Table 3), provided from all sources, were:

- 583 expert missions;
- 827 fellowships;
- 201 projects assigned to the Union;
- US \$ 5,643,999 expenditure for equipment for various field projects;
- 13 projects being implemented, either partially or entirely, under sub-contract.

8. ADMINISTRATION OF THE UNION

8.1 Staff matters

8.1.1 On 31 December 1983, the staff of the various organs of the Union, excluding staff on short-term contracts, was distributed as shown in the following table (for purposes of comparison, the figures for the end of 1982 are given in parentheses).

TABLE 1

*Distribution of staff (excluding staff on short-term contracts)
between the organs of the Union*

Organ	Elected Officials	Number of contracts		Total
		Permanent	Fixed-term	
General Secretariat	2	373 (348)	114 (151)	489 (501)
IFRB	5	99 (86)	12 (5)	116 (96)
CCITT	1	41 (45)	2 (2)	44 (48)
CCIR	1	25 (27)	2 (3)	28 (31)
Interim system management team ¹	-	8 (24)	14 (21)	22 (45)
TOTAL	9	546 (530)	144 (182)	699 (721)

1 The figures, under this heading, also include some of the staff associated with conferences (Section 14 of the budget); the reduction of the number of contracts corresponds to posts transferred to Sections 2 and 3 of the budget.

8.1.2 The manning table in the 1983 budget comprised 746 posts, 681 of them permanent. The following changes occurred during the year among staff with permanent or fixed-term contracts: 27 retirements, 7 resignations, 1 death and 1 inter-organization transfer. 13 fixed-term contracts were not renewed. As on 31 December 1983, 26 officials worked part-time.

8.1.3 The size of the Union staff is such that it must be supplemented or reinforced when the volume of work increases temporarily, when regular staff is not available or when jobs have to be done for which the corresponding posts do not exist. 1) Conferences and meetings obviously account for the major proportion of temporary staff, whether they are language staff, staff to carry out all the operations connected with document production and distribution, simultaneous interpretation equipment operators, and so on. 2) A temporary increase in urgent work - for example, a service document which has to be published by a certain date or computer programs that have to be transcribed - must be absorbed by short-term staff. 3) Sometimes it is more economical to supplement frequently, but on a short-term basis, the staff of a section working in shifts rather than to increase the permanent staff or to incur the high cost of overtime. 4) While the duties of staff who are temporarily absent (on prolonged sick or maternity leave, for example) are usually shared by colleagues, temporary assistance is sometimes essential. 5) When a permanent post falls vacant, it may be necessary to recruit someone for a short period until the post is filled.

The assignment of short-term staff in 1983 is shown in the table below.

TABLE 2
Staff on short-term contracts

	Number of contracts		Total number of working days	
Interpreters	514	(480)	7.535	(8.556)
Engineers, engineer-editors	5	(2)	932,5	(685)
Programme analysts, programmers	9	(8)	1.585	(1.630)
Translators/revisers, precis-writers	119	(121)	5.264	(5.930,5)
Administrative officers/associate administrative officers, research, documentalists, editors	5	(8)	333	(401)
Text composition: proof-readers, text assemblers, page-setting operators, "data capture" operators and encoders	23	(20)	2.261,5	(3.489)
Draughtsmen/designers, photographers	10	(7)	513	(511,5)
Typewriter technician	2	(2)	335	(335)
Documentalist assistants, library assistants	3	(2)	215	(275)
Secretaries, office assistants, book-keepers, assistants, proof-readers, copy preparers, heads of teams, checkers	109	(169)	9.739,5	(13.104,5)
Shorthand-typists, typists, clerks, text assemblers, copy holders	239	(227)	16.986,5	(15.519)
Telephone operators, telex operators	17	(24)	685,5	(842)
Laboratory operators	3	(2)	168	(93,5)
Offset operators, duplicating machine operators, trimmers	68	(59)	4.246	(3.031)
Simult. interpret. equipment operators, projectionists	45	(22)	594	(216)
Dispatching staff, other documents staff, reception staff, security guards, storemen, handymen	126	(108)	5.832	(7.970,5)
TOTAL	1.297	(1.261)	57.225,5	(62.589,5)

(The figures for 1982 are shown in parentheses in columns 2 and 3.)

8.1.4 The distribution of staff (excluding short-term staff) according to grade in the various organs is given in Table 3. The Heading "General Secretariat" includes all common services posts and posts in the Technical Cooperation Department.

TABLE 3

Distribution of staff according to grade

Grade	General Secretariat		IFRB		Interim system management team ^{1 2}		CCITT		CCIR		Total	
Elected Officials	2		5		—		1		1		9	
	Perm.	FT	Perm.	FT	Perm.	FT	Perm.	FT	Perm.	FT	Perm.	FT
D.1	7	1	2	—	—	1	2	—	1	—	12	2
P.5	18	7	7	—	4	2	8	—	5	—	42	9
P.4	36	23	19	5	—	8	6	—	4	1	65	37
P.3	30	10	6	—	—	1	—	—	—	—	36	11
P.2	15	2	9	—	—	—	1	—	—	—	25	2
P.1	—	—	—	—	—	—	—	—	—	—	—	—
G.7	43	1	17	—	—	—	6	—	5	—	71	1
G.6	54	12	15	1	—	—	17	1	6	—	92	14
G.5	79	36	8	1	3	—	—	1	4	1	94	39
G.4	33	6	12	4	1	2	1	—	—	—	47	12
G.3	45	16	4	1	—	—	—	—	—	—	49	17
G.2	12	—	—	—	—	—	—	—	—	—	12	—
G.1	1	—	—	—	—	—	—	—	—	—	1	—
	373	114	99	12	8	14	41	2	25	2	546	144
TOTAL	489		116		22		44		28		699	

- 1 The figures, under this heading, also include some of the staff associated with conferences (Section 14 of the budget); the reduction of the number of contracts corresponds to posts transferred to Sections 2 and 3 of the budget.
- 2 The Manager of the team is under the joint authority of the Secretary-General and the IFRB and provides also oversight of the Environment Division established within the Project Team.

(Perm. = Permanent; FT = Fixed-term)

Note: The above table shows the grades of staff members, those receiving a special post allowance granted upon a recommendation by the Appointment and Promotion Board being shown in the grade for which they receive the allowance.

8.1.5 The principle of geographical distribution applies to elected officials and staff in the following categories: senior counsellors, professional category (excluding language staff), and technical posts in grades G.7, G.6 and G.5. (The principle does not apply to other posts in the General Service category.) The geographical distribution at the end of 1983 is shown in three tables: Table 4 concerns the Headquarters staff whose salaries are paid from the ordinary budget of the Union. Table 5 concerns the Headquarters staff whose salaries are paid from the Technical Cooperation budget. Table 6 combines the data contained in the two preceding tables and thus shows the geographical distribution of all staff employed at ITU Headquarters. The number of nationalities represented was 51 on 31 December 1983 (for 223 officials).

TABLE 4

Geographical distribution on 31 December 1983
(Headquarters staff whose salaries are paid from the ordinary budget of the Union)

Country	Elected officials	D.1	P.5	P.4	P.3	P.2	P.1	G.7	G.6	G.5	Total
<i>Region A – America (31 countries)</i>											
Brazil			1	4					1		6
Canada	1	– (1)	2	3	1	1 (–)					8
Colombia								1			1
United States	1	1	1	6 (7)	2	1					12 (13)
Haiti			1								1
Mexico			1								1
Paraguay			– (1)								– (1)
<i>Region B – Western Europe (25 countries)</i>											
Germany (Fed. Rep. of)		1	2 (1)	2 (3)	2	1		1			9
Austria				1	1						2
Belgium			1	3		1					5
Cyprus			1 (–) ^{a)}								1 (–)
Denmark				– (1)							– (1)
Spain				5		2		1 (2)			8 (9)
France	1	3 (2) ^{b)}	5 (6)	5	4 (3)	7 (6)		2 (1)	– (1)		27 (25)
Italy			2	2 (1)							4 (3)
Netherlands			2	1							3
United Kingdom	1	1	2	3	3 (4)	2			1		13 (14)
Sweden			2 (1) ^{c)}	1 (2)	1 (–)	1		– (1)			5
Switzerland		2 (1)	7 (8)	5 (7)	9	6 (7)			1		30 (33)
Turkey		– (1)		1							1 (2)
<i>Region C – Eastern Europe and Northern Asia (12 countries)</i>											
Germany (Dem. Rep. of)				1 (–)							1 (–)
Bulgaria				2							2
Hungary			1	1							2
Poland		– (1)		2							2 (3)
Ukraine				1							1
U.S.S.R.	1	1	1	6							9
Yugoslavia		1 (–)		1							2 (1)
<i>Region D – Africa (50 countries)</i>											
Algeria		1									1
Cameroon	1 (–)										1 (–)
Egypt				1							1
Ghana					1						1
Liberia						1 (–)		– (1)			1
Mali					1						1
Morocco	1		1	1		1		1			5
Senegal				1 (–)							1 (–)
Tunisia	– (1)										– (1)
<i>Region E – Asia and Australasia (40 countries)</i>											
Afghanistan			1								1
Australia	1		1	2	1				1		6
China				1							1
Korea (Rep. of)					1						1
India		1	1	1	2	1					6
Indonesia				1							1
Iran			1	1							2
Iraq				1							1
Japan	1		3	1							5
Pakistan			1								1
TOTAL	9	12	41	67 (70)	29 (28)	25 (23)	–	6 (8)	4 (5)	–	193 (196)

(Wherever changes have taken place, the figure for 1982 appears in parentheses.)

a) Administrator, Voluntary Programme for Technical Cooperation, Res. 892/AC 38.

b) One of them on the post of Telecommunication Economist, Res. 892/AC 38.

c) One of them on a CODEVTEL post, Res. 892/AC 38 – Two CODEVTEL posts in the field are occupied by a Costa Rican and a Swede.

TABLE 5

Geographical distribution on 31 December 1983
(Headquarters staff in the Technical Cooperation Department
whose salaries are paid from the Technical Cooperation budget)

Country	D.1	P.5	P.4	P.3	P.2	P.1	Total
<i>Region A – America (31 countries)</i>							
Brazil			1				1
Canada			1				1
United States			1				1
Uruguay			1				1
<i>Region B – Western Europe (25 countries)</i>							
Germany (Fed. Rep. of)			1				1
Austria		1 (–) ^{a)}	–				1 (–)
Cyprus			– (1)				– (1)
France			2				2
Greece			– (1)				– (1)
Italy		1		1			2
United Kingdom		1 (–)	1 (2)		1		3
Switzerland			1	2			3
Turkey	1 (–)		1				2 (1)
<i>Region C – Eastern Europe and Northern Asia (12 countries)</i>							
Yugoslavia	– (1)						– (1)
<i>Region D – Africa (50 countries)</i>							
Congo			– (1)				– (1)
Egypt			1				1
Ethiopia		1					1
Uganda			1				1
Senegal			– (1)				– (1)
Sudan			1				1
Tunisia		1	1				2
<i>Region E – Asia and Australasia (40 countries)</i>							
Bangladesh		1					1
India			1		1		2
Pakistan			1				1
Sri Lanka			1				1
Syria			1				1
TOTAL	1	6 (4)	18 (23)	3	2	–	30 (33)

(Wherever changes have taken place, the figure for 1982 appears in parentheses.)

^{a)} On detachment – Funds-in-Trust.

TABLE 6

Geographical distribution of headquarters staff on 31 December 1983

Country	Elected officials	D.1	P.5	P.4	P.3	P.2	P.1	G.7	G.6	G.5	Total
<i>Region A – America (31 countries)</i>											
Brazil			1	5					1		7
Canada	1	– (1)	2	4	1	1 (–)					9
Colombia			1	7 (8)	2	1		1			13 (14)
United States	1	1	1								1
Haiti			1								1
Mexico			1								1
Paraguay			– (1)								– (1)
Uruguay				1							1
<i>Region B – Western Europe (25 countries)</i>											
Germany (Fed. Rep. of)		1	2 (1)	3 (4)	2	1		1			10
Austria			1 (–)	1	1						3 (2)
Belgium			1	3		1					5
Cyprus			1 (–)	– (1)							1
Denmark				– (1)							– (1)
Spain				5		2		1 (2)			8 (9)
France	1	3 (2)	5 (6)	7	4 (3)	7 (6)		2 (1)	– (1)		29 (27)
Greece				– (1)							– (1)
Italy			3	2 (1)	1						6 (5)
Netherlands			2	1							3
United Kingdom	1	1	3 (2)	4 (5)	3 (4)	3			1		16 (17)
Sweden			2 (1)	1 (2)	1 (–)	1		– (1)			5
Switzerland		2 (1)	7 (8)	6 (8)	11	6 (7)			1		33 (36)
Turkey		1		2							3
<i>Region C – Eastern Europe and Northern Asia (12 countries)</i>											
Germany (Dem. Rep. of)				1 (–)							1 (–)
Bulgaria				2							2
Hungary			1	1							2
Poland		– (1)		2							2 (3)
Ukraine				1							1
U.S.S.R.	1	1	1	6							9
Yugoslavia		1		1							2
<i>Region D – Africa (50 countries)</i>											
Algeria		1									1
Cameroon	1 (–)										1 (–)
Congo				– (1)							– (1)
Egypt				2							2
Ethiopia			1								1
Ghana					1						1
Liberia						1 (–)		– (1)			1
Mali					1						1
Morocco	1		1	1		1		1			5
Uganda				1							1
Senegal				1							1
Sudan				1							1
Tunisia	– (1)		1	1							2 (3)
<i>Region E – Asia and Australasia (40 countries)</i>											
Afghanistan			1								1
Australia	1		1	2	1				1		6
Bangladesh			1								1
China				1							1
Korea (Rep. of)					1						1
India		1	1	2	2	2					8
Indonesia				1							1
Iran			1	1							2
Iraq				1							1
Japan	1		3	1							5
Pakistan			1	1							2
Sri Lanka				1							1
Syria				1							1
TOTAL	9	13	47 (45)	85 (93)	32 (31)	27 (25)	–	6 (8)	4 (5)	–	223 (229)

(Wherever changes have taken place, the figure for 1982 appears in parentheses.)

8.2 Financial questions

8.2.1 In accordance with Article 56, No. 288, of the International Telecommunication Convention, Malaga-Torremolinos, 1973, and Article 49 of the Union's Financial Regulations, the Secretary-General prepares each year for submission to the Administrative Council a financial operating report containing all requisite information on financial administration and the recapitulatory accounts for the past year. After examination and approval by the Administrative Council, the report is sent to the Members. However, in order to give an idea of the credits allocated to the various activities of the Union and of the position of the accounts for the past financial year, the budget and the accounts for 1983 are reproduced in Annex 2 to the present report.

8.2.2 In accordance with Article 15 of the Malaga-Torremolinos Convention, 1973, and Articles 2 and 6 of the Union's Financial Regulations, the budget of the Union comprises the costs of the Administrative Council and the permanent organs of the Union and of plenipotentiary and world administrative conferences. There are two additional budgets, i.e. the Technical Cooperation special accounts budget (administrative and operational costs of Technical Cooperation projects) and the supplementary publications budget.

8.2.3 Additional Protocol I to the Malaga-Torremolinos Convention, 1973, lays down the limits within which the Administrative Council is authorized to draw up the Union's annual budgets. However, these limits were valid only until the next Plenipotentiary Conference, which met in September/November 1982 at Nairobi, so no ceiling was set for 1983.

8.2.4 Taking into account the imminence of the Plenipotentiary Conference, the Administrative Council at its 37th session, in Resolution 873, provisionally approved the budgets for 1983 amounting to:

66,910,000 Swiss francs for recurrent expenditure;

12,070,000 Swiss francs for conferences and meetings;

2,900,000 Swiss francs for a regional administrative conference;

85,000 Swiss francs for expenditure covered by the renewal fund
for simultaneous interpretation and other
electro-acoustical equipment and by the CCITT
Reserve Fund;

1,100,000 Swiss francs for a transfer to the ITU reserve account;

83,065,000 Swiss francs for the ordinary budget;

9,845,000 Swiss francs for Technical Cooperation administrative
costs;

8,758,000 Swiss francs for the supplementary publications budget.

8.2.5 In Resolution 873, the Administrative Council also provisionally fixed the amount of the contributory unit for 1983 at 170,000 Swiss francs on the basis of the classification chosen by Members in accordance with Nos. 92 and 93 of the Malaga-Torremolinos Convention, 1973, i.e. on the basis of a total of 429½ units. Lastly, in accordance with Article 79, No. 553, of the Malaga-Torremolinos Convention, 1973, the Administrative Council decided provisionally to fix the unit of contribution towards defraying the expenses of the CCIR and the CCITT for recognized private operating agencies, scientific or industrial organizations and international organizations not exempt under Administrative Council Resolution 574 at 34,000 Swiss francs for 1983.

8.2.6 In order to take account of the decisions adopted, the Plenipotentiary Conference, Nairobi, 1982, laid down new limits on expenditure in Additional Protocol I to the Nairobi Convention and, at its 38th session in 1983, the Administrative Council in Resolution 888 approved the final budgets for 1983 within the limits established by the Plenipotentiary Conference. These budgets amount to:

66,696,000 Swiss francs for the operational budget;

3,965,000 Swiss francs for the project "Extended use of the computer by the IFRB";

10,900,000 Swiss francs for conferences and meetings;

85,000 Swiss francs for expenditure covered by the renewal fund for simultaneous interpretation and other electro-acoustical equipment and by the CCITT reserve fund;

1,400,000 Swiss francs for a transfer to the ITU reserve account;

83,046,000 Swiss francs for the ordinary budget;

2,900,000 Swiss francs for a regional administrative conference;

9,450,000 Swiss francs for Technical Cooperation administrative costs;

7,258,000 Swiss francs for the supplementary publications budget.

102,654,000 Swiss francs Total
=====

8.2.7 In Resolution 888, the Administrative Council also fixed the amount of the final contributory unit for 1983 at 176,600 Swiss francs on the basis of the classification chosen by Members in accordance with Nos. 92 and 93 of the Malaga-Torremolinos Convention, 1973, and having regard to Resolution 50 of the Plenipotentiary Conference, Nairobi, 1982.

8.2.8 Furthermore, in accordance with Article 79, No. 553, of the Malaga-Torremolinos Convention, 1973, the Administrative Council decided to fix the final unit of contribution towards defraying the expenses of the CCIR and the CCITT for recognized private operating agencies, scientific or industrial organizations and international organizations not exempt under Administrative Council Resolution 574 at 35,320 Swiss francs.

8.2.9 In Resolution 647, the Administrative Council instructed the Secretary-General to introduce changes in the basic salary scales of staff in the senior counsellor, professional and general service categories and in the rates and class of post adjustment as and when such changes were introduced by the United Nations for the staff of the United Nations Office at Geneva. Such changes having occurred between the approval by the Administrative Council of Resolution 888 on the budget for 1983 and the end of the financial year 1983, the Secretary-General was obliged to increase the budget by:

2,075,600 Swiss francs for the ordinary budget;

137,000 Swiss francs for the budget of the regional administrative conference;

331,000 Swiss francs for the Technical Cooperation special accounts budget;

50,300 Swiss francs for the supplementary publications budget.

8.2.10 The budgets of the Union for 1983 therefore finally amounted to:

85,121,600 Swiss francs for the ordinary budget;

3,037,000 Swiss francs for the budget of the regional administrative conference;

9,781,000 Swiss francs for the Technical Cooperation special accounts budget;

7,277,300 Swiss francs for the supplementary publications budget.

CLASSIFICATION OF MEMBERS OF THE UNION
FOR THE APPORTIONMENT OF EXPENDITURE IN 1983

8.2.11 At the end of 1982, the Union had 157 Members contributing on the basis of 429 $\frac{1}{2}$ units.

8.2.12 In Resolution 53 on the settlement of accounts in arrears, the Nairobi Conference, 1982, decided that the Republic of Guatemala should share in defraying the expenses of the Union in 1983 in the $\frac{1}{2}$ unit contributory class instead of the 1 unit class as before. In Resolution 50, the Nairobi Conference also decided that the $\frac{1}{8}$ unit class included in the Nairobi Convention could take effect from 1 January 1983 for some countries with a small population and a low per capita gross national product, and the Administrative Council accepted the applications for reclassification submitted by Belize, Grenada, Nauru and Tonga. The number of units was thus reduced by $1\frac{1}{2}$ ($4 \times \frac{3}{8}$ unit).

8.2.13 The Administrative Council also accepted the accession of Saint Vincent and the Grenadines as a new Member with effect from 1 March 1983 in the 1/8 unit contributory class.

8.2.14 On 31 December 1983, the Union therefore had 158 Members contributing on the basis of a total of 427 5/8 units.

Cash resources

8.2.15 In 1983, the situation of the Union's cash resources was satisfactory. The Organization's expenditure could be met without resorting to advances from the Government of the Swiss Confederation. Moreover, surplus amounts could be placed in short-term investments almost throughout the year.

Arrears

8.2.16 The total amounts due for more than one year on 31 December 1981, 1982 and 1983 were as follows:

31 December 1981	6,678,806.80 Swiss francs
31 December 1982	6,436,743.05 Swiss francs
31 December 1983	7,985,841.75 Swiss francs

8.2.17 The amounts in the special arrears account established pursuant to Resolution 10 of the Malaga-Torremolinos Plenipotentiary Conference, 1973, and not yet settled on 31 December 1983 total 3,565,990.72 Swiss francs. Since the Malaga-Torremolinos Conference, the special arrears account has thus been reduced by the payment of 2,994,025.46 Swiss francs from the Members concerned, including 90,000 Swiss francs paid in 1983.

8.2.18 In Resolution 53, the Plenipotentiary Conference, Nairobi, 1982 decided to transfer to the special arrears account a total amount of 1,463,281.65 Swiss francs due for contributions from four Members of the Union.

8.2.19 The transfer to the special arrears account of amounts due does not release the countries concerned from payment of their arrears.

8.2.20 Annex 6 to this report shows the situation of the Union's principal debtors on 31 December 1983.

9. RELATIONS WITH THE UNITED NATIONS AND OTHER INTERNATIONAL ORGANIZATIONS

9.1 United Nations

9.1.1 In 1983, the International Telecommunication Union continued to cooperate with the United Nations within the framework of the International Telecommunication Convention and the Agreement between the United Nations and the Union. The Union was represented at meetings of the Economic and Social Council and its Committee on Programme and Coordination and at various other meetings and conferences convened by the United Nations. At the 38th session of the Administrative Council and at other meetings of the Union, the United Nations and a number of its organizations were represented.

9.1.2 As in previous years, the Union participated in the Second Regular Session of the Economic and Social Council (ECOSOC) and in the joint meetings of the Committee on Programme and Coordination (CPC) and the Administrative Committee on Coordination (ACC). These meetings dealt with the coordination of United Nations system activities.

9.1.3 In accordance with the Agreement between the United Nations and the ITU, the Administrative Council considered and took appropriate action on all resolutions and decisions of the United Nations which were addressed to the Union.

9.1.4 Under Resolution 38 of the Plenipotentiary Conference, Nairobi, 1982, the Union continued to cooperate with the Joint Inspection Unit (JIU) and the Administrative Council took appropriate action on reports submitted to the Union. Support was provided to the International Civil Service Commission (ICSC) in its work on personnel questions, and the Administrative Council, together with the governing bodies of other organizations in the common system, took action on the recommendations of the Commission.

9.1.5 Questions of concern to the organizations of the United Nations system were dealt with through the Administrative Committee on Coordination (ACC) or its subsidiary bodies. The Secretary-General attended the first session of the ACC and the Union was represented at the appropriate level at meetings of the Organizational Committee, the Consultative Committee on Substantive Questions (CCSQ) and the Consultative Committee on Administrative and Budgetary Questions (CCAQ). Experts from the appropriate departments represented the Union at meetings of the Advisory Committee for the Coordination of Information Systems (ACCIS) and the special task forces on long-term objectives.

9.1.6 Special mention should be made of ITU participation in the meeting of the Special Political Committee at the 38th session of the United Nations General Assembly in connection with the consideration of Report A/38/20 of the Committee on the Peaceful Uses of Outer Space.

9.1.7 The relations between the Union and the United Nations Development Programme are discussed in detail in the section of the present report which deals with technical cooperation activities.

9.1.8 The United Nations system cooperated closely with the ITU in promoting World Communications Year.

Thanks to the available radio and audiovisual facilities and its network of United Nations Information Centres, the UN Office of Public Information was able to coordinate its activities with the Secretariat of WCY with a view to establishing a consistent and interlocking action programme. The United Nations focussed its attention on sectors which could not be dealt with by the WCY Secretariat owing to shortage of both staff and funds. Mention should also be made of the invaluable assistance provided by the UNDP field offices in circulating information.

As the lead agency for WCY, the ITU was supported by numerous organizations within the United Nations family. At its tenth session in 1983, the Joint United Nations Information Committee, a subsidiary body of the ACC, considered a report from the WCY Secretariat on inter-agency information activity as a result of which various specialized agencies took steps to promote WCY in specific areas. Close contacts were maintained particularly with UPU, UNESCO, WMO and FAO. The latter also assisted in the preparation of a special issue of the WCY Bulletin dealing with the frequently neglected role of telecommunications in the development of agriculture.

Finally, at the suggestion of the Secretary-General of the ITU and the proposal of the Secretary-General of the Arab States Broadcasting Union (ASBU), and in view of the similarity of their objectives, the 4th World Conference of Broadcasting Unions was held under the auspices of World Communications Year.

9.2 United Nations specialized agencies

9.2.1 Throughout 1983, the ITU worked in close and systematic cooperation with UNESCO under the International Programme for the Development of Communication (IPDC), within the framework of the studies on the impact of technological development on information and communications in the developing countries and, finally, on activities relating to the establishment of the New World Information and Communication order. For example, the Union was represented at the round-table on the New World Information and Communication order at the 22nd session of the UNESCO General Conference, at the symposium on the cultural, social and economic aspects of the impact of communication technologies, and at the 4th session of IPDC. With the financial support of IPDC, the ITU also carried out a study of the application of communications technology to rural areas and a telecommunication training project in Zimbabwe, for which the Swiss Government supplied the main contribution. Finally, the ITU transmitted other projects to the IPDC office for submission to the intergovernmental council at its next session with a view to fund raising.

9.2.2 The Union was also represented at meetings of the International Maritime Organization (IMO) and the International Civil Aviation Organization (ICAO) when matters concerning telecommunications were under consideration. The ITU also continued to cooperate with the World Meteorological Organization (WMO) on all matters concerning the application and use of telecommunications by the meteorological services.

9.2.3 Cooperation between the Universal Postal Union (UPU) and the ITU continued, in particular in the area of mutual interest concerning the development and application of electronic text transmission equipment and services. The ITU participated for example in the work of Committee 1 of the CCPS.

9.2.4 Close liaison was also maintained with the Regional Commissions of the United Nations: the Economic Commission for Africa (ECA); the Economic Commission for Latin America (ECLA); and the Economic and Social Commission for Asia and the Pacific (ESCAP).

9.3 Other international organizations

9.3.1 Mutual, beneficial relations continued, during 1983, between the ITU and an increasing number of international organizations. The following non-exhaustive list provides an indication of the variety of organizations with which excellent relations have been maintained.

Committee on Space Research (COSPAR)

International Air Transport Association (IATA)

International Amateur Radio Union (IARU)

International Association of Lighthouse Authorities (IALA)

International Astronautical Federation (IAF)

International Chamber of Commerce (ICC)

International Committee of the Red Cross (ICRC)

International Council of Scientific Unions (ICSU)

International Criminal Police Organization (INTERPOL)

International Electrotechnical Commission (IEC)

International Hydrographic Organization (IHO)

International Maritime Radio Association (CIRM)

International Maritime Satellite Organization (INMARSAT)

International Organization for Standardization (ISO)

International Space Telecommunication Organization (INTERSPUTNIK)

International Special Committee on Radio Interference (CISPR)

International Telecommunications Satellite Organization (INTELSAT)

International Time Bureau (BIH)

International Union of Radio Science (URSI)

Inter-Union Commission on Frequency Allocations for Radio Astronomy and Space Science (IUCAF)

Organization for Economic Cooperation and Development (OECD)

9.3.2 The Plenipotentiary Conference, Nairobi, 1982, examined the question of reciprocal representation facilities between the ITU and other non-United Nations system international organizations, a matter which had been the subject of discussions during the 1981 session of the Administrative Council.

9.3.3 Many of these international organizations enjoy exemption from the payment of contributions, to defray the expenses of their participation in the work of the Union, while the ITU can similarly participate in the work of these international organizations without contributing to the budget of the organization concerned.

9.4 Regional organizations

9.4.1 The International Telecommunication Convention provides that the Members of the Union reserve the right to form regional organizations for the purpose of settling telecommunication questions susceptible of being treated on a regional basis.

9.4.2 The ITU has close relations with organizations having a broad regional character such as the:

Asia-Pacific Telecommunity (APT)

Arab Satellite Communications Organization (ARABSAT)

Arab Telecommunication Union (ATU)

European Post and Telecommunication Conference (CEPT)

Inter-American Telecommunication Conference (CITEL)

Central American Telecommunication Commission (COMTELCA)

Pan-African Telecommunication Union (PATU), and

Union of African Post and Telecommunications (UAPT)

9.4.3 In addition to working with these organizations, the ITU also cooperates with regional organizations which have a specific technical or operational area of interest. Examples of such organizations are the regional broadcasting unions:

Asia-Pacific Broadcasting Union (ABU)

Arab States Broadcasting Union (ASBU)

European Broadcasting Union (EBU)

Union of National Radio and Television Organizations of Africa (URTNA).

ANNEX 1

**POSITION OF MEMBERS IN RELATION TO THE ACTS OF THE UNION
ON 31 DECEMBER 1983**

Table I. *Malaga-Torremolinos Acts (1973) and Regulations annexed thereto :*

- International Telecommunication Convention, Malaga-Torremolinos, 1973;
- Optional Additional Protocol to the International Telecommunication Convention, Malaga-Torremolinos, 1973, on the Compulsory Settlement of Disputes;
- Telegraph and Telephone Regulations (Geneva, 1973);
- Radio Regulations (Geneva, 1979).

Table II. *Final Acts of the World Administrative Radio Conference for the Planning of the Broadcasting-Satellite Service in Frequency Bands 11.7-12.2 GHz (in Regions 2 and 3) and 11.7-12.5 GHz (in Region 1) (Geneva, 1977).*

Table III. *American Regional Agreements :*

- Inter-American Radio Agreement (FIAR) (Washington, 1949);
- North-American Regional Broadcasting Agreement (NARBA) (Washington, 1950);

Table IV. *Final Acts of the Regional Administrative MF Broadcasting Conference (Region 2), Rio de Janeiro, 1981.*

Table V. *European Regional Conventions, Arrangements and Agreements :*

- European Broadcasting Convention (Copenhagen, 1948);
- European Regional Convention for the Maritime Mobile Radio Service (Copenhagen, 1948);
- Regional Arrangement concerning Maritime Radiobeacons in the European Area of Region 1 (Paris, 1951);
- Regional Agreement for the Use of Frequencies in the Bands 68-73 MHz and 76-87.5 MHz by the Broadcasting Service on the one hand and by the Fixed and Mobile Services on the other (Geneva, 1960);
- Regional Agreement for the European Broadcasting Area (Stockholm, 1961);
- Regional Arrangement concerning the Radiotelephone Service for the Rhine (Munich, 1976).

Table VI. *Regional Agreement for the African Broadcasting Area concerning the use of frequencies by the broadcasting service in the very high frequency and ultra high frequency bands (Geneva, 1963).*

Table VII. *Regional Agreement concerning the use by the broadcasting service of frequencies in the medium frequency bands in Regions 1 and 3 and in the low frequency bands in Region 1 (Geneva, 1975).*

VIII. *Special Agreements.*

Table I. Convention, Administrative Regulations

POSITION ON 31 DECEMBER 1983

The letter S means that the Act concerned has been signed.

The letter A in columns 3 or 5 means accession; in the other columns, it means approval.

Members (In the alphabetical order of the French version of the country names)	INTERNATIONAL TELECOMMUNICATION CONVENTION					ADMINISTRATIVE REGULATIONS					
	Plenipotentiary Conference of Malaga-Torremolinos, 1973					World Administrative Telegraph and Telephone Conference Geneva (1973)				A.R.C. Geneva (1979)	
	Class of contribution No. of units	Convention, etc. *	Date on which the instrument of ratification or accession was deposited with the General Secretariat	Opt. Add. Protocol **	Date on which the instrument of ratification or accession was deposited with the General Secretariat	Telegraph Regulations		Telephone Regulations		Radio Regulations	
						7	8	9	10	11	12
1	2	3	4	5	6	7	8	9	10	11	12
Afghanistan (Democratic Republic of) ³⁸⁾	½	S ¹⁾	3. II. 1977	S		—	A ⁴⁾	—	A ⁴⁾	S	
Albania (Socialist People's Republic of) ²⁵⁾	½	A	5. I. 1976 ²¹⁾	—		S	A ⁴⁾	S	A ⁴⁾	—	
Algeria (People's Democratic Republic of)	1	S ¹⁾	1. XI. 1976	—		S	A ⁴⁾	S	A ⁴⁾	S	
Germany (Federal Republic of)	25	S ¹⁾	18. XI. 1976 ²⁾ ²²⁾	—		S	A ⁵⁾	S	A ⁵⁾	S	A ⁶⁾
Angola (People's Republic of)	½	A	13. X. 1976	—		—	A ⁴⁾	—	A ⁴⁾	S	
Saudi Arabia (Kingdom of)	1	S ¹⁾	6. I. 1977	—		S	A ⁴⁾	S	A ⁴⁾	S	
Argentine Republic	3	S ¹⁾	19. I. 1977 ²⁸⁾	—		S	A ⁴⁾	S	A ⁴⁾	S	A ³⁾
Australia	18	S ¹⁾	23. VI. 1975	S	23. VI. 1975	S	A	S	A	S	
Austria	1	S ¹⁾	17. V. 1977 ²⁾	S	17. V. 1977	S	A ⁴⁾	S	A ⁴⁾	S	
Bahamas (Commonwealth of the) . . .	½	A	16. X. 1975 ¹⁶⁾	—		—	A ⁴⁾	—	A ⁴⁾	—	A
Bahrain (State of)	½	A	21. X. 1974 ⁷⁾	—		—	A ⁴⁾	—	A ⁴⁾	S	
Bangladesh (People's Republic of) . . .	1	S ¹⁾	6. IV. 1976 ²⁾	—		—	¹⁾	—	¹⁾	S	
Barbados	½	S ¹⁾	1. X. 1976	A	1. X. 1976	—	A ⁴⁾	—	A ⁴⁾	—	
Belgium	5	S ¹⁾	20. III. 1978	S	20. III. 1978	S	A ⁴⁾	S	A ⁴⁾	S	
Belize	½	A	16. XII. 1981	—		—	A ⁴⁾	—	A ⁴⁾	—	A
Benin (People's Republic of) ⁸⁾	½	S ¹⁾	13. XI. 1979	S		S	A ⁴⁾	S	A ⁴⁾	S	
Byelorussian Soviet Socialist Republic .	1	S ¹⁾	6. I. 1977	—		S	A	S	A	S	A ⁵⁰⁾
Burma (Socialist Republic of the Union of) ⁹⁾	½	S ¹⁾	15. XI. 1976	S		—	A ⁴⁾	—	A ⁴⁾	—	
Bolivia (Republic of)	½	S ¹⁾	22. VIII. 1978	—		—	A ⁴⁾	—	A ⁴⁾	—	
Botswana (Republic of)	½	S ¹⁾	31. III. 1978	—		—	A ⁴⁾	—	A ⁴⁾	S	
Brazil (Federative Republic of)	5	S	30. XI. 1976	S		S	A	S	A	S	

*) Convention, Final Protocol, Additional Protocols.

**) Optional Additional Protocol on the Compulsory Settlement of Disputes.

Table I. Convention, Administrative Regulations (continued)

Members (In the alphabetical order of the French version of the country names)	INTERNATIONAL TELECOMMUNICATION CONVENTION					ADMINISTRATIVE REGULATIONS					
	Plenipotentiary Conference of Malaga-Torremolinos, 1973					World Administrative Telegraph and Telephone Conference Geneva (1973)				A.R.C. Geneva (1979)	
	Class of contribution No. of units	Convention, etc. *	Date on which the instrument of ratification or accession was deposited with the General Secretariat	Opt. Add. Protocol **	Date on which the instrument of ratification or accession was deposited with the General Secretariat	Telegraph Regulations		Telephone Regulations		Radio Regulations	
						7	8	9	10	11	12
Bulgaria (People's Republic of)	1	S ¹⁾	29. XII. 1976	—		S	A ⁴⁾	S	A ⁴⁾	S	
Burundi (Republic of)	½	S ¹⁾	25. I. 1977	S		—	A ⁴⁾	—	A ⁴⁾	S	
Cameroon (United Republic of)	½	S ¹⁾	1. VI. 1978	S		S	A ⁴⁾	S	A ⁴⁾	S	
Canada	18	S	20. I. 1975	S	20. I. 1975	S	A	S	A	S	A ⁴⁷⁾
Cape Verde (Republic of)	½	A	10. IX. 1976	—		—	A ⁴⁾	—	A ⁴⁾	S	
Central African Republic ²⁶⁾	½	S ¹⁾	5. I. 1976	S	5. I. 1976	S	A	S	A	S	
Chile	1	S ¹⁾	31. I. 1977 ²⁸⁾	A	31. I. 1977	—	A ⁴⁾	—	A ⁴⁾	S	
China (People's Republic of)	20	S ¹⁾	29. XII. 1976 ²⁷⁾	—		S	A ⁴⁾	S	A ⁴⁾	S	A ³⁾
Cyprus (Republic of)	½	S ¹⁾	31. XII. 1976	S	31. XII. 1976	—	A ⁴⁾	—	A ⁴⁾	S	
Vatican City State	½	S	10. XII. 1976	—		S	A ⁴⁾	S	A ⁴⁾	S	
Colombia (Republic of)	3	A	21. II. 1975	A	21. II. 1975	—	A ⁴⁾	—	A ⁴⁾	S	
Comoros (Islamic Federal Republic of the) ⁴¹⁾	½	A	5. I. 1976	—		—	A ⁴⁾	—	A ⁴⁾	—	
Congo (People's Republic of the)	½	S ¹⁾	2. II. 1979	S		S	A ⁴⁾	S	A ⁴⁾	S	
Korea (Republic of)	1	S ¹⁾	22. I. 1976	S	22. I. 1976	—	A ⁴⁾	—	A ⁴⁾	S	
Costa Rica	½	S	10. IX. 1979	S		—	A ⁴⁾	—	A ⁴⁾	S	
Ivory Coast (Republic of the)	1	S ¹⁾	25. IX. 1979	S	25. IX. 1979	—	A ⁴⁾	—	A ⁴⁾	S	
Cuba	1	S ¹⁾	14. I. 1977 ²⁾	—		—	A ⁴⁾	—	A ⁴⁾	S	
Denmark	5	S ¹⁾	12. XI. 1974	—		S	A	S	A	S	
Djibouti (Republic of)	½	A	22. XI. 1977	—		—	A ⁴⁾	—	A ⁴⁾	—	
Dominican Republic	½	S		S		—		—		—	
Egypt (Arab Republic of)	2	S ⁴⁵⁾	10. IX. 1976	S		—	A ⁴⁾	—	A ⁴⁾	S	
El Salvador (Republic of)	½	S ¹⁾	6. I. 1977	S		—	A ⁴⁾	—	A ⁴⁾	S	
United Arab Emirates	1	S ¹⁾	29. XII. 1976	S	29. XII. 1976	—	A ⁴⁾	—	A ⁴⁾	S	
Ecuador	1	S	24. I. 1975	—		—	A ⁴⁾	—	A ⁴⁾	S	
Spain	3	S ¹⁾	29. IV. 1976	—		S	A	S	A	S	
United States of America	30	S ¹⁾	13. IV. 1976 ²⁾	—		S	A ³⁾	S	A ³⁾	S	A ⁵³⁾
Ethiopia	1	S	29. XII. 1976	—		S	A ⁴⁾	S	A ⁴⁾	S	
Fiji	½	A	17. IV. 1975	A	17. IV. 1975	—	A	—	A	S	

*) Convention, Final Protocol, Additional Protocols.

**) Optional Additional Protocol on the Compulsory Settlement of Disputes.

Table I. Convention, Administrative Regulations (*continued*)

Members (In the alphabetical order of the French version of the country names)	INTERNATIONAL TELECOMMUNICATION CONVENTION					ADMINISTRATIVE REGULATIONS					
	Plenipotentiary Conference of Malaga-Torremolinos, 1973					World Administrative Telegraph and Telephone Conference Geneva (1973)				A.R.C. Geneva (1979)	
	Class of contribution No. of units	Convention, etc.	Date on which the instrument of ratification or accession was deposited with the General Secretariat	Opt. Add. Protocol **	Date on which the instrument of ratification or accession was deposited with the General Secretariat	Telegraph Regulations	Telephone Regulations			Radio Regulations	
1	2	3	4	5	6	7	8	9	10	11	12
Finland	3	S ¹⁾	28. VII. 1975	S	5. XII. 1975	S	A	S	A	S	
France	30	S ¹⁾	29. XII. 1976	—		S	A ⁴⁾	S	A ⁴⁾	S	
Gabonese Republic	½	S ¹⁾	16. VIII. 1978 ²⁾	S		S	A ⁴⁾	S	A ⁴⁾	S	
Gambia (Republic of the)	½	A	3. XI. 1975	A	3. XI. 1975	—	A ⁴⁾	—	A ⁴⁾	—	
Ghana	1	S ¹⁾	19. I. 1977	—		—	A ⁴⁾	—	A ⁴⁾	S	
Greece	1	S ¹⁾	13. I. 1977 ²⁾	S		S	A	S	A	S	
Grenada	½	A	17. XI. 1981	—		—	A ⁴⁾	—	A ⁴⁾	—	
Guatemala (Republic of) ³¹⁾	1	S ¹⁾	29. VIII. 1983 ⁵²⁾	—		—	A ⁴⁾	—	A ⁴⁾	S	A ⁴⁾
Guinea (Revolutionary People's Republic of) ⁴²⁾	½	S ¹⁾	5. X. 1976	—		—	A ⁴⁾	—	A ⁴⁾	S	
Guinea-Bissau (Republic of)	½	A	15. I. 1976	—		—	A ⁴⁾	—	A ⁴⁾	—	
Equatorial Guinea (Republic of)	½	S ¹⁾	30. IX. 1982	—		—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾
Guyana	½	A	30. XI. 1976	—		—	A ⁴⁾	—	A ⁴⁾	S	
Haiti (Republic of)	½	A	10. XII. 1976	—		—	A ⁴⁾	—	A ⁴⁾	S	A
Upper Volta (Republic of the)	½	S ¹⁾	22. III. 1978	S		—	A ⁴⁾	—	A ⁴⁾	S	
Honduras (Republic of)	½	A	11. X. 1979	—		—	A ⁴⁾	—	A ⁴⁾	S	
Hungarian People's Republic	1	S ¹⁾	4. VIII. 1976 ¹²⁾	—		S	A	S	A	S	A
India (Republic of)	13	S ¹⁾	20. IV. 1976	—		S	A	S	A	S	A
Indonesia (Republic of)	1	S ¹⁾	6. I. 1977	S		S	A ⁴⁾	S	A ⁴⁾	S	
Iran (Islamic Republic of) ⁴³⁾	1	S ¹⁾	3. II. 1977	—		S	A ⁴⁾	S	A ⁴⁾	S	
Iraq (Republic of)	½	S ¹⁾	14. VI. 1977 ³⁴⁾	—		—	A ⁴⁾	—	A ⁴⁾	S	
Ireland	2	S	20. IX. 1976	—		S	A	S	A	S	
Iceland	½	S ¹⁾	6. I. 1977	—		S	A ⁴⁾	S	A ⁴⁾	S	
Israel (State of)	1	S ¹⁾	28. V. 1975	—		S	A ⁴⁾	S	A ⁴⁾	S	
Italy	10	S ¹⁾	23. I. 1978	—		S	A ⁴⁾	S	A ⁴⁾	S	
Jamaica	½	S ¹⁾	25. IV. 1975 ²⁾	—		S	A	S	A	S	
Japan	20	S	17. VI. 1975	S	17. VI. 1975	S	A	S	A	S	A
Jordan (Hashemite Kingdom of)	½	A	28. V. 1975	A	28. V. 1975	—	A ⁴⁾	—	A ⁴⁾	S	
Democratic Kampuchea ³⁷⁾	½	S ¹⁾		S		—		—		—	

*) Convention, Final Protocol, Additional Protocols.

**) Optional Additional Protocol on the Compulsory Settlement of Disputes.

Table I. Convention, Administrative Regulations (continued)

Members (In the alphabetical order of the French version of the country names)	INTERNATIONAL TELECOMMUNICATION CONVENTION					ADMINISTRATIVE REGULATIONS					
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	Class of contribution No. of units	Convention, etc. *	Date on which the instrument of ratification or accession was deposited with the General Secretariat	Opt. Add. Protocol **	Date on which the instrument of ratification or accession was deposited with the General Secretariat	Telegraph Regulations		Telephone Regulations		Radio Regulations	
						7	8	9	10	11	12
1	2	3	4	5	6	7	8	9	10	11	12
Kenya (Republic of)	½	S ¹⁾	13. III. 1978	—		S	A ⁴⁾	S	A ⁴⁾	S	
Kuwait (State of)	1	S ¹⁾	7. II. 1977 ²⁾	—		S	A ⁴⁾	S	A ⁴⁾	S	
Lao People's Democratic Republic ¹⁹⁾ .	½	S ¹⁾	6. I. 1977	S		—	A ⁴⁾	—	A ⁴⁾	—	
Lesotho (Kingdom of)	½	S ¹⁾	27. VIII. 1976	—		—	A ⁴⁾	—	A ⁴⁾	S	
Lebanon	1	S ¹⁾	1. VI. 1978	S		S	A	S	A	S	
Liberia (Republic of)	1	S ¹⁾	22. IX. 1975	S		—	A ⁴⁾	—	A ⁴⁾	S	
Libya (Socialist People's Libyan Arab Jamahiriya) ³⁵⁾	1½	S ¹⁾	22. II. 1977	—		S	A ⁴⁾	S	A ⁴⁾	S	
Liechtenstein (Principality of)	½	S ¹⁾	4. II. 1976	S	4. II. 1976	—	A ⁴⁾	—	A ⁴⁾	S	
Luxembourg	½	S ¹⁾	26. VII. 1976	S	26. VII. 1976	S	A	S	A	S	
Madagascar (Democratic Republic of) ²⁰⁾	1	S ¹⁾	17. III. 1976	S	17. III. 1976	S	A	S	A	S	
Malaysia	3	S ¹⁾	13. IV. 1976	—		S	A ⁴⁾	S	A ⁴⁾	S	
Malawi	½	S ¹⁾	25. V. 1977	S		—	A ⁴⁾	—	A ⁴⁾	S	
Maldives (Republic of)	½	A	16. I. 1975	—		—	A ⁴⁾	—	A ⁴⁾	—	
Mali (Republic of)	½	S ¹⁾	21. XII. 1976	S	22. IX. 1977	S	A ⁴⁾	S	A ⁴⁾	S	
Malta (Republic of) ¹³⁾	½	A	30. I. 1975 ¹⁴⁾	A	30. I. 1975	—	A ⁴⁾	—	A ⁴⁾	S	
Morocco (Kingdom of)	1	S ¹⁾	28. I. 1977	S	16. II. 1981	S	A ⁴⁾	S	A ⁴⁾	S	
Mauritius	½	S ¹⁾	8. VII. 1974	S	9. IV. 1975	—	A ⁴⁾	—	A ⁴⁾	S	
Mauritania (Islamic Republic of) . . .	½	S ¹⁾	4. II. 1977	S		—	A ⁴⁾	—	A ⁴⁾	S	
Mexico	3	S	23. VII. 1975	—		S	A	S	A	S	A ³⁾
Monaco	½	S ¹⁾	23. XII. 1976 ²⁾	—		S	A ⁴⁾	S	A ⁴⁾	S	
Mongolian People's Republic	½	S ¹⁾	18. X. 1977	—		—	A ⁴⁾	—	A ⁴⁾	S	
Mozambique (People's Republic of) . .	½	A	4. XI. 1975	—		—	A ⁴⁾	—	A ⁴⁾	S	
Nauru (Republic of)	½	A	8. III. 1979 ⁴⁴⁾	—		—	A ⁴⁾	—	A ⁴⁾	—	
Nepal	½	S ¹⁾	4. VII. 1977	S		—	A ⁴⁾	—	A ⁴⁾	S	
Nicaragua	1	S ¹⁾	25. III. 1977	S	18. X. 1977	—	A ⁴⁾	—	A ⁴⁾	S	
Niger (Republic of the)	½	S ¹⁾	7. VI. 1978	—		—	A ⁴⁾	—	A ⁴⁾	S	
Nigeria (Federal Republic of)	2	S ¹⁾	24. VIII. 1976	—		S	A ⁴⁾	S	A ⁴⁾	S	

*) Convention, Final Protocol, Additional Protocols.

**) Optional Additional Protocol on the Compulsory Settlement of Disputes.

Table I. Convention, Administrative Regulations (continued)

Members (In the alphabetical order of the French version of the country names)	INTERNATIONAL TELECOMMUNICATION CONVENTION					ADMINISTRATIVE REGULATIONS					
	Plenipotentiary Conference of Malaga-Torremolinos, 1973					World Administrative Telegraph and Telephone Conference Geneva (1973)				A.R.C. Geneva (1979)	
	Class of contribution No. of units	Convention, etc. *	Date on which the instrument of ratification or accession was deposited with the General Secretariat	Opt. Add. Protocol **	Date on which the instrument of ratification or accession was deposited with the General Secretariat	Telegraph Regulations	Telephone Regulations			Radio Regulations	
1	2	3	4	5	6	7	8	9	10	11	12
Norway	5	S ¹⁾	16. XII. 1976	—		S	A	S	A	S	
New Zealand	3	S ¹⁾	7. I. 1977	S	7. I. 1977	S	A	S	A	S	
Oman (Sultanate of)	½	S ¹⁾	24. II. 1977 ³³⁾	—		S	A ⁴⁾	S	A ⁴⁾	S	
Uganda (Republic of)	½	S ¹⁾	21. II. 1979 ²⁾	—		S	A ⁴⁾	S	A ⁴⁾	S	
Pakistan (Islamic Republic of) ³²⁾ . . .	2	S ¹⁾	26. IX. 1977	—		S	A	S	A	S	
Panama (Republic of)	½	S ¹⁾	15. I. 1976	—		—	A ⁴⁾	—	A ⁴⁾	S	
Papua New Guinea	½	A	31. X. 1975 ¹⁷⁾	—		—	A ⁴⁾	—	A ⁴⁾	S	
Paraguay (Republic of)	½	S	2. VIII. 1976	A	2. VIII. 1976	—	A ⁴⁾	—	A ⁴⁾	S	
Netherlands (Kingdom of the)	10	S ¹⁾	31. XII. 1974 ¹⁰⁾	S	17. IV. 1975	S	A	S	A	S	A ⁴⁶⁾
Peru	½	S ¹⁾	8. II. 1979 ²⁾	S		S	¹⁾	S	¹⁾	S	
Philippines (Republic of the)	1	S ¹⁾	13. VIII. 1975	S		S	A	S	A	S	
Poland (People's Republic of)	3	S ¹⁾	13. I. 1977	—		S	A ⁴⁾	S	A ⁴⁾	S	
Portugal	½	A	12. XI. 1975	—		S	A ⁴⁾	S	A ⁴⁾	S	
Qatar (State of)	½	A	24. X. 1975	A	24. X. 1975	—	A ⁴⁾	—	A ⁴⁾	S	
Syrian Arab Republic	½	A	20. II. 1976	—		—	A ⁴⁾	—	A ⁴⁾	S	
German Democratic Republic	3	S ¹⁾	25. VIII. 1976 ²⁾	—		S	A	S	A	S	A
Democratic People's Republic of Korea .	½	A	24. IX. 1975	—		—	A ⁴⁾	—	A ⁴⁾	S	
Ukrainian Soviet Socialist Republic . .	3	S ¹⁾	6. I. 1977	—		S	A ⁴⁾	S	A ⁴⁾	S	A ⁴⁸⁾
Romania (Socialist Republic of)	1	S ¹⁾	8. II. 1977 ³⁰⁾	—		S	A ⁴⁾	S	A ⁴⁾	S	
United Kingdom of Great Britain and Northern Ireland	30	S ¹⁾	31. XII. 1974 ¹¹⁾	S	31. XII. 1974 ¹¹⁾	S	A	S	A	S	A ⁵¹⁾
Rwandese Republic	½	S ¹⁾	23. XII. 1976	—		—	A	—	A	S	
San Marino (Republic of)	½	A	25. III. 1977	—		—	A ⁴⁾	—	A ⁴⁾	S	
Saint Vincent and the Grenadines . . .	1/8	A	25. III. 1983	—		—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾
Sao Tome and Principe (Democratic Republic of)	½	A	1. IX. 1976	—		—	A ⁴⁾	—	A ⁴⁾	—	
Senegal (Republic of)	1	S ¹⁾	21. I. 1977	S	5. V. 1977	S	A ⁴⁾	S	A ⁴⁾	S	
Sierra Leone	½	S ¹⁾	25. XI. 1976	S		—	A ⁴⁾	—	A ⁴⁾	—	
Singapore (Republic of)	1	S ¹⁾	16. IX. 1974	—		—	A ⁴⁾	—	A ⁴⁾	S	

*) Convention, Final Protocol, Additional Protocols.

**) Optional Additional Protocol on the Compulsory Settlement of Disputes.

Table I. Convention, Administrative Regulations (end)

Members (In the alphabetical order of the French version of the country names)	INTERNATIONAL TELECOMMUNICATION CONVENTION					ADMINISTRATIVE REGULATIONS					
	Plenipotentiary Conference of Malaga-Torremolinos, 1973					World Administrative Telegraph and Telephone Conference Geneva (1973)				A.R.C. Geneva (1979)	
	Class of contribution No. of units	Convention, etc. *	Date on which the instrument of ratification or accession was deposited with the General Secretariat	Opt. Add. Protocol **	Date on which the instrument of ratification or accession was deposited with the General Secretariat	Telegraph Regulations	Telephone Regulations			Radio Regulations	
1	2	3	4	5	6	7	8	9	10	11	12
Somali Democratic Republic	½	S ¹⁾	11. II. 1977	—		S	A ⁴⁾	S	A ⁴⁾	S	
Sudan (Democratic Republic of the) . .	1	S ¹⁾	21. X. 1982	—		S	A ⁴⁾	S	A ⁴⁾	S	A ⁴⁾
Sri Lanka (Democratic Socialist Republic of) ³⁹⁾	½	S ¹⁾	5. I. 1978	S		—	A ⁴⁾	—	A ⁴⁾	S	
South Africa (Republic of)	8	A	23. XII. 1974 ¹⁸⁾	—		S	A ⁴⁾	S	A ⁴⁾	—	
Sweden	10	S ¹⁾	29. XII. 1976	A	29. XII. 1976	S	A	S	A	S	
Switzerland (Confederation of)	10	S ¹⁾	28. IV. 1976	S	28. IV. 1976	S	A ⁴⁾	S	A ⁴⁾	S	A
Suriname (Republic of) ⁴⁰⁾	½	A	15. VII. 1976	A	22. VII. 1976	—	A ⁴⁾	—	A ⁴⁾	—	
Swaziland (Kingdom of)	½	A	20. I. 1975 ¹⁵⁾	—		—	A ⁴⁾	—	A ⁴⁾	S	
Tanzania (United Republic of)	½	S ¹⁾	2. IX. 1975	—		S	A ⁴⁾	S	A ⁴⁾	S	
Chad (Republic of)	½	S ¹⁾	30. III. 1978	S		—	A ⁴⁾	—	A ⁴⁾	S	
Czechoslovak Socialist Republic	3	S ¹⁾	20. VII. 1976 ²³⁾	—		S	A ⁴⁾	S	A ⁴⁾	S	
Thailand	1½	S ¹⁾	8. X. 1975 ²⁾	S	28. IX. 1976	S	A	S	A	S	
Togolese Republic	½	S ¹⁾	31. III. 1977	S	31. III. 1977	S	A ⁴⁾	S	A ⁴⁾	S	
Tonga (Kingdom of)	½	A	22. VIII. 1977 ³⁶⁾	—		—	A ⁴⁾	—	A ⁴⁾	—	
Trinidad and Tobago	1	S ¹⁾	13. III. 1975	—		—	A ⁴⁾	—	A ⁴⁾	S	
Tunisia	2	S ¹⁾	25. IV. 1975	S		S	A ⁴⁾	S	A ⁴⁾	S	
Turkey	2	S ¹⁾	6. VII. 1978	—		S	A ⁴⁾	S	A ⁴⁾	S	
Union of Soviet Socialist Republics . . .	30	S ¹⁾	31. XII. 1976	—		S	A	S	A	S	A ⁴⁶⁾
Uruguay (Eastern Republic of)	½	S ¹⁾	15. XII. 1977	A	10. IV. 1978	—	A ⁴⁾	—	A ⁴⁾	S	
Venezuela (Republic of)	3	S	2. XI. 1976	—		—	A ⁴⁾	—	A ⁴⁾	S	A ³⁾
Viet Nam (Socialist Republic of) ²⁴⁾ . .	½	S	16. XII. 1976	—		S	A ⁴⁾	S	A ⁴⁾	—	
Yemen Arab Republic	½	S ¹⁾	15. II. 1978	S		—	A ⁴⁾	—	A ⁴⁾	—	
Yemen (People's Democratic Republic of)	½	S ¹⁾	25. IX. 1979	S		—	A ⁴⁾	—	A ⁴⁾	S	
Yugoslavia (Socialist Federal Republic of)	1	S ¹⁾	22. IX. 1975	—		S	A	S	A	S	
Zaire (Republic of)	1	S	10. XII. 1976	S	23. I. 1978	—	A ⁴⁾	—	A ⁴⁾	S	
Zambia (Republic of)	½	S	17. XI. 1978	—		—	A ⁴⁾	—	A ⁴⁾	S	
Zimbabwe (Republic of)	1	A	10. II. 1981	—		—	A ⁴⁾	—	A ⁴⁾	—	

*) Convention, Final Protocol, Additional Protocols.

**) Optional Additional Protocol on the Compulsory Settlement of Disputes.

1) See the statement or statements appearing in the Final Protocol annexed to the International Telecommunication Convention (Malaga-Torremolinos, 1973).

2) In ratifying the Convention, the country concerned confirmed the reservation(s) made at the time of signature.

3) This approval was given subject to the reservation(s) made at the time of signature.

4) Regulations approved *ipso facto*, since they were in force when the country concerned ratified or acceded to the International Telecommunication Convention of Montreux, 1965 or to that of Malaga-Torremolinos, 1973.

5) See Notification No. 1088.

6) See Notifications Nos. 1171 and 1179.

7) In acceding to the Convention, the State of Bahrain has made the following reservations:

"1. The State of Bahrain wishes to reserve the right of its Government to take such action as it may consider necessary to protect its interests, should Members in any way fail to comply with the requirements of the International Telecommunication Convention (Torremolinos, 1973) or should the reservations made by such Members jeopardize its telecommunication services or lead to an increase in Bahrain's share in defraying the expenses of the Union.

2. The accession of the State of Bahrain to the International Telecommunication Convention (Torremolinos, 1973) shall in no way imply recognition of the Member appearing in Annex 1 to the said Convention under the name of "Israel"."

Further to the above statement, the General Secretariat has received, from the Government of Israel, a note the text of which has been published in Notification N° 1087.

8) Formerly: Dahomey (Republic of).

9) Formerly: Burma (Union of).

10) The Government of the Kingdom of the Netherlands declared that the Convention was ratified on behalf of the Kingdom in Europe, of Suriname *) and of the Netherlands Antilles.

*) Suriname is now an independent State, Member of the ITU.

11) In ratifying the Convention and the Optional Additional Protocol, the Government of the United Kingdom has declared that the instrument of ratification is in respect of the United Kingdom of Great Britain and Northern Ireland, the Associated States (Antigua *, Dominica *, Saint Christopher-Nevis-Anguilla *, Saint Lucia * and Saint Vincent *) and Territories under the territorial sovereignty of the United Kingdom, as well as the State of Brunei, the Solomon Islands * and, within the limits of United Kingdom jurisdiction therein, the Condominium of the New Hebrides **.

*) Antigua, Dominica, Saint Christopher and Nevis, Saint Lucia, Saint Vincent and the Solomon Islands are now independent States, Members of the UNO.

**) The Condominium of the New Hebrides is now an independent State, Member of the UNO, under the name of Vanuatu.

12) In ratifying the Convention, the Government of the Hungarian People's Republic confirmed statements Nos. XV, L and XCI contained in the Final Protocol to the Convention.

13) Formerly: Malta.

14) In acceding to the Convention, the Government of the Republic of Malta has reserved the right to take such action as it may consider necessary to protect its interests, should Members in any way fail to comply with the requirements of the Convention, Annexes, Protocols etc., or should the reservations made by such Members jeopardize its telecommunication services or lead to an increase in Malta's share in defraying the expenses of the Union.

15) In acceding to the Convention, the Government of the Kingdom of Swaziland confirmed the statement contained in No. II of the Final Protocol to the aforementioned Convention.

16) In acceding to the Convention, the Government of the Commonwealth of the Bahamas has reserved the right not to accept any financial measure which might lead to an increase in its contributory share to defraying the expenses of the Union, and the right to take such action as it may consider necessary to safeguard its interests should certain Members not share in defraying the expenses of the Union, or should they fail in any other way to comply with the requirements of the Convention or its Annexes or the Protocols attached thereto or should reservations by other countries jeopardize the telecommunication services of the Commonwealth of the Bahamas.

17) In acceding to the Convention, the Government of Papua New Guinea has reserved the right to take such action as it may consider necessary to safeguard its interest should certain Members not share in defraying the expenses of the Union, or should they fail in any other way to comply with the requirements of the Convention or its Annexes or the Protocols attached thereto, or should reservations by other countries jeopardize its telecommunication services.

18) The Government of the Republic of South Africa has acceded to the Convention subject to the proviso that it will reserve to itself the right to take any action it may deem necessary to protect its interests, should other Members of the Union in any way fail to comply with the obligations under the International Telecommunication Convention (Torremolinos, 1973) in respect of South Africa.

19) Formerly: Laos (Kingdom of).

20) Formerly: Malagasy Republic.

21) In acceding to the Convention, the Government of the People's Republic of Albania has made the following statement and declaration:

The Government of the People's Republic of Albania declares that it does not recognize the legality of the credentials of the representatives of Seoul, who do not represent the people of Korea.

The Government of the People's Republic of Albania reserves the right to take any measures it deems necessary to safeguard its interest should reservations made by other countries lead to an increase in its contributory share in defraying the expenses of the Union or should any Members of the Union fail to pay their share of those expenses.

22) See Notifications Nos. 1109, 1124 and 1127.

23) In ratifying the Convention, the Government of the Czechoslovak Socialist Republic confirmed the following reservations and declarations made when the Final Protocol was signed: Last paragraph of No. XV and Nos. L and CI.

24) On 2 November 1976 the General Secretariat received, by diplomatic channel and through the intermediary of the Swiss Government, a letter dated 20 July 1976 in which the Minister of Foreign Affairs of the Socialist Republic of Viet Nam declares that State to be the continuator of the Republic of South Viet Nam so far as membership of the International Telecommunication Union is concerned. Therefore, the Socialist Republic of Viet Nam is a Member of the ITU.

25) Formerly: Albania (People's Republic of).

26) From December 1976 to September 1979, the name of this country was Central African Empire.

27) In ratifying the Convention, the Government of the People's Republic of China confirmed the statement contained in paragraph 2 of No. LIX of the Final Protocol to the aforementioned Convention.

28) In ratifying the Convention, the Government of the Argentine Republic confirmed the statements contained in Nos. LXXXIV and LXXXVII of the Final Protocol to the aforementioned Convention and declared that it did not accept the statement made by the United Kingdom of Great Britain and Northern Ireland and shown in No. CII (B) of the said Final Protocol.

29) In ratifying the Convention, the Government of Chile confirmed the reservation contained in No. VIII of the Final Protocol to the aforementioned Convention and made the following declaration: (translation) "The Government of the Republic of Chile is ratifying the Convention of Malaga-Torremolinos, 1973, on the understanding that the ITU would determine as soon as possible how to enforce the sovereign right of each country to ensure that no unwanted broadcast originating in another State was imposed upon it."

30) In ratifying the Convention, the Government of the Socialist Republic of Romania confirmed the statements contained in Nos. XCI and CIV of the Final Protocol to the aforementioned Convention and furthermore, declared that in conformity with Article 42, paragraph 2, of the Convention, ratification involves acceptance of the Administrative Regulations in force at the time of ratification by the Socialist Republic of Romania.

31) Formerly: Guatemala.

32) Formerly: Pakistan.

33) In ratifying the Convention, the Government of the Sultanate of Oman confirmed the statement contained in No. XXXVII of the Final Protocol to the aforementioned Convention and declared that it shall not accept any financial consequences which might lead to an increase in its contributory share in defraying the expenses of the Union that might arise as a result of reservations made by other Governments who took part in the Plenipotentiary Conference, Malaga-Torremolinos, 1973.

34) In ratifying the Convention, the Government of the Republic of Iraq confirmed the statement contained in No. XXXVII of the Final Protocol to the aforementioned Convention.

35) Formerly: Libyan Arab Republic.

36) In acceding to the Convention, the Government of the Kingdom of Tonga has reserved the right not to accept any financial measure which might lead to an increase in its contributory share to defraying the expenses of the Union, and the right to take such action as it may consider necessary to safeguard its interests should certain Members not share in defraying the expenses of the Union, or should they fail in any other way to comply with the requirements of the Convention or the Protocols attached thereto or should reservations by other countries jeopardize the telecommunication services of the Kingdom of Tonga.

37) Formerly: Khmer Republic.

38) Formerly: Afghanistan (Republic of).

39) Formerly: Sri Lanka (Ceylon) (Republic of).

40) Formerly: Surinam (Republic of).

41) Formerly: Comoros (State of the).

42) Formerly: Guinea (Republic of).

43) Formerly: Iran.

44) In acceding to the Convention, the Government of the Republic of Nauru has made the following reservation:

"The Government of the Republic of Nauru reserves the right to take such action as it may consider necessary to safeguard its interests should certain Members not share in defraying the expenses of the Union, or should they fail in any other way to comply with the requirements of the International Telecommunication Convention (Malaga-Torremolinos, 1973) or its Annexes or the Protocols attached thereto or should reservations by other countries jeopardize the telecommunication services of Nauru."

⁴⁵⁾ See Notification No. 1147.

⁴⁶⁾ For the Kingdom in Europe and the Netherlands Antilles.

⁴⁷⁾ This approval was given subject to the 2 reservations appearing under No. 19 in the Final Protocol, made at the time of signature.

⁴⁸⁾ The notification of approval was accompanied by the following declarations:

- a) in approving the Radio Regulations (Geneva, 1979), the Union of Soviet Socialist Republics reserves the right to take the necessary steps to protect its interests in the event that other States fail to observe the provisions of the said Regulations and in the event that any other action is taken which may be prejudicial to the interests of the USSR;
- b) the Union of Soviet Socialist Republics does not recognize claims to the extension of State sovereignty to any segment of the orbit of geostationary satellites, since such claims are contrary to the status of outer space universally recognized in international law;
- c) as the Soviet Government has already declared on several occasions in connection with the territorial claims of certain countries in Antarctica, the Union of Soviet Socialist Republics has never recognized and cannot recognize as legitimate any separate solution whatsoever to the question of the ownership of Antarctica by any State.

⁴⁹⁾ The notification of approval was accompanied by the following declarations:

- a) in approving the Radio Regulations (Geneva, 1979), the Ukrainian Soviet Socialist Republic reserves the right to take the necessary steps to protect its interests in the event that other States fail to observe the provisions of the said Regulations and in the event that any other action is taken which may be prejudicial to the interests of the Ukrainian S.S.R.;
- b) the Ukrainian Soviet Socialist Republic does not recognize claims to the extension of State sovereignty to any segment of the orbit of geostationary satellites, since such claims are contrary to the status of outer space universally recognized in international law;
- c) in connection with the territorial claims of certain countries in Antarctica, the Ukrainian Soviet Socialist Republic has never recognized and cannot recognize as legitimate any separate solution whatsoever to the question of the ownership of Antarctica by any State.

⁵⁰⁾ The notification of approval was accompanied by the following declarations:

- a) in approving the Radio Regulations (Geneva, 1979), the Byelorussian Soviet Socialist Republic reserves the right to take the necessary steps to protect its interests in the event that other States fail to observe the provisions of the said Regulations and in the event that any other action is taken which may be prejudicial to the interests of the Byelorussian S.S.R.;

- b) the Byelorussian Soviet Socialist Republic does not recognize claims to the extension of State sovereignty to any segment of the orbit of geostationary satellites, since such claims are contrary to the status of outer space universally recognized in international law;

- c) in connection with the territorial claims of certain countries in Antarctica, the Byelorussian Soviet Socialist Republic has never recognized and cannot recognize as legitimate any separate solution whatsoever to the question of the ownership of Antarctica by any State.

⁵¹⁾ The approval is in respect of the United Kingdom of Great Britain and Northern Ireland, and Territories under the territorial sovereignty of the United Kingdom, as well as the State of Brunei.

⁵²⁾ In ratifying the Convention, the Government of the Republic of Guatemala declared that the relations arising de facto out of the ratification of the above-mentioned instruments may in no way be interpreted as recognition of the sovereignty and independence of Belize, unilaterally declared by Great Britain.

⁵³⁾ In ratifying these Acts, the Government of the United States of America confirmed the reservations and statements made when the Final Protocol was signed (Nos. 32, 36, 38, 39, 72 and 75). The following text is also contained in the instrument:

The United States reservation contained in statement XII of the Final Protocol associated with the partial revision of the 1959 Radio Regulations adopted at the World Maritime Administrative Radio Conference, Geneva, 1974, should be regarded as continuing to apply to the Radio Regulations (Geneva, 1979), the text of that reservation being as follows:

"The Delegation of the United States of America formally declares that the United States of America does not, by signature of these Final Acts on its behalf, accept any obligations in respect of the Frequency Allotment Plan for Coast Radiotelephone Stations Operating in the Exclusive Maritime Mobile Bands between 4 000 kHz and 23 000 kHz and the associated implementing procedures, and that, although the United States of America will observe the provisions of the Plan and implementing procedures to the extent practicable, pending the results of a future World General Administrative Radio Conference, the United States of America reserves its right to take such measures as may be necessary to protect its maritime radiotelephony interests."

Table II. Final Acts of the World Administrative Radio Conference for the Planning of the Broadcasting-Satellite Service in Frequency Bands 11.7-12.2 GHz (in Regions 2 and 3) and 11.7-12.5 GHz (in Region 1) (Geneva, 1977)*

Note: The provisions and associated Plan contained in the Final Acts have become an integral part of the Radio Regulations, Geneva (1979) (see Article 15 and Appendix 30 of the Regulations).

The letter S means that the Final Acts have been signed; the letter A means that the Final Acts have been approved.

1	2	3	1	2	3
Afghanistan (Democratic Republic of)	S		Kuwait (State of)	S	
Algeria (People's Democratic Republic of)	S		Lao People's Democratic Republic	S	
Germany (Federal Republic of)	S	A ⁵⁾	Lebanon	S	
Saudi Arabia (Kingdom of)	S		Libya (Socialist People's Libyan Arab Jamahiriya)	S	
Argentine Republic	S	A ⁴⁾	Liechtenstein (Principality of)	S	A
Australia	S		Luxembourg	S	
Austria	S		Madagascar (Democratic Republic of)	S	
Bahamas (Commonwealth of the)	—	⁶⁾	Malaysia	S	A
Bahrain (State of)	S		Mali (Republic of)	S	
Bangladesh (People's Republic of)	S		Malta (Republic of)	S	
Belgium	S		Morocco (Kingdom of)	S	
Belize	—	⁶⁾	Mauritius	S	
Benin (People's Republic of)	S		Mauritania (Islamic Republic of)	S	
Byelorussian Soviet Socialist Republic	S	A	Mexico	S	⁶⁾
Bolivia (Republic of)	S		Monaco	S	
Brazil (Federative Republic of)	S		Mongolian People's Republic	S	
Bulgaria (People's Republic of)	S		Nigeria (Federal Republic of)	S	
Burundi (Republic of)	S		Norway	S	
Canada	S	A	New Zealand	S	
Central African Republic	S		Oman (Sultanate of)	S	
Chile	S	⁶⁾	Uganda (Republic of)	S	
China (People's Republic of)	S		Pakistan (Islamic Republic of)	S	
Cyprus (Republic of)	S		Panama (Republic of)	S	
Vatican City State	S		Papua New Guinea	S	
Colombia (Republic of)	S		Paraguay (Republic of)	S	A
Comoros (Islamic Federal Republic of the)	S		Netherlands (Kingdom of the)	S	A ³⁾
Congo (People's Republic of the)	S		Philippines (Republic of the)	S	
Korea (Republic of)	S	A	Poland (People's Republic of)	S	
Ivory Coast (Republic of the)	S		Portugal	S	
Cuba	S		Qatar (State of)	—	A
Denmark	S	A	German Democratic Republic	S	A
Egypt (Arab Republic of)	S		Democratic People's Republic of Korea	S	
United Arab Emirates	S		Ukrainian Soviet Socialist Republic	S	A
Ecuador	S		Romania (Socialist Republic of)	S	
Spain	S		United Kingdom of Great Britain and Northern Ireland	S	A ¹⁾
United States of America	S	⁶⁾	Saint Vincent and the Grenadines	—	⁶⁾
Ethiopia	S	A	Senegal (Republic of)	S	A
Finland	S	A	Singapore (Republic of)	S	A
France	S	A	Sudan (Democratic Republic of the)	S	⁶⁾
Gabonese Republic	S		Sweden	S	A ⁴⁾
Ghana	S	A	Switzerland (Confederation of)	S	A ²⁾
Greece	S	⁶⁾	Tanzania (United Republic of)	S	
Guatemala (Republic of)	S		Chad (Republic of)	S	
Guinea (Revolutionary People's Republic of)	S	⁶⁾	Czechoslovak Socialist Republic	S	A ⁴⁾
Equatorial Guinea (Republic of)	—	⁶⁾	Thailand	S	
Haiti (Republic of)	S		Togolese Republic	S	
Upper Volta (Republic of the)	S		Tunisia	S	
Hungarian People's Republic	S	A ⁴⁾	Turkey	S	
India (Republic of)	S	A	Union of Soviet Socialist Republics	S	A
Indonesia (Republic of)	S		Uruguay (Eastern Republic of)	S	
Iran (Islamic Republic of)	S		Venezuela (Republic of)	S	⁶⁾
Ireland	S	A	Yemen Arab Republic	S	
Iceland	S		Yemen (People's Democratic Republic of)	S	
Italy	S	A	Yugoslavia (Socialist Federal Republic of)	S	
Japan	S	⁶⁾	Zaire (Republic of)	S	
Kenya (Republic of)	S				

* In the alphabetical order of the French version of the country names.

1) The approval is in respect of the United Kingdom of Great Britain and Northern Ireland, Territories under the territorial sovereignty of the United Kingdom, as well as the State of Brunei.

2) In approving these Final Acts, Switzerland supported the statement No. 74 of the Final Protocol to these Acts.

3) For the Kingdom in Europe and the Netherlands Antilles.

4) In approving the Final Acts, the Member concerned confirmed the statement(s) made at the time of signature.

5) See Notifications Nos. 1146, 1169 1175 and 1182.

6) This Member has approved the Radio Regulations, Geneva, 1979, of which the provisions and associated Plan contained in the Final Acts form an integral part.

Table III. American Regional Agreements

The letter S means that the Agreement has been signed; the letter R means that the Agreement has been ratified; the letter A means acceptance of the Agreement or accession thereto.

Members					Members				
Inter-American Radio Agreement (FIAR) (Washington, 1949)					Inter-American Radio Agreement (FIAR) (Washington, 1949)				
North-American Regional Broadcasting Agreement (NARBA) (Washington, 1950)					North-American Regional Broadcasting Agreement (NARBA) (Washington, 1950)				
1	2	3	4	5	1	2	3	4	5
Argentine Republic	S		—		Guatemala (Republic of)	S		—	
Bolivia (Republic of)	S		—		Haiti (Republic of)	—	A	—	
Brazil (Federative Republic of)	S		—		Honduras (Republic of)	S	A	—	
Canada	S		S	R	Mexico	S	A	—	
Chile	S		—		Nicaragua	S	A	—	
Colombia (Republic of)	S		—		Panama (Republic of)	S		—	
Costa Rica	S	A	—		Paraguay (Republic of)	—	A	—	
Cuba	S		S	¹⁾	United Kingdom of Great Britain and Northern Ireland	—		S*)	R**)
Dominican Republic	S	A	S	R	Uruguay (Eastern Republic of)	S		—	
El Salvador (Republic of)	S		—		Venezuela (Republic of)	S		—	
Ecuador	S		—						
United States of America	S	A	S	R					

*) For the Territories in the North-American Region (the Bahamas and Jamaica).

**) For the Bahamas only.

¹⁾ The Government of Cuba has denounced this Agreement with effect from 3 November 1981.

Table IV. Regional Agreement for the MF Broadcasting Service in Region 2 (Rio de Janeiro, 1981)

The letter S means that the Agreement has been signed.

The letter A means approval of the Agreement or accession thereto.

Members			Members		
Inter-American Radio Agreement (FIAR) (Washington, 1949)			Inter-American Radio Agreement (FIAR) (Washington, 1949)		
North-American Regional Broadcasting Agreement (NARBA) (Washington, 1950)			North-American Regional Broadcasting Agreement (NARBA) (Washington, 1950)		
1	2	3	1	2	3
Argentine Republic	S		Guatemala (Republic of)	—	
Bahamas (Commonwealth of the)	S		Guyana	S	
Barbados	—		Haiti (Republic of)	—	
Belize	S		Honduras (Republic of)	—	
Bolivia (Republic of)	—		Jamaica	S	
Brazil (Federal Republic of)	S		Mexico	S	
Canada	S	A	Nicaragua	S	
Chile	S		Panama (Republic of)	S	
Colombia (Republic of)	S		Paraguay (Republic of)	S	
Costa Rica	S		Netherlands (Kingdom of the)	S	A ¹⁾
Cuba	—		Peru	S	
Denmark	S		United Kingdom of Great Britain and Northern Ireland	S	
Dominican Republic	—		Saint Vincent and the Grenadines	—	
El Salvador (Republic of)	—		Suriname (Republic of)	—	
Ecuador	S		Trinidad and Tobago	S	
United States of America	S		Uruguay (Eastern Republic of)	S	
France	S		Venezuela (Republic of)	S	
Grenada	S				

¹⁾ For the Netherlands Antilles.

Table V. European Regional Conventions, Arrangements and Agreements

The letter S means that the Convention, Agreement or Arrangement has been signed; the letter R means that the Convention has been ratified; the letter A means that the Agreement has been approved or acceded to; in column 7, it means that the Agreement has been approved.

Members	European Broadcasting Convention (Copenhagen, 1948)		European Regional Convention for the maritime mobile radio service (Copenhagen, 1948)		Regional Arrangement concerning Maritime Radiobeacons in the European Area of Region 1 (Paris, 1951)		Regional Agreement in the bands 68-73 MHz and 76-87.5 MHz (Geneva, 1960) *)		Regional Agreement for the European Broadcasting Area (Stockholm, 1961)		Regional Arrangement concerning the radio-telephone service for the Rhine (Munich, 1976)	
1	2	3	4	5	6	7	8	9	10	11	12	13
Albania (Socialist People's Republic of) . . .	S	R ⁹⁾	—	—	—	—	S	—	—	—	—	—
Germany (Federal Republic of)	—	—	—	—	—	—	S	A	S	A ⁶⁾	S	A
Austria	—	—	—	—	—	—	S	A	S	A	—	—
Belgium	S	R ⁹⁾	S	R	S	A	—	—	S	A	S	A
Byelorussian Soviet Socialist Republic . . .	S	R ⁹⁾	—	—	—	—	S	—	S	A ⁵⁾	—	—
Bulgaria (People's Republic of)	S	R ⁹⁾	—	¹⁾	—	—	S	—	S	—	—	—
Cyprus (Republic of)	—	—	—	—	—	—	—	—	S	A	—	—
Vatican City State	S	R ⁹⁾	—	—	—	—	—	—	S	—	—	—
Denmark	S	R ⁹⁾	S	R	S	A	S	A	S	—	—	—
Spain	—	—	—	—	S	—	—	—	S	A ²⁾	—	—
Finland	S	R ⁹⁾	—	—	—	—	—	—	S	A	—	—
France	S	R ⁹⁾	S	R	S	A	S	A	S	A	S	A
Greece	S	R	S	R	—	—	S	—	S	—	—	—
Hungarian People's Republic	S	R ⁹⁾	—	—	—	—	S	A	S	—	—	—
Ireland	S	R ⁹⁾	—	R	—	A	—	—	S	A	—	—
Iceland	—	—	S	R	—	—	—	—	S	—	—	—
Israel (State of)	—	—	—	—	—	—	—	—	S	—	—	—
Italy	S	R ⁹⁾	S	R	S	A	S	A	S	A	—	—
Lebanon	—	—	—	—	—	—	—	—	S	—	—	—
Luxembourg	—	—	—	—	—	—	—	—	S	—	S	A
Morocco (Kingdom of)	S	R ⁹⁾	S	R	S	A	—	—	S	A	—	—
Monaco	S	R ⁹⁾	S	R	S	A	—	—	S	—	—	—
Norway	S	R ⁹⁾	S	R	S	A	S	A	S	A	—	—
Netherlands (Kingdom of the)	S	R ⁹⁾	S	R	S	A	—	—	S	A	S	A ¹⁰⁾
Poland (People's Republic of)	S	R ⁹⁾	—	—	—	—	S	—	S	—	—	—
Portugal	S	—	S	—	S	—	—	—	S	A	—	—
German Democratic Republic	—	—	—	—	—	—	—	—	—	A ⁸⁾	—	—
Ukrainian Soviet Socialist Republic	S	R ⁹⁾	—	—	—	—	S	A	S	A ⁵⁾	—	—
Romania (Socialist Republic of)	S	R ⁹⁾	—	—	—	—	S	A	S	—	—	—
United Kingdom of Great Britain and Northern Ireland	S	R ⁹⁾	S	R	S	A	—	—	S ⁷⁾	A ⁷⁾	S ⁴⁾	¹¹⁾
Sweden	—	—	S	R	S	A	S	A	S	—	—	—
Switzerland (Confederation of)	S	R ⁹⁾	—	—	—	—	S	A	S	A	S	A
Czechoslovak Socialist Republic	S	R ⁹⁾	—	—	—	—	S	A	S	—	—	—
Tunisia	S	R ⁹⁾	S	R	S	A	—	—	—	—	—	—
Turkey	—	—	S	—	S	A	S	—	S	—	—	—
Union of Soviet Socialist Republics	S	R ⁹⁾	—	³⁾	—	—	S	A	S	A ⁵⁾	—	—
Yugoslavia (Socialist Federal Republic of) .	S	R ⁹⁾	—	—	—	A	S	—	S	A	—	—

*) Regional Agreement for the use of frequencies in the bands 68-73 MHz and 76-87.5 MHz by the broadcasting service on the one hand and by the fixed and mobile services on the other (Geneva, 1960).

¹⁾ The People's Republic of Bulgaria has given notice that its coast stations use the frequencies assigned to them in the Copenhagen Plan.

 ²⁾ The Spanish Government has approved this Agreement while maintaining the three reservations which appear in paragraph I (A, B and C) of the Final Protocol.

³⁾ The Union of Soviet Socialist Republics has given notice that its coast stations use the frequencies assigned to them in the Copenhagen Plan.

⁴⁾ As a participating Administration.

⁵⁾ Considering that, when the plans for the assignment of frequencies to television stations in the 645-960 MHz band were established at the Stockholm Conference in 1961, the requirements of the air radionavigation services of the USSR, the Ukrainian SSR and the Byelorussian SSR were not sufficiently taken into consideration, and in view of the special nature of the air radionavigation services, the Telecommunication Administrations of the USSR, the Ukrainian SSR and the Byelorussian SSR cannot assure countries using this range for television of the necessary means to prevent interference from the air radionavigation services of the USSR, the Ukrainian SSR and the Byelorussian SSR.

⁶⁾ In giving its approval, the Administration of the Federal Republic of Germany expressed the following considerations:

"According to the frequency plan for television stations in the frequency band 162-230 MHz (Annex 2, Chapter 2, of the Agreement), the frequencies 224.25/229.75 MHz are assigned to the Sonneberg television station appearing in the plan with an effective radiated power of 30/6 kW and an effective radiated power of 5 kW for the television carrier permitted in the sector between 45 and 135 degrees.

This assignment is capable of causing harmful interference to the aeronautical radionavigation service stations which operate in the frequency band 223-235 MHz in accordance with Article 5 of the Radio Regulations, Geneva, 1959.

Harmful interference to stations operating in the frequency band 223-235 MHz, which is allocated to the aeronautical radionavigation service on a primary basis, can only be avoided if the effective radiated power of the Sonneberg television station does not exceed 0.5/0.1 kW in the sector between 135 and 345 degrees."

⁷⁾ Also signed and approved on behalf of the Overseas Territories for the international relations of which the Government of the United Kingdom are responsible.

⁸⁾ In acceding to that Agreement, the Government of the German Democratic Republic made the following statement:

"The Ministry of Posts and Telecommunications of the German Democratic Republic joins the delegations of the Byelorussian Soviet Socialist Republic, the People's Republic of Bulgaria, the Hungarian People's Republic, the People's Republic of Poland, the Socialist Republic of Romania, the Union of Soviet Socialist Republics, the Ukrainian Soviet Socialist Republic and the Czechoslovak Socialist Republic in their statement included in the Final Protocol of the Regional Agreement for the European Broadcasting Area, in keeping with the principles of the Four-Power Agreement of 3 September 1971, to the effect that West Berlin is not a part of the Federal Republic of Germany and may not be governed by it."

⁹⁾ The Government of this country has announced to the Government of Denmark that it accepts the abrogation of the European Broadcasting Convention (Copenhagen, 1948) and the Plan annexed thereto, in accordance with the provisions of Additional Protocol I to the Regional Agreement concerning the use by the broadcasting service of frequencies in the MF bands in Regions 1 and 3 and the LF bands in Region 1 (Geneva, 1975).

¹⁰⁾ With reserves.

¹¹⁾ Participating Administration since 23 December 1976, in accordance with the provisions of Article 9 of the above-mentioned Arrangement.

**Table VI. Regional Agreement for the African Broadcasting Area
concerning the use of frequencies by the broadcasting service in the very high frequency
and ultra high frequency bands**

(Geneva, 1963)

Members	S = Signature	A = Approval Accession
1	2	3
Benin (People's Rep. of)	S	
Cameroon (United Republic of)	S	
Congo (People's Rep. of the)	S	
Ivory Coast (Republic of the)	S	
Egypt (Arab Republic of)	—	A
Spain ¹⁾	S	A
Ethiopia	S	A
France ²⁾	S	A
Gabonese Republic	S	
Ghana	S	
Guinea (Revolutionary People's Rep. of)	S	
Upper Volta (Republic of the)	S	
Kenya (Republic of)	S	A
Liberia (Republic of)	S	
Libya (Socialist People's Libyan Arab Jama- hiriya)	S	
Madagascar (Dem. Rep. of)	S	

Members	S = Signature	A = Approval Accession
1	2	3
Mali (Republic of)	S	
Mauritania (Islamic Republic of)	S	
Niger (Republic of the)	S	
Nigeria (Federal Republic of)	S	A
Uganda (Republic of)	S	A
United Kingdom of Great Britain and Northern Ireland ³⁾	S	
Rwandese Republic	S	
Senegal (Republic of)	S	A
Sierra Leone	S	A
Somali Democratic Republic	S	
South Africa (Republic of)	S	A
Tanzania (United Republic of)	S	A
Chad (Republic of the)	S	
Togolese Republic	S	
Zaire (Republic of)	S	

¹⁾ With respect to the Canaries.

²⁾ With respect to the Department of Reunion.

³⁾ For the Territories under the sovereignty of the United Kingdom.

Note: The Agreement was also signed on behalf of the Federation of Rhodesia and Nyassaland.

**Table VII. Regional Agreement concerning the use by the broadcasting service
of frequencies in the medium frequency bands in Regions 1 and 3
and in the low frequency bands in Region 1
(Geneva, 1975) *)**

The letter S means that the Agreement has been signed; the letter A means that the Agreement has been approved or acceded to.

1	2	3	1	2	3	1	2	3
Afghanistan (Dem. Rep. of) . . .	S		Upper Volta (Rep. of the) . . .	S		Pakistan (Islamic Rep. of) . . .	S	
Albania (Soc. People's Rep. of) . .	—	A	Hungarian People's Rep.	S	A ¹⁾	Papua New Guinea	S	A
Algeria (People's Democratic Republic of)	S		India (Rep. of)	S	A	Netherlands (Kingdom of the) . .	S	A ³⁾
Germany (Fed. Rep. of)	S	A ⁴⁾	Indonesia (Rep. of)	S		Philippines (Rep. of the)	S	
Angola (People's Rep. of)	—		Iran (Islamic Rep. of)	S		Poland (People's Rep. of)	S	A ¹⁾
Saudi Arabia (Kingdom of)	S		Iraq (Republic of)	—		Portugal	S	
Australia	S		Ireland	S	A	Qatar (State of)	S	
Austria	S		Iceland	S	A	Syrian Arab Rep.	S	
Bahrain (State of)	—	A	Israel (State of)	S	A	German Dem. Rep.	S	A
Bangladesh (People's Rep. of) . .	S		Italy	S	A	Dem. People's Rep. of Korea . .	—	
Belgium	S	A	Japan	S	A	Ukrainian Soviet Soc. Rep. . . .	S	
Benin (People's Rep. of)	S		Jordan (Hashemite Kingdom of)	S	A	Romania (Soc. Rep. of)	S	A ⁵⁾
Byelorussian Soviet Soc. Rep. . .	S	A	Democratic Kampuchea	—		United Kingdom of Great Britain and Northern Ireland . .	S	A ²⁾
Burma (Soc. Rep. of the Union of)	—	A	Kenya (Republic of)	S		Rwandes Republic	—	
Botswana (Rep. of)	S	A	Kuwait (State of)	S		San Marino (Republic of)	—	
Bulgaria (People's Rep. of) . . .	S	A	Lao People's Dem. Rep.	—		Sao Tome and Principe (Dem. Rep. of)	—	
Burundi (Rep. of)	S		Lesotho (Kingdom of)	S		Senegal (Rep. of)	S	A
Cameroon (United Rep. of) . . .	S	A	Lebanon	S		Sierra Leone	—	A
Cape Verde (Republic of)	—		Liberia (Republic of)	S		Singapore (Rep. of)	S	A
Central African Rep.	S		Libya (Soc. People's Libyan Arab Jamahiriya)	S		Somali Democratic Republic . .	—	
China (People's Rep. of)	S	A	Liechtenstein (Princ. of)	S	A	Sudan (Dem. Rep. of the)	S	
Cyprus (Rep. of)	S		Luxembourg	S	A	Sri Lanka (Dem. Soc. Rep. of) . .	S	
Vatican City State	S	A	Madagascar (Dem. Rep. of) . .	S		South Africa (Rep. of)	—	
Comoros (Isl. Fed. Rep. of) . . .	—		Malaysia	S		Sweden	S	A
Congo (People's Rep. of the) . . .	S		Malawi	S	A	Switzerland (Confederation of)	S	A
Korea (Rep. of)	S	A	Maldives (Rep. of)	—		Swaziland (Kingdom of)	—	
Ivory Coast (Rep. of the)	S		Mali (Rep. of)	S		Tanzania (United Rep. of)	S	
Denmark	S	A	Malta (Republic of)	—		Chad (Rep. of)	S	
Djibouti (Rep. of)	—		Morocco (Kingdom of)	S	A	Czechoslovak Soc. Rep.	S	A ¹⁾
Egypt (Arab Rep. of)	S ⁶⁾		Mauritius	S		Thailand	S	
United Arab Emirates	S		Mauritania (Islamic Rep. of) . .	S		Togolese Republic	S	
Spain	S	A	Monaco	S	A	Tonga (Kingdom of)	—	A
Ethiopia	S	A	Mongolian People's Rep.	S	A	Tunisia	S	
Fiji	S	A	Mozambique (People's Rep. of)	S	A	Turkey	S	
Finland	S	A	Nauru (Rep. of)	—	A	USSR	S	A
France	S	A	Nepal	S	A	Viet Nam (Soc. Rep. of)	—	
Gabonese Republic	S		Niger (Rep. of the)	S		Yemen Arab Rep.	S	
Gambia (Rep. of the)	S		Nigeria (Fed. Rep. of)	S		Yemen (People's Dem. Rep. of)	S	
Ghana	S		Norway	S	A	Yugoslavia (Soc. Fed. Rep. of)	S	A
Greece	S		New Zealand	S	A	Zaire (Republic of)	S	
Guinea (Rev. People's Rep. of)	S		Oman (Sultanate of)	—	A	Zambia (Republic of)	S	
Guinea Bissau (Rep. of)	—		Uganda (Rep. of)	S		Zimbabwe (Rep. of)	—	
Equatorial Guinea (Rep. of) . . .	—							

*) In the alphabetical order of the French version of the country names.

1) In approving the Agreement, the Member concerned confirmed the statement (s) made at the time of signature.

2) This approval is also in respect of the Territories under the territorial sovereignty of the United Kingdom in Regions 1 and 3, as well as the State of Brunei.

3) This approval is in respect of the Kingdom in Europe.

4) See Notification No. 1132.

5) In approving this Agreement, the Government of the Socialist Republic of Romania has made the following statement:

"The Socialist Republic of Romania reserves the right to take the necessary action to ensure that its broadcasting transmitters cover the entire national territory with broadcast programmes, in an appropriate manner, in the event that the coordination provided for in the Plan annexed to this Agreement cannot be achieved by negotiations."

6) See Notification No. 1175.

VIII. Special Agreements

Special Regional Agreement concerning the use of the 100-104 MHz band by the broadcasting service (1962)

This Agreement was concluded between the following Administrations: Austria, *Italy, Confederation of Switzerland, Socialist Federal Republic of Yugoslavia.*

The countries mentioned in italics have approved the Agreement.

Note by the General Secretariat : this Agreement will be terminated by mutual consent when these Administrations have approved the Special Agreement concerning the introduction of the Broadcasting Service in the frequency band 100-104 MHz (Darmstadt, 1971).

Special Agreement for use of the 582-606 MHz band for radionavigation purposes (Brussels, 1962)

This Agreement was concluded between the following Administrations: Federal Republic of Germany, Belgium, Denmark, France, Kingdom of the Netherlands, United Kingdom of Great Britain and Northern Ireland and Confederation of Switzerland.

Special Agreement in connection with the use of VHF and UHF in fixed and mobile services in frontier areas (Brussels, 1963)

This Agreement was concluded between the following Administrations: Federal Republic of Germany, Belgium and Kingdom of the Netherlands.

By letter dated 6 June 1974, the Administration of Belgium announced that the Administration of Luxembourg has acceded to this Agreement.

Special Agreement concerning the use of frequencies for additional low-power television transmitters operating in the ultra high-frequency range (Band IV, 472-582 MHz and Band V, 582-960 MHz) in the frontier areas (Karlsruhe, 1966)

This Agreement was concluded between the following Administrations: Federal Republic of Germany, Austria, Belgium, France, Italy, Luxembourg, and Kingdom of the Netherlands.

This Agreement was approved without reservation by all these Administrations.

**Special Agreements concerning the coordinated use of frequencies
between 29.7 and 470 MHz by the fixed and land mobile services**

Agreement signed at Vienna on 18 July 1969 by the following Administrations: Federal Republic of Germany, Austria, Italy and Confederation of Switzerland.

This Agreement, which was approved without reservation by these Administrations, came into force on 1 December 1969.

Agreement signed at Vienna on 25 April 1969 by the following Administrations: Austria, Hungarian People's Republic and Czechoslovak Socialist Republic.

This Agreement, which was approved without reservation by these Administrations, came into force on 1 January 1970.

Agreement signed at Budapest on 1 July 1976 by the following Administrations: Hungarian People's Republic and Socialist Federal Republic of Yugoslavia.

This Agreement became effective sixty days after signing.

Agreement signed at Athens on 23 June 1979 by the following Administrations: Greece and Socialist Federal Republic of Yugoslavia.

This Agreement, which was ratified by these Administrations, came into force on 1 January 1980.

Agreement signed by the following Administrations: Socialist Republic of Romania and Socialist Federal Republic of Yugoslavia.

This Agreement came into force on 10 February 1981.

**Special Agreement concerning the coordinated use of frequencies
between 29.7 and 960 MHz by the fixed and land mobile services**

One such Agreement was signed at Vienna on 23 September 1976 by the following Administrations: Austria and Socialist Federal Republic of Yugoslavia.

This Agreement, which was approved without reservations by these Administrations, came into force on 1 January 1977.

**Special Agreement Concerning the Introduction
of the Broadcasting Service in the Frequency Band 100-104 MHz (Darmstadt, 1971)**

This Agreement was concluded between the following Administrations: *Federal Republic of Germany*, Austria, *Belgium*, Denmark, Spain, Finland, *France*, Hungarian People's Republic, Italy, *Luxembourg*, Norway, *Kingdom of the Netherlands*, *United Kingdom of Great Britain and Northern Ireland*, Sweden, *Confederation of Switzerland* and Socialist Federal Republic of Yugoslavia.

This Agreement came into force on 1 January 1973.

The countries mentioned in italics have approved the Agreement.

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ANNEX 1bis

FINAL ACTS OF NAIROBI (1982)

POSITION ON 1 JANUARY 1984

The letter S means that the Act concerned has been signed.

The letter A in columns 3 or 5 means accession.

Countries (In the alphabetical order of the French version of the country names)	Plenipotentiary Conference of Nairobi (1982)				
	Class of contribution No. of units	Convention	Date on which the instrument of ratification or accession was deposited with the General Secretariat	Optional Additional Protocol	Date on which the instrument of ratification or accession was deposited with the General Secretariat
1	2	3	4	5	6
Afghanistan (Democratic Republic of) .	1/8	S ¹⁾		S	
Albania (Socialist People's Republic of)	1/4	—		—	
Algeria (People's Democratic Republic of)	1	S ¹⁾		—	
Germany (Federal Republic of)	30	S ¹⁾		—	
Angola (People's Republic of)	1/4	S		—	
Saudi Arabia (Kingdom of)	10	S ¹⁾		S	
Argentine Republic	3	S ¹⁾		S	
Australia	18	S ¹⁾		S	
Austria	1	S ¹⁾		S	
Bahamas (Commonwealth of the) . . .	1/2	—		—	
Bahrain (State of)	1/2	—		—	
Bangladesh (People's Republic of) . . .	1/8	S ¹⁾		S	
Barbados	1/4	S ¹⁾		S	
Belgium	5	S ¹⁾		S	
Belize	1/8	S		S	
Benin (People's Republic of)	1/4	S ¹⁾		S	
Byelorussian Soviet Socialist Republic .	1/2	S ¹⁾		—	
Burma (Socialist Republic of the Union of)	1/2	—		—	
Bolivia (Republic of)	1/4	—		—	
Botswana (Republic of)	1/2	S ¹⁾		S	
Brazil (Federative Republic of)	3	S ¹⁾		S	

Countries (In the alphabetical order of the French version of the country names)	Plenipotentiary Conference of Nairobi (1982)				
	Class of contribution No. of units	Convention	Date on which the instrument of ratification or accession was deposited with the General Secretariat	Optional Additional Protocol	Date on which the instrument of ratification or accession was deposited with the General Secretariat
1	2	3	4	5	6
Bulgaria (People's Republic of)	1	S ¹⁾		—	
Burundi (Republic of)	1/8	S ¹⁾		S	
Cameroon (United Republic of)	1/2	S ¹⁾		S	
Canada	18	S ¹⁾	11. X. 1983	S	11. X. 1983
Cape Verde (Republic of)	1/8	S		—	
Central African Republic	1/8	S ¹⁾		S	
Chile	1	S ¹⁾		S	
China (People's Republic of)	10	S ¹⁾		—	
Cyprus (Republic of)	1/4	S ¹⁾		S	
Vatican City State	1/4	S		—	
Colombia (Republic of)	1	S ¹⁾		S	
Comoros (Islamic Federal Republic of the)	1/8	—		—	
Congo (People's Republic of the)	1/2	S ¹⁾		S	
Korea (Republic of)	1	S ¹⁾		S	
Costa Rica	1/4	S ¹⁾			
Ivory Coast (Republic of the)	1	S ¹⁾		S	
Cuba	1/2	S ¹⁾		S	
Denmark	5	S ¹⁾		S	
Djibouti (Republic of)	1/8	—		—	
Dominican Republic	1/2	—		—	
Egypt (Arab Republic of)	1	S		S	
El Salvador (Republic of)	1/4	S ¹⁾		S	
United Arab Emirates	1	—		—	
Ecuador	1/2	S ¹⁾		S	
Spain	3	S ¹⁾		—	
United States of America	30	S ¹⁾		—	
Ethiopia	1/8	S		—	
Fiji	1/4	S		S	
Finland	5	S ¹⁾		S	
France	30	S ¹⁾		—	
Gabonese Republic.	1/2	S ¹⁾		S	

Countries (In the alphabetical order of the French version of the country names)	Plenipotentiary Conference of Nairobi (1982)				
	Class of contribution No. of units	Convention	Date on which the instrument of ratification or accession was deposited with the General Secretariat	Optional Additional Protocol	Date on which the instrument of ratification or accession was deposited with the General Secretariat
1	2	3	4	5	6
Gambia (Republic of the)	1/8	S		S	
Ghana	1/4	S ¹⁾		S	
Greece	1	S ¹⁾		S	
Grenada	1/8	S ¹⁾		S	
Guatemala (Republic of)	1/4	S ¹⁾		S	
Guinea (Revolutionary People's Republic of)	1/8	S ¹⁾		S	
Guinea-Bissau (Republic of)	1/8	—		—	
Equatorial Guinea (Republic of)	1/8	S		S	
Guyana	1/4	S ¹⁾		S	
Haiti (Republic of)	1/8	—		—	
Upper Volta (Republic of the)	1/8	S ¹⁾		S	
Honduras (Republic of)	1/4	—		—	
Hungarian People's Republic	1	S ¹⁾		—	
India (Republic of)	10	S ¹⁾		—	
Indonesia (Republic of)	1	S ¹⁾		—	
Iran (Islamic Republic of)	1	S ¹⁾		—	
Iraq (Republic of)	1/4	S ¹⁾		—	
Ireland	2	S		—	
Iceland	1/4	S ¹⁾		S	
Israel (State of)	1	S ¹⁾		—	
Italy	10	S ¹⁾		S	
Jamaica	1/4	S ¹⁾		S	
Japan	30	S ¹⁾		S	
Jordan (Hashemite Kingdom of)	1/2	S ¹⁾		S	
Democratic Kampuchea	1/2	—		—	
Kenya (Republic of)	1/4	S ¹⁾		—	
Kuwait (State of)	1	S ¹⁾		S	
Lao People's Democratic Republic	1/2	—		—	
Lesotho (Kingdom of)	1/8	S ¹⁾		—	
Lebanon	1/4	S ¹⁾		S	

Countries (In the alphabetical order of the French version of the country names)	Plenipotentiary Conference of Nairobi (1982)				
	Class of contribution No. of units	Convention	Date on which the instrument of ratification or accession was deposited with the General Secretariat	Optional Additional Protocol	Date on which the instrument of ratification or accession was deposited with the General Secretariat
1	2	3	4	5	6
Liberia (Republic of)	1/4	—		—	
Libya (Socialist People's Libyan Arab Jamahiriya)	1 1/2	S ¹⁾		S	
Liechtenstein (Principality of)	1/2	S ¹⁾		S	
Luxembourg	1/2	S ¹⁾		S	
Madagascar (Democratic Republic of)	1/4	S ¹⁾		S	
Malaysia	3	S ¹⁾		—	
Malawi	1/8	S ¹⁾		S	
Maldives (Republic of)	1/8	S ¹⁾		S	
Mali (Republic of)	1/8	S ¹⁾		S	
Malta (Republic of)	1/4	—		—	
Morocco (Kingdom of)	1	S ¹⁾		S	
Mauritius	1/4	—		—	
Mauritania (Islamic Republic of)	1/4	S ¹⁾		S	
Mexico	1	S ¹⁾		S	
Monaco	1/4	S ¹⁾		—	
Mongolian People's Republic	1/4	S ¹⁾		—	
Mozambique (People's Republic of)	1/4	S		—	
Namibia	—	—		—	
Nauru (Republic of)	1/8	—		—	
Nepal	1/8	S		S	
Nicaragua	1/2	S ¹⁾		S	
Niger (Republic of the)	1/8	S ¹⁾		S	
Nigeria (Federal Republic of)	2	S ¹⁾		S	
Norway	5	S ¹⁾		S	
New Zealand	2	S ¹⁾		S	
Oman (Sultanate of)	1/2	S ¹⁾		S	
Uganda (Republic of)	1/8	S ¹⁾		S	
Pakistan (Islamic Republic of)	2	S ¹⁾		—	
Panama (Republic of)	1/2	—		—	
Papua New Guinea	1/2	S ¹⁾		S	

Countries (In the alphabetical order of the French version of the country names)	Plenipotentiary Conference of Nairobi (1982)				
	Class of contribution No. of units	Convention	Date on which the instrument of ratification or accession was deposited with the General Secretariat	Optional Additional Protocol	Date on which the instrument of ratification or accession was deposited with the General Secretariat
1	2	3	4	5	6
Paraguay (Republic of)	1/2	S		S	
Netherlands (Kingdom of the)	10	S ¹⁾		S	
Peru	1/2 ²⁾	S ¹⁾		—	
Philippines (Republic of the)	1	S ¹⁾		S	
Poland (People's Republic of)	2	S ¹⁾		—	
Portugal	1	S ¹⁾		—	
Qatar (State of)	1/2	S ¹⁾		S	
Syrian Arab Republic	1/2	S ¹⁾		S	
German Democratic Republic	3	S ¹⁾		—	
Democratic People's Republic of Korea	1/4	—		—	
Ukrainian Soviet Socialist Republic	1	S ¹⁾		—	
Romania (Socialist Republic of)	1/2	S ¹⁾		—	
United Kingdom of Great Britain and Northern Ireland	30	S ¹⁾		S	
Rwandese Republic	1/8	S ¹⁾		S	
San Marino (Republic of)	1/4	S		S	
Saint Vincent and the Grenadines	1/8	—		—	
Sao Tome and Principe (Democratic Republic of)	1/8	—		—	
Senegal (Republic of)	1	S ¹⁾		S	
Sierra Leone	1/8	—		—	
Singapore (Republic of)	1	S ¹⁾		—	
Somali Democratic Republic	1/8	S ¹⁾		—	
Sudan (Democratic Republic of the)	1/8	S ¹⁾		S	
Sri Lanka (Democratic Socialist Republic of)	1/2	S		S	
South Africa (Republic of)	1	—		—	
Sweden	10	S ¹⁾		S	
Switzerland (Confederation of)	10	S ¹⁾		S	
Suriname (Republic of)	1/4	S		S	
Swaziland (Kingdom of)	1/4	S ¹⁾		S	
Tanzania (United Republic of)	1/8	S ¹⁾		S	

Countries (In the alphabetical order of the French version of the country names)	Plenipotentiary Conference of Nairobi (1982)				
	Class of contribution No. of units	Convention	Date on which the instrument of ratification or accession was deposited with the General Secretariat	Optional Additional Protocol	Date on which the instrument of ratification or accession was deposited with the General Secretariat
1	2	3	4	5	6
Chad (Republic of)	1/8	—		—	
Czechoslovak Socialist Republic	2	S ¹⁾		—	
Thailand	1 1/2	S ¹⁾		S	
Togolese Republic	1/4	S ¹⁾		S	
Tonga (Kingdom of)	1/8	S ¹⁾		—	
Trinidad and Tobago	1	—		—	
Tunisia	1	S ¹⁾		S	
Turkey	1	S ¹⁾		—	
Union of Soviet Socialist Republics	30	S ¹⁾		—	
Uruguay (Eastern Republic of)	1/2	S ¹⁾		S	
Venezuela (Republic of)	2	S ¹⁾		—	
Viet Nam (Socialist Republic of)	1/2	S ¹⁾		—	
Yemen Arab Republic	1/4	S ¹⁾		S	
Yemen (People's Democratic Republic of)	1/8	S ¹⁾		S	
Yugoslavia (Socialist Federal Republic of)	1	S ¹⁾		—	
Zaire (Republic of)	1/2	S		S	
Zambia (Republic of)	1/4	S		S	
Zimbabwe (Republic of)	1/2	S ¹⁾		S	

¹⁾ See the statement or statements appearing in the Final Protocol annexed to the Convention.

²⁾ Under paragraph 3 of Additional Protocol II to the Nairobi Convention (1982), Peru has requested the Council to reduce its class of contribution to 1/4 unit.

Lists of Members * which signed the Final Acts of the World Administrative Radio Conference for the Mobile Services (1983)

These Final Acts, which will come into force on 15 January 1985, were signed by the following Members:

Algeria (People's Democratic Republic of)	Japan
Germany (Federal Republic of)	Jordan (Hashemite Kingdom of)
Angola (People's Republic of)	Kenya (Republic of)
Saudi Arabia (Kingdom of)	Kuwait (State of)
Argentine Republic	Liberia (Republic of)
Australia	Madagascar (Democratic Republic of)
Austria	Malaysia
Bahrain (State of)	Morocco (Kingdom of)
Belgium	Mauritania (Islamic Republic of)
Benin (People's Republic of)	Mexico
Byelorussian Soviet Socialist Republic	Monaco
Brazil (Federative Republic of)	Nicaragua
Bulgaria (People's Republic of)	Norway
Cameroon (United Republic of)	New Zealand
Canada	Oman (Sultanate of)
Chile	Panama (Republic of)
China (People's Republic of)	Papua New Guinea
Cyprus (Republic of)	Netherlands (Kingdom of the)
Colombia (Republic of)	Poland (People's Republic of)
Korea (Republic of)	Portugal
Ivory Coast (Republic of the)	Qatar (State of)
Cuba	Syrian Arab Republic
Denmark	German Democratic Republic
Egypt (Arab Republic of)	Democratic People's Republic of Korea
United Arab Emirates	Ukrainian Soviet Socialist Republic
Ecuador	Romania (Socialist Republic of)
Spain	United Kingdom of Great Britain and Northern Ireland
United States of America	Singapore (Republic of)
Ethiopia	Sri Lanka (Democratic Socialist Republic of)
Finland	Sweden
France	Switzerland (Confederation of)
Greece	Czechoslovak Socialist Republic
Guinea (Revolutionary People's Republic of)	Thailand
Hungarian People's Republic	Togolese Republic
India (Republic of)	Tunisia
Indonesia (Republic of)	Turkey
Iran (Islamic Republic of)	Union of Soviet Socialist Republics
Iraq (Republic of)	Uruguay (Eastern Republic of)
Ireland	Venezuela (Republic of)
Iceland	Viet Nam (Socialist Republic of)
Israel (State of)	Yugoslavia (Socialist Federal Republic of)
Italy	Zambia (Republic of)

*) In the alphabetical order of the French version of the country names.

**Regional Administrative Conference for the Planning
of the Broadcasting-Satellite Service in Region 2
Geneva, 1983**

The letter S means that the Final Acts have been signed

Argentine Republic	S	Guatemala (Republic of)	—
Bahamas (Commonwealth of the)	—	Guyana	S
Barbados	—	Haiti (Republic of)	—
Belize	S	Honduras (Republic of)	—
Bolivia (Republic of)	S	Jamaica	S
Brazil (Federal Republic of)	S	Mexico	S
Canada	S	Nicaragua	S
Chile	S	Panama (Republic of)	—
Colombia (Republic of)	S	Paraguay (Republic of)	—
Costa Rica	—	Netherlands (Kingdom of the)	S
Cuba	S	Peru	S
Denmark	S	United Kingdom of Great Britain and North- ern Ireland	S
Dominican Republic	—	Saint Vincent and the Grenadines	—
El Salvador (Republic of)	—	Suriname (Republic of)	S
Ecuador	S	Trinidad and Tobago	—
United States of America	S	Uruguay (Oriental Republic of)	S
France	S	Venezuela (Republic of)	S
Grenada	S		

ANNEX 2

BUDGET AND ACCOUNTS FOR 1983

BUDGET AND ACCOUNTS FOR 1983

EXPENDITURE	1983 budget *)	1983 accounts
Swiss francs		
I. BUDGET OF THE UNION		
A. ORDINARY BUDGET OF THE UNION		
Section 1 – Administrative Council	678,000. –	662,927.10
Common Headquarters expenditure:		
Section 2 – Staff	46,001,000. –	45,869,091.05
Section 3 – Social security	10,386,000. –	10,282,440.91
Section 4 – Premises	3,672,000. –	3,671,658.65
Section 5 – Missions	150,000. –	207,990.20
Section 6 – Office and miscellaneous expenses	4,857,000. –	4,931,518.21
Section 7 – Technical Cooperation and assistance	2,543,000. –	2,371,347.65
Section 8 – Official reports	110,000. –	121,344.60
	68,397,000. –	68,118,318.37
Section 9 – Extended use of the ITU computer for IFRB activities	4,030,500. –	3,963,916.20
	72,427,500. –	72,082,234.57
Section 11.1 – Plenipotentiary Conference	–	6,760.15
Section 11.2 – WARC Mobile Services	1,141,000. –	971,108.50
Section 11.4 – WARC HFBC-84	507,100. –	329,034.75
Section 11.5 – WARC ORB-85	150,000. –	44,485.05
Section 12 – CCIR meetings	1,840,000. –	1,715,033.70
Section 13 – CCITT meetings	3,186,000. –	2,804,560.65
Section 15 – ITU seminars	300,000. –	201,383.55
Section 16 – Seminars of ITU Member Administrations	300,000. –	280,975.50
Section 17 – Common expenditure for conferences and meetings	3,735,000. –	3,289,377.87
Section 18 – Implementation by the IFRB of the decisions of world and regional administrative conferences	50,000. –	43,715.75
	83,636,600. –	81,768,670.04
Fitting out of CCITT Laboratory	70,000. –	26,322. –
Maintenance and renewal of simultaneous interpretation and other sound reproduction equipment	15,000. –	7,855.40
	83,721,600. –	81,802,847.44
Transfer to ITU reserve account (Resolution 11, 1973 Convention)	1,400,000. –	1,400,000. –
	85,121,600. –	83,202,847.44
Surplus income to be paid into ITU reserve account	–	2,338,252.31
	85,121,600. –	85,541,099.75
B. REGIONAL CONFERENCES BUDGET		
Section 14.3 – RABC (SAT-R2)	3,037,000. –	2,784,018.75

*) 1983 Budget, including additional credits.

BUDGET AND ACCOUNTS FOR 1983 (cont.)

INCOME	1983 budget *)	1983 accounts
Swiss francs		
I. BUDGET OF THE UNION		
A. ORDINARY BUDGET OF THE UNION		
Contributions:		
– Contributions by Union Members for the current year	75,514,900. –	75,514,895. –
– Contributions by recognized private operating agencies and scientific or industrial organizations to meet expenses of meetings under Sections 11 to 13:		
WARC Mobile Services	–	14,700. –
CCIR	2,507,720. –	2,591,798.35
CCITT	4,803,520. –	5,012,305. –
Sundry income	134,860. –	297,624. –
	82,961,000. –	83,431,322.35
Withdrawal from CCITT reserve fund for equipping the CCITT Laboratory	70,000. –	26,322. –
Withdrawal from the renewal fund for simultaneous interpretation and other sound reproduction equipment	15,000. –	7,855.40
	83,046,000. –	83,465,499.75
Withdrawal from ITU reserve account to cover additional credits	2,075,600. –	2,075,600. –
	85,121,600. –	85,541,099.75
B. REGIONAL CONFERENCES BUDGET		
Contributions RABC (SAT-R2)	3,037,000. –	2,784,018.75

*) 1983 Budget, including additional credits.

BUDGET AND ACCOUNTS FOR 1983 (cont.)

INCOME	1983 budget *)	1983 accounts
Swiss francs		
II. TECHNICAL COOPERATION SPECIAL ACCOUNTS BUDGET		
UNDP contribution to defrayal of project costs	9,781,000. —	5,689,660.90
Contributions from Funds-in-Trust		1,879,269.40
Contribution from Special Fund for Technical Cooperation		4,986. —
Other income:		
— balance of account using payments granted for 1982	—	21,277.15
— sundry	—	145,958.10
— balance of the Fund for the retirement of staff members	—	55,417.30
	9,781,000. —	7,796,568.85
Excess expenditure carried forward to 1984	—	2,207,463.67
	9,781,000. —	10,004,032.52
III. SUPPLEMENTARY PUBLICATIONS BUDGET		
Sale of publications issued during 1983 and previous years	5,838,000. —	10,444,626.80
Sale of Journal and List of Addresses	300,000. —	293,778.65
Advertisements in the Telecommunication Journal	900,000. —	1,086,876.20
Sundry	220,000. —	219,848.25
	7,258,000. —	12,045,129.90
Excess expenditure	19,300. —	—
	7,277,300. —	12,045,129.90

*) 1983 Budget, including additional credits.

BUDGET AND ACCOUNTS FOR 1983 (cont.)

EXPENDITURE	1983 budget *)	1983 accounts
Swiss francs		
II. TECHNICAL COOPERATION SPECIAL ACCOUNTS BUDGET		
Section 21 – Technical Cooperation:		
Administrative costs in 1983	9,781,000. –	9,740,630.90
Excess expenditure carried forward from 1982	–	263,401.62
	9,781,000. –	10,004,032.52
III. SUPPLEMENTARY PUBLICATIONS BUDGET		
Sections 24 and 25 – Cost of publications issued during 1983, including overheads	5,445,300. –	9,690,331.50
Section 26 – Cost of the Journal and the List of Addresses	1,632,000. –	1,495,063.15
Section 27 – Sundry	200,000. –	202,189.35
	7,277,300. –	11,387,584. –
Surplus income paid into the Publications Capital Account	–	657,545.90
	7,277,300. –	12,045,129.90

*) 1983 Budget, including additional credits.

ANNEX 3

LIST OF PUBLICATIONS ISSUED BY THE UNION IN 1983

* Composition assisted by ITU computer
+ Digiset

** Composition with magnetic cards

	Number of copies	Total Number of pages per language
1.* Resolutions and Decisions of the Administrative Council: 1983 updating, Supplement No. 19, 38th Session	F 250 E 380 S 140	88
2.* 12 Notifications, Nos. 1181 to 1192	F 500 E 650 S 150	146
3.* Report on the Activities of the Union, 1982	F 650 E 750 S 350	236
4.* Financial Operating Report for 1982	F 450 E 500 S 200	52
5.* Twenty-second Report by the International Telecommunication Union on Telecommunication and the peaceful uses of outer space, Booklet 31, 1983	F 400 E 680 S 200	52
6.* 2 Lists of Publication - June and December 1983	F 1600 E 3850 S 1150	80
7. Telecommunication Journal, 12 numbers, Volume 50 I-XII	F 2300 E 4600 S 1000	1226
8.** List of addresses, 7th edition 1981 and Supplements Nos. 3 to 5, trilingual	2000	300
9. 26 Operational Bulletins, Nos. 277 to 302 + 4 annexes, trilingual	1150	360
* 20 annexes ITU Register of Ship Stations, trilingual	1150	488
10.* International Telecommunications Convention adopted by the Plenipotentiary Conference (Nairobi, 1982)	F 2900 E 5600 S 1400	386

		Number of copies	Total Number of pages per language
11.*	Minutes of the Plenipotentiary Conference Nairobi, 1982	F 300 E 500 S 200	504 492 516
12.*	Index of Resolutions and Recommendations, Notes of the Radio Regulations (Edition of 1982)	F 1900 E 7800 S 1600	56
13.*	Final Acts of the World Administrative Radio Conference for the Mobile Services (Geneva, 1983)	F 600 E 1200 S 300	212
14.*	Final Acts of the Regional Administrative Broadcasting Conference (Region 2) Rio de Janeiro, 1981	F 150 E 300 S 200	128
15.*	List of Telegraph offices, 25th edition 1983, trilingual	17000	1100
16.**	List of International Telephone Routes, 23rd edition 1983, trilingual	800	256
17.**	List of Indicators for the Telegram Retransmission System and Telex Network Identification Codes, 4th edition 1979, Supplement No. 7, 1983, trilingual	1300	30
18.	Codes and Abbreviations for the Use of the International Telecommunication service, 4th edition 1982	F 1500 E 2000 S 400	248
19.**	Table of International Telex Relations and Traffic 1983, trilingual	550	420
20.**	General Information Relating to the Operation of the International Telegraph and Telematic Services, 2nd edition 1981, Supplements Nos. 3 and 4, trilingual	900	92
21.**	TA Table, Transferred Account Telegraph Service, 6th edition 1983, trilingual	550	254
22.**	Yearbook of common carrier telecommunication statistics, 10th edition 1983, trilingual	800	358

	Number of copies	Total Number of pages per language
23.** TA Booklet, 1984 edition, trilingual	15000	152
24. List of Coast Stations, 9th edition 1982, Volume I, Supplement No. 1, trilingual	24000	992
25. List of Coast stations, 8th edition 1981, Volume II, Supplement No. 3, trilingual	23500	312
9th edition 1983 and Supplement No. 1, trilingual		
26.* List of Ship Stations, 23rd edition 1983 and Supplements Nos. 1 to 3, trilingual	18500	1784
27. List of Radiodetermination and Special Service Stations, 8th edition 1982, Volume I, Supplements Nos. 1 and 2, trilingual	22500	124
28. List of Radiodetermination and Special Service Stations, 7th edition 1980, Supplement No. 5, Volume II, trilingual	21500	712
8th edition 1983 and Supplement No. 1, trilingual		
29. List of International Monitoring Stations (List VIII), 5th edition, 1982, trilingual	700	112
30.* Alphabetical List VIIA of call signs of stations used by the Maritime Mobile Service, 10th edition 1981, Supplement No. 7, multilingual	20500	624
11th edition 1983 and Supplements Nos. 1 and 2, multilingual		
31.* Alphabetical List VIIB of call signs of Stations other than Amateur Stations, Experimental Stations and Stations of the Maritime Mobile Service, 9th edition 1981, Supplement No. 6, trilingual	2300	76
32. 28 General Secretariat Circulars, Nos. 205 to 232	F 580 E 1100 S 280	84

		Number of copies	Total Number of pages per language
33.*	Analytical Table of the Manual for use by the maritime mobile and maritime mobile- satellite services	F 1500 E 18000 S 1200	34 35 34
34.	Catalogue of Telecommunication Training Opportunities, Publication No. 1 monolingual	500	134
35.*	50 Weekly airmail IFRB Circulars, Nos. 1551 to 1600, Parts I-II-III and Special Sections, trilingual. Part IV, trilingual	410 440	5144 436
36.*	4 Summaries of Monitoring Information received by the IFRB, Nos. 215 to 218, trilingual	510	656
37.*	Tentative High Frequency Broadcasting Schedules, March, June, September, November 1983, trilingual	450	1888
38.*	High Frequency Broadcasting Schedule, June, September, December 1980, March, June 1981, trilingual	350	1288
39.*	International Frequency List, 10th edition 1979		
	Preface Supplement No. 14, trilingual	755	52
	Volume I Supplement No. 14, multilingual	580	620
	Volume II Supplement No. 14, multilingual	570	476
	Volume III Supplement No. 14, multilingual	550	412
	Volume IV Supplement No. 14, multilingual	590	484
	Volume Va) Supplement No. 14, multilingual	480	40
	Volume Vb) Supplement No. 14, multilingual	480	856
	Volume Vc) Supplement No. 14, multilingual	450	300
	Volume Vd) Supplement No. 14, multilingual	450	80
40.*	List of Fixed Stations Operating International Circuits, 10th edition 1979, Supplement No. 14, trilingual	1000	140
41.*	OCIR XVth Plenary Assembly, Geneva 1982		
	Volume I	F 650 E 1800 S 450	620

	Number of copies	Total Number of pages per language
Volume II	F 600 E 1650 S 400	616 612 616
Volume III	F 600 E 1600 S 400	304
Volume IV	F 650 E 1900 S 450	528
Volume VI	F 600 E 1800 S 400	428
Volume VII	F 550 E 1600 S 400	184
Volume IX	F 750 E 2200 S 450	400
Volume XI + Addendum No. 1	F 700 E 2300 S 450	408
Volume XII	F 750 E 2000 S 450	288
Volume XIII	F 750 E 2000 S 450	132
Volume XIV.1	F 550 E 1500 S 350	246
42.* Spectrum Management and Computer-aided Techniques, 1983 edition	F 400 E 1000 S 250	186
43.* Satellite Broadcasting Systems	F 400 E 1200 S 250	232
44.* Report 340 CCIR Atlas of Ionospheric Characteristics, trilingual	2200	392
45.* Report 322-2 Characteristics and applications of atmospheric radio noise data	F 600 E 1700 S 300	76

		Number of copies	Total Number of pages per language
46.*	General Network Planning GAS 3 1983 edition	F 400 E 900 S 300	396
47.*	GAS 5/2 Methods used in long-term forecasting of domestic telecommunications demand and required resources (overall and by main sector)	F 350 E 550 S 200	80
48.*	GAS 5/3 Conditions required for the establishment of a national industry for the manufacture of telecommunication equipment (especially switching equipment)	F 300 E 450 S 200	76
49.*	GAS 5/4 Special aspects of telecommunications development in isolated and/or underprivileged areas of countries	F 300 E 500 S 200	40
50.*	GAS 5/5 Procedure for establishing a budget model for a telecommunication undertaking	F 350 E 600 S 200	32
51.*	Supplement to the General Plan for the development of the Regional Network in Latin America (Buenos Aires, 1981) trilingual	250	58
52.*	Supplement to the General Plan for the Development of the Regional Network in Asia and Oceania (Manila, 1982) trilingual	300	64
53.*	CCITT Yellow Book, VIIth Plenary Assembly Terms and Definitions, Fascicle X.1	F 750 E 1900 S 350	440
54.*	Amendments and additions (1982) to the Directives concerning the protection of telecommunication lines against harmful effects from electricity lines	F 400 E 600	72
55.*	CCITT Yellow Book, VIIth Plenary Assembly Index, Fascicle X.2	F 750 E 1600 S 300	172 168 172
56.*	Rural Telecommunications, Supplement No. 1	F 350 E 800 S 250	132
57.	Introduction to CHILL, 1983	E 2400	98

		Number of copies	Total Number of pages per language
58.	CHILL Formal Definition Volume I Volume II	E 2400 E 3600	102 198
59.	Data transmission and new telematic services studies and results in CCITT	E 1300	60
	REPRINTING =====		
60.	Resolutions and Decisions of the Administrative Council, Supplement No. 16, 36th Session	F 50	90
61.	Supplement No. 18, 38th Session	F 50 E 50 S 50	6
62.	Operational Bulletin No. 278 Annex Register of ship stations Annex Gentex Table, trilingual	50	12
63.	International credit card	50000	-
64.	List of Ship Stations 23rd edition 1983 Supplement No. 1, Part A, trilingual	1000	48
65.	List of Radiodetermination and special service stations, 7th edition 1980, Volume II	700	524
	Supplement No. 1, Part M	800	64
	Supplement No. 2, Part M	500	16
	Supplement No. 2, Annex	500	44
	Supplement No. 3, Part M	770	32
	Supplement No. 4, Parts A and M	350	56
	Supplement No. 5, Parts A and M, trilingual	450	84
66.	Alphabetical List VIIA of call signs of stations used by the Maritime Mobile Service, 10th edition 1981, Supplements Nos. 4 and 5, Part M, multilingual	200	36
67.	Alphabetical List VIIB of call signs of stations other than Amateur Stations, Experimental Stations and Stations of the Maritime Mobile Service, 9th edition 1981	200	340

	Number of copies	Total Number of pages per language
9th edition 1981, Supplement No. 1	200	20
Supplement No. 2	200	28
Supplement No. 3	200	48
Supplement No. 4	200	56
Supplement No. 5	200	68
Supplement No. 6	200	76
68. Report 252-2, CCIR interim method for estimating sky-wave field strength and transmission loss at frequencies between the approximate limits of 2 and 30 MHz, (New Delhi, 1970), trilingual	200	210
69. CCITT Yellow Book, VIIth Plenary Assembly, Geneva, 1980		
Volume II.1	E 350	224
Volume III.3	E 700	236
Volume IV.1	E 300	180
Volume IV.2	E 300	74
Volume VI.6	E 350	336
Volume VI.7	E 600	144
Volume VIII.1	E 800	260
Volume VIII.2	E 400	231
Volume VIII.3	F 150	280
Volume VIII.3	E 450	280
Volume IX	E 300	96
70. GAS 9 - CCITT Case Study on a Rural Network	E 150 S 50	84 84
71. Directives of CCITT. Edition of 1963 and Chapters 1965	E 200	418

ANNEX 4

ACTIVITIES OF THE COMPUTER DEPARTMENT IN 1983

1 Introduction

The main lines of activity in 1983 were upgrading of the central computing facilities to improve their performance, beginning of a long-term project to provide end users with the facilities and the competence to participate more actively in application development activities, stabilization and intensive use of the database/transaction processing environment, further development of applications using the mainframe and microcomputers, support for the development of the IFRB Interim System, and initial installation of the new programmable workstation selected by the ITU.

To improve the productivity of user services, management is turning more and more towards increased computerization. This trend was reinforced by the need to compensate for the 10% cut in staff resources decided by the Plenipotentiary Conference. In spite of the resulting workload growth, the Computer Department was not spared from the impact of reduced staff resources available to the Union. It should be stressed that the workload growth is the sum of the volume growth of activities and an invisible component resulting from the increasing complexity of the work performed.

2 Central computers**2.1 Hardware****2.1.1 Configuration upgradings**

In October 1983 the main memory of one of the Siemens computers was increased from 4 MB (megabytes) to 8 MB. In November 1983 the other Siemens computer was replaced by a more advanced model with twice the internal speed - 2.7 MIPS (million operations per second) - and with 8 MB of main memory. The main objective of this upgrade was to improve the performance particularly for the IFRB Interim System development and production. During 1983 almost 1000 MB of disk storage was added to the configuration. The front-end data communications processor was also upgraded with high-speed interfaces and additional memory. 36 terminals were installed in 1983, including 23 colour terminals for the IFRB Interim System. In December 1983 a new high-speed plotter was installed.

2.1.2 Availability

The two mainframe computers and the telecommunication networks are available "on-line" 24 hours per day, Saturdays and Sundays included.

2.1.3 Utilization

Number of registered users: 150

Number of CPU seconds: 10 000 000 (6 000 000 in 1982)

Number of connect hours: 16 080 (10 500 in 1982)

Number of tasks: 140 000 (96 000 in 1982)

Number of lines printed: 200 000 000 (120 000 000 in 1982)

2.2 System software

2.2.1 Upgrades

Version 7.1 of the BS2000 operating system was installed with capabilities for improved performance tuning. The old BS1000 operating system was finally phased out.

2.2.2 Support

Continuous support was provided to development staff of all organs on matters related to hardware, data communications, recovery procedures, system software, etc. Training sessions were conducted and data processing standards notes were published on different subjects.

2.3 Database management and transaction processing

The major current application development projects are based upon the facilities of the IDMS (Integrated Database Management System) software which was acquired for multipurpose use by all organs of the Union.

2.3.1 IDMS usage organization

Recognizing the different needs of the activities of coding and testing on the one hand and production on the other, two distinct IDMS systems were set up: one for Development and another for Production. The Development System allows relatively good turn-around time for compilations of programs, updating the data dictionary, etc., while the Production System gives good response time for the terminal operators to carry out the regular production work. Also, while on the Development System some interruptions are unavoidable since its users are testing new programs, on the Production System high reliability is a prime objective.

2.3.2 IDMS availability

The Development System is available 23 hours per day (an hour is taken to archive the files) and over weekends. The Production System is available during the normal office hours of ITU (from 8.00 to 18.00).

2.3.3 Usage statistics

In 1983, the Production System accounted for only 6.4% of the Computer A usage (Computer A is the one devoted to the new applications using IDMS) since the bulk of the work still concerned development. These proportions are expected to change in 1984 when several application systems, particularly the IFRB Interim System, will go to production.

2.3.4 Integrated databases

There are currently 8 databases established on the Development System and 6 on the Production System. The total size of these databases is 1460 MB of disk storage. These databases are designed for concurrent update and retrieval usage by multiple terminal operators and they are implemented with appropriate security and recovery procedures.

2.3.5 Application systems with IDMS

The total size of application software developed on IDMS represents 500,000 lines of COBOL programs plus other related software. The single most important application development effort at the ITU is the IFRB Interim System, which amounted to about 75% of Computer A usage in 1983.

2.3.6 Support services

The role and function of the Database Management and Transaction Support Group is to provide the best conditions for productive and efficient application systems development. Typical support activities are: consultation services on database design and implementation, regular weekly technical meetings, user documentation, monitoring daily operation of the IDMS development and production systems, user training, etc.

2.3.7 Data administration

By recognizing the concept of treating data as a valuable resource of the Union, the Computer Department also promoted the data administration function using the IDMS data dictionary. Currently, the dictionary has the definition of over 5500 data elements and the documentation of over 3600 programs. Several custom reports were developed to assist the data administration function and three technical meetings were held to promote the understanding of the data as a resource of the organization.

2.4 Performance group

The performance of the computing environment was a major concern in 1983 as reflected in the discussions which took place during the 38th Session of the Administrative Council. Many factors have an impact on the overall performance: system availability (hardware and operating system), computing power (central processor speed, main memory size, disk storage read/write speed, etc.), efficient system development tools, up-to-date competence to make best use of available tools and resources, etc. One particular area which deserved special

attention was the system tuning for the improvement of the IDMS software performance in the BS2000 environment. To study this problem in detail and to propose remedial action, a performance group was formed with participants from the IFRB Secretariat and the Computer Department.

2.5 Data capture

The decentralization of the data capture function which is being taken over by the user services continued in 1983. In spite of the above, 390 000 cards were punched and 340 000 were verified, 352 000 records were entered in floppy disks, and 20 000 records were entered in on-line databases.

2.6 Computer operation

The computer operators ensure operational support of the two computers during two shifts. The machines are also used on the third shift for unattended batch jobs such as compilations, database updating, calculations, statistical analysis and system maintenance.

2.7 Applications production

Extensive operational support has also been provided to all organs for the orderly and efficient running of their computerized application systems. Operations services provided include: 24 hour/7 day availability of computer power, an experienced data entry pool, tape library administration, security of the Union's data resources, provision of computer supplies, advice on operating system related matters, maintenance of terminals and lines, and accounting on computer resources usage.

3 Microcomputers

3.1 DEC Rainbow

3.1.1 Decision on new workstation

The first microcomputer-based programmable workstations were selected in 1975 and have been used for text processing, off-line data entry, program development, decentralized (off-line) applications and distributed (on/off-line) applications. In 1982 a working group was formed to evaluate the market and to recommend an additional programmable workstation standard for the ITU. The Digital Equipment Corporation (DEC) Rainbow 100 microcomputer was chosen. The first Rainbow was installed in April 1983, and by the end of the year 50 were installed and operational.

3.1.2 Software support

Currently over 50 software packages are being utilized, evaluated or ordered for future evaluation. The software includes operating systems, database management systems, language processors, text editors and processors, spreadsheets, utilities, teachware, graphics, project management, etc. Technical support of all selected software is being given by the Department.

Programmable Workstation Notes are being published and distributed detailing available packages and systems, software user guides, helpful hints and general information.

3.2 Zentec

3.2.1 Hardware upgrades

In 1983 the Z80 microprocessor enhancement was implemented, thus allowing the standard CP/M operating system with all commonly available CP/M software to be run on the Zentec.

3.2.2 Software enhancements

A much improved Version 2.0 of the ITU Text Processing System (TPS) was completed and implemented, along with all associated utilities and user documentation.

3.3 Training

The Computer Department has been providing introductory courses to all personnel that will be using the microcomputer and is sponsoring courses at the DEC Training Centre.

The requirements of a massive training programme planned for 1984 led to the decision to set up a training centre for the ITU staff. The centre - equipped with microcomputers, monitors, VHS equipment, reference documentation and publications, communication lines and attended by support staff - will start operation in the beginning of 1984 and will be a focal point for all microcomputer users.

3.4 Questionnaire on information processing needs

A questionnaire on Information Processing Needs prepared by the Working Group on Programmable Workstations was distributed to all organs and departments as a means of eliciting information on data processing requirements. This questionnaire helped to uncover a hidden backlog of small scale applications, more than 100 by the end of the year while many questionnaires have still to be returned. Many of these applications are small, are used by few people, or have changing requirements. Requests to implement some of these applications have never been submitted because of their low priority in relation to the complex applications which compete for the limited system development staff resources of the Computer Department.

3.5 Application development support

Numerous microcomputer based applications have already been implemented or are being developed (see § 4.1 for selected applications). The application development support required from the Computer Department will continue to increase as more systems are developed by the end users.

In order to cope with the large backlog of application development, there is a trend towards increased user participation in the analysis and programming activities. One of the most significant benefits of the installation of programmable workstations is that many users become more

knowledgeable about computerized systems, better able to articulate their information needs, more productive, and more aware of both user and systems issues which emerge during automation.

3.6 Maintenance support

The large number of microcomputer equipment installed (58 Zentecs, 50 Rainbows, 70 printers, etc., as of December 1983) is supported on a continuous basis by technical maintenance staff of the Computer Department.

3.7 Communications with the mainframe

A terminal emulation and file transfer package was being installed allowing the programmable workstations to operate as standard non-programmable terminals.

4 Application systems

4.1 New development during 1983

4.1.1 Inventory equipment system

This application system was developed under IDMS for the Technical Cooperation Department (TCD) for the purpose of recording all equipment expenditures required by projects under their administration.

4.1.2 Telecommunications relations and traffic

This system was developed under IDMS to provide the Relations with Members Division of the General Secretariat with a means to manage data concerning relations and traffic in the telex, telephone, telegram and telecopy areas of International Telecommunication. A photocomposition program prepares output for the DIGISET electronic photocomposer.

4.1.3 Short-term contract and payroll

This application is being developed under IDMS in order to satisfy the requirements of both the Personnel and Finance departments in the processing of short-term contracts and the associated pay remuneration. The system is expected to become operational at the beginning of 1985.

4.1.4 Sales and debtors accounting system

This system is being developed under IDMS to handle ITU publication sales and invoicing, manage the publication stock, track membership contributions and subscriptions, and process all related debtor accounting functions. It is a very large and complex undertaking supporting both Finance and Common Services Departments, and will not be fully implemented until 1986. The first subsystem will be operational in 1984.

4.1.5 Phototheque

This system provides the Public Relations Division with a database of descriptions of telecommunications-related photographs. The system also produces printed reports used in catalogue publications.

4.1.6 Equipment suppliers

This system is being developed in order to provide TCD with the ability to optimize the acquisition of equipment required by individual TCD projects. The system requires the generation and maintenance of Supplier, Catalogue, Product and Project data. It is being developed on the Rainbow microcomputer using dBASE II software and will be operational in 1984.

4.1.7 Statistical Yearbook system

The statistical Yearbook is a collection of data on the various branches of common carrier telecommunications that is collected by the Relations with Members Division of the General Secretariat from Administrations and published yearly in the form of statistical tables. The system is being implemented on the RAINBOW microcomputer using dBASE II and connected to the Siemens mainframe for processing and for output on the DIGISET photocomposer.

4.1.8 Rental subsidy system

This system will provide the Personnel Department with the ability to enter the staff members that are eligible for the subsidy and make the decisions and calculations imposed by the rental subsidy schema. It is being implemented on the RAINBOW microcomputer under dBASE II.

4.1.9 World and Regional PLAN Committees system

This system is currently being developed as an inquiry, retrieval and reporting application on the RAINBOW microcomputer using dBASE II. The database contains all PLAN Committee data that is currently stored on the Siemens mainframe, as well as additional data supplied by the CCITT Secretariat. The processing of the initial tables was successfully demonstrated at the Europe and Mediterranean Basin PLAN Committee meeting in Nicosia, Cyprus, in September 1983. The full system is planned to be operational in 1984.

4.1.10 Abonnements - Parking des Nations

This dBASE II - RAINBOW system has been developed jointly with the Finance Department staff. One objective of the project was to train the user staff for the development of other systems of equivalent complexity.

4.1.11 Fellowships

This small dBASE II - Rainbow system has been developed to provide the TCD with the ability to capture, track and report on fellowship projects.

4.2 Current production systems upgrades

4.2.1 Payroll system

The following enhancements were implemented to accommodate new user requirements:

- multi-salary advances for experts;
- automatic exchange conversion of pensionable amounts;
- health insurance adjustments for non-member experts;
- pension adjustments for non-member experts;
- government contribution adjustments at the end of expert contract;
- retroactive calculations with new salary scale.

4.2.2 TCD project budget control

Major modifications and enhancements were required in order to accommodate the reorganization of TCD projects and to meet new reporting requirements. New programs were developed to meet additional UNDP reporting needs.

4.2.3 Salary budget control

This system was upgraded to provide menu driven interactive capabilities for local workstation procedures, as well as the associated documentation and users notes that support the enhancement. Numerous modifications were made to the programs to support the new pensionable salary scales, and to the related calculations and summarizing procedures.

4.2.4 Annual contributory share

Major upgrades were applied to this system to provide full menu driven interactive capabilities and other enhancements.

4.2.5 Invoicing interest on overdue payments

Full interactive processing and other enhancements were implemented.

4.2.6 Conference participants system

Adaptation to meet IFRB seminar requirements.

4.2.7 Radiobeacon list

Frequency and geographic area sorting plus other enhancements.

5 Computerized composition and graphics

5.1 Cosy

This is the basic composition software component of the ITU computerized Composition System (OCS). During this past year, the MONANTI fixed width character set was incorporated, and facilities for formula composition were implemented. The possibility of in-house formula composition should have a positive impact on the cost of publication.

5.2 TEX

CCITT Study Group XI set up a special task force involving members of Working Group XI/3, the CCITT Secretariat and the Computer Department to recommend an approach for the transfer to the ITU of texts stored on magnetic media. The transfer of texts related to the CHILL language (Recommendation Z.200, CHILL Users Manual, etc.) was the immediate concern of the task force, particularly in view of the commitment of the Secretary-General to take over from Philips responsibility for the maintenance of Recommendation Z.200. CHILL (CCITT High Level Programming Language) was designed primarily for programming SCP telephone exchanges. However, it is considered general enough for other applications (e.g. message switching, packet switching, modelling, etc.). Different alternatives were considered by the task force, with particular attention to the TELETEx protocol. Limitations in the representation of complex formatting commands and graphics plus the need for the development of conversion programs to and from TELETEx made this alternative unsuitable for the short term. The recommendation of the task force was to use a "standard" typesetting system, the TEX system developed at Stanford University by Prof. D. Knuth. The task force recommended the installation of TEX in the ITU computer and the submission to the ITU of CHILL-related texts in the TEX format.

In collaboration with GMD, a German public research institute, the Computer Department installed a preliminary version of the TEX system on the Siemens computer as well as a driver for the Digiset photocomposer. Standards are being defined for the format of TEX documents to be submitted to the ITU.

5.3 Publication of lists

Programs have been developed to produce three additional publications using the DIGISET photocomposer: Ship Stations List V, Call Signs List VIIA, and the Telecommunications Relations and Traffic Journal.

5.4 Computer-assisted drafting

The Computer Department has been investigating computer-assisted drafting systems which could improve the productivity of specialized staff. The CCITT Secretariat is participating in the investigation, particularly for the maintenance and printing of the Specification and Description Language (SDL) diagrams. A drawing software package was ordered for testing on the Rainbow.

5.5 Graphics

The major event was the acquisition of a new high-speed plotter to replace the one which had become obsolete. In addition, testing of interactive graphics software for the Rainbow has been started.

6 Miscellaneous

6.1 Conference support

Usual hardware and software support continued to be provided for conference work, particularly for the BC-Sat Region 2 Conference.

6.2 Evaluation of accounting packages

The Computer Department has contacted numerous software development organizations in the search for general ledger and budgetary accounting software that could be obtained and modified to meet the overall ITU and TCD accounting requirements. In order to be considered in the final evaluation, the software must be compatible with the current computer environment, have a reasonable cost, perform efficiently with minimum impact on the response time of other important applications (particularly the IFRB Interim System), allow interfacing with financial systems already in production, and facilitate in-house maintenance and expansion capabilities.

Many meetings, demonstrations and presentations have been arranged and coordinated with representatives from software firms and the Finance Department during this period of study and evaluation. The recommendation will be made only after all criteria and offers have been analysed and debated.

6.3 Evaluation and testing of internal data communications

The Computer Department is involved in a continuing study of systems for internal data communications. This includes the evaluation of automatic computer exchanges, digital PBXs, local area networks, and X.25 based networks.

6.4 Training

The training program of the ITU technical staff was continued in order to keep them abreast of methodology and technology developments. An example of this program was the seminar on Structured Analysis and Design presented by Yourdon Europe to ITU system analysts.

There were 6 different seminars/workshops provided by external organizations that were attended by 85 ITU staff members. The Computer Department presented training courses on 8 major technical subjects, with about 200 members participating. There were also numerous demonstrations, study sessions, and regularly scheduled technical meetings held during the course of the year.

6.5 Participation in international meetings

The Department continued to represent the Union at international meetings (e.g. Symposium on Communications and Development, Lisbon).

6.6 Evaluation of OCR, telex and electronic mail systems

The Computer Department is assisting the Communications Service in planning and implementing automated equipment for telex processing. The first stage, an Optical Character Recognition (OCR) reader, was to be installed in February 1984. A facility for automatically sending, and later for receiving, telexes will be installed at a later date. A software package which could support this application, in addition to electronic mail, is under test.

6.7 Computer Communications Reference Service

The Computer Department is participating actively in the preliminary work related to the establishment of a Computer Communications Reference Service at ITU.

6.8 Technical library

The Computer Department maintains a library of technical information and documentation that is available to the ITU computer users. An automated system tracks all related problems such as distribution of revisions to existing documentation. A separate library of books and publications pertinent to microcomputer users is also being maintained within the Department.

6.9 Network optimization

Support continued to be provided to network optimization and related activities such as the statistical analysis of telecommunications related census data.

6.10 IFRB interim system

This major project demands continuous attention: database support, coordination meetings, report preparation (e.g. Joint Report of the Secretary-General and the IFRB), participation in special meetings (e.g. Voluntary Group of Experts Meeting), etc.

6.11 Visiting delegations from Administrations

Visiting delegations from Administrations are informed of ITU activities in the computer field and are advised, upon request, on matters related to their computerization problems.

6.12 Miscellaneous

Among the many miscellaneous activities, mention should be made of the continuing provision of published data in machine readable form, collaboration with Administrations in the area of telecommunications terminology (e.g. Arabization project), etc.

ANNEX 5

TABLES

No.

- 1 Projects Conducive to the Strengthening of National Telecommunication Technical and Administrative Services in Developing Countries
- 2 Countries Benefitting from Important Training Projects Executed by the Union in 1983
- 3 Summary of Main Features of Technical Cooperation Programme in 1983
- 4 List of ITU Projects under Implementation in 1983
- 5A Project Expenditure by Source of Funds and Region
- 5B Project Expenditure by Project Component and Region
- 6A Number of Technical Cooperation Projects - 1983
- 6B Project Distribution by Region and by source of financing - 1983
- 7 List of Third Party Trust Funds - 1983
- 8 Number of Expert Missions in 1983 classified by region of mission and source of finance
- 9 Experts Serving on ITU Missions during 1983 (classified by nationality)
- 10 Associate Experts Serving on ITU Missions during 1983
- 11 UN Volunteers Serving on UNDP/ITU Projects during 1983
- 12A Fellowships implemented during 1983
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- 12C Principal host countries for ITU fellows
- 13 Expenditure for Equipment in 1983
- 14 Equipment Ordered in 1983 (classified by country/territory of origin)
- 15 Project implemented by Contractors - Expenditure in 1983
- 16 Contracts Signed in 1983
- 17 Seminars

TABLE 1

**Projects Conducive to
the Strengthening of National Telecommunication Technical
and Administrative Services in Developing Countries**

<u>Countries</u>	<u>Description of Activities</u>
1. <u>AFRICA</u>	
Angola:	Engineering Assistance in Telecommunication (troposcatter links)
Burundi:	Adviser in Telecommunications
Cameroon:	Extension of transmission network - preparatory phase to the introduction of national television network
Congo:	Elaboration of a Plan for improvement of maintenance and operation
Equatorial Guinea:	Expansion and improvement of administrative procedures and maintenance
Ivory Coast:	Master Development Plan
Lesotho:	Operational assistance (OPAS) in telex operations
Mozambique:	Improvement of telex maintenance methods
Nigeria:	Development of network
Rwanda:	Coordination of international input for the extension of national network
Somalia:	Preparation of National Telecommunications Master Plan
Sudan:	Establishment of a Test, Development and Maintenance Centre and procedures
Swaziland:	Operational assistance (OPAS)
Uganda:	Rehabilitation and extension of national network
Zaire:	Rehabilitation of the local network in Kinshasa.

<u>Countries</u>	<u>Description of Activities</u>
2. <u>LATIN AMERICA AND THE CARIBBEAN</u>	
Argentina:	Assistance in the establishment of a message switching centre
Bahamas:	Assistance rendered to BATELCO in supervising a team of local engineers in the installation of the equipment necessary for Direct Distance Dialling Assistance rendered to BATELCO concerning delivery and installation of a new digital telephone network
El Salvador:	Assistance in improving operation & maintenance services
Netherlands Antilles:	Assistance in improving operation & maintenance department of SETEL
Panama:	Direct support in relation with the implementation of the project of the maritime mobile system Assistance in preparation of specifications, call for tenders and contract administration for the above system
Peru:	Assistance for the expansion of the telephone network in Lima following acquisition of new digital exchanges and important outside plant installations
Suriname:	Assistance to TELESUR in acceptance tests and putting into operation of 3 new PRX switching centres.
3. <u>ASIA AND PACIFIC</u>	
Afghanistan:	Proposals on the strengthening of the telecommunication planning, maintenance and training activities
China:	Strengthening of long-distance communications and improved quality of service
India:	Assistance in finalizing the detailed technical specifications for the satellite monitoring facility. Advice to the Telecommunication Research Organization on traffic measurements, dimensioning of switching equipment, network planning, automation of trunk network maintenance, planning of digital network, component reliability engineering and network design.

<u>Countries</u>	<u>Description of Activities</u>
India (cont'd)	Advice on conducting studies on millimetre wave propagation.
Indonesia:	Assistance in the setting-up of a test and development centre with regard to digital transmission and domestic data transmission by satellite
Iran:	Assistance in the detailed planning of the coaxial cable installation between Tehran and Isfahan
Malaysia:	Telecommunication planning and development
Mongolia:	Assistance in the design and preparation of the details of a pilot scheme for rural telecommunications
Nepal:	Advice on the introduction of specific signalling systems
Philippines:	Telecommunication development study
Sri Lanka:	Advice and assistance to the telecommunication administration in teletraffic engineering, computerized planning of telecommunication network, digital switching and transmission, maintenance of external plant and E 10 B electronic exchanges
Tokelau:	Assistance in procurement of HF radio equipment for providing automatic telephone and telegraph services
Tonga:	Operational assistance (OPAS) in telecommunication management, engineering and operations
Western Samoa:	Operational assistance (OPAS) in telecommunication management, engineering and operations

4. EUROPE, MIDDLE EAST AND THE MEDITERRANEAN BASIN

Albania:	Pilot project to develop the telecommunication network, including automation of interurban and international links
Bulgaria:	Expansion of the activities of the Research Centre

<u>Countries</u>	<u>Description of Activities</u>
Cyprus:	Improvement of frequency management and monitoring
Czechoslovakia:	Assistance in introducing modern techniques, including digital techniques and fibre optics
Greece:	Improvement of maintenance and reorganization of telecommunication services
Hungary:	Assistance in introducing modern techniques, including digital techniques and fibre optics
Poland:	Assistance in introducing modern techniques, including digital techniques and fibre optics
Romania:	In cooperation with UNIDO, assistance in digital techniques and microwave technology, as used in navigation and meteorology
Oman:	Improvement of frequency management and monitoring
Yemen A.R.:	Improvement of management and organization
Yemen (PDR):	Improvement of management and organization

TABLE 2

**Countries benefitting from important Training projects
executed by the Union in 1983**

1. AFRICA

1.1 Country Projects

Algeria, Angola, Burundi, Ethiopia, Nigeria, Somalia and Tunisia

1.2 Multinational Projects

Malawi (Botswana, Lesotho, Malawi, Swaziland)

Senegal (Benin, Central African Republic, Ivory Coast, Guinea, Upper Volta, Mali, Mauritania, Niger, Senegal, Togo)

2. THE AMERICAS

2.1 Country Projects

Haiti, Honduras, Nicaragua, Trinidad and Tobago

3. ASIA AND PACIFIC

3.1 Country Projects

Afghanistan, Bangladesh, India, Nepal, Papua New Guinea, Singapore and Sri Lanka

3.2 Multinational Projects

Island countries of the South Pacific (Cook Islands, Fiji, Kiribati, Nauru, Niue, Papua New Guinea, Solomon Islands, Western Samoa, Tokelau, Tonga, Tuvalu, Vanuatu, Trust Territory of the Pacific Islands)

4 EUROPE, MIDDLE EAST AND THE MEDITERRANEAN BASIN

4.1 Country Projects

Jordan, Kuwait, Saudi Arabia and Yemen A.R.

TABLE 3

**Summary of main features of
Technical Cooperation Programme in 1983**

a) Expert missions	583 against	612 in 1982 (Note 1)
b) Expert man/months	2498 against	3141 in 1982
c) Fellowships	827 against	739 in 1982 (Note 2)
d) Projects	201 against	225 in 1982
e) Equipment		
Expenditure (US \$)	5,643,999 against	5,541,585 in 1982
Purchase Orders	853 against	1,083 in 1982
f) Sub-contracts (value)	2,977,686 against	2,438,978 in 1982
g) Sub-contracts (projects)	13 against	10 in 1982
h) Total expenditure	\$28,335,851 against	\$ 31,859,857 in 1982

Note 1 - Including associate expert assignments.

Note 2 - Including participants in short-term group training.

TABLE 4

*List of ITU projects under implementation in 1983**A. UNDP*

NOTE: UNDP financing for technical cooperation activities during 1983 was provided from two sources:

- *UNDP Main Programme Funds*, comprising
 - Indicative Planning Figures (IPF),
 - Fund for special measures for the least developed countries,
 - Government cost-sharing;
- *UNDP Associated Funds*, including
 - UN Capital Development Fund,
 - UN Trust Fund for the Operational Programme in Lesotho,
 - UN Trust Fund for the Operational Programme in Swaziland,
 - etc.

The source of financing for each project is shown in column (1) as follows:

- i) indicates UNDP Main Programme Funds
- ii) indicates UNDP Associated Funds

COUNTRY, Title of Project and No.	Duration (in years)	Total UNDP Contribution \$	Experts man/ months	Fellows man/ months	a) Equipment b) Subcon- tracting \$	Total Expenditures in 1983 \$
(1)	(2)	(3)	(4)	(5)	(6)	(7)
AFRICA						
Algeria						
ALG-77-002 — Training and Applied Research in Telecommunications..... (i)	7	1,427,443	1/0.5	1/12.0		13,363
Angola						
ANG-77-004 — Training in Telecommunica- tions (i)	9	2,428,278	3/9.5		a) (1,344)	70,509
ANG-80-001 — Engineering Assistance in Telecommunications (i)	5	362,650	2/12.0		a) (82)	94,174
Burundi						
BDI-78-017 — Telecommunications Training and Operation (i)	5	460,820		1/1.5	a) (1,030)	2,391
Botswana						
BOT-81-002 — Assistance in Radio Frequency Management (i)	3	38,510		2/1.5		6,014
BOT-83-001 — Assistance in Sound and TV Broadcasting (i)	1	34,000	2/5.5			29,993
Cameroon						
CMR-79-001 — Rehabilitation unit of the National Telecommunications Network (i)	6	7,244,368	2/11.0		a) 105,980 b) 780,000	1,023,565
Central African Republic						
CAF-81-001 — Planning of Telecommunica- tions (i)	2	597,023	10/27.0	6/18.0	a) 32,050	271,608
CAF-83-014 — Assistance in effecting the first Investments under the Telecommunica- tions Master Plan (i)	3	399,050	1/1.0			6,260
Congo						
PRC-80-006 — Development of Telecom- munications (i)	3	304,196	4/6.5	7/21.0		95,869
PRC-83-004 — Elaboration of a Plan for improvement of Maintenance and Operation (i)	2	162,000	2/1.5			13,522

TABLE 4 (cont.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)
AFRICA (cont.)						
Ivory Coast IVC-82-003 — Planning of Telecommunications Development	(i)	3	576,359	7/11.0	3/3.5	91,233
Djibouti DJI-80-003 — Establishment of a Professional Telecommunication Centre.....	(i)	4	712,266	2/24.0	2/6.0 a) 10,465	239,474
Egypt EGY-78-022 — Television and Broadcasting Training.....	(i)	5	496,520	2/6.0		46,748
Ethiopia ETH-80-010 — Upgrading of the Telecommunications Training Institute.....	(i)	4	1,154,052	7/57.5	4/9.5 a) (2,567)	400,612
Gambia GAM-78-003 — Rural Telecommunications Development	(i)	6	461,283	1/1.0	1/3.0	11,381
Equatorial Guinea EQG-81-001 — Development of Telecommunications.....	(i)	3	406,156	2/19.0	2/0.5 a) 44,663	182,710
Lesotho LES-82-009 — Two-way Radio Network for Rural Health.....	(i)	4	236,000	2/18.0	2/3.0	97,997
5-LES-80-03 — Rural Health Communication Network	(ii)	3	355,000		a) 288,082	293,238
7-LES-76-20 — Assistance to Lesotho Telecommunications	(ii)	8	884,171	3/21.5	3/18.0	122,807
Mauritania MAU-79-004 — Assistance in Telecommunications	(i)	5	146,474	1/2.0		13,146
Malawi MLW-79-002 — Radio Frequency Management and Radio Monitoring.....	(i)	4	297,837		1/2.0 a) 110	3,515
Mozambique MOZ-77-013 — Assistance in Telecommunications	(i)	6	388,775	1/12.0	a) 3,050	64,555
MOZ-81-026 — Broadcasting Support	(i)	3	190,992	3/8.0	a) 51,872	97,352
Namibia 7-NAM-79-10 — Preparation of Plans for Telecommunications	(ii)	2	57,500	3/1.5		7,990
Nigeria NIR-77-003 — Telecommunications Planning (Phase II).....	(i)	6	1,763,106	6/60.0	a) (1,133)	442,004
NIR-77-004 — Course Development for Telecommunications	(i)	6	2,145,440	1/12.0	3/7.5	103,763
Uganda UGA-80-007 — Rehabilitation of the Telecommunication Network	(i)	4	2,645,842		1/1.0	8,408
UGA-80-020 — Establishment of a Central Repair Depot	(i)	3	401,696	1/12.0	2/8.0 a) 95,837	181,421
Rwanda RWA-81-007 — Integrated Programme of Telecommunications Assistance.....	(i)	4	621,186	2/20.0	14/67.0 a) (7,325)	227,022
Senegal SEN-82-020 — Planification, Development of Services and Improvement of Staff	(i)	3	82,200	1/1.5		7,623

TABLE 4 (cont.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)
AFRICA (cont.)						
Somalia SOM-78-010 — National Telecommunication Training Institute (Phase II)..... (i)	6	1,834,972	5/56.0	4/14.0	a) 21,625	473,420
Sudan SUD-78-005 — Establishment of a Test Development and Maintenance Centre, Khartoum (i)	7	1,244,861	2/24.0	1/2.5	a) 100,308	288,965
Swaziland 7-SWA-76-09 — Engineering Assistance to the Department of Post and Telecommunica- tions (ii)	7	739,069	3/26.0	2/8.0		122,258
Chad CHD-75-021 — National School of Telecom- munications of Sahr (i)	7	890,520		1/12.0		6,982
Tunisia TUN-79-007 — Training in Electronic Switching at the Post and Telecommunications School, Tunis (i)	4	263,407	5/5.0	6/9.0	a) 3,100	51,060
Zaire ZAI-83-012 — Assistance in Telecommunica- tions (i)	3	700,000	1/1.0			7,587
Regional Projects — Africa						
RAF-76-021 — Multi-Country Post and Tele- communication Training Scheme, (Phase II) (i)	7	1,568,540	2/22.0	4/10.0	a) 315	158,803
RAF-79-039 — Higher multinational School for Telecommunications (i)	7	1,847,010	4/48.0		a) 13,841	324,375
RAF-80-018 — Maintenance of Telecom- munications Network, PANAFTEL (i)	6	2,639,001	9/55.0		a) 5,521	513,097
RAF-80-034 — Telecommunication Adviser to the Liptako-Gourma Authority (i)	4	422,571	1/12.0		a) 15,670	101,768
RAF-81-009 — Development of Broadcasting in Africa (i)	2	231,836	3/31.5			177,492
RAF-81-050 — Development of the Panafrican Agency for Information (PANA) (i)	3	271,784	2/17.5	4/2.5	a) 10,038	151,024
RAF-82-060 — Implementation of Panaftel Network (Phase II) (i)	4	1,660,000	8/66.0		a) 3,827	579,771
5-RAF-83-29 — Regional Satellite Seminar in Moscow (ECA ADDIS) (i)						1,268

TABLE 4 (cont.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)
LATIN AMERICA						
Argentina ARG-78-019 — Message Switching Centre (i)	6	693,896		4/8.0	a) (150)	17,950
Brazil BRA-82-032 — Research and Development in Telecommunication (Phase II)..... (i)	4	6,105,877	25/116.5	18/70.5	a) 1,646,444	2,593,814
Cuba CUB-82-005 — Improvement, Expansion and Development of Telecommunication Services in Cuba (i)	3	298,149	2/1.0	7/4.0	a) 85,165	118,607
El Salvador ELS-78-009 — Expansion and Modernization of the Telecommunications System (i)	6	454,176	3/6.0	2/6.0		43,573
Ecuador ECU-78-019 — National Telecommunications Training Centre (i)	6	980,896	2/2.5			15,905
Guatemala GUA-79-001 — Preparation of short-, medium- and long-term Training Plans (i)	5	359,408	3/8.5	6/4.5	a) 9,537	69,102
Haiti HAI-81-001 — Telecommunications Develop- ment — Phase II (i)	3	1,352,227	9/53.5		a) 9,950	393,237
Honduras HON-81-003 — Telecommunications Training (i)	5	1,177,366	6/17.0	15/10.5	a) 96,023	243,478
Jamaica JAM-77-004 — Telecommunications and Electronic Training (Phase II) (i)	7	807,871			a) (2,978)	(2,978)
Nicaragua NIC-82-009 — Human Resources (i)	3	306,183			a) 27,815	28,301
Panama PAN-82-014 — Development of Human Re- sources (i)	3	349,250	6/16.0	4/1.5	a) 5,233	122,532
PAN-82-016 — Radiocommunication System for the Maritime Mobile Service (i)	4	268,961	2/2.5			37,315
St. Christopher/Nevis STK-81-001 — Fellowship in Electrical En- gineering Technology (i)	3	45,000		1/12.0		19,529
Trinidad and Tobago TRI-73-005 — Establishment of a Telecom- munication Centre (i)	10	3,574,488	6/52.0		a) 78,722	457,637
TRI-78-002 — Assistance to the Trinidad and Tobago Telephone Company Ltd. (i)	5	532,344		1/3.0		11,789
Uruguay URU-78-007 — National Telecommunications Training Centre (i)	6	239,833		4/9.5	a) 17,851	53,190
5-URU-81-01 — Technical Assistance Service for Development..... (ii)	1	4,150	1/1.0			7,072
Regional Project — Latin America						
RLA-77-010 — Regional Telecommunications Integration (i)	6	672,630	1/12.0			107,037

TABLE 4 (cont.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	
ASIA AND PACIFIC							
Afghanistan							
AFG-78-001 — Telecommunication Training Centre (Phase III)	(i)	3	1,229,608	7/31.0	13/22.5	a) 15,778	269,836
5-AFG-78-08 — Equipment Purchase for TTC	(ii)	1	4,250			a) 4,253	4,253
Bangladesh							
BGD-82-054 — Telecommunication Training Centre, Dhaka (Phase II)	(i)	2	970,726	7/37.0	10/19.0	a) 138,895	446,969
5-BGD-76-12 — Development of Broadcasting Services	(i)	8	1,320,989	3/18.5		b) 3,678	
						a) 93,573	189,109
Burma							
BUR-78-007 — Telecommunications and Postal Training Centre	(i)	5	2,052,027	6/37.5	5/10.0	a) 949	245,845
China							
CPR-79-010 — Improvement of Training Ability of the Beijing Institute of Posts and Telecommunications and Data Communication System	(i)	5	636,123	2/2.0		a) 207,000	222,509
CPR-80-024 — Development of Telecommunications.....	(i)	4	826,009	2/3.0		a) 237,357	265,846
Korea (Rep. of)							
ROK-75-020 — Korea Telecommunications Research Institute	(i)	6	853,306	1/3.0	4/8.0	a) 70,193	131,307
India							
IND-74-044 — Expansion and Modernization of Telecommunication Services.....	(i)	10	440,852		9/33.5		64,949
IND-74-047 — Research and Development Programme of Experimental Satellite Earth Station (ESCES) Ahmedabad	(i)	6	393,989		1/1.5		4,231
IND-75-012 — Satellite Monitoring Facility in India.....	(i)	5	39,558	2/1.5			16,093
IND-76-011 — Telecommunication Research Centre for Development of new Techniques and Technologies	(i)	5	517,064	9/11.0	7/7.5	a) 50,124	156,397
IND-78-044 — Modernization/Augmentation of the Existing Facilities for Radio Frequency Spectrum Monitoring, Radio Direction Finding and In-Service Training.....	(i)	4	516,315		1/1.0		4,227
IND-78-045 — In-House Data Processing Facilities for Monitoring Organization/Wireless Planning and Coordination Wing	(i)	5	28,655		4/6.0		19,938
IND-78-055 — Expansion and Modernization of Telecommunication Services in India (Phase II).....	(i)	3	483,000		8/12.5		61,973
IND-80-033 — Research and Development Programme of Space Application Centre (SAC), Ahmedabad.....	(i)	3	414,679	1/1.0	2/2.0	a) 3,783	20,845
IND-82-028 — Follow-up Support to Advanced Level Telecommunication Training Centre (ALTTC)	(i)	3	879,000	25/17.0	6/12.5	a) 147,315	347,145
Indonesia							
INS-78-049 — Telecommunication Test and Development Centre	(i)	6	2,850,273	4/25.0	10/26.5	a) 303,819	631,806
						b) 75,300	
Iran							
IRA-83-001 — Tehran-Isfahan Coaxial Cable Installation.....	(i)	3	73,000	1/4.0			23,875

TABLE 4 (cont.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ASIA AND PACIFIC (cont.)						
Malaysia MAL-82-014 — Telecommunications Planning and Development (Phase II)	(i)	3	450,917	3/31.0	4/4.5	208,524
Mongolia MON-82-003 — Establishment of a Training Laboratory and Pilot Telecommunication System in Rural Regions of Mongolia	(i)	3	949,100	1/8.0	3/3.0 a) 112,947	170,848
Nepal NEP-79-021 — Telecommunication Training Centre, Phase II	(i)	4	913,593		6/15.0 a) 226,765	44,769
NEP-81-027 — Assistance to Telecommunications Maintenance and Management (Phase III).....	(i)	3	1,000,000	2/10.5	4/14.0	334,264
Pakistan PAK-74-073 — Survey and System Design for Telecommunication Links to Remote Areas	(i)	7	511,868		2/7.0	13,683
Papua New Guinea PNG-81-002 — Advanced-level Technical Training.....	(i)	4	1,504,773	7/73.5	1/3.5 a) 7,206	501,482
Philippines PHI-80-009 — Development Study of Telecommunications Sector	(i)	4	1,216,798	4/21.0		146,746
Western Samoa SAM-73-004 — Telecommunications Training Fellowships	(i)	11	165,052		3/27.0	15,042
SAM-82-001 — Telecommunications Development (Phase II).....	(i)	4	381,201	2/21.0		100,085
Singapore SIN-81-006 — Telecommunications Training Programme	(i)	3	266,804		7/17.0	97,263
Sri Lanka SRL-80-003 — Development of Telecommunications.....	(i)	4	373,429	6/11.5	8/12.5 a) 160	119,999
SRL-80-004 — Telecommunication Training Centre (TTC)	(i)	3	144,180	1/3.0	4/4.0	22,689
Tokelau TOK-83-001 — Tokelau Telecommunications Development	(i)	3	280,000		a) 135,274	135,274
Tonga TON-74-002 — Development of Telecommunications.....	(i)	8	458,172	1/7.0	a) 492	38,219
TON-83-002 — Development of Telecommunications.....	(i)	2	29,780	1/5.0		24,800
Regional Projects — Asia and Pacific						
RAS-75-051 — Development of Telecommunications in Asia	(i)	7	2,050,458		1/1.5	5,391
RAS-78-050 — Course Development in the field of Telecommunications (CODEVTEL)	(i)	5	377,386	1/2.0		16,242
RAS-81-025 — Regional Telecommunication Training, South Pacific (Phase II)	(i)	3	1,400,000	7/56.5	5/7.5 a) 67,742	512,394

TABLE 4 (cont.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Regional Projects – Asia and Pacific (cont.)						
RAS-81-026 — Development, Operations and Maintenance of Telecommunications in the South Pacific	(i)	5	1,640,000	8/33.0	a) 2,394 b) 472	267,760
RAS-81-028 — Rural Telecommunications	(i)	2	500,000	3/14.0	a) 57,440	185,287
RAS-81-029 — Support to Telecoms (Study, Training, etc.) ASEAN	(i)	2	113,600	1/4.0	16/24.0 a) (3,249)	55,537
RAS-81-031 — Telecommunication Maintenance	(i)	2	500,000	1/12.0	2/1.0	105,811
RAS-81-118 — Radio Frequency Management and Monitoring Procedures, Practices and Techniques (Phase II)	(i)	3	400,000			93,975
5-RAS-81-75 — Coastal Radio Station Maldives	(ii)	3	426,150		a) 93,390	96,467

TABLE 4 (cont.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)
MIDDLE EAST						
Saudi Arabia						
SAU-76-002 — Telecommunication and Broadcasting Training Institutes (i)	7	4,927,676	12/55.5			258,233
SAU-80-003 — Special Telecommunication Network for the Ministry of Foreign Affairs (i)	4	370,320	1/12.0			119,746
SAU-81-001 — Telecommunications Institutes, Jeddah and Riyadh (Phase III) (i)	4	8,906,000	9/37.0		a) 59,900	484,266
SAU-82-003 — Technical Assistance to the Telegraph Department, Ministry of PTT (i)	2	650,300	4/39.0		a) 26,968	409,927
SAU-82-005 — Advisory Services to the Ministry of Information (i)	3	864,502	3/27.0			251,908
United Arab Emirates						
UAE-80-008 — Telecommunications Development in the United Arab Emirates (i)	4	914,780	2/18.0			170,488
Jordan						
JOR-81-004 — Development of Telecommunication Training College (i)	4	1,636,909	12/43.5	15/21.0	a) 100,271	491,045
JOR-81-006 — Power Plant (i)	2	116,434			a) 5,419	6,838
Kuwait						
KUW-79-002 — Telecommunication Training Institute (Phase IV) (i)	5	3,112,072	3/15.0	9/14.5	a) 1,873	183,930
KUW-82-003 — Assistance to the Ministry of Communications (i)	3	718,000	3/10.5			65,452
Oman						
OMA-81-002 — Radio Frequency Management (i)	4	206,237	1/12.0			96,721
Qatar						
QAT-81-001 — Assistance in the Development of Broadcasting (i)	5	907,000	1/12.0			88,506
Yemen Arab Republic						
YEM-74-011 — Training in Telecommunication Systems Technology and Administration (i)	5	395,712		11/27.5		25,171
YEM-82-011 — Organization and Operation of Telecommunication (i)	1	522,398	5/49.0			572,385
Yemen (People's Democratic Republic of)						
PDY-76-013 — Telephone Switching (i)	7	78,194		1/9.0		6,562
PDY-81-011 — Telecommunications Development (i)	5	500,000	4/10.0	1/3.0	a) 15,200	87,210
Regional Projects — Middle East						
RAB-79-014 — Mid-East & Mediterran. Telecommunications Network — Phase III "Implement" (i)	5	2,715,179	25/43.0	2/2.0	a) 7,937	580,435
RAB-81-013 — Arabization of Telecommunications Glossary of Terms (i)	2	782,200	19/43.0		a) 25,712	287,245
RAB-82-007 — Assistance in Establishment of Satellite Earth Stations (ARABSAT) (i)	2	14,480				(14,480)

TABLE 4 (cont.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)
EUROPE						
Albania						
ALB-79-003 — Telecommunications and Television Development	(i)	6	281,831		4/10.0	a) 5,137 14,871
ALB-81-005 — Development of Telecommunications Network	(i)	4	2,500,000	4/16.0	4/14.0	114,151
Bulgaria						
BUL-75-020 — Assistance in the Development of a Research Centre for Telecommunications	(i)	9	565,380	1/0.5	1/1.0	a) (1,284) 3,833
BUL-81-007 — Expanding the Activities of the Research Centre for Telecommunications	(i)	4	366,850	3/1.0	7/3.5	a) 1,510 13,984
BUL-82-002 — International Telecommunications	(i)	2	58,146	1/5.5		35,547
Cyprus						
CYP-82-001 — Radio Frequency Management and Monitoring	(i)	2	40,000	1/2.0	1/0.5	a) 1,094 16,385
Greece						
GRE-78-010 — Upgrading of Telecommunication Maintenance Organization	(i)	6	63,408	1/-,-		1,242
GRE-79-005 — Organization and Management	(i)	3	36,403	2/1.0		6,391
Poland						
POL-81-003 — Telecommunications	(i)	3	27,517		3/5.0	4,266
Romania						
ROM-82-009 — Improvement of Telecommunications Services	(i)	2	101,700			a) 25,432 25,432
Czechoslovakia						
CZE-82-005 — Assistance in Telecommunications	(i)	3	59,600		17/9.0	17,546
Turkey						
TUR-75-069 — Development of Training in Telecommunications	(i)	7	1,171,454	1/1.0		13,154
Regional Project — Europe						
RER-79-022 — Implementation of Mid. East and Mediterranean Telecommunications Network	(i)	5	498,923			3,638
INTERREGIONAL						
8-INT-78-20 — Sectoral Support in the Telecommunications field (UNDP)	(ii)	5	1,443,094	19/25.5		175,990

TABLE 4 (cont.)

B. ITU TRUST FUNDS

NOTE: ITU Trust-Fund projects were executed under two types of financing:

- *Traditional*, under which a government provides funds to the Union for the implementation of its own projects;
- *Third party*, under which funds entrusted to the Union by a government and/or organization permit the provision of assistance to a designated third party.

The type of financing for each project is shown in column (1) as follows:

- iii) indicates Traditional Trust Funds
- iv) indicates Third-Party Trust Funds.

Country, Title and No. of Project, source of financing	Total Contribution (US\$)	Experts/ man- months	Fellows/ man- months	a) Equipment b) Subcon- tracting (US\$)	Total Expenditure in 1983 (US\$)
(1)	(2)	(3)	(4)	(5)	(6)
AFRICA					
Burundi					
9-BDI-81-01 — Adviser in Telecommunications (iv)	187,200	1/12.0			98,061
Cameroon					
9-CMR-82-02 — National TV Network (iii)	1,769,760	5/56.5		a) 90,080	641,366
Namibia					
3-NAM-79-20 — Training in Radio Programme Production and Equipment Maintenance (iv)	246,788	1/4.0		a) 3,330	40,553
Niger					
9-NER-77-01 — Installation of OPTN (Niger Posts and Telephones Organization) Research and Management Services (iv)	136,380	1/0.5			3,056
9-NER-77-02 — Reorganization of OPTN Research and Management Services (iv)	87,580	1/1.0			6,580
Somalia					
9-SOM-81-03 — Preparation of National Telecommunications Master Plan (iv)	381,330	17/25.5		a) 3,129	183,547
Uganda					
9-UGA-83-01 — Telecommunications Rehabilitation and Recovery (iv)	7,000	1/1.0			7,306
Zaire					
9-ZAI-77-02 — Study and Supervision of the Realization of the Telecommunication Link Kinshasa/Matadi (iii)	134,935				280
Regional Projects — Africa					
9-BAF-81-01 — Missions for the African Development Bank (iv)	80,000	1/2.0			11,553
9-PAF-78-99 — Feasibility and Pre-Investment Study — (PANAFTEL/Badea) (iv)	610,530				2,018

TABLE 4 (cont.)

(1)	(2)	(3)	(4)	(5)	(6)
Regional Projects – Africa (cont.)					
9-RAF-80-04 — Multi-country Post and Telecommunication Training Scheme..... (iv)	780,340	1/7.0		a) 31,220	183,791
9-RAF-81-06 — Pre-Feasibility Study for Integrated Rural Development – Presentation of Results..... (iv)	266,275	1/0.5			12,275
9-RAF-82-07 — AMTT/IRD Reports..... (iv)	8,870				1,883
9-RAF-83-09 — Feasibility Study – Reg. African Satellite Communication (Rascom)..... (iv)	236,760	7/8.0		b) 89,600	132,009
3-WAN-83-01 — West-African News Agency development (WANAD)..... (iv)	337,156	1/1.0		a) 326,855	337,156
9-WAS-80-01 — Telecommunications Feasibility Study (iv)	437,215	2/1.0			6,753
LATIN AMERICA					
Netherlands Antilles					
9-NAN-76-01 — Telecommunication Training Centre..... (iii)	374,200	1/3.0			19,335
9-NAN-82-06 — Financial Management..... (iii)	142,450	2/13.0			78,312
9-NAN-83-07 — Assistance in Maintenance (iii)	309,200	1/8.5			68,211
Barbados					
9-BAR-83-01 — Advisory Mission to Barbados..... (iv)	9,290	1/1.0			9,320
Bermuda					
9-BER-82-01 — Telecommunications Legislation (iii)	25,900	1/1.0			5,484
Bahamas					
9-BHA-82-01 — Project Control and Programming (Digital Switching and Transmission)..... (iii)	130,000	1/12.0			66,746
9-BHA-83-02 — Supervision of Installation of Switching Equipment..... (iii)	20,000	1/4.0			19,090
Panama					
9-PAN-81-01 — Technical Assistance (iii)	94,450	1/3.0			7,826
9-PAN-82-02 — Maritime Mobile Service (iii)	225,880			b) 225,880	225,880
Peru					
9-PER-83-02 — Expansion of Telecommunications Network (iii)	99,775	2/6.0			52,815
Suriname					
9-SUR-77-03 — Telecommunication Training Centre..... (iv)	1,213,600			a) 18,125	18,478
9-SUR-83-07 — Assistance in Switching (iv)	29,200	3/6.0			33,821
Venezuela					
9-VEN-81-02 — Technical Assistance (iii)	381,800	3/6.0			65,696
Regional Project – Latin America					
9-RCA-81-01 — Assistance to Comtelca/Intelca (iii)	15,900	5/2.0			8,513

TABLE 4 (cont.)

(1)	(2)	(3)	(4)	(5)	(6)
ASIA					
Indonesia 9-INS-78-49 — Demonstration Data Network (iii)	1,369,891			b) 789,000	789,000
Regional Project — Asia					
9-RAS-83-02 — Telecommunications Consultancy — South Pacific..... (iv)	19,735	1/4.5			24,260
MIDDLE EAST					
Saudi Arabia 9-SAU-63-01 — Telecommunication Experts..... (iii)	1,192,000	14/148.5			1,378,881
9-SAU-76-02 — Telecommunications Broadcasting Training Institutes (Jeddah + Riyadh)..... (iii)	7,726,020			a) 8,659	186,728
9-SAU-80-19 — Advisory Service to the Ministry of Information..... (iii)	1,098,100	4/12.0			124,129
9-SAU-80-20 — Advisory Service to the Telegraph Department, Ministry of P.T. & T..... (iii)	338,200	3/8.0			77,648
Kuwait 9-KUW-65-01 — OPAS Experts..... (iii)	57,000	2/4.0			32,531
9-KUW-83-13 — Telecommunications Adviser to Ministry of Interior (iii)	192,125	1/12.0			96,842
Yemen (People's Democratic Rep. of) 9-PDY-83-02 — Radio Relay Links..... (iii)	6,195	1/0.5			4,648
Regional Projects — Middle East					
9-RAB-78-06 — Radio Propagation Study and Proposal for Frequency Plan (iv)	1,493,399	2/4.0		a) 1,300	59,586
9-RAB-82-08 — Planning for Frequency Modulation Broadcasting Transmitters Band II in the Gulf Area — Gulfvision (iv)	309,318	2/9.0		a) 3,074	92,817
INTERREGIONAL					
9-GLO-76-01 — Integrated Rural Development (iv)	184,480	3/1.5			18,703
9-GLO-78-03 — Teletraffic Engineering Training (Tetrapro)..... (iv)	312,750	1/12.0			82,453
9-GLO-83-04 — Teletraffic Engineering Training (Tetrapro)..... (iv)	73,940	1/10.0			56,113

TABLE 5A

Project Expenditure – By Source of Funds and Region

The table below shows the source of financing in 1983 classified by Region (in US dollars):

Financial resources	Africa	Americas	Asia and Pacific	Middle East	Europe	Inter-Regional	Total
UNDP	7,297,068	4,371,808	6,485,365	4,201,906	266,802	–	22,622,949
Trust Funds	1,668,187	687,816	813,260	2,053,810	–	157,269	5,380,342
Associate Experts	127,131	43,615	122,623	22,854	–	–	316,223
Other sources	4,645	6,342	3,212	2,138	–	–	16,337
Total	9,097,031	5,109,581	7,424,460	6,280,708	266,802	157,269	28,335,851

Note – UNDP funding includes cost-sharing.

TABLE 5B

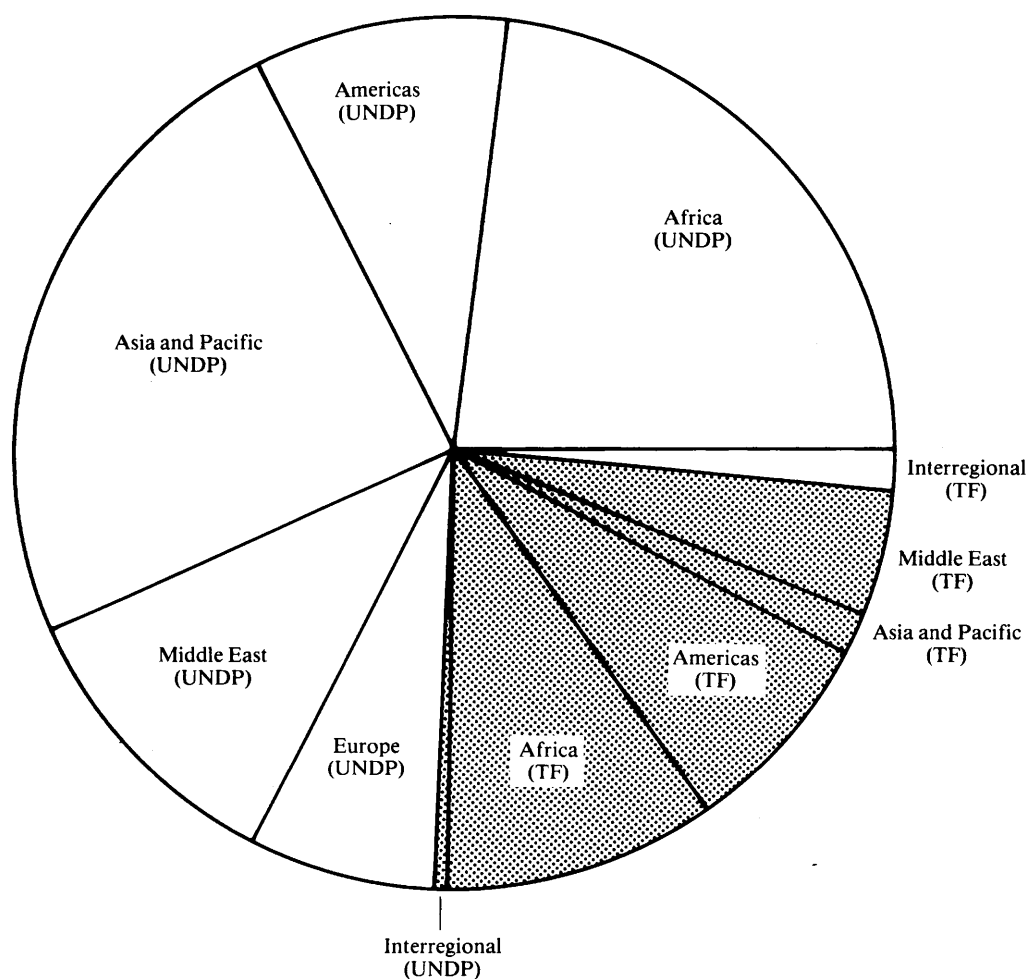
Project Expenditure – By Project Component and Region

The US dollar 28,335,851 field expenditure for 1983, broken down by project component and by Region, is as follows:

Project components	Africa	Americas	Asia and Pacific	Middle East	Europe	Inter-Regional	Total
Experts and Associate Experts	5,890,142	2,436,027	3,322,248	4,981,712	170,983	153,250	16,954,362
Administrative support Personnel	153,669	11,520	70,082	320,742	–	–	556,013
Sub-contracts	869,600	225,880	868,450	–	–	–	1,963,930
Fellowships	402,746	358,156	858,778	149,496	60,424	–	1,829,600
Group training	55,922	38,071	218,682	201,143	(103)	–	513,715
Equipment	1,390,460	1,991,737	1,973,600	256,313	31,889	–	5,643,999
Miscellaneous	334,492	48,190	112,620	371,302	3,609	4,019	874,232
Total	9,097,031	5,109,581	7,424,460	6,280,708	266,802	157,269	28,335,851
Comparison – 1982	10,163,080	5,411,697	7,595,029	7,703,272	702,014	284,765	31,859,857

TABLE 6A

Number of Technical Cooperation Projects - 1983

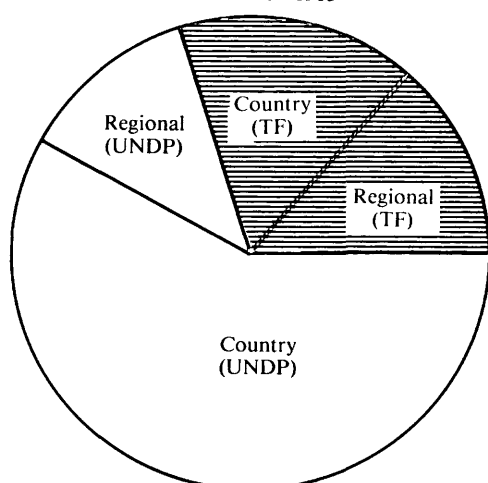


TF = Trust Funds
NA = No applicable

TABLE 6B

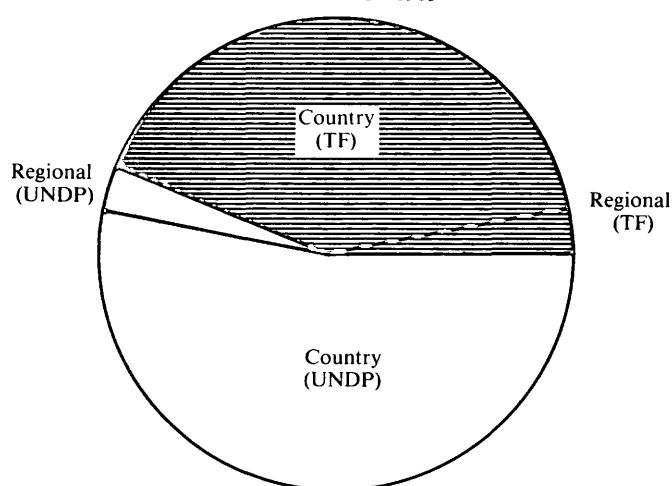
Project Distribution by Region and by source of financing - 1983

AFRICA - 1983



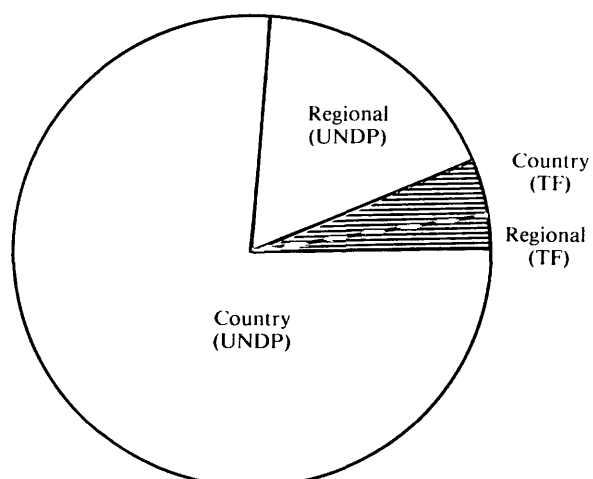
Number of Projects	
1: Regional (TF)	9
2: Country (TF)	11
3: Regional (UNDP)	8
4: Country (UNDP)	39

AMERICAS - 1983



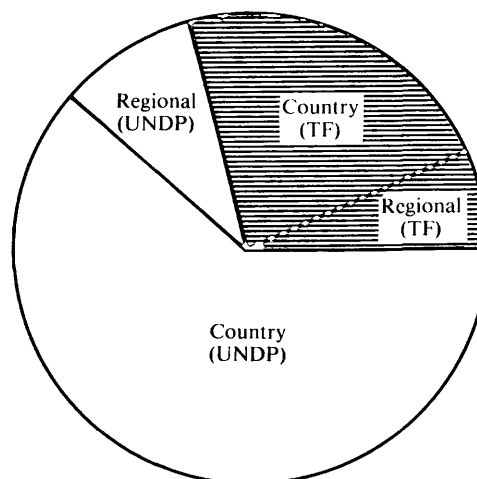
Number of Projects	
1: Regional (TF)	1
2: Country (TF)	14
3: Regional (UNDP)	1
4: Country (UNDP)	18

ASIA AND PACIFIC - 1983



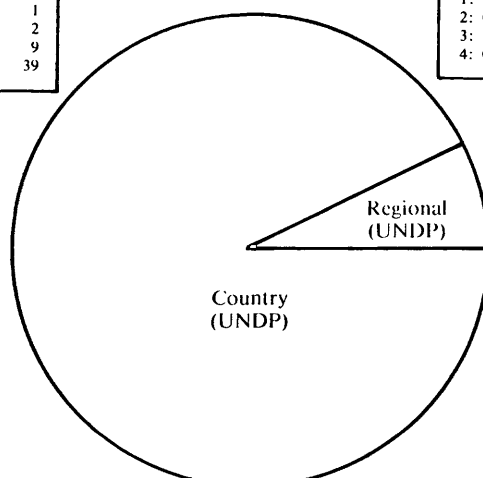
Number of Projects	
1: Regional (TF)	1
2: Country (TF)	2
3: Regional (UNDP)	9
4: Country (UNDP)	39

MIDDLE EAST - 1983



Number of Projects	
1: Regional (TF)	2
2: Country (TF)	7
3: Regional (UNDP)	3
4: Country (UNDP)	19

EUROPE - 1983



Number of Projects	
1: Regional (TF)	0
2: Country (TF)	0
3: Regional (UNDP)	1
4: Country (UNDP)	13

TABLE 7

List of Third Party Trust Funds – 1983

Third party financing was made available:

By	For projects in/missions to	Project Numbers
World Bank	Burundi, Niger and Uganda	9-BDI-81-01 9-NER-77-01 9-NER-77-02 9-UGA-83-01
Government of the Netherlands	Suriname	9-SUR-83-07
L.M. Ericsson	Teletraffic training (TETRAPRO)	9-GLO-78-03
Government of the Netherlands	Teletraffic training (TETRAPRO)	9-GLO-83-04
Arab Fund for Economic and Social Development (AFESD)	Somalia	9-SOM-81-03
Arab Bank for Economic Development of Africa (ABEDA)	Congo, Gabon, Gambia, Guinea Bissau, Senegal	9-PAF-78-79
Economic Community of West African States (ECOWAS)	West Africa	9-WAS-80-01
African Development Bank (ADB)	Mozambique	9-BAF-81-01
European Economic Community (EEC)	Botswana, Lesotho, Malawi, Swaziland	9-RAF-80-04
Gulf Vision	Arab States regional project	9-RAB-82-08
Federal Republic of Germany	The application of Appropriate Modern Telecommunication Technology for Integrated Rural Development in Africa (AMTT/IRD)	9-RAF-82-07
Federal Republic of Germany and 10 manufacturing companies (contribution received in previous years)	Contribution of Telecommunications to Socio-economic Development of the Rural Areas (ITU/OECD project)	9-GLO-76-01
Commonwealth Secretariat	Barbados	9-BAR-83-01
UNESCO	Namibia	3-NAM-79-20
UNESCO	West African News Agency Development	3-WAN-83-01

For details of Projects, see Table 4B.

TABLE 8

*Number of expert missions in 1983,
classified by region of mission and source of finance*

Region	UNDP		Trust Funds			Associate Experts	ITU Funds			Total
		(of which OPAS)	Traditional		Third Party		Specialists Res. No. 17	LDC and WCY Funds	ITU Special Fund for Tech. Coop.	
			Total	(of which OPAS)						
Africa	120	(7)	5	—	35	6	4	7	—	177
Americas	74		18	—	4	1	5	3	1	106
Asia/Pacific	123	(2)	—	—	1	5	10	1	—	140
Middle East	107	(3)	25	(2)	4	1	4	—	—	141
Europe	14	—	—	—	—	—	—	—	—	14
Interregional	—	—	—	—	5	—	—	—	—	5
Global	438	(12)	48	(2)	49	13	23	11	1	583

The total number of man-months of expert missions in 1983 was 2498 compared with 3141 man-months in 1982.

TABLE 9

Experts serving on ITU missions during 1983 (classified by nationality)

No. Experts	Nationals of (country)	No. Experts	Nationals of (country)
58 (75)	United Kingdom	2 (5)	Ghana
45 (55)	India	2 (5)	Peru
38 (40)	France	2 (5)	Spain
33 (51)	Sweden ¹⁾	2 (5)	Tanzania
28 (29)	Germany (Fed. Rep. of) ²⁾	2 (4)	Lebanon
20 (22)	Australia	2 (3)	Greece
19 (26)	Egypt	2	Belgium
18 (22)	Italy	2	Cuba
18 (21)	Netherlands ³⁾	2	Denmark ⁴⁾
13 (16)	United States of America	2	Iraq
11 (22)	Canada	2	Kenya
11 (12)	Costa Rica	2	Mauritius
10 (18)	Poland	2	Mali
8 (15)	Switzerland	2	Romania
8 (9)	Pakistan	2	Sudan
7 (9)	Tunisia	2	Upper Volta
7	Morocco	2	USSR
7	Norway	1 (3)	Iceland
6 (7)	Japan	1	Algeria
5 (6)	Brazil	1	Austria
4 (5)	Finland	1	Bangladesh
4 (5)	Turkey	1	Benin
4	Ethiopia	1	Bolivia
4	Jordan	1	Central African Rep.
4	Portugal	1	Congo
4	Yugoslavia	1	Czechoslovakia
3 (6)	Ireland	1	El Salvador
3 (5)	Syria	1	Guyana
3	Colombia	1	Liberia
3	Cyprus	1	Mauritania
3	Nepal	1	Venezuela
3	New Zealand		
		460 (583) nationals of 63 countries	

Note: Figure in brackets denotes the number of missions accomplished by the nationals of the country concerned. Where no such additional figure is indicated, the experts carried out only one mission each.

¹⁾ including 1 associate expert.

²⁾ including 6 associate experts.

³⁾ including 5 associate experts.

⁴⁾ including 1 associate expert.

TABLE 10

Associate Experts serving on ITU Missions in 1983

Country of Assignment	Donors			
	Germany (Fed. Rep. of) US\$ 174,817	Denmark US\$ 11,608	Netherlands US\$ 99,930	Sweden US\$ 29,868
Somalia	2		2	
Malawi			1	
Haiti	1			
Bangladesh		1		1
Burma	1			
Nepal				
Papua New Guinea			1	
South Pacific (Fiji)			1	
Swaziland	1			
Jordan	1			
Total	6	1	5	1

TABLE 11

UN Volunteers serving on UNDP/ITU Projects during 1983

Country of Assignment	Nationality of UNV
Papua New Guinea	Tanzania –1 United States –1
Somalia	India –1 Sierra Leone –1
Trinidad and Tobago	Bolivia –1 Nepal –1
Yemen (PDR)	India –1 Netherlands –1

TABLE 12A

Fellowships implemented during 1983

Region of origin of fellows	Standard fellowships	Group Training			Grand Total	%
		UNDP	ITU	Total		
Africa	73	68	133	201	274	33.1%
Americas	90	36	55	91	181	21.9%
Asia and Pacific	160	56	39	95	255	30.8%
Europe	25	25	1	26	51	6.2%
Middle East	33	22	11	33	66	8.0%
Total	381	207	239	446	827	100

Standard fellowship: Awards requiring the organization of individual study programmes.

Group training: Participation in seminars, workshops or meetings.

TABLE 12B

Standard fellowship implementation

Region	UNDP	USTSA	Total
Africa	¹⁾ 67	6	73
Americas	88	2	90
Asia and Pacific	²⁾ 154	6	160
Europe	³⁾ 25		25
Middle East	⁴⁾ 33		33
Total	367	14	381

¹⁾ 1 fellow under UNDP for which USTSA provided tuition/accommodation.

²⁾ 3 fellows under UNDP for which USTSA provided tuition/accommodation.

³⁾ 11 fellows under UNDP for which U.K. Dept. of Industry paid fees.

⁴⁾ 1 fellow under UNDP for which USTSA provided tuition/accommodation.

USTSA – United States Telecommunication Suppliers Association.

As a contribution to WCY, USTSA in cooperation with Texas A & M University, established a Model Training Centre. Two 10-week courses were held in 1983.

TABLE 12C

Principal host countries for ITU Fellows

Country	No. of Fellows
France	52
United States	46
United Kingdom	34
Singapore	34
Fiji	30
Brazil	24
Switzerland	23
Italy	21
Australia	19
Federal Republic of Germany	17
Spain	14
Egypt	12
Netherlands	11

Programmes were also organized in other industrialized and developing countries/territories, as follows: Argentina, Belgium, Canada, Chile, China, Colombia, Cook Islands, Costa Rica, Czechoslovakia, Denmark, El Salvador, Ethiopia, Finland, German Democratic Republic, Greece, Guatemala, Honduras, Hong Kong, India, Iraq, Ireland, Japan, Jordan, Kiribati, Malaysia, Morocco, Nauru, New Zealand, Niue, Panama, Papua New Guinea, Ponape, Samoa, Senegal, Sudan, Thailand, Togo, Tonga, Tunisia, USSR, Vanuatu and Zimbabwe.

TABLE 13

Expenditure for equipment in 1983

Projects carried out in the following countries/regions	Total Expenditure US \$
Afghanistan	15,777.77
Afghanistan (Trust Fund)	4,253.33
Africa Region	49,211.07
Africa Region (Trust Fund)	358,074.73
Albania	5,136.63
Algeria	0.00
Angola	– 1,426.00
Saudi Arabia	86,867.93
Saudi Arabia (Trust Fund)	8,658.55
Asia Region	124,326.62
Asia Region (Trust Fund)	93,390.00
Argentina	– 150.00
Bangladesh	138,883.82
Bangladesh (Trust Fund)	93,584.90
Brazil	1,646,444.00
Bulgaria	225.52
Burma	949.11
Burundi	– 1,030.16
Cameroon	105,979.80
Cameroon (Trust Fund)	90,079.86
Central African Republic	32,049.50
Chad	0.00
China (People's Republic of)	444,357.04
Cyprus	1,094.34
Korea (Republic of)	70,192.85
Cuba	85,164.53
Djibouti	10,464.89
Ecuador	0.00
Middle East Region	33,649.75
Middle East Region (Trust Fund)	4,374.50
Gambia (Trust Fund)	0.00
Ethiopia	– 2,567.47
Guatemala	9,536.70
Equatorial Guinea	44,663.03
Haiti	9,950.24
Honduras	96,023.18
India	201,222.45
Indonesia	303,818.85
Jamaica	– 2,978.00
Jordan	105,690.22
Kuwait	1,872.69
Lesotho	288,082.36
Malawi	110.03
Mongolia	112,946.57
Mozambique	54,922.31
Namibia	3,329.60
Nepal	226,765.01
Nicaragua	27,814.52
Nigeria (Federal Republic of)	– 1,132.62
Uganda	95,837.25
Panama	5,233.00
Papua New Guinea	7,206.12
Romania	25,432.14
Rwanda	– 7,325.00
Somalia	21,625.44
Somalia (Trust Fund)	3,129.43
Somalia (Special Fund)	3,764.00
Sudan	100,308.01
Sri Lanka	160.14
Suriname (Trust Fund)	18,124.75
Tokelau	135,274.33
Tonga	492.29
Trinidad and Tobago	78,721.60
Tunisia	3,100.00
Uruguay	17,851.00
Yemen (People's Democratic Republic of)	15,200.95
Total	5,504,790.00
Project Disbursement in the field for premises	139,209.00
Grand Total	5,643,999.00
Comparison 1982	5,541,585.00

The Union dealt with the procurement of equipment for 119 projects, 18 of which were intercountry projects.

TABLE 14
Equipment ordered in 1983
 (Classified by country/territory of origin)

Country/territory of origin	US\$
Germany (Federal Republic of)	310,948.63
Saudi Arabia	227.29
Australia	11,355.54
Bahrein	481.57
Belgium	427.26
Cameroon	10,142.12
Canada	212,648.76
Central African Republic	1,404.32
Denmark	7,763.82
Spain	438.46
United States of America	3,815,589.00
Fiji	7,756.33
Finland	151,293.10
France	165,781.99
Greece	2,040.80
Upper Volta (Republic of)	14,631.96
Hong Kong	7,555.35
Honduras	35.00
India (Republic of)	494.52
Italy	690.18
Japan	312,631.47
Jordan	25,163.04
Kenya	1,889.19
Lesotho	5,470.58
Malawi	64.10
Morocco	5,003.92
Norway	4,333.33
New Zealand	12,979.99
Papua New Guinea	8,413.40
Netherlands (Kingdom of)	127,735.82
United Kingdom	159,780.82
Rwanda	11,940.60
Senegal	2,865.64
Singapore (Republic of)	4,225.35
Somalia	123.70
Sudan	1,406.25
Sweden	102,746.25
Switzerland	300,483.13
Trinidad and Tobago	13,318.72
Zambia	2,954.47
Total	5,825,235.77
Comparison 1982	5,298,714.00

More than 90 per cent of the equipment was ordered from suppliers in Canada, the Federal Republic of Germany, France, Japan, Switzerland, the United Kingdom and the United States of America.

In 1983 a full-time effort was undertaken to develop a computerized manufacturers' registry to give more manufacturers throughout the world the possibility to participate in TCD procurement and subcontracting as well as to improve the efficiency of the TCD Equipment Procedure Service.

TABLE 15

Projects implemented by Contractors – Expenditure in 1983

Title of Project	Participating country	Expenditure for Subcontracts US \$	Subcontractor
Supply and installation of a Rural Radio Telephone Network RWA-74-022	Rwanda	0	Systcoms, Canada
Supply, Installation and Putting into Operation of Radio Relay Stations UGA-80-007	Uganda	887,048	Telettra Italy
Study of the reorganization of the Telecommunication Sector PHI-80-009	Philippines	49,100	A.D. Little USA
Development of a Demonstration Data Network INS-78-049	Indonesia	913,000	PTI Indonesia
Assistance in Development of a Demonstration Data Network INS-78-049	Indonesia	34,300	PT Pansystems Indonesia
Preparation of a National Telecommunication Network Plan CAF-81-001	Central African Republic	18,955	Contransimex Romania
Management Courses BGD-72-022	Bangladesh	1,513	MGMT Development Centre Bangladesh
Multiplex Expansion of the Communication System CMR-79-001	Cameroon	780,000	GTI ISC USA
Assistance in Rehabilitation and Maintenance of Telecommunication Network CMR-79-001	Cameroon	6,000	Contransimex Romania
Computer Courses BGD-72-022	Bangladesh	4,874	Ciprocco Bangladesh
Consultant Engineer to assist Chief of Maintenance 9-PAN-81-01	Panama	7,824	Conselsa Costa Rica
Modification of the Existing Computer Program ARG-78-019	Argentina	7,500	Sonyer S.A.
Supply of Rural Health Communication Network LES-80-C03	Lesotho	248,640	Codan Pty Ltd Australia
Assistance in the Design and Procurement of a Satellite Monitoring Facility IND-75-012	India	6,779	Telesat Canada
Consultancy Support in Digital Network Technology IND-76-011	India	12,153	Bell Canada Canada
Supply of Installation of a Maritime Radio Communication System 9-PAN-82-02	Panama	0	Mitsui Ltd Japan
Management Development Courses BGD-72-022	Bangladesh	0	MGMT Development Centre Bangladesh
Total		2,977,686	
Comparison 1982		2,438,978	

Note: Zero disbursement indicates that the contract has been signed and activity occurred but no payments fell due during the year.

TABLE 16
Contracts signed in 1983

Title of Contract	Country	Value of Contract US\$	Contractor
Mobile Radio Maritime System 9-PAN-82-02	Panama	2,258,802	Mitsui Electric Japan
Digital Network Consultant IND-76-011	India	12,153	Bell Canada, Canada
Rural Health Communication LES-80-C03	Lesotho	248,640	Codan Ltd., Australia
Modification of Computer System ARG-78-019	Argentina	7,500	Sonyer, Argentina
Consultant on Satellite Monitoring IND-75-012	India	7,733	Telesat, Canada
Demonstration Data Network INS-78-049	Indonesia	35,000 (extension)	Pansystems Indonesia
Total	6 contracts	2,569,828	
Comparison 1982	9 contracts	1,449,527	

TABLE 17

List of Seminars and Meetings
Organised by ITU directly or in conjunction with a Member Administration

Seminar/Meeting	Fellowships awarded through ITU Activity	Place and date in 1983	Source of Funds
Telecommunication Training	13 Fellows	Bangkok, Thailand 09.01 – 22.01	UNDP
Maintenance of telecommunication systems	16 Fellows (organized by ECOWAS)	Lomé, Togo 25.01 – 29.01	ECOWAS
Satellite Communications	16 Fellows	Bandung, Indonesia 07.02 – 19.03	UNDP
Rural telecommunication installations	3 Fellows	Australia 02.05 – 05.06	UNDP
Planning and Operations in Telecommunications	2 Fellows	Bangkok, Thailand 15.05 – 28.05	UNDP
Telecommunication Maintenance Workshop	11 Fellows	Bandung, Indonesia 01.06 – 10.06	UNDP
Principles of Development of Satellite Communication Systems and Efficient Use of the Geostationary Orbit	37 Fellows	Moscow, USSR 26.07 – 04.08	USSR Administration
Workshop on International Telecommunication Accounting	12 Fellows	Harare, Zimbabwe 27.07 – 02.08	UNDP
Local Network Maintenance	4 Fellows	Dakar, Senegal 20.09 – 30.09	UNDP
IFRB Regular Seminars, (see page 137, para. 7.5)	21 Fellows 11 Fellows 4 Fellows	Geneva, Switzerland 10.10 – 28.10	UNDP Fellowship Funds ITU Special Fund
Telecommunications for Development (WCY)	48 Fellows	San José, Costa Rica 08.08 – 13.08	WCY/Fellowship Funds
Telecommunications for Development Seminar/Meeting (WCY) and PANAFTEL maintenance and CCIR Propagation Seminars	88 Fellows	Lomé, Togo 22.08 – 31.08	WCY/Fellowship Funds
Domestic Satellite Communications (WCY)	7 Fellows	Shanghai, People's Rep. of China 05.10 – 12.10	People's Rep. of China/ Fellowship Funds
Digital Technology (WCY)	23 Fellows	Campinas, Brazil 21.11 – 25.11	UNDP/Cost Sharing
Telecommunications for Development (WCY)	23 Fellows	Kuala Lumpur, Malaysia 05.12 – 09.12	WCY/Fellowship Funds
Recruitment and Basic Training in Telecommunications, Interregional Seminar	8 Fellows 4 Fellows 2 Fellows	ITU, Geneva 02.11 – 11.11	UNDP Fellowship Funds ITU Special Fund
4th World Telecommunication Exhibition (TELECOM 83)	16 Fellows	Geneva, Switzerland 26.10 – 01.11	UNDP
TELECOM 83	52 Fellowships (Extension of Per Diem in Geneva)	Geneva, Switzerland 26.10 – 01.11	Interest on Exhibitors' Payments
Teleprinters Workshop for PANAFRICAN NEWS AGENCY (PANA) Technicians	3 Fellows	Khartoum, Sudan 13.11 – 22.11	UNDP
Telecommunication Maintenance Workshop	8 Fellows	Addis Ababa, Ethiopia 21.11 – 25.11	UNDP

TABLE 17 (continued)

Seminar/Meeting	Fellowship awarded through ITU Activity	Place and date in 1983	Source of Funds
Medarabtel 4th Annual Review	32 Fellows	Geneva, Switzerland 25.01 – 28.01	UNDP
Medarabtel Arabsat Earth Stations	9 Fellows	Athens, Greece 15.02 – 26.02	UNDP
Medarabtel Transmission from Analogue to Digital Telecommunication Networks	13 Fellows	Baghdad, Iraq 23.03 – 29.03	UNDP
Medarabtel Arabsat Earth Stations	6 Fellows	Athens, Greece 19.04 – 22.04	UNDP
Medarabtel Evaluation Committee	6 Fellows	Athens, Greece 14.06 – 17.06	UNDP
Medarabtel Sub/Region IV	4 Fellows	Athens, Greece 27.11 – 01.12	UNDP
Frequency Management, Radio Monitoring and Broadcasting (WCY)	125 Participants (directed by Fed. Rep. of Germany)	Munich, Fed. Rep. of Germany 21.11 – 25.11	WCY

ARREARS *

(Position on 31 December 1983)

	Years	Contributions	Publications	Total
Swiss francs				
A. Members of the Union				
Algeria (People's Dem. Rep. of)	1982	—	9,853.55	9,853.55
Angola (People's Rep. of)	1980-82	95,374.40	4,819.70	100,194.10
Saudi Arabia (Kingdom of)	1981-82	—	7,408.90	7,408.90
Argentine Republic	1982	6,520.50	10,601.—	17,121.50
Australia	1982	—	23,109.—	23,109.—
Belize	1981-82	90,533.85	—	90,533.85
Benin (People's Rep. of)	1981-82	37,296.90	11,176.45	48,473.35
Bolivia (Rep. of)	1980-82	102,115.45	7,207.90	109,323.35
Burundi (Rep. of)	1978-82	16,313.50	217.—	16,530.50
Cameroon (Rep. of)	1979-82	4,893.40	48,958.70	53,852.10
Cape Verde (Rep. of)	1981-82	96,173.50	—	96,173.50
Central African Republic	1975-82	106,085.10	83,697.90	189,783.—
Comoros (Islamic Fed. Rep. of the)	1978-82	426,102.55	5,735.90	431,838.45
Ivory Coast (Rep. of the)	1982	—	18,356.—	18,356.—
Cuba	1982	—	38,909.—	38,909.—
Dominican Republic	1973-82	422,607.05	25,818.30	448,425.35
Ecuador	1982	15.05	8,286.—	8,301.05
Ethiopia	1980-82	—	13,937.45	13,937.45
France	1981-82	—	15,001.—	15,001.—
Ghana	1982	—	19,060.80	19,060.80
Greece	1982	—	5,574.35	5,574.35
Grenada	1981-82	92,385.60	4,183.50	96,569.10
Guatemala (Rep. of)	1981-82	69,415.75	11,230.40	80,646.15
Guinea (Rev. People's Rep. of)	1981-82	3,561.95	36,219.80	39,781.75
Guinea-Bissau (Rep. of)	1976-82	337,017.80	26,021.90	363,039.70
Equatorial Guinea (Rep. of)	1982	93,120.25	1,460.—	94,580.25
Guyana	1981-82	102,659.70	3,039.30	105,699.—
Honduras (Rep. of)	1981-82	16,835.85	2,049.55	18,885.40
Hungarian People's Republic	1982	7,124.—	—	7,124.—
Iran (Islamic Rep. of)	1982	—	17,556.45	17,556.45
Ireland	1982	—	8,072.—	8,072.—
Israel (State of)	1982	5,617.85	—	5,617.85
Jordan (Hashemite Kingdom of)	1982	11.15	7,400.—	7,411.15
Democratic Kampuchea	1971-82	890,822.15	36,201.50	927,023.65
Kenya (Rep. of)	1981-82	—	458,696.85	458,696.85
Liberia (Rep. of)	1977-82	929,975.35	5,854.15	935,829.50
Madagascar (Dem. Rep. of)	1978-82	196,104.75	60,489.60	256,594.35
Malaysia	1981-82	—	26,408.65	26,408.65
Malawi	1976-82	7,902.80	9,238.20	17,141.—
Mali (Rep. of)	1982	3,561.95	1,743.—	5,304.95
Mauritania (Islamic Rep. of)	1977-82	220,508.20	—	220,508.20
Nicaragua	1977-82	—	6,217.10	6,217.10
Nigeria (Fed. Rep. of)	1982	—	7,586.—	7,586.—
Oman (Sultanate of)	1981-82	—	8,305.10	8,305.10
Uganda (Rep. of)	1981-82	7,686.25	40,043.20	47,729.45
Paraguay (Rep. of)	1982	—	8,691.—	8,691.—
Peru	1979-82	110,893.70	10,985.65	121,879.35
Syrian Arab Republic	1979-82	424.70	5,075.35	5,500.05
Rwandese Republic	1980-82	6,405.85	—	6,405.85
Senegal (Rep. of)	1979-82	185,713.35	2,571.10	188,284.45
Sierra Leone	1976-82	545,750.—	11,047.20	556,797.20
Somali Democratic Republic	1980-82	6,913.90	1,197.20	8,111.10
Sudan (Dem. Rep. of the)	1980-82	471,167.20	31,844.25	503,011.45
Sri Lanka (Dem. Soc. Rep. of)	1982	—	15,199.—	15,199.—
Suriname (Rep. of)	1980-82	12,244.05	14,896.75	27,140.80
Chad (Rep. of)	1971-82	3,561.95	28,919.50	32,481.45
Togolese Republic	1979-82	180,307.50	2,038.30	182,345.80
Tonga (Kingdom of)	1981-82	39,616.30	180.05	39,796.35
Trinidad and Tobago	1974-82	12,949.85	2,893.15	15,843.—
Tunisia	1981-82	41,896.30	—	41,896.30
Uruguay (Eastern Rep. of)	1982	2,480.95	7,104.—	9,584.95
Yugoslavia (Soc. Federal Rep. of)	1982	7,089.75	5,448.50	12,538.25
Zaire (Rep. of)	1982	—	12,280.—	12,280.—
Zambia (Rep. of)	1982	3,784.25	3,743.—	7,527.25
	1971-82	6,019,542.20	1,299,859.15	7,319,401.35

* Only arrears exceeding 5,000 Swiss francs are listed.

	Years	Contributions	Publications	Total
		Swiss francs		
B. Other administrative services				
<i>Argentine Republic</i>				
Empresa Nal. Telecomunicaciones, Buenos Aires	1981-82		28,039.05	28,039.05
Empresa Nal. Correos y Telégrafos, Buenos Aires	1982		2,946. —	2,946. —
<i>Spain</i>				
D.G. medios comunicación social, Madrid	1982		23,294.40	23,294.40
<i>United States of America</i>				
U.S. Coast Guard, Washington	1981-82		5,941.85	5,941.85
Naval Regional Finance Center, Washington	1982		4,535. —	4,535. —
<i>France</i>				
Service technique des phares et balises, Bonneuil-sur-Marne	1982		2,520. —	2,520. —
<i>Papua New Guinea</i>				
Posts and Telecomm. Corp., Boroko	1981-82		9,126.05	9,126.05
	1981-82	—	76,402.35	76,402.35

C. <i>Recognized private operating agencies, scientific or industrial organizations, international organizations</i>	Years	Contributions	Publications	Total
		Swiss francs		
<i>Germany (Fed. Rep. of)</i>				
Siemens A.G., München	1982	—	5,238. —	5,238. —
<i>Belgium</i>				
GTE ATEA S.A., Herentals	1982	17,878.45	—	17,878.45
<i>Canada</i>				
Bell-Northern Research, Ottawa	1981-82	—	5,164.75	5,164.75
<i>Spain</i>				
Secoinsa, Madrid	1980-81	15,309.40	—	15,309.40
<i>United States of America</i>				
A.T. and T., Basking Ridge	1981-82	—	5,667.95	5,667.95
Micom Systems, Inc., Chatsworth	1982	17,878.45	—	17,878.45
General Data Comm. Ind. Inc., Danbury	1981-82	2,992.90	—	2,992.90
Teledynamics Fort, Washington	1979-80	13,592.45	—	13,592.45
Harris Satellite Commun. Oper., Melbourne	1981-82	35,435. —	—	35,435. —
Western Union International Inc., New York	1982	—	3,488. —	3,488. —
General Electric Info. Services Co., Rockville	1982	17,353.10	—	17,353.10
Comsat, Washington	1982	—	15,406. —	15,406. —
<i>India (Rep. of)</i>				
Electronics Trade and Tech. Dev. Corp. Ltd., New Dehli	1982	—	4,915. —	4,915. —
<i>Italy</i>				
Società Italiana Radio Marittima, Roma	1982	—	2,560. —	2,560. —
Selenia S.p.A., Roma	1982	17,878.45	—	17,878.45
<i>Japan</i>				
Nippon Telegraph and Teleph. Public Corp., Tokyo	1982	—	13,786. —	13,786. —
<i>Lesotho (Kingdom of)</i>				
Lesotho Nat. Broadcasting Corp., Maseru	1982	3,527.70	—	3,527.70
<i>Nigeria (Fed. Rep. of)</i>				
Nigerian External Tel. Ltd., Lagos	1976-82	87,646.10	42,743.55	130,389.65
<i>United Kingdom of Great Britain and Northern Ireland</i>				
Independant Broadcasting Authority, Winchester	1982	—	3,027. —	3,027. —
<i>Senegal (Rep. of)</i>				
Office Radiodiffusion Télévision, Dakar	1982	7,038.35	—	7,038.35
<i>Switzerland (Confederation of)</i>				
Service 800 S.A., Nyon	1981-82	17,972.85	40. —	18,012.85
<i>Venezuela (Rep. of)</i>				
Ipostel, Caracas	1980-82	371.45	1,649.30	2,020.75
C.A.N.T.V., Caracas	1982	17,976.85	641.20	18,618.05
<i>Yugoslavia (Soc. Federal Rep. of)</i>				
Jugoslovenska Radiotelevizija, Beograd	1981-82	17,772.50	—	17,772.50
Iskra-Krany, Ljubljana	1977-82	69,881.30	2,520. —	72,401.30
	1976-82	360,505.30	106,846.75	467,352.05
U.A.P.T., Brazzaville	1981-82	—	3,152.20	3,152.20
East African External Telecom. Co.	1976-77	21,157.40	3,471.95	24,629.35
Other debtors		22,396.60	72,507.85	94,904.45
		6,423,601.50	1,562,240.25	7,985,841.75

