



This electronic version (PDF) was scanned by the International Telecommunication Union (ITU) Library & Archives Service from an original paper document in the ITU Library & Archives collections.

La présente version électronique (PDF) a été numérisée par le Service de la bibliothèque et des archives de l'Union internationale des télécommunications (UIT) à partir d'un document papier original des collections de ce service.

Esta versión electrónica (PDF) ha sido escaneada por el Servicio de Biblioteca y Archivos de la Unión Internacional de Telecomunicaciones (UIT) a partir de un documento impreso original de las colecciones del Servicio de Biblioteca y Archivos de la UIT.

(ITU) نتاج تصوير بالمسح الضوئي أجراه قسم المكتبة والمحفوظات في الاتحاد الدولي للاتصالات (PDF) هذه النسخة الإلكترونية نقلاً من وثيقة ورقية أصلية ضمن الوثائق المتوفرة في قسم المكتبة والمحفوظات.

此电子版（PDF 版本）由国际电信联盟（ITU）图书馆和档案室利用存于该处的纸质文件扫描提供。

Настоящий электронный вариант (PDF) был подготовлен в библиотечно-архивной службе Международного союза электросвязи путем сканирования исходного документа в бумажной форме из библиотечно-архивной службы МСЭ.



INTERNATIONAL TELECOMMUNICATION UNION

REPORT
ON THE ACTIVITIES OF
THE INTERNATIONAL
TELECOMMUNICATION UNION
IN
1978

TABLE OF CONTENTS

	<i>Page</i>
1. Introduction	3
2. Membership of the Union	3
3. The Administrative Council	4
4. World Administrative Radio Conference on the Aeronautical Mobile (R) Service (Geneva, 1978) .	8
5. Activities of the permanent organs	10
5.1 General Secretariat	10
5.2 International Frequency Registration Board (IFRB)	18
5.3 International Radio Consultative Committee (CCIR)	26
5.4 International Telegraph and Telephone Consultative Committee (CCITT)	36
6. Technical Cooperation Activities	53
7. Administration of the Union	71
7.1 Staff matters	71
7.2 Financial questions	78
8. Relations with the United Nations and other international organizations	80
Annex 1: Position on 31 December 1978 of Member countries in relation to the Acts of the Union . . .	85
Annex 2A: Budget for 1978	109
Annex 2B: Accounts for 1978	113
Annex 3: List of publications issued by the Union in 1978	118
Annex 4: Activities of the Computer Department in 1978	121
Annex 5: List of UNDP/ITU projects under implementation in 1978	124
Annex 6: Arrears (position on 31 December 1978)	137

1. INTRODUCTION

This Report is published in accordance with No. 289 of the International Telecommunication Convention (Malaga-Torremolinos, 1973), which provides that the Secretary-General shall " ... prepare an annual report on the activities of the Union which, after approval by the Administrative Council, shall be transmitted to all Members".

2. MEMBERSHIP OF THE UNION

1. At 31 December 1978, the number of Members of the Union was 154, 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 12 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
Federal and Islamic 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

2. During 1978, 15 countries ratified the International Telecommunication Convention, Malaga-Torremolinos, 1973. On 31 December 1978, the total number of ratifications was 112 and of accessions, 28. A reminder has been sent to countries which have not yet ratified the Convention or acceded thereto.

3. The position on 31 December 1978 of Members with respect to the Malaga-Torremolinos Convention, 1973, and to the Administrative Regulations annexed hereto is shown in Table I of Annex I to this Report. Annex I also gives information relating to a number of other conventions and agreements concerned with telecommunications.

3. THE ADMINISTRATIVE COUNCIL

3.1 The 33rd session of the Administrative Council was held at ITU Headquarters from 15 May to 1 June 1978. The session thus ended one day before the date originally scheduled.

It was attended by representatives of thirty-five Members of the Council, i.e.:

Algeria (Algerian Democratic and Popular Republic), Germany (Federal Republic of), Saudia Arabia (Kingdom of), Argentine Republic, Australia, Brazil (Federative Republic of), Cameroon (United Republic of), Canada, China (People's Republic of), Egypt (Arab Republic of), Spain, United States of America, Ethiopia, France, Hungarian People's Republic, India (Republic of), Iran, Italy, Japan, Lebanon, Malaysia, Morocco (Kingdom of), Mexico, Nigeria (Federal Republic of), Poland (People's Republic of), Roumania (Socialist Republic of), United Kingdom of Great Britain and Northern Ireland, Senegal (Republic of the), Sweden, Switzerland (Confederation of), Tanzania (United Republic of), Thailand, Trinidad and Tobago, Union of Soviet Socialist Republics, Venezuela (Republic of).

3.2 Mr. Heinrich Ludwig Venhaus (Federal Republic of Germany) and Mr. Jean Jipguep (United Republic of Cameroon) were elected Chairman and Vice-Chairman of the Council respectively, and the following committees were set up:

Committee 1 – Finance

Chairman: Mr. José J. Hernández-G. (Mexico)
Vice-Chairman: Mr. T.V. Srirangan (India)

Committee 2 – Staff and Pensions

Chairman: Mr. Mohamed El Aoud (Morocco)
Vice-Chairman: Mr. John Maurice Healey (United Kingdom)

Committee 3 – Technical Cooperation

Chairman: Mrs. Ruth H. Phillips (United States of America)
Vice-Chairman: Dr. László Katona Kis (Hungarian People's Republic)

The Council also set up the following working group:

Working Group PL-A *Chairman:* Mr. Mahmoudou Samoura (Senegal)
 (Resolutions and Decisions)

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 1977*

The Council approved the Financial Operating Report and the Management Report of the ITU Staff Superannuation and Benevolent Funds for 1977.

(Resolution No. 805)

3.3.1.2 *External Audit of ITU accounts for the period 1 January to 31 December 1977*

The Council approved the accounts of the ITU for the period 1 January to 31 December 1977 as drawn up and as audited by the External Auditor of the Swiss Confederation.

(Resolution No. 807)

3.3.1.3 *Budget of the Union for 1978*

The Administrative Council decided to reduce the budget of the Aeronautical Conference (Geneva, 1978) by 122,000 Swiss francs, the budget of meetings of CCIR Study Groups, January/February 1978, by 232,000 Swiss francs and the budget of common expenditure on conferences (Section 17) by 248,000 Swiss francs, the total reduction amounting to 602,000 Swiss francs.

(Decision No. 383)

3.3.1.4 *Budget of the Union for 1979*

The budgets for 1979 were approved. For details, see Section 7.2 of this report.

(Resolution No. 815)

3.3.1.5 *Revision of the Financial Regulations of the Union*

The Council resolved to amend Article 6, paragraph 1, of the Financial Regulations of the Union as follows:

add after "Technical support for the group of engineers – Section 7":

Official reports – Section 8

(Resolution No. 819)

3.3.2 *Staff and pension matters*

3.3.2.1 *Grading of posts*

The Council, having considered the reports by the post classification specialist submitted to the 32nd (1977) and 33rd (1978) sessions, resolved to approve the proposals contained therein concerning the post classification plan, with effect from 1 January 1977, in accordance with the relevant provisions of the Staff Regulations and Staff Rules; this terminates the survey by the post classification specialist.

(Resolution No. 806)

The Council decided to approve the reclassification of Post PE2/P.3/258 from P.3 to P.4 with effect from 1 January 1978.

(Resolution No. 809)

3.3.2.2 *Department of External Relations*

The Council resolved to re-establish a P.5 post in the Department of External Relations with effect from 1 October 1978.

(Resolution No. 812)

3.3.2.3 *Conversion of translator posts into translator/reviser posts*

The Council decided to approve the conversion of three P.3 translator posts into P.4 translator/reviser posts with effect from 1 July 1978.

(Resolution No. 810)

3.3.2.4 *Fluctuations in the exchange rate*

The Council examined the effects of the fluctuations in the exchange rate of the United States dollar against the Swiss franc on the various components of the remuneration of staff in the professional category and above and considered that the situation had developed since 1971 in a way that was a cause of concern and that it required expeditious consideration. The Council therefore urged the International Civil Service Commission to recommend the amendments to the relevant conditions of the United Nations common system that it considered necessary and instructed the Secretary-General to take part in the studies required and to report to the Council at its 34th session.

(Resolution No. 811)

In addition, the Council noted the situation of staff members in the professional and higher categories at ITU in Geneva, with regard to pensions, supported the proposals of the Standing Committee of the United Nations Joint Staff Pension Board (London, February 1978) for the adjustment of pensions, and instructed the Secretary-General to take appropriate action in the competent United Nations bodies to further the purpose of Recommendation No. 3 of the Plenipotentiary Conference (Malaga-Torremolinos, 1973).

(Resolution No. 818)

3.3.2.5 *Rehabilitation of the Provident Fund of the ITU SS & B Funds*

The Council resolved to contribute the sum of 350,000.— Swiss francs to the Provident Fund as of 1 January 1979 for the years 1979, 1980 and 1981; it also resolved to review the financial situation of the Provident Fund in the light of the actuarial balance sheet drawn up on 31 December 1979 and to submit the matter for consideration to the next Plenipotentiary Conference. Finally, it requested the Secretary-General to submit to the Administrative Council at its 34th session a study on the possibilities of financing the Provident Fund from extra-budgetary resources.

(Resolution No. 808)

3.3.2.6 *Membership of the ITU Pension Committee*

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

Members	Alternate Members	Term
Mr. J.A. Msambichaka	Mr. D. Anderson	Until the end of the 34th ordinary session of the Council
Mr. F. Molina Negro	Mr. C.J. Martínez González	Until the end of the 35th ordinary session of the Council
Mr. I. Uidila	Mr. M. Apothéloz	Until the end of the 36th ordinary session of the Council

(Resolution No. 813)

3.3.3 *Administrative Conferences* (see also items 3.4.1 and 3.4.2)

3.3.3.1 *World Administrative Radio Conference (WARC) for the Mobile Service*

Since the agenda of the 1979 WARC does not cover the revision of many regulations, particularly those concerning some individual services, one administration Member of the Council suggested that a WARC for the Mobile Service should be held as soon as possible after WARC, 1979. During the Council discussions, several countries expressed the view that it might be useful to convene such a WARC. The council accordingly recommended that the 1979 WARC should consider the advisability of convening, as soon as possible after the 1979 WARC, a WARC on the mobile service in order to examine matters of interest for the aeronautical, maritime and land mobile services. The Council also recommended that administrations should keep the subject in mind when preparing their proposals for the 1979 WARC.

(Resolution No. 814)

3.3.4 *Administrative Council*

3.3.4.1 *Date and duration of the 34th session of the Administrative Council*

The Council decided to hold its 34th session from 4 June to 22 June 1979.

(Decision No. 384)

3.3.4.2 *Methods of work of the Administrative Council*

After considering the report by the Working Group "Methods of Work of the Council", the Council instructed the Secretary-General to implement, taking into account the Rules of Procedure of the Administrative Council, the measures resulting from the discussion of the report, to report to the Administrative Council at its 34th session on the implementation of these measures and to make proposals for possible amendments to the Rules of Procedure of the Administrative Council.

(Resolution No. 817)

3.3.5 *Miscellaneous Resolutions and Decisions*

3.3.5.1 *World Communications Year*

The Council resolved to take note of the action undertaken by the Secretary-General of the ITU with a view to implementing United Nations Resolution 32/160 and recommended that the Member countries of the Union should support the proposal to proclaim 1983 as World Communications Year. It also invited the Members of the Union to give all appropriate instructions to their representatives on ECOSOC and at the United Nations General Assembly so that they could take account of the Resolution and instructed the Secretary-General of the ITU to bring United Nations Resolution 32/160 to the notice of all the Member countries of the Union, drawing their attention to operative paragraph 5 of the Resolution and to submit a report on the matter to the 34th session of the Administrative Council.

(Resolution No. 820)

3.3.5.2 *ITU Centenary Prize*

The Council resolved to establish an "ITU Centenary Prize" and to award the prize in principle every four years. It also instructed the Secretary-General to bring this Resolution to the notice of Members of the Union, to encourage the submission of candidatures for the prize and to take all measures required in this respect, having regard to available resources and in accordance with the regulations governing the "ITU Centenary Prize".

(Resolution No. 816)

In addition, the Council decided to set up a jury at its next session for the purpose of selecting the individual or group to be awarded the first "ITU Centenary Prize" in accordance with the conditions laid down in the "ITU Centenary Prize Regulations"; to make the first award on 23 September 1979, the day before the opening of the World Administrative Radio Conference, in order to mark the importance of the Conference, at a formal ceremony in the large conference room reserved for the World Telecommunication Forum organized in connection with the 3rd World Telecommunication Exhibition, TELECOM 79; and to set the amount of the prize for 1979 at 15,000 Swiss francs.

(Decision No. 385)

3.4 *Other questions*

3.4.1 *World Administrative Radio Conference (1979)*

The Council drew up the budget of the Conference and the list of international organizations to be notified of its convening. It also adopted a series of recommendations aimed at facilitating and accelerating both the preparatory work and the actual Conference proceedings. Finally, it instructed the Secretary-General to communicate these recommendations to Union Members and to the Conference.

3.4.2 *Plenipotentiary Conference*

The Council decided to instruct the Secretary-General to send a circular-letter to the Members of the Union informing them of the Council's proposal to convene the Plenipotentiary Conference in October/November 1982. Once most Members have given their agreement, the Secretary-General will be able to initiate discussions with the Government of Kenya (the host Government) on the opening date and to report to the next session of the Council, which will then decide on the duration of the Conference.

The Secretary-General was also instructed, when he sends the above-mentioned circular-letter, to inform the Members of the Union of the Council's proposal to postpone the Regional Administrative Radio Conference on the Broadcasting-Satellite Service (Region 2) until Spring 1983.

3.4.3 *Increased utilization of the computer for IFRB and related General Secretariat activities*

The Council instructed the Secretary-General and the Chairman of the IFRB, in collaboration with experts from administrations, to prepare a report on the scope and cost of an integrated computer system study. This study, which would be coordinated by the IFRB, would examine the extent to which the IFRB procedures relating to the coordination, notification, examination and recording of frequency assignments could be included in such a system with the assistance of the experts from administrations and the expertise of the Board's secretariat and of the Computer Department in the General Secretariat. Due regard would be given to the processing activities on radio communication and directly related processing matters of the General Secretariat which fall within the respective areas of competence of the two permanent organs.

The report is to be submitted to the 34th Session (1979) of the Council with a view to a decision on placing a contract with a computer consultant to carry out the studies in the light of the decisions of the 1979 WARC.

3.4.4 *Election of a member of the IFRB*

Mr. Petr S. Kurakov, whose candidacy was submitted by the Administration of the Union of Soviet Socialist Republics, was elected member of the IFRB to replace Mr. Alexander Gromov, who resigned on 14 February 1978.

3.4.5 In order not to overload this report, the other main questions examined by the Council at its 1978 session are merely listed below:

- Report on the activities of the Union in 1977
- Arrears and Special Arrears Account
- Analytical cost accounting
- Regional experts
- Integrated rural development
- Establishment of a working group to examine the future of ITU Technical Cooperation activities
- In-service training
- United Nations Resolutions
- Reports by the Joint Inspection Unit
- Mass-media: Discussions of the United Nations General Assembly and collaboration with UNESCO.

4. WORLD ADMINISTRATIVE RADIO CONFERENCE ON THE AERONAUTICAL MOBILE (R) SERVICE

4.1 At its 30th Session, the Administrative Council decided, by Resolution No. 763 (amended as approved by the Members of the Union following the proposal by the Administrative Council at its 31st Session, 1976), that the World Administrative Radio Conference on the Aeronautical Mobile (R) Service should open in Geneva on 6 February 1978, with the following agenda:

1. matters relating to the Aeronautical Mobile (R) Service;
2. to revise, on the basis of single sideband operation, the Frequency Allotment Plan for the Aeronautical Mobile (R) Service (Appendix 27 to the Radio Regulations) to satisfy within the minimum amount of spectrum necessary the needs of that service;
3. to consider and review, as necessary, the provisions of the Radio Regulations and the Additional Radio Regulations governing the Aeronautical Mobile (R) Service which are consequential to 2. above;
4. to adopt such resolutions and recommendations related to the foregoing as may be necessary.

4.2 Ninety-three Members of the Union were represented by over 330 delegates at the Conference, which was also attended by one observer from the United Nations, two from specialized agencies and three from other organizations.

4.3 The Aeronautical (R) Conference was declared open on 6 February 1978 by Mr. Auguste V.G. Theys (Belgium), Dean of the Conference.

4.4 Mr. T.V. Srirangan (India) was elected Chairman of the Conference. Mr. N. Bouhired (Algeria), Mr. P.R. Hermanno Balduino (Brazil), Mr. N.-T. Wang (China), Mrs. B. Dillon (United States), Mr. A. Petti (Italy) and Mr. A.L. Badalov (U.S.S.R.) were elected Vice-Chairmen.

4.5 The following seven committees were established:

Committee 1 - Steering

(consisting of the Chairman and Vice-Chairmen of the Conference and the Chairmen and Vice-Chairmen of the other committees)

Committee 2 - Credentials

Chairman: Mr. C.J. Martinez (Republic of Venezuela)

Vice-Chairman: Mr. L. Grimstveit (Norway)

Committee 3 - Budget Control

Chairman: Mr. A.M. Dione (Republic of the Senegal)

Vice-Chairman: Mr. A. Hakimian (Iran)

Committee 4 – Technical

Chairman: Dr. G. Kovács (Hungarian People's Republic)
Vice-Chairman: Mr. R.E.N. Inoma (Federal Republic of Nigeria)

Committee 5 – Planning

Chairman: Mr. M. Chef (France)
Vice-Chairman: Mr. E.D. Ducharme (Canada)

Committee 6 – Regulatory Procedures

Chairman: Mr. R.J. Bundle (New Zealand)
Vice-Chairman: Mr. Z. Kupczyk (People's Republic of Poland)

Committee 7 – Editorial

Chairman: Mr. C.-J. Dhenin (France)
Vice-Chairmen: Mr. M. Valbuena Granados (Spain)
Mr. D.E. Baptiste (United Kingdom of Great Britain and Northern Ireland)

4.6 The Conference considered and revised the relevant parts of the Radio Regulations in conformity with its agenda and ended its work on Sunday, 5 March 1978 with the signature of the Final Acts of the Conference.

The Final Acts comprise:

4.6.1 An introduction and two annexes:

Annex 1: Partial revision of Articles 5, 9, 28 and 35 of the Radio Regulations and Appendices 1 and 3 thereto.

Annex 2: Revision of Appendix 27 to the Radio Regulations (Frequency Allotment Plan and related information).

4.6.2 The Final Protocol, which contains 56 statements by signatory delegations.

4.6.3 Eight Resolutions on the following subjects:

- No. Aer2 – 1 Relating to the Use of Frequencies 3 023 and 5 680 kHz common to the Aeronautical Mobile (R) and (OR) Services.
- No. Aer2 – 2 Relating to the Unauthorized Use of Frequencies in the Bands Allocated to the Aeronautical Mobile (R) Service.
- No. Aer2 – 3 Relating to the Implementation of the New Arrangement applicable to Bands Allocated Exclusively to the Aeronautical Mobile (R) Service between 2 850 and 17 970 kHz.
- No. Aer2 – 4 Relating to the Treatment of Notices Concerning Frequency Assignments to Aeronautical Stations in the Bands Allocated Exclusively to the Aeronautical Mobile (R) Service between 2 850 and 17 970 kHz.
- No. Aer2 – 5 Relating to the Implementation of the Frequency Allotment Plan in the Bands Allocated Exclusively to the Aeronautical Mobile (R) Service between 2 850 and 17 970 kHz.
- No. Aer2 – 6 Relating to the Use of Frequency Bands, higher than the HF Bands, in the Aeronautical Mobile (R) Service and the Aeronautical Mobile-Satellite (R) Service for Communication and for Meteorological Broadcasts.
- No. Aer2 – 7 Relating to the Use of Frequencies of the Aeronautical Mobile (R) Service.
- No. Aer2 – 8 Relating to the Abrogation of Various Resolutions and a Recommendation of the Extraordinary Administrative Radio Conference, Geneva 1966, and a Resolution of the Administrative Radio Conference, Geneva 1959.
(Cancellation of Res. No. 14, Res. No. Aer 1, Res. No. Aer 2, Res. No. Aer 3, Res. No. Aer 4, Res. No. Aer 5, Res. No. Aer 6 and Rec. No. Aer 1.)

4.6.4 Nine Recommendations on the following subjects:

- No. Aer2 – 1 Relating to the Development of Techniques which would help to reduce Congestion in the High Frequency Bands Allocated to the Aeronautical Mobile (R) Service.
- No. Aer2 – 2 Relating to the Efficient Use of Aeronautical Mobile (R) World-Wide Frequencies.
- No. Aer2 – 3 Relating to Cooperation in the Efficient Use of World-Wide Frequencies in the Aeronautical Mobile (R) Service.

- No. Aer2 — 4 Relating to the Transition from the Existing to the Revised Frequency Allotment Plan in the Bands Allocated Exclusively to the Aeronautical Mobile (R) Service between 2 850 and 17 970 kHz.
- No. Aer2 — 5 Relating to the Inclusion of the Band 21 924 — 22 000 kHz in the Frequency Allotment Plan for the Aeronautical Mobile (R) Service (Appendix 27 Aer2 to the Radio Regulations).
- No. Aer2 — 6 Relating to the Concordance of the French, English and Spanish Texts of No. 429 of the Radio Regulations.
- No. Aer2 — 7 Relating to No. 27/123 of Appendix 27 Aer2 — Sub-Area 5B.
- No. Aer2 — 8 To the World Administrative Radio Conference, 1979, Relating to the Inapplicability of Resolution No. 13 to the Aeronautical Mobile (R) Service.
- No. Aer2 — 9 Relating to Public Correspondence with Aircraft.

4.7 The revised provisions of the Radio Regulations contained in the Final Acts will enter into force on 1 September 1979, except for the Frequency Allotment Plan for the Aeronautical Mobile (R) Service related information, contained in Appendix 27 Aer2, which will enter into force at 0001 hours GMT on 1 February 1983.

4.8 The Conference recommended that in so far as the Aeronautical Mobile (R) Service was concerned the 1979 World Administrative Radio Conference should abrogate Resolution No. 13 (Recommendation No. Aer2 — 8).

4.9 The Final Acts were signed by the delegates of 83 Members of the Union in the names of their respective countries.

4.10 As stated in the Report of the Budget Control Committee, the organization and facilities made available to the delegates at the Aeronautical (R) Conference gave entire satisfaction.

5. ACTIVITIES OF THE PERMANENT ORGANS

5.1 Activities of the General Secretariat

The General Secretariat comprises six departments — Personnel, Finance, Conferences and Common Services, Computer, External Relations and Technical Cooperation; it also includes an Archives Service.

5.1.1 *Personnel Department*

In 1978, the Department devoted a considerable part of its time to implementing the decisions taken by the Administrative Council as a result of its review of the proposals submitted by the Post Classification Specialist, which had been studied in accordance with a procedure approved by the Council itself. The establishment of a system to govern these problems in the future, in accordance with the Council's instructions, was studied in detail and the relevant texts were prepared for application from the beginning of 1979. The reorganization of various sectors — permanent organs and departments — consequential upon the studies of organization, methods and classification was gradually brought into force.

The ITU, through its Personnel Department, continued to increase the extent of its participation in inter-agency administrative activities. The most serious problem, on which the Plenipotentiary Conference and the Administrative Council have taken up a position for several years by calling upon the competent bodies of the United Nations to take action, is that of fluctuations in the exchange rate of the dollar and their effects on employment conditions, contributions to the Joint Pension Fund and allowances. The study of these questions will be continued at the next session of the United Nations General Assembly, at the request of that body.

5.1.2 *Finance Department*

The Finance Department continued to perform its regular duties, dealing with the accounts of the Union, of Technical Cooperation and of the ITU Staff Superannuation and Benevolent Funds, preparation of 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 the publications issued by the Union.

As in previous years, credit restrictions gave rise to management problems which necessitated stricter control over the available credits.

Studies of the possible introduction of analytical cost accounting were pursued.

5.1.3 Department of Conferences and Common Services

In 1978, this Department was called upon to provide the necessary services and facilities for the following meetings:

CCIR final meetings, 2nd series	(9. 1 — 3. 2.78)
322 days of CCITT meetings	
5 seminars and similar meetings for the Technical Cooperation Department	
33rd Session of the Administrative Council	(15. 5 — 2. 6.78)
Documentation Centre	(13. 6 — 14. 6.78 and 21.11 — 24.11.78)
XIVth Plenary Assembly of the CCIR, Kyoto, Japan	(7. 6 — 23. 6.78)
IFRB seminar and information meetings	(9.10 — 20.10.78)
Special Preparatory Meeting for the WARC 1979	(23.10 — 17.11.78)

5.1.3.1 In 1978, the *Language Division* translated a record total of 48,460 pages, representing an increase of some 11.5% over the volume of work done in 1977. The breakdown of this total is as follows: 7,558 pages translated into English, 19,619 pages into French and 21,283 pages into Spanish.

In addition to these figures, mention should be made of the qualitative aspect of the work required from the Language Division. Telecommunication technology becomes more complex every year: the most spectacular examples of this are the ever-increasing range of applications of space radiocommunications and the emergence of teleprocessing. Any technical innovation has a practically immediate impact on translation work, which has become considerably more difficult over the past few years. It should be added that the highly technical documents which the Language Division had to translate in 1978 — mainly the documents of the two CCIs, articles published in the Telecommunication Journal and a large volume of literature for the technical cooperation services — accounted for nearly 82% of all the texts sent in for translation during the year.

In 1978, apart from translation work proper, certain members of the Language Division acted, as minute-writers for meeting of the Administrative Council or for short internal Secretariat meetings, while others helped with the preparation of the ITU Lexicon.

5.1.3.2 The various services of the *Typing and Text Composition Division* were extremely active throughout 1978.

The Typing Pool contributed to the preparation of documents for the above-mentioned conferences, which led to the production of 91,321 pages, an increase of 14% in relation to 1977, with 987 hours' overtime, including 677 for the SPM. The pages produced are divided as follows by organ or service:

	1978	1977
CCITT	31,944	19,197
CCIR 27 066)		
+ Kyoto 1 663)	28,729	24,992
TC	12,202	9,224
GS	6,901	11,738
AC	5,559	6,325
AER	3,549	1,039
IFRB	2,197	1,106
WARC-79	143	2
JOURNAL/INFORMATION	97	92
BC SAT	—	6,167

The Text Composition Service dealt *inter alia* with the capture of texts for the XIVth Plenary Assembly of the CCIR (pink documents), to serve as a basis for the preparation of the CCIR Books. From September to the end of the year, eight of the thirteen volumes were updated and processed for computerized photocomposition in the three working languages of the Union. This Service also participated in the computerized composition of the

Final Acts of the Aeronautical Conference and of the List of Participants in the Administrative Council, in the checking of texts (mostly tables and mathematical formulae) typeset outside the Union, and in the text make-up and preparation of covers for various publications. Some data on the activities of this Service are given below:

	1978	1977
<i>A4 pages produced</i>		
Computerized photocomposition	19,603	27,372
IBM typesetter	1,456	2,795
<i>Photocopies made</i>	97,532	47,776
<i>Number of orders carried out</i>	680	536
<i>Expenditure charged</i>		
(internal rate, Swiss francs)	33,157	22,780
<i>Overtime hours</i>	1,838	2,059

The Text Composition Service also arranged several demonstrations of their electronic keyboards and screens during the year 1978 for ITU officials, delegations and visitors from outside the Union.

5.1.3.3 The *Publications and Reprography Division* produced 367 publications representing 24,640 pages in 690,190 copies.

In 1978, of the many international invitations to tender sent to printers for the offset printing and binding of ITU publications, three favourable replies were accepted.

Rationalization of the work to reduce production costs was studied further.

Measures were taken to standardize the covers of Union publications.

A total of 57,133,639 A4-format offset machine runs were carried out, representing an increase of 39% over 1977. Of this total, 55,871,749 runs were carried out in the Union and 1,261,890 outside.

	<i>A4 machine runs</i>				<i>Production time in hours</i>			
	1978		1977		1978		1977	
TC	5,211,232	9%	2,765,346	7%	7,813	17%	7,349	13%
GS	5,560,401	10%	5,344,849	13%	7,259	16%	10,975	19%
IFRB	1,585,351	3%	1,648,650	4%	2,462	5%	2,736	5%
CCITT	21,977,405	39%	11,544,820	28%	11,238	25%	18,538	32%
CCIR	17,697,408	32%	10,973,655	27%	12,197	27%	9,732	17%
Conferences	<u>3,839,952</u>	7%	<u>8,336,512</u>	21%	<u>4,607</u>	10%	<u>8,170</u>	14%
	<u>55,871,749</u>		<u>40,613,832</u>		<u>45,576</u>		<u>57,500</u>	

5.1.3.4 In 1978, the *Dispatch/Transport Section* sent out directly from various printers' workshops 105,000 kg of publications to a value of 2,120,000.— Swiss francs at a cost of 113,000.— Swiss francs; from ITU Headquarters, it dispatched miscellaneous printed matter at a cost of 710,000.— Swiss francs and conference documents at a cost of 765,000.— Swiss francs. There was a further reduction in the number of registered items: in 1978 there were 26,300 such items on which a surcharge of 22,000.— Swiss francs had to be paid, whereas in 1977 there were 49,600 items with a surcharge of 36,000.— Swiss francs. The use of new packing methods with plastic bags and lightweight corrugated cardboard resulted in considerable savings in packaging and postage costs.

5.1.3.5 The Conference Documents Service handled a total of 7,596,703 documents — an increase of 70% over 1977 — of which 2,855,232 were dispatched, 2,691,495 distributed in the ITU and the remainder kept in stock.

5.1.3.6 *The Building, Supplies and Stores Division*, and, more particularly the Buildings Section, carried out a complete overhaul and redistribution of the offices in the Computer Department situated in the Varembe building. Floors, paintwork and electrical installations were entirely renovated, and movable partitions were installed.

The need for new offices in the Tower led to a rearrangement of offices. A number of partitions had to be moved to obtain a more rational rearrangement of certain services, while complying as far as possible with the standards recommended by the Joint Inspection Unit.

The Technical Service and the Heating and Air-conditioning Service carried out an overhaul of Room C/D in the Varembe building. The interpretation facilities were modified and renewed and a new air-conditioning system for the interpreters' booths was studied and installed.

The Supplies and Stores Section continued its efforts to obtain high-quality supplies on terms most advantageous to the Union. It participated in the work of the Joint Purchase Group of the United Nations and the specialized agencies.

An inventory was taken of all the property of the Union (over 15,000 items).

The Stores Unit delivered to the Reprography Service approximately 29,000,000 A4 sheets of offset paper, in addition to 430 rolls each weighing about 120 kg.

A new Security Team was established and its members are being trained.

5.1.3.7 The *telephone system* at ITU Headquarters was improved by the introduction of direct dialling in October 1978. A pay telephone booth was brought into service on the 15th floor of the Tower.

5.1.4 *Computer Department*

In 1978, the Union continued to use computers as an integrated management tool in its technical and regulatory work and for its technical conferences. The Computer Department provided the various organs and departments of the Union with the data processing services, including 2,277 computer hours, needed to perform their technical and administrative tasks, especially those intended to facilitate international coordination in planning and operation of telecommunication services of Member Governments and Administrations.

Feasibility studies and systems analyses were carried out on various subjects, and some of the existing applications were amended to meet new needs of users.

In close collaboration with the Text Composition Service of the Department of Conferences and Common Services, the text treatment system was applied in the preparation of the texts of the CCIR books, ITU Lexicon, CCITT Index and List of Terms and Definitions, List of Participants, Administrative Council documents, Final Acts of conferences, etc. New developments are jointly in progress in this field, which will further improve the computer techniques applied in ITU publication work and ITU terminology data base.

Requests from several administrations regarding the LF/MF Broadcasting Conference were met by sending the necessary data and programs on magnetic tape. Furthermore, the Department provided the necessary support to the Aeronautical Conference.

In order to optimize the potential use of the computer centre, the comprehensive training programme of the Department's technical staff was continued in order to keep them abreast of the advanced methods, techniques and skills currently available to meet the critical time and cost constraints of the present situation.

Furthermore the Department organized numerous courses and information sessions to keep the staff of the Union concerned with computer use informed of new developments and the most recent procedures applied in the ITU computer centre.

Details of the Department's activities will be found in Annex 4 to this document.

5.1.5 *Department of External Relations*

The Department of External Relations comprises four divisions: Relations with the United Nations and other international organizations, Relations with Members of the Union, Public Relations and the Division dealing with the preparation of Administrative Council sessions, with conferences and with legal matters.

5.1.5.1 In 1978, 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. In this connection, special attention should be paid to the Union's contribution to the preparation of the report on the development of mass media systems submitted to the United Nations General Assembly at its 1978 session. The staff of the Department also participated in the work of the United Nations Committee of the Peaceful Uses of Outer Space, both in the Legal and Technical Sub-Committees and in the Plenary Committee.

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

Legal activities mainly consisted in the preparation, examination and final drafting of various kinds of contracts and service agreements and in the preparation of draft agreements. They also took the form of preparations and assistance for ITU conferences and meetings, the Administrative Council and the World Administrative Radio Conference on the Aeronautical Mobile (R) Service.

The Department pursued its activities with a view to strengthening cooperation with certain regional organizations, such as the Arab Bank for Economic Development in Africa.

5.1.5.2 The *AC and Conferences Division* concerned itself with administrative arrangements for the World Administrative Radio Conference on the Aeronautical Mobile (R) Service (Geneva, February 1978) and provided the executive secretariat and the secretariat of the Credentials Committee for the Conference. It also dealt with administrative arrangements for the 33rd Session of the Administrative Council, for which it provided the executive secretariat.

The arrangements in question were concerned mainly with invitations and the compilation of preparatory documents (proposals, etc.).

The Division participated actively in planning for the World Administrative Radio Conference (1979) and began processing of the preparatory documents for this Conference and coordination of their dispatch to participating administrations.

In connection with publications, the Division prepared and coordinated the drawing up of the manuscript of the Final Acts of the World Administrative Radio Conference on the Aeronautical Mobile (R) Service and checked the proofs.

5.1.5.3 In 1978, the *Public Relations Division* circulated information material for the 10th World Telecommunication Day, for which the theme proposed to the Members of the ITU was "Radiocommunications", taking into account the celebration of the fiftieth anniversary of the CCIR and the holding of its XIVth Plenary Assembly in Kyoto in June 1978. On the occasion of this World Day, a poster was designed, a number of informative texts and photographs were made available to administrations and the press, and a filmed and recorded message was broadcast by 150 radio stations and 107 television stations. In addition, a booklet entitled "Telecommunications and Development" was published in cooperation with the United Nations Development Programme (UNDP).

The Telecommunication Journal published two special issues for the fiftieth anniversary of the CCIR (June and July 1978), recapitulating the history of that organ and describing its present work and expected developments in radiocommunications. A supplement containing a list of the satellites launched in 1977 was also published. In 1978, the Journal comprised a total of 685 pages of text, not counting supplements.

Talks on Union activities were given to 22 groups totalling some 700 people. Many individuals also visited ITU Headquarters. A number of interviews and broadcasts were produced in the recording studio. A large volume of information was disseminated in connection with the World Administrative Radio Conference on the Aeronautical Mobile (R) Service.

Preparations were continued for TELECOM 79, the 3rd World Telecommunication Exhibition, organized in pursuance of Opinion No. 3 of the International Telecommunication Convention. Since all the available space in the Palais des Expositions had been leased to exhibitors by September 1978, discussions were held with the authorities of the City of Geneva, which agreed to make an additional hall available, in view of the world-wide importance of TELECOM 79. The area covered by the Exhibition will thus amount to 70,000 m².

The World Book Fair on Telecommunications and Electronics, the IIIrd International Festival of Telecommunication and Electronics Films and the 3rd World Forum, attended by engineers from all over the world under Union auspices and by a large number of professional organizations, will be held during TELECOM 79. The 3rd "Youth in the Electronic Age" competition will also be organized in connection with the exhibition. A Committee of Honour composed of the Heads of State of Member countries of the Union is being established and will underline the universal nature of the world telecommunication exhibitions.

During 1978, the central Library acquired 396 volumes (87 purchased and 309 donated), 2,300 ITU documents and publications (two sets in English, French and Spanish), 370 government publications (such as annual and financial reports), 3,050 documents and publications of the United Nations and the specialized agencies, 1,243 periodicals and 2,191 issues of newspapers (eliminated 30 days after receipt). The Library also subscribes to 97 periodicals and 7 newspapers (used for *Teleclippings*).

In 1978 the Library provided loan and reference services to Headquarters staff and to outside users. It loaned 4,851 books and publications to ITU staff during the year. The number of readers using the Library was 3,151 against 2,900 in 1977, an increase of some 8%. The Library also dealt with 1,193 requests for information by telephone in 1978.

During that year, the Library produced five 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. The five publications are: the *List of Periodicals* (circulated to administrations, interested libraries and Headquarters staff); the *List of Annual Publications* (also circulated to administrations, interested libraries and Headquarters staff); the *List of Recent Acquisitions* (4 issues, circulated to libraries and Headquarters staff); the bi-monthly *Current Contents*; and the weekly *Teleclippings*. A unique publication that appeared in 1978 was the 36-page collection "Africa Special", containing some 400 photographs on African themes from the ITU Photograph Library and representing the Union's contribution to the Decade for Transport and Communications in Africa (1978-1987).

A total of 117 book reviews were prepared by the librarian and published in the *Telecommunication Journal* in 1978.

During the year, the ITU Film Library met 132 requests for the loan of films, which were projected 336 times to 13,848 viewers. The new edition of the *Catalogue of Telecommunication Films* (6th edition, 1978/79) appeared in February 1978.

In 1978, 2,400 photographs were indexed with a view to their inclusion in the *Catalogue of the Photograph Library*, a new edition of which appeared in June 1978.

5.1.5.4 The work of the *Division on Relations with Members of the Union* is divided into three services dealing with:

- application of the Convention/Protocol and of the Telephone Regulations and statistics;
- application of the Telegraph Regulations;
- application of the Radio Regulations.

The function of the Division is to handle the relations that the Members of the Union maintain with one another through the medium of the General Secretariat. The services of the Division are placed under a common direction in the interests of efficiency and standardization. The fact that certain of the data received from administrations may concern more than one service, calls for close liaison between the various parts of the Division. The salient features of the Division's work during 1978 are reported separately in respect of each service.

5.1.5.4.1 *Section for the application of the Convention/Protocol and of the Telephone Regulations and for statistics*

In 1978, this Section acted as a depositary of the Acts of the Union and dealt with questions relating to requests for (or termination of) participation in the work of the International Consultative Committees. As in 1976, a special effort was made to draw the attention of Member countries which had not yet ratified (or acceded to) the Convention to the need to comply with that formality in order to recover their right to vote.

The service also prepared the following documents for publication:

Notification (12 issues), Operational Bulletin (26 issues), List of Addresses (Supplements Nos. 1-4 to the 5th edition), Yearbook of Common Carrier Telecommunication Statistics (5th and 6th editions) and List of International Telephone routes (18th edition).

In connection with the statistical Yearbook, it should be noted that the Section was closely associated with the work of the Sub-Group of GAS/5 responsible for studying the subject entitled "Review and possible improvement of the data contained in the Yearbook of Common Carrier Telecommunication Statistics".

Finally, the Head of the Section provided the secretariat for the Editorial Committee of the World Administrative Radio Conference on the Aeronautical Mobile (R) Service.

5.1.5.4.2 *Section responsible for the application of the Telegraph Regulations*

In 1978 this Section had to record a large number of reactions from administrations/RPOA to the adoption by the VIth Plenary Assembly of the CCITT of proposals for the simplification of the international public telegram service, scheduled to enter into force on 1 October 1977.

Since the simplifications introduced had not all been understood in the same way, many questions from administrations/RPOA had to be answered. Moreover, in view of the possible danger of postponing the application of any one of the provisions of the Instructions for the Operation of the International Public Telegram Service, it proved necessary to draw the attention of the Members of the Union by circular-letter to the need for the comprehensive entry into force of these Instructions, which are the result of studies and surveys conducted by administrations through organs of the Union over many years.

It may be assumed from the particularly large volume of information processed in 1978 through the exchange of communications concerning the application of the new provisions governing the international public telegram service that the facilities offered by this service are being completely restructured in many countries. In this connection, special reference may be made to the many notifications of the partial or total abolition of certain optional classes of telegram.

Use of the computer and especially of magnetic card typewriters with memory has facilitated the direct management of banks of operational, tariff and statistical data relating to the telegraph service. The latter technique has also enabled this Section itself to compose directly for publication most of the following documents:

- Supplement No. 2 to the 24th edition (1976) of the List of Telegraph Offices,
- Supplements Nos. 5 and 6 to the 1st edition (1975) of the Table of Telegraph Rates,
- Supplements Nos. 3 and 4 to the 1st edition (1976) of the General Information relating to the Operation of the International Telegraph Service,

- Supplements Nos. 4 and 5 to the 5th edition (1976) of the Routing Table for offices connected to the genex service,
- Supplements Nos. 1 and 2 to the 5th edition (1977) of the TA Table,
- TA leaflet, 1978 edition,
- 2nd edition of the List of telecommunication channels used for the transmission of telegrams,
- Table of international telex relations and traffic (1977).

5.1.5.4.3 *Section for the application of the Radio Regulations*

In 1978, 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. It also continued to participate in conferences and meetings and to perform tasks concerning radiocommunication operational matters, tariff information, statistical data, as well as the implementation of certain decisions of Administrative Conferences of the Union and Plenary Assemblies of the CCIs.

The main tasks performed by the Service are summarized in the following breakdown:

Non-routine tasks prescribed in the Administrative Regulations and implementation of decisions of Administrative Radio Conferences and CCIR/CCITT Plenary Assemblies

a) *Radio Regulations*

In accordance with Nos. 749 and 749A of the Radio Regulations, several series of call signs, blocks of selective call numbers for ship stations, predetermined groups of ship stations and blocks of coast station identification numbers were allocated provisionally to countries. As required by No. 751 of the Radio Regulations, numerous cases were treated with respect to errors in the assignation of call signs to stations and the malformation of such call signs.

b) *World Administrative Radio Conference for Space Telecommunications, 1971*

A consultation of administrations was started in pursuance of Resolution No. Spa2 – 6 relating to the technical criteria for sharing frequency bands between space radiocommunication and terrestrial radiocommunication services or between space radiocommunication services.

c) *World Administrative Radio Conference, 1974*

The entry into force of the decisions relating to new radiotelephone frequencies and classes of emission in the bands allocated to the Maritime Mobile Service between 4,000 and 23,000 kHz (Resolutions Mar2 – 12, Mar2 – 13 and Appendix 17Rev. Mar2) continued to be the object of an extensive exchange of correspondence with the administrations concerned, which resulted in the publication of an additional Special Supplement to the List of Coast Stations, issued on 31 January 1978 and of several communications in the Operational Bulletins.

A consultation of administrations was started in pursuance of Resolution No. Mar2 – 19 relating to the introduction of a digital selective calling system to meet the requirements of the Maritime Mobile Service.

d) *World Administrative Radio Conference on the Aeronautical Mobile (R) Service, 1978*

An updating of the “Re-Arrangement of the Radio Regulations” containing the modifications introduced by this Conference was prepared and issued, and was sent to the holders of copies of the “Re-Arrangement of the Radio Regulations”.

A circular-letter was sent to administrations drawing their attention to the resolutions and recommendations which requested them to take certain measures.

e) *CCITT VIth Plenary Assembly, 1976*

A circular-letter was sent to administrations forwarding the report on the studies carried out by the CCITT concerning public correspondence in the Maritime Mobile Service, studies which were carried out in pursuance of Resolutions Nos. Mar2 – 22 and Mar2 – 23 of the World Maritime Administrative Radio Conference, 1974.

f) *World Administrative Radio Conference, 1979 – Preparatory work*

Documents were prepared for the submission of resolutions and recommendations from the past three Administrative Radio Conferences, which were of direct concern to the WARC-79.

g) *Compilation, coordination and dissemination of operational data*

Registers

During the course of 1978, this Service continued to examine and process notifications from administrations concerning operational and related matters for the updating of the following operational registers:

- Coast Stations-I;
- Coast Stations-II;
- Ship Stations;
- Call Signs;
- Radiodetermination and Special Service Stations-I;
- Radiodetermination and Special Service Stations-II;
- Monitoring Stations.

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 resulted in the exchange of a considerable amount of correspondence with administrations.

The volume and complexity of the work involved in the maintenance of the Register of Coast Stations has continued to be affected by the entry into force of decisions of the WARC 1974 concerning radiotelephone HF operational procedures and frequency changes. The Register of Coast Stations has been divided in two: one containing the Port Operations and Ship Movement Service Stations, and the other containing the rest of the Coast Stations.

The growth in the number of entries in the Ship Stations Register was sharply accentuated in 1978, whereby an overall increase of 11,000 (12%) ship stations was registered.

h) *Publications*

The Service, in 1978, was responsible for the publication of the following service documents:

List of Coast Stations (List IV): Special Supplement No. 2 to the 6th edition, and Volume I of the 7th edition; List of Ship Stations (List V): 18th edition and Supplements Nos. 1, 2 and 3; List of Radiodetermination and Special Service Stations (List VI): Supplements Nos. 3 and 4 to Volume I, and Supplements Nos. 2 and 3 to Volume II; Alphabetical List of Call Signs of Stations (List VIIA): Supplements Nos. 2, 3, 4 and 5 to the 8th edition; List of Call Signs of Stations (List VIIB): Supplements Nos. 2, 3 and 4 to the 7th edition; List of International Monitoring Stations (List VIII): 4th edition; Chart in Colours showing frequency allocations 10 kHz-275 GHz (List X): updating.

The full publishing process of the above-mentioned service documents involves tasks ranging from the compilation of the data up to and including the final "go-ahead" (good for distribution) authorization.

i) *Participation in conferences and meetings dealing with operational radiocommunication matters*

The staff of the Service participated in certain conferences and meetings of the ITU, CCIR, CCITT, IMCO and IATA, as well as in seminars dealing with matters related to the scope of duties of the Service. Secretarial backing and technical assistance were provided when requested.

j) *Other activities*

The Service handled all matters related to operational charges and accounting authorities in the Maritime Mobile Service and kept up-to-date the Optional Provisions (2nd Series) (Radio Regulations).

Contacts were maintained with other specialized agencies on aspects of radiocommunications under the responsibility of the Service. Among these, a consultation of administrations was started with respect to a proposed draft modification of the ICAO Chicago Convention.

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 matters in particular. In some cases, a fair amount of research work was required.

In order to carry out the tasks assigned to this Service, a great deal of planning and scheduling was necessary in 1978. This involved a comprehensive amount of coordination with other departments and the printers.

5.1.6 *Technical Cooperation Department*

The activities of this Department are described in Section 6 of this Report.

5.1.7 *Archives Service*

The Archives, Mail, Telex and Microfilm Service, which is attached directly to the Secretary-General's office, is responsible for dealing with incoming and outgoing correspondence (letters, telegrams, diplomatic bag) as well as for the compilation and conservation or elimination of the documents and files produced by the Union in the course of its activities.

In 1978 the Section dealt with almost 225,000 letters and roughly 35,000 telegrams. Thanks to rigorous control, the most economical means of transmission are systematically used.

During the year the archives increased by more than 200 linear metres; 681 research requests involving about 2000 documents or files were met; and 165 metres of microfilm and 5600 microfiches were produced.

5.2 *Activities of the International Frequency Registration Board (IFRB) **

5.2.1 This section of the Report covers the main substantive activities of the IFRB in 1978. In summary, it may be said that the complexity in the treatment of frequency assignment notices in some services, and the volume of technical studies connected with them, again increased considerably during the year. The number of requests received from administrations for the intervention of the Board in the procedures for co-ordination of the use of frequencies greatly increased during the year; the associated technical studies, as well as other related work, have increased in the same manner.

5.2.2 The year was also marked by a sustained and increasing activity in relation to radio conferences held in the preceding years and in 1978 and the World Administrative Radio Conference to be held in 1979, and to meetings, such as those of the CCIR. Specific tasks involving follow-up action by administrations or by the Board resulting from decisions of the Maritime Conference of 1967 as well as that of 1974, the Space Conference of 1971, the LF/MF Broadcasting Conference (Regions 1 and 3) of 1975 and the World Administrative Radio Conference for the Broadcasting-Satellite Service (12 GHz), Geneva, 1977, were undertaken in 1978.

5.2.3 In 1978, the activities of the IFRB in relation to frequency matters may be grouped under the following main headings:

- 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, as established or revised by:
 - the Administrative Radio Conference, Geneva, 1959;
 - the Extraordinary Administrative Aeronautical Radio Conference, Geneva, 1966;
 - the World Administrative Maritime Radio Conference, Geneva, 1967;
 - the World Administrative Radio Conference for Space Telecommunications, Geneva, 1971;
 - the World Administrative Maritime Radio Conference, Geneva, 1974;
- b) tasks assigned to the Board by the above Conferences and by the following Regional or World Administrative Conferences:
 - the European VHF/UHF Broadcasting Conference, Stockholm, 1961;
 - the African VHF/UHF Broadcasting Conference, Geneva, 1963;
 - the African LF/MF Broadcasting Conference, Geneva, 1966;
 - 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;
- c) preparatory work for and participation in the World Administrative Radio Conference, Aeronautical Mobile (R) Service, Geneva, 1978;
- d) preparatory work for, and participation in, the CCIR meetings of 1978, in particular the XIVth Plenary Assembly, Kyoto;
- e) technical preparation for the World Administrative Radio Conference, Geneva, 1979.

* Pursuant to a decision of the Administrative Council at its 1978 session, the Annual Report by the IFRB to the Members of the Union for 1978, which is contained in IFRB Document No. 1490, was sent to all Members under IFRB circular-letter No. 438.

5.2.4 *Maintenance of the Master International Frequency Register (Master Register), of the International Frequency List and of related Service Documents*

In accordance with the relevant provisions of the Radio Regulations, the Board treated 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 now contains particulars of about 538,000 assignments (as compared with 513,000 on 31 December 1977) representing about 1,120,000 line entries which are published in the International Frequency List and its quarterly Recapitulative Supplements.

5.2.5 *Technical examination of frequency assignment notices*

The Board effected a full technical examination, in accordance with the provisions of the Radio Regulations, of the following frequency assignments, with a view to their recording in the Master International Frequency Register:

- 11,060 assignments notified under Article 9 of the Radio Regulations (14,326 in 1977);
- 6,608 assignments notified under Article 9A (4,477 in 1977);
- 26,550 assignments notified under Article 10 (for bringing up to date the Master Register under Article 9 at a later date) (26,454 in 1977).

5.2.6 *Examination of frequency assignments to Terrestrial stations in the bands above 28 MHz (Article 9 of the Radio Regulations)*

- a) In the bands other than those shared with Space Radiocommunication Services, 17,592 assignment notices were received, examined and recorded in the Master Register.
- b) In the bands shared with Space Radiocommunication Services, 1,742 assignment notices were received and examined; of these, 1,287 included examination for their conformity with respect to limits specified in Article 7 or in other provisions of the Radio Regulations and 455 included examination with respect to the co-ordination distances. A total of 1,349 assignments were recorded in the Master Register while 393 were returned to the notifying administrations as a result of unfavourable Findings by the IFRB. The Board made 168 suggestions to administrations under No. 570AO of the Radio Regulations with a view to finding a satisfactory solution in cases where frequency assignments had received unfavourable Findings.

5.2.7 *Examination of frequency assignments to stations in Space Radiocommunication Services (Article 9A of the Radio Regulations and Resolution No. Spa2 - 3)*

- a) The IFRB received from administrations information relating to 23 new satellite networks which it published in the Special Section of its weekly circular (a satellite network consists of one satellite and its associated earth stations). The IFRB also received additional information or modifications concerning 8 satellite networks, the characteristics of which had been published previously. In 1978, 29 Special Sections of the weekly IFRB Circular were devoted to the publication of this information. As a result of these publications on planned-satellite systems the Board published in 23 Special Sections of the weekly IFRB Circular the comments submitted by the other administrations in the form of summaries of the progress made in solving the difficulties encountered.
- b) In accordance with the provisions of No. 639AL of the Radio Regulations, the Board published in 66 Special Sections of the weekly IFRB Circular requests for co-ordination of the use of frequency assignments to space stations installed on geostationary satellites (or to earth stations intended to communicate with such space stations). These requests emanated from twenty administrations and involved fifteen other administrations.
- c) The IFRB carried out the procedure for seeking co-ordination on behalf of administrations in response to nine different requests involving correspondence between 40 administrations.
- d) The IFRB received and dealt with 4,201 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. Through the weekly IFRB Circular, the Board regularly transmitted to administrations the detailed information contained in the notices received, together with the relevant Findings reached by the IFRB in accordance with Article 9A of the Radio Regulations or in accordance with Resolution No. Spa2 - 3.

5.2.8 *High Frequency Broadcasting Schedules (Article 10)*

The Board continued to apply the procedure specified in Article 10 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 22,000 in November 1978. Despite the increasing use of the frequency bands, the number of apparent incompatibilities although very high has not increased proportionately owing, in particular, to preliminary co-ordination measures taken by some administrations.

5.2.9 *Regional Agreements for the Broadcasting Service in the VHF/UHF bands*

The additional procedures applying in bands between 41 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 3,749 assignments to stations in the European Broadcasting Area and 139 assignments to stations in the African Broadcasting Area. Fifty-one EUR Special Sections and twelve AFR Special Sections of the weekly IFRB Circular were published.

5.2.10 *Bringing up to date of the Frequency Allotment Plan for HF Coast Radiotelephone Stations contained in Appendix 25 Mar2 (Article 9B of the Radio Regulations)*

In application of these procedures, the Board published seven Special Sections MAR to the weekly IFRB Circular and sent out 372 letters and telegrams to administrations. The application of the complete procedure for seeking agreement on new allotments required in 13 channels, on behalf of three administrations, involved consultations with 119 administrations having allotments in the channels concerned.

5.2.11 *Special assistance to administrations*

- a) The Board studied, under Articles 9 and 9A of the Radio Regulations, 43 cases of requests for special assistance received from administrations. The studies carried out as a consequence of requests from five countries covered a wide variety of problems ranging from the search for frequencies for specific circuits to general questions of national and international frequency co-ordination and management within the whole radio frequency spectrum.
- b) Among the many forms of assistance to administrations inherent in the various functions of the IFRB, mention may be made of participation in an advisory capacity of a member of the Board and engineers of the specialized secretariat in meetings of CITELE at various levels in the technical and regulatory fields of the preparation for a Region 2 MF broadcasting frequency assignment planning Conference. In these meetings, the proposed technical standards, propagation criteria, form of agreement, etc. have been discussed. In addition, the Working Group has agreed to the format of the inventory of requirements and has requested administrations to complete this inventory by the end of 1979. The Board has agreed to analyze this inventory for incompatibilities using the technical standards, propagation criteria, etc. to be agreed to at the proposed April 1980 first session.
- c) In addition, the Board complied with requests to advise many administrations on the procedures to be followed mainly in relation to Space Radiocommunication Services.

5.2.12 *Cases of harmful interference*

- a) Fourteen cases (one for the Aeronautical Mobile Service and thirteen for other services) were resolved in 1978. The remaining cases were referred to the administrations for their comments as a result of which further action will be studied by the Board.
- b) Upon receipt of requests from several administrations, the IFRB carried out a study under Nos. 628 to 632 of the Radio Regulations on reported harmful interference in the HF bands and filed a Report to the administrations concerned.

5.2.13 *International Monitoring*

Pursuant to No. 692 of the Radio Regulations, four periodic Summaries of Monitoring Information, numbered 196 (for the period of October 1977 to February 1978) to No. 199 (for the period July to November 1978) inclusive and totalling 818 pages were issued in 1978. Each Summary contained results of monitoring observations in the frequency bands between 2,850 kHz and 28,000 kHz, including information concerning broadcasting stations; each one covered a period of three months and included all information received by the Board concerning the last month of the Summary immediately preceding the Summary under preparation.

5.2.14 *Review of entries in the Master International Frequency Register*

In application of No. 476 of the Radio Regulations and with a view to updating the Master Register, the Board initiated a general review of all entries in the Master Register and sent to each administration two lists of assignments (one below 28 MHz and the other above 28 MHz) recorded on behalf of the administration. This was the subject of IFRB circular-letter No. 427 of 15 November 1978.

5.2.15 *Review of entries in the Master International Frequency Register of frequency assignments for international circuits in the Fixed Service in the high frequency bands (3-30 MHz) with a view to ascertaining the use actually made of them*

a) In 1978, in accordance with Nos. 476 and 477 of the Radio Regulations, the Board continued to apply a procedure it had set up in 1974 to determine which frequency assignments to international links in the Fixed Service recorded in the Master Register no longer reflected actual usage of the radio spectrum in the 3 to 30 MHz range, with a view to making the necessary changes or cancellations under Nos. 620 and 622 of the Radio Regulations.

b) During 1978, the Board received replies to this investigation from eight administrations. It has been possible to complete the study of the replies received in 1978. Thanks to the co-operation of administrations, the results of the enquiry which are given below have proved most satisfactory.

	<i>Number</i>	<i>Percentage</i>
Total number of entries in the Master Register subject to this enquiry	<u>1,271</u>	<u>100.00</u>
Total number of entries		
– which <i>have been cancelled</i>	491	38.6
– for which other means of telecommunication normally are used (but the entry was retained in the Master Register with a special remark to the effect that the assignment is used occasionally)	447	35.2
– which are maintained unchanged	<u>333</u>	<u>26.2</u>
	<u>1,271</u>	<u>100.00</u>

5.2.16 *Implementation of the decisions of the World Administrative Maritime Radio Conferences, Geneva, 1967 and 1974*

In accordance with paragraph 7.3 of Resolution No. Mar2 – 12 relating to the implementation of Appendix 17 Rev., Section A and Appendix 25 Mar2, the IFRB proceeded after 1 April 1978 with a thorough re-examination of the Master Register with a view to detecting frequency assignments which had not been put into conformity with the above provision. As a result of this re-examination, a reminder was sent to 55 administrations which had not yet taken the necessary action. In accordance with paragraph 8 of the same Resolution, a new re-examination was made after 1 June 1978 and the provisions of this paragraph were applied to all assignments which were still not conforming to the above provisions. To this effect, dates entered in Columns 2a or 2b have been replaced by the date of 1 January 1976 in Column 2b and a special Remark ("RES Mar2 – 12") has been adopted by the Board and entered in the Remarks Column of the Master Register. These measures were applied with respect to some 750 assignments involving 34 administrations, which were informed individually.

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

a) By IFRB circular-letter No. 410 of 27 April 1978, the Board communicated to the administrations of Regions 1 and 3 the results of the measures taken under paragraph 3 and the paragraph headed "instructs the IFRB" in the operative part of Resolution No. 2. On this basis and after having assisted the administrations which so requested, in the IFRB prepared the final version of Appendix 1 to the Plan within the prescribed time-limit for publication by the Secretary-General.

b) The Board published the final version of Appendix 2 to the Plan (Radiation characteristics of transmitting antennae other than simple vertical base-fed antennae), after consulting 45 countries with a view to making corrections to the data appearing in Appendix 2 and obtaining missing data. The Board is at present preparing for publication the document requested in Resolution No. 4 of the Conference.

c) Under Resolution No. 3, the Board continued to assist administrations not represented at the Conference to co-ordinate their frequency requirements with a view to their recording in the Plan. So far, this assistance has resulted in the entry into the Plan of 33 frequency assignments on behalf of two administrations.

d) On the basis of the provisional procedure for amending the Plan, described in IFRB circular-letter No. 389 of 2 August 1977, the Board published amendments to the Plan proposed by various countries in IFRB circular-letters No. 406 of 26 January 1978, No. 414 of 8 May 1978, No. 423 of 18 October 1978 and No. 426 of 6 November 1978. Since the date of entry into force of the Plan, 23 November 1978, all this information has been published in Special Section No. BC75/1/1344 annexed to IFRB circular No. 1344 of 28 November 1978.

e) In order to assist administrations in applying the provisions of Resolution No. 1 of the Conference relating to the updating of the Master International Frequency Register on the date of entry into force of the Agreement, the Board sent to all administrations having assignments in the Plan an extract of these assignments together with an extract of the assignments recorded on their behalf in the Master Register. The administrations were requested to compare the two lists and to notify accurately the changes to the characteristics of each assignment recorded in the Master Register in order to bring them into conformity with the Plan. At the end of 1978, 62 administrations had notified 2,470 modifications to existing assignments in the application of this Resolution.

5.2.18 *World Administrative Radio Conference on the Aeronautical Mobile (R) Service, Geneva, 1978*

a) The Board contributed to the work of the Conference and to this end it collected, collated and analyzed the frequency requirements, developed analytical methods of preparing a draft Plan, organized two world-wide monitoring programmes and prepared analytical summaries of the monitoring observations received from the administrations, studied several subjects of a technical nature and presented the results in its reports to the Conference, organized information meetings prior to the Conference to inform the delegates of its preparatory work and examined analyzed the proposals submitted by administrations with a view to assisting the Conference in their consideration in the most expeditious manner. The Board took an active part in the work of the Conference and provided the technical secretary to the Conference and secretaries to Committee 4 (Technical), Committee 5 (Planning) and Committee 6 (Regulatory Procedures) and their respective Working Groups.

b) The Conference adopted a number of resolutions and recommendations with a view to facilitating the implementation of its decisions among which are the following, involving action by the IFRB, relating to:

- i) implementation of the new Plan and transition from the present Plan to the new Plan (Resolutions Nos. Aer2 – 3, Aer2 – 4 and Aer2 – 5 and Recommendations Nos. Aer2 – 3 and Aer2 – 4);
- ii) organization of periodic monitoring programmes with a view to identifying and eliminating the out-of-band stations which cause or are likely to cause harmful interference to the Aeronautical Mobile (R) Service (Resolution No. Aer2 – 2);
- iii) development of techniques which would help to reduce congestion in the high frequency bands allocated to the Aeronautical Mobile (R) Service (Recommendation No. Aer2 – 1).

5.2.19 *Technical planning for the forthcoming World Administrative Radio Conference (WARC, 1979)*

In conformity with No. 482 of the Radio Regulations, the Board reviewed the matters of substance to be dealt with by the WARC, 1979 and continued its studies, the results of which will be included in the Report of the IFRB to the Conference.*

a) The Members of the Board and staff of its specialized secretariat participated in the final meetings of CCIR study groups which took place in January 1978. The Chairman and Vice-Chairman of the Board participated in the XIVth Plenary Assembly of the CCIR in Kyoto in June 1978. The members of the Board and staff of its specialized secretariat also contributed to the work of the CCIR Special Preparatory Meeting. The Board on request also provided technical secretaries to some of the working groups of the S.P.M.

b) Board's representatives participated in the Inter-American Telecommunications Conference (CITEL) Symposium in Rio de Janeiro from 17 to 21 July 1978 on preparation for the World Administrative Radio Conference 1979 and presented 4 contributions to the Symposium. The contributions mainly covered the principles on which the Radio Regulations in general, and the Table of Frequency Allocations and the co-ordination, notification and recording procedures contained therein, in particular, are based.

* Conference Document No. 65 and Addendum 2.

c) The contributions mentioned above and discussions which arose therefrom culminated in a request from administrations which participated in the CITEL Symposium to the IFRB to comment on the anomalies, discrepancies and difficulties encountered in the application of the provisions of the Radio Regulations and to disseminate the flow-charts used internally by the Board in the application of the Articles 9 and 9A procedures. This work was undertaken and the partial results were the subject of IFRB circular-letter No. 429 of 14 December 1978.

d) With respect to Appendices 1, 1A and 1B to the Radio Regulations, the Board reported on the study made with the assistance of experts from administrations of possible changes to the provisions of Appendices 1, 1A and 1B in relation to the use of computer methods in notification and recording procedures. In the interests of economy, the Board decided not to issue a separate report and reproduce the comprehensive communication received from the experts together with IFRB comments in the form of footnotes where necessary and appropriate. The resultant document was published with IFRB circular-letter No. 411 dated 27 April 1978.

5.2.20 *Seminar on frequency management and the use of the radio-frequency spectrum and the geostationary orbit*

a) Pursuant to Administrative Council Resolution No. 528, the IFRB organized at Union Headquarters in 1978 a Seminar on Frequency Management and the Use of the Radio-Frequency Spectrum and the Geostationary Orbit. The Seminar was held from 9 to 20 October 1978 and simultaneous interpretation was provided in English, Spanish and French for 168 participants (29 of whom received fellowships from UNDP) from 67 countries throughout the world.

b) The programme covered the various aspects of the use and management of the radio-frequency spectrum and the use of the geostationary orbit: the Radio Regulations, the principles governing the choice of frequencies and the methods applied in making this choice, procedures for the assignment of frequencies, the co-ordination and notification of frequency assignments, and their recording in the Master Register, the technical examination carried out to assess the probability of harmful interference between stations of the various radiocommunication services sharing the same band, the IFRB Technical Standards, problems of harmful interference and the organization and working of the monitoring system.

c) Lectures were given by 12 experts delegated by the Administrations of Canada, Colombia, the Federal Republic of Germany, the United States of America, France, Japan, the Hungarian People's Republic, the United Kingdom and the Union of Soviet Socialist Republics. The IFRB greatly appreciated the co-operation of the Administrations mentioned and expressed thanks to them for having sent experts to give lectures. The quality of the lectures and the high standards of the expertise were unanimously recognized by the participants.

d) These lectures, and those given by members of the IFRB and staff of its specialized secretariat, were generally followed by discussions, which gave participants the opportunity not only to put questions to clarify particular points but also to initiate discussions on the solution of specific problems and provide information drawn from their own experience or relating to frequency management and usage difficulties in their country. In addition to many oral questions the participants put many written questions on various subjects and received detailed replies from the lecturers during the three hours set aside for discussion in the time-table. All the lectures were reproduced and distributed to participants: 42 documents were published in each of the three working languages of the Union.

e) Some participants visited the departments of the IFRB specialized secretariat and of the other ITU permanent organs. They prolonged their stay with the IFRB by 2 to 5 days in order to discuss particular frequency management questions and gain additional knowledge.

5.2.21 *IFRB training and familiarisation for administration officials*

In 1978, the Board received visits of officials or representatives from the following countries:

Argentina, Bolivia, Brazil, China, Congo, United States, India, Iran, Ireland, Italy, Kuwait, Mali, Mauritania, Nepal, Pakistan, Qatar, D.P.R. of Korea, United Kingdom, Thailand, Tunisia.

The main purpose of their visits was to study and familiarise themselves with the regulatory technical and administrative procedures, as well as computer applications, used by the Board. They stayed for periods from one day to two months.

5.2.22 *Publications and correspondence with administrations*

a) Pursuant to the provisions of Articles 9, 9A, 9B, 10, 13 and 20 of the Radio Regulations and related Appendices, the Board prepared a number of Service Documents and other publications for reproduction and

despatch by the Secretary-General to all administrations and other subscribers. The titles of the publications produced in 1978 are listed hereunder:

	<i>Title</i>	<i>Number of pages</i>
1.	IFRB Circular (weekly airmail) and Special Sections	3,590
2.	Recapitulative Supplements Nos. 4, 5, 6 and 7 to the Ninth Edition of the International Frequency List (List I)	3,292
3.	Recapitulative Supplements Nos. 4, 5, 6 and 7 to the Ninth Edition of the List of Fixed Stations Operating International Circuits (List II)	161
4.	Recapitulative Supplements Nos. 2 and 3 to the Ninth Edition of the List of Broadcasting Stations Operating in bands below 5,950 kHz (List IIIA)	22
5.	Supplements Nos. 1 and 2 to the Sixth Edition of the List of Space Radiocommunication Stations and Radio Astronomy Stations (List VIIIA)	75
6.	Periodic Summaries of Monitoring Information (Nos. 196 to 199 inclusive)	818
7.	Prefaces to the documents mentioned above in three languages	214
8.	Tentative High Frequency Broadcasting Schedules (March, May, September and November) .	1,129
9.	High Frequency Broadcasting Schedules	238
10.	IFRB circular-letters Nos. 403 to 429 inclusive	<u>254</u>
	Total	9,793

b) The weekly IFRB 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 on frequency assignments;
- 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 co-ordination data on 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 Mar2 and Findings of the Board concerning the application to this effect of the procedure of Article 9B;
- information on stations in bands covered by Regional Broadcasting Agreements for co-ordination purposes 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 IFRB Circular, twenty-seven IFRB circular-letters were issued in 1978 covering different projects and procedures entrusted to the Board on a recurring basis or of a special character.

c) The total number of letters and telegrams received by the IFRB in 1978 was 5,756 while 3,489 individual letters and telegrams and 44 circular telegrams were sent by the Board.

5.2.23 *Use of the computer*

a) The IFRB used the ITU computer in 1978 for about 47 per cent of its total utilisation time to carry out the following regular applications;

- technical calculations for the assessment of the probability of harmful interference in accordance with the relevant provisions of the Radio Regulations, or the preparation of the data to be used in such calculations;
- technical calculations for the assessment of the interference power produced by emissions from a space station at the receiver input of the station of the Fixed Service using tropospheric scatter pursuant to the provisions of Nos. 470NGA and 470NK of the Radio Regulations;

- technical calculations for the assessment of the increase in equivalent satellite link noise temperature pursuant to the provisions of Appendix 29 to the Radio Regulations;
- data processing to bring the information on frequency assignments recorded in the Master International Frequency Register up to date;
- data processing for the preparation of the weekly IFRB Circular, Service Documents and other IFRB publications; production of tabulations required for publication by the offset process and magnetic tapes for publication by the digiset process;
- production, at the request of administrations or for the internal use of the Board, of up-to-date printed extracts from the Master International Frequency Register.

b) Furthermore, the IFRB used the computer to carry out special tasks related to the technical preparation for, and the implementation of decisions of conferences and meetings; including:

- Regional Administrative LF/MF Broadcasting Conference (Regions 1 and 3), Geneva, 1974, 1975;
- World Broadcasting-Satellite (12 GHz) Administrative Radio Conference, Geneva, 1977;
- World Administrative Radio Conference on the Aeronautical Mobile (R) Service, Geneva, 1978;
- Resolution No. Mar2 - 7.

5.2.24 *Extended use of the computer*

a) Information on the background to this project is summarized in paragraphs 2 to 7 of IFRB circular-letter No. 411 of 27 April 1978. The summary also appears in the Thirty-first Annual Report of the IFRB to the Members of the Union (1978).

b) At the 33rd Session of the Administrative Council in 1978, the Board presented a report to the Council which decided that a comprehensive computer systems analysis of the Board's procedures was required and that this systems analysis should take into account the related processing evaluations of the Computer Department. The comprehensive systems analysis was to be a co-operative effort of:

- the IFRB and its specialized secretariat,
- experts from Administrations (F.R. of Germany, United States of America, France, United Kingdom),
- the Computer Department of the General Secretariat,
- computer consultants.

(Administrative Council Documents No. 5193, No. 5247 and Add.1 and IFRB circular-letter No. 428 of 27 November 1978.)

c) The agreed time-frame for completion of each step of the project relating to the extended use of the computer by the IFRB and its implementation is as follows:

- | | |
|--|---|
| from 15-26 January 1979: | meeting of experts from administrations to meet with the IFRB for two weeks to finalize objectives and the tasks of the consultants; |
| by 2 February 1979: | ITU invitation to consultants for submission of tenders under competitive contract (by airmail); |
| from 26-28 February 1979: | information meeting for prospective consultants with the IFRB and the Computer Department; |
| by 9 April 1979:
at 0900 hours local time | deadline for the receipt of tenders; |
| from 5-27 April 1979: | reconvening of the meeting IFRB/Experts/Computer Department to evaluate proposals and prepare report for the Administrative Council; |
| by 1 May 1979: | inform Administrative Councillors of the consultants' response and results of the technical evaluation of tenders; |
| from 4-22 June 1979: | Administrative Council takes decision; |
| by 31 August 1979: | subject to the decision of the Administrative Council, signing of contract with the consultant and fixing of date of commencement of the study; |
| by September 1980: | completion of systems analysis study with a report by the consultant to the ITU; |
| by February 1981: | preparation by the ITU of a report to the Administrative Council, 1981 session, including the summary report by the consultant and any comments received, for decision. |

5.2.25 *Technical co-operation*

In accordance with No. 312 of the Convention, important questions concerning ITU technical co-operation are dealt with by the Co-ordination Committee. The IFRB therefore participated in dealing with those questions concerning technical co-operation which had been submitted by the Secretary-General to the Co-ordination Committee. In addition, in 1978, the Board studied and offered its comments on, 38 reports of ITU experts dealing with questions such as the technical specifications of equipment and the detailed project reports for development of Fixed, Mobile, Broadcasting Services, satellite communications, radio frequency management, monitoring, computer services, training of personnel, traffic engineering, network planning, preinvestment surveys, financial and economic factors. The IFRB also assisted in briefing of experts and in finalising Agency terminal reports.

5.2.26 *Other activities*

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

5.3 **International Radio Consultative Committee (CCIR)**

5.3.1 *Introduction*

1978 marked the close of the 1974-1978 study period which particularly in its final part was in a great extent oriented to the preparation of the technical bases for the WARC 1979.

Special effort was made to bring before the XIVth Plenary Assembly (Kyoto, June 1978) the work of the Study Groups of direct interest to the Conference. As far as possible recommendations were prepared, or at least reports with most recent information which may be useful to the WARC.

These concerned especially such fields as: space communications, wave propagation, frequency sharing and other problems of spectrum utilization.

The Special Preparatory Meeting of the CCIR to the WARC (Geneva, October/November 1978) closed this period of activity.

It should be noted, that according to the decision taken by the Administrative Council at its 32nd Session in 1977, special attention has been paid to ensure the participation of the developing countries in the work of the CCIR.

5.3.2 *XIVth Plenary Assembly*

On the invitation of the Administration of Japan, the XIVth Plenary Assembly took place from 7 to 23 June 1978 at Kyoto, Japan. The Assembly was attended by 321 delegates from 61 countries. It approved 1319 texts including 95 revised and 70 new Recommendations of which two were to be sent directly to the WARC 1979 under the provision of item 420 of the ITU Convention.

The XIVth Plenary Assembly also identified 33 Recommendations concerning space-terrestrial services frequency sharing in accordance with Resolution No. Spa2 – 6 of the WARC-1971.

The terms of reference of the Study Groups were reviewed with respect to the work to be carried out during the next study period, and Chairmen and Vice-Chairmen were appointed.

Considering that, with the evolution of radio technology, the subjects examined by the various Study Groups of the CCIR are growing in number and complexity and that the distribution of these responsibilities among Study Group may require revision, an Interim Working Party PLEN/I has been set up to prepare a Report for submission to the XVth Plenary Assembly.

A brief review of some of the highlights of new or revised technical results of the CCIR work is given further in this chapter. The final texts will appear in the 13 Volumes of CCIR books to be published mid 1979. These Volumes total 5472 pages including 262 Recommendations, 499 Reports, 227 Questions, 249 Study Programmes, 21 Resolutions and 36 Opinions. An alphabetical index of technical topics will be included in Volume XIII.

Participation in the Plenary Assembly is shown in Table I.

TABLE 1

Participation in CCIR meetings, 1978

<i>Administration</i>	<i>XIVth Plenary Assembly</i>	<i>SPM</i>
Afghanistan	—	X
Algeria	—	X
Germany (Federal Republic of)	X	X
Saudi Arabia	X	X
Argentina	X	X
Australia	X	X
Austria	X	X
Bahrain	—	X
Bangladesh	X	X
Benin	—	X
Brazil	X	X
Bulgaria	—	X
Cameroon	—	X
Canada	X	X
Central African Empire	—	X
Chile	—	X
China	X	X
Cyprus	X	—
Colombia	—	X
Korea (Republic of)	X	X
Ivory Coast	X	X
Cuba	X	X
Denmark	X	X
Egypt	X	X
Ecuador	—	X
Spain	X	X
United States	X	X
Fiji	—	X
Finland	X	X
France	X	X
Ghana	X	—
Greece	—	X
Guinea	X	X
Upper Volta	—	X
Hungary	X	X
India	X	X
Indonesia	X	X
Iran	X	X
Iraq	X	X
Ireland	X	X
Italy	X	X
Japan	X	X
Jordan	—	X
Kenya	X	X

<i>Administration</i>	<i>XIVth Plenary Assembly</i>	<i>SPM</i>
Kuwait	X	X
Liberia	X	X
Libya	—	X
Madagascar	X	—
Malaysia	X	X
Mali	X	—
Malta	—	X
Morocco	X	X
Mauritius	X	—
Mexico	X	X
Monaco	—	X
Mongolia	—	X
Nigeria	X	X
Norway	X	X
New Zealand	X	X
Oman	X	X
Uganda	—	X
Pakistan	X	X
Panama	X	—
Papua New Guinea	X	X
Paraguay	—	X
Netherlands	X	X
Philippines	X	—
Poland	X	X
Portugal	—	X
Syria	—	X
German Democratic Republic	X	X
Democratic People's Rep. of Korea	—	X
Roumania	X	X
United Kingdom	X	X
Senegal	—	X
Singapore	—	X
Sudan	—	X
Sri Lanka	X	X
Sweden	X	X
Switzerland	X	X
Tanzania	X	X
Chad	—	X
Czechoslovakia	X	X
Thailand	X	X
Togo	X	X
Tunisia	—	X
Turkey	X	X
U.S.S.R.	X	X
Venezuela	X	X
Viet Nam	—	X
Yemen (P.D.R. of)	—	X
Yugoslavia	—	X
Zaire	X	—
Total	<u>61</u>	<u>85</u>

Participation in CCIR meetings, 1978

<i>Recognized private operating agencies, etc.</i>	<i>XIVth Plenary Assembly</i>	<i>SPM</i>
Recognized private operating agencies	21	30
International organizations	13	15
Specialized agencies of the United Nations	1	3
Scientific and industrial organizations	—	10
Other organs of the ITU	3	3
Registration	315	750
Contributions	950	365
	(pink documents)	

5.3.3 Special Preparatory Meeting to the WARC 1979

Pursuant to Administrative Council Resolution No. 804 the Special Preparatory Meeting of the CCIR took place in Geneva from 23 October to 17 November 1978 to prepare technical bases for the World Administrative Radio Conference for the general revision of Radio Regulations, Geneva, September/December 1979.

The meeting was attended by 750 delegates or observers from 85 countries, 30 recognized private operating agencies, 15 international organizations, 10 scientific and industrial organizations and 3 United Nations specialized agencies. Participation is shown in Table 1. The considerable participation of delegates from developing countries is noteworthy.

The work of the SPM was based on the texts (Recommendations and Reports) of the XIVth Plenary Assembly and on new contributions submitted by administrations and other participants in the work of the CCIR. The total number of new contributions was 365.

The results of the work of the SPM are contained in its Report entitled: "Technical bases for the World Administrative Radio Conference 1979", totalling 528 pages, which was sent to the administrations as an annex to the WARC 1979 document No. 13.

As would be expected, the most important part of the Report deals with those problems concerning spectrum utilization by space services and space terrestrial sharing.

5.3.4 The Work of the Study Groups

The series of Final Study Group meetings held in late 1977 and early 1978 was reported, for completeness in the 1977 Annual Report. The reports below indicate the status of work in each of the Study Groups as of the period of the XIVth Plenary Assembly and the beginning of the 1978-1982 Study Period.

5.3.4.1 Study Group 1 (Spectrum utilization and monitoring)

Chairman: J.T. DIXON (United States)

Vice-Chairman: R.G. STRUZAK (Poland)

Study has continued on definitions of interference, on development of mathematical models to facilitate interference and electromagnetic compatibility studies, on classification and designation of emissions, on development of the main criteria of frequency sharing, on problems of utilization of frequencies above 40 GHz, on safety aspects of radio-frequency radiation, on methods for monitoring and measuring emission parameters and spectrum occupancy. The main goals of Study Group 1 are to provide information and recommendations on fundamental factors affecting efficiency of spectrum utilization including problems of frequency sharing and on technical aspects of spectrum management.

At the XIVth Plenary Assembly it was decided to delete or revise many texts in Volume I (1974) pertaining to earlier work of the Study Group. Also three new Recommendations and twenty-one new Reports prepared by this Study Group were adopted, among them Recommendation 507 "Classification and designation of emissions" which was submitted as a formal proposal to the WARC-79. The XIVth Plenary Assembly approved the establishment in Study Group 1 of a new Interim Working Party 1/2, to be responsible for development of a report that will include discussion on efficient spectrum utilization, electromagnetic compatibility analysis techniques, standard data bases and computer techniques, along with examples of applying these concepts to spectrum management. The importance of IWP 1/2 activity was mentioned in the SPM Report.

The IWP began to collect material for the above text. This year it held two meetings.

The work of Study Group 1 is expected to be carried out in close collaboration with the CCIR Study Groups devoted to specific radio services, and to become of increasing future importance to the planning and management of the radio-frequency spectrum.

5.3.4.2 *Study Group 2* (Space research and radio astronomy)

Chairman: J. HAGEN (United States)

Vice-Chairman: F. HORNER (United Kingdom)

At the XIVth Plenary Assembly of the CCIR, Kyoto, 1978, Prof. J. Hagen (United States) and Dr. F. Horner (United Kingdom) were elected Chairman and Vice-Chairman respectively of Study Group 2. During the Plenary Assembly the texts emanating from the Final Meeting of the Study Group, described in the report for 1977, were approved.

Preparatory to the Interim Meeting of the Study Group to be held in 1980, work has already begun on the assembly of input data, in particular on the following topics: earth exploration and meteorological satellites; general space and satellite technology; attitude control technology; space research in general; data relay satellites (DRS); radio astronomy; solar power satellites (SPS); telecommunications aspects of search for extra-terrestrial intelligence (SETI).

5.3.4.3 *Study Group 3* (Fixed service at frequencies below 30 MHz)

Chairman: T. DE HAAS (United States)

Vice-Chairman: H. KAJI (Japan)

Though most point-to-point communications now use satellite, cables or microwave links, HF radio continues to be one of the valuable means for ensuring long-distance communications, and at the same time there has been a major increase in importance of HF fixed circuits for shorter distances, especially for remote areas with low traffic densities; this is especially true for developing countries.

Consequently, Study Group 3 continues its studies in this field on a reduced and more selective basis, concerned with recent advances and improvements for HF telephony, printing telegraphy data and facsimile services. The modernization and automation of HF receiving and transmitting centres is one of the main points of interest of this Study Group. Furthermore, use of HF ionospheric channel simulators and a synchronized compressor and expander system in which digital rather than analogue techniques are used in the control channel, have been studied as leading topics.

Texts prepared by the Study Group at the Final Meeting (January 1978) and approved by the XIVth Plenary Assembly include 3 new and 5 revised Recommendations, 5 new and 6 revised Reports, 5 revised Questions and 1 revised Study Programme.

More information from developing countries on utilization of HF radiocommunication would be welcome.

5.3.4.4 *Study Group 4* (Fixed service using communication satellites)

Chairman: E.R. CRAIG (Australia)

Vice-Chairman: E. HAUCK (Switzerland)

Upon the retirement of Mr. Klein, Chairman of Study Group 4 since 1970, the Plenary Assembly appointed Mr. Craig Chairman and Mr. Hauck Vice-Chairman.

The rapid growth of international satellite communications and the emerging importance of regional satellite networks are reflected in many of the 40 new or revised reports and recommendations. Of especial importance are new reports on efficient spectrum utilization for the geostationary satellite orbit, co-ordination between two satellite networks, and frequency sharing with terrestrial radio links. In particular, a report on the method of determining the co-ordination area around earth stations in the fixed-satellite service was completely revised for consideration by the SPM as a basis for revision by the WARC-79 of Appendix 28 of the Radio Regulations.

IWP 4/1 on the efficient and equitable use of the geostationary orbit met in Tokyo in advance of the Plenary Assembly and prepared a revised draft report for consideration of the SPM for its use in preparation for the WARC-79.

Important developments in orbital system and overall transmission characteristics include the introduction of digital systems, more efficient signal processing methods which are mainly digital, and attention to specific problems connected with use of frequency bands above 10 GHz. A new report reflects much progress in the field of modulation and multiple access techniques. A revised report and recommendation describe and urge the use of energy dispersal techniques for minimizing interference under various operating conditions. A great number of new and revised texts are devoted to digital systems.

Further studies were outlined. The efficient use of the geostationary-satellite orbit, short-hop intersatellite links, digital techniques, improved Earth and space-antenna radiation characteristics, multiple spot-beam and orthogonal polarization techniques, multiple frequency and signal processing satellites, protection limits for mutual interference levels, the use of higher frequency bands, all these, together with the associated operational and frequency co-ordination problems, are the main topics for the new study period.

5.3.4.5 *Study Group 5* (Propagation in non-ionized media)

Chairman: J.A. SAXTON (United Kingdom)

Vice-Chairman: A. KALININE (U.S.S.R.)

The activities of this Study Group leading up to its Final Meeting before the XIVth Plenary Assembly of the CCIR, Kyoto, 1978, are described in the report for the year 1977. There was no meeting of Study Group 5 in 1978, but Interim Working Party 5/2, working by correspondence, provided input to the Special Preparatory Meeting of the CCIR held in October/November 1978. This information related to the provision of tropospheric propagation data for interference predictions of signals not exceeded for more than 1% of the time, and the special approach was used of submitting it direct to the SPM via the Chairman of Study Group 5; the document in question will be nevertheless submitted to the Interim Meeting of the Study Group set down for 1980.

Activities in 1978 also included the forwarding to the secretariat by IWP 5/1 of the computer programme to be used to revise the ground-wave propagation curves set out in Recommendation 368-2 of 1974; the revised curves were approved for Recommendation 368-3 at Kyoto. Work continued on this project within the secretariat preparatory to the publication of the CCIR Volumes, but problems remain to be solved in this regard.

Other activities relate to IWP 5/2, concerning the maximum ducting distances to be used in the prediction of interference above 1 GHz and in the calculation of coordination distances; work is already in hand and a meeting of the IWP is expected to be held in 1979 to consider various proposals. The output of this meeting will be put before the next meeting of Study Group 5.

5.3.4.6 *Study Group 6* (Ionospheric propagation)

Chairman: L. BARCLAY (United Kingdom)

Vice-Chairman: Miss G. PILLET (France)

Investigation of ionospheric propagation continued especially in relation to LF, MF and HF sound broadcasting, maritime mobile communications, HF fixed point-to-point communications and to space communications where the influence of trans-ionospheric propagation must be considered. The main goals of Study Group 6 are to provide information and recommendations on the usage of solar and ionospheric indices for ionospheric propagation predictions, on ionospheric mapping, on methods for estimating sky-wave field strengths at frequencies between 150-1600 kHz and between 2 and 30 MHz including computerized methods, on prediction of MUF, on methods for calculating field strength of signals propagated by sporadic E layers and so on.

In the last study period, 1974-1978, significant reorganization of the Study Group 6 texts was made, which was approved by the XIVth Plenary Assembly. Almost all the Study Group texts were revised. Thirteen Reports were deleted and their information was included in several Recommendations and other Reports. Questions and Study Programmes were enlarged. Four new Recommendations and five new Reports were created. The new Recommendations concern such important problems as ionospheric effects influencing radio system involving spacecraft, ionospheric modification due to high power transmissions, estimation of sky-wave field strength and transmission loss at frequencies greater than 2 MHz, and a method for calculating sporadic E signal strength.

During this study period three new Interim Working Parties were constituted. They are:

- IWP 6/9: Ionospheric factors influencing communication and navigation systems involving spacecraft, which is to study ionospheric effects and effects of trans-ionospheric ionization on Earth-space propagation;
- IWP 6/10: Ionospheric modification by high-power transmissions, which is to study the adverse (or favourable) consequences to other telecommunication signals encountering an ionospheric region modified by a high power radio transmission;
- IWP 6/11: on special problems of radiocommunication associated with the high-latitude ionosphere, which is to summarize the properties of the high-latitude ionosphere in a form useful to communication engineers.

The Interim Working Parties held their meetings just before the Final Meeting of Study Group 6 in January 1978.

The monthly publication by the CCIR secretariat of long-term ionospheric prediction indices continues. Following discussion between the CCIR secretariat and the Chairman of Study Group 6 it has been decided to discontinue the publication of mean error and standard deviation data as from January 1979.

5.3.4.7 *Study Group 7* (Standard frequencies and time signals)

Chairman: G. BECKER (F. R. of Germany)

Vice-Chairman: J. McA. STEELE (United Kingdom)

Work in connection with the change from astronomical time to atomic time has been completed. Study Group 7 had earlier defined and introduced "Co-ordinated Universal Time" (UTC) * based on the second as defined by the International System of Units (SI). Dating of events with respect to UTC is possible with an uncertainty of less than 1 microsecond; this is a factor at least one thousand times more accurate than that obtained with astronomical Universal Time (UT), also called Greenwich Mean Time (GMT), as the time reference. The Plenary Assembly approved a recommendation that UTC should replace GMT in the Radio Regulations and other documents of the International Telecommunication Union (ITU).

A relatively new field of activity in the CCIR is the study of atomic and molecular time and frequency generators. These studies concern, *inter alia*, relativity effects, the problem of the determination of the optimum average of time scales, the description and definition of frequency instability and the determination of the uncertainty and reliability of time and frequency generators. The International Telegraph and Telephone Consultative Committee (CCITT) is also interested in such accurate time in connection with digital telecommunication networks and has requested CCIR advice; Interim Working Party 7/5 is charged with the studies and the preparation of a report.

There is considerable demand for a world-wide comparison with an uncertainty less than 0.1 microsecond. A new IWP (7/4) has been set up to study the details of a new international time dissemination system to meet this need using satellite techniques. A new report shows the feasibility of time transfers with an uncertainty of the order of 1 nanosecond and contains suggestions concerning the necessary frequency bandwidths in bands 10 and 11.

5.3.4.8 *Study Group 8* (Mobile services)

Chairman: W.H. BELLCHAMBERS (United Kingdom)

Vice-Chairman: E. GEORGE (F. R. of Germany)

Maritime radiocommunications, including maritime-satellite communications, represent a large part of the work of the Study Group; exceptional progress has been made on a digital selective calling system, direct printing telegraph equipment and many facets of the future maritime mobile and general mobile-satellite systems. Land mobile radio has advanced in many areas and difficulties which existed for a number of years have been finally resolved; one can therefore expect substantial progress over a wide range of land mobile radio studies in the coming study period.

A new text approved by the Plenary Assembly was a Recommendation on digital selective calling, which can now be introduced in the maritime mobile service. The 1974 Maritime Conference had already introduced the necessary provisions to this effect anticipating the CCIR recommendation.

A great number of new recommendations and reports for the maritime mobile satellite service, ranging from interworking with the public telecommunication networks to radiocommunication and operating aspects have been approved. For the remaining work in this domain, a new IWP has been established to carry out the studies, with particular emphasis on International Maritime Satellite Organization (INMARSAT) requirements.

During the study period a special report had already been prepared on aeronautical mobile communications, providing the World Administrative Radio Conference on the Aeronautical Mobile (R) Service, 1978 with the necessary technical bases for its work.

The Plenary Assembly decided to add to the terms of reference of Study Group 8 the study of technical and operational aspects of the amateur service.

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

Chairman: J. VERRÉE (France)

Vice-Chairman: H. WILLENBERG (F. R. of Germany)

The main task of this Study Group has been to standardize the characteristics required for the international interconnection of radio-relay systems, to establish performance objectives and to define operation and maintenance methods.

* In 1975 the General Conference of Weights and Measures (CGPM) recommended UTC as the basis of civil time; a number of countries have already introduced new time laws relating legal time to UTC.

Among the 49 new or revised recommendations and reports, an important development was the deletion of the clause on hourly mean noise in a telephone channel contained in several recommendations on analogue trans-horizon radio-relay systems. Decisive progress was made in the field of performance objectives for digital systems including a new recommendation on a hypothetical digital reference path. Progress was also made in specifying the availability and reliability objectives for both analogue and digital systems.

The standardization of analogue systems may be regarded as practically completed. Radio-frequency channel arrangements are recommended for different capacities up to 2700 channels per radio carrier in the frequency bands between 2 and 13 GHz; in certain conditions, capacity may be increased to 3600 channels. The important new development is the proposal to use single sideband modulation instead of frequency modulation for radio-relay systems; this would practically double the capacity (up to 6000 channels per radio carrier at 6 GHz) and would use the spectrum very efficiently.

Standardization of digital systems is still in its early stages though the reports approved by the Plenary Assembly give much information on the characteristics of these systems, including modulation techniques, choice of intermediate frequencies and baseband interconnection conditions. Radio-frequency channel arrangements for medium bit rate systems have been recommended, generally by adapting existing analogue channel arrangements.

Studies set out for the next period include continued work on the standardization of digital systems, and the study of the use of very high frequencies, say above 40 GHz. Further studies of frequency sharing with other services will include the new problem of sharing with the broadcasting-satellite service.

5.3.4.10 *Study Group 10* (Broadcasting service (sound))

Chairman: C. TERZANI (Italy)

Vice-Chairman: S.N. MITRA (India)

Together with Study Group 11, Study Group 10 made significant technical contributions on satellite broadcasting, reported below, especially in connection with the World Administrative Radio Conference for the planning of the Broadcasting-Satellite Service in the 12 GHz band (WARC-BS), 1977.

Among the new or revised Recommendations and Reports approved were a revised Recommendation on standards for frequency-modulation sound broadcasting, and revised Reports on stereophonic and multiplex sound broadcasting. Special attention was given to broadcasting in the Tropical Zone.

Several texts concern the audiofrequency characteristics of sound broadcasting, a new Recommendation on the subjective assessment of the quality of sound transmission, and a revised Recommendation on the measurement of audiofrequency noise.

A new manual of antenna diagrams for broadcasting antennae was published including many directional arrays used at MF and HF.

5.3.4.11 *Study Group 11* (Broadcasting service (television))

Chairman: M. KRIVOCHEIEV (U.S.S.R.)

Vice-Chairman: C.A. SIOCOS (Canada)

Among the new or revised Recommendations and Reports concerning television broadcasting were 15, approved jointly with Study Group 10, concerning broadcasting satellites in which the CCIR had already provided the technical basis for the international plan for ITU Regions 1 and 3 developed by the WARC-BS (1977). These texts covered terminology, frequency sharing by satellite and terrestrial broadcasting services, characteristics of broadcasting-satellite systems, planning, characteristics of receiving equipment, and out of band emissions.

The general report on "the characteristics of television systems" was expanded and updated; in reflecting the main parameters of world television systems, it was amended to include, for a number of standards, data on transmitter group-delay pre-correction characteristics. A new report also summarizes the present state of development of high-definition television.

Questions concerning technology and use of electronic media for international exchanges in television journalism were dealt with in a new report on "electronic newsgathering".

The trends toward automated measurement and monitoring in international exchanges were outlined in a new report on definitions of parameters for automatic measurement of television insertion test signals and in a revised report on automatic monitoring. A revised recommendation was approved on assessment of television picture quality.

Progress in digital methods of transmitting television programmes is reflected in a revised report. These studies, carried out with the CMTT, considered the hierarchy of group channels proposed by the CCITT, coding, error protection, and methods of measuring and monitoring. The study of digital methods is rapidly advancing in the CCIR.

A new report on auxiliary still-image or "teletext" services indicates the growing importance of this field; a new Interim Working Party has been established, and the Plenary Assembly adopted a Resolution inviting the CCITT to join in the work of a Joint Working Party to study the aspects of co-ordination with related land network services such as "videotex" or others.

5.3.4.12 CMTT (Joint CCIR/CCITT Study Group for television and sound transmission)

Chairman: Y. ANGEL (France)

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

The CMTT which is dealing with the transmission of television and sound programme signals over long distances, is the Joint CCIR/CCITT Study Group administered by the CCIR.

The main subjects of the CMTT's mandate concern standards for television transmission, measurement, monitoring and maintenance as well as questions of sound programme transmission, and the joint transmission of television and sound signals.

The CMTT is engaged in the study of not only analogue but also digital transmission, including digital coding methods and digital standards suitable for the transmission of television and sound programme signals over long distances. This study requires close coordination between the various groups involved in the development of digital techniques to ensure compatibility between the encoding methods for each application and to minimize equipment cost and complexity.

Studies have been finalized leading to a new Recommendation of unified methods of measurement and performance objectives for international circuits using analogue transmission which may carry signals using any of the current standards for colour television. The CMTT has undertaken the study of some new topics. The more important of these concern standards for circuits other than the 2500 km hypothetical reference circuit, distortion due to transient phenomena, the insertion of special signals in the field-blanking intervals of a television signal, the definition of the overall reliability and quality of a television circuit or chain, the type of fault likely to be encountered in an international sound programme circuit or chain and, finally, the quality of sound in broadcasting programmes.

In this field, substantial progress has also been made with the preparation of the basic information necessary for the reference chains and hypothetical reference circuits of fully digital sections or mixed analogue-and-digital sections.

There are new results in transmission of sound and vision signals by time-division multiplex. Much work remains to be done in many fields such as optimum codes for redundancy reduction, error correction and concealment, composition of the bit stream, the effect of arranging codecs in tandem, sampling jitter. Updated technical data are included in a number of reports.

Texts prepared by the Study Group at the Final Meeting (September 1977) and approved by the XIVth Plenary Assembly include 6 new and 5 revised Recommendations, 9 new and 19 revised Reports, 10 new Questions, 36 new Study Programmes, 1 revised Decision and 1 revised Opinion.

The Interim Working Party CMTT/I is studying digital systems for the transmission of sound programme and television signals and acts as a coordinating body between CCIR Study Groups 10, 11 and CMTT and CCITT Study Group XVIII.

Close cooperation has also been set up with organizations outside the ITU concerned specifically with the application of digital techniques to television broadcasting.

5.3.4.13 CMV (CCIR/CCITT Joint Study Group on Vocabulary)

Chairman: M. THUÉ (France)

Vice-Chairmen: M. DUCOMMUN (Switzerland)

B.A. DURÁN (Spain)

S.J. ARIES (United Kingdom)

The Plenary Assembly has approved, firstly, the overall organization of vocabulary work in the Study Groups (covered by a resolution) and secondly, the activities carried out within the CMV (governed by a decision).

It has been confirmed that the initiative for the establishment of definitions belongs to the Study Groups and that CMV is concerned with coordination within the two CCIs as well as relations with the Joint Coordination Group CCI-IEC for the telecommunication part of the International Electrotechnical Vocabulary (through IWP CMV/I, the mandate of which has been extended for the period 1978-82).

The vocabulary texts which are scattered throughout the various CCIR Volumes and on which a wide measure of agreement has been reached, have been assembled in a CMV Recommendation advocating the general use of these terms.

Needless to say, this text will contain the definitions submitted by the Study Groups and adopted by the Plenary Assembly.

The Plenary Assembly decided to draw the attention of readers of the Volumes to terms which have recently been submitted to CMV or terms on which agreement has not yet been reached by annexing them to the Chairman's introduction without giving them the status of a CCIR Report.

For graphical symbols, collaboration with the IEC continues and the same procedure has been adopted as that followed by the CCITT; a Recommendation refers to the section of the IEC publication which concerns graphical symbols for telecommunications.

For other means of expression, the Recommendation on the use of the International System of Units (SI) and that on the Nomenclature of the Frequency and Wavelength Bands have been supplemented. A new Recommendation has been prepared on Logarithmic Quantities and Units which is more detailed than the previous Report on the Limits on the Use of the Term "Decibel".

5.3.5 *Editing work*

Following the CCIR XIVth Plenary Assembly, Kyoto, 1978, the final work for the preparation of the texts and printing of the Volumes was begun on the basis of the ITU text processing system (which allows for storage and typed reproduction).

The work involves roughly 5000 pages for each of the three languages. It is the first time that such a process has been used for volumes which include more than 37% non-text matter, that is to say formulae, figures and tables dealt with in parallel but separately by conventional methods. New methods of application had to be developed by the Technical Service Department, but the advantages of this system (with the storage and reproduction facilities) should become clear during editing work at future meetings.

At the end of 1978, some volumes were already ready for printing in the three working languages of the Union.

5.3.6 *Technical Cooperation*

5.3.6.1 The CCIR secretariat continued to maintain close cooperation with the Technical Cooperation Department in the selection of experts and in the choice of equipment being procured for UNDP/ITU projects.

Following the provisions of CCIR Resolution 33-2, active assistance was extended throughout the year with respect to all kinds of radiocommunication problems experienced by the developing countries and which were referred to the CCIR by the Technical Cooperation Department. During the year 1978, 24 technical reports from the ITU/UNDP experts were analysed and evaluated with this end in view.

The reports on the following TCD projects were reviewed and comments furnished:

- Draft Report on Pre-investment surveys,
- Broadcasting-satellite system for Saudia Arabia,
- Report on PANAFTTEL international circuits - Senegal/Guinea,
- Report on radiocommunications in the Republic of Maldives,
- Review of draft tender for a microwave telecommunication system for the PANAFTTEL system,
- Fading problem in Senegal on 7 GHz system.

Assistance was rendered to the following countries with a view to improving the regional telecommunication networks through technical meetings organized by the Technical Cooperation Department:

- Propagation investigation of failures of major microwave link to Ziguinchor, Senegal,
- Feasibility study and preinvestment survey for the Middle East Telecommunication Network,
- Preparatory assistance for Sound Broadcasting and Television Development in Bangladesh.

The CCIR secretariat presented papers at the Seminar for Senior Broadcasting Engineers in Kuala Lumpur in connection with the WARC-79 and at the Regional Plan Committee for Latin America, Lima 1978.

5.3.6.2 *Participation by the developing countries in the work of the CCIR*

For some time it has been increasingly manifest that the work of the CCIR would be rendered more valuable if more intimate knowledge were available to the problems of radiocommunications inherent to the developing countries. This can best be achieved by a greatly increased participation by the developing countries at meetings of the CCIR. To this end, Resolution 33-2 "Technical cooperation" was radically amended by the XIVth Plenary Assembly to include new material relating to this problem.

5.3.6.3 The XIVth Plenary Assembly having noted that IWP PLEN/2 established by the XIIth CCIR Plenary Assembly had submitted the Special Report on "Possible Broadcasting Satellite Systems and their relative Acceptability" decided to establish a new Interim Working Party (IWP) PLEN/3 for updating the texts of the Special Report taking into account the experience of Administrations, developments in the field and conclusions of the Study Groups of the CCIR, particularly Study Group 11.

5.4 *International Telegraph and Telephone Consultative Committee (CCITT)*

5.4.1 *General information*

The various CCITT Study Groups and Working Parties worked very intensively in 1978 owing to the rapid development of technology in many sectors of telecommunications, which leads to profound changes in services and, in particular, to the creation of new services which are destined to become very important.

Sixty-four meetings of Study Groups and Working Parties were held, representing a total of 331 days of meetings (cf. Table I).

The various reports, contributions and working documents relating to this work covered 31,944 pages of documents, which gives an idea of the quantity of paper handled.

With regard to participation in meetings (cf. Table II), it should be noted that, apart from Australia, Canada, China, United States of America, Japan, Nigeria and U.S.S.R., the participation of distant countries in meetings held in Geneva remained small. However, Brazil, India, Senegal and Kenya showed a marked advance having been represented on 8, 6, 4 and 3 occasions respectively. Meetings held in the regions (Latin America (Lima) and Asia-Oceania (Bangkok)) were highly successful, and were widely attended by countries in the regions concerned.

Table III shows that, in the case of large technical Study Groups (VII, XI, XIV, XV, XVII, XVIII and GAS 6), the attendance of industrial organizations nearly exceeded that of delegates from administrations.

5.4.2 *New organizations admitted to the CCITT*

During 1978, two recognized private operating agencies, 11 scientific or industrial organizations and 3 international organizations were permitted to participate in the CCITT, so that, by the end of 1978, the number of such bodies was:

- recognized private operating agencies: 49
- scientific or industrial organizations: 127
- international organizations: 27

The newly admitted bodies are:

a) *Recognized private operating agencies:*

Ivory Coast: Société des télécommunications internationales de la Côte d'Ivoire "INTELCI" (Contribution ½ unit)

United States of America: FTC Communications, Inc., New York (Contribution ½ unit)

b) *Scientific or industrial organizations:*

Belgium: CODEX Europe SA, Brussels (½ unit)

United States of America: EXTEL Corp., Northbrook, Illinois (½ unit)
STROMBERG-CARLSON Corp., Longwood, Fla. (½ unit)

Finland: TELEFONNO OY, Helsinki (½ unit)

France: MATRA SA., Vélizy (½ unit)
Société ENERTEC-SCHLUMBERGER, Saint-Etienne (Loire) (½ unit)

Italy: SIELTE, Rome (½ unit)

United Kingdom: CASE Ltd., Rickmansworth, Herts (½ unit) [DATABIT Ltd., Northampton (½ unit)
EMI, SE Laboratories, Feltham, Mx (½ unit)
International Aeradio Ltd., Southall (½ unit)

c) *International organizations*

ECSA, Association européenne des services informatiques, Korbeck-Lo (Belgium) (½ unit)
INTUG, Association internationale des usagers des télécommunications, the Hague (½ unit)
ARABSAT, Arab Satellite Communications Organization, Riyadh (has requested exemption)

5.4.3 *Brief summary of the CCITT's main activities*

5.4.3.1 *Technical Department No. 1 – Facsimile telegraphy, data transmission and alphabetic telegraphy*

5.4.3.1.1 *Non-speech services.*

a) *Telex service*

Study Group I continued its studies of new facilities made available by modern switching technique and drafted a Recommendation which sets out those facilities which could be made available to the customers on an international level.

The fact that there is increasing interest by customers in private teleprinter exchanges is recognized by a new draft Recommendation on the interconnection of such exchanges with the telex network which has been drafted jointly with Study Group X.

For the maritime mobile services, Study Groups II and I drafted jointly a ship station identification plan which is common for both telephony and non-speech services. JWP/SMM drafted a set of rules for a new Recommendation dealing with the accounting and operating procedures for newer techniques.

b) *Teletex service*

Study of this service, together with the facsimile service and the videotex system gained considerable momentum in view of the role of these new services in the domain of office automation and public information retrieval/processing systems. There is great interest not only by administrations but also by terminal and computer manufacturers and the public at large and it is to be expected that the CCITT standardized non-speech services will be the major user of data transmission facilities over the telephone and data networks.

Study Group I drafted a Recommendation on the Teletex Service and it is important to note that any telecommunication network will be able to support this service in contrast to the classical philosophy where every service (telephone, telex, telegram) is carried by its dedicated network. The Study Group also drafted guidelines for interworking with telex to enable telex subscribers to exchange messages with teletex subscribers. The international teletex character set is constructed so that any national language can be accommodated and a subscriber can use his national characters for national connections and the characters of a distant country for international connections.

c) *Telefax service*

This service defines the rules for a subscriber document facsimile service over the telephone network, using CCITT standardized facsimile apparatus and procedures. For the time being, Group 2 machines (3 minute transmission time) are foreseen with manual and automatic transmission and reception. Telefax is a complementary service to Teletex in cases where also diagrams, signatures etc. will have to be transmitted or where an office produces clean copies by traditional means. Study Group I was able to formulate a draft Recommendation with a service description.

d) *Datafax service*

This service uses public data networks and high speed digital facsimile terminals with transmission times below one minute, it makes use also of the enhanced facilities of data networks such as closed user groups, etc. Study of this service is well under way in Study Group I.

e) *Bureaufax service*

Customers who do not participate in the Telefax service will be able to send document telecopies by Bureaufax to the addressee. Telecopies can be handed in at the counter or lodged electrically at the Bureaufax office. They will be delivered to the addressee by messenger, or electrically, or will be collected by the addressee. Study Group I set out a first set of rules for this new service.

f) *Interactive Videotex system*

Study Group I has drafted a first description of the system which is intended to provide the following services:

a) *information retrieval from data bases;*

- b) interactive services (e.g. booking and purchase facilities, electronic funds transfer, calculation facilities);
- c) terminal to terminal communication.

The terminal will be a suitably equipped home TV set, connected via a modem to the telephone network. It is envisaged that the same TV set will be used for the broadcast Videotex system; for this reason close collaboration with CCIR has been established.

5.4.3.1.2 *Telegraph transmission*

Study Group IX pursued its studies of transmission plans and further refined the text of the Recommendations within its terms of reference.

5.4.3.1.3 *Telegraph switching*

Study Group X drafted jointly with other interested Study Groups a couple of draft Recommendations on an automatic telex terminal (with Study Group VIII) and on the interconnection of private teleprinter exchanges with the telex network (with Study Group I). There is also a joint study with Study Group I on the new facilities in the telex service offered by modern switching equipment. Draft recommendations have been prepared in conjunction with the CCIR on the maritime satellite interface requirements for telex.

5.4.3.1.4 *Non-speech alphabetic terminals*

a) *Telex terminals*

Study Group VIII prepared, *inter alia*, the following draft Recommendations:

- i) Automatic terminals in the telex network (jointly with Study Group X);
- ii) Use of display screens in telex machines. This technique is intended for easing local text editing in view of the trend to consider telex machines as office tools in conjunction with PABXS;
- iii) Conversion between International Alphabet No. 2 and International Alphabet No. 5 (jointly with ISO). With this Recommendation interworking between telex and data terminals is facilitated thus opening up new applications for telex subscribers in the data field.

b) *Teletex terminals*

Study Group VIII drafted a Recommendation on the Teletex terminal which describes its characteristics, its character repertoire and its operation. The terminal is intended to be used both as a telecommunication terminal and a text editing office machine. For this purpose, its operation corresponds to that of an office machine, the line transmission functions being taken care of in a separate procedure with a storage for transmission and reception. Transmission time per page will be between 10 and 20 seconds. Interworking with telex stations is provided from the outset; at a later stage interworking with the Telefax service is envisaged.

5.4.3.1.5 *Facsimile terminals*

Study Group XIV prepared, *inter alia*, a draft Recommendation on Group 3 facsimile apparatus for a transmission time per page of 1 minute or less. The apparatus employs digital encoding and redundancy reduction technique and is intended for use over the telephone network in conjunction with CCITT modems. Furthermore, the Study Group reviewed the facsimile control procedures in Recommendation T.30 with a view to their use for the international Telefax and Bureaufax services.

To be able to provide Study Group I with the necessary technical Recommendations for the Datafax service, Study Group XIV took up the study of a Group 4 digital facsimile apparatus for use over the data networks. Major characteristics will be high-speed operation, automatic error correction and use of the enhanced facilities of data networks such as the mail box facility, etc.

In conjunction with the Group 4 apparatus a new control procedure is under study which will have to take into account the desirability of common control procedures for both facsimile and Teletex. For this purpose, joint task groups have been set up. A possible interworking between the facsimile services and Teletex is envisaged to take advantage of the features of both systems, i.e. the transmission efficiency of alphabetic transmission and the capability of reproduction of graphs, etc., of facsimile transmission.

5.4.3.1.6 *Data transmission over telephone circuits*

Apart from updating or completing Recommendations on modems, interfaces, maintenance, etc. Study Group XVII prepared a draft Recommendation on a 1200 bits/s duplex modem, which will have a wide range of applications, one important aspect being interconnection with data networks via the telephone network. As a further development, a 2400 bits/s duplex modem is envisaged which would be another step forward to solve the problem of internetworking, this is the key issue not only for data transmission in general but for the worldwide availability of the new non-speech services in particular. For this reason, Study Group XVII has oriented its efforts towards the network aspects of the new services, which involves in particular new generation modems for the telephone network and compatibility questions concerning interworking with data networks.

Another important study under way is the use of satellite circuits for data transmission and the implications of their performance characteristics on the data transmission procedures.

In the field of interfaces and maintenance loops, Study Group XVII maintained the traditional close cooperation with ISO.

5.4.3.1.7 *Public data networks*

In response to the intention of a number of administrations to open up an international data network service, Study Group VII prepared a draft Recommendation on an international inter-exchange signalling system for packet networks and an international numbering plan for public data networks. Both Recommendations have been approved by letter ballot. In addition, the Study Group prepared five other draft Recommendations on call control procedures for international user facilities, parameters of a high-speed synchronous user rate interface, a datagram interface and test loops for synchronous terminals.

Basic texts have been prepared on the interworking between terminals connected to various public networks and on the routing principles for international public data services. These texts take account of the requirements of the new services and it is recognized that the very complex problems of interconnecting circuit-switched data networks, packet-switched data networks, the telex network and the telephone network require very effective coordination between Study Groups VII, XVII, I, VIII, X, XIV and III.

Another important issue is the delineation of responsibilities between Study Groups VII, VIII, XIV and XVII concerning system architecture and control procedures, and coordination between these Study Groups and also ISO is under way.

Finally, Study Group VII approved by letter ballot new Questions on facsimile communication over public data networks (to be studied jointly with Study Groups I and XIV) and on the integration of satellite systems in data transmission networks.

5.4.3.2 *Technical Department No. 2 – Transmission systems and transmission quality*

5.4.3.2.1 *Transmission systems*

All the Working Parties of Study Group XV (Transmission systems) met in Geneva from 3 to 14 April 1978, except the one responsible for the study of Question 37/XV (waveguides) and the Joint Working Party LTG (use of telephone-type lines for purposes other than telephony), which is responsible for the preliminary study of Question 25 to 29/XV.

In addition, the Working Party on optical fibres held a second meeting in Geneva on 23 and 24 October 1978.

At its first meeting, the Working Party on optical fibres prepared a number of definitions of the physical and transmission characteristics of optical fibres. Progress has been made in the study of methods of measuring these characteristics for the purpose of reaching agreement on methods which would produce comparable results.

The second meeting of the Working Party on optical fibres was devoted exclusively to preparing a draft Recommendation on optical fibre cables, thus meeting the new requirements for standardization in this field.

The Working Party on analogue systems dealt, in particular, with television transmission on 60 MHz systems and on 18 MHz systems on coaxial pairs.

The Working Party on cables continued its work of reshaping and updating recommendations and has completed its definition of the characteristics of symmetric cable pairs for digital systems (Recommendation G.612).

The Working Party on sound programme transmissions considered the number of texts submitted by the CMTT for bringing up to date a number of recommendations in the J series.

5.4.3.2.2 *Digital transmission*

The Working Parties of Study Group XVIII (Digital networks) on digital networks, on PCM and digital terminal equipments, and on line transmission met in Geneva from 9 to 20 October 1978.

The results of studies of Question 1/XVIII (Overall aspects of services) will have a marked effect on the study of other questions assigned to the Study Group and will be necessary for the evaluation of digital networks.

It was decided to study, in the first place, a recommendation laying down quality standards valid for all types of transmultiplexers.

The need to have separate specifications (sending side and receiving side) for audio-frequency PCM channels (Recommendation G.712) was recognized.

The Working Party for the study of line transmissions achieved appreciable results. It reached an agreement on the structure of a draft Recommendation on digital line sections on cable and on a list of parameters for digital line systems with a view to preparing a draft Recommendation to assist network planning.

The Working Party also decided on a format for the uniform presentation of data relating to optical fibre systems.

5.4.3.2.3 *Telephone transmission quality*

Study Group XII held its second meeting in Geneva from 18 to 22 September 1978. The study of the new Question on syllabic companders was approved by the required number of administrations, in accordance with the procedure laid down in Article 58, number 308, of the Convention.

A new study subject on "Coupling between telephone receivers and hearing aids", to be undertaken in conjunction with IEC, was proposed for Study Group XII.

In addition, the study of a number of questions, in particular, the effects of attenuation distortion and group delay, and the construction of models for evaluating overall transmission performance, has made appreciable progress.

5.4.3.2.4 *Telephone circuits*

Study Group XVI met in Geneva from 25 to 29 September 1978. Amendments or additions were made to several draft Recommendations now under study: for example, the draft Recommendation on leased circuit characteristics, the draft Recommendation on the interconnection of a maritime mobile-satellite system with the international automatic switched telephone service (supplemented by "Explanatory notes for the information of designers of a maritime mobile-satellite system") and the draft Recommendation on transmission performance objectives and recommendations.

5.4.3.2.5 *Circuit noise and reliability*

The CMBD also held its second meeting in Geneva from 2 to 6 October 1978. At the meeting, progress was made in the study of the Question concerning the calculation of the loading of carrier current systems and new guidelines for general studies of reliability and availability were provided.

5.4.3.2.6 *Special Autonomous Working Party (GAS 3)*

GAS 3's Editorial Group on rural telecommunications completed its work on the first edition of the Handbook at its last two meetings on 20 and 21 February 1978 and during the last meeting of GAS 3, from 28 August to 6 September 1978. The Handbook is now being printed and will be available at the beginning of the summer.

Progress has also been made with the Handbook on general network planning. The first draft texts will be submitted to the next meeting of the Editorial Group in June 1979.

5.4.3.3 *Technical Department No. 3 – Telephone switching, telephone operation and tariffs*

5.4.3.3.1 *Tariff questions (Study Group III)*

Three of Study Groups III's Working Parties:

III/1 – Private leased circuits

III/2 – Tariff principles for public data networks

III/3 – International tariffs and accounting in telegraph services

met in the first half of 1978 and Study Group III, at its meeting in December 1978, approved their work and gave it new impetus with respect to a considerable number of subjects.

In connection with recent techniques, Study Group III was able to accept draft Recommendations on tariff principles:

- i) for public data transmission services on dedicated networks;
- ii) for the public packet-switched data network (virtual calls) after prescribing, for this purpose, the unit to be used in measuring the volume of information transmitted.

A preliminary draft Recommendation was also drawn up on tariff principles in the public circuit-switched network.

The problem of the international monetary unit for telecommunications was examined by Study Group III's UMI Working Party and the CCITT approved a Recommendation on the question in September 1978 following the accelerated approval procedure. A report on the same subject was prepared by the Director of the CCITT for the 34th session of the Administrative Council.

The Tariff Group for Europe and the Mediterranean Basin (TEUREM Group) examined the action taken to implement five regional Recommendations adopted by the VIth Plenary Assembly of the CCITT and has also undertaken a study concerning the adoption of rational basis for remuneration for the "national extension" to be taken into account in international rate-fixing.

The Tariff Group for Latin America (TAL Group) decided at a meeting in Lima in April 1978 to undertake a study of telephone and telex service costs in relations between the countries of the Region and, for that purpose, it is preparing a questionnaire to collect the basic data required.

5.4.3.3.2 *Telephone operation* (Study Group II)

In addition to various special Questions entrusted to Special Rapporteurs, the work of Study Group II covers four major fields, each of which is assigned to a Working Party:

- Telephone operation - Instructions
- Human factors
- Routing and numbering
- Traffic engineering and network management.

Two of these Working Parties met in 1978 before the meeting of Study Group II in September.

Besides various amendments to Recommendations which have been in force for a number of years and correspond to traditional international telephone operation, the main points to be noted in the work of Study Group II during 1978 are:

- continuance of the detailed study of a draft Recommendation on the use of computers in connection with the call numbers of telephone subscribers in foreign countries (subscriber information service),
- the presentation of a standard set of national instructions on the international automatic telephone service,
- the clarification of the basic concepts of traffic engineering (definition of "grade of service"), particularly in relation to blockages in an exchange, and
- definition of ranges of values to characterize the load on an international exchange and the grade of service of its outgoing traffic.

Study Group II cooperated with Study Group I in the work of *ad hoc* Joint Working Party I/II which, in May 1978, completed the preparation of a draft Recommendation: "Identification of ship stations in the maritime mobile service". This Recommendation lays down rules for the international numbering - identical for the telephone and telex services - of the telephone and telex stations on board ships.

The Recommendation received the agreement not only of CCITT Study Groups I and II, but also of CCIR Working Party 8/6 and of the INMARSAT Preparatory Committee, which are directly concerned with these provisions.

5.4.3.3.3 *Economic studies* (Special Autonomous Working Party - GAS 5)

GAS 5 is in the process of studying six very different subjects.

On the basis of a general outline drawn up in 1977, the authors and co-authors have prepared the various chapters. They compared their draft texts in May 1978, and again in September 1978, pending a further meeting in 1979.

5.4.3.3.4 *Telephone switching and signalling* (Study Group XI and GAS 6)

The study of the five major subjects assigned to Study Group XI has been entrusted to the following Working Parties:

- interworking of standardized signalling systems,
- common channel signalling (CCS) for integrated digital networks, i.e. the study of signalling system No. 7, the new name which has now been officially recognized,
- language for stored programme control switching (SPC) systems,
- digital switching,
- automatic switching for national networks.

In all these subjects, significant progress was made in 1978, resulting in decisions on values and procedures to be used as standards for specifications. The work prepared at meetings of Working Parties at the end of 1977 and in June 1978 was reviewed at a meeting of Study Group XI in June 1978. This meeting issued guidelines and identified points requiring further specification for a new series of Working Party meetings in 1979.

Attention should be drawn to the following:

- the emphasis on switching problems, which until recently were regarded as being matters solely of national competence;
- the importance assumed by digital techniques (specification of time-division switching exchanges, digital CCS signalling system No. 7);
- the increasing importance attached to software languages (programming language, functional description languages).

The study of national switching equipment is connected with the work of GAS 6, which is responsible for preparing a Handbook on the "Economic and Technical Aspects of the Choice of Switching Systems".

A detailed questionnaire sent out by Study Group XI GAS 6 in 1977 aroused great interest and was particularly successful in that it collected more than 50 replies. The mere analysis of the innumerable data in these replies involved a considerable amount of work but, at the beginning of 1978, it was already possible to identify certain trends.

At its meeting in March 1978, GAS 6 took note of the results of the analysis and finalized the table of contents of its Handbook, assigning responsibility for drafting the various chapters. The work of drafting, divided into chapter sections, has led to a large number of editorial meetings and has reached a fairly advanced stage.

5.4.3.4 *Technical Department No. 4 – Maintenance and protection*

5.4.3.4.1 *Maintenance*

Study Group IV, which is responsible for studying the transmission maintenance of international lines, circuits, chains of circuits and maintenance of automatic and semi-automatic networks, continued its work in this connection, assisted by its five Working Parties and an *ad hoc* Group set up to study television and sound-programme circuits.

Its studies covered such general aspects as the transmission stability of the lines making up the international network, the maintenance of the circuits, groups, supergroups, etc., set up over these lines and the development of basic specification clauses for measurement equipment necessary to carry out such maintenance with the greatest possible economy in manpower. In the detailed application of these principles, the Study Group gave particular attention to methods for testing echo suppressors and measurement equipment for phase jitter and quantization distortion. It studied the basic specification clauses for measurement equipment for all of these.

Confirmation that the transmission quality of the international network is being maintained was obtained by means of statistical analysis of fault reports.

5.4.3.4.2 *Protection*

a) *Protection against dangers and interference of electromagnetic origin*

This aspect of protection is studied by Study Group V. The Study Group had one meeting during the year, during which it examined all the questions set for study. In particular, it studied new requirements for protective devices consequent upon the introduction of electronic exchanges, booster transformers and autotransformers for use on modern electric railway systems, and the psophometric noise arising from such systems, and examined its future collaboration with Study Group XVI in respect of the unbalance of telecommunication installations.

Chapters VI, VII and VIII of the Handbook on lightning protection have now been published.

b) *Construction, installation and protection of telephone cables in public networks*

These aspects are studied by Study Group VI. The Study Group continued study of all its questions. A Handbook on the jointing of plastic sheathed cables has now been published. A Handbook on the jointing of conductors is in preparation.

5.4.3.5 *Plan, Technical Assistance and Administrative Coordination Department*

5.4.3.5.1 *Plan Committees*

During 1978, meetings were held by the Regional Plan Committee for Latin America and the Regional Plan Committee for Asia and Oceania.

a) *Meeting of the Plan Committee for Latin America, Lima, 10-15 April 1978*

The meeting of the Committee was opened by the Peruvian Minister of Transport and Communications in the presence of a large number of ambassadors accredited to Lima and leading Peruvian personalities.

Mr. Severini (Argentina) was appointed Chairman of the Committee and Mr. P. Fernandez Pilco (Peru) was elected Vice-Chairman.

During the meeting, the Committee prepared a plan for the years 1978-80-82 and global estimates for 1984. The Plan Book for Latin America (Lima, 1978) was published in July 1978.

In accordance with Resolution No. 12 of the VIth Plenary Assembly of the CCITT, technical papers, followed by discussions, on studies whose results have a direct effect on planning and decisions concerning the development of national and international networks were read at the meeting by the Chairmen of CCITT Study Groups VII (New networks for data transmission), XI (Telephone switching and signalling) and XVIII (Digital networks), and a survey was presented by the CCIR secretariat on satellite communication systems.

The Committee also took note of reports on the coordinated development of networks in the Region; it took the necessary steps in relation to its future work in the light of the contributions from countries, and renewed the mandate and composition of its Coordination Committee. The Coordination Committee will carry out the directives of the Planning Committee during the intervals between meetings.

At the Lima meeting, 23 countries, 10 scientific or industrial organizations and 4 international organizations, with a total of 93 participants, took part in the proceedings.

b) *Meeting of the Plan Committee for Asia and Oceania, Bangkok, 28 November-2 December 1978*

This regional meeting was inaugurated by the Thailand Minister of Communications. The Committee had a wide-ranging exchange of information on the development of telecommunications in the Region. Apart from individual contributions from countries, it considered four reports, prepared by special rapporteurs, on the coordination of regional networks and major transmission arteries (Asian Telecommunication Network, Arab Telecommunication Network, submarine cables, national and regional satellite communication systems).

In the light of the replies to the Plan Questionnaire, the Committee drew up a plan for 1978-81 and estimates for 1982-85. The results of the meeting will be published in the Plan Book for Asia and Oceania, Bangkok, 1978.

Pursuant to the discussions which took place at the VIth Plenary Assembly of the CCITT, Geneva, 1976, the Bangkok meeting considered the question of the exchange of general data on telecommunication development, the problems involved in the coordinated development of networks and the application of CCITT Recommendations. Six CCI Chairmen took part in the meeting and presented technical reports on the activities of their Study Groups and the consequences of their studies for telecommunication planning and decision-making in the Region. These reports were made by the Chairmen of CCITT Study Groups II (Telephone operation), III (General tariff principles), XI (Switching and signalling systems – CCITT studies on the future of these systems), XV (Transmission systems), XVIII (Digital networks – CCITT studies and system development) and by the Chairman of CCIR Study Group 4 (Development of space radiocommunication systems).

With a view to facilitating the participation of its members in the work of the CCIs, the Committee recommended that the administrations concerned should include a "CCI liaison unit" in their organizations. With regard to CCI publications, the Committee requested that the competent authorities of the ITU should be asked to ensure that the sale prices should be equal to their costs of reproduction and dispatch.

To ensure the continuity of its work in the intervals between meetings, the Committee renewed its Coordination Committee and improved the presentation of the Plan Questionnaire.

We should note that the CCITT Plan Committees use the ITU computer to accelerate the progress of their work and the publication of documents.

5.4.3.5.2 *Technical cooperation*

As in the past, the CCITT secretariat continued its close collaboration with the Technical Cooperation Department, both in the choice of experts and in the purchase of technical equipment for ITU/UNDP telecommunication projects. Recommendations were also made in connection with fellowship programmes.

CCITT staff gave talks to trainees visiting ITU Headquarters in order to acquaint them with CCITT activities.

A number of experts' reports were also examined in the CCITT secretariat.

The CCITT took an active part in the Technical Cooperation Department's Singapore Seminar (April 1978) on telephone signalling and switching. Most of the lecturers at the seminar were experts carrying out responsible duties in Study Group XI and GAS 6. One of the lecturers was a member of the CCITT secretariat.

5.4.3.6 *Department of Technical Services (Publications)*

a) The Orange Book Volumes, which were published in 1977, have been complemented by an index and a list of terms and definitions. These were developed by applying the latest data processing techniques in collaboration with the Computer Department. In future these reference works will be published coincident with the Book resulting from each of the CCITT Plenary Assemblies.

b) A number of new or amended Recommendations provisionally approved and amendments or revisions to handbooks have been processed for the purpose of publication:

- Amendments to the Series V Recommendations on data transmission over the telephone network
- New Recommendation: "Terminal and transit call control procedures and data transfer systems on international circuits between packet-switched data networks"
- New Recommendation: "International numbering plan for public data networks"
- Amendments and additions to the Handbook "Directives concerning the protection of telecommunication lines against harmful effects from electricity lines"
- Additions to the Handbook "Protection of telecommunication lines and equipment against lightning discharges".

Processing work on the new Handbooks "Local network planning" and "Rural telecommunications" has been initiated.

c) Standards have been developed to improve the presentation of CCITT documentation. Application of these standards will also facilitate the computerization of index systems for CCITT publications.

d) Development work on a thesaurus of telecommunication terms has been initiated for the purpose of indexing and retrieving documentation internal to the CCITT and in connection with the creation of a Documentation Centre at the ITU (Resolution No. 47 of the Malaga-Torremolinos Plenipotentiary Conference).

e) Vocabulary – Means of expression. Participation in the Joint Study Group for Vocabulary (CMV) and the ICE/CCIR/CCITT Joint Coordination Group.

5.4.3.7 *Miscellaneous*

5.4.3.7.1 *Meeting of Chairmen of CCITT Study Groups, Geneva, 3-5 October 1978*

After consulting the officers of CCITT Study Groups, the Director of the CCITT convened a meeting of Study Group Chairmen to examine a number of points with a view to improving CCITT working methods and to prepare proposals on the subject for the next CCITT Plenary Assembly.

In accordance with No. 238 of the International Telecommunication Convention, five representatives of countries Members of the ITU Administrative Council also took part in the meeting as observers.

The meeting considered questions relating to the improvement of CCITT working methods and to the organization and preparation of meetings. A small group was asked to prepare an amended version of CCITT Resolution No. 1 in the light of the thorough discussion which took place; proposals will be put forward with a view to the more efficient attainment of CCITT objectives. The meeting provided an excellent opportunity for the officers of CCITT Study Groups to exchange views on the work of their respective Study Groups and, as far as possible, to improve the liaison between them.

5.4.3.7.2 *Cooperation with the CCIR*

There is a very marked tendency towards increasing cooperation with the CCIR, not only within the Joint Study Groups already set up (Plan Committees, CMBD, CMV, CMTT), but also by direct contact at all levels between the secretariats of the two organs. Cooperation has become particularly active in preparing regulations for the maritime mobile service (CCIR Study Group 8, CCITT Study Groups I and II).

In addition, a Joint Working Party CCIR/CCITT for the Videotex service is to be set up.

5.4.3.7.3 Cooperation with other international organizations

CCITT cooperation with other international organizations (UNESCO, ISO, WMO, IMCO, CEPT, IEC, EBU, INMARSAT, etc.) called for increasingly time-consuming contacts with these organizations.

5.4.3.7.4 Technical information for the press

At the conclusion of CCITT meetings, technical information notes for the press are issued, with a view to creating greater awareness of the impact of the CCITT activities and its role in the development of modern telecommunication techniques; for this purpose, the CCITT secretariat collaborates closely with the General Secretariat's information and public relations service.

TABLE I

List of meetings held in 1978

<i>Date</i>	<i>Meetings</i>
10-13 January	Joint SG XI/Gas 6 Group of Rapporteurs, to study responses to Circular 40, Questionnaire on switching equipment of national networks
6-10 February	WP III/3, Tariffs and accounting in the telegraph service
13 February	TEUREM Group, Tariffs for Europe and the Mediterranean Basin
14-17 February	JWP UMI, International monetary unit
20-21 February	GAS 3 Editorial Group on rural telecommunications
22-24 February	GAS 3 Editorial Group on network planning at the national level
1-3 March	Laboratory WP
2-3 March	Preparatory meeting on Question 10/V
6 March	GAS 6 Chairmen, Vice-Chairmen and Rapporteurs
6-10 March	SG V, Protection against dangers and disturbances of electro-magnetic origin
7-17 March	GAS 6, Economic and technical aspects of the choice of switching systems
13-17 March	SG VI, Protection and specifications of cable sheaths and poles
20-23 March	WP II/1, Telephone operation, instructions and regulations
3-7 April	WP VII/4, Transmission, maintenance and quality of service
6-7 April	Meeting on Recommendations X.21, X.21 bis, X.20, X.20 bis, X.24 — Multiplexed link
3-14 April	Meeting of WPs of SG XV, Transmission systems
10-14 April	WP VII/2, Interfaces
10-15 April	Plan Committee and Tariff Group for Latin America, Lima
17-21 April	WP VII/3, User requirements and service characteristics, and WP VII/1, Switching and signalling
18-21 April	Teletex WP
24-25 April	SG VII, New networks for data transmission
24-28 April	WP III/2, Tariff principles for public data networks
1-3 May	WP III/1, Private leased circuits
8-9 May	Special meeting on Videotex
8-12 May	JWP SMM, Maritime mobile service
15-19 May	<i>Ad Hoc</i> JWP of SGs I/II for the study of ship stations identification problems in the maritime mobile service
22-26 May	Meeting of GAS 5 authors
30 May-2 June	Sub-group of contributors to the study of Question 5/XI
5-9 June	Various WPs of SG XI

<i>Date</i>	<i>Meetings</i>
5-9 June	Various WPs of SG XI
12-16 June	SG XI, Telephone switching and signalling
13-21 June	SG I, Telegraph operation and quality of service
19-23 June	Various WPs of SG XI
22-28 June	SG VIII, Telegraph equipment, terminal equipment for data transmission, local connecting lines
26 June-7 July	WP IV/2, Measuring equipment; WP IV/3, General maintenance organization; WP IV/1, Maintenance of telephone-type circuits
28 August-6 September	GAS 3, Economic and technical aspects of the choice of transmission systems
29-31 August	Small group of GAS 6, Economic and technical aspects of the choice of switching systems
29 August-6 September	GAS 5, Economic conditions and telecommunication development
5-6 September	Group of Rapporteurs for Question X/4
8-13 September	SG X, Telegraph switching
11-13 September	WP II/2, Human factors
14-15 September	Laboratory WP
14-22 September	SG II, Telephone operation and quality of service
18-22 September	SG XII, Telephone transmission performance and local telephone networks
19-22 September	WP IV/4, Quality of the international network
25-29 September	SG IV, Transmission maintenance of international lines, circuits and chains of circuits; maintenance of automatic and semi-automatic networks
25-29 September	SG XVI, Telephone circuits
29-30 September	Group of Special Rapporteurs on "Availability and Reliability"
2-6 October	CMBD, Joint Study Group on Circuit Noise and Availability
3-5 October	Chairmen of SGs, JWPs, GAS and Regional Tariff Groups
9-20 October	WPs of SG XVIII, Digital networks
17-19 October	SGI WP on Videotex
17-20 October	WP for Question 7/VI
17-25 October	SG I and SG VIII WP on Videotex
23-24 October	SG XV WP on optical fibres
23-25 October	SG VIII WP on Videotex
25 October-3 November	SG I and SG VIII WP on Teletex
9-17 November	SG IX, Telegraph transmission quality; specification of equipment and rules for the maintenance of telegraph channels
13-17 November	SG XI, Group of Experts on Signalling System No. 7
20 November	Group of Special Rapporteurs for Question 36/VII
21-29 November	WPs of SG XVII, Data transmission
27 November-6 December	Group of Special Rapporteurs on Recommendations X.25, X.75 and the datagram service
28 November-2 December	Plan Committee for Asia and Oceania, Bangkok
4-12 December	SG III, General Tariff principles
5-8 December	Group of Rapporteurs for Question 18/VII
11-15 December	Various WPs of SG XIV, Facsimile telegraph transmission and equipment

TABLE II

Participation of Member countries in CCITT meetings in 1978

- Study Groups, Plan Committees, and their Working Parties,
- Joint Working Parties,
- Special Autonomous Working Parties,
- Regional Tariff Groups.

COUNTRY (Administrations or Recognized Private Operating Agencies)	Study Groups and their Working Parties																			Plan		Joint Working Parties		Special Autonomous Working Parties			Regional Tariff Groups		TOTAL	
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIV	XV	XVI	XVII	XVIII	CMBD	ASIA	Latin Amer.										
	SMM	UMI	GAS3	GAS5	GAS6	TAL	TEU- REM																							
Afghanistan																			X											1
Albania																														—
Algeria			X																				X							2
Germany (Fed. Rep. of)	X	X	X	X	X		X	X	X	X	X		X	X		X	X	X	X			X	X			X		X		20
Angola																													—	
Saudi Arabia																			X										1	
Argentina																				X							X		2	
Australia	X	X	X	X	X	X	X	X	X	X	X	X			X	X			X			X							16	
Austria	X			X					X		X			X		X	X		X			X	X						10	
Bahamas																													—	
Bahrain																			X										1	
Bangladesh																			X										1	
Barbados																				X						X			2	
Belgium	X	X	X	X		X	X	X	X	X	X	X		X		X	X					X	X	X		X		X	19	
Benin																													—	
Byelorussia																													—	
Burma																													—	
Bolivia																				X						X			2	
Botswana																													—	
Brazil			X				X		X		X			X						X		X	X			X	X		10	
Bulgaria																													—	
Burundi																													—	
Cameroon			X																										1	
Canada	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				X	X	X	X	X			23	
Cape Verde																													—	
Central African Empire																													—	
Chile																				X						X			2	
China	X		X		X	X	X				X	X						X	X			X							10	
Cyprus			X								X					X													3	

TABLE II (cont.)

COUNTRY (Administrations or Recognized Private Operating Agencies)	Study Groups and their Working Parties																		Plan		Joint Working Parties		Special Autonomous Working Parties			Regional Tariff Groups		TOTAL	
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIV	XV	XVI	XVII	XVIII	CMBD	ASIA	Latin Amer.	SMM	UMI	GAS3	GAS5	GAS6	TAL	TEU-REM		
Vatican																													-
Colombia																				X							X		2
Comoros																													-
Congo																													-
Korea (Rep. of)												X			X	X													3
Costa Rica																				X									1
Ivory Coast																													-
Cuba																				X							X		2
Djibouti																													-
Denmark	X	X	X	X	X	X	X	X	X		X	X	X	X	X		X					X	X		X			X	19
Dominican Republic																													-
Egypt												X																	1
El Salvador																													-
United Arab Emirates																			X										1
Ecuador																				X							X		2
Spain	X	X	X	X	X	X	X	X	X		X	X		X	X	X	X		X	X	X	X		X	X	X	X	X	23
United States of America	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		26
Ethiopia																													-
Fiji																													-
Finland	X	X	X		X		X			X	X	X				X	X					X	X					X	13
France	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	26
Gabon																													-
Gambia																													-
Ghana																													-
Greece											X	X																	2
Guatemala			X																										1
Guinea			X																										1
Guinea-Bissau																													-
Equatorial Guinea																													-
Guyana																													-
Haiti																													-
Upper Volta																													-
Honduras																				X									1
Hungary	X	X	X	X		X	X				X	X		X	X	X						X	X					X	14
India		X		X			X				X	X		X					X										7

TABLE II (cont.)

COUNTRY (Administrations or Recognized Private Operating Agencies)	Study Groups and their Working Parties																			Plan		Joint Working Parties		Special Autonomous Working Parties			Regional Tariff Groups		TOTAL		
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIV	XV	XVI	XVII	XVIII	CMBD	ASIA	Latin Amer.											
																					SMM	UMI	GAS 3	GAS 5	GAS 6	TAL	TEU-REM				
Indonesia																			X							X				2	
Iran		X																	X												2
Iraq											X																				1
Ireland								X		X				X																	3
Iceland																															-
Israel																			X				X	X	X				X		5
Italy	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	27
Jamaica																															-
Japan	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	27
Jordan				X												X											X				3
Democratic Kampuchea																															-
Kenya	X	X	X																												3
Kuwait																			X				X								2
Lao P.D.R.																															-
Lesotho																															-
Lebanon																			X						X						2
Liberia																						X									1
Libya																															-
Liechtenstein																															-
Luxembourg																															-
Madagascar																															-
Malaysia																			X												1
Malawi																															-
Maldives																															-
Mali																								X							1
Malta																															-
Morocco																								X							1
Mauritius																															-
Mauritania																															-
Mexico																				X								X			2
Monaco																															-
Mongolia																															-
Mozambique																															-
Nauru																															-
Nepal																			X												1

Sect. 5.4

- 50 -

TABLE II (cont.)

COUNTRY (Administrations or Recognized Private Operating Agencies)	Study Groups and their Working Parties																		Plan		Joint Working Parties		Special Autonomous Working Parties			Regional Tariff Groups		TOTAL
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIV	XV	XVI	XVII	XVIII	CMBD	ASIA	Latin Amer.								
																					SMM	UMI	GAS 3	GAS 5	GAS 6	TAL	TEU-REM	
Suriname																				x						x		2
Swaziland																												-
Tanzania		x																										1
Chad																												-
Czechoslovakia		x	x						x																			3
Thailand																			x									1
Togo																												-
Tonga																												-
Trinidad and Tobago																												-
Tunisia																												-
Turkey																						x						1
U.S.S.R.	x	x	x	x	x	x		x	x	x	x	x		x	x	x	x	x			x	x				x		19
Uruguay																				x						x		2
Venezuela		x				x														x				x	x			5
Viet Nam																												-
Yemen A.R.																												-
Yemen (P.D.R. of)																												-
Yugoslavia			x		x						x	x				x												5
Zaire																												-
Zambia																												-
Total of countries	25	27	36	21	20	20	23	19	20	17	29	24	12	22	19	23	19	14	27	24	20	29	16	13	15	20	21	

TABLE III

*Participation of organizations and delegates in CCITT meetings
and contributions received in 1978*

	Study Groups and their Working Parties																		PLAN		Joint Working Parties		Special Autonomous Working Parties			Regional tariff Groups		
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIV	XV	XVI	XVII	XVIII		Asia	Lat. Amer.								
																					SMM	UMI	GAS3	GAS5	GAS6	TAL	TEU-REM	
Administrations	23	22	33	15	16	15	21	16	15	12	24	19	8	18	14	20	16	9	23	20	17	25	13	8	10	17	15	
Recognized Private Operating Agencies	19	14	24	13	6	6	15	13	12	11	14	7	10	12	10	12	13	10	6	12	14	12	8	8	9	7	8	
Scientific and Industrial organizations	13	12	6	10	16	13	32	16	14	11	28	9	25	38	8	33	29	14	8	9	—	—	11	7	20	1	—	
International organizations	3	3	5	1	1	—	7	2	—	1	1	—	2	—	—	6	—	—	2	4	2	1	—	—	—	2	—	
Total number of participants	225	253	344	147	62	50	254	152	74	56	436	103	85	455	57	140	145	60	109	93	60	65	74	61	91	48	32	
Contributions received	normal	85	82	36	69	31	13	128	60	46	30	131	68	26	122	42	72	136	22	14	5	33	1	9	9	18	3	4
	delayed	11	43	21	29	—	4	54	11	16	4	132	16	28	18	12	55	15	13	8	30	9	1	—	2	9	—	—

6. TECHNICAL COOPERATION ACTIVITIES

6.1 General features of activities in 1978

In 1978, as in past years, the Union's technical cooperation activities were in conformity with the provisions of Article 4, point 19, of the International Telecommunication Convention (Malaga-Torremolinos, 1973). To this end, the Union continued to: "foster the creation, development and improvement of telecommunication equipment and networks in new or developing countries by every means at its disposal, especially its participation in the appropriate programmes of the United Nations".

The Union's technical cooperation activities in 1978 continued to be directed towards the realization of the above-mentioned objectives through the implementation of projects which could be grouped under three main headings:

a) *The promotion of development of telecommunication networks in Africa, the Americas, Asia, the Pacific, Europe and the Middle East*

i) *In Africa*

The work programme and activities in connection with the implementation of the Pan-African Telecommunication Network (PANAFTEL) have continued to increase during 1978, and the progress made from the technical point of view remained satisfactory. An increase of 18 per cent in the number of man-months of experts' service provided, enabled the PANAFTEL team to continue its work of helping African administrations to overcome the whole range of problems of organization, maintenance and operation which arise as various sections of the PANAFTEL network come into service. Sub-regional meetings of administrations, to discuss common problems and to coordinate plans for the development of the network, are now a regular feature and the members of the PANAFTEL project team play an important role in ensuring the success of these meetings. During 1978 the Eastern and Southern African sub-region administrations met in Maseru, Lesotho, at the end of September, while the administrations of Central Africa met during the same period in Libreville, Gabon. The meeting of the West African sub-region originally planned for November 1978 has been postponed until 26 January 1979 and is to be held in Ouagadougou, Upper Volta.

The PANAFTEL Coordinating Committee (OAU, ECA, ADB, ITU) met twice during the course of the year. The first meeting was held in Addis Ababa from 21-23 March and the second at ITU Headquarters in Geneva from 21-22 December. At the first of these meetings it was agreed to admit to the membership of the Coordinating Committee the recently formed Panafican Telecommunications Union which is the specialized agency of the OAU responsible for telecommunications. At the second meeting detailed discussion took place on the plans which are to be drawn up for implementation during the United Nations Decade of Transport and Communications in Africa, 1978 to 1987, for which the United Nations Economic Commission for Africa is the lead agency.

With regard to the additional links requested during the 1975 Conference of African Telecommunication Administrations held at Kinshasa, pre-investment surveys undertaken in 1977 were completed in 1978 by a small team of ITU experts, assisted by engineers and technicians generously provided by the Government of Tanzania, for the following routes: Kigoma (Tanzania)-Songa (Burundi); Mtwara (Tanzania)-Nampula (Mozambique); Mt. Jari/Kigali (Rwanda)-Ngara (Tanzania); Tete (Mozambique)-Katete (Zambia); Tete (Mozambique)-Blantyre (Malawi).

In order to meet the numerous requests for additional surveys, the Union contacted various financing bodies and an agreement was signed in September 1978 with the Arab Bank for Economic Development in Africa (BADEA), who will finance a substantial number of the feasibility studies and pre-investment surveys to be carried out by the Union as from 1979. As a result of this agreement, steps were taken to plan these surveys in coordination with the administrations concerned.

ii) *In the Americas*

Cooperation with the Central American Telecommunication Commission (COMTELCA) and its Member administrations was maintained through the ITU Regional Coordinator in Central America until the conclusion of his mission at the end of July.

At the request of the Central American Bank for Economic Integration (BCIE), the regional coordinator, in February, prepared a technical report for the Bank on investment policies in the telecommunication sector.

Following consultations with UNDP Headquarters on the provision of sectoral support, a new regional adviser has been designated and will take up duty in early January 1979 (briefing held in December 1978) to assist Central American countries, including Panama, in all matters related to telecommunication development and technical cooperation activities.

The multicountry project in the Caribbean area aimed at providing advice on administration, regulations and tariffs to the Administrations of Antigua, Dominica, Grenada, Montserrat, St. Kitts, St. Lucia and St. Vincent, came to an end in June 1978. A follow-up of the integration activities in this area was actively prepared in consultation with UNDP, for possible implementation on a broader scale at the beginning of 1979.

The ITU regional adviser, located in the Ministry of Communications in Brasilia and assigned to the President of COM/CITEL, pursued his activities aimed at the implementation of various regional studies. Very positive progress was made in connection with those studies related to radiocommunications and broadcasting, as well as to tariffs.

The adviser effected various missions to Argentina, Bolivia, Chile, Costa Rica, Mexico, Nicaragua, Panama, Paraguay, and accompanied the President of COM/CITEL during his visit to the Organisation of American States in Washington D.C.

To assist the Permanent Technical Commission I of CITEL in charge of the studies in connection with the Interamerican Telecommunication System, the Union recruited, out of its own funds, a consultant in tariffs and provided the assistance of IFRB staff to the meetings held by the Permanent Technical Commission II (broadcasting).

Moreover, the Union provided lecturers for the Symposium preparatory to the WARC-79, organized by CITEL in Rio de Janeiro.

Union representatives attended the COM/CITEL meeting held in Rio de Janeiro in November, which adopted recommendations on the activities which will be carried out after the 3rd Inter-American Telecommunication Conference to be held in Buenos Aires in March 1979.

iii) *In Asia*

The Union provided advice and assistance in relation to technical back-stopping for planning, specifications and tariff questions, as well as in bilateral and multilateral negotiations. The implementation of the Asian Telecommunication Network project has been the major technical activity in the development of telecommunications in the region. Considerable progress has been made in finalizing the technical specifications for the establishment of inter-country links.

During the year 1978, project assistance was rendered to the following countries in:

- finalizing the selection of a switching system for Nepal,
- establishment of a telephone exchange, a local network and HF and VHF links for Western Samoa,
- coordinating and servicing intergovernmental technical level meetings for the network implementation,
- servicing various ESCAP meetings dealing with telecommunications,
- detailed study and definition of the immediate needs of technical assistance for Viet Nam,
- finalization of route details for the coaxial cable link between India and Pakistan,
- finalizing the equipment details for the microwave link between India and Bangladesh,
- planning for an INTELSAT earth station in Afghanistan.

iv) *In the Pacific*

The Feasibility Studies for a telecommunication network in the South Pacific were completed in 1978 and the report was duly circulated to the countries concerned. This project received very close and effective collaboration and cooperation from the South Pacific Bureau for Economic Cooperation (SPEC). In addition to improvements to the existing technical facilities in various countries in the sub-region, considerable work was done in preparing tender specifications for a satellite earth station in Western Samoa, a time-division telex exchange in Fiji and exchange equipment in Tonga. On the basis of the technical specifications prepared for these projects by the Union, it was possible for SPEC to successfully apply for substantial financial assistance from the European Economic Community. The action programme for the network development was examined and discussed in detail by the representatives of the countries in the region during a Regional Telecommunication Meeting sponsored by SPEC in July 1978.

v) *In the Middle East*

Phase II of the project, Feasibility Study/Preinvestment Survey for the Middle East and Mediterranean Telecommunication Network, which started in July 1975 with the financial assistance of the UNDP, was completed in December 1978. The Final Report (Master Plan) consisting of eleven volumes was presented to the participating countries (all Arab countries, as well as Bulgaria, Cyprus, Ethiopia, Greece, Malta, Turkey and Yugoslavia) at the final meeting of the project in September 1978. The Master Plan prepared by the project after detailed study of regional telephone, telegraph and broadcasting requirements, provides general specifications concerning routes, circuits, transmission systems, switching and signalling systems and tariffs. The participating countries and regional organizations at the final meeting, after adopting the Master Plan, recommended that the

Union assist the administrations in the follow-up activities for the implementation of the regional network for five years commencing from January 1979. Following this recommendation, preparations were made to call a Coordination Committee meeting in early 1979, during which the Arab countries and Arab regional organizations are to pledge contributions for these follow-up activities.

In 1978, 59 expert missions (11 per cent) were carried out in connection with the activities described in the preceding paragraphs.

b) *The strengthening of national telecommunication technical and administrative services in developing countries*

The improvement and modernization of telecommunication facilities made it indispensable in many developing countries to reorganize and/or reinforce administrative and technical services. The projects with such objectives covered practically all branches of telecommunications and provided, in addition to expertise, substantial amounts for fellowships and equipment.

The following are selected examples falling within this specific category of projects:

i) *In Africa*

- Consultancy services in radiomaritime communications and radio frequency management, Angola.
- Consultant missions for acceptance tests of switching centres and for the commissioning and maintenance of radio-relay systems, Central African Empire.
- Assistance in the rehabilitation of switchboards and cables, Equatorial Guinea.
- Installation of rural telecommunications, Gambia.
- Assistance in development planning, Guinea.
- Study of the telephone cable network of Antananarivo, Madagascar.
- Assistance in development planning, Nigeria.
- Consultancy services on radio broadcasting, Seychelles.
- Assistance in the maintenance of the telecommunication system, Somalia.
- Provision of OPAS Engineers to the P & T Administration, Swaziland.

ii) *In the Americas*

- Advisory services to ANTEL for the implementation of the telecommunication plan, El Salvador.
- Consultancy services in organization to GUATEL, Guatemala.
- Consultancy services to the Research and Development Centre of TELEBRAS, Campinas, Brazil.
- Provision of operational services to the Administration of Curaçao, Netherlands Antilles.
- Consultancy services in telecommunication planning to Secretaria de Comunicaciones and ENTEL, Argentina.
- Consultancy services to the Central Telecommunication Laboratory, Cuba.
- Advisory assistance in planning and provision of operational maintenance and services to TELECO, Haiti.
- Consultancy services in organization and planning to the General Directorate of Telecommunication and ENTEL, Bolivia.

iii) *In Asia and the Pacific*

- Further studies and technical advice on the tender evaluation for switching equipment, Nepal.
- Advice and assistance for the Government of Thailand in the establishment of a frequency management and monitoring organization.
- Assistance in the preparatory studies for the introduction of a digital switching system, Singapore.
- Advice and assistance for the establishment of a frequency monitoring station, Indonesia.
- Assistance in studies on frequency management and monitoring, traffic engineering, telecommunication system maintenance and maritime communications, Sri Lanka.
- Assistance in establishing a frequency management and monitoring organization within the Ministry of Communications, Afghanistan.

- Recommendations for international traffic routing, Pakistan.
- Recommendations concerning the introduction of CCITT-R2 signalling, Pakistan.
- Recommendations for improving standard frequency and time transmission services, India.
- Study of needs for administrative computer facilities, T & T, Bangladesh.
- Preparation of specifications for national and international telephone exchanges, Bangladesh.

iv) *In Europe and the Middle East*

- Assistance in the development of a research centre, Bulgaria.
- Investigations, surveys, planning, programming, specifications and introduction of new techniques, Saudi Arabia, United Arab Emirates, Kuwait, Malta, Oman, Yemen Arab Republic and Yemen (People's Democratic Republic of).

In 1978, 185 expert missions (34 per cent) were devoted to this type of activity. While the experts concerned acted, for the most part, as advisers, they were also called upon to participate actively in the execution of projects in a number of countries due to the lack of qualified counterparts who were then trained on-the-job whenever possible. In addition, a number of experts acted as OPAS officials, holding operational and executive posts, such as: Permanent Secretary Ministry of Works, Police Telecommunication Planning Engineer, Financial Controller, Chief Accountant, Telecommunications Controller, Chief Engineer, Traffic Superintendent, Technical Manager, Senior Telecommunications Engineer and Planning Engineers in various specialities.

c) *The development of human resources for telecommunications*

As in previous years, almost two-thirds of the total field expenditure of the Union's technical cooperation programmes was disbursed for the training of staff to meet the manpower demand in various sectors of telecommunications in developing countries. This type of assistance consisted in the establishment and/or improvement of national or multinational training institutions, as well as in-service and on-the-job training, the organization of short-term specialist meetings and seminars, and the implementation of fellowships. The aim was to meet immediate requirements in specialized staff and to cover new services and techniques introduced by the countries concerned. In more advanced environments, training activities centred around new technologies, recent system developments and possible new services based thereon.

The Union acted as Executing Agency for important training projects in:

i) *Africa*

Country projects: Algeria, Angola, Guinea, Morocco, Nigeria, Somalia, Tunisia and the Zambia-based training project for Namibians

Multinational projects: Kenya (Kenya, Uganda and Tanzania)
 Malawi (Botswana, Lesotho, Malawi and Swaziland)
 Senegal (Benin, Central African Empire, Ivory Coast, Guinea, Upper Volta, Mali, Mauritania, Niger, Senegal and Togo)

ii) *The Americas*

Country projects: Bolivia, Brazil, Guyana, Haiti, Jamaica, Suriname, Trinidad and Tobago

Multinational projects: El Salvador (Costa Rica, El Salvador, Guatemala and Nicaragua)

iii) *Asia and the Pacific*

Country projects: Afghanistan, Bangladesh, Burma, India, Indonesia, Nepal and Papua New Guinea

Multinational projects: Fiji (Cook Islands, Fiji, New Hebrides, Niue, Western Samoa and Tonga)

iv) *The Middle East*

Country projects: Saudi Arabia, Jordan, Kuwait

All the above projects were financed by the UNDP with the exception of those in Kuwait and Suriname which were implemented on the basis of Trust Fund arrangements signed by the Union with the authorities of these countries.

Furthermore, there were a number of training projects providing for one or two experts or instructors who assisted with the development/activities of national training schools (Netherlands Antilles, Chile, Colombia, Ecuador, Equatorial Guinea, Kenya, Mauritania, Niger, Peru, Portugal, Qatar, Chad, Trinidad and Tobago, Uruguay).

Fifty-five per cent (299) of all the expert missions in 1978 (543) dealt directly with the development of human resources in telecommunications, the experts serving as instructors, lecturers, training experts or project managers. On a regional basis, the percentage of missions devoted to the field of training was 51 per cent in Africa, 51 per cent in the Americas, 72 per cent in Asia and the Pacific and 48 per cent in the Middle East.

Other significant points to be mentioned in respect of the development of human resources in the field of telecommunications are the progress of the UNDP/ITU inter-regional project on course development in the field of telecommunications (CODEVTEL) and the information on fellowships and seminars (see sections 6.4.5, 6.4.6 and 6.9).

It is in particular worthwhile to note the efforts being made in Africa geared towards the establishment of national and multinational training institutions to cater for high-level training requirements within the region. After the introduction of training at the "Ingénieur d'Etat" level in Algeria in 1977, a similar training project was approved by the UNDP for Morocco and another is in preparation for Tunisia. In Eastern and Southern Africa the Union carried out a Training Needs Survey in 13 countries during 1978, on the basis of which appropriate decisions will shortly be taken in regard to the establishment of a multinational centre for high-level training in that area. In Central and West Africa, preliminary activities were carried out towards the establishment of an "Ecole Multinationale Supérieure de Télécommunications" in Dakar, and it is also proposed to carry out a Training Needs Survey in the French-speaking countries concerned to determine the number and location of multinational institutions required.

6.2 Quantitative appraisal of 1978 achievements

The volume of aid rendered by the Union to developing countries in 1978 was considerably increased due to the improved financial situation of the UNDP.

The main features of aid provided from all sources were:

- 543 expert missions were carried out, against 526 in 1977 (these figures include associate expert assignments);
- 463 fellows (including 174 participants in short-term group training) underwent training abroad, against 423 in 1977;
- 198 projects were assigned to the Union against 178 in 1977;
- US dollars 5,837,032 worth of equipment was delivered to various field projects against US dollars 3,801,371 in 1977;
- 4 projects were being implemented, partially or entirely, under sub-contracts, against 6 in 1977.

The total expenditure for project implementation amounted to US dollars 21,614,714 against US dollars 17,095,503 in 1977 (an increase of 26 per cent).

The total expenditure for all types of project, by region, was as follows:

	US dollars		US dollars	
Africa	5,909,764	(27.3%) against	5,472,733	(32.0%) in 1977
Americas	2,801,427	(13.0%) against	2,684,650	(15.7%) in 1977
Asia and Pacific	5,660,882	(26.2%) against	3,459,626	(20.2%) in 1977
Europe and Middle East	6,796,936	(31.5%) against	4,975,808	(29.1%) in 1977
Inter-regional	445,705	(2.0%) against	502,686	(3.0%) in 1977
Total.....	21,614,714 ¹⁾		17,095,503	

¹⁾ This amount does not include the sum of 359,395 Swiss francs, disbursed in application of Resolution No. 17 (Malaga-Torremolinos) (see section 6.6), as well as Administrative Council Resolution No. 798 — Operational Fund (see section 6.10).

The US dollars 21,614,714 field expenditure for 1978 broken down by project component and by region is as follows:

Project components	Africa	Americas	Asia and Pacific	Europe and Middle East	Inter-regional	Total
	US dollars					
Experts and associate experts	3,676,864	1,713,475	2,805,652	4,525,185	385,416	13,106,592
Administrative support personnel	69,272	61,813	79,234	226,616	18,943	455,878
Sub-contracts	83,899	—	—	—	10,000	93,899
Fellowships	277,760	109,676	393,918	326,240	—	1,107,594
Group training	194,652	29,098	265,305	118,183	—	607,238
Equipment	1,501,103	849,820	2,034,308	1,443,100	8,701	5,837,032
Miscellaneous	106,214	37,545	82,465	157,612	22,645	406,481
Total	5,909,764	2,801,427	5,660,882	6,796,936	445,705	21,614,714

6.3 Financial resources

In providing technical assistance to developing countries, the Union remained fully dependent on external financial resources, except for the assistance rendered by the Group of Engineers (section 6.6) as also through the Operational Fund (section 6.10) and the contributions made by the specialized secretariats of the CCIR, the CCITT and the IFRB. Thus, in 1978, 16,038,897 US dollars (74.2 per cent) of the total value (21,614,714 US dollars) of assistance rendered to developing countries, was financed by the United Nations Development Programme (UNDP), while the remainder (5,575,817 US dollars) came from Trust Funds, associate expert arrangements and other sources.

The table below shows the source of financing in 1978 classified by region (in US dollars):

Financial resources	Africa	Americas	Asia and Pacific	Europe and Middle East	Inter-regional	Total
	US dollars					
UNDP	5,191,875	2,438,225	5,371,748	2,661,063	375,986	16,038,897
Trust Funds	255,225	298,503	2,307	4,092,820	14,201	4,663,056
Associate experts	234,478	64,699	273,303	43,053	55,518	671,051
Other sources	228,186	—	13,524	—	—	241,710
Total	5,909,764	2,801,427	5,660,882	6,796,936	445,705	21,614,714

6.3.1 United Nations Development Programme (UNDP)

In 1978, 154 projects were assigned to the Union by the UNDP, 132 of which were country projects, 51 in Africa, 23 in the Americas, 37 in Asia and the Pacific and 21 in Europe and the Middle East, the remaining 22 consisting of 21 regional/multiregional projects (7 in Africa, 5 in the Americas, 8 in Asia and the Pacific and 1 in Europe and the Middle East) and one inter-regional project. During the year under report, 27 projects were completed and no activity took place in 11 other projects.

Out of 154 UNDP/ITU projects, 31 required major contributions by the governments concerned and the UNDP. Twenty-four of these projects were in the training sphere, the remainder concerned development of networks, facilities, services or research (six) and feasibility study (one).

Furthermore, in 1978 the UNDP financed the services of seven regional advisers, as against only one in 1977. In order to meet pressing requirements for such expertise in the Middle East, in 1978 the Union appointed, and financed out of its own resources, a regional adviser. This regional adviser post will be financed under the UNDP from 1 January 1979.

It should be noted that the development in the UNDP/ITU technical assistance activities of regional (sub-regional/multinational) character improved in the course of the year. The total input under these projects amounted to 3,076,790 US dollars as against 2,678,934 US dollars in 1977.

There were 26 UNDP/ITU projects on which expenditures exceeded 250,000 US dollars in 1978 while on 18 projects expenditures were between 100,000 and 250,000 US dollars. The expenditures on the remaining projects were below 100,000 US dollars each.

Details on the implementation of UNDP/ITU projects are given in Annex 5, Table 1.

In addition, in 1978, the Union continued its collaboration with the Universal Postal Union (UPU) on the implementation of UNDP-assisted projects. The UPU was associated with the Union, for the postal section, in the execution of the following projects for which the Union is the Executing Agency: training centres in Afghanistan, Argentina, Burma, Kenya, Malawi and Portugal.

The Union continued to participate in one UNESCO project for the development of sound and television broadcasting in Bangladesh. This project foresees the services of 6 experts and the provision of equipment in 1979.

The Union was also responsible for the implementation of projects in two least developed countries financed from the UNDP Special Fund for Least Developed Countries (for details see section 6.7).

As a result of its improved financial situation in 1978, the UNDP made a contribution to the Union's technical operation activities which, in dollar terms, was 30.3 per cent higher than in 1977; however, it was still 3.4 per cent lower than in 1975 (16,038,897 in 1978; 12,315,388 in 1977; 17,170,471 in 1976 and 16,604,528 in 1975). The highest increase occurred in the Asia and Pacific region (67.5 per cent), followed by Europe and the Middle East (40.8 per cent). The lowest increase was registered in the Union's activities in the Americas (2.89 per cent), while in Africa activities were augmented by 16.3 per cent.

In real terms also, the Union's activities under the UNDP were increased in 1978 as compared to 1977. Thus expert missions and fellowships were increased by 5.5 per cent and 28.3 per cent respectively, and 39.8 per cent more equipment was delivered than during the previous year.

6.3.2 *Trust Funds*

During 1978 Trust Fund arrangements were in force between the Union and each of the following countries: Netherlands Antilles, Saudi Arabia, Gambia, Guinea, Iran, Kuwait, Niger, Oman, Qatar, Uruguay, the Yemen Arab Republic, Yemen (People's Democratic Republic of) and Zaire. Assistance was provided to these countries in the form of 70 expert missions, 55 fellowships and equipment to the value of 1,360,486 US dollars.

In addition, funds donated by:

- the Government of Switzerland permitted the continuation of four expert missions in Bolivia and the purchase of equipment to the value of 24,679 US dollars;
- the Government of Switzerland also permitted the recruitment of two junior experts and the provision of services for the National School of Telecommunications in Chad;
- the Government of the Netherlands permitted the continued assignment of a three-man team of experts for Suriname and the purchase of equipment to the value of 24,998 US dollars;
- the Government of Sweden made possible the appointment of a project manager for the teletraffic project aimed at the elaboration of a complete teletraffic engineering course for world-wide dissemination;
- the Government of Saudi Arabia, for a Regional Course on electronic switching held in Jeddah in October 1977, permitted a further short mission by the course coordinator to complete the final course report;
- the Arab States Broadcasting Union permitted the recruitment of a specialist in radio propagation to undertake a study in the Arab States;
- various donors to the Integrated Rural Development Project permitted the Union to obtain the short-term services of six specialists in connection with the implementation of the project.

Also, on the basis of a contract signed between the Government of the Somali Democratic Republic and the European Economic Community, funds were provided by the latter to permit three expert missions to be continued at Mogadiscio and the purchase of equipment to a value of 36,251 US dollars.

Total Trust Fund contributions amounted to 4,663,056 US dollars.

6.3.3 Associate expert scheme

The costs of the 37 associate expert missions were borne by the donor countries, i.e.:

	<i>US dollars</i>
Germany (Federal Republic of)	199,422
Denmark	104,631
Finland	5,803
France	26,537
Japan	27,398
Norway	40,782
Netherlands	205,471
Sweden	<u>61,007</u>
Total	<u>671,051</u>

6.3.4 Other sources

The following technical cooperation activities of the Union were financed from various sources.

Ten experts were provided by the Union to Lesotho and Swaziland out of Trust Fund arrangements between the UNDP and the Swedish Government.

Finally, the Union furnished a limited amount of assistance under its Special Fund for Technical Cooperation, details of which are given in section 6.8.

Total expenditures under the above items amounted to 241,710 US dollars.

6.4 Analysis of ITU inputs

6.4.1 Experts in the field in 1978

In 1978, 543 expert missions (totalling 3,022 man/months of service) were executed by 478 experts (as against 526 missions executed by 437 experts in 1977) comprising:

- 368 missions under UNDP, including eight OPAS assignments (136 in Africa, 75 in the Americas, 93 in Asia and the Pacific, 58 in Europe and the Middle East and six inter-regional);
- 92 missions under Trust Funds (FT), including four FT/OPAS assignments (15 in Africa, 9 in the Americas, 62 in Europe and the Middle East, and six on an Integrated Rural Development Project);
- 37 associate expert assignments (16 in Africa, four in the Americas, 11 in Asia and the Pacific, three in Europe and the Middle East and three inter-regional);
- 23 short missions financed by the Union under Resolution No. 17 of the Plenipotentiary Conference, Malaga-Torremolinos, 1973;
- 3 missions under a UNSO (United Nations Trust Fund for Sudano-Sahelian Activities Project);
- 10 missions in Lesotho and Swaziland financed under UNDP/SIDA/FT;
- 3 missions under the ITU Special Fund for Technical Cooperation;
- 7 missions under the Operational Fund (Administrative Council Resolution No. 798).

In addition to the expert missions listed above, various projects were implemented under sub-contracts, carrying a manpower element (see table 2 of Annex 5).

The 478 experts mentioned above were nationals of 49 countries, Members of the Union. These experts executed the 543 missions as detailed in the table below which gives classification by nationality.

No. Experts	Nationals of (country)	No. Experts	Nationals of (country)
82 (93)	United Kingdom	3	Finland
45 (49)	India	2 (4)	Austria
44 (51)	France ¹⁾	2 (3)	Sri Lanka
37 (44)	Sweden ²⁾	2	Jordan
35 (36)	Germany (Federal Republic of) ³⁾	2	Sudan
25 (26)	Netherlands ⁴⁾	1 (2)	Guyana
20 (24)	Switzerland	1	Bulgaria
19 (22)	United States of America	1	Brazil
16 (17)	Japan ⁵⁾	1	Chile
12 (18)	Canada	1	Costa Rica
11 (14)	Australia	1	Central African Empire
11 (14)	Norway ⁶⁾	1	Cuba
11	Ireland	1	Greece
10 (12)	Italy	1	Ghana
10	Egypt	1	Hungary
8 (9)	Pakistan	1	Indonesia
8	New Zealand	1	Lebanon
7	Denmark ⁷⁾	1	Mexico
6 (8)	Portugal	1	Nepal
6	Poland	1	Syria
5 (6)	Argentina	1	Togo
5 (6)	Ethiopia	1	Turkey
5	U.S.S.R.	1	Yugoslavia
4 (6)	Colombia		
4	Spain		
3 (4)	Belgium		
		478 (543)	

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

⁴⁾ including 11 associate experts

⁶⁾ including 1 associate expert

²⁾ including 3 associate experts

⁵⁾ including 2 associate experts

⁷⁾ including 7 associate experts

³⁾ including 12 associate experts

Three hundred and thirty new expert missions were commenced in 1978 (as against 314 in 1977). This figure includes *inter alia*:

- 65 missions undertaken by experts already in the field who were transferred to new posts or projects;
- 116 short-term highly-specialized missions executed under special service agreements (against 109 in 1977). (This type of contracting of experts continued to enable the Union to respond without delay to urgent requests from governments for highly-qualified specialists for short advisory or consultancy missions);
- 93 short missions under short-term contract;
- 10 associate expert assignments;
- 2 junior expert assignments under Trust Funds.

The following table compares the periods required for the recruitment of experts during the years 1972 to 1978.

Period required	Number of experts						
	1972	1973	1974	1975	1976	1977	1978
Up to 6 months	46	61	80	158	106	230	236
7 to 8 months	15	15	19	30	19	29	29
9 to 10 months	23	15	26	26	17	17	27
11 to 12 months	19	10	14	16	11	13	11
13 to 18 months	14	13	25	30	17	11	14
More than 18 months	6	15	2	13	9	14	13
Total	123	129	166	273	179	314	330

(The recruitment period is defined as the time gap between the date of commencement of prospection and the date on which the expert takes up his assignment.)

From this table it can be seen that the modification in the time required for the recruitment of experts has been maintained due to the continuing trend towards a greater percentage of short missions for which release and clearance were easier and more rapid to obtain. In those cases where long delays have occurred, this was again due in the main to the need to retard the commencement of missions to correspond with the man-months allocated for a given UNDP project, following reductions resulting from the financial constraints.

The period required for recruitment was comparable to that of other UN agencies and was on an average shorter than that required for bilateral programmes, including also the associate expert scheme (average time 12 months). The time required for the various stages of the recruitment process remained more or less the same as in previous years for the longer-term posts but was infinitely more rapid in the case of appointments under special service agreements, 80 of the 116 missions being arranged (from commencement of prospection to entry on duty) in a period of one to two months. In many cases the longest time factor continued to be the period required for undergoing the necessary vaccinations. Similarly, 40 of the 93 short-term contract assignments were filled within a one to two month period.

While the increasing demand for expertise in the more sophisticated and very recent technologies (where the number of specialists are limited) continued to affect implementation of the longer-term assignments, no untoward delays were experienced for short missions. Telecommunication administrations have indeed been most cooperative in releasing highly-qualified specialists to meet the short-term demand.

For certain missions delays continued to be engendered by factors such as:

- the growing demand for experts having prior experience in modern educational technology in addition to their specialist telecommunication knowledge;
- the combination of the solicited technical qualifications with the requisite language knowledge (French or Spanish);
- the environmental conditions, availability of educational facilities for experts' children, as also the uncertainty as regards further employment inherent in the UN system as opposed to the relative security and greater incentives offered by the bilateral programmes;
- particularly for the longer-term missions (one-year duration or more) the time lapse of 3 to 5 months between application for a post and the communication of the outcome (following receipt of the requesting Government's decision) proved discouraging and a number of candidates subsequently withdrew their applications. Those who were selected and still available, required a preparation period of some two to four months from the receipt of formal offer to entry on duty.

During the year under report, prospection was carried out for 444 posts (against 378 in 1977) — a total of 494 prospection actions. (In fact, activity was under way on a total of 508 posts, 64 of which were either indefinitely shelved or cancelled). For 51 posts further prospection was found necessary (81 readvertisements, 25 posts being readvertised more than once in 1978), as the original prospection, commenced in 1978 and previous years, had not brought forth the required expertise. In addition, for 143 of these posts, a roster search was made to identify suitable candidates either in lieu of advertisement in very urgent cases, or as an additional measure. Seventy-nine missions were successfully filled in this manner in 1978.

Field vacancy notices continued to be sent to more than 400 different addresses (administrations, UNDP field offices, national committees on technical assistance, operating agencies participating in the work of the Union, diplomatic missions in Geneva and some professional institutions, etc.) and were followed up by special contacts whenever necessary.

A total of 1,161 (1,123 in 1977) candidatures were examined by the Union for 411 (340 in 1977) posts for which date limits were reached during 1978. Only 592 (548 in 1977) of these candidates were retained in the short lists sent to the governments concerned.

The greater part of the 1,161 candidatures examined by the Union in 1978 were presented by the following countries:

United Kingdom	277	Australia	26
India	204	Netherlands	23
Sweden	89	Ireland	20
France	87	Poland	20
Germany (Federal Republic of)	44	Egypt	17
Pakistan	33	Norway	15
Canada	32	Japan	13
Italy	32	New Zealand	13
Switzerland	31	U.S.S.R.	13
United States of America	28	Portugal	10
		Sri Lanka	10

The remaining 124 candidates were nationals of 41 Member countries. In 1978, 181 of the 1,161 candidatures were examined for more than one post.

6.4.2 Associate expert assignments

On the basis of agreements for the provision of associate experts concluded between the Union and the Governments of Germany (Federal Republic of), Denmark, Finland, Japan, Norway, the Netherlands and Sweden, 36 associate experts (12 from Germany (Federal Republic of), 7 from Denmark, 2 from Japan, 1 from Norway, 11 from the Netherlands and 3 from Sweden) served on the Union's projects in 1978. In addition, 1 associate expert, provided by the Government of France on the basis of an exchange of letters, continued his mission in 1978. All the associate experts, except one, who executed a technical mission in the Sudan, were engaged in the training of local staff at the Union's training centre projects in Afghanistan (3), Bangladesh (1), East Africa Regional (1 in Kenya and 1 in Tanzania), Jamaica (3), Jordan (2), Kenya (2), Malawi (6), Morocco (1), Nepal (2), Papua New Guinea (2), Somalia (2), Suriname (1), Yemen Arab Republic (1), Zambia (2), South Pacific Regional (3 stationed in Fiji), and the Inter-regional course development project (CODEVTEL) (3 stationed in Cameroon, Kenya and Singapore respectively).

The services rendered by the associate experts continued to be extremely beneficial to the Union's projects.

6.4.3 Volunteers

During 1978, the Union benefited from the services of nine volunteers under the United Nations Volunteer Programme (UNV).

These volunteers were assigned to the following projects: one at the Telecommunications and Electronics Training Centre in Jamaica, three at the Telecommunication Training College in Papua New Guinea, one at the Swaziland Industrial Training Institute in M'Babane and four at the National Telecommunications Institute in Somalia. All are graduates of universities or technical colleges.

In addition three bilateral volunteers provided by the Governments of Germany (Federal Republic of) (2) and Japan (1) served at the Telecommunication Training Centre in Nepal.

6.4.4 Administrative support personnel

During the year under report, 64 administrative support personnel (administrative assistants, secretaries and drivers) were employed at ITU projects in 26 different countries. Of these, 58 were engaged at UNDP/ITU projects and six at a project financed under Trust Fund arrangements.

6.4.5 Fellowships

During 1978, the Union dealt with 463 fellowships awarded for programmes that commenced, continued or terminated in one or more host countries.

The geographical distribution of the fellowship holders, who realized 923 man/months (excluding short-term awards), was the following:

Africa	141	30.45%
Americas	26	5.62%
Asia	197	42.55%
Europe	13	2.81%
Middle East	86	18.57%

These figures comprise:

- 1) 398 fellowships awarded under the UNDP, including short-term awards to participants in:
 - a seminar on telephone switching and signalling techniques held in Singapore from 17 to 28 April 1978 in which 53 fellowship holders participated;
 - two training workshops (CODEVTEL) held in New Delhi, 12 to 24 June and 15 to 29 November 1978 for which 5 fellowships were awarded;
 - a technical meeting held in Tunis on the Middle East/Mediterranean Telecommunication Network Survey from 21 to 23 June 1978 for which 1 fellowship was awarded;
 - a training methods workshop held in Abidjan from 17 to 28 July 1978 for which 2 fellowships were awarded;
 - a seminar on rural telecommunications held in New Delhi from 11 to 22 September 1978 in which 41 fellows participated;
 - the final meeting on the Middle East/Mediterranean Telecommunications Network Survey held at ITU Headquarters from 25 to 29 September 1978 for which 6 fellowships were awarded;
 - a training workshop (CODEVTEL) held in Rabat from 18 September to 7 October 1978 for which 3 fellowships were awarded;
 - a seminar on frequency management and the use of the radio frequency spectrum and the geostationary orbit, organized by the IFRB at ITU Headquarters from 9 to 20 October 1978, for which 23 UNDP fellowships were awarded.
- 2) 55 fellowships awarded under Trust Fund schemes (21 under an arrangement with the Government of Kuwait — including one participant to the IFRB Seminar — and 34 for the seminar on maritime radiocommunications held in Qatar from 1 to 13 April 1978 and financed by the Qatar Government).
- 3) 5 fellowships awarded under the ITU Special Fund for Technical Cooperation for participation in the seminar on frequency management and the use of the radio frequency spectrum and the geostationary orbit, organized by the IFRB at ITU Headquarters from 9 to 20 October 1978.
- 4) 5 fellowships administered by the Union but financed by Belgium as a contribution in kind to the Special Fund for Technical Cooperation.

The fellowships implemented in 1978 may be grouped as follows:

<i>Standard fellowships</i>	260
(awards requiring the organization of individual study programmes as opposed to participation in group training, seminars, workshops or attending full-time courses at a UNDP/ITU training centre)	
<i>Fellowships awarded to Namibian nationals</i> (whose candidatures were submitted by the South West Africa People's Organization) for training at the UNDP/ITU assisted P.T. Staff Training College in N'Dola, Zambia	29
<i>Group Training</i>	174

Once more the Union was able to implement its fellowship programme thanks to the cooperation of the administrations of the host countries. In 1978 most fellowship holders received training in more than one country.

The principal host countries (except for seminars) were:

France	57	Fiji	18
United Kingdom	44	Italy	16
Switzerland	36	Japan	15
Germany (Federal Republic of)	24	Singapore	12
Sweden	19	India	10
United States of America	19	Sudan	10

Programmes were also organized in other industrialized and developing countries, such as:

Algeria, Australia, Austria, Belgium, Brazil, Canada, Korea (Republic of), Costa Rica, Ivory Coast, Denmark, Spain, Finland, Hong Kong, Indonesia, Ireland, Kenya, Malaysia, Morocco, Norway, New Zealand, Netherlands, Portugal, German Democratic Republic, Senegal, Sudan, Thailand.

Furthermore programmes were arranged for 16 fellows at ITU Headquarters.

6.4.6 *Seminars*

During 1978 three regional seminars were organised by the Union as indicated below:

<i>Host country</i>	<i>Dates</i>	<i>Theme</i>
Qatar (Doha)	1-13 April	Development of maritime radiocommunications
Singapore (Singapore)	17-28 April	Telephone switching and signalling techniques
India (New Delhi)	11-22 September	Rural telecommunications

The purpose of the Doha seminar was to provide to the Arab States and some selected seaboard countries in the area, information which would assist them to modernise their maritime mobile services and to establish coast and port stations with modern equipment of comparable characteristics as also staff trained along similar lines.

Forty-seven participants from 19 countries in the region took part in the seminar and papers were presented by lecturers from Germany (Federal Republic of), France, Greece, Norway and the United Kingdom, as well as by representatives of the Arab Maritime Transport Academy, the International Chamber of Shipping, the International Marine Radio Association, the Inter-Governmental Maritime Consultative Organization and by four officials of the Union.

The seminar was financed by the Government of Qatar, including the services of a technical coordinator and 34 short-term fellowships to the participants from various Arab countries. Documents were distributed in English and French and simultaneous interpretation was provided in Arabic, English and French.

The Singapore seminar was organised at the request of the United Nations Intergovernmental Working Party of telecommunication experts of the Economic and Social Commission for Asia and the Pacific (ESCAP) to assist governments in the ESCAP region to plan and execute the modernisation of their telephone services.

Sixty-eight participants from 21 countries of the region attended the seminar, and lecturers were provided by Germany (Federal Republic of), Belgium (4), the United States, France, India, Indonesia, Japan (2), the United Kingdom, Singapore and Switzerland. Four lecturers were sent from the Union.

The seminar, which was in English, was financed by Germany (Federal Republic of) and the UNDP.

The main objective of the New Delhi seminar was to promote discussion among the ESCAP member countries on organisational, economic and legal aspects of the development of telecommunications in rural areas, as well as on technical aspects of operation and maintenance.

There were 59 participants from 22 countries in the region and papers were presented by specialists from Germany (Federal Republic of), Australia, Bangladesh, Canada (9), Spain, the United States (3), France (2), India (6), Indonesia, Italy (3), the United Kingdom (2), Sweden (2), the U.S.S.R. and the World Bank. Two lecturers were provided by the Union.

The seminar was financed by the UNDP and its proceedings were in English.

6.4.7 *Procurement of equipment*

In the course of 1978, equipment was ordered from suppliers in 30 countries/territories (see Annex 5, table 3).

More than 88 per cent of the equipment was ordered from suppliers in Germany (Federal Republic of), the United States, France, Japan, the United Kingdom and Switzerland.

The equipment ordered (5,703,265 US dollars) represents a 2.65 per cent increase compared with the total for 1977 (5,557,278 US dollars).

The value of equipment delivered during 1978 to field projects was 5,837,032 US dollars against 3,801,371 US dollars in 1977. This figure also includes equipment ordered in 1977 or before but not delivered until 1978. As at 31 December 1978, the value of purchase orders still pending amounted to 2,191,704 US dollars and the Union has received new requisitions of the order of 1,289,532 US dollars. In 1978, the Union dealt with the procurement of equipment for 78 projects, 9 of which were multinational.

Field experts and UNDP resident representatives concerned were kept constantly informed by the Union of the status of equipment procurement.

Annex 5, table 4 gives details of the equipment ordered and delivered in the course of 1978, listed by country of destination.

6.4.8 *Sub-contracting*

During 1978, the Union entered into one new contract, in which four companies were involved. Four projects were concerned with sub-contracting (see Annex 5, table 2).

6.5 **Preparation of new projects**

During 1978, the Union was in continuous contact with the administrations and UNDP resident representatives in developing countries in order to assist them in determining the minimum inputs required for the smooth continuation of existing projects and in preparing the UNDP/ITU programme of assistance over the second cycle. The assistance continuously provided over the last few years in the identification and formulation of telecommunication projects has certainly led to increased recognition of the importance of this sector in many countries.

In addition to the large volume of work carried out for the implementation of on-going projects, most of which are of a long-term nature and will extend over the period 1979-1981, extensive work and numerous missions were carried out by Headquarters staff and regional advisers to assist African countries in identifying and formulating new projects. This action was complemented by numerous contacts with various financing bodies, as UNDP assistance cannot cover all requirements in this sector. It should also be noted that many countries have become aware of the advantages in obtaining technical assistance from the Union and a number of new projects are now being financed by the countries concerned under Trust Fund or cost-sharing arrangements.

A noteworthy innovatory activity undertaken this year was a comprehensive sectoral study for the Government of Cameroon. This study, jointly undertaken by the World Bank and the Union, was initiated by the Minister of Posts and Telecommunications of Cameroon. As requested by, and agreed with, the Minister, the terms of reference of the mission called for a global analysis of all aspects of telecommunications in the country with a view to proposing an overall recommendation for the development of telecommunications including organization, operation, maintenance, planning, training, etc.

The following is a list of selected important projects already approved by, or proposed to, the UNDP and other financing bodies for implementation in 1979 and the years to come:

Africa

Algeria	—	Development of research applied to telecommunications.
Burundi	—	Telecommunication and broadcasting training school.
Cameroon	—	Organization and methods,
	—	Network rehabilitation unit,
	—	Planning unit,
	—	Training centre.
Egypt	—	Broadcasting and television training centres,
	—	Telecommunications development.
Ethiopia	—	Rural radiocall services.
Guinea	—	Telecommunications planning.
Malawi	—	Satellite communications,
	—	Radio frequency management and radio monitoring,
	—	International traffic accounting and tariffs.
Morocco	—	Maintenance of telephone network in Casablanca,
	—	Training of "Ingénieurs d'Etat".
Namibia	—	Telecommunication consultancy services,
	—	Training at tertiary level.
Niger	—	Pre-investment survey of national links.

African Regional

- High-level training for French-speaking countries in West and Central Africa.
- Operation and maintenance of PANAFTEL.
- Telecommunication development planning in Central Africa.

The Americas

- Automatic message transmission system, Argentina.
- Telecommunication planning, Bolivia.
- Introduction of new training methodology, Colombia.
- Central American Telecommunication Institute – INCATEL (second phase).
- Telecommunication planning, Nicaragua.
- National training centre, Uruguay.
- National training centre, Honduras.
- National training centre, Guatemala.
- Improvement of quality of services, Peru.
- Regional research and development centre, Cuba.
- Operational assistance to Curaçao and Aruba, Netherlands Antilles.
- Advisory and operational assistance to TELCO, Trinidad and Tobago.

Asia and the Pacific

- Telecommunication test and development centre, Indonesia.
- Telecommunication training centre, Nepal (substantive project revision).
- Telecommunication test and development centre, Korea (Republic of) (preparatory assistance).
- Regional radio frequency management and monitoring procedures, practices and techniques (final version).
- Development of video equipment for rural television, India.
- Telecommunication staff college in Soydebpur, Bangladesh.

Europe and the Middle East

- Assistance in upgrading telecommunication maintenance organization, Greece.
- Assistance in computer aided network planning, Greece.
- Assistance in improving telecommunication services, Roumania.
- Propagation survey, Oman.
- Preparation of specifications and tender documents for local network, Yemen Arab Republic.
- Assistance to EMIRTEL, United Arab Emirates.
- Radio propagation study and proposal for a frequency plan covering Saudi Arabia, Bahrain, United Arab Emirates, Iraq, Kuwait and Oman.
- Follow-up activities for implementing the Arab Regional Telecommunications Network (Phase III).

6.6 Activities under Resolution No. 17 of the Plenipotentiary Conference (Malaga-Torremolinos, 1973) – Improvement of Union facilities for rendering technical assistance to developing countries

In 1978 the Group of Engineers responded to requests for specialized assistance in indicated fields from the following Administrations/Organizations:

- | | |
|------------|--|
| CITEL | - Advice to the Study Groups on tariffs. |
| Argentina | - Satellite telecommunication planning of the national system. |
| Bangladesh | - Computer management applications, |
| | - Specifications for national trunk switching. |
| Belize | - Concessional terms for earth station operation. |

Cameroon	– Organization of maintenance and operation techniques.
Costa Rica	– Electronic switching.
Egypt	– Long-wave radio broadcasting.
Jamaica	– Electronic switching.
Jordan	– Frequency management and monitoring.
Maldives	– Radio broadcasting.
Morocco	– Maintenance organization and operations.
Mauritania	– Modernization of maritime radiocommunications.
Niger	– Negotiations for telephone exchange project.
Pakistan	– Maritime radiocommunications.
Peru	– Local telephone exchange specifications.
St. Kitts and Belize	– Organization and tariffs.
Sao Tome and Principe	– Telecommunication management and statistics.
Syria	– Coaxial cable network.
Thailand	– Telephone traffic engineering study.
Yemen (People's Democratic Republic of)	– Telephone exchange project.
Zambia	– Organization of telecommunications statistics.

Short missions to the above countries/organization were made in order to deal adequately with the subjects concerned.

It was necessary to organize 23 short missions of outside specialists to provide the required assistance to the administrations during 1978.

Members of the Group of Engineers participated in three seminars organized by the Union (New Delhi, Qatar and Singapore), as well as in a workshop on rural telecommunications organized by the Canadian Administration in Ottawa.

At the request of the Secretary-General, special missions were made to the following countries for the reasons indicated below:

Belgium	– Discussions concerning maritime radiocommunication specifications, prices and availability.
Italy	– FAO telecommunication facilities and attendance at a conference on "Space business in the eighties".

A total of Swiss francs 273,015 were disbursed in application of Resolution No. 17, out of the ordinary budget of the Union.

As in previous years, members of the Group of Engineers were frequently consulted by staff of Telecommunication Administrations visiting Geneva. A large amount of the time of the members of the Group of Engineers was spent in activities related to requests by administrations for advice or short-term assistance. Close contacts were maintained with the CCITT, CCIR and IFRB on technical matters related to requests from administrations.

In addition, a member of the Group of Engineers continued to deal on a part-time basis with the coordination and implementation of the project on Integrated Rural Development. In this respect note should be taken of a meeting organized by the Union in collaboration with OECD in Paris in December last, for discussions on strategy and methodology to be used in the project which would qualify the benefits from telecommunications to the socio-economic development process in rural and remote areas. A dozen specialists in fields related to the project participated in the meeting.

6.7 Application of Resolution 19 of the Plenipotentiary Conference (Malaga-Torremolinos, 1973) – Special measures for the Least Developed Countries

Reporting on the activities undertaken by the Union in application of the above-mentioned Resolution is limited to those activities financed from the UNDP Special Fund for the Least Developed Countries (LDC). This section does not cover any of the UNDP/ITU projects financed from Indicative Planning Figures of the least developed countries.

The following assistance provided by the Union in 1978 falls under this category:

- the services of one expert in transmission training for twelve months in Niger, as well as the continuation of a four-year fellowship to a technician of the same country for studies in France;
- the services of one expert in frequency management in Afghanistan for eight months, as well as two short-term fellowships enabling two participants from Afghanistan to take part in the IFRB Seminar.

In 1978 the Union disbursed US dollars 96,164 for assistance in the telecommunication field for the above listed least developed countries.

It is worthwhile mentioning that under Plenipotentiary Resolutions 17 and 21 (Malaga-Torremolinos, 1973) and Resolution 798 of the Administrative Council, the Union provided expert assistance to ten least developed countries and awarded 8 short-term fellowships to nationals of six least developed countries (sections 6.6, 6.8 and 6.10 refer).

Note: The Least Developed Countries (LDC), as designated by the United Nations, are as follows:

Africa: Benin, Botswana, Burundi, Central African Empire, Ethiopia, Gambia, Guinea, Upper Volta, Lesotho, Malawi, Mali, Niger, Uganda, Rwanda, Somalia, Sudan, Tanzania, Chad.

Latin America: Haiti.

Asia and the Pacific: Afghanistan, Bangladesh, Bhutan, Laos, Maldives, Nepal, Western Samoa.

The Middle East: Yemen Arab Republic, Yemen (People's Democratic Republic of).

During its 1976 session, the General Assembly of the United Nations decided that "special measures" should be applied to four more countries in Africa, namely: Angola, Cape Verde, Comoros and Sao Tome and Principe.

6.8 Application of Resolution 21 of the Plenipotentiary Conference (Malaga-Torremolinos, 1973) – Special Fund for Technical Cooperation

During the year under report only two contributions were made to the Fund, i.e.:

- the Government of the Netherlands contributed in cash 16,463 Swiss Francs;
- Belgium offered five fellowships as their contribution in kind to the Fund.

In 1978, out of the Fund, the following short-term expert missions were financed to:

- | | |
|----------|---|
| Lesotho | - one expert in tariffs and traffic and one expert in satellite communications; |
| Tanzania | - one expert in international traffic accounting. |

Furthermore, the Fund enabled the Union to award four short-term fellowships for participation in the IFRB Seminar to nationals of Cape Verde, Comores, Djibouti and Mali, as well as a three-month fellowship to a Nepalese for studies in the field of frequency management.

The five fellowships offered under the Belgium contribution in kind were awarded as follows: two to Burundi, two to the Central African Empire and one to the Congo.

In addition, Comoros received equipment to the value of 22,815 Swiss francs.

The total expenditure of the Fund during the year amount to 79,323 Swiss francs.

At the end of 1978 liquid assets of the Fund totalled 85,661.50 Swiss francs.

6.9 Activities under Resolution No. 23 of the Plenipotentiary Conference (Malaga-Torremolinos, 1973) – Training Standards

Phase I of the inter-regional project on course development in the field of telecommunications (CODEVTEL), which had begun in 1975 with the financial assistance of the UNDP, ended on 31 December 1978. Project activities are however continuing under a second phase.

During 1978, 72 course developers were trained at special workshops (Caracas, New Delhi, Georgetown and Rabat), bringing the total number trained by the project to approximately 150.

During the life of Phase I, seven courses (training packages) were completed at participating centres by course developers trained in the CODEVTEL methodology (Cameroon, El Salvador, Kenya, Senegal, Singapore, Venezuela). As more course developers start work, the production of training material is increasing and at present over 20 courses are in production or planned in a dozen countries.

The Training Development Guidelines drafted by the Coordinating Unit of the CODEVTEL project were examined in May 1978 by a sub-group on training standards comprising training specialists from Algeria, Brazil, Canada, the United States of America, France, Kenya and the United Kingdom. The sub-group approved the Guidelines in principle, but suggested a number of amendments and these are being incorporated before the final version is published.

In view of the encouraging results obtained, the UNDP agreed to support financially a second phase of the CODEVTEL project with the same long-term objectives of improving the training of telecommunication personnel and promoting the establishment of vocational training standards. The immediate objectives continue to be the training of course developers/adaptors, to further international cooperation in training development, and to develop and adapt courses and to train "instructors".

A booklet describing the project was disseminated in June 1978 to all Member Administrations, and the draft project document covering Phase II was sent out towards the end of the year to countries which had indicated their wish to participate (77 in all).

Following circulation of the first draft of Chapters 2 and 4 of the "Reference Manual for the design and operation of training establishments", to ITU experts and specialists from various administrations who had offered contributions for the preparation of this draft, a number of useful comments and suggestions were received and incorporated in the text. Work has begun on the remaining chapters.

The instructor-training workshop prepared by the Training Division of the Technical Cooperation Department was organized in six countries (Bangladesh, Bolivia, Ivory Coast, Ecuador, France and Nepal) at the request of the administrations concerned.

Apart from travel necessitated by these workshops and by seminars, professional staff of the Training Division participated in training coordination meetings for countries of South-East Asia and East Africa (held in Manila and Maseru) and carried out missions to analyse training needs in Argentina and Jordan. Visits were also made to training centres in Kuala Lumpur and Bandung, both of which had been established with ITU assistance. Three professional staff members of the Division attended international meetings on educational technology in France and the United Kingdom.

Other regular activities of the Training Division continued during the year, such as briefing of experts, coding of training material received, dissemination of information on training possibilities of interest to the developing countries and production of the microfiche collection of selected training material received from the field, etc.

6.10 Application of Resolution 798 of the Administrative Council – Operational Fund

In 1978 expert advice and assistance was provided to the following countries:

- | | | |
|---------|---|---|
| Guinea | – | an expert in telecommunication planning (3-week mission); |
| Nepal | – | an expert in frequency management (7-week mission); |
| Rwanda | – | an expert in satellite communications (4-week mission); |
| Senegal | – | two missions of an expert in propagation (4 weeks and 3 weeks). |

Furthermore, out of the Fund the regional adviser for Central America was maintained in post during a 4-month period after the completion of UNDP financing, and a regional adviser for the Middle East was appointed in November (this mission will be financed by the UNDP throughout 1979).

In addition, fares and subsistence were paid out of this Fund for the travel of an engineer from the IFRB who attended a specialist meeting of CITELE and provided them with advice on broadcasting.

The total disbursement in the course of the year amounted to 86,380 Swiss francs, so that on 31 December 1978 the balance of the Fund stood at 65,127 Swiss francs.

7. ADMINISTRATION OF THE UNION

7.1 Staff matters

7.1.1 On 31 December 1978 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 1977 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	345	79	426
IFRB	5	92	3	100
CCITT	1	41	1	43
CCIR	1	27	1	29
Total	9	505 (505)	84 (58)	598 (572)

7.1.2 The manning table in the 1978 budget comprised 615 posts, 586 of them permanent. The following changes occurred during the year among staff with permanent or fixed-term contracts: 6 retirements, 1 departure on end of contract, 11 resignations or transfers, and 3 deaths. Nineteen officials worked part time.

7.1.3 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 programmes 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 (telephonists) rather than to increase the permanent staff or to incur the high cost of overtime. 4) It has not yet been possible to create permanent posts in every case where the duties performed are of a permanent nature. 5) 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. 6) 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 1978 is shown in the table below. When comparison with the number of established posts is possible (which is not always the case because the pertinent duties either are not covered by established posts or are divided among a number of sections — as is the case for secretaries or clerical assistants — whereas only one section is supplemented), the corresponding figure is shown in parentheses after the title of the post in column 1.

* For 1978: 33rd session of the Administrative Council — World Administrative Radio Conference on the Aeronautical Mobile (R) Service — Technical Cooperation (5 meetings) — Public Relations (1 meeting) — IFRB (1 Seminar) — CCIR (Final Meetings of Study Groups 1, 3, 6, 7, 8 and CMV/XIVth Plenary Assembly/Special Preparatory Meeting (1978) for the World Administrative Radio Conference in 1979) — CCITT (60 meetings).

TABLE 2

Staff on short-term contracts

	Number of contracts	Total number of working days
Interpreters (—)	460 (308)	7,619 (5,458)
Engineers (—), engineer-editors (1)	2 (1)	66 (212)
Programme analysts (12)	— (1)	— (12)
Translators (10), revisers (16), précis-writers (—)	82 (77)	4,305 (3,933)
Associate administrative officers (2)	1 (1)	4½ (347)
Proof-readers (—)	7 (13)	686½ (1,455½)
Calculators (—)	4 (2)	320 (335)
Photocomposition: prof. assistants (1), checkers (1), text assemblers (—), page setting operators (3), "Data capture" operators and encoders (8), "Photon" operator (1)	57 (104)	7,483 (7,897)
Draughtsmen/designers (2), photographers (—)	9 (6)	1,085 (549½)
Electronics technicians (—), carpenters (2)	1 (2)	103 (334)
Secretaries, office assistants, bookkeepers, assistants, checkers, heads of teams	125 (106)	8,625 (9,068)
Shorthand-typists, clerks	191 (179)	15,072½ (13,190)
Telephone operators (3)	32 (20)	711½ (676)
Offset operators (6)	11 (15)	953 (1,356)
Punch-card operators (10)	1 (3)	214 (486)
Duplicating machine operators (5), assemblers (7), trimmers (1)	28 (39)	2,243 (2,810)
Simultaneous interpretation equipment operators (—)	34 (16)	407½ (234)
Dispatching staff (8), other document staff (7), messengers (9), night watchmen (2), reception staff (3)	68 (97)	4,428 (3,589)
	1,113 (990)	54,326½ (51,942)

(In columns 2 and 3 the 1977 figures are shown in parentheses.)

7.1.4 The distribution of staff according to grade in the various organs is given in Table 3. Most of the posts under the heading "General Secretariat" belong to services which, in fact, work for all the organs of the Union or are posts in the Technical Cooperation Department.

TABLE 3

Distribution of staff according to grade

Grade	General Secretariat		IFRB		CCITT		CCIR		Total	
Elected officials	2		5		1		1		9	
	Perm.	FT	Perm.	FT	Perm.	FT	Perm.	FT	Perm.	FT
D.1	7	1	2	—	4	—	3	—	16	1
P.5	15	4	7	—	4	—	4	—	30	4
P.4	28	21	15	1	10	—	5	1	58	23
P.3	37	6	5	—	1	—	—	—	43	6
P.2	7	1	9	—	1	—	—	—	17	1
P.1	—	—	—	—	1	—	—	—	1	—
G.7	41	1	12	—	4	—	5	—	62	1
G.6	50	7	12	—	14	1	7	—	83	8
G.5	61	22	12	1	1	—	2	—	76	23
G.4	31	6	14	—	1	—	1	—	47	6
G.3	49	6	4	1	—	—	—	—	53	7
G.2	14	4	—	—	—	—	—	—	14	4
G.1	5	—	—	—	—	—	—	—	5	—
	345	79	92	3	41	1	27	1	505	84
Total	426		100		43		29		598	

(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.

7.1.5 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 1978 is shown in four tables. Table 4 combines the data contained in the two following tables and thus shows the geographical distribution of all staff employed at ITU Headquarters; the number of nationalities represented was 47 on 31 December 1978 (for 178 officials). Table 5 concerns the staff whose salaries are paid from the ordinary budget of the Union and Table 6 concerns the Headquarters staff whose salaries are paid from the Technical Cooperation budget. Table 7 concerns Technical Cooperation experts.

TABLE 4

Geographical distribution of Headquarters staff on 31 December 1978

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</i>											
Argentina			1								1
Brazil			1		2 (—)	— (1)		— (1)			3
Canada	1	1	1 (—)	— (1)	1						4
United States	1	2 (1)	1 (3)	6 (4)	— (1)						10
Haiti				1							1
Mexico			1								1
Paraguay			1								1
Uruguay				1 (—)							1 (—)
<i>Region B - Western Europe</i>											
Germany (Fed. Rep. of)		1		2	2	1	— (1)				6 (7)
Belgium				1 (—)	1 (2)	1					3
Cyprus				1							1
Denmark				1							1
Spain				4 (1)	3 (6)	1					8
France	1	2	4 (2)	6	5	2 (6)					20 (22)
Greece				1 (—)	— (1)						1
Italy			1	3	2						6
Netherlands			1	1	1 (2)						3 (4)
United Kingdom	1	2 (1)	3 (4)	4 (3)	4	1 (2)					15
Sweden			1	1	1	1					3
Switzerland		1	6	11 (8)	11 (12)	10 (12)					39
Turkey		1									1
<i>Region C - Eastern Europe and Northern Asia</i>											
Bulgaria				1							1
Hungary				1 (—)							1 (—)
Poland		1		1 (—)	— (1)						2
Roumania									1 (—)		1 (—)
Ukraine				1 (—)	— (1)						1
U.S.S.R.	1	1	— (1)	2	2 (—)						6 (5)
Yugoslavia		1									1
<i>Region D - Africa</i>											
Algeria		1 (—)	— (1)								1
Central African Empire ...				— (1)							— (1)
Congo				1							1
Egypt				2							2
Ethiopia			1								1
Morocco	1		1								2
Uganda				1 (—)							1 (—)
Tunisia	1		1	1							3
<i>Region E - Asia and Australasia</i>											
Afghanistan			1								1
Australia	1		1	1							3
Bangladesh				1							1
China		1		1							2
Korea (Rep. of)				1							1
India		1	1	1	1 (—)	1	1				6 (5)
Indonesia				1							1
Iran				1							1
Iraq				1 (—)	— (1)						1
Israel				1							1
Japan	1		2	1	1						5
Pakistan			1	1 (—)							2 (1)
Total	9	16 (13)	31 (33)	66 (50)	36 (42)	18 (26)	1 (2)	— (1)	1 (—)	—	178 (176)

(Wherever changes have taken place, the figure for 1977 appears in parentheses.)

TABLE 5

Geographical distribution on 31 December 1978

(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</i>											
Brazil			1		2 (—)	— (1)		— (1)			3
Canada	1	1	1 (—)	— (1)							3
United States	1	2 (1)	1 (3)	4 (2)	— (1)						8
Haiti			1	1							1
Mexico			1								1
Paraguay			1								1
<i>Region B – Western Europe</i>											
Germany (Fed. Rep. of)		1		2	2	1	— (1)				6 (7)
Belgium				1 (—)	1 (2)	1					3
Denmark				1							1
Spain				4 (1)	3 (6)	1					8
France	1	2	4 (2)	4	5	2 (5)					18 (19)
Italy				2	1						3
Netherlands			1	1 (—)	1 (2)						3
United Kingdom	1	2 (1)	3 (4)	3 (2)	3	— (1)					12
Sweden				1		1					2
Switzerland		1	6	10 (7)	9 (11)	10 (11)					36
Turkey		1									1
<i>Region C – Eastern Europe and Northern Asia</i>											
Bulgaria				1							1
Hungary				1 (—)							1 (—)
Poland		1		1 (—)	— (1)						2
Roumania								1 (—)			1 (—)
Ukraine				1 (—)	— (1)						1
U.S.S.R.	1	1	— (1)	2	2 (—)						6 (5)
<i>Region D – Africa</i>											
Algeria		1 (—)	— (1)								1
Egypt				1							1
Morocco	1		1								2
Tunisia	1										1
<i>Region E – Asia and Australasia</i>											
Afghanistan			1								1
Australia	1		1	1							3
China		1		1							2
India		1	1	1	1 (—)		1				5 (4)
Indonesia				1							1
Iran				1							1
Iraq				1 (—)	— (1)						1
Israel				1							1
Japan	1		2	1	1						5
Pakistan			1								1
Total	9	15 (12)	26 (28)	49 (35)	31 (37)	16 (22)	1 (2)	— (1)	1 (—)	—	148 (146)

(Wherever changes have taken place, the figure for 1977 appears in parentheses.)

TABLE 6

Geographical distribution on 31 December 1978

(Officials at Headquarters 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</i>							
Argentina		1		1			1
Canada							1
United States			2				2
Uruguay			1 (—)				1 (—)
<i>Region B – Western Europe</i>							
Cyprus			1				1
France			2		— (1)		2 (3)
Greece			1 (—)	— (1)			1
Italy		1	1	1			3
Netherlands			— (1)				— (1)
United Kingdom			1	1	1		3
Sweden		1					1
Switzerland			1	2 (1)	— (1)		3
<i>Region C – Eastern Europe and Northern Asia</i>							
Yugoslavia	1						1
<i>Region D – Africa</i>							
Central African Empire			— (1)				— (1)
Congo			1				1
Egypt			1				1
Ethiopia		1					1
Uganda			1 (—)				1 (—)
Tunisia		1	1				2
<i>Region E – Asia and Australasia</i>							
Bangladesh			1				1
Korea (Republic of)			1				1
India					1		1
Pakistan			1 (—)				1 (—)
Total	1	5	17 (15)	5	2 (4)	—	30

(The figures for 1977 are shown in parentheses.)

TABLE 7

Geographical distribution on 31 December 1978
 (Experts whose salaries are paid from the Technical Cooperation budget)

Country	Total by region	P.7	P.6	P.5	P.4	P.3	P.2	P.1	Total
<i>Region A - America</i>									
Argentina			1 (1)	1 (—)					2 (1)
Brazil				— (1)					— (1)
Canada			— (1)	3 (3)	1 (—)				4 (4)
Colombia				1 (1)	2 (1)				3 (2)
Cuba				1 (—)					1 (—)
United States			1 (2)	2 (3)	2 (2)				5 (7)
Guyana				1 (—)	— (1)				1 (1)
.../...	16 (16)								
<i>Region B - Western Europe</i>									
Germany (Fed. Rep. of)			1 (1)	1 (2)	7 (8)		8 (7)		17 (18)
Austria					1 (—)				1 (—)
Belgium					1 (—)				1 (—)
Denmark							1 (1)	1 (5)	2 (6)
Spain					— (1)				— (1)
Finland				1 (1)			1 (—)		2 (1)
France				7 (8)	6 (5)		— (1)		13 (14)
Greece				1 (1)					1 (1)
Ireland			— (1)	3 (2)	2 (3)				5 (6)
Italy				3 (2)	2 (1)		1 (—)		6 (3)
Norway			1 (1)	4 (2)			1 (—)		6 (3)
Netherlands				7 (3)	3 (3)	1 (1)	3 (3)	6 (5)	20 (15)
Portugal				2 (—)	1 (—)	2 (—)			5 (—)
United Kingdom			7 (5)	27 (22)	16 (16)		2 (2)		52 (45)
Sweden			2 (1)	6 (7)	4 (5)		2 (3)		14 (16)
Switzerland				— (2)		2 (—)			2 (2)
Turkey					1 (—)				1 (—)
.../...	148 (131)								
<i>Region C - Eastern Europe and Northern Asia</i>									
Bulgaria					1 (1)				1 (1)
Hungary					— (1)				— (1)
Poland				2 (1)	2 (2)				4 (3)
Ukraine				1 (1)					1 (1)
U.S.S.R.			1 (—)		2 (1)				3 (1)
Yugoslavia					1 (1)				1 (1)
.../...	10 (8)								
<i>Region D - Africa</i>									
Central African Empire				1 (—)					1 (—)
Egypt			1 (—)	4 (3)	4 (4)		1 (1)		10 (8)
Ethiopia			1 (1)	1 (1)	1 (—)				3 (2)
Ghana				1 (—)					1 (—)
Sudan				1 (—)					1 (—)
.../...	16 (10)								
<i>Region E - Asia and Australasia</i>									
Australia			2 (2)	4 (4)					6 (6)
India		1 (—)	2 (3)	19 (11)	16 (13)				38 (27)
Japan			1 (1)	4 (7)	4 (4)		— (1)	1 (1)	10 (14)
Jordan				— (1)	1 (1)				1 (2)
Lebanon				1 (1)					1 (1)
Nepal					1 (1)				1 (1)
New Zealand				3 (3)	2 (1)		1 (1)		6 (5)
Pakistan			1 (—)	3 (4)	3 (2)				7 (6)
Syria				— (1)					— (1)
Sri Lanka					2 (2)				2 (2)
.../...	72 (65)								
Total	262 (230)	1 (—)	22 (20)	116 (98)	89 (80)	5 (1)	21 (20)	8 (11)	262 (230)

(The figures for 1977 are shown in parentheses.)

7.2 Financial questions

7.2.1 In accordance with Article 56, No. 288, of the Torremolinos Convention, 1973, and of 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. 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 financial year, the budget and the accounts for 1978 are reproduced in Annex 2 to the present Report.

7.2.2 In accordance with Article 15 of the Torremolinos Convention, 1973, and of 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, on the one hand and, on the other, of the Plenipotentiary Conferences 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.

7.2.3 Additional Protocol I to the Torremolinos Convention, 1973, lays down the limits within which the Administrative Council is authorized to draw up the Union's annual budgets. For 1978, these limits were:

38,800,000 Swiss francs for recurrent expenditure

3,000,000 Swiss francs for conferences and meetings, including seminars, but not including regional conferences.

This limit was increased by 1,950,000 Swiss francs for the World Administrative Radio Conference for the Aeronautical Mobile (R) Service. The Plenipotentiary Conference had planned for this Conference to be held in 1976 and had entered the corresponding credit under the limit for that year. The Conference having been postponed to 1978, the relevant credit was entered in the 1978 budget in accordance with point 3.2 (c) of Additional Protocol I. The limit for 1978 was therefore 4,950,000 Swiss francs.

Paragraph 4 of the Additional Protocol authorizes the Administrative Council to exceed the above limits to take account of increases in the salary scales, pension contributions or allowances, including post adjustments, established by the United Nations for application to their staff employed in Geneva, and of fluctuations in the exchange rate between the Swiss franc and the US dollar which would involve additional expenses for the Union. Under paragraph 3.3 of the Additional Protocol, the Administrative Council may also authorize expenditure in excess of the limit specified for expenditure on conferences and meetings, if the excess can be compensated by sums within the expenditure limits accrued from a previous year or foreseen in a future year.

7.2.4 At its 32nd session, in Resolution No. 799, the Administrative Council approved the budgets for 1978 amounting to:

49,652,000 Swiss francs for recurrent expenditure, including 38,800,000 Swiss francs within the expenditure limit (margin: none) and 10,852,000 Swiss francs above the limit.

10,078,000 Swiss francs for conferences and meetings, including 4,950,000 Swiss francs within the expenditure limit (margin: none), 1,888,000 Swiss francs above the limit, 1,160,200 Swiss francs covered by the funds accrued from previous years and 3,479,800 Swiss francs withdrawn from the expenditure limit for 1979, but less 1,400,000 Swiss francs withdrawn from the 1978 limit in favour of the 1977 financial year;

100,000 Swiss francs for expenditure covered by the renewal fund for simultaneous interpretation and other electroacoustical equipment and by the CCITT Reserve Fund,

770,000 Swiss francs transferred to the ITU Reserve Account, in accordance with Resolution 11 of the Torremolinos Conference, 1973, i.e. a total of

60,600,000 Swiss francs for the ordinary budget,

7,610,000 Swiss francs for Technical Cooperation administrative costs,

6,656,000 Swiss francs for the supplementary publications budget.

7.2.5 In the same Resolution, the Administrative Council fixed the amount of the contributory unit in 1978 at 131,800 Swiss francs on the basis of the classification chosen by Members in accordance with Nos. 92 and 93 of the Torremolinos Convention, 1973, i.e. on the basis of a total of 426 units.

7.2.6 Lastly, in accordance with Article 79, No. 553, of the Torremolinos Convention, 1973, the Administrative Council decided 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 No. 574 at 22,000 Swiss francs for 1978.

7.2.7 In Resolution No. 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 No. 799 on the budget for 1978 and the end of the financial year 1978, the Secretary-General was obliged to reduce the budget by:

- 878,000 Swiss francs for the ordinary budget,
- 155,000 Swiss francs for the Technical Cooperation special accounts budget,
- 15,400 Swiss francs for the supplementary publications budget.

7.2.8 The 1978 budget also had to be adjusted to take account of expenditure on the post reclassifications approved by the Administrative Council. The following adjustments were made:

- 462,000 Swiss francs for the ordinary budget,
- 54,000 Swiss francs for the Technical Cooperation special accounts budget,
- 18,000 Swiss francs for the supplementary publications budget.

7.2.9 In addition, to take account of the credit reductions made by the Administrative Council in the conferences and meetings budget for 1978 (Decision No. D 383), the ordinary budget was reduced by 602,000 Swiss francs.

7.2.10 The budgets of the Union for 1978 therefore finally amounted to:

- 59,582,000 Swiss francs for the ordinary budget,
- 7,509,000 Swiss francs for the Technical Cooperation special accounts budget,
- 6,656,000 Swiss francs for the supplementary publications budget.

Classification of Members of the Union for the apportionment of expenditure in 1978

7.2.11 At the end of 1977, the Union had 154 Members contributing on the basis of a total of 426½ units.

7.2.12 As there were no new accessions in 1978, on 31 December 1978 the Union had 154 Members contributing on the basis of a total of 426½ units.

Cash resources

7.2.13 In 1978, the situation of the Union's cash resources was very good. Payment of contributions sufficed to cover the expenses of the Union, so that it proved unnecessary to request the Government of the Swiss Confederation to advance any funds. Moreover, it was possible to invest the funds available on a short-term basis.

Contributions in arrear

7.2.14 The total amounts due for more than one year on 31 December 1976, 1977 and 1978 were as follows:

31 December 1976	3,678,849.26 Swiss francs
31 December 1977	4,488,847.60 Swiss francs
31 December 1978	5,527,044.65 Swiss francs

7.2.15 The amounts in the special arrears account established pursuant to Resolution No. 10 of the Torremolinos Conference, 1973, and not yet settled on 31 December 1978, total 4,251,381.72 Swiss francs. Since the Plenipotentiary Conference this special arrears account has thus been reduced by the payment by the Members concerned of 2,308,634.46 Swiss francs, including 162,305.75 Swiss francs which were paid in 1978.

7.2.16 Annex 6 to this Report shows the situation of the Union's principal debtors on 31 December 1978.

8. RELATIONS WITH THE UNITED NATIONS AND OTHER INTERNATIONAL ORGANIZATIONS

8.1 United Nations

8.1.1 The 1978 session of the Administrative Council considered a resolution by the General Assembly of the United Nations concerning the restructuring of the economic and social sectors of the system. A primary objective of the resolution is to make the system more fully capable of dealing with problems of international economic cooperation and development in a comprehensive and effective manner. The resolution provides, *inter alia*, for improved cooperation and coordination of activities between the United Nations and the specialized agencies and calls for structural modifications in the secretariat of the United Nations and in existing inter-agency consultation mechanisms. In taking note of the resolution, the Administrative Council requested the Secretary-General to follow very closely future developments in the restructuring of the system and to report on these developments to the Council.

8.1.2 The Administrative Council took note of United Nations resolutions referred to the specialized agencies and considered progress reports on Union activities in response to resolutions in such areas as science and technology and outer space. After examining a report by the Secretary-General on the General Assembly resolution concerning the Transport and Communications Decade in Africa and World Communications Year, the Administrative Council adopted Resolution No. 820 on World Communications Year.

This Resolution of the Council was brought to the attention of the United Nations and was considered by the Economic and Social Council which "noted that preliminary consultations among the organizations concerned had identified 1983 as the most appropriate year for designation as World Communications Year and decided to consider this subject again in 1979".

The Secretariat of the Union continues to play a leading role in the inter-agency consultations concerning the preparation for the celebration of World Communications Year.

8.1.3 The Union was represented at meetings of United Nations bodies concerned with the peaceful uses of outer space and the Seventeenth Report of the ITU on Telecommunications and the Peaceful Uses of Outer Space was submitted for the attention of the United Nations Committee on the Peaceful Uses of Outer Space and the Economic and Social Council.

8.1.4 The Union continued its cooperation with the United Nations and other specialized agencies of the system in the field of science and technology. In particular, contributions were provided to the preparatory work for the United Nations Conference on Science and Technology for Development which is scheduled to be convened in Vienna in 1979. In addition to participating in inter-agency consultations, the Union was represented at meetings of the Advisory Committee on Science and Technology for Development and the inter-governmental Committee on Science and Technology for Development.

8.1.5 During 1978, the Union cooperated fully with UNESCO, in accordance with the instructions in Administrative Council Resolution No. 800, in preparing the report requested by the General Assembly in Resolution A/RES/31/139. The contribution of the ITU to this report was "noted with appreciation" by the General Assembly. A full report on the follow-up action required by the General Assembly will be submitted to the Administrative Council of the Union.

8.1.6 The Union continued to cooperate with the International Civil Service Commission in matters concerning developments in the conditions of service in the United Nations Common System. At the invitation of the Secretary-General, Mr. Raul Quijano, the Chairman of the Commission, addressed the Personnel and Pensions Committee of the Administrative Council, providing information on a number of matters of concern to the Union. The statement of Mr. Quijano prepared the way for the adoption of Administrative Council Resolution No. 811 concerning fluctuation in the exchange rate of the United States dollar against the Swiss franc.

8.1.7 Throughout 1978, the Union has participated in inter-agency consultations designed to achieve improved cooperation and coordination within the United Nations system. The Secretary-General has met with the Secretary-General of the United Nations and the executive heads of other specialized agencies in a number of meetings of the Administrative Committee on Coordination (ACC) and the Union has been represented, at the appropriate level, at meetings of ACC subsidiary bodies. In response to the requirements of the General Assembly, the ACC has undertaken a restructuring of its subsidiary machinery and a number of modifications will take effect in 1979.

8.1.8 At its 1978 session, the Administrative Council considered a number of Joint Inspection Unit reports and took the appropriate action on the recommendations of the Inspectors. Of the reports issued during 1978, the "Report on the Role of Experts in Development Cooperation" (JIU/REP/78/3) is of particular interest to the Union and is currently under study.

8.2 Regional Organizations

8.2.1 Africa

8.2.1.1 The adoption, during 1978, of United Nations General Assembly Resolution No. 32/160, on the Transport and Communications Decade in Africa (1978-87), served to reinforce the existing close relations between the ITU, the Organization of African Unity (OAU) and the Economic Commission for Africa (ECA). The ECA has been designated the "lead agency" in the UN system and the ITU participated in the inter-agency meetings organized by the ECA to plan activities during the Decade. The Union has also been represented at all major meetings of OAU and ECA.

8.2.1.2 The PANAFTTEL Coordinating Committee (OAU, ECA, ADB, ITU) met twice during the course of the year. The first meeting was held in Addis Ababa from 21-23 March and the second at the ITU Headquarters in Geneva on 21 and 22 December. At the first of these meetings it was agreed to admit to membership of the Coordinating Committee the recently formed Panafrican Telecommunication Union (PATU), the specialized agency of the OAU responsible for telecommunications. At the second meeting, detailed discussion took place concerning plans to be drawn up for implementation during the United Nations Transport and Communications Decade in Africa. During 1978, the ITU PANAFTTEL Team, regional advisers and Headquarters staff participated in sub-regional coordination meetings organized in conjunction with regional conferences of African Telecommunication Administrations held in Lesotho (East and Southern Africa Region) and Gabon (CAPTAC).

8.2.1.3 There was continuous collaboration and cooperation between the Union and other regional and sub-regional organizations in Africa (PATU, UAPT, URTNA, ECOWAS, CEAO, Mano River Union). The ITU was represented at the meetings of these organizations as appropriate, and the re-instatement of regional advisers in Africa greatly assisted in maintaining complementary relations through meetings and consultations at the technical level. Close contact was also maintained with regional and international banks and other financing institutions (ADB, BADEA, IDA/IBRD, EEC/FE). These institutions continued to cooperate with the Union by providing financial assistance to a number of ITU country and regional development projects.

8.2.2 Latin America

8.2.2.1 Close contacts were maintained with the Inter-American Telecommunication Commission (CITEL) through the ITU regional expert assigned to the Office of the President of COM/CITEL (the Management Committee of CITEL) located in Brasilia. The ITU was also represented in meetings of the Technical Permanent Commissions and Working Groups of CITEL and specialized assistance was provided to one of the commissions by a consultant recruited by the Union on a short-term basis.

8.2.2.2 Limitations were imposed upon the collaboration with the Central American Telecommunication Commission (COMTELCA) due to UNDP financial constraints. The activities of the ITU regional coordinator in Central America were terminated in May 1978 because of lack of funds. During 1978 the coordinator provided assistance to the Regional Bank, the Central American Bank for Economic Integration (CABEI), in Tegucigalpa (Honduras). A contribution was provided towards a policy paper under preparation by the Bank.

8.2.2.3 Relations with CARICOM and the Caribbean Development and Cooperation Committee (CDCC) were maintained until March 1978 through an ITU regional advisory post serving a number of countries in this area. A new advisory mission was organized at the end of the year to determine the sectoral support needed by the countries belonging to this region.

8.2.2.4 ITU participation in regional meetings provided the occasion to maintain contact with other regional organizations interested in the development of telecommunications. Such regional organizations included the Inter-American Development Bank (IDB) and the United Nations Economic Commission for Latin America (ECLA).

8.2.3 Asia and the Pacific

8.2.3.1 Throughout 1978 close relations were maintained, on technical cooperation and other matters, with the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP). The ITU participated in all important meetings of ESCAP including, in particular, the 34th session of the Economic and Social Commission (Bangkok, March 1978) and the 2nd session of the Shipping, Transport and Communication Commission (Bangkok, November 1978). Meetings of senior officials were held to discuss harmonized actions relating to the development of telecommunications in the region. In this connection the Secretary-General of the Union held discussions with the Executive Secretary of ESCAP in Bangkok during December 1978.

8.2.3.2 The ITU continued to maintain contact with the South Pacific Bureau for Economic Cooperation (SPEC). With full technical backing from the ITU Headquarters and from the experts in the region, SPEC was able to obtain substantial financial assistance from the European Economic Community (EEC) for the execution of important telecommunication development projects. In July 1978, the ITU participated in the Regional Intergovernmental Telecommunication Meeting held in Rarotonga, Cook Islands. This meeting reviewed the progress of UNDP/ITU technical cooperation activities and formulated plans covering future requirements in the field of telecommunications advisory assistance.

8.2.3.3 ITU/UNESCO collaboration in the region was continued during the year under review. This collaboration focussed principally on matters relating to the development of broadcasting, television and news agency networks in the developing countries. The Union participated in a series of UNESCO sponsored meetings concerned with the development of news agencies and news exchanges in Asia.

8.2.3.4 As a member of the Governing Council of the Asian Institute of Broadcasting Development (AIBD), Kuala Lumpur, the ITU attended the Governing Council meeting held in New Delhi in October 1978. Although the ITU is committed to assist AIBD, in conducting technical training for broadcasting and television, financial constraints have prevented this assistance being implemented. It had been hoped to provide the services of one training specialist to AIBD during 1978.

8.2.3.5 The ITU participated in the General Assembly of the Asia Pacific Broadcasting Union and in the Technical Committee meetings held in New Delhi (October 1978). During these meetings various questions relating to the development of broadcasting and television were discussed and recommendations were adopted concerning ways and means of providing assistance to developing countries.

8.2.3.6 The ITU also maintains close relations with the Asian Development Bank with a view to stimulating the financial participation of the Bank in the development of the Asian Telecommunication Network. The Secretary-General visited the ADB in Manila in December 1978 at which time the Bank expressed its appreciation of the work of the Union and emphasized the continuing need for advisory assistance in the field of telecommunications. The new regional expert based in Manila will play a key role in this respect.

8.2.3.7 Following the creation of the Asia-Pacific Telecommunity, it is intended to set up a coordinating committee, chaired by the ITU, to provide guidance and advice to the intergovernmental organization.

8.2.4 *Europe, the Mediterranean and the Middle East*

8.2.4.1 As in previous years, the ITU maintained fruitful contact with the Economic Commission for Western Asia (ECWA).

8.2.4.2 During the year, well-established cooperative arrangements continued to operate between the Union, the Arab League, the Arab Telecommunication Union (ATU), the Arab States Broadcasting Union (ASBU), the Permanent Telecommunication Committee for the Gulf States and ARABSAT. Cooperation arrangements were initiated between the Union and the Arab Air Countries Organization (AACO). Although cooperation with these organizations extended into many areas of mutual concern, of particular interest was the execution of the project "Feasibility Study/Preinvestment Survey for the Mediterranean and Middle East Telecommunication Network". Following the sub-regional meetings in Djibouti, Malta, Baghdad (Iraq), Tunis (Tunisia) and Alexandria (Egypt), the final meeting of the project was held in Geneva in September 1978. At these meetings, techno-economic reports concerning the network were discussed and the Master Plan documentation prepared by the ITU was adopted. Measures to be undertaken for the urgent implementation of the Plan were also discussed. Subsequent to the final meeting, preparations were made to call a Coordination Committee meeting in January, 1979 with the participation of countries of the region, regional organizations and financial institutions, to pledge contributions towards the follow-up activities concerning the Arab Regional Telecommunication Network. In connection with the study and preparation for the Arab Regional Satellite project, information and data were exchanged with ARABSAT. The Union also participated in the first Traffic Meeting of ARABSAT in October.

8.2.4.3 In the preparatory work connected with the establishment of the Arab Regional Telecommunication Institute, contacts were maintained with ATU, ASBU, some of the participating countries and the UNDP.

8.2.4.4 In the field of maritime radiocommunications the Union organized a seminar hosted and financed by the Government of Qatar.

8.2.4.5 Contacts were made with AFESD, the Kuwait Fund for Arab Economic Development, the Saudi Fund for Development and the Islamic Bank, concerning the financing of follow-up activities of the Arab Regional Telecommunication Network.

8.3 **Specialized agencies**

8.3.1 The traditional close relationship between the Union and other specialized agencies having a particular interest in the field of telecommunications has been maintained during 1978. Specialized agencies in this category include the International Civil Aviation Organization (ICAO), the Intergovernmental Maritime Consultative Organization (IMCO), the World Meteorological Organization (WMO) and the Universal Postal Union (UPU).

The ITU participated in the work of these organizations when matters of mutual interest were under consideration. Representatives of these agencies also attended ITU meetings as appropriate and particular mention might be made of the active participation of ICAO in all phases of the World Administrative Radio Conference on the Aeronautical Mobile (R) Service which was convened in Geneva in February 1978.

8.3.2 The informal Working Group established with the United Nations Educational, Scientific and Cultural Organization (UNESCO) continued in being during 1978 and completed a report for the General Assembly on progress in the development of mass media. As has already been indicated, the contribution of the ITU to this report was "noted with appreciation" by the General Assembly which has requested a number of follow up studies involving the United Nations and interested specialized agencies. The ITU has continued to follow activities of UNESCO in the general field of communications and has provided appropriate comment and information on matters within the competence of the Union.

8.3.3 The interest shown in the celebration of a World Communications Year in 1983 has lead to further consultations between a number of the specialized agencies interested in communications in general. The ITU has played a leading role in these consultations and in the formulation of plans for the celebration of the Year. In addition to the specialized agencies already mentioned in this section of the report, the United Nations and the Regional Economic Commissions have been actively engaged in these consultations. Detailed proposals concerning the World Communications Year are under preparation for the consideration of the Economic and Social Council (ECOSOC) during 1979.

8.3.4 Matters of concern to all specialized agencies of the United Nations system have been dealt with under the responsibility of the Administrative Committee on Coordination (ACC). The Secretary-General of the Union has attended all ACC meetings held during 1978 and has discussed matters of common interest with the Secretary-General of the United Nations and the executive heads of specialized agencies of the system. Decisions and joint comments by the ACC, on matters of common interest, have been taken into consideration by the General Assembly and, as appropriate, have been reported to the Administrative Council of the Union. The ITU has been represented at meetings of the subsidiary organs of the ACC dealing with matters of concern to the Union. The staff of the Union has participated in the study of administrative questions arising out of the evaluation of the United Nations "common system" in consultation with the other specialized agencies and organizations of the system.

8.4 Other international organizations

8.4.1 The ITU has maintained mutually profitable relations with many other international organizations. In general, such organizations are engaged in activities which are complementary to those of the Union and the purposes they pursue run parallel to those of the ITU. The Union enjoys reciprocal facilities with regard to the distribution of documents and participation in conferences and meetings of other international organizations with which relations are maintained.

8.4.2 International organizations which participate in the work of the Union are mentioned in the different sections of this report. Special mention has been made of new regional organizations with which the ITU is likely to be closely related in the future.

8.4.3 The following non-exhaustive list indicates those international organizations with which the ITU has maintained close relations during 1978:

- Agency for the Safety of Air Navigation in Africa and Madagascar (ASECNA)
- Committee on Space Research (COSPAR)
- Danube Commission
- European Broadcasting Union (EBU)
- European Conference of Posts and Telecommunications (CEPT)
- European Space Agency (ESA)
- European Space Research Organization (ESRO)
- Inter-American Association for Broadcasters (IAAB)
- 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 on the Red Cross (CICR)
International Council of Scientific Unions (ICSU)
International Criminal Police Organization (INTERPOL)
International Electrotechnical Commission (IEC)
International Organization for Standardization (ISO)
International Marine Radio Association (CIRM)
International Radio and Television Organization (OIRT)
International Space Telecommunication Organization (INTERSPOUTNIK)
International Special Committee on Radio Interference (CISPR)
International Telecommunications Satellite Organization (INTELSAT)
International Time Bureau (BIH)
International Union of Radio Science (URSI)
Inter-Union Committee on Allocation of Frequencies for Radio Astronomy and Space Science (IUCAF)
Organization for Economic Cooperation and Development (OECD)

8.5 The Union was represented at meetings of many of the organizations mentioned in Section 8 of this Report.

ANNEX 1

POSITION OF MEMBERS IN RELATION TO THE ACTS OF THE UNION ON 31 DECEMBER 1978

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 and Additional Radio Regulations (A.R.C., Geneva, 1959);
- Partial Revision of the Radio Regulations (E.A.R.C., Geneva, 1963) (space);
- Partial Revision of the Radio Regulations (E.A.R.C., Geneva, 1966) (aeronautical);
- Partial Revisions of the Radio Regulations and of the Additional Radio Regulations (W.A.R.C., Geneva, 1967) (maritime);
- Partial Revision of the Radio Regulations (W.A.R.C., Geneva, 1971) (space-2);
- Partial Revisions of the Radio Regulations and of the Additional Radio Regulations (W.A.R.C., Geneva, 1974) (maritime-2).

List of Countries which signed the Final Acts of the World Administrative Radio Conference on the Aeronautical Mobile (R) Service, Geneva, 1978.

Table II. *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 III. *American Regional Agreements :*

- Inter-American Radio Agreement (FIAR) (Washington, 1949);
- North-American Regional Broadcasting Agreement (NARBA) (Washington, 1950).

Table IV. *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 V. *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).*

Table VI. *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).*

VII. *Special Agreements.*

Table I.

POSITION ON

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.

Countries (In the alphabetical order of the French version of the country names)	CONVENTION, etc.					ADMINISTRATIVE REGULATIONS			
	Plenipotentiary Conference of Malaga-Torremolinos, 1973					World Administrative Telegraph and Telephone Conference			
	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	Geneva (1973)			
						Telegraph Regulations		Telephone Regulations	
1	2	3	4	5	6	7	8	9	10
Afghanistan (Democratic Republic of) ⁵⁸⁾ .	½	S ¹⁾	3. II. 1977	S		—	A ⁴⁾	—	A ⁴⁾
Albania (Socialist People's Republic of) ⁴⁰⁾	½	A	5. I. 1976 ³⁶⁾	—		S	A ⁴⁾	S	A ⁴⁾
Algeria (Algerian Democratic and Popular Republic)	1	S ¹⁾	1. XI. 1976	—		S	A ⁴⁾	S	A ⁴⁾
Germany (Federal Republic of)	25	S ¹⁾	18. XI. 1976 ²⁾ ³⁷⁾	—		S	A ⁵⁾	S	A ⁵⁾
Angola (People's Republic of)	½	A	13. X. 1976	—		—	A ⁴⁾	—	A ⁴⁾
Saudi Arabia (Kingdom of)	1	S ¹⁾	6. I. 1977	—		S	A ⁴⁾	S	A ⁴⁾
Argentine Republic	3	S ¹⁾	19. I. 1977 ⁴⁸⁾	—		S	A ⁴⁾	S	A ⁴⁾
Australia	18	S ¹⁾	23. VI. 1975	S	23. VI. 1975	S	A	S	A
Austria	1	S ¹⁾	17. V. 1977 ²⁾	S	17. V. 1977	S	A ⁴⁾	S	A ⁴⁾
Bahamas (Commonwealth of the)	½	A	16. X. 1975 ³⁰⁾	—		—	A ⁴⁾	—	A ⁴⁾
Bahrain (State of)	½	A	21. X. 1974 ¹¹⁾	—		—	A ⁴⁾	—	A ⁴⁾
Bangladesh (People's Republic of)	1	S ¹⁾	6. IV. 1976 ²⁾	—		—	¹⁾	—	¹⁾
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⁾
Benin (People's Republic of) ¹²⁾	½	S ¹⁾		S		S		S	
Byelorussian Soviet Socialist Republic	1	S ¹⁾	6. I. 1977 ⁴⁵⁾	—		S	A	S	A
Burma (Socialist Republic of the Union of) ¹⁴⁾	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⁾
Brazil (Federative Republic of)	5	S	30. XI. 1976	S		S	A	S	A
Bulgaria (People's Republic of)	1	S ¹⁾	29. XII. 1976 ⁴³⁾	—		S	A ⁴⁾	S	A ⁴⁾

*) Convention, Final Protocol, Additional Protocols.
**) Optional Additional Protocol on the Compulsory Settlement of Disputes.

Convention, Regulations

31 DECEMBER, 1978

ADMINISTRATIVE REGULATIONS																	
Administrative Radio Conferences																	
Radio Regulations												Additional Radio Regulations					
A.R.C. Geneva (1959)	Partial Revision E.A.R.C. Geneva (1963) (space)	Partial Revision E.A.R.C. Geneva (1966) (aeronautical)	Partial Revision W.A.R.C. Geneva (1967) (maritime)	Partial Revision W.A.R.C. Geneva (1971) (space-2)	Partial Revision W.A.R.C. Geneva (1974) (maritime-2)							A.R.C. Geneva (1959)	Partial Revision W.A.R.C. Geneva (1967) (maritime)	Partial Revision W.A.R.C. Geneva (1974) (maritime-2)			
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
S	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	S	A 4)	—	A 4)	—	A 4)
S	36)	—	36)	—	36)	—	36)	—	36)	—	36)	S	36)	—	36)	—	36)
—	A 4)	S	A	S	A	S	A	S	A 4)	S	A 4)	—	A 4)	S	A	S	A 4)
S	A 6)	S	A 7)	S	A 8)	S	A 8)	S	A 9)	S	A 10)	S	A	S	A 8)	S	A 10)
—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)
S	A 4)	—	A 4)	S	A 4)	—	A 4)	S	A 4)	S	A 4)	S	A 4)	—	A 4)	S	A 4)
S	A 24)	S	A 3)	S	A	S	A	S	A	S	A	S	A 24)	S	A	S	A
S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A
S	A	S	A	—	A	S	A	S	A 4)	—	A 4)	S	A	S	A	—	A 4)
—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—		—	A 4)	—	A 4)	—	
—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—		—	A 4)	—	A 4)	—	
—	1)	—	1)	—	1)	—	1)	—	1)	S	1)	—	1)	—	1)	S	1)
—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)
S	A	S	A	S	A	S	A	S	A 4)	S	A 4)	S	A	S	A	S	A 4)
—	A	—	A	—	A 4)	—		—		S		—	A	—		S	
S	1)	S	A	—	A 13)	—	1)	S	A	—	1)	S	1)	—	1)	—	1)
S	A	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	S	A	—	A 4)	—	A 4)
S	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	S	A 4)	—	A 4)	—	A 4)
—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)
S	A	—	A 4)	S	A 4)	S	A 4)	S	A	S	A 4)	S	A	S	A 4)	S	A 4)
S	43)	S	43)	S	A 15)	S	43)	S	43)	S	43)	S	43)	S	43)	S	43)

Table I.

Countries (In the alphabetical order of the French version of the country names)	CONVENTION, etc.					ADMINISTRATIVE REGULATIONS			
	Plenipotentiary Conference of Malaga-Torremolinos, 1973					World Administrative Telegraph and Telephone Conference			
	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	Geneva (1973)			
						Telegraph Regulations		Telephone Regulations	
1	2	3	4	5	6	7	8	9	10
France	30	S ¹⁾	29. XII. 1976	—		S	A ⁴⁾	S	A ⁴⁾
Gabon Republic	½	S ¹⁾	16. VIII. 1978 ²⁾	S		S	A ⁴⁾	S	A ⁴⁾
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⁾
Greece	1	S ¹⁾	13. I. 1977 ²⁾	S		S	A	S	A
Guatemala (Republic of) ⁵¹⁾	1	S ¹⁾		—		—		—	
Guinea (People's Revolutionary Republic of) ⁶²⁾	½	S ¹⁾	5. X. 1976	—		—	A ⁴⁾	—	A ⁴⁾
Guinea-Bissau (Republic of)	½	A	15. I. 1976	—		—	A ⁴⁾	—	A ⁴⁾
Equatorial Guinea (Republic of)	½	S ¹⁾		—		—		—	
Guyana	½	A	30. XI. 1976	—		—	A ⁴⁾	—	A ⁴⁾
Haiti (Republic of)	½	A	10. XII. 1976	—		—	A ⁴⁾	—	A ⁴⁾
Upper Volta (Republic of)	½	S ¹⁾	22. III. 1978	S		—	A ⁴⁾	—	A ⁴⁾
Honduras (Republic of)	½	—		—		—		—	
Hungarian People's Republic	1	S ¹⁾	4. VIII. 1976 ²³⁾	—		S	A	S	A
India (Republic of)	13	S ¹⁾	20. IV. 1976	—		S	A	S	A
Indonesia (Republic of)	1	S ¹⁾	6. I. 1977	S		S	A ⁴⁾	S	A ⁴⁾
Iran	1	S ¹⁾	3. II. 1977	—		S	A ⁴⁾	S	A ⁴⁾
Iraq (Republic of)	½	S ¹⁾	14. VI. 1977 ⁵⁴⁾	—		—	A ⁴⁾	—	A ⁴⁾
Ireland	2	S	20. IX. 1976	—		S	A	S	A
Iceland	½	S ¹⁾	6. I. 1977	—		S	A ⁴⁾	S	A ⁴⁾
Israel (State of)	1	S ¹⁾	28. V. 1975	—		S	A ⁴⁾	S	A ⁴⁾
Italy	10	S ¹⁾	23. I. 1978	—		S	A ⁴⁾	S	A ⁴⁾
Jamaica	½	S ¹⁾	25. IV. 1975 ²⁾	—		S	A	S	A
Japan	20	S	17. VI. 1975	S	17. VI. 1975	S	A	S	A
Jordan (Hashemite Kingdom of)	½	A	28. V. 1975	A	28. V. 1975	—	A ⁴⁾	—	A ⁴⁾
Democratic Kampuchea ⁵⁷⁾	½	S ¹⁾		S		—		—	
Kenya (Republic of)	½	S ¹⁾	13. III. 1978	—		S	A ⁴⁾	S	A ⁴⁾
Kuwait (State of)	1	S ¹⁾	7. II. 1977 ²⁾	—		S	A ⁴⁾	S	A ⁴⁾

*) Convention, Final Protocol, Additional Protocols.
**) Optional Additional Protocol on the Compulsory Settlement of Disputes.

Convention, Regulations (continued)

ADMINISTRATIVE REGULATIONS																	
Administrative Radio Conferences																	
Radio Regulations												Additional Radio Regulations					
A.R.C. Geneva (1959)		Partial Revision E.A.R.C. Geneva (1963) (space)		Partial Revision E.A.R.C. Geneva (1966) (aeronautical)		Partial Revision W.A.R.C. Geneva (1967) (maritime)		Partial Revision W.A.R.C. Geneva (1971) (space-2)		Partial Revision W.A.R.C. Geneva (1974) (maritime-2)		A.R.C. Geneva (1959)		Partial Revision W.A.R.C. Geneva (1967) (maritime)		Partial Revision W.A.R.C. Geneva (1974) (maritime-2)	
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
S	A	S	A	S	A	S	A	S	A ⁴⁾	S	A ⁴⁾	S	A	S	A	S	A ⁴⁾
—	A	—	A	—	A ⁴⁾	—	A ⁴⁾	S	A ⁴⁾	—	A ⁴⁾	—	A	—	A ⁴⁾	—	A ⁴⁾
—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—		—	A ⁴⁾	—	A ⁴⁾	—	
S	A	S	A	S	A ⁴⁾	S	A ⁴⁾	S	A ⁴⁾	S	A ⁴⁾	S	A	S	A ⁴⁾	S	A ⁴⁾
S	A	S	A	—	A ⁴⁾	S	A	S	A	S	A ⁴⁾	S	A	S	A	S	A ⁴⁾
—	A ¹⁷⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—		—		—	A	—	A ⁴⁾	—	
—	A ⁴⁾	—	A	—	A	—	A	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A	—	A ⁴⁾
—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾
—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾
—	A ⁴⁾	—	A ⁴⁾	—	A	S	A	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	S	A	—	A ⁴⁾
—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾
—	A ⁴⁾	—	A	—	A ⁴⁾	—	A	S	A ⁴⁾	S	A ⁴⁾	—	A ⁴⁾	—	A	S	A ⁴⁾
—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—		—	A ⁴⁾	—	A ⁴⁾	—	
S	A ⁴⁾ ²³⁾	S	A	S	A ¹⁶⁾	S	A	S	A	S	A	S	A ⁴⁾	S	A	S	A
S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A
S	A	S	A ⁴⁾	S	A ⁴⁾	S	A ⁴⁾	S	A ⁴⁾	S	A ⁴⁾	S	A	S	A ⁴⁾	S	A ⁴⁾
S	A	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	S	A ⁴⁾	S	A ⁴⁾	S	A	—	A ⁴⁾	S	A ⁴⁾
S	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	S	A ⁴⁾	S	A ³⁾	S	A ⁴⁾	—	A ⁴⁾	S	A ³⁾
S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A
S	A	S	A	—	A	S	A	S	A ⁴⁾	S	A ⁴⁾	S	A	S	A	S	A ⁴⁾
S	A	S	A	—	A	S	A ⁴⁾	S	A ⁴⁾	S	A ⁴⁾	S	A	S	A ⁴⁾	S	
S	A ²¹⁾	S	A	S	A	S	A ⁴⁾	S	A ⁴⁾	S	A ⁴⁾	S	A ²¹⁾	S	A ⁴⁾	S	A ⁴⁾
—	A ⁴⁾	S	A ²⁰⁾	S	A ⁴⁾	S	A ⁴⁾	S	A	S		—	A ⁴⁾	S	A ⁴⁾	S	
S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A
S	A	—	A ⁴⁾	—	A ⁴⁾	S	A ⁴⁾	—	A ⁴⁾	—		S	A	S	A ⁴⁾	—	
S	A	S	A	—	A ⁴⁾	—		—		S		S	A	—		S	
—	A ⁴⁾	—	A	—	A	—	A	S	A ⁴⁾	—	A	—	A ⁴⁾	—	A	—	A
S	A	S	A	S	A ⁴⁾	S	A	S	A	S	A ⁴⁾	S	A	S	A	S	A ⁴⁾

Table I.

Countries (In the alphabetical order of the French version of the country names)	CONVENTION, etc.					ADMINISTRATIVE REGULATIONS			
	Plenipotentiary Conference of Malaga-Torremolinos, 1973					World Administrative Telegraph and Telephone Conference			
	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	Geneva (1973)			
						Telegraph Regulations	Telephone Regulations		
1	2	3	4	5	6	7	8	9	10
Lao People's Democratic Republic ³⁴⁾ . .	½	S ¹⁾	6. I. 1977	S		—	A ⁴⁾	—	A ⁴⁾
Lesotho (Kingdom of)	½	S ¹⁾	27. VIII. 1976	—		—	A ⁴⁾	—	A ⁴⁾
Lebanon	1	S ¹⁾	1. VI. 1978	S		S	A	S	A
Liberia (Republic of)	1	S ¹⁾	22. IX. 1975	S		—	A ⁴⁾	—	A ⁴⁾
Libya (Socialist People's Libyan Arab Jamahiriya) ³⁵⁾	½	S ¹⁾	22. II. 1977	—		S	A ⁴⁾	S	A ⁴⁾
Liechtenstein (Principality of).	½	S ¹⁾	4. II. 1976	S	4. II. 1976	—	A ⁴⁾	—	A ⁴⁾
Luxembourg	½	S ¹⁾	26. VII. 1976	S	26. VII. 1976	S	A	S	A
Madagascar (Democratic Republic of) ³⁵⁾	1	S ¹⁾	17. III. 1976	S	17. III. 1976	S	A	S	A
Malaysia	3	S ¹⁾	13. IV. 1976	—		S	A ⁴⁾	S	A ⁴⁾
Malawi	½	S ¹⁾	25. V. 1977	S		—	A ⁴⁾	—	A ⁴⁾
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⁾
Malta (Republic of) ²⁶⁾	½	A	30. I. 1975 ²⁷⁾	A	30. I. 1975	—	A ⁴⁾	—	A ⁴⁾
Morocco (Kingdom of)	1	S ¹⁾	28. I. 1977	S		S	A ⁴⁾	S	A ⁴⁾
Mauritius	½	S ¹⁾	8. VII. 1974	S	9. IV. 1975	—	A ⁴⁾	—	A ⁴⁾
Mauritania (Islamic Republic of)	½	S ¹⁾	4. II. 1977	S		—	A ⁴⁾	—	A ⁴⁾
Mexico	3	S	23. VII. 1975	—		S	A	S	A
Monaco	½	S ¹⁾	23. XII. 1976 ³⁾	—		S	A ⁴⁾	S	A ⁴⁾
Mongolian People's Republic	½	S ¹⁾	18. X. 1977	—		—	A ⁴⁾	—	A ⁴⁾
Mozambique (People's Republic of) . . .	½	A	4. XI. 1975	—		—	A ⁴⁾	—	A ⁴⁾
Nauru (Republic of)	½	—		—		—		—	
Nepal	½	S ¹⁾	4. VII. 1977	S		—	A ⁴⁾	—	A ⁴⁾
Nicaragua	1	S ¹⁾	25. III. 1977	S	18. X. 1977	—	A ⁴⁾	—	A ⁴⁾
Niger (Republic of the)	½	S ¹⁾	7. VI. 1978	—		—	A ⁴⁾	—	A ⁴⁾
Nigeria (Federal Republic of)	2	S ¹⁾	24. VIII. 1976	—		S	A ⁴⁾	S	A ⁴⁾
Norway	5	S ¹⁾	16. XII. 1976	—		S	A	S	A
New Zealand.	3	S ¹⁾	7. I. 1977	S	7. I. 1977	S	A	S	A

^{*)} Convention, Final Protocol, Additional Protocols.
^{**)} Optional Additional Protocol on the Compulsory Settlement of Disputes

Convention, Regulations (continued)

ADMINISTRATIVE REGULATIONS																	
Administrative Radio Conferences																	
Radio Regulations												Additional Radio Regulations					
A.R.C. Geneva (1959)		Partial Revision E.A.R.C. Geneva (1963) (space)		Partial Revision E.A.R.C. Geneva (1966) (aeronautical)		Partial Revision W.A.R.C. Geneva (1967) (maritime)		Partial Revision W.A.R.C. Geneva (1971) (space-2)		Partial Revision W.A.R.C. Geneva (1974) (maritime-2)		A.R.C. Geneva (1959)		Partial Revision W.A.R.C. Geneva (1967) (maritime)		Partial Revision W.A.R.C. Geneva (1974) (maritime-2)	
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
—	A	—	A	—	A ⁴⁾	—	A	—	A ⁴⁾	—	A ⁴⁾	—	A	—	A	—	A ⁴⁾
—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾
S	A	S	A	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	S	A ⁴⁾	S	A	—	A ⁴⁾	S	A ⁴⁾
—	A	S	A ⁴⁾	—	A ⁴⁾	S	A ⁴⁾	S	A ⁴⁾	S		—	A	S	A ⁴⁾	S	
S	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	S	A ⁴⁾	—	A ⁴⁾	S	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾
—	A ⁴⁾	S	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	S	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾
S	A	S	A	S	A	—	A	S	A ⁴⁾	S	A	S	A	—	A	S	A
—	A ⁴⁾	—	A	—	A	—	A	—	A ⁴⁾	S	A ⁴⁾	—	A ⁴⁾	—	A	S	A ⁴⁾
S	A	S	A	S	A	S	A ³⁾	S	A ⁴⁾	S	A ⁴⁾	S	A	S	A ³⁾	S	A ⁴⁾
—	A ⁴⁾	—	A	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾
—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—		—	A ⁴⁾	—	A ⁴⁾	—	
—	A	—	A	—	A ⁴⁾	—	A ⁴⁾	S	A ⁴⁾	—	A ⁴⁾	—	A	—	A ⁴⁾	—	A ⁴⁾
—	A ⁴⁾	—	A ⁴⁾	S	A ⁴⁾	S	A ⁴⁾	—	A ⁴⁾	—		—	A ⁴⁾	S	A ⁴⁾	—	
S	A ³⁾	S	A	—	A ⁴⁾	—	A ⁴⁾	S	A ⁴⁾	S	A ⁴⁾	S	A	—	A ⁴⁾	S	A ⁴⁾
—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	S	A	—	A ⁴⁾	—	A ⁴⁾	S	A
—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	S	A ⁴⁾	S	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	S	A ⁴⁾
S	A	S	A	S	A	S	A ⁴⁾	S	A ⁴⁾	S		S	A	S	A ⁴⁾	S	
S	A	S	A ⁴⁾	—	A ⁴⁾	S	A ⁴⁾	S	A ⁴⁾	S	A ⁴⁾	S	A	S	A ⁴⁾	S	A ⁴⁾
—	A ¹⁾	—	A ¹⁾	—	A ¹⁾	—	A ¹⁾	—	A ¹⁾	—	A ¹⁾	—	A ¹⁾	—	A ¹⁾	—	A ¹⁾
—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A	—	A ⁴⁾	—	A ⁴⁾	—	A
—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—		—		—	A ⁴⁾	—	A ⁴⁾	—	
S	A	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	S	A	—	A ⁴⁾	—	A ⁴⁾
S	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	S	A ⁴⁾	S	A ⁴⁾	S	A ⁴⁾	—	A ⁴⁾	S	A ⁴⁾
—	A	—	A ⁴⁾	—	A	—	A	S	A ⁴⁾	—	A ⁴⁾	—	A	—	A	—	A ⁴⁾
—	A	—	A	—	A ⁴⁾	—	A ⁴⁾	S	A ⁴⁾	S	A ⁴⁾	—	A	—	A ⁴⁾	S	A ⁴⁾
S	A	S	A ⁴⁾	S	A	S	A	S	A	S	A	S	A	S	A	S	A
S	A	S	A	S	A	S	A	S	A ²⁸⁾	S	A ²⁸⁾	S	A	S	A	S	A ⁴⁾

Table I.

Countries (In the alphabetical order of the French version of the country names)	CONVENTION, etc.					ADMINISTRATIVE REGULATIONS			
	Plenipotentiary Conference of Malaga-Torremolinos, 1973					World Administrative Telegraph and Telephone Conference			
	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	Geneva (1973)			
						Telegraph Regulations		Telephone Regulations	
1	2	3	4	5	6	7	8	9	10
Oman (Sultanate of)	½	S ¹⁾	24. II. 1977 ⁵²⁾	—	—	S	A ⁴⁾	S	A ⁴⁾
Uganda (Republic of)	½	S ¹⁾	—	—	—	S	—	S	—
Pakistan (Islamic Republic of) ⁵²⁾	2	S ¹⁾	26. IX. 1977	—	—	S	A	S	A
Panama (Republic of)	½	S ¹⁾	15. I. 1976	—	—	—	A ⁴⁾	—	A ⁴⁾
Papua New Guinea	½	A	31. X. 1975 ³¹⁾	—	—	—	A ⁴⁾	—	A ⁴⁾
Paraguay (Republic of)	½	S	2. VIII. 1976	A	2. VIII. 1976	—	A ⁴⁾	—	A ⁴⁾
Netherlands (Kingdom of the)	10	S ¹⁾	31. XII. 1974 ¹⁹⁾	S	17. IV. 1975	S	A	S	A
Peru	½	S ¹⁾	—	S	—	S	¹⁾	S	¹⁾
Philippines (Republic of the)	1	S ¹⁾	13. VIII. 1975	S	—	S	A	S	A
Poland (People's Republic of)	3	S ¹⁾	13. I. 1977 ⁴⁷⁾	—	—	S	A ⁴⁾	S	A ⁴⁾
Portugal.	½	A	12. XI. 1975	—	—	S	A ⁴⁾	S	A ⁴⁾
Qatar (State of)	½	A	24. X. 1975	A	24. X. 1975	—	A ⁴⁾	—	A ⁴⁾
Syrian Arab Republic	½	A	20. II. 1976	—	—	—	A ⁴⁾	—	A ⁴⁾
German Democratic Republic	3	S ¹⁾	25. VIII. 1976 ³⁾	—	—	S	A	S	A
Democratic People's Republic of Korea	½	A	24. IX. 1975	—	—	—	A ⁴⁾	—	A ⁴⁾
Ukrainian Soviet Socialist Republic	3	S ¹⁾	6. I. 1977 ⁴⁸⁾	—	—	S	A ⁴⁾	S	A ⁴⁾
Roumania (Socialist Republic of)	1	S ¹⁾	8. II. 1977 ⁵⁰⁾	—	—	S	A ⁴⁾	S	A ⁴⁾
United Kingdom of Great Britain and Northern Ireland	30	S ¹⁾	31. XII. 1974 ²²⁾	S	31. XII. 1974 ²²⁾	S	A	S	A
Rwanda (Republic of)	½	S ¹⁾	23. XII. 1976	—	—	—	A	—	A
San Marino (Republic of)	½	A	25. III. 1977	—	—	—	A ⁴⁾	—	A ⁴⁾
Sao Tome and Principe (Democratic Republic of)	½	A	1. IX. 1976	—	—	—	A ⁴⁾	—	A ⁴⁾
Senegal (Republic of the)	1	S ¹⁾	21. I. 1977	S	5. V. 1977	S	A ⁴⁾	S	A ⁴⁾
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⁾
Somali Democratic Republic	½	S ¹⁾	11. II. 1977	—	—	S	A ⁴⁾	S	A ⁴⁾
Sudan (Democratic Republic of the)	1	S ¹⁾	—	—	—	S	—	S	—

*) Convention, Final Protocol, Additional Protocols.

**) Optional Additional Protocol on the Compulsory Settlement of Disputes.

Convention, Regulations (continued)

ADMINISTRATIVE REGULATIONS																	
Administrative Radio Conferences																	
Radio Regulations												Additional Radio Regulations					
A.R.C. Geneva (1959)		Partial Revision E.A.R.C. Geneva (1963) (space)		Partial Revision E.A.R.C. Geneva (1966) (aeronautical)		Partial Revision W.A.R.C. Geneva (1967) (maritime)		Partial Revision W.A.R.C. Geneva (1971) (space-2)		Partial Revision W.A.R.C. Geneva (1974) (maritime-2)		A.R.C. Geneva (1959)		Partial Revision W.A.R.C. Geneva (1967) (maritime)		Partial Revision W.A.R.C. Geneva (1974) (maritime-2)	
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾
—	A ⁴⁾	S	A	—	A	—	A	S		—	A	—	A ⁴⁾	—	A	—	A
S	A ³⁾	S	A ³⁾	S	A	S	A ³⁾	S	A ³⁾	S	A ⁴⁾	S	A	S	A ³⁾	S	A ⁴⁾
—	A	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	S	A ⁴⁾	—	A	—	A ⁴⁾	S	A ⁴⁾
—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—		—	A ⁴⁾	—	A ⁴⁾	—	
S	A	—	A	—	A	—	A	S	A ⁴⁾	S	A ⁴⁾	S	A	—	A	S	A ⁴⁾
S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A
S	¹⁾	—	¹⁾	—	¹⁾	—	¹⁾	S	¹⁾	S	¹⁾	S	¹⁾	—	¹⁾	S	¹⁾
S	A ⁴⁾	S	A	—	A	—	A	S	A	S		S	A ⁴⁾	—	A	S	
S	¹⁾	S	¹⁾	S	¹⁾	S	¹⁾	S	¹⁾	S	¹⁾	S	¹⁾	S	¹⁾	S	¹⁾
S	A	S	A	S	A ⁴⁾	S	A ⁴⁾	S	A ⁴⁾	—		S	A	S	A ⁴⁾	—	
—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—		—	A ⁴⁾	—	A ⁴⁾	—	
—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	S	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾
—	¹⁾	—	¹⁾	—	¹⁾	—	¹⁾	—	¹⁾	S	A	—	¹⁾	—	¹⁾	S	A
—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—		—	A ⁴⁾	—	A ⁴⁾	—	
S	¹⁾	S	A	—	A ¹³⁾	—	¹⁾	S	A	—	¹⁾	S	¹⁾	—	¹⁾	—	¹⁾
S	A ⁴⁾	S	A ⁴⁾	S	A ⁴⁾	S	A ⁴⁾	S	A ⁴⁾	S	A ⁴⁾	S	A ⁴⁾	S	A ⁴⁾	S	A ⁴⁾
S	A	S	A	S	A	S	A	S	A	S	A ³²⁾	S	A	S	A	S	A ³²⁾
—	A ⁴⁾	—	A	—	A	—	A	S	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A	—	A ⁴⁾
—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾
—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾
—	A	—	A	—	A	S	A	S	A ⁴⁾	S	A ⁴⁾	—	A	S	A	S	A ⁴⁾
—	A ⁴⁾	—	A	—	A ⁴⁾	—	A	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A	—	A ⁴⁾
—	A ⁴⁾	—	A ⁴⁾	S	A ³⁾	S	A ³⁾	S	A ³⁾	S	A	—	A ⁴⁾	S	A ³⁾	S	A
—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾
S	A	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—		S	A	—	A ⁴⁾	—	

Table I.

Countries (In the alphabetical order of the French version of the country names)	CONVENTION, etc.					ADMINISTRATIVE REGULATIONS			
	Plenipotentiary Conference of Malaga-Torremolinos, 1973					World Administrative Telegraph and Telephone Conference			
	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	Geneva (1973)			
						Telegraph Regulations	Telephone Regulations		
1	2	3	4	5	6	7	8	9	10
Sri Lanka (Democratic Socialist Republic of) ⁵⁹⁾	½	S ¹⁾	5. I. 1978	S		—	A ⁴⁾	—	A ⁴⁾
South Africa (Republic of)	8	A	23. XII. 1974 ³³⁾	—		S	A ⁴⁾	S	A ⁴⁾
Sweden	10	S ¹⁾	29. XII. 1976	A	29. XII. 1976	S	A	S	A
Switzerland (Confederation of)	10	S ¹⁾	28. IV. 1976	S	28. IV. 1976	S	A ⁴⁾	S	A ⁴⁾
Suriname (Republic of) ⁶⁰⁾	½	A	15. VII. 1976	A	22. VII. 1976	—	A ⁴⁾	—	A ⁴⁾
Swaziland (Kingdom of)	½	A	20. I. 1975 ²⁹⁾	—		—	A ⁴⁾	—	A ⁴⁾
Tanzania (United Republic of)	½	S ¹⁾	2. IX. 1975	—		S	A ⁴⁾	S	A ⁴⁾
Chad (Republic of the)	¼	S ¹⁾	30. III. 1978	S		—	A ⁴⁾	—	A ⁴⁾
Czechoslovak Socialist Republic.	3	S ¹⁾	20. VII. 1976 ³⁸⁾	—		S	A ⁴⁾	S	A ⁴⁾
Thailand	1½	S ¹⁾	8. X. 1975 ²⁾	S	28. IX. 1976	S	A	S	A
Togolese Republic	½	S ¹⁾	31. III. 1977	S	31. III. 1977	S	A ⁴⁾	S	A ⁴⁾
Tonga (Kingdom of)	¼	A	22. VIII. 1977 ⁵⁶⁾	—		—	A ⁴⁾	—	A ⁴⁾
Trinidad and Tobago	1	S ¹⁾	13. III. 1975	—		—	A ⁴⁾	—	A ⁴⁾
Tunisia	2	S ¹⁾	25. IV. 1975	S		S	A ⁴⁾	S	A ⁴⁾
Turkey	2	S ¹⁾	6. VII. 1978	—		S	A ⁴⁾	S	A ⁴⁾
Union of Soviet Socialist Republics	30	S ¹⁾	31. XII. 1976 ⁴⁴⁾	—		S	A	S	A
Uruguay (Oriental Republic of)	½	S ¹⁾	15. XII. 1977	A	10. IV. 1978	—	A ⁴⁾	—	A ⁴⁾
Venezuela (Republic of)	3	S	2. XI. 1976	—		—	A ⁴⁾	—	A ⁴⁾
Viet Nam (Socialist Republic of) ³⁹⁾	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⁾		S		—		—	
Yugoslavia (Socialist Federal Republic of)	1	S ¹⁾	22. IX. 1975	—		S	A	S	A
Zaire (Republic of)	1	S	10. XII. 1976	S	23. I. 1978	—	A ⁴⁾	—	A ⁴⁾
Zambia (Republic of)	½	S	17. XI. 1978	—		—	A ⁴⁾	—	A ⁴⁾

*) Convention, Final Protocol, Additional Protocols.

****)** Optional Additional Protocol on the Compulsory Settlement of Disputes.

Convention, Regulations (end)

[illegible]

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 acceded to the International Telecommunication Convention (Geneva, 1959) or 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. 855, 876 and 880.

7) See Notification No. 977.

8) See Notifications Nos. 1023, 1024, 1034, 1035 and 1036.

9) See Notification No. 1063.

10) See Notifications Nos. 1097, 1111, 1116 and 1118.

11) 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 or Associated 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 No. 1087.

12) Formerly: Dahomey (Republic of).

13) See Notifications Nos. 1004 and 1013.

14) Formerly: Burma (Union of).

15) See Notification No. 1000.

16) See Notification No. 1019.

17) See Notification No. 911.

18) In approving the Radio Regulations, the Republic of the Ivory Coast, referring to Article 9 of the Regulations and to the procedure defined in Article 10, reserved the right to take any measures necessary for the development and proper operation of its broadcasting service, should the procedure in question fail to give it satisfaction. (Notification No. 908).

19) 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.

20) In approving this partial Revision of the Radio Regulations, the Government of Jamaica reaffirmed the reservation entered by its delegation at the ninth Plenary Meeting of the Conference, i.e.:

"The Jamaican Delegation declares that it reserves the right of the Jamaican Government to take any action it deems necessary to safeguard its interests, should Members or Associate Members in any way fail to comply with the requirements of the Radio Regulations of the Administrative Radio Conference, Geneva, 1959, as added to and amended by the Extraordinary Administrative Radio Conference, Geneva, 1963, or should reservations by other countries jeopardize its telecommunication services."

21) The Italian Administration declared that Italy, by ratifying the International Telecommunication Convention (Geneva, 1959) on 7 November 1962 (the instrument of ratification being deposited with the General Secretariat on 28 December 1962), had, in accordance with No. 193 of the Convention, approved *ipso facto* the Radio Regulations (Geneva, 1959) which came into force on 1 May 1961.

22) 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.

The Government of the United Kingdom has also declared that the provisions of the Convention and of the Optional Additional Protocol shall not apply to Southern Rhodesia unless and until the Government of the United Kingdom inform the Secretary-General that they are in a position to ensure that the obligations imposed by the Convention and the Optional Additional Protocol, in respect of that territory can be fully implemented.

*) The Solomon Islands are now an independent State.

23) 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. It also confirmed some of the statements appearing in the Additional Protocol to the Radio Regulations (Geneva, 1959), in the following terms:

"The Government of the Hungarian People's Republic, while approving the Regulations, reserves the right to use on its territory for the aeronautical radionavigation service:

- the frequency bands allocated to the "radiolocation" and "aeronautical radionavigation" services mentioned in Article 5 of the Radio Regulations (Geneva, 1959),
- the frequency band 415-490 kHz.

The Government of the Hungarian People's Republic accepts the use of the broadcasting schedules in the broadcasting frequency bands 5950-26 100 kHz mentioned in Article 5 of the Radio Regulations (Geneva, 1959) only in so far as they facilitate the preparation of the final frequency allocation plan for the bands concerned."

24) In approving these Regulations, the Argentine Government declared that the Argentine Administration, in its relations with other Administrations, will not accept any provisions or obligations of the said Radio Regulations, its Appendices and Resolutions or the Additional Radio Regulations which the corresponding Administrations have not accepted or have accepted subject to reservations.

25) In a note the United States Embassy in Berne declared that "the deposit of the instrument of ratification of the Radio Regulations (Geneva, 1959) and Additional Protocol thereto, constitutes notifications of approval by the United States of America, including all territories under the jurisdiction of the United States of America." (Notification No. 878.)

26) Formerly: Malta.

27) 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.

28) The Government of New Zealand has announced that this approval also applies to the Cook Islands, Niue and the Tokelau Islands.

29) 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.

30) 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.

31) 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 their telecommunication services.

32) The approval is in respect of the United Kingdom of Great Britain and Northern Ireland, the Associate States (Antigua, Dominica, St. Christopher-Nevis-Anguilla, St. Lucia and St. Vincent) and Territories under the territorial sovereignty of the United Kingdom, as well as the State of Brunei and, within the limits of jurisdiction therein, the Condominium of the New Hebrides.

33) 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.

34) Formerly: Laos (Kingdom of).

35) Formerly: Malagasy Republic.

36) In acceding to the Convention, the Government of the People's Republic of Albania has made the following statement and declarations (translation):

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 accept or not to accept the Radio Regulations, in whole or in part.

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

37) See Notifications Nos. 1109, 1124 and 1127.

38) 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. XLIX, L and CI.

39) 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.

- 40) Formerly: Albania (People's Republic of).
 41) Formerly: Central African Republic.
 42) 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.
 43) In ratifying the Convention, the Government of the People's Republic of Bulgaria confirmed the statement contained in No. XLIX of the Final Protocol to the aforementioned Convention.
 44) In ratifying the Convention, the Government of the Union of Soviet Socialist Republics confirmed the statement contained in No. XLIX of the Final Protocol to the aforementioned Convention.
 45) In ratifying the Convention, the Government of the Byelorussian Soviet Socialist Republic confirmed the statement contained in No. XLIX of the Final Protocol to the aforementioned Convention.
 46) In ratifying the Convention, the Government of the Ukrainian Soviet Socialist Republic confirmed the statement contained in No. XLIX of the Final Protocol to the aforementioned Convention.
 47) In ratifying the Convention, the Government of the People's Republic of Poland confirmed the statement contained in No. XLIX of the Final Protocol to the aforementioned Convention.
 48) 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.
 49) 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."

- 50) In ratifying the Convention, the Government of the Socialist Republic of Roumania 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 Roumania.
 51) Formerly: Guatemala.
 52) Formerly: Pakistan.
 53) 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.
 54) 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.
 55) Formerly: Libyan Arab Republic.
 56) 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.
 57) Formerly: Khmer Republic.
 58) Formerly: Afghanistan (Republic of).
 59) Formerly: Sri Lanka (Ceylon) (Republic of).
 60) Formerly: Surinam (Republic of).
 61) Formerly: Comoros (State of the).
 62) Formerly: Guinea (Republic of).

**List of Countries * which signed the Final Acts of the World Administrative Radio Conference
on the Aeronautical Mobile (R) Service**

Geneva, 1978

Afghanistan (Democratic Republic of)	Kenya (Republic of)
Algeria (Algerian Democratic and Popular Republic)	Kuwait (State of)
Germany (Federal Republic of)	Liberia (Republic of)
Angola (People's Republic of)	Libya (Socialist People's Libyan Arab Jamahiriya)
Saudi Arabia (Kingdom of)	Malaysia
Argentine Republic	Morocco (Kingdom of)
Australia	Mauritius
Bahrain (State of)	Mauritania (Islamic Republic of)
Bangladesh (People's Republic of)	Mexico
Belgium	Nigeria (Federal Republic of)
Byelorussian Soviet Socialist Republic	Norway
Bolivia (Republic of)	New Zealand
Brazil (Federative Republic of)	Pakistan (Islamic Republic of)
Bulgaria (People's Republic of)	Panama (Republic of)
Cameroon (United Republic of)	Papua New Guinea
Canada	Paraguay (Republic of)
Chile	Netherlands (Kingdom of the)
China (People's Republic of)	Philippines (Republic 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
United Arab Emirates	Democratic People's Republic of Korea
Ecuador	Ukrainian Soviet Socialist Republic
Spain	Roumania (Socialist Republic of)
United States of America	United Kingdom of Great Britain and Northern Ireland
Ethiopia	Sao Tome and Principe (Democratic Republic of)
Finland	Senegal (Republic of the)
France	Singapore (Republic of)
Gabon Republic	Sweden
Greece	Switzerland (Confederation of)
Guatemala (Republic of)	Tanzania (United Republic of)
Guinea (People's Revolutionary Republic of)	Czechoslovak Socialist Republic
Upper Volta (Republic of)	Thailand
Hungarian People's Republic	Union of Soviet Socialist Republics
India (Republic of)	Uruguay (Oriental Republic of)
Indonesia (Republic of)	Venezuela (Republic of)
Iran	Yemen Arab Republic
Ireland	Yemen (People's Democratic Republic of)
Italy	Yugoslavia (Socialist Federal Republic of)
Japan	

* In the alphabetical order of the French version of the country names.

**Table II. 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)

Country	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
Gabon Republic	S	
Ghana	S	
Guinea (People's Revolutionary Rep. of)	S	
Upper Volta (Republic of)	S	
Kenya (Republic of)	S	A
Liberia (Republic of)	S	
Libya (Socialist People's Libyan Arab Jama- hiriya)	S	
Madagascar (Dem. Rep. of)	S	

Country	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	
Rwanda (Republic of)	S	
Senegal (Republic of the)	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 Canarias.

2) With respect to the Department of Reunion.

3) On behalf of the Overseas Territories for the international relations of which the Government of the United Kingdom of Great Britain and Northern Ireland are responsible.

Note : The Agreement of Geneva, 1963, was also signed on behalf of the Federation of Rhodesia and Nyasaland.

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.

Country	Inter- American Radio Agreement (FIAR) (Washington, 1949)		North- American Regional Broadcasting Agreement (NARBA) (Washington, 1950)	
1	2	3	4	5
Argentine Republic	S		—	
Bolivia (Republic of)	S		—	
Brazil (Federative Republic of)	S		—	
Canada	S		S	R
Chile	S		—	
Colombia (Republic of)	S		—	
Costa Rica	S	A	—	
Cuba	S		S	R
Dominican Republic	S	A	S	R
El Salvador (Republic of)	S		—	
Ecuador	S		—	
United States of America	S	A	S	R

Country	Inter- American Radio Agreement (FIAR) (Washington, 1949)		North- American Regional Broadcasting Agreement (NARBA) (Washington, 1950)	
1	2	3	4	5
Guatemala (Republic of)	S		—	
Haiti (Republic of)	—	A	—	
Honduras (Republic of)	S	A	—	
Mexico	S	A	—	
Nicaragua	S	A	—	
Panama (Republic of)	S		—	
Paraguay (Republic of)	—	A	—	
United Kingdom of Great Britain and Northern Ireland	—		S*)	R**)
Uruguay (Oriental Republic of)	S		—	
Venezuela (Republic of)	S		—	

*) For the Territories in the North-American Region (the Bahamas and Jamaica).

***) For the Bahamas only.

Table IV. 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.

Country	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	—	—	—	—	S	—	—	—	—	—
Germany (Federal Republic of)	—	—	—	—	—	—	S	A	S	A ⁶⁾	S	A ¹⁰⁾
Austria	—	—	—	—	—	—	S	A	S	A	—	—
Belgium	S	R ⁹⁾	S	R	S	A	—	—	S	A	S	A
Byelorussian Soviet Socialist Republic . . .	S	R	—	—	—	—	S	—	S	A ⁵⁾	—	—
Bulgaria (People's Republic of)	S	R	—	1)	—	—	S	—	S	—	—	—
Cyprus (Republic of)	—	—	—	—	—	—	—	—	—	A	—	—
Vatican City State	S	R ⁹⁾	—	—	—	—	—	—	S	—	—	—
Denmark	S	R	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	S	R	—	A	—	—	S	A	—	—
Iceland	—	—	S	R	—	—	—	—	S	—	—	—
Israel (State of)	—	—	—	—	—	—	—	—	S	—	—	—
Italy	S	R	S	R	S	A	S	A	S	A	—	—
Lebanon	—	—	—	—	—	—	—	—	S	—	—	—
Luxembourg	—	—	—	—	—	—	—	—	S	—	S	A
Morocco (Kingdom of)	S	R	S	R	S	A	—	—	S	A	—	—
Monaco	S	R	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	—	—	—	—	S	—	S	—	—	—
Portugal	S	—	S	—	S	—	—	—	S	A	—	—
German Democratic Republic	—	—	—	—	—	—	—	—	—	A ⁸⁾	—	—
Ukrainian Soviet Socialist Republic	S	R	—	—	—	—	S	A	S	A ⁵⁾	—	—
Roumania (Socialist Republic of)	S	R	—	—	—	—	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	—	—	—	—	S	A	S	A	S	A
Czechoslovak Socialist Republic	S	R ⁹⁾	—	—	—	—	S	A	S	—	—	—
Tunisia	S	R	S	R	S	A	—	—	—	—	—	—
Turkey	—	—	S	—	S	A	S	—	S	—	—	—
Union of Soviet Socialist Republics	S	R	—	3)	—	—	S	A	S	A ⁵⁾	—	—
Yugoslavia (Socialist Federal Republic of) .	S	R	—	—	—	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 Roumania, 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 V. 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
Afghanistan (Democratic Republic of)	S		Luxembourg	S	A
Algeria (Algerian Democratic and Popular Republic)	S		Madagascar (Democratic Republic of)	S	
Germany (Federal Republic of)	S	A ⁴⁾	Malaysia	S	
Saudi Arabia (Kingdom of)	S		Malawi	S	A
Australia	S		Mali (Republic of)	S	
Austria	S		Morocco (Kingdom of)	S	A
Bahrain (State of)	—	A	Mauritius	S	
Bangladesh (People's Republic of)	S		Mauritania (Islamic Republic of)	S	A
Belgium	S	A	Monaco	S	A
Benin (People's Republic of)	S		Mongolian People's Republic	S	A
Byelorussian Soviet Socialist Republic	S		Mozambique (People's Republic of)	S	
Botswana (Republic of)	S	A	Nauru (Republic of)	—	A
Bulgaria (People's Republic of)	S	A	Nepal	S	
Burundi (Republic of)	S		Niger (Republic of the)	S	
Cameroon (United Republic of)	S		Nigeria (Federal Republic of)	S	A
Central African Empire	S		Norway	S	A
China (People's Republic of)	S	A	New Zealand	S	A
Cyprus (Republic of)	S		Oman (Sultanate of)	—	A
Vatican City State	S	A	Uganda (Republic of)	S	
Congo (People's Republic of the)	S		Pakistan (Islamic Republic of)	S	A
Korea (Republic of)	S	A	Papua New Guinea	S	A ²⁾
Ivory Coast (Republic of the)	S		Netherlands (Kingdom of the)	S	A ²⁾
Denmark	S	A	Philippines (Republic of the)	S	
Egypt (Arab Republic of)	S		Poland (People's Republic of)	S	
United Arab Emirates	S		Portugal	S	
Spain	S	A	Qatar (State of)	S	
Ethiopia	S		Syrian Arab Republic	S	
Fiji	S	A	German Democratic Republic	S	A
Finland	S	A	Ukrainian Soviet Socialist Republic	S	
France	S	A	Roumania (Socialist Republic of)	S	
Gabon Republic	S		United Kingdom of Great Britain and Northern Ireland	S	A ²⁾
Gambia (Republic of the)	S		Senegal (Republic of the)	S	A
Ghana	S		Sierra Leone	—	A
Greece	S		Singapore (Republic of)	S	A
Guinea (People's Revolutionary Republic of)	S		Sudan (Democratic Republic of the)	S	
Upper Volta (Republic of)	S		Sri Lanka (Democratic Socialist Republic of)	S	
Hungarian People's Republic	S	A ¹⁾	Sweden	S	A
India (Republic of)	S	A	Switzerland (Confederation of)	S	A
Indonesia (Republic of)	S		Tanzania (United Republic of)	S	
Iran	S		Chad (Republic of the)	S	
Ireland	S	A	Czechoslovak Socialist Republic	S	A ¹⁾
Iceland	S	A	Thailand	S	
Israel (State of)	S		Togolese Republic	S	
Italy	S	A	Tonga (Kingdom of)	—	A
Japan	S	A	Tunisia	S	
Jordan (Hashemite Kingdom of)	S		Turkey	S	
Kenya (Republic of)	S		Union of Soviet Socialist Republics	S	
Kuwait (State of)	S		Yemen Arab Republic	S	
Lesotho (Kingdom of)	S		Yemen (People's Democratic Republic of)	S	
Lebanon	S		Yugoslavia (Socialist Federal Republic of)	S	A
Liberia (Republic of)	S		Zaire (Republic of)	S	
Libya (Socialist People's Libyan Arab Jamahiriya)	S		Zambia (Republic of)	S	
Liechtenstein (Principality of)	S	A			

*) 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, and, within the limits of jurisdiction therein, the Condominium of the New Hebrides.

3) This approval is in respect of the Kingdom in Europe.

4) See Notification No. 1132.

**Table VI. 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) *)**

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		Lao People's Democratic Republic	S	
Algeria (Algerian Democratic and Popular Republic)	S		Lebanon	S	
Germany (Federal Republic of)	S		Libya (Socialist People's Libyan Arab Jamahiriya)	S	
Saudi Arabia (Kingdom of)	S		Liechtenstein (Principality of)	S	A
Argentina Republic	S		Luxembourg	S	
Australia	S		Madagascar (Democratic Republic of)	S	
Austria	S		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	
Benin (People's Republic of)	S		Mauritius	S	
Byelorussian Soviet Socialist Republic	S	A	Mauritania (Islamic Republic of)	S	
Bolivia (Republic of)	S		Mexico	S	
Brazil (Federative Republic of)	S		Monaco	S	
Bulgaria (People's Republic of)	S		Mongolian People's Republic	S	
Burundi (Republic of)	S		Nigeria (Federal Republic of)	S	
Canada	S	A	Norway	S	
Central African Empire	S		New Zealand	S	
Chile	S		Oman (Sultanate of)	S	
China (People's Republic of)	S		Uganda (Republic of)	S	
Cyprus (Republic of)	S		Pakistan (Islamic Republic of)	S	
Vatican City State	S		Panama (Republic of)	S	
Colombia (Republic of)	S		Papua New Guinea	S	
Comoros (Federal and Islamic Republic of the)	S		Paraguay (Republic of)	S	
Congo (People's Republic of the)	S		Netherlands (Kingdom of the)	S	A ³⁾
Korea (Republic of)	S	A	Philippines (Republic of the)	S	
Ivory Coast (Republic of the)	S		Poland (People's Republic of)	S	
Cuba	S		Portugal	S	
Denmark	S	A	Qatar (State of)	—	A
Egypt (Arab Republic of)	S		German Democratic Republic	S	
United Arab Emirates	S		Democratic People's Republic of Korea	S	
Ecuador	S		Ukrainian Soviet Socialist Republic	S	A
Spain	S		Roumania (Socialist Republic of)	S	
United States of America	S		United Kingdom of Great Britain and Northern Ireland	S	A ¹⁾
Ethiopia	S		Senegal (Republic of the)	S	A
Finland	S		Singapore (Republic of)	S	A
France	S	A	Sudan (Democratic Republic of the)	S	
Gabon Republic	S		Sweden	S	
Ghana	S		Switzerland (Confederation of)	S	A ²⁾
Greece	S		Tanzania (United Republic of)	S	
Guatemala (Republic of)	S		Chad (Republic of the)	S	
Guinea (People's Revolutionary Republic of)	S		Czechoslovak Socialist Republic	S	
Haiti (Republic of)	S		Thailand	S	
Upper Volta (Republic of)	S		Togolese Republic	S	
Hungarian People's Republic	S		Tunisia	S	
India (Republic of)	S		Turkey	S	
Indonesia (Republic of)	S		Union of Soviet Socialist Republics	S	A
Iran	S		Uruguay (Oriental Republic of)	S	
Ireland	S	A	Venezuela (Republic of)	S	
Iceland	S		Yemen Arab Republic	S	
Italy	S		Yemen (People's Democratic Republic of)	S	
Japan	S		Yugoslavia (Socialist Federal Republic of)	S	
Kenya (Republic of)	S		Zaire (Republic of)	S	
Kuwait (State 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, the Associated States (Antigua, Dominica, St. Kitts-Nevis, Angilla, St. Lucia, St. Vincent) and Territories under the territorial sovereignty of the United Kingdom, as well as the State of Brunei, and, within the limits of jurisdiction therein, the Condominium of the New Hebrides.

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.

VII. 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*, *Switzerland* (*Confederation of*), *Yugoslavia* (*Socialist Federal Republic of*).

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: Germany (Federal Republic of), Belgium, Denmark, France, Netherlands (Kingdom of the), United Kingdom of Great Britain and Northern Ireland and Switzerland (Confederation of).

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: Germany (Federal Republic of), Belgium and Netherlands (Kingdom of the).

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: Germany (Federal Republic of), 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**

One such Agreement was signed at Vienna on 18 July 1969 by the following Administrations: Germany (Federal Republic of), Austria, Italy and Confederation of Switzerland.

This Agreement, which was approved without reservation by these Administrations, came into force on 1 December 1969.

Another such Agreement was 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.

A third such Agreement was 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.

**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: *Germany (Federal Republic of), 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.

Governmental Agreement concerning Posts and Telecommunications

One such Agreement was signed in Bonn on 30 March 1976 between the Government of the Federal Republic of Germany and the Government of the German Democratic Republic.

At the same time three administrative Agreements (concerning postal traffic, telecommunication traffic, and accounting for postal and telecommunication transit facilities) relating to that governmental Agreement were concluded between the Administrations of both countries.

All of these Agreements, which are special arrangements concluded in application of Article 31 of the Convention of Malaga-Torremolinos, 1973, came into force on 1 July 1976.

ANNEX 2 A

BUDGET FOR 1978

SUMMARY OF ESTIMATED EXPENDITURE FOR 1978

EXPENDITURE	Expenditure 1977 Swiss francs	Budget 1978 Swiss francs	Additional credits Swiss francs	Budget 1978 including add. credits Swiss francs
I. BUDGET OF THE UNION				
Section 1 — Administrative Council	699,501	730,000	—	730,000
Common Headquarters expenditure:				
Section 2 — Staff	34,828,308	35,394,000	(9,000)	35,385,000
Section 3 — Social Security	7,268,215	7,720,000	(407,000)	7,313,000
Section 4 — Premises	2,792,921	3,140,000	—	3,140,000
Section 5 — Missions	124,133	140,000	—	140,000
Section 6 — Office and miscellaneous	2,051,053	2,228,000	—	2,228,000
Section 7 — Technical aid for the Group of Engineers	301,494	300,000	—	300,000
	48,065,625	49,652,000	(416,000)	49,236,000
Section 11 — World Administrative Broadcasting- Satellite Conference (1977)	1,588,165	—	—	—
World Administrative Aeronautical Radio Conference	—	1,073,000	(122,000)	951,000
Section 12 — CCIR meetings	1,463,198	3,026,000	(232,000)	2,794,000
Section 13 — CCITT meetings	1,111,032	2,900,000	—	2,900,000
Section 15 — ITU Seminars	—	65,000	—	65,000
Section 16 — Seminars of Member Administrations	180,097	200,000	—	200,000
Section 17 — Common expenditure for conferences and meetings	1,844,478	2,814,000	(248,000)	2,566,000
	54,252,595	59,730,000	(1,018,000)	58,712,000
Fitting out of CCITT Laboratory	74,567	65,000	—	65,000
Maintenance and renewal of simultaneous inter- pretation and other electroacoustical equipment	37,863	35,000	—	35,000
Writing-off of bad debts	80,012	—	—	—
	54,445,037	59,830,000	(1,018,000)	58,812,000
Payment into ITU Reserve Account (Res. No. 11, Convention, 1973)	4,350,000	770,000	—	770,000
Surplus income	1,981,013	—	—	—
	60,776,050	60,600,000	(1,018,000)	59,582,000
II. TECHNICAL COOPERATION SPECIAL ACCOUNTS BUDGET				
Section 21 — Technical Cooperation Administrative costs	6,661,057	7,610,000	(101,000)	7,509,000
III. SUPPLEMENTARY PUBLICATIONS BUDGET				
Total expenditure	11,614,141	6,457,000	2,600	6,459,600
Surplus income	733,675	199,000	(2,600)	196,400
	12,347,816	6,656,000	—	6,656,000

SUMMARY OF ESTIMATED INCOME FOR 1978

INCOME	Income 1977 Swiss francs	Budget 1978 Swiss francs	Additional income Swiss francs	Budget 1978 including add. income Swiss francs
I. BUDGET OF THE UNION				
Contributions:				
— Contributions by Union Members for the current year	54,954,000	56,146,800	—	56,146,800
— Contributions by recognized private operating agencies and scientific or industrial organizations to defrayal of expenses of conferences and meetings (Sections 11 to 13)	7,731	—	—	—
— CCIR	1,600,200	1,606,000	—	1,606,000
— CCITT	2,654,100	2,662,000	—	2,662,000
Sundry income	228,677	85,200	—	85,200
	59,444,708	60,500,000	—	60,500,000
Withdrawal from CCITT Reserve Fund for fitting out the CCITT Laboratory	74,567	65,000	—	65,000
Withdrawal from the Renewal Fund for maintenance and renewal of simultaneous interpretation and other electroacoustical equipment	37,863	35,000	—	35,000
Withdrawal from Reserve Account to cover additional credits	1,138,900	—	(1,018,000)	(1,018,000)
Withdrawal from Reserve Account to write off bad debts	80,012	—	—	—
	60,776,050	60,600,000	(1,018,000)	59,582,000
II. TECHNICAL COOPERATION SPECIAL ACCOUNTS BUDGET				
Contribution to Technical Cooperation administrative costs and sums brought forward from previous years	6,661,057	7,610,000	(101,000)	7,509,000
III. SUPPLEMENTARY PUBLICATIONS BUDGET				
Total income	12,347,816	6,656,000	—	6,656,000
Excess expenditure	—	—	—	—
	12,347,816	6,656,000	—	6,656,000

PAGE LAISSEE EN BLANC INTENTIONNELLEMENT

PAGE INTENTIONALLY LEFT BLANK

ANNEX 2 B

PROFIT AND LOSS ACCOUNT FOR 1978

ANNEX 2 B

PROFIT AND LOSS ACCOUNT FOR 1978

(Management account) (in Swiss francs)

EXPENDITURE	1978 Budget *	1978 Accounts
<i>I. Budget of the Union</i>		
Section 1 — Administrative Council	730,000.—	655,181.70
Common Headquarters expenditure:		
Section 2 — Staff	35,385,000.—	35,596,662.90
Section 3 — Social security	7,313,000.—	7,395,360.36
Section 4 — Premises	3,140,000.—	3,136,251.85
Section 5 — Missions	140,000.—	139,889.40
Section 6 — Office and miscellaneous	2,228,000.—	2,157,484.73
Section 7 — Technical aid for the Group of Engineers ..	300,000.—	299,664.90
	49,236,000.—	49,380,495.84
Section 11 — World administrative conferences:		
WARC on the Aeronautical Mobile Service	951,000.—	878,567.60
Section 12 — CCIR meetings	2,794,000.—	2,763,703.—
Section 13 — CCITT meetings	2,900,000.—	2,000,119.95
Section 15 — ITU Seminars	65,000.—	62,489.45
Section 16 — Seminars of Member Administrations	200,000.—	184,360.90
Section 17 — Common expenditure for conferences and meetings	2,566,000.—	2,282,193.40
	58,712,000.—	57,551,930.14
Fitting out of CCITT Laboratory	65,000.—	64,655.85
Maintenance and renewal of simultaneous interpretation and other electroacoustical equipment	35,000.—	18,522.20
	58,812,000.—	57,635,108.19
Transfer to ITU Reserve Account (Res. No. 11, Convention 1973)	770,000.—	770,000.—
	59,582,000.—	58,405,108.19
Surplus income paid into ITU Reserve Account		1,507,024.28
	59,582,000.—	59,912,132.47

* Budget for 1978 including additional credits.

PROFIT AND LOSS ACCOUNT FOR 1978

(Management account) (in Swiss francs)

INCOME	1978 Budget*	1978 Accounts
<i>I. Budget of the Union</i>		
Contributions:		
Contributions of Members of the Union to defrayal of expenditure for the current year	56,146,800.—	56,212,700.—
Contributions of private operating agencies and scientific or industrial organizations to defrayal of expenses of conferences and meetings under Sections 11, 12 and 13:		
— Aeronautical Conference	—	2,200.—
— CCIR	1,606,000.—	1,625,250.05
— CCITT	2,662,000.—	2,828,833.35
Sundry income	85,200.—	177,971.02
	60,500,000.—	60,846,954.42
Withdrawal from CCITT Reserve Fund for fitting out CCITT Laboratory	65,000.—	64,655.85
Withdrawal from Renewal Fund for maintenance and renewal of simultaneous interpretation equipment. . .	35,000.—	18,522.20
Withdrawal from ITU Reserve Account to cover additional credits	(1,018,000.—)	(1,018,000.—)
	59,582,000.—	59,912,132.47

* Budget for 1978 including additional credits.

PROFIT AND LOSS ACCOUNT FOR 1978

(Management account) (in Swiss francs)

EXPENDITURE	1978 Budget *	1978 Accounts
II. Technical Cooperation special accounts Budget		
Section 21 – Technical Cooperation		
Administrative costs in 1978	7,509,000.–	6,884,392.35
Excess expenditure brought forward from 1977		522,384.65
Adjustments in administrative Costs in 1976 and 1977		25,330.55
	7,509,000.–	7,432,107.55
III. Supplementary publications budget		
Section 24 } Publications issued in 1978 including over-		
Section 25 } heads	5,117,600.–	4,633,497.63
Section 26 – Publications sold at a loss	1,227,000.–	1,609,812.50
Section 27 – Miscellaneous	115,000.–	218,134.55
	6,459,600.–	6,461,444.68
Surplus income	196,400.–	
Surplus income paid into Publications Capital Account		19,648.37
	6,656,000.–	6,481,093.05

* Budget for 1978 including additional credits.

PROFIT AND LOSS ACCOUNT FOR 1978

(Management account) (in Swiss francs)

INCOME	1978 Budget *	1978 Accounts
II. Technical Cooperation special accounts Budget		
Contribution by UNDP to defrayal of expenditure on projects	} 7,509,000.—	4,274,620.90
Contribution from Funds-in-Trust		1,439,577.60
Contribution from the Special Fund for Technical Cooperation		9,741.35
Other income:		
— balance of unused credits, 1977		30,787.50
— sundry income		317,379.15
— balance of Fund for the Retirement of Staff Members of the Union		—
Reimbursement by UNDP of excess administrative costs in 1977		522,000.—
	7,509,000.—	6,594,106.50
Excess expenditure carried forward to 1979		838,001.05
	7,509,000.—	7,432,107.55
III. Supplementary publications budget		
Sale of publications issued during 1978	} 5,416,000.—	4,949,010.85
Sale of publications issued in previous years		50,000.—
Sale of Journal, Notification, etc.		250,000.—
Advertisements in the Telecommunication Journal		800,000.—
Miscellaneous	140,000.—	229,779.20
	6,656,000.—	6,481,093.05
	6,656,000.—	6,481,093.05

* Budget for 1978 including additional credits.

ANNEX 3

LIST OF PUBLICATIONS ISSUED BY THE UNION IN 1978

* Composition assisted by ITU computer

** Composition with magnetic cards

		No. of copies	Total Number of pages per language
1.	12 Notifications, Nos. 1122 to 1133	F 500 E 650 S 150	124
2.	23 General Secretariat Circulars, Nos. 84 to 107	F 580 E 1.100 S 280	69
3.*	2 Lists of Publications	F 1.000 E 2.500 S 600	64
4.	Supplement No. 13 to the Volume of Resolutions and Decisions of the Administrative Council, 33rd Session, 1978	F 200 E 300 S 110	30
5.	Financial Operating Report for 1977	F 500 E 600 S 230	44
6.*	Report on the Activities of the Union, 1977	F 650 E 750 S 350	158
7.	Telecommunication Journal, 12 numbers, vol. 45, I-XII	F 1.850 E 3.800 S 850	1.236
8.	25 Operational Bulletins, Nos. 147 to 172, trilingual	1.150	334
9.**	List of Addresses, 5th edition, 1978: Supplements Nos. 1 to 4, trilingual	1.800	510
10.**	Yearbook of Common Carrier Telecommunication Statistics and Radiocom- munication Statistics, year 1976, 5th edition, 1978, trilingual	900	360
11.**	Yearbook of Common Carrier Telecommunication Statistics and Radiocom- munication Statistics, year 1977, 6th edition 1978, trilingual	900	360
12.*	Final Acts of the World Administrative Radio Conference on the Aeronau- tical Mobile Service, Geneva, 1978	F 700 E 900 S 230	112
13.*	Appendix 25 Mar2 to the Radio Regulations, 1977 edition	F 1.250 E 5.300 S 1.200	86
14.	Updating of the Re-arrangement of the Radio Regulations, 1978 edition	F 800 E 1.600 S 300	10
15.*	Appendix 1 to the Plan Frequency Assignments to Stations in the Low-Power Channels, Geneva 1978, trilingual	1.900	56
16.**	List of Telecommunication Channels Used for the Transmission of Telegrams, 2nd edition, 1978, trilingual	680	132
17.*	List of Telegraph Offices, 24th edition, 1976: Supplement No. 2, trilingual . .	20.000	48
18.**	List of International Telephone Routes, 18th edition 1978, trilingual	800	248

		No. of copies	Total Number of pages per language
19.*	List of Cables Forming the World Submarine Network, 19th edition 1977, trilingual	800	52
20.**	T.A. Booklet, 1978 edition, trilingual	22.500	132
21.**	Table of International Telex Relations and Traffic, 1977, trilingual	600	396
22.**	Routing Table for Offices Connected to the Gentex Service, 5th edition, 1976: Supplements Nos. 4 and 5, trilingual	700	102
23.**	T.A. Table, Transferred Account Telegraph Service, 5th edition, 1977: Supplements Nos. 1 and 2, trilingual	600	156
24.**	Table of Telegraph Rates, 1st edition, 1975: Supplements Nos. 5 and 6, trilingual	850	66
25.**	General Information Relating to the Operation of the International Telegraph Service, 1st edition, 1976: Supplements 3 and 4, trilingual	900	228
26.	List of Coast Stations, 6th edition, 1976: 2nd Special Supplement, trilingual . .	27.500	68
27.	List of Coast Stations, 7th edition, 1978: Volume I, trilingual	26.000	920
28.*	List of Ship Stations, 18th edition, 1978 and Supplements Nos. 1 to 3, trilingual	19.000	1.368
29.	List of Radiodetermination and Special Service Stations, 6th edition, 1976:		
	Volume I : Supplements Nos. 3 and 4, trilingual	24.000	172
	Volume II: Supplements Nos. 2 and 3, trilingual	22.500	96
30.*	List of International Monitoring Stations, 4th edition, 1978, trilingual	1.000	184
31.*	Alphabetical List of Call Signs of Stations Used by the Maritime Mobile Service, 8th edition, 1977: Supplements Nos. 2 to 5, multilingual	20.500	264
32.*	Alphabetical List of Call Signs of Stations Other than Amateur Stations, Experimental Stations and Stations of the Maritime Mobile Service, 7th edition, 1977: Supplements Nos. 2 to 4, trilingual	2.300	44
33.	Revised Sheets for Updating the Chart in Colours Showing Frequency Allocations 10 kHz to 275 GHz, 1978	F 800 E 1.700 S 300	40
34.*	Supplement to the General Plan for the Development of the Interregional Telecommunication Network, Geneva, 1975, trilingual	850	260
35.*	Supplement to the Africa Plan, Kinshasa, 1975, trilingual	600	52
36.*	Provisional Recommendations X.3, X.25, X.28 and X.29 on Packet Switched Data Transmission Services, 1978	F 550 E 1.800 S 300	88
37.*	The Protection of Telecommunication Lines and Equipment Against Lightning Discharges, Chapters 6, 7 and 8, 1978	F 450 E 580 S 200	44
38.*	Amendments to Series V Recommendations (volume VIII.1, Orange Book), 1978	F 500 E 1.600 S 300	48 44 44
39.	Amendments and Additions to the Directives concerning the Protection of Telecommunication Lines against Harmful Effects from Electricity Lines 1978 edition	F 1.000 E 1.100	48

		No. of copies	Total Number of pages per language
40.*	Jointing of Plastic Sheathed Cables, 1st edition 1977	F 550 E 700 S 200	44
41.	Documents of the VIth Plenary Assembly of the CCITT, Geneva, 1976, Orange Book: Corrigendum to Volume II.3	F 1.100 E 2.600 S 550	3
	* Index to the Orange Book	F 700 E 1.500 S 300	102
42.*	Book of Antenna Diagrams, 1977	F 280 E 550 S 130	196
43.*	International Frequency List, 9th edition 1977: Preface: Supplements Nos. 3 to 6, trilingual Volume I: Supplements Nos. 3 to 6, multilingual Volume II: Supplements Nos. 3 to 6, multilingual Volume III: Supplements Nos. 3 to 6, multilingual Volume IV: Supplements Nos. 3 to 6, multilingual Volume Va): Supplements Nos. 3 to 6, multilingual Volume Vb): Supplements Nos. 3 to 6, multilingual Volume Vc): Supplements Nos. 3 to 6, multilingual Volume Vd): Supplements Nos. 3 to 6, multilingual	1.000 900 900 900 900 800 800 700 700	158 292 350 312 420 56 738 454 248
44.*	List of Fixed Stations Operating International Circuits, 9th edition, 1977: Supplements Nos. 3 to 6, trilingual	1.150	184
45.*	List of Broadcasting Stations Operating in Bands Below 5950 kHz, 9th edition, 1977: Supplements Nos. 2 and 3, trilingual	900	44
46.*	List of Stations in the Space Service and in the Radioastronomy Service, 6th edition, 1977, trilingual	800	194
47.*	51 Weekly airmail IFRB Circulars, Nos. 1298 to 1348: Parts I-II-III and Special Sections, trilingual Part IV, trilingual	400 450	3.386 504
48.*	4 Summaries of Monitoring Information Received by the IFRB, Nos. 195 to 198, trilingual	500	868
49.*	Tentative High Frequency Broadcasting Schedules, March 1978, May 1978, September 1978, November 1978, trilingual	600	1.132
50.	Seminar on Traffic Engineering and Network Planning, New Delhi, 1975 . . .	E 670	468
51.*	Information Booklet No. 22: Telecommunication and Development, 1978 . . .	F 2.000 E 3.000 S 1.000	48
52.*	Information Booklet No. 23: Seventeenth Report by the International Tele- communication Union on Telecommunication and the Peaceful Uses of Outer Space, 1978	F 2.500 E 4.500 S 1.200	170 160 168

ANNEX 4

ACTIVITIES OF THE COMPUTER DEPARTMENT IN 1978

1. The ITU computer was used for 2,277 hours in 1978. The average utilization of the computer resources by the different organs of the Union, monitored by the computer job accounting system, was:

General Secretariat	— 49.1%
IFRB	— 47.2%
CCIR	— 3.5%
CCITT	— 0.2%

2. There were some variations in the use of facilities as compared to other years. For example, the World Administrative Radio Conference on the Aeronautical Mobile (R) Service, held in 1978, did not require the same volume of computer work as the World Broadcasting-Satellite Administrative Radio Conference in 1977. On the other hand, the 1978 use of the computer by the General Secretariat increased mainly because of the Text Processing, the Middle East and Mediterranean Telecommunication Network Planning for the Technical Cooperation project activity, and the development of Terminology (Lexicon) tasks.

3. As reported last year, the modifications of the computer configuration foreseen for 1978 as a result of the reorganization of methods of work in the IFRB specialized secretariat were implemented on time.

4. The memory extension and the installation of another Multiplex channel to improve the access time to peripheral units were carried out at the beginning of the year. Further steps were taken in regard to the introduction of remote terminals in other services at Headquarters.

5. During 1978, the Union's computer capacity was sufficient to fulfil not only its regular applications, but also its specific non-recurring tasks. The use of outside computers to meet special demands has therefore been minimal except in the case of the testing of the Multilingual Terminology Recognition System where a particular type of machine was needed. The World Administrative Radio Conference on the Aeronautical Mobile (R) Service needs were met by our computer.

6. The computer was used extensively by the IFRB for the examination of modifications to the LF/MF Plan according to Article 4 of the Final Acts of the Regional Administrative LF/MF Broadcasting Conference (Regions 1 and 3) and Resolution 3 adopted by that Conference as well as for assistance to some administrations. Furthermore, to meet the requests of administrations, tapes containing the data and program used to draw up the adopted Plan and Appendices have been prepared and sent to them against payment.

7. Other data, such as ionospheric propagation reports, HFBC publications, etc., on magnetic media continued to be supplied to administrations. Data are also available now on microfiche for some of the computer files. Indeed, during the year, over 200 requests for extracts from various ITU files, in the form of listings or magnetic tapes, were received from administrations and ITU permanent organs; 78 special selection programs were written to meet these requests.

8. Staff from the Department participated in various meetings related to the Aeronautical (R) Conference and provided specialized support to the IFRB specialized secretariat and participated in the technical secretariat of the Conference.

9. The ITU computer continued to handle its routine and regular applications. For details concerning IFRB and the CCIs, see Section 5.2, 5.3 and 5.4 respectively.

10. Application system and program maintenance of existing tasks continue to require a significant percentage of the system's development resources. Surveys published in specialized publications show that this is a common problem faced by all types of computer centres. These heavy maintenance requirements do not leave enough resources for as rapid a development of new applications as might have been desired.

11. Furthermore, there was an increase of work for the maintenance of the operating system and related programs. Two new versions of the operating system were generated, tested and implemented. A new access method to the program library was tested and implemented and training was given to the programmers. In addition, programs for teleprocessing had to be generated and tested for future on-line systems, including various tests of a teleprocessing monitor.

12. A new version of the SESAM data base system was generated and is under test. For on-line access to SESAM data base, user routines and COBOL interface were written and extensive tests were carried out.

13. Work continued on the development and maintenance of utility programs. Extensive maintenance was needed to modify utility routines in accordance with the new operating system. Routines to access floppy disk were developed. The selection program generator was modified to use the new library access method.
14. The ITU Text Processing System (TPS) continued to play a key role in the preparation of ITU texts in machine-readable form. The system was used by the Typing and Text Composition Division in the capture and storage of the CCIR Book (Kyoto Plenary Assembly), ITU Lexicon, CCITT Index and List of Definitions, lists of participants, Administrative Council documents, Final Acts of conferences, etc. The development of the system continued in 1978 with the addition of new capabilities, such as support of fast printer and magnetic tape-to-diskette conversion.
15. Further development of the ITU Computerized Composition System (CCS) continued in 1978, mainly with corrections and small improvements. In addition, continuous technical support in the use of the composition language and in the elaboration of the operational procedures was given to the users.
16. The TEAM software package for the creation and updating of terminology data bases became operational in April 1978. It was used in the preparation of the provisional edition of the ITU Lexicon of Telecommunications Terms and of the CCITT List of Definitions.
17. The first phase of the ITU Multilingual Terminology Recognition (MTR) system was implemented. The main objective of the first phase of the system is to monitor the use of new terms in the ITU texts and to report them for possible introduction into the ITU Terminology Data Base. The first application of the system, started in December 1978, is to analyse the texts of the new CCIR Books in order to complement the Terminology Data Base from which the first official ITU Lexicon will be produced for use at WARC 79.
18. A text transformation programming language (TEAM to COSY = TECO) was defined and implemented. The main objective of TECO is to facilitate the development of programs to process data in the various ITU text treatment systems (TPS, CCS, TEAM, MTR) and also to allow interchange of data between these systems.
19. The system of photocomposition for ITU publications in the form of lists prepared with the help of the computer continues to be applied to ensure faster production and better quality of printing and presentation at a lower cost. During the year the necessary program development was carried out in order to produce the next edition of List II (List of Fixed Stations) by this method. The curves for the Book of CCIR Antenna Diagrams were produced by the plotter accessory to the computer.
20. The computer processing of text of the CCIR Books (Kyoto, 1978), comprising some 15,000 A4 pages, was started in October 1978, following the up-dating of the pink documents captured by the Text Composition Service in the Spring of 1978.
21. During the year, several modifications of the integrated salary/personnel system were required, partly due to changes imposed by the common system regulations and partly in order to improve existing procedures. Computer monitoring of any differences in the budget and payroll figures was also developed and implemented. The advantages of the system have been highlighted with respect to the treatment of currency fluctuations without delay in salary payments.
22. Processing of Project Status Reports for TCD was extended to produce several additional management reports. A procedure to process equipment purchase orders and payments in view of exchange rate fluctuations was defined and the computer programs were written. Implementation is planned for the beginning of 1979.
23. A new system to produce statistics for the Text Composition was developed. The system is to be operational in January 1979.
24. A feasibility study for on-line processing of the Ship Stations file was carried out. This involved a thorough study of the data base systems available. A system analysis was carried out, and program development is now under way. It is expected that the system will be implemented by summer 1979.
25. In conjunction with the Department of Conference and Common Services, a system using electronic keyboards and the computer was developed for the production of lists of participants in conferences and a successful trial was held during the 1978 session of the Administrative Council. The system is now being expanded and will be used for the WARC 1979.
26. Assistance in telecommunication planning and network optimization, including the preparation of special programs, continued to be given to the Technical Cooperation Department by processing statistical data and calculating alternative routings for the Middle East Telecommunications Network.
27. The review of the ITU Data Processing Standards was continued in 1978. Since they represent the guidelines for the work of analysts, programmers and operators at Headquarters, the Department tries to keep them up-to-date to reflect the latest concepts of this dynamic field.
28. The study to replace the punch card data entry system by new data entry equipment is continuing. Due to the variety and nature of our tasks and possible new methods with IFRB applications, no final conclusions can be reached yet. However, the latest developments in this field continue to be investigated and, where possible, new data entry equipment is being used to capture the data directly on magnetic media.

29. During the year, the Department participated in the meetings of the Siemens Computer Users' Group to study common problems of computer users in various areas in Switzerland, and attended four meetings organized by the Group.
30. The Department represented the Union at several international meetings and contributed to their work on Data Bases and Computer/Communications.
31. During the year, the Department continued to supply information and data needed for the implementation of the approved work programme of the Inter-Organization Board for Information Systems (IOB), to produce directories as one of its basic coordination services to specialized agencies as well as governments and inter-governmental organizations.
32. Future progress in data processing revolves very much around data base and data communication (DB/DC) technology. With this in mind, the Department is organizing activities of DB/DC coordination concentrated in a training programme aiming at the development of awareness and skills in these two fundamental areas.
33. The training programme for the department staff, as well as for staff of other permanent organs concerned with computer use, continued. Four one-day seminars on data base management systems and several one-day seminars on structured programming, distributed processing, micro-processors, etc. were given. In addition, a staff member was sent to the United Kingdom for a one-week course on systems analysis and design.
34. Numerous information sessions were organized during the year to keep the staff concerned with computer use informed of new developments and recent procedures applied in the ITU computer.
35. Explanations and any required advice concerning the Union's computer work and related problems were given to administrations and visitors to Headquarters and to the participants in technical conferences.
36. During the year, the Department studied the computer-related problems of a number of administrations, in some cases visiting the countries, and gave comments and advice as necessary.
37. In addition to its routine activities in operations, software support, maintenance of existing systems, training, etc., the Department hopes to make, in 1979, an overall study of the integration of financial systems and to accomplish further developments in the area of Text Treatment, Terminology and Indexing.

ANNEX 5

TABLE 1

List of UNDP/ITU projects under implementation in 1978

COUNTRY, Title of Project and No.	Duration (in years)	Total UNDP Contribution \$	Assistance Rendered in 1978			
			Expert man/ month	Fellows man/ month	a) Equipment b) Subcon- tracting \$	Total Expenditures \$
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Africa						
Algeria						
ALG-77-002 — Telecommunication Institute, Oran	3	641,059	6/26.5	—	a) 10,817	132,404
ALG-77-005 — Telecommunication Institute, Oran, Training of State En- gineers	4	613,491	3/1.5	2/4	a) 2,340	19,298
ALG-77-037 — Development of Applied Research in Telecommunications ...	1	19,500	3/2.5	2/1	—	19,274
Angola						
ANG-77-004 — Training in Telecom- munications	3	884,035	6/42	—	a) 148,901	304,417
ANG-77-006 — Coastal Assistance to Radio-Maritime Communications Ser- vice	1	15,000	1/3	—	—	17,150
ANG-77-007 — Assistance in Radio Frequency Management	1	19,200	1/4	—	—	19,345
Burundi						
BDI-75-010 — Telecommunications Adviser	4	192,900	1/9.5	—	a) 6,492	50,811
Cameroon						
CMR-71-525 — Postal and Telecommu- nication Training Institute	9	1,323,252	—	5/15	a) 2,494	22,304
Central African Empire						
CAF-75-013 — Development of Tele- communications	3	41,908	3/3.5	—	—	23,417
Egypt						
EGY-69-577 — Telecommunication Training and Research Institute	9	1,803,622	1/3	4/6	a) 14,468	32,996
Gambia						
GAM-78-003 — Rural Telecommu- nications Development	3	268,780	1/12	—	a) 7,556	64,881
Guinea						
GUI-72-016 — Development of Tele- communications	8	1,163,000	4/48	7/31	a) 96,912	386,760
GUI-75-007 — Telecommunications Planning — Exchanges and Networks	2	398,500	—	—	—	—
Guinea-Bissau						
GBS-75-006 — Restoration and Re- organization of Telecommunications	6	380,143	—	4/28	a) 1,221	16,550
GBS-75-007 — Special Assistance to Broadcasting Service	3	188,752	—	2/5	—	2,817
Equatorial Guinea						
EQG-74-001 — Development of Tele- communications	7	620,364	2/14	—	a) 344,405	407,944

TABLE 1 (cont.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Africa (cont.)						
Ghana						
GHA-72-015 — Assistance to the Posts and Telecommunications Administration	3	220,618	1/1	—	—	2,460
Kenya						
KEN-77-012 — Telecommunications Training Adviser	2	109,600	2/15	—	—	64,614
Morocco						
MOR-74-007 — Establishment of a Postal and Telecommunication Institute using Audio-Visual Techniques	6	1,258,665	8/42.5	7/16.5	a) 354,007	557,453
MOR-78-007 — Centralised Maintenance System for Casablanca Telephone Networks	4	398,000	1/1	5/2.5	—	7,341
Mauritania						
MAU-73-006 — Telecommunications	7	169,263	—	3/27.5	—	22,765
MAU-74-009 — National Telecommunications School, Nouakchott	5	222,049	1/7	—	a) 4,550	45,808
Mozambique						
MOZ-77-013 — Assistance in Telecommunications	3	51,200	1/1	—	—	3,866
Namibia						
SWP-77-001 — Telecommunications and Postal training for SWAPO	3	348,928	2/21	—	—	266,749
Niger						
NER-69-006 — Telecommunications. ...	11	323,908	1/12	1/12	a) 792	66,343
Nigeria						
NIR-68-534 — Posts and Telecommunication Centre, Oshodi	11	2,400,294	4/24	4/6.5	a) 116,620	248,989
NIR-69-028 — Telecommunications ...	10	575,320	1/12	2/4.5	—	59,189
NIR-72-010 — National Telecommunications Development Planning	7	1,749,432	3/19.5	3/10	{ a) — b) 55,739	157,274
NIR-77-003 — Telecommunications Planning (Phase II)	3	1,432,010	2/9	—	a) 8,929	63,159
NIR-77-004 — Course Development for Telecommunications	4	1,566,100	5/24.5	—	a) 5,183	123,574
Madagascar						
MAG-77-013 — Feasibility Study of Telephone Cable Network — Antananarivo	1	8,825	—	—	b) 11,960	11,960
Rwanda						
RWA-74-022 — Integrated Programme of Telecommunication Assistance ...	8	1,066,755	2/8.5	—	a) 44,936	87,830
Senegal						
SEN-72-011 — Telecommunication Planning and Training of Personnel ...	10	510,880	2/3	6/49	—	65,929
Seychelles						
SEY-78-003 — Consultancy services for Radio Seychelles	1	27,300	2/4	—	—	10,782
Somalia						
SOM-74-021 — National Institute of Telecommunication Training	5	720,595	4/47	—	a) 115,602	311,760

TABLE 1 (cont.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Africa (cont.)						
Sudan						
SUD-74-016 — Space Communications	4	169,021	1/1	—	a) 4,250	11,435
SUD-74-017 — Microwave Systems...	5	115,701	1/1	2/5	a) 554	8,894
SUD-74-020 — Telecommunications Development	4	235,984	—	—	a) 14,043	14,043
SUD-78-005 — Establishment of a Test Development and Maintenance Centre, Karthoum	3	574,420	1/1	—	a) 3,211	9,666
Swaziland						
SWA-68-011 — Telecommunication Training	11	108,333	—	—	—	6,837
SWA-73-008 — Chief Engineer, Telecommunications	5	228,027	2/13.5	—	—	40,107
Chad						
CHD-75-021 — National School of Telecommunications, SARH	7	512,034	2/2.5	3/12	a) 40,533	62,424
Togo						
TOG-78-005 — Instructor Training ...	1	750	—	1/0.5	—	1,154
Tunisia						
TUN-72-006 — Postal and Telecom. School, Tunis	10	1,630,295	16/55	14/27	a) 59,808	346,541
Uganda						
UGA-77-011 — Telecommunications and Postal Training	1	47,725	1/9	—	—	39,589
Zaire						
ZAI-76-013 — Telecommunications Planning	2	508,650	—	—	—	—
Congo						
PRC-77-002 — Telecommunications Fellowships	2	26,420	1/0.5	—	—	2,604
Zambia						
ZAM-71-516 — Postal and Telecom. Corporation Staff Training College, Ndola	8	1,173,493	1/1	—	a)	3,139
Regional Projects						
RAF-71-155 — Multinational Telecommunication and Postal Training Centre (Kenya, Uganda, and Tanzania)	8	2,172,282	7/26.5	3/12.5	a) 3,661	157,556
RAF-71-170 — Multinational School of Telecommunications — Rufisque ...	7	1,785,472	2/6	2/5.5	—	25,941
RAF-73-023 — Implementation of PANAFTEL	7	2,094,829	16/69	—	a) 10,760	382,807
RAF-73-076 — Investment Survey of National and Inter-Country Links ...	6	419,381	2/13	1/1	b) 16,200	105,490
RAF-76-021 — Multi-country Post and Telecommunication Training Scheme, Phase II	4	653,200	5/40.5	—	a) 21,535	184,566
RAF-77-030 — Regional Telecommunication Advisers for Africa	4	858,400	4/17	—	—	92,505
RAF-78-019 — Preparatory Assistance — Telecommunications Training Needs Survey for Eastern and Southern Africa	1	100,000	3/13.5	—	—	58,248

TABLE 1 (cont.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Asia and Pacific						
Afghanistan						
AFG-74-039 — Telecommunication Network Planning Unit ¹⁾	4	240,705	1/1	2/1	—	29,821
AFG-78-001 — Telecommunication Training Centre	4	961,000	5/56.5	—	a) 67,159	322,145
Bangladesh						
BGD-72-022 — Telecommunication Training Centre	8	1,985,008	6/57.5	11/40.5	a) 149,188	427,412
Burma						
BUR-74-045 — Telecommunication and Postal Training Centre	7	1,122,354	6/59.5	6/20	a) 109,296	356,106
BUR-74-047 — Assistance in the Development of Telephone and Telegraph Systems	5	176,592	1/3.5	—	a) —	13,872
Fiji						
FIJ-78-008 — Telecommunications Training	1	5,000	—	1/1.5	—	4,846
India						
IND-72-037 — Advanced level Telecommunication Training Centre	8	1,919,125	19/62.5	6/9.5	a) 219,747	575,505
IND-74-029 — Signals and Telecommunications	5	33,770	—	2/5	—	13,130
IND-74-044 — Expansion and Modernization of Telecommunication Services	5	287,318	—	10/25	—	43,933
IND-70-609 — Expansion of the Experimental Satellite Communication Earth Station, Ahmedabad	6	1,489,690	—	2/8	—	12,443
IND-74-047 — Research and Development Programme of Experimental Satellite Earth Station, Ahmedabad	2	381,250	1/1	1/2	a) 220,453	231,253
IND-75-011 — Standard Frequency and Time Transmission System	1	12,000	2/2	—	—	16,843
IND-75-012 — Satellite Monitoring Facility in India	1	13,700	—	—	—	—
IND-75-013 — Augmentation of training facilities at Experimental Satellite Communication Earth Station, Ahmedabad	1	145,500	—	1/2	a) 109,185	115,041
IND-76-021 — Expansion of Monitoring facilities and Satellite Transmission	1	7,260	—	4/7.5	—	15,056
IND-77-005 — Seminar on Rural Telecommunications, New Delhi	1	70,000	—	5/4.5	—	80,246
Indonesia						
INS-71-536 — Telecommunication Training Centre	9	2,515,349	7/67.5	6/16.5	a) 134,392	485,399
INS-78-049 — Telecommunication Test and Development Centre	3	1,297,600	—	—	a) 309,176	309,176
Mongolia						
MON-71-510 — Establishment of a Faculty of Telecommunications at the State Polytechnic and Telecommunication Training Centre	7	1,045,701	—	—	a) 14,543	14,543
Nepal						
NEP-74-005 — Telecommunication Training Centre	6	1,221,360	4/45	6/22.5	a) 123,028	350,451

TABLE 1 (cont.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Asia and Pacific (cont.)						
Pakistan						
PAK-68-539 — Telecommunication College	10	1,366,919	—	2/10	a) 1,853	13,640
PAK-75-053 — Telecommunications Training Adviser	4	160,668	1/12	4/3	a) 23,104	87,583
PAK-74-073 — Survey and System Design for Telecommunication Links to Remote Areas	3	309,600	1/9	—	a) 286,556	326,103
Papua New Guinea						
PNG-75-014 — Telecommunication Training Centre	7	1,736,825	7/68	1/5	a) 186,952	525,470
Republic of Korea						
ROK-75-020 — Korea Telecommunications Research Institute	2	163,000	—	—	a) 29,370	29,560
Western Samoa						
SAM-71-011 — Telecommunications Development	9	525,567	3/25	—	a) 114	74,403
SAM-73-004 — Telecommunications Training	6	97,744	—	6/59.5	—	21,557
Singapore						
SIN-71-514 — Telecommunication Training Centre — TELECENTRE	9	1,569,083	—	1/3	—	12,117
SIN-74-020 — Telecommunication Engineers Training	1	36,780	—	2/5	—	17,270
SIN-78-001 — Telecommunications Planning and Development	3	112,500	1/1.5	—	—	8,662
Sri Lanka						
SRL-71-527 — Telecommunication Training School	7	653,800	—	9/9.5	—	13,859
SRL-77-008 — Telecommunications ...	1	4,724	—	1/0.5	—	1,994
SRL-78-001 — Tariffs and Traffic Accounting	1	5,400	—	1/3.5	—	4,812
Thailand						
THA-78-001 — Radio Frequency Management and Monitoring	2	88,700	1/4	—	a) 482	16,987
Tonga						
TON-74-002 — Development of Telecommunications	6	180,783	2/24	—	—	68,640
TON-74-003 — Radio Technicians ...	5	37,105	—	1/12	—	6,534
Regional Projects						
RAS-74-004 — Telecommunication Training (South Pacific)	6	1,060,601	6/66	12/86	a) 58,420	343,283
RAS-74-005 — Feasibility Study Reg. Telecom. Network in South Pacific ...	5	373,147	3/29	—	a) 5,837	160,644
RAS-75-019 — Switching and Signalling Seminar, Singapore	1	91,910	—	1/0.5	—	90,173
RAS-75-051 — Coordination for Implementation of the Asian Telecom. Network	3	727,905	11/38.5	—	—	192,049
Asia Region						
RAS-77-049 — Regional Seminar in Rural Telecommunications	1	20,000	—	—	—	20,000

TABLE 1 (cont.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Latin America						
Argentina						
ARG-74-007 — National Communications Laboratory	6	620,142	3/26	1/1.5	a) 38,287	159,365
ARG-78-019 — Message Switching Centre	4	416,200	—	—	—	3,200
Belize						
BZE-72-003 — Assistance to the Belize Telephone Authority (OPAS)	6	173,833	2/7.2	1/5	—	9,155
Bolivia						
BOL-71-518 — Telecommunication Training Institute	8	1,425,703	6/16.5	3/4	a) 2,783	91,695
Brazil						
BRA-74-009 — Telecommunication Research and Development	5	2,200,180	20/56.2	1/0.5	a) 63,550	367,523
BRA-74-010 — Human Resources — Telecom. Training	5	990,521	4/17	1/0.5	a) 11,266	88,507
Chile						
CHI-73-003 — Telecommunication Training Centre, Phase II	6	712,063	1/2	1/1.5	a) 4,133	17,441
Colombia						
COL-72-035 — Training of Teaching Personnel and Promotion of Research in Telecommunications	7	883,600	3/15	1/6	a) 103,607	181,838
Cuba						
CUB-76-002 — Development of Communication Services	4	1,200,000	4/4.5	2/3	a) 378,914	415,868
El Salvador						
ELS-76-002 — Telecommunications Development	2	80,280	—	—	—	3,168
ELS-78-009 — Extension of the Telecommunications System	2	112,400	1/5	—	—	24,486
Ecuador						
ECU-72-006 — National Telecom. Training Centre	6	922,726	1/4	—	a) 34,887	59,679
ECU-78-019 — National Telecommunications Training Centre	3	131,600	2/13	1/1	—	65,249
Guatemala						
GUA-78-003 — Assessment of the Telecommunications Administration	1	10,000	1/1.5	—	—	3,439
Guyana						
GUY-76-008 — Telecommunications Development	5	513,631	3/27	4/15	a) 25,050	177,753
Haiti						
HAI-77-010 — Telecommunications Development	2	852,000	7/26.5	—	a) 7,434	108,976
Jamaica						
JAM-77-004 — Telecommunications and Electronics Training	3	684,212	6/30	3/21.5	a) 81,558	235,751
Nicaragua						
NIC-78-004 — Telecommunications Planning	2	30,000	—	—	—	—

TABLE 1 (cont.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Latin America (cont.)						
Suriname						
SUR-77-004 — Course Development. . .	3	107,200	1/4	—	—	15,658
Trinidad and Tobago						
TRI-73-005 — Telecommunications . . .	7	603,681	3/32	2/6	a) 944	142,762
Uruguay						
URU-78-007 — National Telecommu- nications Training Centre	2	75,000	—	—	a) 3,588	4,914
Regional Projects						
RLA-72-094 — Central American Ins- titute of Telecoms. (INCATEL)	7	1,422,986	5/28	2/3.5	a) 20,114	132,122
RLA-74-023 — Telecommunications Integration and Development in Central America	5	177,554	1/3	—	a) 653	14,006
RLA-75-012 — Seminar on Develop- ment of Maritime radiocommuni- cations	3	59,000	—	—	—	6,966
RLA-77-010 — Regional Telecommu- nications Integration	2	120,000	1/12	—	—	75,245
Caribbean Region						
CAR-75-002 — Telecommunication Administration and Management	4	175,185	1/3	—	a)	35,177
Barbados						
BAR-78-006 — Seminar on Frequency Management and Use of Radio Fre- quency	1	2,000	—	1/0.5	—	1,482

TABLE 1 (cont.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Europe and Middle East						
Saudi Arabia						
SAU-76-002 — Telecommunication and Broadcasting Training Institutes	6	4,720,814	18/150.5	19/36.5	—	668,596
Bulgaria						
BUL-75-020 — Telecommunication Research Adviser	6	554,911	1/4	4/2	—	21,631
BUL-77-010 — Telecommunications...	1	19,080	—	3/9	—	9,452
United Arab Emirates						
UAE-73-005 — Telecommunication Adviser	7	298,106	1/12	—	—	68,217
UAE-77-001 — Network Planning and Transmissions	2	140,142	1/12	—	—	67,514
Greece						
GRE-75-002 — Fellowships in Telecommunications	2	22,500	—	—	—	—
GRE-77-003 — Fellowships in Advanced Telecommunication Technologies ...	2	172,100	—	—	—	—
Jordan						
JOR-73-007 — Telecommunication Training Centre	6	2,081,301	9/91.5	6/34.5	a) 114,880	618,106
Lebanon						
LEB-77-037 — Reorganisation of Telecommunications	1	296,350	—	—	—	1,885
Malta						
MAT-78-003 — Setting up of a colour Television Studio	2	32,000	2/2.5	—	—	10,384
Oman						
OMA-73-002 — Telecommunications	5	422,265	—	9/23	—	20,599
Poland						
POL-69-011 — Telecommunications...	10	58,024	—	1/3	—	4,171
Portugal						
POR-77-005 — Assistance in Telecom. and Postal Training	3	150,000	1/12	4/2	—	47,344
Yemen Arab Republic						
YEM-68-009 — Adviser, Radiocommunications and Telephony	10	541,449	2/12	1/5.5	a) 6,851	78,238
YEM-74-011 — Training in Telecommunication Systems, Technology and Administration	4	470,432	—	—	—	(272)
YEM-75-006 — Organisation and Administration of Telecommunications ...	2	728,000	6/38.5	1/1	a) 45,638	253,774
People's Democratic Republic of Yemen						
PDY-76-013 — Telephone Switching...	2	59,190	—	2/1	—	2,109
Czechoslovakia						
CZE-73-001 — Modern Techniques in Telecommunications	5	21,206	—	1/0.5	—	1,160
CZE-77-001 — Participant to CODEVTEL Seminars	1	5,347	—	—	—	—

TABLE 1 (cont.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Europe and Middle East (cont.)						
Turkey						
TUR-75-069 — Development of Training in Telecoms.	3	587,146	4/18	3/7	a) 31,614	125,887
Regional Projects (Middle East)						
RAB-75-027 — Feasibility Study/Pre-investment Survey for the Middle East Telecommunication Network	4	1,682,886	14/91.5	—	a) 1,796	659,202
Interregional Projects						
INT-74-017 — Curriculum Development in Telecommunication Training (CODEVTEL)	5	1,276,371	6/56	—	a) 8,701	375,987

Note: The figures given in column (5) represent the number of individual experts. The figure indicated in column (8) shows the total actual expenditure on each project during the year and includes also miscellaneous expenses not specified in columns (4), (5) and (6).

1) Financed from UNDP Special Fund for Least Developed Countries (LDC).

2) As United Nations Volunteer served for 6 months in the project.

TABLE 2

Projects implemented by subcontractors during 1978

Title of project	Participating country (ies)	Value of contracts US\$	Contractor	Man/ months 1978	Amount paid in 1978 US\$
A. Contracts Signed in Prior Years					
National Telecommunications Development Planning — NIR-72-010	Nigeria	918,000 ¹⁾	Swedtel, STOCKHOLM (Sweden)	2/7	55,739
Survey of Radio Relay Link Installation in Guinea — FIT-9-GUI-77-01	Guinea	30,000	Tappy & Duttweiler VEVEY (Switzerland)	1/1	18,639 ²⁾
Preinvestment Survey of Inter-Country Links in Central and East Africa — RAF-73-076	Burundi Malawi Tanzania Mozambique and Zambia	23,000	J. A. Story and Partners MITCHAM (United Kingdom)	1/4	16,200 ²⁾
B. New Contracts Signed in 1978					
Study of Telephone Cable Network — MAG-77-013-01	Madagascar	9,000	Prommach Export MOSCOW	2/2	11,960

¹⁾ Amount revised in 1978.

²⁾ Final payments.

TABLE 3

Equipment ordered in 1978
(Classified by country/territory of origin)

Country/territory of origin	US\$
Germany (Federal Republic of)	1,056,511
Argentina	1,000
Australia	91,828
Austria	5,729
Belgium	21,656
Canada	1,050
Denmark	34,034
Spain	24,421
United States of America	1,606,617
Fiji	15,965
France	476,809
Hong Kong	4,130
India	583
Italy	66,655
Japan	741,981
Jordan	12,407
Nigeria	10,000
Norway	265
New Zealand	2,349
Papua New Guinea	13,098
Netherlands	177,192
Portugal	60
German Democratic Republic	262
United Kingdom	613,717
Singapore	11,788
Sweden	99,322
Switzerland	564,715
Suriname	671
Chad	37,450
Thailand	11,000
Total	5,703,265

TABLE 4

Equipment delivered and ordered in 1978

(Classified by country of destination)

Projects carried out in the following countries/regions	Equipment delivered US\$	Equipment ordered US\$
Afghanistan	52,613	82,863
Algeria	13,157	13,887
Angola	148,901	235,201
Saudi Arabia ¹⁾	1,076,137	371,091
Argentina	38,287	28,107
Bangladesh	149,188	125,451
Burma	109,296	155,286
Bolivia	27,462 ²⁾	9,763 ²⁾
Brazil	74,816	379,799
Burundi	6,492	6,492
Cameroon	2,494	2,494
Chile	4,133	2,608
Colombia	103,607	123,072
Comoros ³⁾	11,407	11,407
Korea	29,370	57,370
Cuba	378,914	638,214
Egypt	14,468	14,468
El Salvador ⁴⁾	20,114	5,614
Ecuador	34,887	13,744
Ethiopia ⁵⁾	10,760	10,920
Fiji ⁶⁾	64,267	94,652
Gambia	16,419 ⁷⁾	30,169 ⁷⁾
Guatemala ⁸⁾	653	—
Guinea	96,912	32,187
Guinea-Bissau	1,221	71
Equatorial Guinea	344,405	72,073
Guyana	25,050	16,066
Haiti	7,434	17,099
India	549,385	618,875
Indonesia	443,568	559,312
Jamaica	81,558	80,068
Jordan	114,880	99,478
Kenya ⁹⁾	3,660	365
Kuwait ¹⁰⁾	133,371	92,937
Malawi ¹¹⁾	21,535	21,714
Marocco	354,007	312,187
Mauritania	4,550	850
Mongolia	14,543	—
Nepal	123,028	137,541
Niger	792	12
Nigeria	130,732	124,892
Pakistan	311,513	301,924
Papua New Guinea	186,952	149,712
Rwanda	44,936	32,836
Western Samoa	114	114
Somalia	151,853 ¹²⁾	107,313 ¹²⁾
Sudan	22,058	17,097
Suriname ¹³⁾	24,998	50,068
Chad	40,533	142,183
Thailand	481	481
Trinidad and Tobago	944	15,544
Tunisia	59,808	18,778
Turkey	31,614	64,924
Uruguay	26,962 ¹⁴⁾	64,014 ¹⁴⁾
Yemen Arab Republic	78,848 ¹⁵⁾	122,748 ¹⁵⁾
Yemen (Democratic People's Republic of) ¹⁶⁾	6,453	6,453
Project RAB-75-027 ¹⁷⁾	1,796	1,671
Project INT-74-017 ¹⁸⁾	8,701	9,006
Total	5,837,032	5,703,265

- ¹⁾ Project financed by Trust Funds.
- ²⁾ Includes 24,679 US dollars of equipment delivered and 7,230 US dollars of equipment ordered under the terms of a project financed by Trust Funds.
- ³⁾ Project financed by the ITU Special Fund for Technical Cooperation.
- ⁴⁾ Multinational project: Costa Rica, El Salvador, Guatemala, Nicaragua.
- ⁵⁾ Regional project covering all the countries of the African continent (implementation of the Panafrican Telecommunication Network).
- ⁶⁾ Multinational project: Cook Islands, Fiji, Gilbert Islands, Solomon Islands, Tonga, Tavalu.
- ⁷⁾ Includes 8,863 US dollars of equipment delivered and 16,863 US dollars of equipment ordered under the terms of a project financed by Trust Funds.
- ⁸⁾ Regional project (Coordination and technical cooperation among developing countries).
- ⁹⁾ Multinational project: Kenya, Uganda, Tanzania.
- ¹⁰⁾ Project financed by Trust Funds.
- ¹¹⁾ Multinational project: Botswana, Lesotho, Malawi, Swaziland.
- ¹²⁾ Includes 36,251 US dollars of equipment delivered and 21,211 US dollars of equipment ordered under the terms of Trust Fund Projects.
- ¹³⁾ Project financed by Trust Funds.
- ¹⁴⁾ Includes 23,374 US dollars of equipment delivered and 40,676 US dollars of equipment ordered under the terms of a Trust Fund project.
- ¹⁵⁾ Includes 26,360 US dollars of equipment ordered and delivered under the terms of a Trust Fund project.
- ¹⁶⁾ Project financed by Trust Funds.
- ¹⁷⁾ Regional project: Feasibility study/preinvestment survey for the Middle East telecommunication network.
- ¹⁸⁾ Interregional project on course development in telecommunication training.

ANNEX 6

ARREARS *)

(Position on 31 December 1978)

Member countries	Year	Contributions	Publications	Total
Angola (People's Rep. of)	1975-77	—	26,273.55	26,273.55
Bolivia (Rep. of)	1973-77	21,669.20	9,911.15	31,580.35
Central African Empire	1974-77	212,255.55	47,264.60	259,520.15
Chile	1976-77	—	11,280.75	11,280.75
Costa Rica	1977	33,885.55	—	33,885.55
Ivory Coast (Rep. of the)	1977	28,622.80	16,992.30	45,615.10
Cuba	1975-77	724.40	154,316.15	155,040.55
Dominican Republic	1973-77	301,888.20	16,757.85	318,646.05
Egypt (Arab Rep. of)	1977	—	14,160.20	14,160.20
Ethiopia	1975-77	—	17,502.10	17,502.10
Gambia (Rep. of the)	1976-77	57,637.—	3,863.50	61,500.50
Greece	1977	—	18,683.35	18,683.35
Guatemala (Rep. of)	1977	128,776.95	—	128,776.95
Guinea (People's Revolutionary Rep. of)	1976-77	86,803.40	10,984.—	97,787.40
Guinea-Bissau (Rep. of)	1976-77	2,741.25	3,404.—	6,145.25
Equatorial Guinea (Rep. of)	1977	29,776.80	1,628.50	31,405.30
Upper Volta (Rep. of)	1977	—	5,784.50	5,784.50
Indonesia (Rep. of)	1975-77	370.75	11,848.20	12,218.95
Iran	1976-77	—	77,827.50	77,827.50
Jamaica	1977	—	5,220.—	5,220.—
Democratic Kampuchea	1971-77	351,707.30	27,343.10	379,050.40
Kenya (Rep. of)	1974-77	560.20	10,864.40	11,424.60
Lao People's Dem. Rep.	1977	—	12,596.50	12,596.50
Liberia (Rep. of)	1974-77	262,403.70	10,100.—	272,503.70
Madagascar (Dem. Rep. of)	1977	—	17,645.25	17,645.25
Mali (Rep. of)	1977	—	5,507.50	5,507.50
Mauritania (Islamic Rep. of)	1976-77	119,862.30	9,408.60	129,270.90
Mexico	1977	—	32,103.50	32,103.50
Nicaragua	1976-77	137,890.30	3,973.15	141,863.45
Nigeria (Fed. Rep. of)	1975-77	44,019.15	109,378.10	153,397.25
Uganda (Rep. of)	1977	—	7,274.70	7,274.70
Panama (Rep. of)	1975-77	77,455.80	1,353.—	78,808.80
Paraguay (Rep. of)	1972-77	16,106.—	35,763.—	51,869.—
Peru	1977	—	5,634.10	5,634.10
Philippines (Rep. of the)	1977	7,616.20	2,182.—	9,798.20
Portugal	1977	—	5,690.40	5,690.40
Rwanda (Rep. of)	1973-77	—	32,734.65	32,734.65
Senegal (Rep. of the)	1976-77	79.20	8,923.60	9,002.80
Sierra Leone	1975-77	191,059.20	5,486.40	196,545.60
Sudan (Dem. Rep. of the)	1975-77	254,202.85	52,689.20	306,892.05
Sri Lanka (Dem. Soc. Rep. of)	1976-77	5,982.30	11,729.10	17,711.40
Chad (Rep. of the)	1971-77	362,504.—	18,108.80	380,612.80
Tonga (Kingdom of)	1977	45,094.20	2,198.50	47,292.70
Uruguay (Oriental Rep. of)	1973-77	4,238.35	38,319.90	42,558.25
Venezuela (Rep. of)	1977	—	7,231.15	7,231.15
Yugoslavia (Soc. Fed. Rep. of)	1976-77	12,208.75	5,119.35	17,328.10
Zaire (Rep. of)	1973-77	368,747.20	181,812.35	550,559.55
Zambia (Rep. of)	1976-77	3,631.55	14,935.30	18,566.85

*) This list only gives amounts above 5,000 Swiss francs.

Debtors	Year	Contributions	Publications	Total
Federal Republic of Germany — Buchladen Lewejoham und Gossens, Dusseldorf	1976	—	5,247.—	5,247.—
Argentina — Prefectura Naval Argentina, Buenos Aires	1970-76	—	7,904.85	7,904.85
Ivory Coast — Ecole nationale supérieure des Postes et Télécommunications, Abidjan	1977	—	8,475.10	8,475.10
United States of America — Transportation Officer, Fort George G. Meade	1974-77	—	11,416.85	11,416.85
— American Satellite Corp., Germantown	1976-77	24,754.65	—	24,754.65
— ITT World Commun. New York	1976-77	605.—	12,909.05	13,514.05
— ITT Telecommun. Raleigh	1977	—	38,796.40	38,796.40
— C.C.A. Electronics Corp., Silver Spring	1973-74	17,113.20	—	17,113.20
— US Army Fin. and accounts office, Washington	1972-75	—	8,472.75	8,472.75
— Ford Aerospace and Commun., Willow Grove	1977	—	5,210.—	5,210.—
— Navy finance Center, Commanding Officer, Washington	1971-75	—	5,540.30	5,540.30
France — Cie Radio Maritime, Paris	1977	—	5,000.—	5,000.—
Greece — Cherma Cie Hellenique Radio Maritime, Piraeus	1977	—	5,000.—	5,000.—
Ireland — Telectron Limited, Dublin	1974-77	—	8,902.65	8,902.65
Kenya — East African External, Nairobi	1976-77	76,153.65	16,276.85	92,430.50
Malawi — Malawi Broadcasting Corp., Blantyre	1976	5,928.95	93.—	6,021.95
Mauritania — Office mauritanien de Radiodif., Nouakchott	1974-77	—	7,286.65	7,286.65
Nigeria — Nigerian External Telecom., Lagos	1975-77	—	21,113.45	21,113.45
Uganda — Radio Uganda, Kampala	1974-76	—	7,013.15	7,013.15
Philippines — Philippine Global Commun., Makati, Rizal	1976-77	11,955.90	2,428.—	14,383.90
French Polynesia — Office des Postes et Telecom., Papeete	1977	—	7,109.50	7,109.50
Portugal — Direção Geral de Obras Publicas, e Comunicações, Lisbon	1975-77	—	39,001.10	39,001.10
— SEMA Eletrônicas, Lisbon	1972-76	—	40,492.40	40,492.40
United Kingdom of Great-Britain and Northern Ireland — Kelvin Hughes, Ilford	1977	—	7,098.—	7,098.—
— Messrs J.D. Potter, London	1977	—	24,630.50	24,630.50
Republic of South Africa — Permanent Mission, Geneva	1976-77	—	15,611.05	15,611.05
Yugoslavia — Elektronska Industrija, Belgrade	1971-77	114,162.30	—	114,162.30
Zaire — Service aéronautique civile, Kinshasa	1971-76	—	6,045.35	6,045.35
Rhodesia	1966-74	489,600.—	—	489,600.—
		3,932,133.85	1,381,522.80	5,313,656.65
Other debtors		7,480.65	205,907.35	213,388.—
Total		3,939,614.50	1,587,430.15	5,527,044.65

