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REPORT
ON THE ACTIVITIES OF
THE INTERNATIONAL
TELECOMMUNICATION UNION

in

1976



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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. In 1976, the following six countries became Members of the Union:

the State of the Comoros,
the Republic of Guinea-Bissau,
the Republic of Surinam,
the Democratic Republic of Sao Tome and Principe,
the Republic of Cape Verde,
The People's Republic of Angola.

2. At 31 December 1976, the number of Members of the Union was 152, 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 10 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
State of the Comoros	5. 1.76
Republic of Guinea-Bissau	15. 1.76
Republic of Surinam	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

3. The Government of the Republic of San Marino has submitted an application for Membership of the Union. By circular telegram dated 1 November 1976, Members of the Union were invited to express their opinion on the application. The period of consultation will terminate on 1 March 1977.

4. During 1976, 43 countries ratified the International Telecommunication Convention, Malaga-Torremolinos, 1973, and 10 countries acceded thereto. On 31 December 1976, the total number of ratifications was 63 and of accessions, 25.

5. The position on 31 December 1976 of Members with respect to the Malaga-Torremolinos Convention, 1973, and to the Administrative Regulations annexed hereto is shown in Table I of Annex 1 to this Report. Annex 1 also gives information relating to a number of other conventions and agreements concerned with telecommunications.

3. THE ADMINISTRATIVE COUNCIL

3.1 The 31st Session of the Administrative Council was held at ITU Headquarters from 14 June to 2 July 1976.

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

Algeria (Algerian Democratic and Popular Republic), Germany (Federal Republic of), Saudi 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), Zaire (Republic of).

3.2 Dr. László Katona Kis (Hungarian People's Republic) was elected Chairman of the Council, Mr. João Santelli Jr. (Federative Republic of Brazil) was elected Vice-Chairman, and the following committees were constituted:

Committee 1 — Finance

Chairman : Mr. Rudolph Rüttschi (Confederation of Switzerland)
Vice-Chairman : Mr. José J. Hernández-G. (Mexico)

Committee 2 — Staff and Pensions

Chairman : Mr. Tom Ulrik Meyer (United Kingdom)
Vice-Chairman : Mr. Ahmed Zaidan (Kingdom of Saudi Arabia)

Committee 3 — Technical Cooperation

Chairman : Mr. J. O'Neill (United States of America)
Vice-Chairman : Mr. Jean Jipguep (United Republic of Cameroon)

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 1975*

The Council approved the Financial Operating Report and the Management Report of the ITU Staff Superannuation and Benevolent Funds for 1975.

(Resolution No. 770)

3.3.1.2 *External Audit of ITU accounts for the period 1 January to 31 December 1975*

The Council approved the accounts of the ITU for the period 1 January to 31 December 1975 as drawn up and audited by the External Auditor of the Swiss Confederation.

(Resolution No. 772)

3.3.1.3 *Budgets of the Union for 1977*

The budgets for 1977 were approved. For details, see Section 7.2 of this report.

(Resolution No. 780)

3.3.2 *Staff and pension matters*

3.3.2.1 *Abolition of established posts*

The Council decided to abolish the following established posts with effect from 1 January 1977.

I. *ORDINARY BUDGET*

GENERAL SECRETARIAT

Department of Conferences and Common Services

Messenger Section

2 G.1 Messengers Mes/1/7 and Mes/1/8

II. *SUPPLEMENTARY PUBLICATIONS BUDGET*

Finance Department

1 G.4 Office Assistant I Fi/P/4/6 DD

(Resolution No. 773)

3.3.2.2 *Reorganization of the CCITT specialized secretariat*

The Council decided to approve the new organization proposed by the Director of the CCITT and the following consequential measures:

1. with effect from 1 January 1977:

- upgrading from P.5 to D.1 of post CCITT/Sec/V/2
- upgrading from P.3 to P.4 of posts
CCITT/Sec/III/1
CCITT/Sec/III/2
CCITT/Sec/III/3
CCITT/Sec/III/4
CCITT/Sec/III/5
- upgrading from P.2 to P.3 of post CCITT/Sec/II/1

2. with effect from the date of retirement of the holder of post CCITT/Sec/V/1:

- abolition of post CCITT/Sec/V/1
- creation of a post of Assistant G.5

(Resolution No. 774)

3.3.2.3 *Procedure for the election of the Director of the CCITT*

The Council decided to recommend to the VIth Plenary Assembly of the CCITT the procedure to be followed for the election of the new Director of the CCITT.

(Decision No. 377)

3.3.2.4 *Amendment to the Staff Regulations and Staff Rules*

The Council approved an amendment to the Staff Regulations and Staff Rules setting a limit on overtime in the interests of the health and security of staff members.

(Resolution No. 771)

3.3.2.5 *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. F. Molina Negro	Mr. J. J. Hernández-G.	Until the end of the 32nd Ordinary Session of the Council
Mr. C. Baudazzi	Mr. J. Dunin	Until the end of the 33rd Ordinary Session of the Council
Mr. S. Friedland	Mr. R. M. Yusuf	Until the end of the 34th Ordinary Session of the Council

(Resolution No. 778)

3.3.3 *Administrative conferences*

3.3.3.1 *World Administrative Radio Conference for the Planning of the Broadcasting-Satellite Service in the 12 GHz band*

The Council decided to send a telegram to administrations inviting them to provide the IFRB, by 15 October 1976 at the latest, with their foreseeable requirements in regard to the broadcasting-satellite service, to the extent that such requirements are known, to permit the Conference to undertake the planning foreseen in Resolution No. 27 of the Malaga-Torremolinos Conference (1973);

It also invited the IFRB

1. to send to all administrations, in the shortest possible time, a standardized form of notice for presenting requirements for satellite broadcasting in the 12 GHz band;
2. to assemble the information received from administrations in a form permitting a comparative study thereof and to communicate it to the Secretary-General for publication and dispatch to administrations by 15 November 1976.

(Resolution No. 777)

3.3.3.2 *World Administrative Radio Conference (1979)*

3.3.3.2.1 After consulting the Members of the Union, the Council decided:

1. that the Conference shall be convened in Geneva on 24 September 1979 for a duration of ten weeks;
2. that the agenda of the Conference shall be as follows:
 - 2.1 to review and, where necessary, revise the provisions of the Radio Regulations relating to terminology, the allocation of frequency bands and the associated regulations (Articles 1 to 7);
 - 2.2 to review and, where necessary, revise the provisions applicable to the coordination, notification and recording of frequency assignments (Articles 9 and 9A) except those articles relating to a single service;
 - 2.3 to review and, where necessary, revise the other regulations applicable to services in general (Articles 12 to 20);
 - 2.4 to review the report on the activity of the IFRB and revise, where necessary, the provisions relating to its methods of work and internal regulations;
 - 2.5 to study the technical aspects of the use of radiocommunications for marking, identifying, locating and communicating with the means of medical transport protected under the 1949 Geneva Conventions and any additional instruments of these Conventions;

- 2.6 to consider any Recommendation of the 1977 World Administrative Radio Conference for the Aeronautical Mobile (R) Service* on the possible rearrangement of the Radio Regulations and Additional Radio Regulations, and to make such consequential changes as may be necessary to harmonize the revisions of the Radio Regulations since 1959;
- 2.7 to propose to the Administrative Council and to the Plenipotentiary Conference a programme for convening future administrative radio conferences to deal with specific services;
- 2.8 to consider the proposals based on the CCITT studies carried out in accordance with Resolutions Mar2 — 22 and 23;
- 2.9 to consider the resolutions and recommendations adopted by world administrative radio conferences and to adopt such resolutions and recommendations as may be necessary.

(Resolution No. 783)

3.3.3.2.2 It also invited the IFRB to continue its preparation for the WARC-1979, taking into account the views expressed by administrations and the discussions on this subject at the 31st session of the Administrative Council.

(Resolution No. 776)

3.3.3.2.3 Finally, the Council invited the CCIR

1. to carry out the studies necessary to ensure timely provision of the technical information likely to be needed as a basis for the work of the Conference;
2. to arrange for a Special Joint Meeting of CCIR Study Groups to begin in mid-September 1978, the actual duration to be determined by the Administrative Council at its 32nd session.

(Resolution No. 775)

3.3.4 *Administrative Council*

3.3.4.1 *Date and duration of the 32nd session of the Administrative Council*

The Council decided to hold its 32nd session from 23 May to 10 June 1977.

(Decision No. 376)

3.3.4.2 *Rules of Procedure of the Administrative Council*

The Council approved the revised text of the Rules of Procedure of the Administrative Council and decided that the revised text should enter into force on 3 July 1976.

It further instructed the Secretary-General to proceed with the publication of the revised Rules of Procedure and to have a copy sent to every Member of the Union.

(Resolution No. 781)

3.3.4.3 *General revision of the Volume of Resolutions and Decisions*

The Council carried out a general revision of the Volume of Resolutions and Decisions of the Administrative Council.

(Resolution No. 782)

3.3.5 *Implementation of the International Development Strategy for the Second United Nations Development Decade*

The Council, having examined the report submitted by the Secretary-General in respect of the United Nations General Assembly Resolution 3517 (XXX) on "Mid-term review and appraisal in the implementation of the International Development Strategy for the Second United Nations Development Decade", requested the Secretary-General

1. to ensure that during the remaining part of the Decade the Union's technical cooperation activities in developing countries continue to be consistent with the spirit of the international conferences organized under the aegis of the United Nations on problems of development;
2. to continue to assist the developing countries to integrate telecommunications in their development plans and programmes;
3. to pay particular attention to the needs of least developed, land-locked and island countries;

* See also point 3.4.1.

4. to associate the Union's activities with the United Nations endeavour to foster technical assistance among developing countries;
5. to render to developing countries every possible assistance in connection with the development of human resources and transfer of appropriate technology;

The Council also urged Administrations

1. to bring Council Resolution No. 779 to the attention of their respective governmental authorities dealing with development;
2. to provide information to the Secretary-General on national development targets during the present Development Decade in such areas as:
 - a) total telephone density,
 - b) telephone density in the rural areas,
 - c) percentage of the total population to be served by sound broadcasting,
 - d) percentage of the total population to be served by television broadcasting.

(Resolution No. 779)

3.4 *Other questions examined*

3.4.1 *Consultation concerning the Broadcasting-Satellite Conference and the Conference for the Aeronautical Mobile (R) Service*

In view of financial difficulties, the Council instructed the Secretary-General to consult Members on the advisability of

- a) deferring until 6 February 1978 the World Administrative Radio Conference for the Aeronautical Mobile (R) Service the maximum duration of which should be four weeks and
- b) transferring from the agenda of the above Conference to that of the World Administrative Radio Conference for the Planning of the Broadcasting Satellite Service (Geneva, 1977) the item relating to the possible re-arrangement of the Radio Regulations (Report of the Group of Experts, Geneva, 1976).

Since these two proposals were accepted by the majority of the Members of the Union, the Secretary-General took the necessary consequential measures.

3.4.2 *Publications issued by the Union*

The various cost items for publications, coupled with the rise in the price of paper and in printing costs, have raised the sale price of publications very considerably; as a result, fewer copies have been ordered and prices have had to be further increased. The high price of the Union's publications has even induced certain Administrations of Members of the Union not only to reduce their orders to the minimum but to reproduce these publications themselves as required.

After examining the question at length, the Council adopted the following measures:

- transfer of 9 posts from the supplementary publications budget to the ordinary budget;
- provisional suspension of Administrative Council Resolution No. 191, which provides that a copy of all publications shall be dispatched automatically, and subject to payment, to the Members of the Union (this provisional suspension does not affect certain service documents or the Notification, the Operational Bulletin or the IFRB Weekly Circular);
- charging of printing and postage costs of subscription circulars to the ordinary budget;
- ITU texts must be concise and must contain a minimum of redundant material;
- very strict control must be exercised over the number of supernumerary staff engaged for proof-reading, layout etc.;
- sales promotion must be undertaken in areas not so far extensively reached (provided such promotion is not too costly).

At its next session, the Council will examine certain questions left outstanding, such as copyright, charging the cost of printing official reports to the ordinary budget, improvement of methods used for preparing the various service documents and lists, general study of the overall structure of the supplementary publications budget etc.

3.4.3 *Other business*

In order not to overload this report, the other main questions examined by the Council at its 1976 session are merely listed below:

- Arrears and special arrears accounts.
- Expenditure limit set by the Plenipotentiary Conference (1973) for conferences and meetings.
- The Union's request to the United Nations Development Fund (UNDP) for special overhead reimbursement.
- Reproduction of documents — possible savings.
- Post classification.
- Reorganization of the specialized secretariat of the IFRB.
- Report of the experts on organization, methods and grading (proposals carried forward from the 30th session of the Council).
- Methods of work of the Administrative Council.
- Resolutions adopted by the United Nations General Assembly; reports of the Joint Inspection Unit.
- Development and international economic cooperation (seventh special session of the United Nations General Assembly).
- TELECOM 1979.

For information on these questions, please refer to the summary records of Council meetings, which have been circulated to the Members of the Union.

4. THE GROUP OF EXPERTS "RADIO REGULATIONS"

At its 29th session in 1974 the Administrative Council instructed the permanent organs of the Union to bring up to date the studies already made in the field of the possible re-arrangement of the Radio Regulations. At its next session in 1975 the Administrative Council, having considered the progress made by the permanent organs in these studies, resolved to set up a Group of Experts as recommended by the 1974 World Maritime Administrative Radio Conference (Recommendation No. Mar2-21).

It was decided that the Group of Experts should meet on 19 January 1976, for a duration of four weeks, to pursue the study of the possible re-arrangement of the structure of the Radio Regulations and Additional Radio Regulations in order that the administrative regulations should be separated from the operational regulations and the latter separated for the various services concerned. The possibility of the need for a second meeting was envisaged, but in any event the work of the Group had to be completed before 17 September 1976 so that the results of its work could be submitted to the World Administrative Radio Conference for the Aeronautical Mobile (R) Service, due to meet in Geneva from 7 March to 1 April 1977. *

Following the decision to set up the Group of Experts, the Secretary-General sent to administrations the results of the studies which had been undertaken by the permanent organs of the Union. This information was presented in two annexes. The first gave background information on work done up to that time by the International Frequency Registration Board together with a draft lay-out of a revised structure of the Radio Regulations, the latter being the result of consultation between the permanent organs of the Union. The second annex, prepared by the General Secretariat, gave an outline of a possible re-arrangement of the operational provisions of the Radio Regulations and Additional Radio Regulations.

The Group of Experts, having assembled on 19 January 1976, elected Mr. Eberhard George of the Federal Republic of Germany as Chairman. Experts and advisers from sixteen administrations participated in the work of the meeting, assisted by representatives of the permanent organs of the Union.

* In consultation with the Members of the Union, the Council decided to postpone this Conference till 1978 and that, therefore, the results of the work of the Group of Experts should be submitted to the World Administrative Broadcasting Satellite Conference (Geneva, 1977).

The Group finished its work at this meeting and the results are given in the report entitled "Possible re-arrangement of the Radio Regulations and Additional Radio Regulations".

The Secretary-General undertook to produce after the meeting the complete text of the re-arranged Radio Regulations. This work was undertaken by the IFRB and the General Secretariat in relation, respectively, to Parts A and B of the report. In addition the General Secretariat produced a Table of Cross References from present numbers in the 1976 edition of the Radio Regulations to the new numbers used by the Group in the re-arranged version. Also to help to relate the Appendices to the re-arranged Radio Regulations, the General Secretariat included the references to articles and provisions mentioned in them, showing both the existing numbers and the corresponding new numbers from the re-arranged Regulations.

The completed version of the report "Possible re-arrangement of the Radio Regulations and the Additional Radio Regulations" was sent to all administrations in August 1976.

As previously stated, it had been resolved that this report would be submitted to the World Administrative Radio Conference for the Aeronautical Mobile (R) Service. However, as this Conference was postponed until 1978 the Administrative Council decided, after consultation with Members of the Union, that the results of the work of the Group of Experts would be examined at the Broadcasting-Satellite Administrative Radio Conference meeting in Geneva from 10 January to 11 February 1977.

5. ACTIVITIES OF PERMANENT ORGANS

5.1 *Activities of the General Secretariat*

The General Secretariat comprises six departments: personnel; finance; conferences and common services; computer; external relations; technical cooperation.

Personnel Department

Some of the routine work of the Department acquired exceptional importance in 1976 and took up a considerable part of its time. Its participation in the activities of the inter-agency bodies was particularly onerous, since the CCAQ, for example, met on three occasions to prepare the two sessions of the International Civil Service Commission and its comments on the Commission's report. It was an outstandingly busy year with regard to pensions. The Department also had to take part in many meetings dealing with the salaries of General Services staff. The study of a new post classification system and the drafting of new descriptions for each post were continued. Finally, a number of posts had to be frozen in implementation of the economy measures decided by the Administrative Council, which entailed many staff transfers.

Finance Department

The Finance Department continued to deal with the accounts of the Union and of technical cooperation, the preparation of the budget, the control and supervision of the available credits, the payment of salaries and allowances to staff members and experts, as well as with the sale of the publications issued by the ITU.

Although 1976 was not a particularly difficult year, the Finance Department was faced with numerous problems, particularly as a result of the credit restrictions in the three Union budgets.

Mechanization of the Finance Department's work was actively continued during the past year, especially through the revision of the computer programmes to process the data concerning the budgets and budget control.

Department of Conferences and Common Services

The Department continued to perform its routine work and to furnish the conference services required for the CCIR interim meetings, the final meetings and the VIth Plenary Assembly of the CCITT, the 31st session of the Administrative Council, the IFRB seminar and the seminars organized by the Technical Cooperation Department in preparation of the Satellite Broadcasting Conference (Geneva, 1977).

The reprography workload in 1976 increased by 17% compared with previous year. This increase was largely due to greater participation in the work of the CCITT, requiring more documents and copies to be printed.

Economy measures were introduced following the request by the Administrative Council, particularly as regards paper consumption and supernumerary staff.

The *Publications and Reprography Division* reproduced a total of 58,646,664 format offset sheets:

	1976	1975	Difference
Total of A4 sheets produced inside ITU	52,962,456	43,962,863	+ 20 %
A4 sheets produced outside ITU	5,684,208	6,008,436	(- 6 %)
<i>Distribution of production capacity :</i>			
produced inside ITU	90 %	(88 %)	+ 2 %
produced outside ITU	10 %	(12 %)	- 2 %

The Division printed 371 publications (representing 36,978 pages in 730,140 copies).

In 1976, the *Languages Division* translated:

13,337 pages into French	(35.5 % of the total)
6,539 pages into English	(17.3 % of the total)
17,754 pages into Spanish	(47.2 % of the total)

This represents a total of 37,630 pages, i.e., a decrease of 2,114 pages (or 5.3 %) compared with the previous year.

It also began work on a trilingual lexicon (English, French, Spanish) of terminology in use in the ITU, particularly technical terms, to assist the translators and interpreters and improve their output.

In 1976, a new "data entry" (text storage) section was created in the *Stenographic Section*, which caused the transfer, within the Section, of permanent staff members to the new posts.

The Pool produced, by traditional typing methods, 30,678 pages in French, 20,827 in English and 29,548 in Spanish.

Overtime amounted to 1,299 hours over the same period.

Photoreduction of texts and the policy of not aligning documents in the three working languages of the Union, as approved by the Administrative Council at its 31st Session, resulted in a substantial drop in the number of typed pages, there being more words in each page.

In 1976, the *Dispatch Transport Section* :

- dispatched 278,828 packets of printed matter + 2,539 direct mail bags (cost: 850,582 Swiss francs);
- franked 118,569 packets of printed matter + 26 direct mail bags (cost: 753,162 Swiss francs), packed by the conference documents section;
- dispatched 934 consignments surface freight (weight: 130,527 kg, cost: 72,506 Swiss francs);
- dispatched 357 consignments air freight (weight: 8,691 kg, cost: 98,109 Swiss francs);
- drew up 150 customs import certificates (237,898 kg);
- organized 163 local transports (cost: 44,000 Swiss francs).

The activities of the *Building Section* centred on the upkeep of the buildings and technical installations. Continuous supervision of fuel consumption ensured substantial savings on heating.

It studied air conditioning and ventilation problems, particularly in the computer offices where the work undertaken under its supervision will bring about better working conditions.

Studies are also under way and credits have been requested to improve the ventilation systems in the interpretation booths and meeting rooms.

The antiquated interpretation installations in Room T9 will be replaced.

The section had a number of removals carried out for the reorganization of some sections. It also studied and completed the conversion of offices by pulling down or building new walls or moveable partitions.

It helped to prepare the document on the activities of the technical services requested by the Joint Inspection Unit.

The Head of Section acted as secretary at the numerous meetings of the Buildings Committee which is continuing its efforts to settle the disputes over certain defects that have appeared in the buildings.

The *Supplies Section* unflinchingly continued its market studies with a view to purchasing machines, equipment, office supplies and printing paper at the best prevailing rates.

It also took part in the work of the Joint Purchase Service of the international organizations.

Computer Department

In 1976, the ITU Computer Department continued to provide the various organs and departments of the Union with the data processing services needed for their technical and administrative duties, particularly those whose aim is to promote international coordination in the planning and operation of the telecommunication services of governments and Member administrations of the Union.

Routine computer production increased regularly and at present roughly 70 tasks must be run through the computer as regular applications in order to assist the Union in its various fields of activity.

Feasibility studies and organic analyses were carried out in several sectors and new applications were devised, programmed and run. A text-publishing system using the latest techniques was worked out and introduced; it is already in operation for storage of the texts of the CCITT Orange Books. A data system, the first phase of which will be launched in January 1977, was devised for the development of technical cooperation. A new computer-aided task accounting system was developed and is now in operation.

Following amendments to the regulations and administrative improvements, some of the systems in use were revised; a number of them were re-arranged and reprogrammed, such as the List of Telegraph Offices and the payroll and budget control systems.

A study was carried out on the use of a microfilm output medium for several Union departments; this medium is already in use in the Finance Department.

The ever growing demand for computer services called for an increase in computer capacity, which was achieved without any increase in rental costs. The data entry equipment and technique were thoroughly revised, giving rise to new methods and further improvements which have already been applied to the text processing system.

The Department assisted all the computer users to solve their software and operational problems. Special assistance was also provided in the preparatory work for ITU conferences, such as the Satellite Broadcasting Conference, and for certain study groups, such as those dealing with documentation and bibliographical research systems.

A number of ITU staff members attended training courses and seminars organized by the Department of new software and the new techniques to be used for the Union computer system.

Member countries are receiving more and more information, particularly in the form of data recorded on magnetic tape and other media. In relation with these activities, the Computer Department is continuing to collaborate with the computer services of various Member administrations.

The Computer Department still occasionally avails itself of outside computer services and will continue to do so for some non-repetitive work requiring greater capacity or processing speed than those of the ITU computer.

Department of External Relations

The Department of External Relations comprises three divisions: Relations with the United Nations and other International Organizations, Relations with Members of the Union and Public Relations. The office of the Legal Adviser and a special section dealing with work before and after conferences and Administrative Council sessions are also attached to the Department.

In 1976, 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 among the specialized agencies. Special attention was devoted to the discussions held in the United Nations and in other organizations on subjects relating to the peaceful uses of outer space, particularly the work of the Technical Sub-Committee and more specifically the Legal Sub-Committee of the Committee on Outer Space, where discussions sometimes dealt with certain aspects of the Union's legislative texts having a bearing on the work of the latter Sub-Committee.

Legal business has mainly involved preparing, examining and formalizing Technical Cooperation contracts and preparing draft agreements. It has also involved providing assistance to ITU conferences and meetings: the Administrative Council, the group responsible for preparing an annotated edition of the International Telecommunication Convention, and the meeting of the Group of Experts on the Possible Re-arrangement of the Radio Regulations and Additional Radio Regulations.

The Department also continued the activities aimed at strengthening cooperation and collaboration links with certain regional organizations such as the Arab Fund for Economic and Social Development and the Arab Bank for Economic Development in Africa.

The *AC and Conferences Section* made the administrative arrangements for the 31st Session of the Administrative Council (see Section 3 of this report), for which it provided the executive secretariat, and for the World Broadcasting Satellite Administrative Radio Conference (Geneva, January 1977).

These administrative arrangements included more particularly dealing with invitations and processing proposals to be submitted to the Conference.

The section also provided the executive secretariat for the Group of Experts on the Possible Re-arrangement of the Radio Regulations (see Section 4) and took an active part in the preparation of the Group's report.

Finally, the section dealt with the preparatory work for the 32nd Session of the Administrative Council (1977).

In 1976, the activities of the *Public Relations Division* centred on the preparation of World Telecommunication Day (17 May 1976), on the implementation of Resolution No. 47 of the Malaga-Torremolinos Plenipotentiary Conference, on the creation of a documentation centre, on exploiting the repercussions of TELECOM 75 and the preparation for the launching of TELECOM 79, the third edition of the World Telecommunication Exhibition, on the centenary of the telephone and on the publicity campaign for the World Administrative Broadcasting-Satellite Conference.

The theme proposed by the Administrative Council for the 1976 *World Day* was "Telecommunication and Mass Media". The preparations for this day were made in close collaboration with UNESCO which had agreed to associate itself with the ITU. In 1975, it was WMO which participated in the World Day and in 1977, it will be UNDP.

The Working Party on the *Documentation Centre* comprising representatives from six ITU Member countries, held its fourth meeting. Concrete measures were adopted to move on to the practical stage of the study (see Document CA32/5034).

A survey carried out among 350 governments, organizations and companies which participated in TELECOM 75, revealed that all the exhibitors were satisfied with the results obtained (excellent: 35%, good: 64%, bad: less than 1%). An extensive report was published in the February Journal. The opening information and publicity campaigns have been launched for TELECOM 79, the third edition of the World Telecommunication Exhibition, to be held in Geneva from 20 to 26 September 1979 on the occasion of the World Administrative Radio Conference.

To celebrate the centenary of the telephone a special issue of the Telecommunication Journal was published. The articles which appeared in that issue were assembled in a booklet entitled: "Centenary of the Telephone".

A large number of documents on the World Broadcasting Conference were prepared and distributed to the technical and general press to underline the importance of the Conference for the development of broadcasting both in the industrialized countries and in countries of the third world.

Traditional public relations activities were also continued: talks on the ITU were given to 27 groups totalling 615 people, 36 press releases were issued. A number of interviews and programmes for broadcasting stations of Member countries were produced in the recording studio. The circulation of the Telecommunication Journal is now stable. The Central library loaned 7,800 works in 1976 and received 3,980 readers. The film library answered 227 requests for the loan of films which were projected 581 times to 34,024 viewers. A new film library catalogue was published together with a supplement, containing 2,000 photographs, to the photograph library catalogue.

As part of its normal work programme the Division "Relations with Members of the Union" collected and coordinated data, and prepared manuscripts for 12 editions of service documents or tables, 19 Supplements to such publications, and the monthly Notification and Operational Bulletin.

Although the visible part of the Division's work consists of producing publications, a considerable amount of coordination with administrations and recognized private operating agencies is often required. There are also the Convention protocol activities which are concerned with notifications and applications for Union membership as well as the regular relations with permanent delegations and missions, centred this year on drawing the attention of Members signatories of the Convention to the need to ratify the instrument before 1 January 1977 in order to preserve their voting rights.

With respect to the coordination of telecommunication operations the RM Division, during the year, assisted administrations and recognized private operating agencies in connection with

- i) the introduction of the New Calling Procedure for HF A1 Morse Telegraphy,
- ii) the suppression of the letter telegram category in relations between many countries, and
- iii) changes in terminal and transit rates for telegrams exchanged between countries in Europe and the Mediterranean Basin.

Steps were again taken to improve the working methods in the Division with a view to reducing production costs, meeting production deadlines and being able to accept a greater workload with existing resources.

Of primary importance was the study on the "Analysis of Systems" prepared in response to a proposal of the Experts on organization, methods and grading. This study sets out the present and planned data processing policy of the Division with respect to the publications it prepares.

The layout of the Operational Bulletin was redesigned during the year so as to produce a single trilingual publication. The presentation of the Bulletin was also simplified and recto/verso printing used.

These changes have given economies in production costs, the amount of paper required and postage charges.

The new data processing system used for the List of Telegraph Offices was employed to prepare the 24th Edition of the List. The publication of a new edition of such magnitude however still requires an appreciable amount of preparatory work, a good part of which is due to some administrations and recognized private operating agencies not systematically notifying changes as they occur. An overload of work can consequently arise prior to a new edition. This is evident from the over 31,000 new entries, amendments or deletions which had to be made to the List during the first seven months of the year before the new edition could be printed.

The data base management system used to store and prepare the List of Ship Stations started operating at the end of the year. The system contains extensive data validation provisions and the data base is up-dated directly by the file maintenance staff via a visual display terminal operating on an off-line basis. Here too some administrations have completely revised their entries as can be gauged from the fact that over 57,000 lines of data were the subject of additions, amendments, or deletions during the year.

The new List of Ship Stations system also handles the names and addresses of ship owners and accounting agencies which were formerly treated manually. An incidental but real advantage of this is that lists of prospective customers for the maritime publication can now be easily prepared.

Mention was made in last year's report of the use of magnetic card typewriters with memory for preparing some of the smaller service documents. This approach has proved so successful that preparatory work was done to extend this technique to the preparation of two further publications.

A difficulty arises when new publications are due to be issued and when a subscription price has to be established even though the number of copies likely to be subscribed is unknown. The Division has therefore started making special surveys of the needs of administrations and recognized private operating agencies prior to the establishment and dispatch of subscription circulars. Four such surveys were conducted during the year.

Special mention should be made in this connection of the introduction of the new ITU plastic credit card for the TA service elaborated by CCITT Study Group I. This card had to be available for use as of 1 January 1977 even though the VIth CCITT Plenary concluded its work only on 9 October. Consequently all the advance planning involving the detailed design of the card, the selection of suppliers, etc., had to take place an appreciable time before the final decision of the Plenary.

The decisions of the VIth Plenary Assembly of the CCITT also resulted in the need for changes in the presentation of several publications for which the RM Division is responsible. The necessary administrative and layout preparation work was started prior to the Plenary so that the publications concerned could be prepared in 1977 without undue delay.

Care was also taken to ensure that such changes result in a minimum of extra costs. It was, in this way, possible to re-use a substantial part of the composition of the chronological series in the Yearbook of Common Carrier Telecommunication Statistics even though the presentation of the publication has been revised.

During the year, officials from the Division represented the Secretary-General at international conferences and meetings dealing with matters handled by the Division.

Technical Cooperation Department

The activities of this Department are discussed in Section 6 of the report.

5.2 International Frequency Registration Board (IFRB)

5.2.1 Treatment of frequency assignment notices

The Board continued to carry out its duties as prescribed in the International Telecommunication Convention and the Radio Regulations annexed thereto. These duties in relation to the co-ordination, notification, technical examination and registration of frequency assignments involved steps to ensure the application both by the Administrations and the IFRB of the provisions of the Radio Regulations. During the year 1976, the Board dealt with a total number of 81,428 frequency assignment notices.

5.2.2 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:

- 14,053 assignments notified under Article 9 of the Radio Regulations.
- 2,940 assignments notified under Article 9A.
- 27,079 assignments notified under Article 10 (for recording under Article 9 at a later date).

5.2.3 *Interference cases and special assistance to Administrations*

The Board formulated suggestions on a number of specific cases for the use of frequencies by Administrations and made recommendations with a view to the clearance of harmful interference or to rendering special assistance upon request by Administrations. This is an aspect of the Board's work on which Administrations place particular importance and has become a field in which the Board's assistance is solicited increasingly. In addition to these specific cases in which the Board intervened, frequently a member of the Board met with representatives of Administrations and discussed the procedures for notifying frequency assignments and the choice of frequencies to be assigned which would ensure the most effective use of the radio frequency spectrum.

5.2.4 *High frequency bands allocated exclusively to the Broadcasting Service*

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 the schedules varies from season to season and has not stopped increasing because since the entry into force of this procedure, the number of frequency-hours included in each HF Broadcasting Schedule has grown from approximately 16,700 in November 1960 to approximately 21,000 in November 1976. Despite the increasing use of the frequency bands, the number of apparent incompatibilities remains limited owing in particular to preliminary co-ordination measures taken by some Administrations.

5.2.5 *Monitoring*

Four periodic Summaries of Monitoring Information, numbered 188 (for the period November 1975 to January 1976) to No. 191 (for the period July to October 1976) inclusive and totalling 1,291 pages were issued in 1976. 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. (For further detailed explanations in this connection reference may be made to IFRB Circular-letters No. 241, dated 25 May 1970, and No. 248, dated 23 November 1970).

Two special programmes were conducted in 1976 for

- monitoring the frequency bands allocated exclusively to the Aeronautical Mobile (R) Service between 2 850 kHz and 17 970 kHz, from 3 to 16 May 1976 (IFRB Circular-letter No. 343 of 6 February 1976),
- monitoring the distress and safety channels and the bands allocated exclusively to the Maritime Mobile Service between 4 063 kHz and 25 110 kHz, from 6 to 19 September 1976 (IFRB Circular-letter No. 349 of 28 April 1976).

5.2.6 *Use of the ITU computer*

The IFRB used the ITU computer in 1976 for about 53% of the total utilization time to carry out the following work:

- a) calculations for the assessment of the interference of harmful interference in accordance with the relevant provisions of the Radio Regulations, or the preparation of the data used in such calculations;
- b) calculations for the examination of notices with respect to the provisions of Article 7;
- c) calculations for the assessment of the interference power produced by emissions from a space station at the receiver input of a station of the Fixed Service using tropospheric scatter, pursuant to the provisions of Nos. 470NGA and 470NK of the Radio Regulations;
- d) calculations for the assessment of the increase in equivalent satellite link noise temperature, pursuant to the provisions of Appendix 29 to the Radio Regulations;
- e) data processing to bring the information on frequency assignments recorded in the Master Register up to date;
- f) data processing for the preparation of the weekly IFRB Circular, Service Documents and other publications mentioned in this report; production of the tabulations required for publication by the offset process;
- g) 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.

Furthermore, the IFRB undertook studies in relation to the technical preparation of the Broadcasting-Satellite Conference, Geneva, January/February, 1977, in which most of the time was devoted to extensive modifications to an existing computer programme used to calculate the interference between multiple satellite networks to:

- reduce the computer running time;
- increase the effective capacity of the ITU computer;
- provide a simplified output format;
- incorporate all the technical data developed and/or finalized at the 1976 CCIR Interim Meetings;
- provide the ability to assess the effect of parameter variation on the interference levels of a given plan;
- provide extensive detailed output data.

The Board also prepared, for the use of the Conference, a computer programme to determine the optimum (minimum ellipse) antenna beam to provide coverage to a given service area from a given satellite position.

A computer programme was developed, in preparation for the Conference, to synthesize a frequency assignment/polarization/orbital position plan by using a pairwise compatibility matrix and a specified algorithm for selection of channel and polarization.

5.2.7 Publications

The documents prepared by the IFRB in 1976 for publication are listed hereafter.

	Number of pages
1. IFRB Circular (weekly airmail)	4,122
2. Recapitulative Supplements Nos. 4, 5, 6 and 7 to the Eighth Edition of the International Frequency List (List I)	3,078
3. Recapitulative Supplements Nos. 4, 5, 6 and 7 to the Eighth Edition of the List of Fixed Stations Operating International Circuits (List II).	235
4. Recapitulative Supplements Nos. 1 and 2 to the Eighth Edition of the List of Broadcasting Stations Operating in bands below 5 950 kHz (List IIIA)	61
5. Recapitulative Supplements Nos. 2 and 3 to the Fifth Edition of the List of Space Radiocommunication Stations and Radio Astronomy Stations (List VIIIA)	126
6. Periodic Summaries of Monitoring Information (Nos. 188 to 191 inclusive)	1,291
7. Prefaces to the documents mentioned above in three languages.	92
8. Tentative High Frequency Broadcasting Schedules	1,097
9. High Frequency Broadcasting Schedules	884
10. IFRB Circular-letters No. 342 of 6 January 1976 to No. 369 of 16 November 1976 inclusive	701
Total . . .	11,687

5.2.8 Implementation of the decisions of the Extraordinary Administrative Aeronautical Radio Conference, Geneva, 1966

Following the implementation of the Allotment Plan which appears in Appendix 27 to the Radio Regulations (dated 18 September 1969 for the frequency bands between 10 005 kHz and 17 970 kHz and dated 17 September 1970 for the frequency bands between 2 850 kHz and 8 965 kHz), the provisions that the Board applies to notices received from Administrations are those of Article 9 of the Radio Regulations as revised by the Aeronautical Conference in 1966.

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

a) Although the Final Acts of the World Administrative Maritime Radio Conference, Geneva, 1967 entered into force on 1 April 1969, the Conference foresaw that some of the provisions it adopted could be applied only in successive stages. It accordingly drew up a schedule, some stages of which extend until 1983. These decisions were confirmed and supplemented, where appropriate, by the World Administrative Maritime Radio Conference, Geneva, 1974 which adopted, in its Resolution No. Mar2-2, a calendar

for the implementation of its decisions regarding the rearrangement of the frequency bands allocated exclusively to the Maritime Mobile Service between 4 and 27 MHz. The decisions of this Conference were summarized by the Board in IFRB Circular-letter No. 320 of 20 March 1975.

b) The Board pursued its efforts to induce Administrations to apply the decisions of the Conferences as fully as possible by drawing their particular attention to each decision in advance of the date limit by which action should be taken.

c) In connection with the rearrangement of the frequency bands allocated exclusively to the Maritime Mobile Service between 4000 kHz and 27 500 kHz, the Board issued IFRB Circular letter No. 347 dated 26 March 1976 in which it drew the attention of Administrations to the measures to be taken concerning the transfer of their frequency assignments to radiotelegraph ship stations using working frequencies in all bands and calling frequencies in the 25 MHz band, in order to conform with the new band-limits. In IFRB Circular-letter No. 351 dated 5 May 1976, the Board reminded Administrations that between 2 June and 31 July 1976 they should transfer frequency assignments to some of their stations operating in the frequency bands reserved for radiotelegraph coast stations between 4 000 and 23 000 kHz to new frequencies as specified in Resolution No. Mar2-3. Steps to be taken by the Administrations concerning use of frequencies in the 25 MHz band for narrow-band direct-printing telegraphy as from 2 June 1976 and the transfer of ship calling frequency assignments in the bands between 4 and 23 MHz to new frequencies in conformity with Appendix 15C from 2 June 1976 to 31 May 1977 was the subject of IFRB Circular-letter No. 352 dated 21 May 1976.

d) Resolution No. Mar2-2 provides that HF bands reserved for narrow-band direct-printing telegraphy and data transmission systems will be made available as from 1 June 1977. In order to assist Administrations in achieving efficient use of these frequency bands, the Board requested Administrations in IFRB Circular-letter No. 359 dated 20 July 1976 to submit advance information on the frequency assignments they intended to put into use as from that date for this purpose, so as to be able to make appropriate recommendations and provide the assistance foreseen in paragraph 1.2 of Resolution No. Mar2-7. The Board is taking the appropriate action so as to submit its comments and recommendations with respect to the information received from the Administrations.

e) Pursuant to Resolution No. Mar2-15, the Board organized a special monitoring programme for the distress and safety channels and in the bands allocated exclusively to the Maritime Mobile Service between 4 063 kHz and 25 110 kHz, with a view to identifying out-of-band emissions. In IFRB Circular-letter No. 349 dated 28 April 1976, the Board invited Administrations to participate in this programme during the period 6 September 1976 until 19 September 1976 and to submit the results not later than 15 October 1976. The information received is being analyzed and the necessary action will be taken in accordance with paragraphs 2 and 3 of Resolution No. Mar2-15.

f) In application of Resolution No. Mar2-11, Administrations sent to the IFRB provisional notices of frequency assignments in conformity with Appendix 25 Mar2, which they propose to bring into use on 1 January 1978. The Board examined the possibilities of improving the sharing in each channel between the Administrations concerned and published the results of its examination together with appropriate recommendations in IFRB Circular-letters No. 362 of 26 August 1976, No. 366 of 26 October 1976 and Addendum to IFRB Circular-letter No. 366 of 12 November 1976. In carrying out its examination, the Board took into account the report of the Interim Working Party (IWP 8/2) of Study Group 8 of the CCIR and developed its own procedures and technical standards which are explained in some detail in IFRB Circular-letter No. 366.

5.2.10 *Regional Administrative LF/MF Broadcasting Conference (Regions 1 and 3), Geneva, 1975*

Following the adoption by the Conference of a number of Resolutions requiring continuing action by the IFRB in particular of providing assistance to Administrations which did not send frequency requirements for inclusion in the Plan or those which were not represented at the Conference, the Board undertook studies to assist those Administrations in the co-ordination of frequency assignments for inclusion in the Plan.

5.2.11 *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*

In 1976, 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.

The Board considered, that the use of other high-capacity telecommunication media such as satellite networks, submarine cables, etc. meant that there was less need for frequencies in the HF bands

(3-30 MHz) for handling traffic on international links. The Board therefore decided to apply the above-mentioned investigation procedure and to examine the frequency assignments to Fixed Service stations recorded in the Master Register on behalf of countries which, according to the information available to the Board, were also using other telecommunication media.

In 1976 the Board examined the frequency assignments to Fixed Service stations open to public correspondence which are recorded in the Master Register on behalf of a number of countries, using the procedure described above. The results were sent to these Administrations in the form of annotated extracts from the Master Register. The extracts included the Board's remarks on the existence in respect of certain circuits of telecommunication media other than those operating on high frequencies and the Administrations were invited to delete or change as necessary the pertinent entries.

In 1976, the Board received replies to this investigation from nine Administrations.

It has been possible to complete the study of the replies received in 1975 and 1976. 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 . .	13,941	100.0
Total number of entries		
— which have been cancelled	9,068	65.05
— for which other means of telecommunication normally are used (but the entry was retained in the Master Register). . .	1,984	14.23
— used only occasionally	327	2.35
— which are maintained unchanged	2,562	18.37
	<hr/> 13,941	<hr/> 100.00

5.2.12 Review of entries in the Master International Frequency Register of frequency assignments to space radiocommunication stations (No. 639DO of the Radio Regulations)

In accordance with No. 639DO of the Radio Regulations, the IFRB consulted all Administrations on whose behalf space radiocommunication stations are entered in the Master International Frequency Register, with a view to revising the frequency assignment entries. The first stage of this enquiry covered entries made in the Master Register before 1 January 1973, date of the entry into force of the revised version of Article 9A of the Radio Regulations made by the World Administrative Radio Conference for Space Telecommunications, Geneva, 1971. One hundred and forty letters were sent in 1976 to the Administrations concerned. By 31 December 1976 the Board had received 114 replies, on the basis of which it proceeded with the updating of the Master Register.

5.2.13 Technical planning for 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) held in Geneva in January/February 1977

In accordance with No. 482 of the Radio Regulations and Administrative Council Resolution No. 777, the IFRB undertook the technical preparation of the World Broadcasting-Satellite Administrative Radio Conference and assembled the pertinent data received from Administrations. The IFRB made a study of the technical characteristics of broadcasting-satellite systems and of the sharing criteria between the services using the frequency bands in question, from the point of view of the optimum utilization of the frequency spectrum and of the geostationary-satellite orbit. It also studied the regulatory aspect with regard to the different procedures which may be applied for the services concerned.

In addition to these studies, the IFRB developed or implemented a number of analytical methods to aid in the synthesis and/or evaluation of a frequency assignment/orbital position plan. These consisted of extensive computer programmes (some of which are used in conjunction with an automatic plotter), hand calculator methods with programmable calculators and manual methods. These tools included such items as the determination and plotting of elliptical antenna beam patterns and their intersections with the Earth's surface and the calculation of the potential incompatibilities among systems of satellite networks. These tools are now available for all space radiocommunication services (see also paragraph 5.2.6).

5.2.14 Technical planning for the World Conference on the Aeronautical Mobile (R) Service, 1978

In conformity with No. 482 of the Radio Regulations, the Board undertook technical planning for the World Administrative Radio Conference for the Aeronautical Mobile (R) Service in the frequency bands allocated exclusively to that Service between 2 850 and 17 970 kHz (Appendix 27 to the Radio Regulations), Geneva, 1978.

The decisions by the Administrative Council to postpone the Conference until 6 February 1978 had no effect on the preparatory arrangements announced by the Board in IFRB Circular-letter No. 343 (6 February 1976) concerning a special monitoring programme on the use of the bands in question during the period 3 to 16 May 1976. The monitoring results communicated to the IFRB as a result of the special programme contained information which was published in the periodic Summary of Monitoring Information No. 190 (28 March-4 July 1976).

To provide the IFRB with the necessary means to carry out further preparatory work for the Conference, the Board, in IFRB Circular -letter No. 354 (14 June 1976), requested Administrations to submit advance information on their frequency requirements for inclusion in a revised Appendix 27. It also sent to Administrations an extract from the Master Register of the assignments recorded on their behalf, asking them to update and return it. The information on frequency requirements provided by Administrations and the duly annotated extracts from the Master Register received by the Board are being analyzed and studied in detail. The results will be communicated to Administrations in due course.

5.2.15 Technical planning for the forthcoming World Administrative Radio Conference, 1979

In conformity with its mandate contained in Article 10 of the Convention and Article 8 of the Radio Regulations in particular No. 482, and in application of Resolution No. R776 of the Administrative Council, the Board reviewed the matters of substance to be dealt with by the General World Administrative Radio Conference, 1979, and initiated studies which may be the subjects of reports by the IFRB to Members of the Union.

5.2.16 Seminar on Frequency Management and the Use of the Radio Frequency Spectrum

Pursuant to Administrative Council Resolution No. 528, the IFRB organized at Union Headquarters in 1976 a Seminar on Frequency Management and the Use of the Radio Frequency Spectrum. The Seminar was held from 13 to 24 September 1976 and simultaneous interpretation was provided in English, Spanish, French and Russian for 122 participants (12 of whom received fellowships from UNDP) from 55 countries throughout the world. Lectures were given during the Seminar by 16 experts from 8 Administrations and 5 international or regional organizations concerned with telecommunications, members of the IFRB and officials of its specialized secretariat.

5.2.17 IFRB training and familiarization for Administration officials

Fourteen participants to the Seminar prolonged their stay with the IFRB in order to further their training. During 1976, representatives from the Bahamas, Bahrain, Brazil, Ivory Coast, United States, Guinea, Guinea-Bissau, Malaysia, Mauritania, Uganda, Papua-New Guinea, Netherlands, Senegal, Sweden, Togo and the U.S.S.R underwent training in the IFRB Specialized Secretariat. They studied and became familiar with regulatory as well as technical procedures for dealing with frequency assignment notices. Their stays varied from a few days to three months.

5.2.18 Technical co-operation

The IFRB participated in dealing with those technical co-operation questions which had been submitted by the Secretary-General to the Co-ordination Committee. In addition, in 1976, the Board studied 40 reports of ITU experts dealing with questions such as the technical specifications of equipment and the detailed surveys of several specific routes of the Pan African Telecommunication Network, Project Reports of Asian Telecommunication Network, development of broadcasting service in several countries in Asia and Africa, preliminary surveys aimed at development of the maritime telecommunications in all parts of the world, master plan for development of telecommunications in the Middle East and Mediterranean Area, and associated subjects concerning training, planning, maintenance, etc. in the same field and offered its comments thereon.

The IFRB also assisted in briefing of experts, finalizing agency terminal reports and training of fellows visiting the Union as a part of their training programme.

5.2.19 Other activities

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

5.3 The International Radio Consultative Committee (CCIR)

5.3.1 Introduction

The year 1976 was especially marked by the Interim Meetings of CCIR Study Groups, which were attended by over 935 participants. Some 900 technical contributions were considered, and important results were achieved, especially in the following fields:

- new satellite telecommunication systems for a variety of new services such as television broadcasting, maritime communication and navigation, and meteorological and earth resource applications;
- wider application of mobile radiocommunications, including techniques for automatic international calling at sea and on land;
- digital communication systems, especially via microwave radio relay and satellite networks;
- development of new television broadcasting services such as still image and teletext, automated measurements in international connections, and digital television transmission;
- more efficient use of the spectrum, including the development of powerful computational models to examine spectrum sharing, and important studies for efficient use of the geostationary satellite orbit;
- the extension of the usable spectrum to frequencies well above 10 GHz, to 300 GHz and higher, through relevant studies of propagation and systems.

One of the most intensive activities was devoted to technical preparation for the World Broadcasting-Satellite Administrative Radio Conference and the World Aeronautical Mobile (R) Administrative Radio Conference (1978). Work was initiated in most Study Groups towards specific preparation for the World Administrative Radio Conference for Revision of the Radio Regulations (1979).

It is with deep regret that the Director has to report the death on 24 November 1976 in Tokyo of Dr. S. Aritake, Chairman of Study Group 3. The functions of Chairman of Study Group 3 have since then been undertaken by Mr. De Haas, Vice-Chairman of Study Group 3.

5.3.2 Study Group meetings

Interim Meetings of the CCIR Study Groups, with the exception of Study Group 3 and the CMV, were held in two blocks during the first half of the year, according to the following schedule:

February-March

Study Group 2	(Space research and radio astronomy)	3-16 March
Study Group 5	(Propagation in non-ionized media)	16 Feb.-4 March
Study Group 6	(Ionospheric propagation)	16 Feb.-3 March
Study Group 7	(Standard frequencies and time signals)	16-26 February
Study Group 8	(Mobile services)	1-18 March

May-June

Study Group 1	(Spectrum utilization and monitoring)	19 May-4 June
Study Group 4	(Fixed service using communication satellites)	18 May-3 June
Study Group 9	(Fixed service using radio-relay systems)	19 May-4 June
Study Group 10	(Broadcasting Service (Sound))	3-18 May
Study Group 11	(Broadcasting Service (Television))	3-19 May
CMTT	(Transmission of sound broadcasting and television signals over long distances)	6-21 May

In addition, Study Group 8 held a special meeting from 22 to 26 March to prepare technical bases for the WARC Aeronautical (R) Conference scheduled for February/March 1978 (see paragraph 5.3.4.2).

During the second block of Study Group meetings, Interim Working Party (IWP) PLEN./2 (Possible Broadcasting Satellite Systems and their Relative Acceptability) met from 24 May to 4 June, to prepare the final version of its report which was forwarded as a preparatory document to the Broadcasting Satellite Conference, scheduled for January/February 1977. A special Joint Working Party (JWP) was also constituted during this period which prepared a report containing technical bases for the Broadcasting Satellite Conference (see paragraph 5.3.4.1).

The first block of Study Group meetings was attended by 336 participants, while the second block was attended by 599 participants, the latter figure including attendance at the meeting of IWP PLEN./2 and the JWP. The Special Meeting of Study Group 8 was attended by 59 participants. Details on participation, registration for each of these meetings and the number of contributions considered by the various meetings are given in Table 1.

TABLE I

Administration	Study Group													
	1	2	4	5	6	7	8	9	10	11	CMTT	PLEN./2	JWP	TOTAL
Algeria	—	—	—	×	×	—	—	—	—	—	—	—	—	2
Fed. Rep. of Germany	×	×	×	×	×	×	×	×	×	×	×	×	×	13
Argentina	—	—	—	×	×	×	×	—	—	—	—	—	—	4
Australia	×	×	×	×	×	—	×	×	×	×	×	×	×	12
Austria	×	—	×	—	—	—	—	×	×	×	×	—	×	7
Belgium	—	—	—	—	—	—	×	—	×	×	×	—	×	5
Brazil	—	—	×	—	—	—	—	—	—	×	—	×	×	4
Cameroon	—	—	—	—	—	—	×	×	—	—	—	—	—	2
Canada	×	×	×	×	×	×	×	×	×	×	×	×	×	13
Chile	—	—	—	—	—	—	—	—	—	—	—	×	—	1
China	×	×	×	×	×	×	×	×	×	×	×	×	×	13
Cuba	×	—	—	—	—	—	—	—	—	—	—	—	—	1
Denmark	—	—	×	×	—	—	—	×	×	×	×	—	×	7
Egypt	—	—	—	—	—	—	—	×	—	—	—	—	—	1
Spain	×	—	×	×	×	—	×	×	×	×	×	×	×	11
United States	×	×	×	×	×	×	×	×	×	×	×	×	×	13
Finland	×	×	×	×	×	×	×	×	×	×	×	—	×	12
France	×	×	×	×	×	×	×	×	×	×	×	×	×	13
Greece	×	—	—	—	—	—	—	—	—	—	—	—	—	1
Hungarian People's Rep.	—	—	×	—	—	—	—	×	×	×	×	—	×	6
India	×	×	×	×	×	×	×	×	×	×	×	×	×	13
Indonesia	—	—	×	—	—	—	—	—	—	—	—	—	—	1
Iran	×	—	×	—	—	—	×	×	×	×	×	×	×	9
Ireland	×	—	×	—	—	—	×	×	×	×	×	—	×	8
Italy	×	×	×	×	×	×	×	×	×	×	×	×	×	13
Japan	×	×	×	×	×	×	×	×	×	×	×	×	×	13
Mexico	×	—	—	—	—	—	—	×	—	—	—	—	—	2
Nigeria	—	—	—	—	—	—	×	×	—	—	—	—	—	2
Norway	×	—	×	×	×	—	×	×	×	×	×	—	×	10
New Zealand	×	—	×	—	—	—	—	×	×	×	×	×	×	8
Netherlands	×	—	×	×	×	—	×	×	×	×	×	×	×	11
Poland (People's Rep. of)	×	—	×	×	×	—	×	×	×	×	×	×	×	11
Portugal	×	—	×	—	—	—	—	×	×	×	×	—	×	7

TABLE I (concluded)

Administration	Study Group													
	1	2	4	5	6	7	8	9	10	11	CMTT	PLEN./2	JWP	TOTAL
German Democratic Rep.	×	—	×	×	×	—	×	×	×	×	×	×	×	11
Roumania	×	—	×	—	—	—	—	×	—	—	—	×	×	4
United Kingdom	×	×	×	×	×	×	×	×	×	×	×	×	×	13
Sweden	×	—	×	×	×	—	×	×	×	×	×	×	×	11
Switzerland	×	—	×	×	×	×	×	×	×	×	×	—	×	11
Czechoslovakia	×	—	×	—	—	—	—	×	—	×	×	×	×	7
Turkey	—	—	—	—	—	—	—	—	×	×	—	—	—	2
U.S.S.R.	×	×	×	×	×	×	×	×	×	×	×	×	×	13
Yugoslavia	×	—	×	—	—	—	×	×	×	×	×	×	×	9
Totals: 42	30	12	31	22	21	13	26	33	29	31	29	23	30	

Recognized private operating agencies, etc.	Study Group													
	1	2	4	5	6	7	8	9	10	11	CMTT	PLEN./2	JWP	
Recognized private operating agencies	13	2	21	15	10	1	16	15	16	18	22	9	15	
International organizations	—	1	4	2	2	2	4	—	2	3	2	1	1	
Specialized agencies of the United Nations	—	1	1	—	—	—	2	—	—	—	—	—	—	
Scientific and industrial organizations	5	—	10	2	1	—	6	14	4	4	8	3	3	
Other organs of the ITU	2	2	3	2	2	2	3	3	2	2	3	2	1	
Registration	111	53	190	96	85	41	149	169	170	224	161	84	119	
Contributions	67	80	130	78	88	44	92	106	129	173	104	1	*	898

* The JWP considered the documentation of the Study Groups concerned.

Following the meetings of the Study Groups, a major part of the efforts of the Secretariat during the year were directed towards the publication of the results of these Interim Meetings. In each language, these results comprise 3,200 pages divided into separate booklets for each Study Group. The production of these booklets was terminated by October and they were dispatched as they became available to the participants in the work of the Study Groups concerned (see also paragraph 5.3.5).

It should be noted that, while these conclusions are provisional, as indicated by the fact that they are included in the preparatory documentation for the Final Study Group Meetings, they are nevertheless considered to be authoritative as they are frequently cited in national contributions submitted to administrative radio conferences.

5.3.3 *Activities of the individual Study Groups*

5.3.3.1 *Study Group 1* (Spectrum utilization and monitoring)

Chairman : J. DIXON (USA)

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

Study has continued on definitions of interference, on development of mathematical models to facilitate interference studies, on classification and designation of emissions, and on methods for monitoring and measuring emissions and spectrum occupancy. The main goals of Study Group 1 are to provide information and recommendations on technical factors in the fields of spectrum utilization, spectrum management, and radio systems planning.

At the Interim Meeting of this Study Group it was decided to delete or revise many texts in Volume 1 (1974) pertaining to earlier work of the Study Group. Also, five new Reports and two new Recommendations were prepared. New material on modelling of radiocommunication systems, radio noise, interference, bandwidth measurement, monitoring and frequency sharing was prepared for inclusion in Study Group 1 texts.

5.3.3.2 *Study Group 2* (Space Research and Radio Astronomy)

Chairman : I. RANZI (Italy)

Vice-Chairman : J. P. HAGEN (USA)

The field of activity of this Study Group includes the following: space research both near-Earth and deep-space, Earth exploration satellites, meteorological satellites, amateur satellites, radio astronomy and radar astronomy. Such general space topics as attitude control technology, the effects of plasmas on communications with spacecraft (that is, the general re-entry problem), the probability of hazards to personnel within aircraft due to radiation from earth stations, low-orbit satellite visibility statistics, and sensors both active and passive are also covered.

Among noteworthy contributions of Study Group 2 in early 1976 were texts made available to the World Broadcasting-Satellite Administrative Radio Conference (1977). Study Group 2 set out the present situation concerning attitude control technology, thereby defining one of the parameters of planning broadcasting-satellite services, because the precision of coverage of a given area on the Earth's surface by a satellite's antenna depends on the precision by means of which the attitude of the satellite in its orbit can be maintained. Study Group 2 also provided data concerning the likely effects of the second harmonics of emissions from broadcasting satellites at 12 GHz when related to radio astronomy operations at 24 GHz. This topic is of great importance to the Radio Astronomy Service, in which observatories customarily use very sensitive receiving stations, so that even when their highly directive antennae are pointed away from the source of interference a power flux-density of -146 dB (W/m²) may be sufficient to cause harmful interference.

Recognizing that frequency sharing among and between space and terrestrial services is now in existence on a large scale, and that with the rapid multiplication of space services this situation will only become more extensive in the future, the Study Group is now devoting much of its activity to the analysis of sharing problems of all kinds. Criteria concerning the Radio Astronomy Service were first drawn up some years ago, but now data are being put forward for manned and unmanned near-Earth satellites, manned and unmanned deep-space research spacecraft, associated Earth stations, meteorological satellites, earth exploration satellites including geodetic satellites, amateur satellites, and many combinations of these and terrestrial radiocommunication activities.

In 1976 the Study Group modified 4 and prepared 2 new Recommendations; it modified 7 and prepared 12 new Reports. A new Question adopted by correspondence deals with radiocommunications requirements for systems to search for extraterrestrial life.

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

Chairman : S. ARITAKE (Japan)

Vice-Chairman : T. DE HAAS (USA)

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, especially for remote areas with low traffic densities. 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. Study Group 3 will hold only a Final Study Group Meeting in the current study period of January 1978.

5.3.3.4 Study Group 4 (Fixed service using communication satellites)

Chairman : W. KLEIN (Switzerland)

Vice-Chairman : E. R. CRAIG (Australia)

As the fixed service using communication satellites moves through its second decade of commercial operation, there is a shift of emphasis in the studies that are being carried out by Study Group 4. Hitherto, due to the fact that the major part of the techniques and the frequency bands used by satellite were very similar to those employed by radio-relay systems, effective interconnection and frequency sharing between them were of prime importance. Experience has shown that this was indeed feasible. Thus, in 1976, while refinements were still being sought to improve the coordination of the two services just mentioned, in particular in frequency bands higher than 10 GHz, studies on sharing of frequency bands with another service, namely the Broadcasting-Satellite Service, were being launched. In all, one new and 10 revised Recommendations were prepared, as well as 5 new and 24 revised Reports.

During the Interim Meeting, a major effort was made to draft texts which would form the technical bases for the World Broadcasting-Satellite Administrative Radio Conference (1977). Especially important topics were sharing criteria between the fixed and broadcasting service using satellites.

As is generally known, frequency sharing depends on network planning, system parameters, and radiation characteristics of antennae, factors which can be adapted to needs within certain limits, and on propagation characteristics, which can be quite different for different climates. Recent propagation data and models elaborated by Study Group 5 have been used to up-date the method for determining the coordination distances between earth stations and terrestrial radio-relay stations. This method may be applicable to coordination problems involving the Broadcasting-Satellite Service. Another important problem in sharing is connected with the spurious emissions from broadcasting satellites in the 12 GHz band, which may cause interference to earth stations of the fixed-satellite service operating in adjacent frequency bands. Various measures of protection were discussed in the Interim Meeting.

In anticipation of wide-spread use of digital techniques in the fixed-satellite service, to overcome adverse propagation effects of rain in frequency bands above 10 GHz, the Interim Meeting of Study Group 4 has adopted 3 new texts, on interference, bit error tolerances and interfaces with terrestrial networks.

The interim Working Party 4/1, on the efficient utilization of the geostationary satellite orbit, held an informal meeting during the period of the Interim Meeting. It was agreed that many new topics should be studied in the forthcoming meeting tentatively scheduled for spring 1977.

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

Chairman : J. A. SAXTON (United Kingdom)

Vice-Chairman : A. KALININ (USSR)

During the Interim Meeting of the Study Group attention was focussed on certain fields: the provision of adequate propagation data for the World Broadcasting-Satellite Administrative Radio Conference; the further analysis of the slant path problem relative to the planning of all Earth-space links; and finally the continued investigation of the effect of precipitation at frequencies above about 6 GHz. Six new and 6 revised Recommendations were prepared, as well as 3 new and 16 revised Reports.

Study of precipitation effects is of widening importance because of the spread of space communications among the developing countries, which are predominantly in the tropics, and for applications of broadcasting satellites. In monsoonal climates the rainfall intensities are much higher than in temperate climates. As a result there is need for more data on the peak rainfall intensities that are valid for small percentages of the time such as 0.01 and 0.1. Such small percentages of time are important both from the point of view of signal attenuation and of the propagation of interference by reflection and scattering. The relevant Interim Working Parties of the Study Group, IWP 5/2 and IWP 5/3, have drawn up programmes of studies to be carried out urgently. They expect to meet early in 1977 to coordinate their contributions on these subjects to the Final Meeting of Study Group 5, which is to be held in September 1977.

One of the most significant contributions was the preparation of a new Report on Propagation Data for the Evaluation of Coordination Distance for an earth station in the Frequency Range 1-40 GHz.

In addition to these activities, Study Group 5 is also proposing to examine the propagation characteristics of electromagnetic waves in the highest radio-frequency region, as well as in the infra-red and visible light parts of the spectrum; this will extend the scope of its work far beyond the present paper limit of about 300 GHz. This is expected to have a direct effect on the application of laser beams to telecommunications.

5.3.3.6 Study Group 6 (Ionospheric propagation)

Chairman : D. K. BAILEY (USA)

Vice-Chairman : Miss G. PILLET (France)

Investigation of ionospheric propagation continues especially in relation to LF, MF and HF sound broadcasting, maritime mobile communications and to space communications where the influence of trans-ionospheric propagation must be considered.

Some highlights of the last interim period were: the propagation of a method for calculating field strength of signals at VHF propagated by sporadic E layers; the elaboration of a completely revised technical base for a new CCIR computer-based method for estimating sky-wave field strength at frequencies between 20 and 30 MHz; the significant progress made in improving CCIR methods for sky-wave field strength predictions for the frequency range 150-1 600 kHz, and for the study of ionospheric effects on Earth-space propagation.

Over the years, the most important results of the work of Study Group 6 have been achieved through the effects of Interim Working Parties. Three new Interim Working Parties have been created by the recent Interim Meeting.

At the last Interim Meeting the total number of contributions received from the participants and other sources was about 180. Five revised Recommendations were drafted and 2 new and 23 revised Reports were prepared.

The CCIR secretariat is also continuing the monthly publication of long-term ionospheric prediction indices.

5.3.3.7 Study Group 7 (Standard Frequencies and Time Signals)

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

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

The “ Coordinated Universal Time ” (UTC) developed by Study Group 7 is in almost universal use and forms the basis for civil time in most countries. However, the Interim Working Party 7/1 which was in charge of the implementation of the UTC system was asked to continue its work and to undertake the following additional tasks:

- to carry out a survey on the requirements of users of standard frequency and time signal emissions;
- to study time codes which can be recommended on an international level.

A Report on definitions prepared by IWP 7/2 containing about 35 terms used in the standard frequency and time signal service was approved. The difficult task of this group has to be pursued further, as there are many other terms to be defined.

Interim Working Party 7/3 is concerned with the reduction of mutual interference in the allocated HF bands. A draft Recommendation was approved giving the necessary instructions for a careful coordination before any new station is put into service. However, the reduction of the present mutual interference is still unresolved and needs careful attention by the IWP in its future work.

New methods of time and frequency dissemination were studied, e.g. by means of satellite relay, television synchronization pulses, additional phase modulation of the carrier of amplitude broadcast transmitters.

A new draft Question on the reliability of time and frequency standards was approved, as this matter is of importance to high speed data transmission systems.

Furthermore, a draft Recommendation on the use of language independent time scale notations was approved. The following notations shall be used in all languages:

TAI	International Atomic Time, as formed by the BIH;
TA	atomic time; general designation of a time variable which may be realized on the basis of an atomic or molecular transition;
TA (i)	atomic time-scale, as realized by the institute “ i ”;
UT	Universal Time;
UTC	Coordinated Universal Time; this time-scale is maintained by the BIH, according to Recommendation 460-1;

- UTC (i) time-scale realized by the institute “i” and kept in close agreement with UTC;
 DUT1 predicted difference UT1-UTC, as disseminated with time signals.

In all the Study Group prepared 2 new and 1 revised Recommendation, as well as 2 new and 13 revised Reports.

5.3.3.8 Study Group 8 (Mobile Services)

Chairman : W. H. BELLCHAMBERS (United Kingdom)

Vice-Chairman : O. J. HAGA (Norway)

The Interim Meeting was attended by 150 delegates representing 27 countries, international organizations and private operating agencies.

Six main Working Groups were set up to consider the 112 documents, as follows:

- 8A Land mobile service
- 8B Maritime mobile service (Telegraphy and allied subjects)
- 8C Maritime mobile service (Telephony and allied subjects)
- 8D Maritime mobile-satellite service (Interface and access problems)
- 8E Maritime mobile-satellite service (Radio and allied subjects)
- 8F Aeronautical mobile service, aeronautical mobile-satellite service, interference problems and miscellaneous matters.

Two new and 6 revised Recommendations, as well as 19 new and 18 revised Reports were drafted.

Reports from the three Interim Working Parties were presented and approved.

— *Maritime satellite service (Interim Working Party 8/1)*

Technical characteristics of systems in the maritime mobile-satellite service.

This Working Party had produced a large number of new Reports and amendments to existing Reports for the consideration of the Study Group. The work on maritime mobile-satellite systems now represents a significant part of the Study Group's efforts.

— *HF Radiotelephone channels (Interim Working Party 8/2)*

Improved use of the HF radiotelephone channels for coast stations in the bands allocated exclusively to the maritime mobile service.

The Report of Interim Working Party 8/2, approved by the Study Group, was forwarded to the Chairman of the IFRB. A meeting of the IWP was held to consider some further information provided by the IFRB and the Working Party was then disbanded by the Study Group.

Interim Working Party 8/2 which was set up in January 1975, mainly to consider the IFRB's urgent requirements, completed its task in record time and illustrated that, when necessary, the CCIR can respond rapidly.

— *Digital selective calling (Interim Working Party 8/3)*

The studies in this Working Party had advanced very rapidly and further progress was made in the Study Group. Although there are a number of outstanding problems to resolve, the indications are that a complete Recommendation will be available at the end of the Final Meeting in 1977.

Interim Working Party reorganization

In view of the increased international activity directed towards establishing a worldwide maritime mobile-satellite system, the heavy workload on the Chairman of Interim Working Party 8/1 and the need to complete the essential studies in a shorter time than that envisaged in 1974, the Study Group agreed to split the work, by creating a new Interim Working Party 8/4. Interim Working Party 8/1 will be responsible for modulation techniques, access and interworking with the international networks. Interim Working Party 8/4 will be responsible for radiocommunication and operating aspects.

Study Group 8 activity continues to increase in all fields, aeronautical, land and maritime, and much of the work necessitates closest cooperation with the Inter-Governmental Maritime Consultative Organization (IMCO) and the International Civil Aviation Organization (ICAO). This cooperation will be particularly important in the studies in preparation for the World Administrative Radio Conference 1979.

5.3.3.9 *Study Group 9* (Fixed Service using Radio-Relay Systems)

Chairman : J. VERREE (France)

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

The Interim Meeting of Study Group 9 in May-June 1976 reviewed existing texts contained in Volume IX of the XIIIth Plenary Assembly of the CCIR and studied 110 contributions submitted by members. It has approved 70 documents, which constitute new texts and revised versions of old ones, including 1 new and 9 revised Recommendations, as well as 7 new and 12 revised Reports.

The most important results obtained in this meeting are undoubtedly on the characteristics of digital radio-relay systems, on more efficient use of frequency bands allocated to the fixed service using radio-relay systems, and on the sharing of frequency bands with the fixed and broadcasting services using satellites.

- *On digital radio-relay systems*, a hypothetical reference digital path has been defined and the quality of such circuit elaborated upon with a view to defining performance standards of such circuits. The interconnection at basebands and the choice of intermediate-frequencies for large capacity digital systems were discussed at length in several reports. On the other hand, little progress was made to lay down channel arrangements for large capacity systems at 11 or 18 GHz bands.
- *On the utilization of frequency bands*, more strict tolerances of frequencies were proposed for study, since this would alleviate congestion of the allocated spectrum in a certain measure. Another important step taken by Study Group 9 was the adoption of a new Question to study the use of coherent electromagnetic waves of frequencies higher than 40 GHz for use by radio-relay systems.
- *Sharing of frequency bands with other services using satellites*. Up to the present, sharing of frequency bands with the fixed service using satellites has been a major undertaking of Study Group 9. Very close collaboration with other relevant CCIR Study Groups had been instrumental in establishing procedures for estimating coordination contours, thus reducing to a very large extent the risks of mutual interference between these two services.

A new problem of sharing has arisen as a result of the decision taken to hold the World Broadcasting-Satellite Administrative Radio Conference. Thus, Study Group 9 prepared several texts on the mutual protection of these two services and on the provisional characteristics of radio-relay systems using frequencies in the 12 GHz band. These texts were incorporated in a report of the CCIR and submitted to the Conference. It must be emphasized that work in this field has just started, and it will take several years for the sharing criteria to be elaborated as was the case of sharing between radio-relay systems and the fixed service using satellites. Conditions of coordination must be laid down, the effect of spurious emissions must be considered.

Study Group 9, during its Interim Meeting, also discussed topics which need to be considered in preparation for the 1979 World Radio Conference.

5.3.3.10 *Study Group 10* (Broadcasting Service (Sound))

Chairman : C. TERZANI (Italy)

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

5.3.3.11 *Study Group 11* (Broadcasting Service (Television))

Chairman : M. KRIVOCHEEV (USSR)

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

During the Interim Meetings of these two Study Groups, a large proportion of the time was taken up with a thorough review and development of texts concerning the Broadcasting-Satellite Service in the 12 GHz band. To perform this task a Joint Working Group 10/11-B, under the Chairmanship of Mr. C. Siocos (Canada) was set up. This Group examined all the texts already existing in Volumes X and XI of the XIIIth Plenary Assembly, together with a large quantity of new material.

Another topic of joint interest to the two Study Groups was that of recording broadcasting programmes, both sound and television, on film or magnetic tape. A Joint Working Group, 10/11-A under the Chairmanship of Mr. F. M. Remley (USA) was set up. This JWP brought up to date many texts dealing with recording, and performed a valuable task in setting out the guidelines for cooperation between the CCIR and the International Electrotechnical Commission.

As a result of the work of the Joint Group on satellite broadcasting, a comprehensive series of drafts was prepared concerning the Broadcasting-Satellite Service, special emphasis being given to the use

of the 12 GHz band for this purpose. Since the results of the Interim Meetings of Study Groups would constitute the basis for the technical discussions during the WARC (B-S) Geneva, 1977, it was decided that a Special Joint Working Party (JWP) comprised of representatives of the Study Groups concerned should be set up, to which representatives of each Study Group would attend, with a view to drafting a consolidated report containing all the available technical material for use by the Conference. Such a JWP was, in fact, set up, under the Chairmanship of Dr. J. A. Saxton (U.K.) and all the material emanating from Study Groups 10 and 11 concerning broadcasting from satellites in the 12 GHz band was included therein.

In addition to the work specifically directed to the Broadcasting-Satellite Service, the Study Groups continued their normal activities. Among these may be mentioned the application of digital modulation technique, which questions are being actively pursued by Study Groups 10 and 11 in close cooperation with the CMTT. The application of digital modulation may be considered from the following three aspects:

- the use of digital modulation for the transmission of the signals from the studio to the transmitter;
- the use of digital coding techniques for the processing of the video and sound signals within the studio.
- the use of digital modulation in the radio-frequency transmission path between the transmitter and the points of reception;

Of these three possibilities, the first and second appear the most immediately applicable, the third depending on the availability of domestic receivers capable of receiving digital modulation emissions. Study Groups 10 and 11, together with the CMTT, are actively investigating the possibilities presented by these applications of digital modulation.

Study Group 11 commenced investigation into several new possibilities for television:

- the reception of alphanumeric or graphical information “teletext”, which can be received by the public at large at will by use of a simple adapter to the television receiver;
- the transmission of still pictures for reception by the general public;
- the addition of signals for the automatic control of television signals recorded on tape, to enable programmes to be assembled automatically at the transmitting centre;
- the subjective assessment and objective measurement of impairments to television pictures, and the application of subjective impairment grades in the specification of protection ratios;
- the relative merits of circular or elliptical polarization in the transmission of television signals.

Both Study Groups made a comprehensive review of the texts already existing in the Volumes of the XIIIth Plenary Assembly and, as a result, several Reports were transformed into Recommendations, and an Interim Working Party 10/2, under the Chairmanship of Mr. S. N. Mitra (India) was set up to review and bring up to date all the texts dealing with broadcasting in the Tropical Zone.

Owing to the resignation of Mr. Y. Venkataramiah (India) from the post of Vice-Chairman, Study Group 10, it was necessary to elect a new Vice-Chairman to replace him. This was done and Mr. S. N. Mitra (India) was elected as Vice-Chairman, Study Group 10.

Texts prepared by the Study Groups include:

<i>Study Group</i>	<i>10</i>	<i>11</i>	<i>10/11</i> (Broadcasting by satellite)
New Recommendations	8	2	1
Modified Recommendations	5	3	—
New Reports	4	2	7
Modified Reports	8	16	6

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

Chairman: Y. ANGEL (France)

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

The CMTT is engaged in the study of 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.

The main subjects of the CMTT's mandate concern standards for television transmission, measurement, monitoring and maintenance, and the joint transmission of sound and television signals (as well as questions of sound programme transmission). Studies are being finalized which will lead to a new Recommendation for unified methods of measurement and performance objectives for international circuits using analogue transmission which may carry, at different times, 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 2,500 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 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, masking of errors, distortion, composition laws, the effect of arranging codes in tandem, the effects of sampling jitter. Updated technical data are included in a number of Reports.

The Interim Meeting of the Study Group prepared two new and 3 revised Recommendations, as well as 7 new and 17 revised Reports.

The Interim Working Party CMTT/1 is studying digital systems for the transmission of sound programme and television signals and acts as a coordinating body between CCIR Study Groups 4, 9, 10, 11 and CMTT and Special Study Group D.

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

5.3.3.13 CMV

(CCIR/CCITT Joint Study Group for Vocabulary)

Chairman : R. VILLENEUVE (France)

Vice-Chairmen : M. DUCOMMUN (Switzerland)

B. A. DURAN (Spain)

The work of CMV continued this year with its Vocabulary Groups being brought into operation.

To begin with, at the request of the Chairman of CMV, the members of the Vocabulary Groups corresponding to each Study Group's field of activity were appointed by the Study Group concerned at the Interim Meetings. Work is being carried on by correspondence for the approval of the chapter concerning space communications. The preparatory work has been completed for the Broadcasting and Propagation Groups and will be submitted very shortly to the members of these groups working by correspondence. It has been decided that the vocabulary work concerning the CCIR would be so organized that the texts can be submitted to the CMV meeting in 1978 for approval.

The Joint Groups of experts set up in 1974 with the CCITT and the IEC are continuing their work. Several texts have been sent for approval by the participating bodies.

The CCITT Plenary Assembly, 1976, asked the CCIR to consider the future role of the CMV at the time of the CCIR XIVth Plenary.

5.3.3.14 *Interim Working Party (IWP) PLEN/2* (Possible broadcasting satellite systems and their relative acceptability)

The XIIIth Plenary Assembly of the CCIR, Geneva, 1974, after examining the Report submitted by the Interim Working Party, decided that further studies as enumerated in CCIR Resolution 38-1 should be undertaken and a Report of its proceedings should be made available to the World Administrative Radio Conference for the Planning of Broadcasting-Satellite Service in the frequency band 11.7—12.2 GHz and a final report to the Director of the CCIR for consideration by the XIVth Plenary Assembly of the CCIR.

In accordance with the above, the (IWP) PLEN./2 met in Geneva along with the Interim Meetings of CCIR Study Groups during 1976 and prepared a Report (in three working languages) which was transmitted to the Secretary-General for publication as a document for the World Broadcasting-Satellite Administrative Radio Conference, and to be issued as a Final Report in accordance with Resolution 38-1.

The Chairman, in consultation with the members of the Working Party, will decide whether there is a need for the Party to meet before the XIVth Plenary Assembly of the CCIR scheduled to meet in 1978, to review this Report further before consideration by the XIVth Plenary Assembly.

5.3.4 *CCIR Contributions to Administrative Radio Conferences*

An important purpose of CCIR is the preparation of an adequate basis of technical information to meet the needs of Administrative Radio Conferences.

5.3.4.1 *World Broadcasting-Satellite Administrative Radio Conference (1977)*

During 1976 the Interim Meetings of the CCIR Study Groups brought to a culmination the technical preparation for the World Broadcasting-Satellite Administrative Conference (1977). Sixty-nine Reports and Recommendations (most in the form of updated draft revisions or new texts) were transmitted to the Conference. A special Joint Working Party of the Study Groups, under the chairmanship of Dr. J. A. Saxton (United Kingdom), prepared a 41-page report summarizing this technical information relevant to planning for the use of the 12 GHz band by the Broadcasting-Satellite Service, and technical criteria for sharing among various services using this band. The report summarized relevant information on terminology, propagation, system technology for the Broadcasting-Satellite Service, elements for planning, and considerations for frequency sharing. This material provided the major technical basis for the work of the Conference. The largest proportion of the technical annexes of the Final Acts of the Conference were based on the CCIR work. The Conference addressed a number of Recommendations to the CCIR for urgent new or further study of certain technical questions for the future utilization of broadcasting satellites and other services sharing the band. The CCIR secretariat assisted the Technical and Planning Committees, and participated throughout the Conference to assist in interpretation and application of the CCIR data.

5.3.4.2 *Aeronautical (R) Conference (1978)*

Pursuant to Resolution 764 of the Administrative Council, the CCIR carried out during 1976 preparation of technical information to be used as a basis for the Aeronautical (R) Conference. A special Meeting of Study Group 8 was held in March 1976, to prepare a report which has been transmitted to the Conference. The report deals with classes of emission, power limits, frequency tolerances, channel spacing, occupied and necessary bandwidth, and the validity of existing interference range contours, and limits of unwanted emissions.

The CCIR secretariat has been requested to provide a computational method for consideration of interference due to intermodulation products for close-spaced transmitters and receivers.

5.3.4.3 *World Administrative Radio Conference for General Revision of the Radio Regulations (1979)*

Pursuant to Administrative Council Resolution 775, CCIR has begun work to provide a technical basis for the 1979 WARC. A circular letter was first addressed to CCIR participants suggesting the possibility of certain areas of activity in which studies are needed. Study Groups during their interim meetings drafted a number of Questions and Study Programmes designed to elicit information directly relevant to the 1979 Conference. A number of urgent Questions and Study Programmes have been adopted by correspondence in accordance with No. 308 of the ITU Convention. A series of Recommendations to the CCIR by various Radio Conferences, requesting studies in specific areas, have been considered by the appropriate Study Groups. A communication from the IFRB, identifying CCIR Questions and Study Programmes considered by the Board to be of importance for the 1979 Conference has been disseminated to the Study Groups. A meeting of Study Group Chairmen has been scheduled for 13-17 June 1977 to begin preparation for the Special Joint Meeting of CCIR Study Groups foreseen in Administrative Council Resolution 775.

5.3.5 *Other activities of the secretariat*

5.3.5.1 *Computer utilization*

The CCIR secretariat has elaborated a method of complete computerization of plotting the directivity patterns of all LF and MF antennae by utilizing the new plotter of the ITU computer.

This method has helped to speed up the work of elaborating and editing an enlarged version of the well-known Antenna Handbook of the CCIR which will include about 175 antenna diagrams. The new edition of the atlas will be available in early 1977.

The advantages of using a computer for this purpose include the possibility of allowing for the whole range of ground conductivity values that are met with in practice, and so the curves resulting from this work will include practical values of this parameter for the first time. They will thus constitute a major contribution by the CCIR secretariat to radiocommunications. The programming work is being carried out in the secretariat in liaison with Study Group 5.

The CCIR continues to use the computer for routine monthly computation of basic ionospheric indices published in the Telecommunication Journal.

It also continues to sell to the Administrations and operating agencies computer programmes for long-term ionospheric propagation predictions based on the CCIR Report 252-2 and its revision.

5.3.5.2 *Editing*

The CCIR Editing Department has had to prepare, for reproduction, the booklets containing the Conclusions of the Study Groups' Interim Meetings held in 1976 in Geneva. These Conclusions comprise 13 booklets, taking into account the studies relating to the joint work of Study Groups 4 and 9 and Study Groups 10 and 11, the total representing 3,500 pages. The booklets were published between April and September 1976.

The Editing Department has also prepared the manuscripts of the report of Study Group 8 to WARC (AER) (aeronautical mobile service) and the report of the CCIR to the World Broadcasting-Satellite Administrative Radio Conference, this last report containing a 700-page annex fully prepared for reproduction.

The final version of the Report on possible broadcasting satellite systems and their relative acceptability (about 250 pages) has been completed.

In 1976, a preliminary version was published in English of an alphabetical index to CCIR texts contained in Volumes I-XIII (1974) (about 2,500 terms in about 80 pages). The preparation of this index for publication in French and Spanish has been completed this year and the texts will be published in the first few months of the coming year. The index was printed with the assistance of the ITU Computer Department.

5.3.5.3 *Technical cooperation*

The CCIR secretariat maintained close cooperation with the Technical Cooperation Department in the selection of experts and equipment for UNDP/ITU projects.

During the year consulting and review work was carried on as required, in particular relative to radio-relay systems, and to compatibility among systems. Siting route selection and general propagation aspects were evaluated. An interim system for the Sudan was evaluated in depth and appropriate recommendations made.

Further evaluation at propagation and topographical data resulted in the recommendation of a direct link from Jibal Aros near Taiz (Yemen A.R.) to Jibal Tachi near Assab (Ethiopia); such a link would enable direct interconnection between Arabia and Africa.

The Director participated in ITU Seminars held in South America, Africa and Asia in preparation for the World Broadcasting-Satellite Administrative Conference, presenting lectures on the CCIR technical preparatory work for the Conference.

5.3.6 *Relations with other Organs*

5.3.6.1 *Cooperation with the CCITT*

The CCIR Secretariat participated in the following CCITT/CCIR Plan Committee meetings:

1. Coordination Committee for Plan Committee for Asia, Geneva 11-12 October 1976
2. Coordination Committee for Plan Committee for Europe and the Mediterranean Basin, Geneva, 24-26 November 1976.

5.3.6.2 *Cooperation with other international organizations*

Close contact during this period was maintained with the:

- International Union of Radio Science (URSI),
- Inter-Governmental Maritime Consultative Organization (IMCO),

- International Civil Aviation Organization (ICAO),
- International Electrotechnical Commission (IEC),
- European Broadcasting Union (EBU),
- International Radio and Television Organization (OIRT),
- Asian Broadcasting Union (ABU),
- International Special Committee on Radio Interference (CISPR),
- International Marine Radio Association (CIRM),
- World Meteorological Organization (WMO),
- Inter-Union Commission on Allocation of Frequencies for Radio Astronomy and Space Science (IUCAF).

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

5.4.1 *Introduction*

The activity of the CCITT Study Groups and Working Parties in 1976 was directed to preparing the final reports for the VIth CCITT Plenary Assembly held in Geneva from 27 September to 8 Octobre.

This was the first occasion on which the final study group meetings were separated in time from the Plenary Assembly. As can be seen from Table I, the series of final meetings of study groups ended on 14 April and the Plenary Assembly began on 27 September. The Vth Plenary Assembly ended on 15 December 1972, so that the time available to the study groups up to their final meetings was about three years, that is at least six months less than any of the preceding study periods. It appears that due to the limited time for study group meetings imposed by the shorter study period and by limitations in the CCITT budget, many chairmen found that they could only complete their study programme by holding "unofficial" meetings outside the official CCITT programme.

5.4.2 *General information on Study Group activities*

5.4.2.1 *List of meetings held*

The number of working days of meetings of all kinds totalled 188, and comprised:

- 152 days of meetings with interpretation, in Geneva,
- 26 days of restricted meetings (drafting groups, sub-groups, groups of experts) without interpretation, in Geneva
- 10 days of restricted meetings, without interpretation, outside Geneva (on the invitation of the country of the chairman of the study group or working party).

The restricted meetings (the last two categories mentioned above) were organized at the request of the chairmen concerned, in order to speed up the work of the Study Groups.

Table I gives a complete list of meetings organized in 1976.

5.4.2.2 *Participation in meetings*

a) The participation of Member countries of the ITU in meetings of the CCITT Study Groups and their Working Parties in 1976, when they were represented by an administration or recognized private operating agency, is summarized in Table II.

It will be seen that again the number of countries represented in Study Group meetings never exceeded about thirty although, 103 countries were represented at the VIth Plenary Assembly. 44 countries in all attended at least one study group meeting, but of the 103 represented at the Plenary Assembly it seems probable that half of them had never been represented in a study group.

b) Table III contains figures, by Study Group and class of organization, on the participation of administrations, recognized private operating agencies, scientific or industrial organizations and various international organizations. It also shows the total number of participants per Study Group (obtained by adding up the number of delegates attending successive meetings of the same Study Group and its Working Parties).

The total number of delegates registered at all meetings was 2363.

- c) The following were admitted to participation in the work of CCITT meetings in 1976:
- 1 *recognized private operating agency*
 - United Kingdom: International Marine Radio Company Ltd. Croydon (already a member of CCIR; chose the ½-unit class of contribution).
 - 3 *scientific or industrial organizations* (all of which chose the ½-unit class of contribution),
 - U.S.A.:
 - Control Data corporation, Greenwich, Connecticut,
 - Harris Satellite Communication Operation, Melbourne, Florida,
 - Italy: Fulgorcavi, Latina.
 - 2 *international or regional organizations*
 - INTELSAT (International Telecommunications Satellite Organization), Washington, D.C.
 - URSI (International Union of Radio Science, already a member of CCIR) Brussels.

5.4.2.3 Contributions submitted for meetings

a) Table III also shows the number of contributions sent to the CCITT secretariat in 1976 for the various Study Groups by the administrations and other bodies participating in the work of the CCITT. A total of 567 contributions was received in 1976.

b) In 1976, there were 448 regular contributions, ("white" documents), and there were 119 delayed contributions; the latter thus represent 26.5% of the total compared with 25.5% in 1974 and 32.5% in 1975. The situation this year in respect of delayed contributions was again particularly bad in the case of Study Group XI. It was also bad in Study Groups XIII and XIV.

(Delayed contributions are not distributed until meetings open, and therefore are distributed only in their original language to the delegates present.)

c) Resolution No. 750, adopted by the Administrative Council at its 30th Session, particularly drew the attention of all administrations to the inconvenience caused by these delayed contributions. The Resolution was brought to the notice of all the administrations and all organizations (recognized private operating agencies, scientific or industrial organizations, international organizations) participating in the work of the CCITT in Circular No. 164 of 17 September 1975 from the Director of the CCITT.

Administrations should make every effort to submit their contributions in good time for the meeting concerned.

TABLE 1

List of meetings held in 1976

Unless otherwise indicated, the meetings were held in Geneva.

* meetings held in Geneva without interpretation (drafting groups and small working parties)

** meetings held outside Geneva, at the invitation of the Chairman of the working party or sub-group, at no cost to the ITU other than that of the participation of one engineer from the CCITT secretariat.

<i>Dates</i>	<i>Meetings</i>
13-16 January	Joint WP LTG (Use of telephone-type lines for purposes other than telephony), final meeting,
14-16 January	* Meeting of Rapporteurs of SG IX,
19-23 January	Study Group IX (Telegraph transmission quality), final meeting,
19-27 January	SG XV (Transmission systems), final meeting,
26-30 January	SG XIV (Facsimile telegraph transmission and equipment), final meeting,
28 Jan.-5 Feb.	Special SG D (Pulse code modulation), final meeting,
2-6 February	SG X (Telegraph switching), final meeting,
6-16 February	SG XI (Telephone switching and signalling), final meeting,
9-13 February	SG V (Protection against dangers and disturbances of electro-magnetic origin), final meeting,

16 February	Joint meeting of SG V and VI, final meeting,
17-23 February	SG VI (Protection and specifications of cable sheaths and poles), final meeting,
17-25 February	SG XIII (Automatic and semi-automatic telephone networks), final meeting,
24-27 February	Laboratory WP of SG XII, final meeting,
26 Feb.-4 March	SG VII (New networks for data transmission), final meeting,
1-4 March	SG XII (Telephone transmission performance and local telephone networks), final meeting,
5-9 March	SG VIII (Telegraph and data terminal equipment), final meeting,
10-17 March	Special SG A (Data transmission), final meeting,
18-26 March	SG IV (Transmission maintenance of international lines, circuits and chains of circuits), final meeting,
29 March-5 April	SG III (General tariff principles), final meeting,
6-7 April	Joint WP SMM (Maritime mobile service),
7-15 April	SG II (Telephone operation and tariffs), final meeting,
8-14 April	SG I (Telegraph operation and tariffs), final meeting,

End of final meetings of SGs.

7-11 June	* WP of GAS 3 on local networks,
7-11 June	* Drafting Group of SG IV for Volume IV,
14-18 June	* Drafting Group of GAS 3 on rural telecommunications,
7-9 July	WP UMI (International monetary unit),
27 Sept.-8 Oct.	VIth Plenary Assembly,
11-12 October	Meeting of Chairmen and Vice-Chairmen of all SG and WP,
11-12 October	Coordination Committee for the Plan for Asia and Oceania,
1-5 November	** WP XI/2 (Signalling systems for digital networks), Kyoto,
1-5 November	** Group of Rapporteurs on coded facsimile — Paris,
22-26 November	* Group of Rapporteurs of SG VII on the packet switching service,
24-26 November	Coordination Committee of the Plan for Europe and the Mediterranean Basin,
6-8 December	* Chairmen and Vice-Chairmen of SG IV.

TABLE II

Participation of Member countries in CCITT meetings in 1976

- Study Groups, Plan Committees, and their Working Parties,
 — Joint Working Parties,
 — Special Autonomous Working Party.

COUNTRY (Administrations or Recognized Private Operating Agencies)	Study Groups and their Working Parties																		Joint Working Parties					Special Autonomous Working Party	Plan		Vith Plenary Assembly	TOTAL
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	Sp.A	Sp.D	CDF							CNC	LTG		
Algeria																							x	x			x	3
Germany (Fed. Rep. of)	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			x	x	x	x		x	x	24
Saudi Arabia						x												x							x		x	4
Argentina																											x	1
Australia	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x				x	x		x		x	21
Austria	x	x	x		x		x		x			x	x	x		x		x				x					x	13
Bangladesh																											x	1
Belgium	x	x	x				x	x	x	x	x	x	x	x	x	x	x					x	x			x	x	18
Benin																											x	1
Byelorussia																											x	1
Bolivia																											x	1
Brazil	x	x	x																			x	x				x	6
Bulgaria																											x	1
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	21
Central African Rep.																											x	1
Chile																											x	1
China					x	x	x	x	x	x	x	x	x	x	x	x	x	x			x						x	16
Cyprus																							x				x	2
Colombia																											x	1

TABLE II (continued)

COUNTRY (Administrations or Recognized Private Operating Agencies)	Study Groups and their Working Parties																	Joint Working Parties					Special Autonomous Working Party	Plan		VIth Plenary Assembly	TOTAL		
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	Sp.A	Sp.D							Asia	Europe				
																		CDF	CNC	LTG	SMM	UMI						GAS.3	
Congo																												x	1
Korea (Rep. of)																												x	1
Korea (Dem. People's Rep. of)																												x	1
Costa Rica																												x	1
Ivory Coast																												x	1
Cuba	x	x	x																		x							x	5
Denmark	x	x	x	x	x	x	x		x		x	x	x				x	x			x							x	16
Egypt																												x	1
El Salvador																												x	1
United Arab Emirates																												x	1
Ecuador																												x	1
Spain	x	x	x	x	x	x	x	x	x		x		x	x	x	x	x	x	x	x	x	x				x	x	22	
United States	x	x	x	x	x	x	x	x	x	x	x	x			x	x	x	x	x	x	x	x	x			x	23		
Ethiopia																												x	1
Finland	x				x		x	x	x		x	x		x	x	x	x	x	x								x	14	
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	25		
Gabon																												x	1
Ghana																												x	1
Greece	x	x	x						x		x	x	x		x		x					x					x	11	
Upper Volta			x																									x	2
Honduras																												x	1
Hungarian People's Republic	x	x	x	x	x	x	x		x		x	x	x	x	x	x				x					x	x	19		

India	x	x	x	x	x	x	x	x			x					x								x		x	12
Indonesia																										x	1
Iran																					x			x		x	3
Iraq																										x	1
Ireland									x	x						x										x	4
Iceland																										x	1
Israel																					x			x		x	3
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	26
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	24
Jordan				x																						x	2
Kenya	x	x	x																		x					x	5
Kuwait											x													x		x	3
Laos																										x	1
Lebanon																										x	1
Liberia																					x					x	2
Libya																										x	1
Liechtenstein																										x	1
Luxembourg																										x	1
Malaysia																										x	1
Madagascar																										x	1
Mali																										x	1
Morocco																										x	1
Mauritius																										x	1
Mauritania																										x	1
Mexico	x	x	x				x									x					x					x	7
Monaco																										x	1
Mozambique																										x	1
Niger																										x	1
Nigeria	x	x		x				x		x	x	x				x					x	x				x	11
Norway	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x					x	21

TABLE II (continued)

COUNTRY (Administrations or Recognized Private Operating Agencies)	Study Groups and their Working Parties																	Joint Working Parties					Special Autonomous Working Party	Plan		Vith Plenary Assembly	TOTAL	
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	Sp.A	Sp.D							ASIA	EUROPE			
																		CDF	CNC	LTG	SMM	UMI						GAS.3
New Zealand																											x	1
Oman																											x	1
Uganda																											x	1
Pakistan																											x	1
Panama																											x	1
Paraguay			x																									1
Netherlands	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x		x	x	x			x	x	x	22
Philippines			x						x															x		x	4	
Poland (People's Rep. of)		x	x				x		x		x		x		x		x				x					x	10	
Portugal	x	x	x	x	x	x		x		x	x		x		x	x	x	x	x		x	x	x			x	18	
Qatar																										x	1	
Syria																										x	1	
German Dem. Republic	x	x	x		x	x	x				x		x					x			x	x				x	12	
Ukraine																										x	1	
Roumania																										x	1	
United Kingdom	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	25	
Senegal																										x	1	
Somalia																										x	1	
Sweden	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x			x	22	
Switzerland	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			x	x	24	
Tanzania																										x	1	
Chad		x																								x	2	
Czechoslovakia	x	x					x	x	x				x			x										x	8	

TABLE II (concluded)

Thailand																								x		x	2
Togo			x																							x	2
Tunisia																										x	1
Turkey																									x	x	2
USSR	x	x	x		x	x	x	x			x		x		x	x	x	x			x				x	x	16
Venezuela																										x	1
Yemen (A.R.)																										x	1
Yugoslavia	x	x				x					x	x					x	x			x					x	9
Zaire	x	x																								x	3
Total of countries	31	32	31	18	22	22	25	21	24	17	27	21	24	18	20	26	22	20	10	13	26	24	7	10	11	103	

TABLE III
Participation of organizations and delegates in CCITT meetings and contributions received

	Study Groups and their Working Parties																	Joint Working Parties					Special Autonomous Working Party	Plan		Vith Plenary Assembly	
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	Sp.A	Sp.D							CDF	CNC		LTG
Administrations	26	26	26	12	19	16	23	16	20	13	21	20	19	15	15	22	18	15	6	10	21	21	4	9	9	103	
Recognized Private Operating Agencies	16	16	16	10	7	6	11	10	12	8	13	7	10	7	11	13	16	5	7	3	14	11	6	3	3	28	
Scientific and Industrial organizations	2	1	1	5	15	12	31	8	22	9	26	8	11	21	21	24	28	9	6	8	1	—	3	—	—	—	
International organizations	5	2	4	1	2	2	7	1	1	—	—	—	1	2	—	4	—	—	—	—	1	1	—	—	1	13	
Total number of participants	93	88	86	57	63	60	194	53	152	46	146	74	82	68	91	118	127	44	26	31	84	56	16	20	18	470	
Contributions received	normal	25	28	3	18	8	7	5	4	6	3	12	42	5	3	39	12	31	18	8	20	6	7	1	2	109	
	delayed	7	10	1	5	1	—	6	8	5	7	18	—	10	10	9	6	5	—	3	1	6	—	—	1	—	

5.4.3 *Results of the work of the CCITT Study Groups and the Plan committees*

A summary of the main results obtained and the studies carried out in 1976 is given below:

5.4.3.1 *Study groups dealing with telegraph and telex services and data transmission*

The VIth Plenary Assembly adopted in principle all new and revised existing Recommendations with a number of minor amendments only.

A. *Telegraph operation and tariffs*

The new word count rules enter into force on 1 October 1977. The same operative date has been adopted for all the other new or amended provisions concerning operation, charging and accounting for the telegram and telex service respectively.

The new Telegram and Telex Instructions are now defined to be made up of certain basic texts of the F-series Recommendations. An inquiry of the Members is under way whether publication of these texts under separate cover is warranted.

B. *Maritime Mobile Service*

The World Maritime Administrative Radio Conference, Geneva, 1974, instructed the CCITT to review the operating procedures and the principles and methods of accounting for public correspondence in maritime radiocommunications to improve the present methods which are contained in Chapter IX of the Radio Regulations and the articles of the Additional Radio Regulations (1976 edition).

The CCITT Joint Working Party SMM held 3 meetings during the period 1973-1976 and submitted a preliminary report to the VIth Plenary Assembly which considered this report and decided that JWP SMM finalize early in 1977 those parts of the new proposed procedures which may require an amendment of the existing text in the Radio and Additional Radio Regulations. To this end, this report will be subject to the accelerated procedure for the provisional approval of CCITT Recommendations (letter ballot procedure) and will then be submitted to Members so that they can prepare their proposals or corresponding amendment of the Radio and Additional Radio Regulations at the 1979 World Administrative Radio Conference.

In a second step, JWP SMM will elaborate texts on new procedures which are not contained in the Radio Regulations, i.e. single-operator and automatic service. This second report will be submitted to the VIIth Plenary Assembly of the CCITT in 1980.

C. *Telegraph transmission*

With the approval of two new Recommendations on time division multiplexing, this new technique has now been standardized and it is to be hoped that its large scale implementation will result in a considerable cost reduction of telegraph transmission means.

D. *Facsimile telegraphy,*

The approval of a document facsimile machine for transmission of an A4 page in 3 minutes responded to the desire of users to have this important communication means standardized on an international basis. With this step and the envisaged standardization of a 1-minute machine during the period 1977-1980, facsimile will gradually become an internationally compatible service and by this attract much interest. This development will be assisted by the ameliorated all control procedures for facsimile calls over public networks.

E. *Public data networks*

With the Recommendations now available in the X-series, Administrations are in a position to offer public data network services on an internationally agreed basis, to provide the network access interfaces for anisochronous and synchronous circuit switched networks as well as for packet switched networks and finally to interconnect networks of the same type. The interconnection of networks of different type is under study. The transmission part of public data networks is also covered now by a complete set of Recommendations. For these reasons, the period 1977-1980 will see a number of public data networks emerging in the various countries as already announced by Administrations.

F. *Data transmission over analogue circuits*

With the approval of a number of new Recommendations, there is now a complete range of state of the art modems: serial modems from 200 up to 9600 bits/s for leased circuits and up to 4800 bits/s for switched telephone circuits.

These modems do not only provide customer service but are of prime importance for the provision of aggregate bearer rates for telegraph and data transmission multiplexers and will thus contribute due to their high efficiency of bandwidth utilization to an economical network concept of both, telegraph and data networks.

5.4.3.2 *Telephone Transmission*

A. *Transmission systems*

Study Group XV (Transmission systems) during its final meeting, added to the Recommendations relating to 2.6/9.5 mm coaxial pairs, to 60 MHz systems and to the interconnection of 15 kHz sound-programme circuits.

The Study Group gave its approval to the reports of Joint Groups CNC (see paragraph B. below) and LTG (use of telephone type lines for purposes other than telephony). The latter group had amended the Recommendations relating to leased telephone-type circuits and to group-links for wideband transmission.

The VIth Plenary Assembly decided on a division of responsibilities between SG XV and SG XVIII, making SG XV responsible for the study of transmission media (cables, wave-guides, optical fibres). Following this division of responsibilities, the VIth Plenary Assembly decided to annul the Joint Groups CNC (see paragraph B below) and SGO (wave-guide systems).

B. *Digital transmission*

Joint Group CNC (digital paths over cable) put the finishing touches to the Recommendations concerning symmetric pair cables designed to transmit binary systems of 6 to 34 Mbit/s and the code for 8448 kbit/s cable systems.

Special Study Group D (pulse code modulation) at its final meeting, gave its approval to the report of Joint Group CNC. It finalized the Recommendations for hypothetical reference connections and hypothetical reference paths for various interfaces (particularly the 64 kbit/s interface), for the synchronization of plesiochronous networks and for various hierarchical levels.

The VIth Plenary Assembly changed the title of Special Study Group D, which becomes Study Group XVIII and, in accordance with the division of responsibility mentioned above under A, that study group has to study the characteristics of systems for digital line sections (in cable, millimetric wave-guides and over optical fibres).

C. *Telephone transmission quality*

The final meeting of Study Group XII, held in March 1976, was above all devoted to putting the finishing touches to draft Recommendations which were prepared during a preparatory meeting towards the end of 1975. Four new Recommendations were thus available for submission to the approval of the VIth Plenary Assembly. Other Recommendations were subjected to some degree of modification.

D. *Telephone circuits*

Study Group XVI (Telephone circuits) had held its final meeting at the end of 1975 and the report in the "Report on the activities of the ITU" for 1975 remains valid.

E. *Circuit noise and reliability* (Joint Special Study Group C)

The same observation applies as for item D above. The VIth Plenary Assembly changed the title of Joint Special Study Group C which studies these aspects, making it Joint Group CMBD (Joint Group on Circuit noise and Availability)

F. *Economic and technical comparisons of transmission systems (GAS 3)*

GAS 3 had also held its full final meeting in 1975, but the work of its two editing groups was carried out mainly by correspondence.

- Texts intended to bring up to date the manual on local networks are already with the CCITT Secretariat and for the most part, are already in their final form,
- A further meeting of the editing group for the manual on rural telecommunications was held in Rome at the beginning of January 1977. It put the finishing touches to draft texts which will be submitted for comment and final approval at a meeting of GAS 3 in June 1977.

5.4.3.3 *Study Groups dealing with telephone tariffs, operation and switching and service quality*

A. *General tariff principles*

Studies concerning leased international circuits dealt mainly with general tariff principles and their application to:

- private use networks,
- the use of private use circuits in association with public networks;
- the use of private use circuits in association with computers.

These studies led Study Group III to make a number of amendments to Recommendations D.1, D.2 and D.3.

A draft Recommendation of some importance lays down the principles to be applied in fixing rates for the data transmission services provided by public data networks.

Study Group III also took note of the draft Recommendations drawn up by the Regional Tariff Groups TAL and TEUREM for application on a regional basis to the tarification of various telecommunication services.

B. *Telephone operation and tariffs*

The work of Study Group II included, in particular, the following studies:

- a) Revision of existing Recommendations in respect of amendments to certain provisions relating:
 - to the Instructions for the International Telephone Service,
 - to the transmission between administrations of the information necessary for the recovery of charges and for the accounting of collect and credit card calls, and
 - to the establishment and exchange of international accounts.
- b) New Recommendations on:
 - mode of application of the flat-rate price procedure (set forth in Recommendation E.250) for facilities made available to administrations in other countries;
 - transfer, in encoded form, of telephone reversed charge billing and accounting information;
 - subscriber control procedures for supplementary telephone services (mainly in view of the steady increase in the numbers of SPC exchanges);
 - instructions for the users of the world-wide telephone service; and
 - pictograms and symbols to assist telephone users, for example in public telephone booths.

C. *Telephone signalling and switching*

Study Group XI has:

- a) *international signalling*,
 - specified a digital version of System No. 6 operating at 4.0 and 56.0 kbit/s;
 - completely revised the specifications of System R2 and, in respect of use of this system for satellite links has drawn up specifications for line signalling and has shown that one or other of the various alternatives (between which a choice is still to be made) for inter-register signalling would give a performance at least equal to that of System No. 5.
 - solved certain specific problems of the interworking of standardized signalling systems and outlined a clear and concise method of describing such interworking;
 - made significant progress (greater than what could originally have been hoped for) in defining a new signalling system for entirely digital networks. The system is in two parts: one common to all user services (telephony, data, etc.) and the other specific to each service; Study Group XI is responsible for the common part.
- b) *in switching*,
 - has drafted the text of Part D “Stored Programme Controlled (SPC) Exchanges”, which will follow Parts A, B and C (on conventional, i.e., electromechanical, systems) of the Handbook “National automatic networks”;
 - has defined the methods of presentation of functional specification and of description of internal logic processes in SPC exchanges;

- has made substantial progress (preparation of a draft Handbook for the users of HLL) in defining an evolved programming language (“ High-level Language ” = HLL) for SPC exchanges;
- has defined the essential parts of a man machine language for SPC exchanges by submitting a number of Recommendations.

D. *Telephone service quality and maintenance of switching equipments*

Study Group XIII, until its responsibilities were transferred to the individual study groups by the VIth Plenary Assembly, acted as an intermediary between Study Groups II (Manual operation and human factors), IV (Maintenance) and XI (Switching).

Its work was concentrated on two groups of subjects:

- a) those relating to the *maintenance* of switching equipments and to *service quality*, involving:
 - the total recasting of the common M/Q Recommendations in Volumes IV (Maintenance—Transmission) and VI (Switching). With the aid of an ad hoc working party of Study Groups IV and XIII, a new maintenance organization structure has been worked out and the functions of a number of maintenance units have been defined, leaving Administrations free to combine them in the way which suits them best;
 - continuance of the international network automatic management tests and definition regarding the thresholds at which automatic intervention takes place;
 - centralized processing of service quality observation results. Further progress was made in the systematic establishment of such an “ observatory ”, involving an increasing number of participants. One conclusion from the analysis of the results should be mentioned, although it was already quoted in the Report to the 1972 Plenary Assembly: on certain traffic relations, quality is still far from satisfactory in the international automatic service, where the caller often has to dial the number three or more times before getting through;
- b) those relating to *traffic engineering* :
 - the effects of the phenomenon of repeated call attempts;
 - re-examination of methods of calculating circuit groups in the case of alternate routing;
 - characteristics of internal blocking in digital exchanges; and
 - interconnection between the land network and the Mobile Maritime Service.

5.4.3.4 *Problem of the “ International Monetary Unit ” (UMI)*

A new question which was entrusted to the CCITT by the Administrative Council at its 30th Session (June 1975) concerning the possible adoption of a new monetary unit in international telecommunication relations led to the formation of a Joint Ad Hoc Working Party, entitled the Joint Working Party UMI.

This working party, which met in July 1976 first made a thorough study of the various aspects of the problem, and then studied the various administrative and financial effects that would result from replacing the gold franc by a new monetary unit. The importance and complexity of the problem prevented the working party from completing its work during its meeting, but it made a point of supplying administrations with all of its information and thoughts on the subject with a view to a further meeting in 1977.

5.4.3.5 *Transmission maintenance*

At its final meeting in March 1976, Study Group IV adopted those reports of its working parties that it had not previously examined, and approved the work of the ad hoc working party set up to deal with the common interests of SG IV and SG XIII.

The outcome of its work during the study period was presented for approval to the VIth Plenary Assembly in the form of new and amended Recommendations in the “ M ” and “ N ” series. In addition a new “ O ” series was proposed to accommodate those Recommendations containing the basic specification clauses of test equipment.

The decision by the VIth Plenary Assembly to suppress SG XIII has meant the reallocation of its Questions, some of which will be studied in future by SG IV. As a result, the former SG IV/SG XIII ad hoc working party has become an internal working party of SG IV. In consequence, SG IV becomes responsible for all aspects of telephone line transmission and equipment maintenance.

The activities reported in 1975 continue, and it will continue to be necessary for Study Group IV to keep abreast of the activities in the other technical study groups of the CCITT.

5.4.3.6 *Protection*

A. *Protection against dangers and disturbances of electro-magnetic origin*

In 1976, the work of Study Group V terminated in the submission to the VIth Plenary Assembly for approval of the final text of a new Recommendation K.17 (Tests on power-fed repeaters using solid state devices in order to check the arrangements for protection from external interference), and of the final text of the Handbook on "Earthing of telecommunication installations". Study of this latter subject will be continued in the light of comments received on the first edition.

Additions and amendments to the "Directives concerning the protection of telecommunication lines against harmful effects from electricity lines" were approved and will be published as soon as work on the CCITT Orange Book is completed. Concerning the possibility of increasing the permissible induced voltage limits on a telecommunication line under fault conditions on a high reliability power-line, the Study Group did not feel able to recommend a change to the value given in the "Directives". Further study is necessary before such a change can be accepted.

New chapters VI, VII and VIII of the Handbook on the "Protection of telecommunication lines and equipment against lightning discharges" were drafted by Joint Working Party CDF of Study Groups V and VI, of which Study Group V was the controlling study group. The texts are now ready for publication, and the work having been completed, Joint Working Party CDF was terminated. Further studies will be continued under a new Question "Coordinated protection schemes for telecommunication cables".

Other new Questions for study were assigned to cover, among other matters,

- protection of telecommunication equipment against overvoltage,
- electric shocks affecting telephone sets.

B. *Protection and specification of cable sheaths and poles*

The work of Study Group VI resulted in a revised text of Recommendation L.4 on aluminium cable sheaths.

In 1976, the study of the corrosion caused by stray alternating currents came to a conclusion after a long investigation which had continued for over a decade. Study Group VI found that stray alternating current did have a corrosion effect, but it was so small that it was almost insignificant. A series L Recommendation was prepared on the subject. A new series L Recommendation was drawn up in connection with joint cathodic protection. Study of this subject will continue under a new Question "Coordinated protection schemes for telecommunication cables".

The draft of a Booklet on the "Jointing of plastic-sheathed cables" was completed in 1976, and is ready for publication as soon as the CCITT Orange Book is completed. Information contained in the Booklet will be up-dated by new findings based on laboratory tests and field trials.

Additions and amendments to the "Recommendations concerning the construction, installation and protection of telecommunication cables in public networks" are also ready for publication.

Questions for study were assigned to cover new developments in:

- termination of cable conducts,
- protection of telecommunication cables by pressurization.

5.4.3.7 *Means of expression*

Work on terms and definitions is carried on in individual study groups of the CCITT, and CCITT administrations have also nominated members to collaborate with the IEC in its revision of the telecommunication sections of its International Electrotechnical Vocabulary. The VIth CCITT Plenary Assembly requested the Director to report to the next Plenary Assembly on the utility of continued collaboration by the CCITT in the CMV.

Work on symbols continues to be carried out by the Joint IEC/CCIR/CCITT group set up for this purpose.

5.4.3.8 *Activities of the Plan Committees in 1976*

A. *General*

It is to be noted that both Coordination Committees, for Europe and the Mediterranean Basin and for Asia and Oceania, appointed a number of Rapporteurs to collect information on subjects of specific interest to each region and to submit reports to the Plan Committees for discussion. It is to be expected that this new activity will meet the requirement to concentrate planning efforts on priority subjects.

B. *Coordination Committee of the Plan Committee for Asia and Oceania*

At its meeting in Geneva in October 1976, the Coordination Committee agreed on a number of amendments to the Guide and Questionnaire and established the agenda for the Plan Committee meeting in 1978, which is invited by the Thai Administration to be held in Bangkok.

C. *Coordination Committee of the Plan Committee for Europe and the Mediterranean Basin*

At its meeting in Geneva in November 1976, the Coordination Committee reviewed the synoptical documents submitted to the meeting, agreed on a number of amendments to the Guide and Questionnaire, dealt with the planning aspects of telephone signalling systems and with the need to improve the forecasting methods as studied by CCITT and finally set up the agenda for the Plan Committee meeting in 1978, scheduled to be held in Spain upon an invitation by the Spanish Administration.

5.4.4 *Other aspects of CCITT activity*

5.4.4.1 *Technical editing*

The CCITT Technical Editing Division has worked at full capacity since January 1976. The duties of the Division are to ensure the technical correspondence of CCITT documentation in the three working languages of the Union, to carry out copy-preparation and proofreading for CCITT publications and to collaborate with the General Secretariat in the text editing or text treatment system.

About 2000 pages per language were processed by the Technical Editing Division for presentation to the CCITT Vth Plenary Assembly. In addition, about 1500 pages per language have been processed from the point of view of technical editing in connection with the publication of the CCITT Orange Book.

The Technical Editing Division has editorial standards for the presentation of CCITT publications. It has collaborated with the General Secretariat in the development of a computer-oriented publication process aimed at reducing the production costs of ITU publications. These methods and procedures will be applied in the publication of the CCITT Orange Book.

5.4.4.2 *Use of the ITU Computer*

Apart from the use of the computer mentioned in the preceding paragraph, it has continued to be used in the preparation of the Plan handbooks, as in 1974 and 1975.

5.4.4.3 *Technical cooperation*

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

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

Also a certain number of Experts' reports were examined in the CCITT secretariat.

CCITT Manuals (especially those of GAS 3 and GAS 5) make an important and effective contribution by the CCITT to ITU Technical Assistance.

5.4.4.4 *Cooperation with the CCIR*

Cooperation with the CCIR was maintained at its former level, not only within joint study groups, but by direct contact at all levels between the Secretariats.

5.4.4.5 *Cooperation with other international organizations*

There was less opportunity in 1976 for cooperation with other international organizations. However, CCITT secretariat staff attended meetings of ISO, WMO, IMCO and CEPT.

6. TECHNICAL COOPERATION ACTIVITIES

6.1 *General features of activities in 1976*

In 1976, 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 (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 1976 were 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 and the Middle East*

The Union continued its efforts to promote the development of telecommunication networks in Africa, the Americas, Asia, the Pacific and the Middle East with a view to their integration into the world-wide telecommunication system, in accordance with the objectives established by the Union's World and Regional Plan Committees. To this end, studies and surveys were carried out by experts engaged by the Union working in collaboration with Member Administrations. For the same purpose, the Union has endeavoured to further its collaboration with the various Governments concerned, the United Nations Regional Economic Commissions, other regional and sub-regional (telecommunication) bodies and organizations, the World Bank and regional banks.

i) *In Africa*

Important progress was made during 1976 towards the implementation of the Pan-African telecommunication network (PANAFTEL). The Union continued to encourage and fully participated in field coordination activities related to the development of the regional network, in particular thanks to the services of the two regional experts and the team of three experts assigned to the PANAFTEL project.

In May 1976, the Union organized a meeting in Geneva of the PANAFTEL Coordinating Committee (OAU, ECA, ADB, ITU) to review the progress being made in the financing and implementation of the network as originally defined and that following the extensions called for in 1975 by the Conference of African Telecommunication Administrations. The Committee made recommendations to the OAU Council of Ministers and to bilateral and multilateral financing institutions concerning follow-up actions necessary to operate, maintain and expand the network and to develop telecommunication services. Similar problems were also dealt with on a sub-regional basis during separate annual coordination meetings organized with the assistance of the Union amongst the countries concerned in Central, Eastern and Western Africa.

The PANAFTEL team assisted a number of countries with the preparation of tender documents, tender evaluation, planning and coordination problems, etc. A routing plan has also been drawn up for the countries of the East African Sub-region. In addition, assistance was also provided by the Union under sub-contracted arrangements for the implementation of the microwave route between Gambia and Senegal and of the HF link between Lesotho and Kenya. Additional pre-investment surveys undertaken by the Union in 1975 for sub-regional links in six countries of Eastern and Central Africa were also completed in 1976. The UNDP financial constraints totally precluded initiating additional surveys in 1976 as initially planned, though it was possible to carry out certain of these studies under bilateral arrangements.

Other regional activities also had to be abruptly terminated during the year due to the scarcity of the UNDP funds. Despite the great interest shown for his mission and of numerous outstanding requests for his assistance, the expert in radio monitoring and frequency management only carried out missions to three countries prior to the early termination of his assignment. The services of the two experts in maritime radiocommunications were also terminated in the early part of 1976. Numerous proposals and recommendations for the improvement of maritime radiocommunications originated from the survey carried out by these experts. These will be consolidated at the Union Headquarters for submission as appropriate to financing bodies interested in the development of maritime radiocommunications in Africa.

Meanwhile, pending full implementation of the PANAFTTEL network, many countries have shown an increased interest in the introduction of satellite telecommunication systems. The Union has expressed concern at the large number of uncoordinated proposals put forward for satellite links and continued to emphasize the high priority which should be given to completing the PANAFTTEL network.

ii) *In the Americas*

Cooperation with and assistance to the Central American Telecommunication Commission (COMTELCA) and its member states was pursued in 1976 with a view to expanding the regional network.

The continuation of assistance in the field of tariffs and regulations for international services to a majority of countries of the Caribbean Community (CARICOM) has permitted the better definition of specific development requirements of the countries concerned. Apart from the valuable assistance in increasing the "know-how" of the individual Administrations, the project has substantially contributed to making the countries more aware of the necessity of a common approach to the complex problems of regional development. To this end, in May 1976, a technical meeting was organized in St. Kitts with the participation of representatives from countries of the Eastern Caribbean Common Market and from the CARICOM Secretariat in order to exchange views on matters of common concern, especially in regard to the legislation, tariffs, international regulations applicable to the telecommunication services.

Several of the Union's experts stationed in South America continued to collaborate for the expansion of the Inter-American Telecommunication Network and national trunk networks.

The implementation of the regional project concerning data collection on soil conductivity and radioelectric noise continued to be very satisfactory during 1976. At the end of the year the majority of the participating countries had made great progress in the implementation of the campaign of measurements which will enable the preparation of a map on soil conductivity for the whole continent. The collected data will be very useful for the future planning of telecommunication services and, in particular, of the broadcasting service.

The region was adversely affected by the UNDP financial restrictions and both regional experts were consequently obliged to leave their posts at the beginning of the year.

iii) *In Asia*

The leading activity of the Union at the regional level during 1976 continued to be the assistance to the Asian countries in establishing a regional telecommunication network. This activity reached a crucial phase towards the end of 1975, and the technical back-stopping and coordinating role that belonged to the Union within the framework of the UNDP required to be stepped up and maintained in collaboration with the Economic and Social Commission for Africa and the Pacific (ESCAP) during the year 1976 and later until the completion of the network.

The UNDP's financial constraints upset, in 1976, a great deal of the momentum that had been gained and gave rise to deep concern to the Union as well as to the countries concerned. Both ESCAP and the Union explored all possibilities of securing financial resources other than UNDP to maintain as far as possible a regional expert team in Bangkok. The Governments of India, Japan and the Netherlands offered bilateral inputs to this important regional project of the Union.

During the year 1976, the project assistance that was rendered to the countries briefly covered the following:

- survey for suitable sites for a troposcatter link between India and Afghanistan;
- preliminary assistance for a microwave link between Sri Lanka and India;
- coordinating and servicing intergovernmental technical level meetings for the network implementation;
- servicing various ESCAP meetings dealing with telecommunications.

The team of regional experts, which consisted of three bilateral experts and three UNDP experts in the first quarter of 1976 was, due to UNDP financial constraints, reduced to four bilateral experts after March 1976, and one multi-bilateral consultant/coordinator.

Some of the other activities that were planned as regional projects in Asia (some of which were even approved in principle by UNDP), could not be implemented because of the UNDP's financial constraints. One of the most important of these was a seminar in switching and signalling for which all preparatory action was taken by the Union.

iv) *In the Pacific*

The Union's technical cooperation activities in the Pacific have been characterized by close and effective collaboration and support to the South Pacific Bureau for Economic Cooperation (SPEC). The Union had three regional projects within the framework of the UNDP (all in preparatory assistance phases), namely, regional training centre, maritime radiocommunications and network development.

The studies in maritime radiocommunications were completed in April 1976 and these are expected to form the basis for future development action in that field by the countries concerned. Considerable progress has been made in the establishment of the Regional Training Centre, with significant bilateral inputs from Australia and New Zealand and the Commonwealth Fund for Technical Cooperation. The preparatory action for network development has also been making satisfactory progress, involving mainly identification of needs and traffic requirements as a basis for fully-fledged feasibility studies for network development.

The Union participated in an important regional meeting called by the SPEC in July 1976, which resulted in a concerted outlook on priorities and on the future development of ongoing projects. Concretely, the meeting examined and approved the action programme projected by the Union in respect of the above activities for the coming years.

v) *In the Middle East*

During 1976 work continued on the Feasibility Study/Preinvestment Survey for the Middle East Telecommunication Network (comprising all Arab League member countries as well as Bulgaria, Cyprus, Spain, Ethiopia, Greece, Malta, Turkey, Yugoslavia). From July 1975 the second phase of the project has been in progress. During this phase detailed studies of certain links will be undertaken and technical documentation and specifications giving sufficient information will be provided to enable the Governments to identify the investments required for provision of the services concerned.

* * *

In 1976, 40 experts' missions were carried out in connection with the promotion of development of telecommunication networks in Africa, the Americas, Asia and the Pacific and the Middle East.

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 included, in addition to expertise, substantial amounts for fellowships and equipment.

The following are selected examples falling within this specific category:

- Planning of national telecommunication development in Nigeria involving the work of 11 experts of whom 7 were supplied by a sub-contractor;
- Planning of telecommunications in Senegal where the National Fundamental Plan (1975-1980) was completed and submitted to the Government in early 1976;
- Reorganization of telecommunications in Guinea-Bissau which included the preparation of a National Fundamental Plan to be submitted to the Government early in 1977;
- Special assistance to Cape Verde where a National Fundamental Plan (1976-1996) was prepared as well as a Development Plan for Radio Broadcasting Services;
- Reorganization of operational services in Mauritania including detailed recommendation for management, operations and training of operational staff;
- Assistance in the maintenance of the national network in Somalia, coupled with on-the-job training (financed from Funds-in-Trust provided by the European Economic Community);
- Reorientation of the short and long term planning in outside plant and commercialization of the public services in Guatemala;
- Provision of overall management, operational and advisory services in El Salvador;
- Purchase of modern equipment and orientation of research, evaluation of activities of the central telecommunications laboratory in Cuba;
- Establishment of a planning cell in Afghanistan;
- Assistance in the development of the telecommunication network in Burma;
- Planning, programming and introduction of new techniques in Kuwait, Oman, Saudi Arabia, United Arab Emirates.
- Telecommunication feasibility study and manpower and training needs survey in the Yemen Arab Republic;

- Television coverage feasibility study in the Yemen Arab Republic;
- Manpower and training needs survey in Jordan;
- Course in traffic engineering to be introduced in national training institutes.

In 1976, 125 expert missions were devoted to this type of activity. The experts concerned mostly acted as advisers and they also had to participate actively in the execution of projects in a number of countries in view of 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, Telephone Manager, Telecommunications Controller, Chief Engineer, Training Manager, Operations and Maintenance Engineer, Traffic Superintendent, Technical Manager and Senior Telecommunications Engineer.

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 establishing and/or improving national and multinational training institutions, as well as in-service and on-the-job training, organization of short-term specialist meetings and seminars, and 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:

Africa

Country projects : Algeria, Cameroon, Guinea, Morocco, Nigeria, Somalia, Tunisia and Zambia

Multinational projects : Kenya (Kenya, Uganda and Tanzania)
 Malawi (Botswana, Lesotho, Malawi and Swaziland)
 These two projects also covered assistance to national schools in the countries listed in brackets.
 Senegal (Benin, Central African Empire, Ivory Coast, Guinea, Upper Volta, Mali, Mauritania, Niger, Senegal and Togo)

The Americas

Country projects : Bolivia, Brazil, Ecuador, Jamaica, Paraguay and Peru

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

Asia and the Pacific

Country projects : Afghanistan, India, Indonesia, Iran, Laos, Mongolia, Nepal, Pakistan, Papua New Guinea and Singapore

The Middle East

Country projects : Saudi Arabia, Iraq, Jordan, Kuwait and Yemen Arab Republic

All the above projects were financed by the UNDP with the exception of that in Kuwait which was implemented on the basis of a Funds-in-Trust arrangement signed by the Union with the authorities of that country.

Furthermore, there were several small training projects providing for one to two experts or instructors who assisted with the development or activities of national training schools (Netherlands Antilles, Argentina, Bangladesh, Chile, Colombia, Egypt, Guyana, Mauritania, Niger, Sri Lanka, Chad, Trinidad and Tobago, Uruguay).

Sixty-five percent (319) of all the expert missions in 1976 (493) 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 60 per cent in Africa, 75 per cent in the Americas, 70 per cent in Asia and the Pacific, 55 per cent in the Middle East and 77 per cent of inter-regional activities.

Another significant point to be mentioned in respect of the development of human resources in the field of telecommunication is the progress of the UNDP/ITU inter-regional project on curriculum development in the field of telecommunications (CODEVEL). The project provides for five specialists and the participation of training institutions/centres in Algiers, Caracas, Dakar, Nairobi, San Salvador, Singapore, Yaounde (see Section 6.9).

In January/February 1976, the ITU organized a course, the first of its kind, on basic teletraffic engineering attended by 35 participants from 18 countries in the Middle East and neighbouring areas.

The Union was also successful in arranging two seminars in the course of the year and assisted the Brazilian Administration by providing lecturers and help in establishing the agenda for a seminar held in Rio de Janeiro (see Sections 6.4.6 and 6.8).

With regard to specialist meetings, great importance was given to the organization of sub-regional coordination meetings among the responsible training officials with the participation of the ITU Project Managers concerned. In 1976, the first in a series of Telecommunication Training Meetings for Western African Countries was organized in Mali in March 1976 and the third in a series of meetings for East African Countries was held in Mauritius in October 1976. These meetings greatly encourage cooperation and coordination of training policies, standardization of training courses, recruitment procedures, etc

6.2 Quantitative appraisal of 1976 achievements

The volume of aid rendered by the Union to developing countries in 1976 was affected by the financial constraints of the UNDP in spite of the fact that, money-wise, this aid was 7.4 per cent higher than in 1975.

- a) 493 expert missions were carried out, against 526 in 1975 (these figures include associate expert assignments);
- b) 497 fellows (including 118 participants in short-term group training) underwent training abroad, against 666 in 1975;
- c) 238 projects were assigned to the Union against 245 in 1975;
- d) US dollars 4,812,154 worth of equipment was delivered to various field projects against US dollars 3,959,865 in 1975;
- e) 13 projects were being implemented, partially or entirely, under sub-contracts, against 19 in 1975.

The total expenditure for project implementation amounted to US dollars 20,241,527 against US dollars 18,837,775 in 1975 (an increase of 7.4 per cent) and was the highest attained so far in any one year.

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

	<i>US dollars</i>		<i>US dollars</i>	
Africa	7,196,106 (35.6%)	against	6,092,580 (32%)	1975
Americas	3,777,772 (18.7%)	against	4,516,860 (24%)	1975
Asia and Pacific	4,064,586 (20%)	against	4,786,189 (25%)	1975
Europe and Middle East	4,785,411 (23.7%)	against	3,295,147 (18%)	1975
Inter-regional	417,625 (2%)	against	146,999 (1%)	1975
TOTAL	20,241,527 ¹		18,837,775	

¹ This amount does not include the sum of 259,959.05 Swiss francs, spent from the ordinary budget within the framework of Resolution No. 17 (Malaga-Torremolinos, 1973) (see Section 6.7).

The US dollars 20,241,527 field expenditure for 1976 broken down by project component and by region is as follows:

Project components	Africa	Americas	Asia & Pacific	Europe & Middle East	Inter-regional	TOTAL
	<i>US dollars</i>					
Experts and associate experts	4,456,952	2,748,126	2,309,054	2,551,931	337,606	12,403,669
Administrative support personnel	74,506	78,183	67,727	89,622	15,952	325,990
Sub-contracts	974,921	—	26,607	64,351	30,502	1,096,381
Fellowships	349,718	98,125	204,675	227,355	—	879,873
Group training	255,483	6,506	28,902	68,058	22,494	381,443
Equipment	972,239	787,217	1,354,475	1,696,932	1,291	4,812,154
Miscellaneous	112,287	59,615	73,146	87,162	9,807	342,017
TOTAL	7,196,106	3,777,772	4,064,586	4,785,411	417,652	20,241,527

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 6.7) and the contributions made by the specialized secretariats of the CCIR, the CCITT and the IFRB. Thus, in 1976, 17,170,471 US dollars (84.8 per cent) of the total value (20,241,527 US dollars) of assistance rendered to developing countries, was financed by the United Nations Development Programme (UNDP), while the remainder (3,071,056 US dollars) came from other sources (Funds-in-Trust and associate expert arrangements, etc.).

The table below shows the source of financing in 1976, classified by region (in US dollars):

Programmes	Africa	Americas	Asia & Pacific	Europe & Middle East	Inter-regional	TOTAL
UNDP	6,250,535	3,392,212	3,850,211	3,278,250	399,263	17,170,471
Funds-in-Trust	527,932	222,872	18,953	1,462,623	—	2,232,380
Associate experts	383,180	116,788	195,422	44,538	18,389	758,317
Other programmes	34,459	45,900	—	—	—	80,359
TOTAL	7,196,106	3,777,772	4,064,586	4,785,411	417,652	20,241,527

6.3.1 United Nations Development Programme (UNDP)

In 1976, 192 projects were assigned to the Union by the UNDP, 159 of which were country projects (54 in Africa, 38 in the Americas, 37 in Asia and the Pacific and 30 in Europe and the Middle East), the remaining 33 consisting of 31 regional/multinational projects (15 in Africa, 5 in the Americas, 7 in Asia

and the Pacific and 4 in Europe and the Middle East) and 2 inter-regional projects. During the year under report, 86 projects were completed and 31 had no activity due to the financial constraints of the UNDP.

Out of 192 UNDP/ITU projects, 27 required major contributions by the Governments concerned and the UNDP. Twenty-three of these projects were in the training sphere, the remainder concerned one network planning project, an experimental earth station project and one research and development project.

Nineteen UNDP/ITU projects (1 regional, 1 inter-regional and 17 country projects) benefited from cost-sharing contributions to a total value of 2,492,687 US dollars.

Furthermore, the UNDP financed the services of 8 regional experts (3 in Africa, 2 in the Americas and 3 in Asia and the Pacific) for a total of 43 man/months.

During the year, 7 of these missions were phased out. The eighth recommenced in October 1976, thanks to a Funds-in-Trust contribution from the Government of India. Another mission was resumed in January 1977, with UNDP financing.

It should be noted that the development in the UNDP/ITU technical assistance activities of regional (sub-regional/multinational) character stagnated in the course of the year. The total input under these projects amounted to 3,778,808 US dollars, which represents 18.6 per cent of the Union's total field expenditure in 1976 (against 20.5 per cent in 1975).

Sixty-two countries each received assistance amounting to less than 100,000 US dollars and 22 between 100,000 US dollars and 250,000 US dollars.

There were 27 UNDP projects on which expenditures exceeded 250,000 US dollars in 1976.

Details on the implementation of UNDP/ITU projects are given in Annex 6, Table 1.

In 1976, the Union continued its collaboration with other Executing Agencies and UN Funds on the implementation of technical assistance projects, as follows:

- on the basis of agreements with the Universal Postal Union (UPU), the UPU was associated with the ITU, for the postal section, in execution of the following projects for which the ITU is the Executing Agency: Training Centres in Afghanistan, Cameroon, Kenya, Malawi, Morocco and Zambia. The ITU was associated with an advisory services project in Venezuela for which the UPU is Executing Agency (ITU assistance within the latter project amounted to 45,900 US dollars);
- the Union was associated with the United Nations Trust Fund for Sudano Sahelian Activity (UNSO) during 1976 and two specialists undertook missions to the countries of the Sahel Zone to advise on the action necessary to ensure that telecommunication and broadcasting facilities meet the requirements for the development of the zone. (The total expenditure for the Union's participation in 1976 amounted to 34,459 US dollars).
- under the United Nations Fund for Mozambique, one expert undertook an advisory mission on satellite communications in December 1976.

In 1973/74, the Union identified the needs for assistance in telecommunications in several of the 29 least-developed countries. The assistance provided by the Union (under the UNDP Special Fund for the Least Developed Countries) during the year under report was as follows:

- the services of two experts for a total of 24 months to advise the Ministry of Communications in Afghanistan on the planning of transmission systems and long-distance telephone switching networks;
- the services of an expert for 12 months to act as adviser to the Director of Posts and Telecommunications in Botswana. This project will terminate in early February 1977.

6.3.2 *Funds-in-Trust*

Under the Funds-in-Trust arrangements between the Union and each of the following countries: Netherlands Antilles, Brazil, El Salvador, Iraq, Kuwait, Libya, Nigeria, Saudi Arabia, Surinam and the Yemen Arab Republic, assistance was provided to these countries in the form of 52 expert missions and 20 fellowships. Five experts were also provided under UNDP/SIDA/FT projects in Lesotho and Swaziland. In addition, funds donated by:

- the Government of Switzerland permitted the continuation of 5 expert missions in Bolivia;
- the Government of the Federal Republic of Germany enabled one expert to complete his assignment in Sri Lanka;
- Philips, of the Netherlands, to Peru, made it possible for one expert to remain on mission;
- the Government of India allowed one expert to recommence a regional assignment in Asia and the Pacific;

- the Government of Norway enabled one expert to undertake an assignment for the PANAFTEL project and permitted a short extension of two expert missions in connection with assistance to the least-developed countries of Africa.

Additionally, 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 five expert missions to be continued at Mogadiscio.

Furthermore, the Arab Fund for Economic and Social Development (AFESD) and the Arab Bank for Economic Development in Africa (BADEA) made a Funds-in-Trust contribution of 39,450 US dollars and 69,922 US dollars respectively, thus enabling the Union to organize a seminar on satellite broadcasting in the 12 GHz band for countries of the African and Middle East regions.

The total Funds-in-Trust contributions amounted to 2,232,380 US dollars.

6.3.3 Associate expert scheme

The costs of the 42 associate expert missions were borne by the donor countries, i.e.

	<i>US dollars</i>
Germany (Federal Republic of)	150,244
Denmark	83,781
Finland	24,778
France	5,512
Japan	9,783
Norway	18,659
Netherlands	232,957
Sweden	232,603
Total . . .	<u>758,317</u>

6.4 Analysis of ITU inputs

6.4.1 Experts in the field in 1976

In 1976, 493 expert missions (totalling 3,345 man-months of service) were executed by 424 experts (as against 526 missions executed by 462 experts in 1975) comprising:

- 356 missions, including 13 OPAS assignments, under UNDP (138 in Africa, 86 in the Americas, 77 in Asia and the Pacific, 48 in Europe and the Middle East and 7 inter-regional);
- 73 missions under Funds-in-Trust (FIT), including 5 FIT/OPAS assignments as also 5 UNDP/SIDA/FT missions (19 in Africa, 13 in the Americas, 2 in Asia and the Pacific, 39 in Europe and the Middle East). The increase in Funds-in-Trust missions was partly due to the need to obtain alternative financing for 7 missions in Africa, 13 in the Americas and 2 in Asia and the Pacific to permit the continuation of assignments originally financed under UNDP;
- 42 associate expert assignments (21 in Africa, 6 in the Americas, 9 in Asia and the Pacific and 4 in Europe and the Middle East and 2 inter-regional);
- 19 short missions financed by the Union under Resolution No. 17 of the Plenipotentiary Conference, Torremolinos, 1973;
- 2 missions under an UNSO project (United Nations Trust Fund for Sudano-Sahelian Activities);
- 1 mission under a United Nations Special Fund (Mozambique).

In addition to the expert missions listed above, various projects were implemented under sub-contracts, carrying a manpower element (see Table 2 of Annex 6).

The 424 experts mentioned above were nationals of 45 countries, Members of the Union. These experts executed the 493 missions as detailed in the table below which gives classification by nationality. Each national has only been counted once, irrespective of the number of missions carried out.

No. Experts	Nationals of (country)	No. Experts	Nationals of (country)
70 (78)	United Kingdom	2	Portugal
44 (51)	France ¹	2 (3)	Spain
40 (44)	Germany (Federal Republic of) ²	1 (2)	Guyana
38 (42)	Sweden ³	1 (2)	Jordan
33 (41)	India	1 (2)	Nigeria
23 (24)	Japan ⁴	1 (2)	Turkey
21 (26)	Netherlands ⁵	1	Austria
16 (21)	United States	1	Bangladesh
12 (15)	Australia	1	Brazil
12 (13)	Pakistan	1	Cameroon
12	Switzerland	1	Fiji
11 (16)	Norway ⁶	1	Finland ⁸
10 (13)	Italy	1	Greece
8 (10)	Canada	1	Upper Volta
8	Egypt	1	Hungary
7	Ireland	1	Peru
6 (8)	Argentina	1	Roumania
6 (7)	New Zealand	1	Sudan
6 (7)	U.S.S.R.	1	Tunisia
5	Poland	1	Uruguay
4 (5)	Colombia	1	Venezuela
4	Denmark ⁷	1	Yugoslavia
4 (7)	Ethiopia		
		424 (493)	

Note: Figure in brackets denotes the number of missions accomplished by the nationals of the country concerned. Where no such additional figure is indicated, the experts carried out only one mission each.

¹ Including 1 associate expert.

² Including 10 associate experts.

³ Including 12 associate experts.

⁴ Including 1 associate expert.

⁵ Including 12 associate experts.

⁶ Including 1 associate expert.

⁷ Including 4 associate experts.

⁸ 1 associate expert.

One hundred and seventy-nine new expert missions were commenced in 1976 (as against 273 in 1975). This figure includes:

- forty-six missions undertaken by experts already in the field who were transferred to new posts or projects;
- sixty-five short-term highly-specialized missions executed under special service agreements (against 83 in 1975). (This type of contracting of experts, already utilized to a lesser degree in previous years, enabled the Union to respond to urgent requests from governments for highly-qualified specialists for short advisory or consultancy missions);
- twelve associate expert assignments, including two associate experts who were transferred to new duty stations.

The following table compares the periods required for the recruitment of experts in 1971, 1972, 1973, 1974, 1975 and 1976.

Period required	Number of experts					
	1971	1972	1973	1974	1975	1976
Up to 6 months	28	46	61	80	158	106
7 to 8 months	17	15	15	19	30	19
9 to 10 months	20	23	15	26	26	17
11 to 12 months	7	19	10	14	16	11
13 to 18 months	15	14	13	25	30	17
More than 18 months	5	6	15	2	13	9
TOTAL	92	123	129	166	273	179

(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 there is no important modification in the time required for the recruitment of experts. In many cases delays have been incurred due to the need to retard the commencement of 1976 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 9½ 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, 36 of the 65 missions being arranged (from commencement of prospection to entry on duty) in a period of one to two months, the longest time factor was the need for vaccinations of the selected candidates.

The longer delays experienced in some instances continued to be engendered by factors such as:

- the ever increasing requirements for experts in the more sophisticated and very recent technologies for which relatively few specialists exist thus rendering their release for prolonged periods more difficult;
- 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 necessity to postpone commencement of missions to correspond to the funds allocated by UNDP following the financial constraints;
- 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.

From the candidate's own view point the lapse of time (3 to 5 months) between his application for a given post and the communication of the outcome (following the receipt of the requesting Government's decision) is discouraging for specialists not in secure employment. The personal availability of a candidate on selection and the time required (an average of two to three months from receipt of formal offer) to serve notice for release and make the necessary arrangements for a prolonged absence are factors which are very easily overlooked in all estimates of recruitment time. The Union, with its direct access to Telecommunications administrations of Member countries, is certainly in a more advantageous position than some of the other UN Agencies both as regards sources of expertise at the time of prospection, as also in respect of the selected candidate's release, which latter was confined to a period of one to two months in the large majority of cases.

During the year under report, prospection was carried out for 248 posts (against 388 in 1975) — a total of 303 prospection actions. (In fact, activity was under way on a total of 359 posts, 111 of which were either indefinitely shelved or cancelled as a result of the UNDP financial constraints.) For 47 posts further prospection was found necessary (55 readvertisements, six posts being readvertised more than once in 1976), as the original prospection, commenced in 1976 and previous years, had not brought forth the required expertise. In addition, for 78 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. Thirty-one posts were successfully filled in this manner in 1976.

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 1,071 (1,103 in 1975) candidatures were examined by the Union for 164 (277 in 1975) posts for which date limits were reached during 1976. Only 512 (459 in 1975) of these candidates were retained in the short lists sent to the governments concerned.

The greater part of the 1,071 candidatures examined by the Union in 1976 were presented by the following countries:

United Kingdom	288	Netherlands	24
India	208	Italy	22
Germany		Canada	21
(Federal Republic of)	71	Japan	18
Sweden	69	Bangladesh	13
France	37	Poland	11
United States	36	Chile	10
Australia	28	Denmark	10
Pakistan	28	Philippines	10
Argentina	26	Egypt	9
Norway	24	USSR	9

The remaining 99 candidates were nationals of 34 Member countries. In 1976, 568 of the 1,071 candidatures (193 of 1,103 in 1975) were presented for more than one post.

6.4.2 *Associate expert scheme*

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, the Netherlands, Norway and Sweden, 42 associate experts (10 from Germany (Federal Republic of), four from Denmark, one from Finland, one from Japan, 12 from the Netherlands, one from Norway and 12 from Sweden) served on the Union's projects in 1976. During the year under review the Government of France intimated its desire to participate in the associate expert scheme and provided a first associate expert on the basis of an exchange of letters. All the associate experts except two, who executed technical missions in Lesotho, were engaged in the training of local staff at the Union's training centre projects in Afghanistan (2), Algeria (4), Saudi Arabia (1), Argentina (1), Botswana (2), East Africa Regional (6 in Kenya and 1 in Tanzania), El Salvador — INCATEL Regional (1), Indonesia (1), Jamaica (3), Jordan (1), Malawi (3), Nepal (2), Papua New Guinea (2), Paraguay (1), Singapore (1), Swaziland (1), Yemen Arab Republic (2), Zambia (2), South Pacific Regional (one stationed in Fiji), and Inter-regional curriculum development project (CODEVTEL) (two stationed in Cameroon and Singapore respectively).

During the year under report two associate experts (one from the Federal Republic of Germany and one from Sweden) were nominated to full expert posts.

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

6.4.3 *Volunteers*

During 1976, the Union benefited from the services of eight volunteers under the United Nations Volunteer Programme (UNV).

These volunteers were assigned to the following projects: two at the High Institute of Telecommunications in Iran, one at the Telecommunications and Electronics Training Centre in Jamaica, one at the Telecommunication Training College in Papua New Guinea, one at the Swaziland Industrial Training Institute in M'Babane, one at the Telecommunications school in Chad and two at the National Telecommunications Institute in Somalia. All are graduates of universities or technical colleges. Four further UN volunteers were under recruitment for the Somalia project.

6.4.4 *Administrative support personnel*

During the year under report, 85 administrative support personnel (administrative assistants, secretaries and drivers) were employed at ITU projects in 37 different countries. Of these, 76 were engaged at UNDP/ITU projects and nine at a project financed under Funds-in-Trust arrangements.

6.4.5 *Fellowships*

During 1976, the Union dealt with 497 fellows who commenced, continued or completed their study programmes abroad, in one or more host countries.

The geographical distribution of the fellowship holders, who realized 904 man-months of training (excluding short-term awards) was the following:

Africa	313	62%
Americas	32	7%
Asia	65	13%
Europe	18	4%
Middle East	69	14%

These figures comprise:

- a) 416 fellowships awarded under the UNDP, including short-term awards to participants in:
 - a technical meeting on organization — legal aspects of telecommunication services, held in St. Kitts from 17 to 22 May 1976 in which 8 fellows participated;
 - a course on traffic engineering, held in Libya from 11 January to 9 February 1976 in which 12 fellows participated;
 - a coordination meeting on the activity of national and multinational P & T schools held in Bamako from 28 March to 3 April 1976 for which 17 fellowships were awarded;
 - a working group to discuss the development of telecommunication services in the Sahel countries held in Ouagadougou from 14 to 20 March 1976 which was attended by 12 fellowship holders;
 - workshops on "modern training techniques" held in Mauritius and Yaoundé in which 8 fellows participated.
- b) Twenty fellowships awarded under Funds-in-Trust schemes.
- c) Sixty-one fellowships financed by the Arab Bank for Economic Development in Africa (ABEDA) and the Arab Fund for Economic and Social Development (AFESD) to participants in a seminar on satellite broadcasting in the 12 GHz band.

The fellowships implemented during 1976 may be grouped as follows:

Standard fellowships	240
(awards requiring the organization of individual study programmes in host countries as opposed to participation in group training — seminars, workshops — or attending full-time courses at a UNDP/ITU training centre)	
Fellowships carried out in UNDP/ITU-assisted multinational schools (Kenya, Malawi, Senegal)	139
Group training	118

Once more, the Union was able to implement 240 standard fellowships as a result of cooperation received from the administrations of the host countries. Over 60 per cent of the fellows went to more than one country. The principal host countries were (figures given below indicate the number of individual programmes organized by each respective country):

France	43
United Kingdom	40
Germany (Federal Republic of)	36
Sweden	29
United States	23
Italy	20
Switzerland	17
Singapore	13
Japan	10

Programmes were also organized in 10 other industrialized countries and in the following countries (or areas): Algeria, Argentina, Botswana, Cameroon, Costa Rica, Ethiopia, Hong Kong, Hungary, India, Kenya, Lesotho, Madagascar, Malaysia, Malawi, Mali, Morocco, Portugal, St. Kitts, Senegal, Sri Lanka, Sudan, Swaziland, Thailand, Upper Volta.

Fifteen programmes were also arranged for fellows who spent their time at the Union's Headquarters.

The financial constraints which have somewhat limited the activities of the UNDP over the last year have resulted, amongst other things, in a reduction in the number of fellowships, operated by the beneficiary countries themselves in their country programmes already approved.

6.4.6 Seminars

The Union was co-sponsor, with the Asian Broadcasting Union (ABU) of a seminar on satellite broadcasting in the 12 GHz band, held in *Kyoto* (Japan) from 11 to 18 September 1976. Facilities for the seminar were provided by the Japanese Administration, which also arranged for funding of fellowships for the developing countries of the region. Fifty participants from 18 countries in the region attended, including 18 from the host country.

The Union arranged for the participation of 16 lecturers, who covered all major technical topics that were related to the agenda of the forthcoming World Administrative Radio Conference for Planning the Broadcasting Satellite Service in the 12 GHz band (Geneva, January-February 1977).

A similar seminar was organized by the Union in Khartoum (Sudan) from 13 to 25 November with financing provided by the Arab Bank for Economic Development in Africa (ABEDA) and the Arab Fund for Economic and Social Development (AFESD).

Ninety-eight participants from 44 countries of Africa and the Middle East attended the Khartoum Seminar and lectures were given by 17 specialists. Sixty-one fellowships were awarded.

The table below shows the countries or organizations which provided lecturers for the two seminars.

Country or organization sponsoring the lecturer	SEMINAR		Total
	Kyoto	Khartoum	
Germany (Fed Rep. of)	1	1	2
Australia.	2		2
Brazil		1	1
Canada	1	1	2
United States	2	3	5
France.		1	1
Italy.		2	2
Japan	6	3	9
United Kingdom	1	1	2
U.S.S.R.	2	2	4
Yugoslavia		1	1
European Broadcasting Union	1	1	2
	16	17	33

Three lecturers from Union Headquarters presented papers at each of the seminars.

The Union also provided 3 lecturers from the CCIR, IFRB and General Secretariat, assisted in organizing the agenda and also suggested other lecturers for a Region 2 seminar on satellite broadcasting in the 12 GHz band held in *Rio de Janeiro* (Brazil) from 16 to 19 August 1976, hosted by the Brazilian Administration and sponsored by the Inter-American Telecommunications Conference (CITEL). Ninety-five participants attended from countries in the region.

6.4.7 *Procurement of equipment*

In 1976, equipment was ordered from suppliers in:

Germany (Federal Republic of)	609,936
Argentina	1,018
Australia	33,079
Austria	3,381
Bangladesh	58,591
Belgium	25,939
Canada	4,253
Chad	5,344
Denmark	26,158
Spain	18,526
U.S.A.	1,153,703
France	154,595
Greece	174
Hong Kong	10,688
Iran	3,416
Italy	7,169
Japan	461,934
Jordan	3,872
Kenya	3,024
Norway	9,011
Pakistan	13,134
Netherlands	80,501
United Kingdom	157,463
Singapore	3,409
Sweden	267,849
Switzerland	180,543
Total . . .	<u>3,296,710</u>

More than 85 per cent of the equipment was ordered from suppliers in the Federal Republic of Germany, the United States, France, Japan, the United Kingdom, Sweden and Switzerland.

The equipment ordered (3,296,710 US dollars), represents a 28 per cent decrease compared with the total for 1975 (4,570,500 US dollars).

The value of equipment delivered during 1976 to field projects was 4,812,154 US dollars against 3,959,865 US dollars in 1975. This figure also includes equipment ordered in 1975 or before but not delivered until 1976. As at 31 December 1976, the value of purchase orders still pending amounted to 1,230,585 US dollars and the Union has received new requisitions of the order of 630,000 US dollars. In 1976, the Union dealt with the procurement of equipment for 77 projects, 11 of which were multinational.

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

The table below gives details of the equipment ordered and delivered in the course of 1976, listed by country of destination.

Equipment delivered and ordered in 1976
(in US dollars)

Projects carried out in the following countries/regions	Equipment and supplies delivered	Equipment ordered
Afghanistan	25,394	17,133
Algeria	8,518	19,759
Saudi Arabia	991,749	971,306 ¹
Argentina	74,968	76,768
Bangladesh	126,633	248,016
Burma	5,108	7,138
Bolivia	122,940 ²	66,285 ²
Brazil	47,753	50,418
Cameroon	13,167	3,597
Chile	8,485	2,025
Colombia	49,785	41,105
Cuba	141,392	153,831
Egypt	187,713	—
El Salvador ³	124,944	61,164
United Arab Emirates	20	—
Ecuador	43,380	3,662
Ethiopia ⁴	2,740	—
Fiji ⁵	32,661	591
Guinea	111,281	49,071
Guinea-Bissau	96,028	102,291 ⁶
India	459,607	259,835
Indonesia	30,260	9,247
Iran	30,905	17,840
Iraq	32,766	—
Israel	336,420	264,147
Jamaica	43,460	44,150
Jordan	56,146	8,917
Kenya ⁷	37,761	21,851
Kuwait ⁸	254,093	257,400
Lao P.D.R.	(2,565)	—
Lesotho	2,121	628 ⁹
Malawi ¹⁰	21,767	6,416
Maldives	86,796	—
Morocco	50,767	154,808
Mauritania	16,489	16,489
Mongolia	248,543	—
Nepal	6,804	24,304
Niger	5,588	5,588
Nigeria	153,391	119,826
Pakistan	212,574	68,026
Paraguay	51,628	—
Peru	25,503	—
Western Samoa	8,400	—
Senegal ¹¹	41,754	22,626
Singapore	49,544	—
Somalia	56,945 ¹²	5,523
Sudan	122,418	14,135
Sri Lanka	33,631	7,506
Chad	19,352	13,352
Trinidad and Tobago	24,051	46,826

¹ Includes US \$ 389,326 — equipment ordered under the terms of a Funds-in-Trust technical assistance agreement.

² Includes \$ 12,202 — equipment delivered and \$ 58,519 equipment ordered under the terms of a Funds-in-Trust technical assistance agreement.

³ Multinational project: Costa Rica, El Salvador, Guatemala, Nicaragua.

⁴ Regional project: including all the countries of the African continent (implementation of Panafrican Telecommunication Network).

⁵ Multinational project: Cook Islands, Fiji, Gilbert and Ellis Islands, British Solomon Islands, Tonga.

⁶ Includes orders amounting to \$ 1,843 placed under the terms of the ITU Special Fund for Technical Cooperation.

⁷ Multinational project: Kenya, Uganda, Tanzania.

⁸ Funds-in-Trust technical assistance project.

⁹ Includes orders amounting to \$ 628 placed under the terms of the ITU Special Fund for Technical Cooperation.

¹⁰ Multinational project: Botswana, Lesotho, Malawi, Swaziland.

¹¹ Multinational projects: Benin, Ivory Coast, Guinea, Upper Volta, Mali, Mauritania, Niger, Senegal, Togo and Gambia.

¹² Includes \$ 29,505 — equipment supplied under the terms of a Funds-in-Trust technical assistance agreement.

Projects carried out in the following countries/regions	Equipment and supplies delivered	Equipment ordered
Tunisia	5,535	5,535
Turkey	15,627	—
Uruguay	25,752	3,612
Venezuela	164	164
Yemen (AR)	7,216	7,216
Yemen (AR)/(PDR of) ¹³	869	869
Zaire	124	—
Zambia	18,780	6,023
Cape Verde	—	3,131 ¹⁴
Project REM/75/027 ¹⁵	2,025	2,227
Project RLA/74/028 ¹⁶	3,012	3,012
Project INT/74/017 ¹⁷	1,292	1,321
Total	4,812,154	3,296,710

¹³ Sana'a-Aden pilot circuit.

¹⁴ Equipment ordered under the terms of the ITU Special Fund for Technical Cooperation.

¹⁵ Regional project (Feasibility study/preinvestment survey of the Middle East Telecommunication Network) — REM/72/027.

¹⁶ Regional project (Frequency management infrastructure and follow-up) — RLA/74/028.

¹⁷ Interregional project for curriculum development in the field of telecommunications — INT/74/017.

6.4.8 Sub-contracting

During 1976, the Union did not enter into any new contract (10 were signed in 1975). Field activity continued to be carried out under 7 contracts out of 15 (see Annex 6, Table 2). Eleven companies were involved, and 11 projects under the UNDP and 2 under Funds-in-Trust arrangements were concerned by sub-contracting.

6.5 Preparation of new projects

In view of the UNDP financial stringency it proved difficult to generate new projects initially planned for 1976. Increased attention was therefore given to obtaining other financing sources for the implementation of projects in telecommunications. This involved the Union's Headquarters in numerous contacts at various levels with the regional and international development banks as well as other development funds. In most cases, however, these financing institutions cannot enter into direct financing arrangements with the Union. It was therefore necessary to initiate new procedures for the necessary arrangements to be made between the Government, the financing organization and the Union. In Africa, particularly satisfactory progress was achieved as a result of these negotiations and several projects are or will be implemented with financial assistance from the African Development Bank, the Arab Bank for Economic Development in Africa, the International Development Association and the European Development Fund.

While the financial restrictions limited current activities, a large volume of work was executed by the Union's Headquarters staff, in preparation for the UNDP second programming cycle for the period 1977-1981. During 1976, 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 drastic reduction imposed to some projects required additional efforts in the assessment of project requirements and for the reformulation of new project requests on a reduced scale to meet the most pressing needs. 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 who have included important new telecommunication projects in their country programme for the second cycle. However, owing to

the priority given to terminating on-going projects within the limited resources available to UNDP, most of these new projects may only be expected to start in 1978 or 1979.

The following represents selected titles of important projects proposed to the UNDP, countries concerned and other financing bodies for implementation in 1977 and years to come:

Africa

- Telecommunications Institute (2nd phase), Algeria
- Long-term planning, Botswana
- Planning of sound and television broadcasting network, Cameroon
- Telecommunication Training Institute, Central African Empire
- Radio monitoring and frequency management, Madagascar
- Multi-country posts and telecommunications training scheme (2nd phase), Malawi
- Assistance in telecommunication training and radio monitoring and frequency management, Mauritius
- Assistance to the Mozambican Telecommunication Services, Mozambique
- Assistance in the implementation of telecommunication installations and in the reorganization of telecommunication services, Niger
- Test, Research and Maintenance Centre, Nigeria
- Development of telecommunications and assistance to the National Training School, Rwanda
- Engineering assistance to the Department of Posts and Telecommunications, Swaziland
- National Telecommunication Training School, Chad

The Americas

- Message handling centre, Argentina
- Pilot centre for radiofrequency monitoring, Argentina
- Development of communication services (2nd phase), Cuba
- National Training Centre, Guyana
- National Training Centre, Haiti
- Telecommunication Training Centre (2nd phase), Jamaica
- Telecommunication Training Centre (2nd phase), Paraguay
- National Training Centre, Surinam
- Telecommunication Training Centre, Uruguay

Asia and the Pacific

- Establishment of a Telecommunication Training Centre, Bangladesh
- Telecommunication and Postal Training Centre, Burma
- Assistance in the development of telegraph and telephone systems, Burma
- Telecommunication Training Centre (2nd phase), Indonesia
- Telecommunication Test and Development Centre, Indonesia
- Training operation and maintenance staff in domestic satellite system, Indonesia
- Telecommunication system maintenance organization, procedures and practices, Indonesia
- Telecommunication Test and Development Centre, Korea
- Telecommunication Training Centre, Nepal
- Survey of remote areas, Pakistan
- Telecommunication Training Centre, Papua New Guinea
- Feasibility studies on network development, South Pacific
- Regional Training Centre, South Pacific
- Implementation of the Asian Telecommunication Network
- Telecommunications for least developed countries and rural areas in developing countries
- Management support to telecommunication executives (regional)
- Regional training development

Europe and the Middle East

- Organizational structure of the telecommunication operating organization, Greece
- Upgrading the telecommunications maintenance organizations, Greece
- Maintenance organization for the international automatic and semi-automatic service, Greece

- Telecommunication Training Centre (3rd phase), Iraq
- Telecommunication Training Institute (3rd phase), Kuwait
- Development of training in telecommunications, Turkey
- Upgrading of telecommunication maintenance organization, Turkey
- Assistance in organizing national frequency management and monitoring, Turkey
- Assistance in planning the long-distance network, Turkey
- Assistance in maritime radiocommunications, Turkey
- Advisers for the Ministries of PTT and Information, Kingdom of Saudi Arabia
- Transmission and training advisers, United Arab Emirates
- Maritime coastal radiocommunication project, United Arab Emirates
- Telecommunication training adviser, Oman
- Training adviser and maritime telecommunication adviser, Qatar
- Maritime coastal radiocommunication project, Qatar
- Organization and administration of telecommunications (2nd phase), Yemen Arab Republic
- Development plan for telecommunications (2nd phase), Yemen Arab Republic
- Feasibility study and preinvestment survey of the telecommunication network, People's Democratic Republic of Yemen
- Regional Telecommunication Training Institute
- Survey of manpower and training needs in telecommunications for Arab countries.

6.6 *Financial constraints of the UNDP and their repercussions*

The financial constraints of the UNDP have had negative repercussions on the whole of the system. It is to be noted that the financial resources of the UNDP available for field projects were about 430 million US dollars in 1975, while in 1976 these resources amounted to only 370 million US dollars. From the financial point of view the assistance rendered by the Union under the UNDP did not suffer a comparable reduction. The sum made available by the UNDP to the Union in 1976 was 3.4 per cent higher than in 1975. Unfortunately, due to inflationary trends and increased prices, the assistance rendered under the UNDP by the Union in 1976 was lower in the following sectors:

- | | |
|-------------------------------|------|
| — expert missions | 14 % |
| — fellowships | 25 % |
| — number of UNDP/ITU projects | 16 % |

In 1976, only the amount of equipment delivered marked an important increase (of 14 per cent). This was partially due to delivery of some equipment ordered in 1975.

As a consequence of its financial stringencies, the UNDP considerably reduced the funding of the Union's regional experts to the extent that the Union's regional coordination at field level and sectoral support to UNDP Resident Representatives has become a matter of great concern. However, throughout the year under report, the UNDP did make a considerable effort to finance several of the Union's technical cooperation activities which have regional character, such as the PANAFTEL project and the Feasibility Study/Preinvestment Survey for the Middle East Telecommunication Network.

At country level, the respective governments decided their own priorities, as well as the curtailment of some projects or of some elements of given projects within the ceiling expressed in US dollars and set up by the UNDP for each individual country. The results of these operations have had varying impacts on country programmes under the UNDP in the regions. Only countries in Africa received 20 per cent more expert missions than in 1975. The other regions (the Americas, Asia and the Pacific and the Middle East) benefitted from fewer expert missions (respectively 22 per cent, 15 per cent and 30 per cent). The considerable number of expert missions financed out of funds-in-trust did not compensate for cutbacks under the UNDP (73 in 1976 against 38 in 1975). Thus, taking into account man-months of services rendered within the country projects by experts financed by UNDP, funds-in-trust schemes and associate experts, only African countries marked an increase of 11 per cent. The countries in the Americas and Asia and the Pacific, accused a decrease in man-months of expert services of 12 per cent and 30 per cent respectively. The countries situated in the Middle East were in a position to maintain the same level of expertise as in 1975.

The financial constraints similarly affected the number of fellowships under implementation during 1976. Again, reductions concerning fellowships caused less damage in Africa than in the Americas, and Asia and the Pacific, i.e. less 19 per cent in Africa, against less 73 per cent in the Americas and less 37 per cent in Asia and the Pacific region. The Middle East region had no serious problem regarding fellowships, thanks to funds-in-trust financing.

6.7 *Activities under Resolution No. 17 of the Plenipotentiary Conference (Malaga-Torremolinos, 1973)*

Thanks to the provision of funds in the ordinary budget of the Union, in accordance with Resolution No. 17 of the Plenipotentiary Conference (Malaga-Torremolinos, 1973), it was possible in 1976 to respond to a number of requests from developing countries for short-term assistance in the various fields of telecommunications.

Assistance was provided, on request, to the following Administrations in the fields indicated below:

Saudi Arabia	— transmission plan
	— satellite application of R2-signalling
	— frequency monitoring stations
Bangladesh	— maritime telecommunications
Bolivia	— earth station planning and space communications
Burundi	— specifications for HF transmitters
Central African Empire, Chad, Congo	— training requirements survey
Ethiopia	— specifications for telex switching
Lesotho	— acceptance test for an HF link (Maseru-Nairobi)
Malaysia	— training course in satellite broadcasting
Maldives	— organization of telecommunication services and assessment of training requirements
Malta	— underground cables
Mozambique	— satellite communications
Niger	— international switching centre
	— R2-signalling national network
	— satellite earth stations
Oman	— specifications for cables
	— satellite application of R2-signalling
Pakistan	— specifications for an international telephone switching centre
Senegal	— measurements of microwave links
Singapore	— specifications for a telex exchange
Somalia	— organization structure of the PTT Administration
Sri Lanka	— message switching centre
	— signal levels system No. 5
Surinam	— specifications for rural telephone exchanges
	— fundamental plan telephone network
Swaziland	— planning and specifications of microwave systems
Yemen Arab Republic	— acceptance test for telephone exchanges
	— telegraph network
	— development of a programme for a telecommunication network.

In ten cases it was possible to deal with the requests by means of correspondence; for the other requests it was necessary to undertake missions in order to deal with them in an adequate way.

On the instruction of the Secretary-General, the Group of Engineers undertook special missions in the following countries:

Member countries of URTNA (African National Broadcasting and Television Union)	— study professional training needs for radio broadcasting and television
Andean Telecommunications System	— evaluation of financial requirements for a preinvestment study of telecommunications in Andean countries

Arab countries	— preparation of a project for manpower and training requirements survey
France	— visits to switching equipment manufacturers — visits to manufacturers of equipment for maritime communications
Guyana	— participation at the meeting of APEC (Action Programme Economic Cooperation among non-aligned and other developing countries)
United States, France, United Kingdom	— discussions concerning development strategies and coordination for Global Project on Telecommunications Planning.

On various occasions, advice was given to the Union's team of experts for the implementation of the Panafrican Telecommunications Network, in particular on international telephone switching centres, signalling aspects and satellite communications.

The members of the Group of Engineers were frequently consulted by staff of telecommunication administrations visiting Geneva, in particular during conferences and/or other meetings organized under the auspices of the Union.

The members of the Group of Engineers spent about 80 per cent of their time on activities related to requests by the administrations for advice on short-term assistance. As in previous years, close contacts were maintained with the permanent organs (IFRB, CCIR and CCITT) on technical matters related to requests by administrations.

During 1976, the recruitment of 18 outside specialists occurred in order to provide the required assistance to administrations. 259,959.05 Swiss francs were disbursed for assistance, under Resolution No. 17, during the year 1976.

6.8 *Application of Resolution No. 19 of the Plenipotentiary Conference (Malaga-Torremolinos, 1973) — Special Measures for the Least Developed Countries **

The reporting on the activities undertaken by the Union within the framework of Resolution No. 19 is limited to those activities financed from the UNDP Special Fund for the Least Developed Countries (LDC) and similar UN funds. This section does not cover any of the UNDP/ITU projects financed from Indicative Planning Figures of the least developed countries. Such information is available in Annex 6, Table 1.

Two important pilot studies were carried out during 1976 in Africa. The first study was aimed at reviewing problems of rural telecommunications and broadcasting in eight countries of the Sahelian area, six of which are listed among the Least Developed Countries (Gambia, Upper Volta, Mali, Mauritania, Niger, Senegal, Chad and subsequently Cape Verde). This project of the Permanent Inter-State Committee for Drought Control in the Sahel (CILSS) was financed by the United Nations Sahelian Office (UNSO). It was implemented by two short-term experts, one of them a national of one of the countries concerned, in full collaboration with the telecommunication and broadcasting engineers and officials of each country concerned who actively participated in finalizing the project proposals. These proposals provide basic technical characteristics and construction requirements as well as financial estimates. The experts' recommendations and project proposals were published by the Union in a report which was then widely circulated to obtain financing for the implementation of the rural telecommunication and broadcasting programme as part of the rehabilitation strategy for the Sahelian zone. Based on this report, one of the countries concerned has already obtained substantial financial aid for the implementation of these projects.

A similar approach was taken for a second study financed by the UNDP Special Fund for Least Developed Countries in eight LDC countries of Eastern and Southern Africa (Botswana, Ethiopia, Lesotho, Malawi, Somalia, Sudan, Tanzania and Uganda). This identification mission was implemented by two African experts who studied the economic and social benefits to be derived from the inclusion of telecommunication/broadcasting inputs into rural development projects. After selecting certain types of

* 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, Sikkim.

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

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.

communication systems particularly adapted to rural areas and which could be easily engineered into each country's system, the experts reviewed specific rural economic development projects in each country and proposed appropriate telecommunication/broadcasting inputs which would yield substantial savings in addition to facilitating and enhancing activities in other sectors (agriculture, industry, education, health, etc.). The experts' findings and recommendations were published by the Union in a report which was distributed in financing institutions and to all LDC countries.

Apart from these pilot studies undertaken on a regional basis, there were only two country projects approved for financing from the UNDP Special Fund for Least Developed Countries in Africa. These projects provided for a 12-month continuation of an adviser to Botswana and for part of the costs of new buildings to be constructed during 1977 for the National Telecommunication School in Chad.

Under the UNDP Special Fund for Least Developed Countries, the services of two planning experts (for 12 months each) were also provided to Afghanistan in 1976. During the course of the year, the experts surveyed the short-term and long-term telecommunication needs of Afghanistan and assisted in the establishment of a permanent telecommunication planning unit. They prepared a draft report "Development Plan for Telecommunications in the Republic of Afghanistan" that examined in detail the transmission and long-distance switching plans and made important recommendations based on the statistics assembled during their work. In addition, a telecommunication legislation expert was provided to Afghanistan for three months to review the existing laws related to telecommunications. He drafted a new Basic Law of Telecommunications and provided new drafts for Radio Regulations and Telephone and Telegraph Regulations and advised on drafting a new Broadcasting Act.

Furthermore, it should be noted that 10 out of 18 short-term missions were carried out under Resolution No. 17, to the following LDCs: Ethiopia, Lesotho (2 missions), Somalia, Bangladesh, Maldives and Yemen Arab Republic (4 missions).

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

Under the interregional project on Course Development in the field of Telecommunications (CODEVTEL), eight courses are being prepared at seven ITU-sponsored training centres, under the guidance of three educational technologists (team leaders) recruited within the project. At the beginning of the year, workshops were held in order to train in all disciplines of course development the teams from the three French-speaking and two Spanish-speaking training centres involved. (A similar workshop had been held in English in late 1975).

The Coordinating Unit at the Union's Headquarters has prepared detailed guidelines for the initial phases and carried out a number of missions to provide counselling to the course development teams in the field. In addition, the Coordinating Unit prepared and conducted, with the assistance of a member of the Training Division of the Technical Cooperation Department, two workshops for course developers from the French Telecommunication Administration.

Outside contributions amounting to US dollars 85,000 (Algeria US dollars 25,000, Canada US dollars 30,000 and Kuwait US dollars 30,000) were received during the year and 18 man-months of expertise were provided by four manufacturers of equipment for which courses are being developed by the CODEVTEL project (Thomson CSF, CGCT, LME and NEC). Towards the end of the year, two associate experts were recruited to assist the English-speaking and French-speaking team leaders.

In view of the heavy workload on the Coordinating Unit, the Training Division has been called upon to provide a considerable volume of assistance.

The Working Group on Training Standards met in mid-year to review progress to date and make recommendations concerning on-going and new activities.

The results of the pilot project on the exchange of training material in the field of line plant were evaluated and in the light of the experience gained the Working Group recommended a revised approach to the second pilot project (in the field of crossbar switching), which would be better adapted to its aims. However, at the suggestion of the Group, the Training Division is conducting a cost-benefit analysis before going ahead with the project.

A proposed list of contents for the planned Reference Manual for the design and operation on training establishments was sent out to likely contributors in January 1976 to obtain comments and offers of assistance. The Working Group judged this Manual to be necessary and as the first approach had failed to gain the response hoped for it recommended that a circular-letter be sent to all Member countries emphasizing the need for cooperation in this field. A revised table of contents prepared by the Working Group was disseminated to all Member Administrations in August 1976 and some additional contributions have been received as a result. The Working Group suggested that a GAS-type sub-group should be created to produce the Manual, but the *modus operandi* to be adopted remains to be decided.

During 1976 the Training Division continued to brief training experts on the methods recommended by the Union. The said Division set up a pedagogical workshop for these experts and extensive training material has now been prepared. The Working Group examined the proposed structure and content of the workshop and supported this action.

The Working Group also reviewed the progress of the CODEVTEL project and discussed the objectives of the next interregional training seminar, to be held in late 1977. During 1976 several countries were approached with a view to hosting the international training seminar. At the end of the year a firm invitation was received from the Turkish Administration in this respect.

The coding of training material received at the Union continued during 1976 and a complete catalogue of the material on hand was distributed to all Member countries. Administrations and ITU-sponsored training centres were invited to subscribe to a microfiche service comprising a selection of the most useful documentation. Eighteen subscriptions were received for the 179 documents placed on microfilm in 1976. It is intended to continue this service and, if possible, to extend the scope of its distribution.

The Training Division continued to disseminate information on courses or study programmes of particular interest to the developing countries.

Professional staff of the Training Division participated in conferences and study group meetings on educational technology in Switzerland, the U.S.S.R. and the United Kingdom. Some missions were also undertaken in connection with the CODEVTEL project — participation in the workshops executed for the French Administration and discussions with two French companies regarding assistance to be offered to the CODEVTEL project.

One official of the Division took part in a joint UNDP/ITU evaluation of the training centre in Oran, Algeria. In conjunction with other official travels, visits were made to ITU projects in Brasil, Kenya and Malawi and to the former ITU project in Turkey.

At the request of the Portuguese Administration, two staff members of the Training Division visited Portugal to make a preliminary study of training needs and an expanded version of the pedagogical workshop mentioned above will be held in Lisbon in 1977.

One official of the Training Division participated in the organization and running of the third training meeting for East and Southern African countries, in Mauritius. The purpose of these meetings is to define and adopt common training policies and structures.

6.10 *Application of Resolution No. 21 of the Plenipotentiary Conference (Malaga-Torremolinos, 1973) — The Special Fund for Technical Cooperation*

During 1976, the Belgian Government offered to provide, under the Special Fund for Technical Cooperation, five four-month fellowships for the study of development of telecommunication services. Five candidates (one from Benin, one from Mali, two from Rwanda and one from Chad) have been selected and it is foreseen that they will commence their studies in Belgium during the first half of 1977.

The Netherlands Government, during the year under report, made a cash contribution to the Fund of 12,000 Dutch guilders, to be used for activities benefitting the least developed countries.

Following their contribution in 1975 of a portable cable measuring set to the Government of Sri Lanka, the Government of the Federal Republic of Germany made a further contribution in kind to the Special Fund in 1976. This comprised HF radio equipment, which was provided to the Government of Lesotho for their radio monitoring services.

During the year under report, 3,563.20 Swiss francs from this Fund were used to defray the expenses (including travel) of a fellow from Guinea-Bissau to study frequency management at the Union's Headquarters from 10 to 28 September. The Governments of Guinea-Bissau and Cape Verde received emergency repair equipment and training materials purchased from this Fund, the value of which was 3,916.63 Swiss francs in the case of Cape Verde and 2,800 Swiss francs in the case of Guinea-Bissau. The shipping charges of 1,595 Swiss francs for the equipment donated by the Government of the Federal Republic of Germany to the Government of Lesotho (mentioned above) were also paid from this Fund. A further 1,288 Swiss francs from the Special Fund were used to purchase technical publications for African engineers studying in Europe.

Liquid assets of the Fund totalled 55,665.70 Swiss francs at the end of 1976.

7. ADMINISTRATION OF THE UNION

7.1 *Staff matters*

7.1.1 On 31 December 1976 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 1975 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	354	59	415
IFRB	5	96	2	103
CCITT	1	39	2	42
CCIR.	1	28	—	29
Total	9	517 (507)	63 (64)	589 (580)

7.1.2 The manning table in the 1976 budget comprised 621 posts, 590 of them permanent. The following changes occurred during the year among staff with permanent or fixed-term contracts: 12 retirements, 6 departures on end of contract, 15 resignations or transfers, and 2 deaths. Six 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 meetings¹ 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 1976 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, whereas only one section is supplemented), the corresponding figure is shown in parentheses after the title of the post.

¹ For 1976: 31st Session of the Administrative Council — Group of Experts set up to study the possible re-arrangement of the Radio Regulations — Public Relations (1 meeting) — Technical Cooperation (4 meetings) — IFRB (1 seminar) — CCIR (Interim Meetings of Study Groups) — CCITT (Final Meetings of Study Groups and VIth Plenary Assembly).

TABLE 2
Staff on short-term contracts

	Number of contracts	Total number of working days
Interpreters	332 (401)	6.738½ (6 080)
Engineers (24 Technical Cooperation)	1 (3)	60 (235)
Analyst-programmers (12)	5 (2)	513 (566)
Translators (17), précis-writers (1), revisers (9)	86 (84)	4 382½ (4 018)
Technical editor (—)	1 (—)	270 (—)
Associate administrative officers (12)	3 (5)	210 (869)
Proof-readers (—)	14 (3)	1 047 (171)
Calculators (—)	2 (2)	315 (331½)
Photocomposition (1): prof. assistants, checkers, text assemblers "Zentec" typists (2), "data capture" pool (6)	39 (48)	4 744 (6 411)
Draughtsmen/designers (4)	6 (7)	390½ (755)
Electricians (4), electronics technicians (—), carpenters (2)	6 (3)	746 (657)
Secretaries, office assistants, bookkeepers, assistants, checkers, heads of teams.	136 (141)	12 250 (14 406)
Shorthand-typists, typists, clerks	194 (161)	13 196 (13 133½)
Telephone operators (3)	35 (29)	806 (770)
Offset operators (6)	14 (5)	1 262 (570)
Punch-card operators (10)	3 (3)	521 (553)
Duplicating machine operators (5), assemblers (8), trimmers (—)	50 (29)	3 733 (2 418)
Simultaneous interpretation equipment operators (—)	11 (32)	263 (323)
Dispatching staff (9), other document staff (7), mess- engers (14), night watchmen (2), reception staff (—)	94 (63)	4 925 (4 658)
	1 032 (1 022)	56 372½ (56 925)

(In columns 2 and 3 the 1975 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	
	P	FT	P	FT	P	FT	P	FT	P	FT
D.1	3	—	—	—	2	—	3	—	8	—
P.5	5	1	3	—	2	—	1	—	11	1
P.4	20	6	10	—	5	—	6	—	41	6
P.3	25	24	15	—	9	—	3	—	52	24
P.2	24	2	5	—	3	—	—	—	32	2
P.1	4	2	3	—	2	—	1	—	10	2
G.7	15	—	9	—	2	—	1	—	27	—
G.6	51	—	17	—	5	1	6	—	79	1
G.5	73	6	13	1	8	1	4	—	98	8
G.4	50	5	13	—	—	—	3	—	66	5
G.3	44	7	7	1	1	—	—	—	52	8
G.2	33	4	1	—	—	—	—	—	34	4
G.1	7	2	—	—	—	—	—	—	7	2
	354	59	96	2	39	2	28	—	517	63
Total	415		103		42		29		589	

(P = 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 1976 is shown in three tables. Table 4 concerns the staff whose salaries are paid from the ordinary budget of the Union; the number of nationalities represented was 37 in 1976 (for 148 officials). Table 5 concerns the Headquarters staff whose salaries are paid from the technical cooperation budget and Table 6 concerns technical cooperation experts.

TABLE 4

Geographical distribution on 31 December 1976

(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>											
Argentine Republic			(1)								— (1)
Brazil				1 (—)	(1)	1					2
Canada	1			1			1				3
United States	1	1	1	3	2 (—)						8 (6)
Haiti					1						1
Mexico				1							1
Paraguay			1 (—)	(1)							1
<i>Region B — Western Europe</i>											
Germany (Fed. Rep. of)		1		1	3	1	1		1		8
Belgium					1	1					2
Denmark				1					1 (—)		2 (1)
Spain					4 (3)	2	2 (3)				8
France	1	1 (2)	2	2 (3)	5	4	1	2		1	19 (21)
Italy				1	1	1 (—)	1 (2)				4
Norway										1	1
Netherlands				1	1	1					3
United Kingdom	1		3	3 (2)	2 (1)	3		1			13 (11)
Sweden				1 (—)	(1)		1				2
Switzerland			2 (1)	7	7 (8)	12	2	2 (1)	(1)	1 (—)	33 (32)
Turkey			1				(1)				1 (2)
<i>Region C — Eastern Europe and Northern Asia</i>											
Bulgaria					1						1
Hungarian People's Rep.					1						1
Poland (People's Rep. of)		1			1						2
Ukraine					1 (—)						1 (—)
U.S.S.R.	1	1 (—)		1	2						5 (4)
Yugoslavia			(1)								— (1)
<i>Region D — Africa</i>											
Algeria			1								1
Egypt						1					1
Morocco	1			2 (1)	(1)						3
Tunisia	1										1
<i>Region E — Asia and Australasia</i>											
Afghanistan				1							1
Australia	1			1	1						3
China		1 (—)	(1)	1 (—)	(1)						2
India		1		1			1				3
Indonesia					1						1
Iran					1						1
Iraq					1						1
Israel					1						1
Japan	1			3 (2)	1 (2)	1					6
Pakistan				1							1
Total	9	7 (6)	11 (12)	34 (30)	39 (40)	28	10 (12)	5 (4)	2 (—)	3 (2)	148 (145)

(Wherever changes have taken place, the figure for 1975 appears in parentheses.)

TABLE 5

Geographical distribution on 31 December 1976

(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			2 (1)
Canada					1		1
United States				2 (1)			2 (1)
<i>Region B — Western Europe</i>							
Germany (Fed. Rep. of)				(1)			— (1)
France				2	1		3
Greece				1			1
Cyprus				1 (—)			1 (—)
Italy			1	2			3
Netherlands				1		1 (—)	2 (1)
United Kingdom				1	2		3
Sweden			1				1
Switzerland				2	1		3
<i>Region C — Eastern Europe and Northern Asia</i>							
Yugoslavia	1 (—)	(1)					1
<i>Region D — Africa</i>							
Central African Empire				1			1
Congo (People's Rep.)				1 (—)			1 (—)
Egypt				1			1
Ethiopia			1				1
Tunisia				1 (—)			1 (—)
<i>Region E — Asia and Australasia</i>							
Bangladesh				1			1
Korea				1			1
India			1	1		1 (—)	3 (2)
Japan				(1)			— (1)
Total	1 (—)	— (1)	5 (4)	20 (18)	5	2 (—)	33 (28)

(The figures for 1975 are shown in parentheses.)

TABLE 6

Geographical distribution on 31 December 1976
(Experts whose salaries are paid from the technical cooperation budget)

Country by region	Total by region	P.6	P.5	P.4	P.3	P.2	P.1	Total
<i>Region A – America</i>								
Argentine Republic		— (1)	2 (3)	— (1)				2 (5)
Canada		1 (1)	1 (5)	— (1)				2 (7)
Colombia			2 (2)	1 (2)				3 (4)
United States		3 (3)	4 (5)	2 (2)				9 (10)
Guyana				1 (1)				1 (1)
Peru			1 (1)					1 (1)
Uruguay			— (1)					— (1)
.../...	18 (29)							
<i>Region B – Western Europe</i>								
Germany (Fed. Rep. of)		1 (2)	5 (9)	8 (11)		6 (7)		20 (29)
Denmark						1 (—)	3 (2)	4 (2)
Spain			1 (2)					1 (2)
Finland							1 (1)	1 (1)
France		1 (1)	11 (11)	7 (10)		1 (—)		20 (22)
Greece			1 (—)					1 (—)
Ireland			3 (3)	2 (3)				5 (6)
Italy			3 (4)	4 (4)				7 (8)
Norway		1 (2)	1 (2)	1 (2)		— (1)		3 (7)
Netherlands			2 (4)	2 (5)		5 (5)	3 (4)	12 (18)
Portugal			1 (—)					1 (—)
United Kingdom of Great Britain and Northern Ireland		3 (4)	20 (17)	16 (21)				39 (42)
Sweden		1 (2)	5 (5)	7 (11)	2 (2)	3 (8)	1 (1)	19 (29)
Switzerland			1 (5)	— (1)	1 (—)			2 (6)
Turkey			1 (1)					1 (1)
.../...	136 (173)							
<i>Region C – Eastern Europe and Northern Asia</i>								
Hungarian People's Republic . .				1 (—)				1 (—)
Poland (People's Republic of) . .			3 (2)	2 (—)				5 (2)
Roumania (Socialist Rep. of) . .			1 (1)					1 (1)
U.S.S.R.			2 (2)	3 (5)				5 (7)
Yugoslavia			1 (—)					1 (—)
.../...	13 (10)							
<i>Region D – Africa</i>								
Cameroon			— (1)					— (1)
Egypt			2 (2)	4 (5)		1 (—)		7 (7)
Ethiopia		1 (1)	1 (1)					2 (2)
Sudan						— (1)		— (1)
Tunisia		1 (—)	— (1)					1 (1)
.../...	10 (12)							
<i>Region E – Asia and Australasia</i>								
Australia		1 (1)	4 (5)	— (3)				5 (9)
Bangladesh				1 (1)				1 (1)
Fiji			— (1)					— (1)
India		1 (2)	12 (11)	10 (11)				23 (24)
Japan		1 (1)	5 (8)	5 (13)		1 (—)		12 (22)
Jordan				1 (1)				1 (1)
New Zealand			3 (2)	1 (3)				4 (5)
Pakistan			2 (5)	3 (6)				5 (11)
.../...	51 (74)							
Total	228 (298)	16 (21)	101 (122)	82 (123)	3 (2)	18 (22)	8 (8)	228 (298)

(The figures for 1975 are shown in parentheses.)

7.2 *Financial questions*

7.2.1 In accordance with Article 56, No. 288, of the Malaga-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 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 1976 are reproduced in Annex 2 to this report.

7.2.2 In accordance with Article 15 of the Malaga-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 Malaga-Torremolinos Convention, 1973, lays down the limits within which the Administrative Council is authorized to draw up the Union's annual budgets. For 1976, these limits were:

36,600,000 Swiss francs for recurrent expenditure

11,000,000 Swiss francs for conferences and meetings, including seminars, but not including regional conferences. This limit, however, had to be reduced by 3,200,000 Swiss francs and 1,950,000 Swiss francs because neither the World Administrative Radio Conference for the Planning of the Broadcasting-Satellite Service nor the World Administrative Radio Conference for the Aeronautical Mobile (R) Service met in 1976. The limit for 1976 was therefore 5,850,000 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 accrued from a previous year.

7.2.4 At its 30th Session, in Resolution No. 760, the Administrative Council approved the budgets for 1976 amounting to:

41,117,500 Swiss francs for recurrent expenditure, including 36,578,000 Swiss francs within the expenditure limit (margin of 21,500 Swiss francs) and 4,539,000 Swiss francs above the limit,

6,927,000 Swiss francs for conferences and meetings, including 5,529,800 Swiss francs within the expenditure limit (margin of 320,200 Swiss francs), 618,000 Swiss francs above the limit and 779,200 Swiss francs covered by the funds accrued from 1974 and 1975,

47,000 Swiss francs for expenditure covered by the renewal fund for simultaneous interpretation and other electroacoustical equipment and by the CCITT Reserve Fund,

2,140,000 Swiss francs transferred to the ITU Reserve Account, in accordance with Resolution 11 of the Malaga-Torremolinos Plenipotentiary Conference, 1973, i.e. a total of

50,231,500 Swiss francs for the ordinary budget,

7,317,200 Swiss francs for Technical Cooperation administrative costs,

5,953,200 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 1976 at 111,800 Swiss francs on the basis of the classification chosen by Members in accordance with Nos. 92 and 93 of the Malaga-Torremolinos Convention, 1973, i.e. on the basis of a total of 416½ units.

7.2.6 Lastly, in accordance with Article 79, No. 553, of the Malaga-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 and industrial organizations and international organizations not exempt under Administrative Council Resolution No. 574 at 18,800 Swiss francs for 1976.

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. 760 on the budget for 1976 and the end of the financial year 1976, the Secretary-General was obliged to increase the budget by:

5,913,000 Swiss francs for the ordinary budget,
1,006,200 Swiss francs for the Technical Cooperation Special Accounts Budget,
284,100 Swiss francs for the supplementary publications budget.

7.2.8 The budgets of the Union for 1976 therefore finally amounted to:

56,144,500 Swiss francs for the ordinary budget,
8,323,400 Swiss francs for the Technical Cooperation Special Accounts Budget,
6,237,300 Swiss francs for the supplementary publications budget.

*Classification of Members of the Union
for the apportionment of expenditure in 1976*

7.2.9 At the end of 1975, the Union had 146 Members contributing on the basis of a total of 417½ units.

7.2.10 Following the accession of 6 new Members in 1976, on 31 December 1976, the Union had 152 Members contributing on the basis of a total of 420½ units.

Cash resources

7.2.11 In 1976, the Union again found itself in a difficult financial situation and from July onwards had to request the Government of the Swiss Confederation to advance funds. These advances amounted in all to 14,000,000 Swiss francs, as in 1975, compared with 12,000,000 Swiss francs in 1974. In the last few days of December 1976, it was possible to repay these loans in full.

Contributions in arrear

7.2.12 The total amounts due on 31 December 1974, 1975 and 1976 were as follows:

31 December 1974	1,420,083.80 Swiss francs
31 December 1975	3,800,311.69 Swiss francs
31 December 1976	3,678,849.26 Swiss francs

7.2.13 The amounts in the special arrears account established pursuant to Resolution No. 10 of the Malaga-Torremolinos Plenipotentiary Conference, 1973, and not yet settled on 31 December 1976, total 5,075,585.57 Swiss francs. Since the Plenipotentiary Conference this special arrears account has thus been reduced by the payment by the Members concerned of 1,484,430.61 Swiss francs, including 124,140.60 Swiss francs which were paid in 1976.

7.2.14 Annex 7 to this report shows the situation of the Union's principal debtors on 31 December 1976.

8. RELATIONS WITH THE UNITED NATIONS AND OTHER INTERNATIONAL ORGANIZATIONS

UNITED NATIONS

The Union has continued to participate in the work of the United Nations as the specialized agency with responsibility for taking appropriate action in the field of telecommunication. Recent decisions by the General Assembly and the Economic and Social Council have emphasized the need for a multidisciplinary approach to the problems and challenges facing the international community and the United Nations system, particularly in implementing policy decisions calling for a New International Economic Order. The ITU has responded to these decisions in its conference programme, its regular activities and in inter-agency contacts undertaken at the level of the secretariat.

The *ad hoc* Committee of the General Assembly on the Restructuring of the United Nations system has been active throughout the year and the Union has responded to requests from the Committee for both information and opinions concerning restructuring options being considered by the Committee. The Secretary-General of the Union addressed the Economic and Social Council during the general debate which marked the start of its sixty-first session and officials from the General Secretariat of the Union participated in the day-to-day work of this session.

Coordination between the various organizations in the United Nations system is effected at the level of the secretariats through the Administrative Committee on Coordination (ACC). The Secretary-General has himself attended all meetings of this Committee and officials from Headquarters have participated in the work of a number of the Sub-Committees dealing with the coordination of multidisciplinary activities undertaken by the system. The Union has participated in the work of the inter-secretariat Consultative Committee on Administrative Questions and in studies and activities bearing on the work of the International Civil Service Commission. In compliance with the request of the General Assembly, the International Civil Service Commission has submitted, to the thirty-first session of the General Assembly, a report with recommendations on the remuneration of staff members to whom the common system is applied, including particularly staff in the professional and higher categories. The decisions of the General Assembly concerning the recommendations of the International Civil Service Commission will be considered by the thirty-second session of the Administrative Council.

In accordance with Administrative Council Resolution No. 636, the Union continued to pay particular attention to activities concerning telecommunications and the peaceful uses of outer space. In June 1976 the United Nations Committee on the Peaceful Uses of Outer Space held its nineteenth session in New York. The Union was represented at this meeting by two officials from Headquarters. Information was provided on present and future Union activities and the "Fifteenth Report by the ITU on Telecommunication and the Peaceful Uses of Outer Space" was included in the documents before the Committee. The Committee took note of the report of the ITU and looked forward to the further cooperation of the Union, and other specialized agencies and international organizations, in its work.

The coordination of inter-agency activities in the peaceful uses of outer space entered a new and more formal phase with the convening of the first session of the ACC Sub-Committee on Outer Space Activities. The ITU was represented in this Sub-Committee which, by decision of the ACC, met in Rome in September 1976. The report of the Sub-Committee, following its first session, dealt with its terms of reference and contained recommendations to the ACC on the future coordination of the activities of the system. The Sub-Committee will hold its second session in Paris in September 1977.

The Union was represented at the twenty-second session of the Advisory Committee on the Application of Science and Technology to Development (ACAST) which took place in Geneva, 22 November to 3 December 1976. The most important subject on the agenda of this session of ACAST was that concerning preparation for the 1979 United Nations Conference on Science and Technology for Development. In particular, the Advisory Committee prepared "draft guidelines for the preparation of national papers" to be submitted for the approval of the Committee on Science and Technology for Development (CSTD) holding its first session as the Preparatory Committee for the Conference at the end of January 1977. Due to financial constraints the Union was not represented at the first session of the Preparatory Committee which was held in New York.

Specific subject areas to be included on the agenda of the United Nations Conference on Science and Technology for Development have yet to be selected and hence the future commitment of the Union in preparing for this Conference, remains unclear. The ACAST recommended that the final selection

of agenda subjects should be made not later than March 1978 following national and regional consultations. The Secretary-General of the Union has requested all administrations to keep him informed of any national or regional proposals involving telecommunications.

The Union continues to contribute to the work of Inter-Agency Task Force on Information Exchange and the Transfer of Technology (General Assembly Resolution 3507) and to the work of ad hoc Group on the Application of Computer Science and Technology to Development (Economic and Social Council Resolution 2036).

The Union has continued to participate in coordination of public relations activities within the United Nations system by taking part in the work of the Joint United Nations Information Committee (JUNIC). Close cooperation has also been maintained with UNDP in preparation for World Telecommunication Day, 1977, the theme of which is Telecommunication and Development.

The Inter-organization Board for Information Systems and Related Activities (IOB) has continued to receive the support of the ITU over the past year. The Union has contributed to the work of the IOB in the development of management information systems and in particular by furnishing data to the Common Register of Development Projects (CORE). The Union was represented at the ninth session of the Board in Geneva, September 1976, and at the tenth session in Paris, February 1977.

The General Assembly of the United Nations, at its thirty-first session, approved a statute for the Joint Inspection Unit (JIU) and the ITU, together with other organizations of the UN system, is invited to accept this statute. The statute and a number of JIU reports, are currently receiving the attention of the Union. Reports, of concern to the Union, which were issued during 1976, include:

<i>Report (abridged title)</i>	<i>Origin of request</i>
Fellowships in the United Nations system (JIU/REP/76/1)	Initiative of JIU
Latin American Integration—Technical cooperation provided by the United Nations system (JIU/REP/76/3)	Initiative of JIU
Some aspect of the strike at the United Nations Office at Geneva from 25 February to 3 March 1976 (JIU/REP/76/6)	Initiative of JIU
Asia and the Pacific—Technical cooperation provided by the United Nations system (JIU/REP/76/9)	Initiative of JIU
Country Programming as an instrument for coordination and cooperation at the country level (JIU/REP/76/10)	Initiative of JIU

REGIONAL ORGANIZATIONS

Africa

As in previous years, the ITU carried out its activities in full collaboration and cooperation with regional and sub-regional organizations in Africa. Particular attention was also given to establishing closer contacts with regional and international development banks and other financing organizations (ADB, BADEA, IDA/IBRD, EEC/EDF, FADES) to foster further collaboration in joint activities for the development of telecommunications in Africa.

The PANAFTEL Coordinating Committee composed of ECA, OAU, ADB and ITU met in Geneva during May 1976 to review the progress being made in the implementation of the PANAFTEL network and related subjects concerning the development of telecommunications in Africa. The recommendations contained in the third report of the Coordinating Committee were subsequently submitted to, and supported by, the OAU Council of Ministers. Close contacts were maintained throughout the year between the representatives of the four organizations. The ITU continued to be invited to all major meetings of ECA, OAU and ADB where it was represented as appropriate.

The three regional experts continued to have periodic contacts and consultations with organizations located in their respective areas during the final stage of their assignments which were progressively terminated due to UNDP financial constraints during 1976. These relations lead to fruitful exchanges of information and collaboration on activities of mutual interest. The regional expert stationed in Addis Ababa was in constant liaison with the secretariats of ECA and OAU and attended many important meetings of the two organizations, including participation in the Steering Committee for the Pan-African Telecommunication Union to be constituted in April 1977 under the aegis of OAU. In West Africa, the regional adviser maintained liaison with ADB, URTNA, the Mano River Union and Senegambian secretariat. He also participated actively in the ITU activities carried out for the United Nations Sahelian Office (UNSO) and the Permanent Inter-State Committee for Drought Control in the Sahel (CILSS). These activities included the study of problems concerning rural telecommunications and broadcasting and the formulation of relevant projects in eight countries of the Sahelian area. The regional experts in East and West Africa also attended several sub-regional coordination meetings on PANAFTEL and on training activities.

In cooperation with URTNA, the ITU continued a preliminary study of the staff and training needs for Radio and Television Broadcasting Services.

Latin America

Due to UNDP financial constraints it has not been possible to retain ITU regional experts in Latin America during 1976 and the previous close relations maintained with the Economic Commission for Latin America (ECLA) have suffered in consequence. However, limited contacts have been maintained on a sub-regional basis, in particular, the ITU advisor for the Caribbean having participated in a working meeting convened in New York by the ECLA regional office for the Caribbean.

The established collaboration between the ITU and the Organization of American States (OAS) and in particular with its Inter-American Telecommunication Conference (CITEL), was continued during 1976. Contact with the President of the permanent organ COM/CITEL was maintained throughout the year for the implementation of the ITU regional programme of assistance and for the definition of priorities with regard to the future programme. Contacts were also maintained with the Inter-American Development Bank (IDB), particularly in connection with the possibility of collaboration in the implementation of projects financed by the Bank in Paraguay and Uruguay.

Collaboration with the Central American Telecommunication Commission (COMTELCA) continued to develop in 1976, mainly through the ITU Regional Coordinator for Central America, who was also in charge of the contact with the Central America Bank for Economic Integration (CABEI).

During a mission effected in May to some countries of the Caribbean area, the ITU Secretary-General paid a visit to the General Secretariat of CARICOM in Georgetown (Guyana) with a view to strengthening the links of collaboration between the two organizations.

Also in May 1976, an ITU official participated in a meeting convened in Georgetown Guyana by the Trade Transport and Industry Section of the Action Programme for Economic Cooperation between non-aligned countries (APEC). As a follow-up to this meeting, proposals are now being studied concerning the establishment of a Central Commercial Information Unit within the framework of APEC. It is probable that the ITU will be called upon to make a further contribution to the study of these proposals.

An ITU representative participated in the Conference on economic cooperation among developing countries, organized by the Group of 77 and held in Mexico from 13 to 21 September 1976. On this occasion, preliminary contacts were made with the Latin American Economic System (SELA), an international organization with Headquarters located in Caracas, with a view to exploring the possibilities of future cooperation.

Asia and the Pacific

Although the UNDP financing of the regional telecommunication project based in Bangkok was withdrawn after the first quarter in 1976, activities under this project continued throughout the year with bilateral assistance from a number of countries. Cooperation with the Economic and Social Commission for Asia and the Pacific (ESCAP) was thus maintained throughout 1976, liaison with ITU Headquarters being assured through visits by officials. The Union was represented in the thirty-second session of the ESCAP, in the twenty-fifth session of the Transport and Communication Committee of the Commission and in the Intergovernmental Working Party of Telecommunications Experts. The thirty-second session of the ESCAP finalized the Constitution of the Asia Pacific Telecommunity which will be established as a regional telecommunication organization in conformity with the provisions of the International Telecommunication Convention.

ITU cooperation with the South Pacific Bureau for Economic Cooperation (SPEC) continued during 1976 and the Secretary-General visited the SPEC Headquarters in Suva, Fiji, early in the year. During this visit the Secretary-General held discussions with the Director of the SPEC on the development of telecommunications in the region and on technical cooperation requirements. In July 1976, ITU also participated in the regional intergovernmental telecommunication meeting held in Apia, Western Samoa, to discuss, *inter alia*, the UNDP/ITU technical assistance programme and projects in the region.

Cooperation in the work of the Asian Broadcasting Union (ABU) continued during the year and the ITU was represented in the General Assembly and the Engineering Committee meetings of this regional organization. Together with the ABU, the ITU co-sponsored a seminar on satellite broadcasting in the 12 GHz band, held in Japan in September 1976. The ITU also responded to a joint UNESCO/Asian Institute for Broadcasting Development (AIBD) invitation to participate in a regional course on satellite broadcasting for developing countries in the region of Asia and the Pacific. This course was hosted by Malaysia in July 1976.

In continuation of activities in support of the Indian Satellite Instructional Television Experiment (SITE) the Union participated in a winter school associated with this project. This winter school was jointly sponsored by the United Nations and the Indian Space Research Organization (ISRO) and was held in Ahmedabad, India.

In November 1976, the Union participated in the International Teletraffic Congress which was held in Melbourne, Australia. Advantage was taken of the presence of a number of highly qualified teletraffic engineers in the region to arrange a series of short specialized seminars in different Asian countries. These seminars were conducted by the engineers, for the benefit of local staff, during short stopovers in their travel to and from Melbourne.

Europe, the Mediterranean and the Middle East

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

Well established cooperative arrangements continued to operate during the year between the Union, the Arab League, the Arab Telecommunication Union (ATU) and the Arab States Broadcasting Union (ASBU). Although cooperation with these organizations extended into many areas of mutual concern, of particular interest was the execution of the project on the Feasibility Study/Preinvestment Survey for the Middle East Telecommunication Network. Progress meetings have been held at the Sub-Regional level in Sana'a (YAR), in August 1976, and in Doha (Qatar), in November 1976. At these meetings technical/economic reports concerning the network were discussed. In connection with the study and preparation for the Arab Regional Satellite project, close contact has been maintained with the Arab League, ATU, ASBU and UNESCO.

In the preparatory work connected with the establishment of a Regional Telecommunication Training Institute, contacts were maintained with ATU and ASBU. ITU was represented at the fourth Executive Conference of the ATU held in 1976 in Cairo.

In the field of maritime and coastal telecommunication in the Mediterranean and the Middle East, the Union's cooperation was extended to IMCO, UNEP and ATU. The Union also cooperated with the UN Department of Economic and Social Affairs, IMCO and UNEP on the Programme for the Development and Protection of the marine environment and coastal areas.

The Arab Fund for Economic and Social Development (AFESD) and the "Banque Arabe de développement économique en Afrique" financed the Seminar on Satellite Broadcasting in the 12 GHz band which was held in the Sudan in November 1976. This seminar was organized by the Union for the countries in the Middle East and Africa.

Contacts were made with AFESD, the Kuwait Fund for Arab Economic Development and the Islamic Bank concerning the financing of assistance in the implementation of certain training and survey projects in the Middle East.

SPECIALIZED AGENCIES

Within the machinery established by the Administrative Committee on Coordination (ACC) the ITU has continued to work in harmony with other specialized agencies of the United Nations system. Such contacts have been invaluable in coordinating the system-wide response to priorities established by the General Assembly and in reaching agreement on matters concerning the development of the United Nations Common System.

In addition, the Union has continued to maintain close relations with a limited number of specialized agencies which have a particular interest in telecommunications. Special relations have been maintained with IMCO, WMO and ICAO in accordance with Administrative Council Resolution No. 196. These organizations have participated in the work of the Union by being represented at conferences and meetings of the Union and the ITU has similarly participated in the work of these specialized agencies. The importance of the existing cooperation between the ITU and these organizations may be judged from the list of meetings attended by officials from the Union as indicated in Annex 5 to this Report.

The United Nations Educational, Scientific and Cultural Organization (UNESCO) is another specialized agency of the United Nations with which the ITU continues to maintain close relations. The interest of UNESCO in telecommunication systems ranges from the utilization of broadcasting satellites for educational purposes through the transfer of information by data transmission to the establishment by governments of integrated national communication policies. Due to economic constraints it has not always been possible for the Union to participate in all UNESCO activities in which telecommunication interests have been involved.

OTHER INTERNATIONAL ORGANIZATIONS

In addition to the United Nations organs, the specialized agencies and the regional organizations already mentioned, the Union has maintained working relations with many other governmental and non-governmental international organizations. Details of such contacts will be found throughout this report in sections dealing with the activities of the organs and departments of the Union. The following list, whilst not exhaustive, indicates international organizations with a special interest in the development of

regulations and standards, or in the utilization of telecommunication, with which the ITU has enjoyed particularly fruitful relations:

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 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 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)

ANNEX 1

**POSITION OF MEMBERS IN RELATION TO THE ACTS OF THE UNION
ON 31 DECEMBER 1976**

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).

Table II. *African Regional Agreements :*

- 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);
- Regional Agreement concerning the use of frequencies by the broadcasting service in the medium frequency band in the African Broadcasting Area (Geneva, 1966).

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 Agreement Concerning the Radiotelephone Service for the Rhine (Brussels, 1970).

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).*VI. *Special Agreements.*

Table I. Convention, Regulations

POSITION ON 31 DECEMBER, 1976

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				ADMINISTRATIVE REGULATIONS																	
	Plenipotentiary Conference of Malaga-Torremolinos, 1973					World Administrative Telegraph and Telephone Conference				Administrative Radio Conferences																	
	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)		Radio Regulations										Additional Radio Regulations									
						Telegraph Regulations	Telephone 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)											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Afghanistan (Republic of)	½	S 1)		S		—		—		S	A 4)	—	A 4)	—	A 4)	—	—	—	—	—	S	A 4)	—	—	—	—	
Albania (Socialist People's Republic of) 40)	½	A	5. I. 1976 36)	—		S	A 4)	S	A 4)	S	36)	—	36)	—	36)	—	36)	—	36)	—	36)	S	36)	—	36)	—	36)
Algeria (Algerian Democratic and Po- pular Republic)	1	S 1)	1. XI. 1976	—		S	A 4)	S	A 4)	—	A 4)	S	A	S	A	S	A	S	A 4)	S	A 4)	—	A 4)	S	A	S	A 4)
Germany (Federal Republic of)	20 45)	S 1)	18. XI. 1976 37)	—		S	A 5)	S	A 5)	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)
Angola (People's Republic of)	½	A	13. X. 1976	—		—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)
Saudi Arabia (Kingdom of)	1	S 1)		—		S		S		S	A 4)	—	A 4)	S	A 4)	—		S		S		S	A 4)	—		S	
Argentine Republic	3	S 1)		—		S		S		S	A 24)	S	A 3)	S	A	S	A	S	A	S		S	A 24)	S	A	S	
Australia	18	S 1)	23. VI. 1975	S	23. VI. 1975	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A
Austria	1	S 1)		S		S		S		S	A	S	A	—	A	S	A	S		—		S	A	S	A	—	
Bahamas (Commonwealth of the)	½	A	16. X. 1975 30)	—		—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	—	—	—	A 4)	—	A 4)	—
Bahrain (State of)	½	A	21. X. 1974 11)	—		—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	—	—	—	A 4)	—	A 4)	—
Bangladesh (People's Republic of)	1	S 1)	6. IV. 1976 2)	—		—	1)	—	1)	—	1)	—	1)	—	1)	—	1)	—	1)	S	1)	—	1)	—	1)	S	1)
Barbados	½	S 1)	1. X. 1976	A	1. X. 1976	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)
Belgium	5	S 1)		S		S		S		S	A	S	A	S	A	S	A	S		S		S	A	S	A	S	
Benin (People's Republic of) 12)	½	S 1)		S		S		S		S	A	—	A	—	A 4)	—		—	S		—	—	A	—		S	
Byelorussian Soviet Socialist Republic	1	S 1)		—		S	A	S	A	S	1)	S	A	—	A 13)	—	1)	S	A	—		S	1)	—	1)	—	
Burma (Socialist Republic of the Union of) 14)	½	S 1)	15. XI. 1976	S		—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	S	A	—	A 4)	—	A 4)
Bolivia (Republic of)	½	S 1)		—		—		—		—	A 4)	—	A 4)	—	A 4)	—	A 4)	—		—		S	A 4)	—	A 4)	—	
Botswana (Republic of)	½	S 1)		—		—		—		—	A 4)	—	A 4)	—	A 4)	—		—		—		—	A 4)	—		—	
Brazil (Federative Republic of)	5	S	30. XI. 1976	S		S	A	S	A	S	A	—	A 4)	S	A 4)	S	A 4)	S	A	S	A 4)	S	A	S	A 4)	S	A 4)
Bulgaria (People's Republic of)	1	S 1)	29. XII. 1976 43)	—		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)

*) Convention, Final Protocol, Additional Protocols.
**) Optional Additional Protocol on the Compulsory Settlement of Disputes.

Table I.

Convention, Regulations (continued)

Countries (In the alphabetical order of the French version of the country names)	CONVENTION, etc.					ADMINISTRATIVE REGULATIONS				ADMINISTRATIVE REGULATIONS																	
	Plenipotentiary Conference of Malaga-Torremolinos, 1973					World Administrative Telegraph and Telephone Conference				Administrative Radio Conferences																	
	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)		Radio Regulations												Additional Radio Regulations							
						Telegraph Regulations	Telephone 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)											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Burundi (Republic of)	½	S 1)		S		—		—		—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	—	—	—	—	A 4)	—	A 4)	—	
Cameroon (United Republic of)	½	S 1)		S		S		S		—	A	—	A 4)	S	A	S	A	S	A	S	—	A	S		S		
Canada	18	S	20. I. 1975	S	20. I. 1975	S	A	S	A	S	A	S	A 3)	S	A	S	A	S	A	S	A	S	A 3)	S	A	S	A
Cape Verde (Republic of)	½	A	10. IX. 1976	—		—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	S	A 4)	S	A 4)	—	A	—	A 4)	—	A 4)
Central African Empire 41)	½	S 1)	5. I. 1976	S	5. I. 1976	S	A	S	A	—	A	—	A 4)	—	A 4)	—	A 4)	S	A 4)	S	A 4)	—	A	—	A 4)	S	A 4)
Chile	1	S 1)		—		—		—		—	A 4)	—	A 4)	—	A 4)	S	A 4)	S		S	—	A 4)	S	A 4)	S		
China (People's Republic of)	20	S 1)	29. XII. 1976 42)	—		S	A 4)	S	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	S	A 4)	—	A 4)	—	A 4)	—	A 4)
Cyprus (Republic of)	½	S 1)	31. XII. 1976	S	31. XII. 1976	—	A 4)	—	A 4)	—	A	S	A	—	A 4)	S	A 4)	S	A 4)	S	A 4)	—	A	S	A 4)	S	A 4)
Vatican City State	½	S	10. XII. 1976	—		S	A 4)	S	A 4)	S	A 4)	S	A	—	A	—	A	S	A	—	A 4)	S	A	—	A	—	A 4)
Colombia (Republic of)	3	A	21. II. 1975	A	21. II. 1975	—	A 4)	—	A 4)	S	A 4)	S	A 4)	S	A 4)	S	A 4)	S	A 4)	S		S	A 4)	S	A 4)	S	
Comoros (State of the)	½	A	5. I. 1976	—		—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)
Congo (People's Republic of the)	½	S 1)		S		S		S		—	A	—	A	—	A	S	A	S		S	—	A	—	A	—	A	S
Korea (Republic of)	1	S 1)	22. I. 1976	S	22. I. 1976	—	A 4)	—	A 4)	S	A	S	A	—	A	S	A	S	A	S	A	S	A	S	A	S	A
Costa Rica	½	S		S		—		—		S	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	S		S	A 4)	—	A 4)	S	
Ivory Coast (Republic of the)	1	S 1)		S		—		—		—	A 18)	—	A	—	A 4)	S		S		S		—	A	S		S	
Cuba	1	S 1)		—		—		—		S	1)	S	A	S	A	S	1)	S	1)	S		S	1)	—	1)	S	
Denmark	5	S 1)	12. XI. 1974	—		S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A
Dominican Republic	½	S		S		—		—		S	A	—	A 4)	—	A 4)	—		—	—	S	A	—		—	—	—	
Egypt (Arab Republic of)	2	S 1)	10. IX. 1976	S		—	A 4)	—	A 4)	S	A 4)	S	A 4)	—	A 4)	—	A 4)	S	A 4)	—	A 4)	S	A 4)	—	A 4)	—	A 4)
El Salvador (Republic of)	½	S 1)		S		—		—		—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	S		S	A 4)	—	A 4)	S	
United Arab Emirates	1	S 4)	29. XII. 1976	S	29. XII. 1976	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)
Ecuador	1	S	24. I. 1975	—		—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	S		—	A 4)	—	A 4)	S	
Spain	3	S 1)	29. IV. 1976	—		S	A	S	A	S	A 3)	S	A	S	A	S	A	S	A 4)	S	A	S	A	S	A	S	A
United States of America	30	S 1)	13. IV. 1976 2)	—		S	A 3)	S	A 3)	S	A 25)	S	A	S	A	S	A	S	A	S	A 3)	—	1)	—	1)	—	1)
Ethiopia	1	S	29. XII. 1976	—		S	A 4)	S	A 4)	S	A	S	A	S	A	S	A 4)	S	A 4)	—	A 4)	S	A	S	A 4)	—	A 4)
Fiji	½	A	17. IV. 1975	A	17. IV. 1975	—	A	—	A	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A	—	A 4)	—	A 4)	—	A
Finland	3	S 1)	28. VII. 1975	S	5. XII. 1975	S	A	S	A	S	A	S	A	—	A	S	A	S	A	S	A	S	A	S	A	S	A
France	30	S 1)	29. XII. 1976	—		S	A 4)	S	A 4)	S	A	S	A	S	A	S	A	S	A 4)	S	A 4)	S	A	S	A	S	A 4)

*) Convention, Final Protocol, Additional Protocols.

**) Optional Additional Protocol on the Compulsory Settlement of Disputes.

Table I. Convention, Regulations (continued)

Countries (In the alphabetical order of the French version of the country names)	CONVENTION, etc.					ADMINISTRATIVE REGULATIONS				ADMINISTRATIVE REGULATIONS																	
	Plenipotentiary Conference of Malaga-Torremolinos, 1973					World Administrative Telegraph and Telephone Conference				Administrative Radio Conferences																	
	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)		Radio Regulations												Additional Radio Regulations							
						Telegraph Regulations	Telephone 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)											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Gabon Republic	½	S ¹⁾		S		S		S		—	A	—	A	—	A ⁴⁾	—	A ⁴⁾	S		—		—	A	—	A ⁴⁾	—	
Gambia (Republic of the)	½	A	3. XI. 1975	—	3. XI. 1975	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	—	—	A ⁴⁾	—	A ⁴⁾	—	
Ghana	1	S ¹⁾		—		—		—		S	A	S	A	S	A ⁴⁾	S	A ⁴⁾	S	A ⁴⁾	S		S	A	S	A ⁴⁾	S	
Greece	1	S ¹⁾		S		S	A	S	A	S	A	S	A	—	A ⁴⁾	S	A	S	A	S		S	A	S	A	S	
Guatemala	1	S ¹⁾		—		—		—		—	A ¹⁷⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—		—		—	A	—	A ⁴⁾	—	
Guinea (Republic of)	½	S ¹⁾	5. X. 1976	—		—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A	—	A	—	A	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A	—	A ⁴⁾
Guinea-Bissau (Republic of)	½	A	15. I. 1976	—		—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾
Equatorial Guinea (Republic of)	½	S ¹⁾		—		—		—		—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—		—		—	A ⁴⁾	—	A ⁴⁾	—	
Guyana	½	A	30. XI. 1976	—		—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A	S	A	—	A	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	S	A	—	A ⁴⁾
Haiti (Republic of)	½	A	10. XII. 1976	—		—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾
Upper Volta (Republic of)	½	S ¹⁾		S		—		—		—	A ⁴⁾	—	A	—	A ⁴⁾	—	A	S		S		—	A ⁴⁾	—	A	S	
Honduras (Republic of)	½	—		—		—		—		—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—		—	A ⁴⁾	—	A ⁴⁾	—	
Hungarian People's Republic	1	S ¹⁾	4. VIII. 1976 ²³⁾	—		S	A	S	A	S	A ⁴⁾ 23)	S	A	S	A ¹⁶⁾	S	A	S	A	S	A ⁴⁾	S	A ⁴⁾	S	A	S	A ⁴⁾
India (Republic of)	13	S ¹⁾	20. IV. 1976	—		S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A
Indonesia (Republic of)	1	S ¹⁾		S		S		S		S	A	S	A ⁴⁾	S	A ⁴⁾	S	A ⁴⁾	S		S		S	A	S	A ⁴⁾	S	
Iran	1	S ¹⁾		—		S		S		S	A	—	A ⁴⁾	—	A ⁴⁾	—		S		S		S	A	—		S	
Iraq (Republic of)	½	S ¹⁾		—		—		—		S	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	S		S	A ³⁾	S	A ⁴⁾	—	A ⁴⁾	S	A ³⁾
Ireland	2	S	20. IX. 1976	—		S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A
Iceland	½	S ¹⁾		—		S		S		S	A	S	A	—	A	S	A	S		S		S	A	S	A	S	
Israel (State of)	1	S ¹⁾	28. V. 1975	—		S	A ⁴⁾	S	A ⁴⁾	S	A	S	A	—	A	S	A ⁴⁾	S	A ⁴⁾	S		S	A	S	A ⁴⁾	S	
Italy	10	S ¹⁾		—		S		S		S	A ²¹⁾	S	A	S	A	S		S		S		S	A ²¹⁾	S		S	
Jamaica	½	S ¹⁾	25. IV. 1975 ²⁾	—		S	A	S	A	—	A ⁴⁾	S	A ²⁰⁾	S	A ⁴⁾	S	A ⁴⁾	S	A	S		—	A ⁴⁾	S	A ⁴⁾	S	
Japan	20	S	17. VI. 1975	S	17. VI. 1975	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A
Jordan (Hashemite Kingdom of)	½	A	28. V. 1975	A	28. V. 1975	—	A ⁴⁾	—	A ⁴⁾	S	A	—	A ⁴⁾	—	A ⁴⁾	S	A ⁴⁾	—	A ⁴⁾	—		S	A	S	A ⁴⁾	—	
Kenya (Republic of)	½	S ¹⁾		—		S		S		—	A ⁴⁾	—	A	—	A	—	A	S		—	A	—	A ⁴⁾	—	A	—	A
Khmer Republic	½	S ¹⁾		S		—		—		S	A	S	A	—	A ⁴⁾	—		—		S		S	A	—		S	
Kuwait (State of)	1	S ¹⁾		—		S		S		S	A	S	A	S	A ⁴⁾	S	A	S	A	S		S	A	S	A	S	

*) Convention, Final Protocol, Additional Protocols.
**) Optional Additional Protocol on the Compulsory Settlement of Disputes.

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	Plenipotentiary Conference of Malaga-Torremolinos, 1973					World Administrative Telegraph and Telephone Conference				Administrative Radio Conferences																	
	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)		Radio Regulations												Additional Radio Regulations							
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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Lao People's Democratic Republic ³⁴⁾ . .	½	S ¹⁾		S		—		—		—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾
Lesotho (Kingdom of)	½	S ¹⁾	27. VIII. 1976	—		—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾
Lebanon	1	S ¹⁾		S		S		S		S		S		S		S		S		S		S		S		S	
Liberia (Republic of)	1	S ¹⁾	22. IX. 1975	S		—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	S	A ⁴⁾	S	A ⁴⁾	S		—	A	S	A ⁴⁾	S	
Libyan Arab Republic	½	S ¹⁾		—		S		S		S		S		S		S		S		S		—	A	S	A ⁴⁾	S	
Liechtenstein (Principality of)	½	S ¹⁾	4. II. 1976	S	4. II. 1976	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	S	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾
Luxembourg	½	S ¹⁾	26. VII. 1976	S	26. VII. 1976	S	A	S	A	S	A	—	A	—	A	—	A	S	A ⁴⁾	S	A	S	A	—	A	S	A
Madagascar (Democratic Republic of) ³⁵⁾	1	S ¹⁾	17. III. 1976	S	17. III. 1976	S	A	S	A	—	A ⁴⁾	—	A	—	A	—	A	—	A ⁴⁾	S	A ⁴⁾	—	A ⁴⁾	—	A	S	A ⁴⁾
Malaysia	3	S ¹⁾	13. IV. 1976	—		S	A ⁴⁾	S	A ⁴⁾	—	A	—	A	—	A	—	A	—	A ⁴⁾	S	A ⁴⁾	—	A ⁴⁾	—	A	S	A ⁴⁾
Malawi	½	S ¹⁾		S		—		—		—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾
Maldives (Republic of)	½	A	16. I. 1975	—		—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾
Mali (Republic of)	½	S ¹⁾	21. XII. 1976	S		S	A ⁴⁾	S	A ⁴⁾	—	A	—	A	—	A	—	A ⁴⁾	S	A ⁴⁾	—	A ⁴⁾	—	A	—	A ⁴⁾	—	A ⁴⁾
Malta (Republic of) ²⁶⁾	½	A	30. I. 1975 ²⁷⁾	A	30. I. 1975	—	A ⁴⁾	—	A ⁴⁾	—	A	—	A	—	A	—	A ⁴⁾	S	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	S	A ⁴⁾	—	A ⁴⁾
Morocco (Kingdom of)	1	S ¹⁾		S		S		S		S		S		S		S		S		S		—	A ⁴⁾	S	A ⁴⁾	—	A ⁴⁾
Mauritius	½	S ¹⁾	8. VII. 1974	S	9. IV. 1975	—	A ⁴⁾	—	A ⁴⁾	—	A	—	A	—	A	—	A	—	A ⁴⁾	S	A	—	A ⁴⁾	—	A ⁴⁾	S	A
Mauritania (Islamic Republic of)	½	S ¹⁾		S		—		—		—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	S	A	—	A ⁴⁾	—	A ⁴⁾	S	A
Mexico	3	S	23. VII. 1975	—		S	A ⁴⁾	S	A ⁴⁾	—	A	—	A	—	A	—	A ⁴⁾	S	A ⁴⁾	S		—	A ⁴⁾	—	A ⁴⁾	S	
Monaco	½	S ¹⁾	23. XII. 1976 ³⁾	—		S	A ⁴⁾	S	A ⁴⁾	—	A	—	A	—	A	—	A ⁴⁾	S	A ⁴⁾	S	A ⁴⁾	S	A	S	A ⁴⁾	S	
Mongolian People's Republic	½	S ¹⁾		—		—		—		—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	S	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	S	A ⁴⁾
Mozambique (People's Republic of) . . .	½	A	4. XI. 1975	—		—	A ⁴⁾	—	A ⁴⁾	—	A	—	A	—	A	—	A ⁴⁾	—	A ⁴⁾	—	A	—	A ⁴⁾	—	A ⁴⁾	—	A
Nauru (Republic of)	½	—		—		—		—		—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A	—	A ⁴⁾	—	A ⁴⁾	—	A
Nepal	½	S ¹⁾		S		—		—		—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	—	—	A ⁴⁾	—	A ⁴⁾	—	—
Nicaragua	1	S ¹⁾		S		—		—		—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	—	—	—	—	S	A	—	—	—	—	—
Niger (Republic of the)	½	S ¹⁾		—		—		—		—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	—	S	—	S	S	A ⁴⁾	—	—	—	S	—
Nigeria (Federal Republic of)	2	S ¹⁾	24. VIII. 1976	—		S	A ⁴⁾	S	A ⁴⁾	—	A	—	A	—	A	—	A	S	A ⁴⁾	S	—	—	A	—	A	—	—
Norway	5	S ¹⁾	16. XII. 1976	—		S	A	S	A	—	A	—	A	—	A	—	A ⁴⁾	S	A ⁴⁾	S	A ⁴⁾	S	A	S	A ⁴⁾	S	A
New Zealand	3	S ¹⁾		S		S	A	S	A	—	A	—	A	—	A	—	A	S	A ²⁸⁾	S	A ²⁸⁾	S	A	S	A	S	A

*) Convention, Final Protocol, Additional Protocols.

**) Optional Additional Protocol on the Compulsory Settlement of Disputes.

Table I. Convention, Regulations (continued)

Countries (In the alphabetical order of the French version of the country names)	CONVENTION, etc.					ADMINISTRATIVE REGULATIONS				ADMINISTRATIVE REGULATIONS																		
	Plenipotentiary Conference of Malaga-Torremolinos, 1973					World Administrative Telegraph and Telephone Conference				Administrative Radio Conferences																		
	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)		Radio Regulations						Additional Radio Regulations														
						Telegraph Regulations	Telephone 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)												
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
Oman (Sultanate of)	½	S 1)		—		S		S		—	A 4)	—	A 4)	—	A 4)	—	A 4)	—		—		—	A 4)	—	A 4)	—		
Uganda (Republic of)	½	S 1)		—		S		S		—	A 4)	S	A	—	A	—	A	S		A	—	—	A 4)	—	A	—	A	
Pakistan	2	S 1)		—		S	A	S	A	S	A 3)	S	A 3)	S	A	S	A 3)	S	A 3)	S		S	A	S	A 3)	S		
Panama (Republic of)	½	S 1)	15. I. 1976	—		—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	S	A 4)	—	A	—	A 4)	S	A 4)	
Papua New Guinea	½	A	31. X. 1975 31)	—		—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—		—	A 4)	—	A 4)	—		
Paraguay (Republic of)	½	S	2. VIII. 1976	A	2. VIII. 1976	—	A 4)	—	A 4)	S	A	—	A	—	A	S	A	S	A 4)	S	A 4)	S	A	—	A	S	A 4)	
Netherlands (Kingdom of the)	10	S 1)	31. XII. 1974 19)	S	17. IV. 1975	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S		S	A	S	A	S		
Peru	½	S 1)		S		S	1)	S	1)	S	1)	—	1)	—	1)	—	1)	S	1)	S		S	1)	—	1)	S		
Philippines (Republic of the)	1	S 1)	13. VIII. 1975	S		S	A	S	A	S	A 4)	S	A	—	A	—	A	S	A	S		S	A 4)	—	A	S		
Poland (People's Republic of)	3	S 1)		—		S		S		S	1)	S	1)	S	1)	S	1)	S	1)	S		S	1)	S	1)	S		
Portugal.	½	A	12. XI. 1975	—		S	A 4)	S	A 4)	S	A	S	A	S	A 4)	S	A 4)	S	A 4)	—		S	A	S	A 4)	—		
Qatar (State of)	½	A	24. X. 1975	A	24. X. 1975	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—		—	A 4)	—	A 4)	—		
Syrian Arab Republic	½	A	20. II. 1976	—		—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	S	A 4)	—	A 4)	—	—	A 4)	—	A 4)	—	
German Democratic Republic	3	S 1)	25. VIII. 1976 2)	—		S	A	S	A	—	1)	—	1)	—	1)	—	1)	—	1)	S	A	—	—	1)	—	1)	S	A
Democratic People's Republic of Korea	½	A	24. IX. 1975	—		—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—		—	A 4)	—	A 4)	—		
Ukrainian Soviet Socialist Republic . . .	3	S 1)		—		S		S		S	1)	S	A	—	A 13)	—	1)	S	A	—	S	1)	—	1)	—	—		
Roumania (Socialist Republic of)	1	S 1)		—		S		S		S	1)	S	1)	S	1)	S	1)	S	1)	S		S	1)	S	1)	S		
United Kingdom of Great Britain and Northern Ireland	30	S 1)	31. XII. 1974 22)	S	31. XII. 1974 22)	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A 32)	S	A	S	A	S	A 32)	
Rwanda (Republic of)	½	S 1)	23. XII. 1976	—		—	A	—	A	—	A 4)	—	A	—	A	—	A	S	A 4)	—	A 4)	—	A 4)	—	A	—	A 4)	
Sao Tome and Principe (Democratic Republic of)	½	A	1. IX. 1976	—		—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	A 4)	
Senegal (Republic of the)	1	S 1)		S		S		S		S	A	—	A	—	A	S	A	S		S		—	A	S	A	S		
Sierra Leone	½	S 1)	25. XI. 1976	S		—	A 4)	—	A 4)	—	A 4)	—	A	—	A 4)	—	A	—	A 4)	—	A 4)	—	A 4)	—	A	—	A 4)	
Singapore (Republic of)	1	S 1)	16. IX. 1974	—		—	A 4)	—	A 4)	S	A 3)	S	A 3)	S	A 3)	S	A 3)	S	A 3)	S	A	—	A 4)	S	A 3)	S	A	
Somali Democratic Republic	½	S 1)		—		S		S		—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	—	—		—	A 4)	—	A 4)	—		
Sudan (Democratic Republic of the) . . .	1	S 1)		—		S		S		S	A	—	A 4)	—	A 4)	—	A 4)	—	A 4)	—	S	A	—	A 4)	—	—		
Sri Lanka (Ceylon) (Republic of)	½	S 1)		S		—		—		S	A 4)	—	A 4)	—	A	S	A	S		S		S	A 4)	S	A	S		

*) Convention, Final Protocol, Additional Protocols.

**) Optional Additional Protocol on the Compulsory Settlement of Disputes.

Table I. Convention, Regulations (end)

Countries (In the alphabetical order of the French version of the country names)	CONVENTION, etc.					ADMINISTRATIVE REGULATIONS				ADMINISTRATIVE REGULATIONS																	
	Plenipotentiary Conference of Malaga-Torremolinos, 1973					World Administrative Telegraph and Telephone Conference				Administrative Radio Conferences																	
	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)		Radio Regulations												Additional Radio Regulations							
						Telegraph Regulations	Telephone 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)											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
South Africa (Republic of)	8	A	23. XII. 1974 ³⁹⁾	—		S	A ⁴⁾	S	A ⁴⁾	S	A	S	A	S	A	S	A	S	A	—		S	A	S	A	—	
Sweden	10	S ¹⁾	29. XII. 1976	A	29. XII. 1976	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A ⁴⁾	S	A	S	A	S	A ⁴⁾
Switzerland (Confederation of)	10	S ¹⁾	28. IV. 1976	S	28. IV. 1976	S	A ⁴⁾	S	A ⁴⁾	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A
Surinam (Republic of)	½	A	15. VII. 1976	A	22. VII. 1976	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾
Swaziland (Kingdom of)	½	A	20. I. 1975 ²⁹⁾	—		—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—		—	A ⁴⁾	—	A ⁴⁾	—	
Tanzania (United Republic of)	½	S ¹⁾	2. IX. 1975	—		S	A ⁴⁾	S	A ⁴⁾	—	A ⁴⁾	—	A	—	A	S	A ⁴⁾	S	A	—	A ⁴⁾	—	A	—	A	S	A
Chad (Republic of the).	½	S ¹⁾		S		—		—		—	A	—	A	—	A ⁴⁾	S		—		—		—	A	S		—	
Czechoslovak Socialist Republic.	3	S ¹⁾	20. VII. 1976 ³⁹⁾	—		S	A ⁴⁾	S	A ⁴⁾	S	³⁸⁾	S	³⁸⁾	S	³⁸⁾	S	³⁸⁾	S	³⁸⁾	S	³⁸⁾	S	³⁸⁾	S	³⁸⁾	S	³⁸⁾
Thailand	1½	S ¹⁾	8. X. 1975 ²⁾	S	28. IX. 1976	S	A	S	A	S	A	—	A	S	A ⁴⁾	—	A ⁴⁾	S	A	S	A	S	A	—	A ⁴⁾	S	A
Togolese Republic	½	S ¹⁾		S		S		S		—	A ⁴⁾	—	A	—	A ⁴⁾	S		S		S		—	A ⁴⁾	S		S	
Tonga (Kingdom of)	½	—		—		—		—		—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—		—		—	A ⁴⁾	—	A ⁴⁾	—	
Trinidad and Tobago	1	S ¹⁾	13. III. 1975	—		—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—		—	A ⁴⁾	—	A ⁴⁾	—	
Tunisia	2	S ¹⁾	25. IV. 1975	S		S	A ⁴⁾	S	A ⁴⁾	S	A	—	A	—	A ⁴⁾	S	A ⁴⁾	S	A ⁴⁾	S		S	A	S	A ⁴⁾	S	
Turkey	2	S ¹⁾		—		S		S		S	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	S		S				S	A ⁴⁾	S		S	
Union of Soviet Socialist Republics	30	S ¹⁾	31. XII. 1976 ⁴⁴⁾	—		S	A	S	A	S	⁴⁴⁾	S	A	S	A ¹³⁾	S	⁴⁴⁾	S	A	S	⁴⁴⁾	S	⁴⁴⁾	S	⁴⁴⁾	S	⁴⁴⁾
Uruguay (Oriental Republic of)	½	S ¹⁾		—		—		—		S	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	S		—		S	A ⁴⁾	—	A ⁴⁾	—	
Venezuela (Republic of)	3	S	2. XI. 1976	—		—	A ⁴⁾	—	A ⁴⁾	S	A ⁴⁾	—	A ⁴⁾	S	A ⁴⁾	S	A ⁴⁾	S	A	S	A ⁴⁾	S	A ⁴⁾	S	A ⁴⁾	S	A ⁴⁾
Viet Nam (Socialist Republic of) ³⁹⁾ . . .	½	S	16. XII. 1976	—		S	A ⁴⁾	S	A ⁴⁾	—	A	—	A	—	A ⁴⁾	S	A ⁴⁾	S	A ⁴⁾	S	A ⁴⁾	—	A	S	A ⁴⁾	S	A ⁴⁾
Yemen Arab Republic	½	S ¹⁾		S		—		—		—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—		—		—	A ⁴⁾	—	A ⁴⁾	—	
Yemen (People's Democratic Republic of)	½	S ¹⁾		S		—		—		—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—		—		—		—	A ⁴⁾	—		—	
Yugoslavia (Socialist Federal Republic of)	1	S ¹⁾	22. IX. 1975	—		S	A	S	A	S	A	S	A	S	A	S	A	S	A	S		S	A	S	A	S	
Zaire (Republic of)	1	S	10. XII. 1976	S		—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	S	A	S	A ⁴⁾	—	A ⁴⁾	S	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾	—	A ⁴⁾
Zambia (Republic of)	½	S		—		—		—		—	A ⁴⁾	—	A	—	A ⁴⁾	—		—		—		—	A ⁴⁾	—		—	

*) Convention, Final Protocol, Additional Protocols.
**) Optional Additional Protocol on the Compulsory Settlement of Disputes.

¹⁾ See the statement or statements appearing in the Final Protocol annexed to the International Telecommunication Convention (Malaga-Torremolinos, 1973).

²⁾ In ratifying the Convention, the country concerned confirmed the reservation(s) made at the time of signature.

³⁾ This approval was given subject to the reservation(s) made at the time of signature.

⁴⁾ Regulations approved *ipso facto*, since they were in force when the country concerned 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 Notification No. 1097.

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 Surinam *) and of the Netherlands Antilles.

*) Surinam 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.

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 approbation 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, the Solomon Islands 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 Notification No. 1109.

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⁾ As from 1 January 1977 - 25 units.

Table II. African Regional Agreements

Cols. 2 and 3: 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);

Cols. 4 and 5: Regional Agreement concerning the use of frequencies by the broadcasting service in the medium frequency band in the African Broadcasting Area (Geneva, 1966).

The letter S means that the Agreement has been signed and the letter A means approval of the Agreement or accession to it.

Country	Broadcasting Agreement VHF/UHF (Geneva, 1963)		Broadcasting Agreement MF (Geneva, 1966)	
	1	2	3	4
Algeria (Algerian Democratic and Popular Republic)	—		S	
Benin (People's Rep. of)	S		S	
Burundi (Republic of)	—		S	
Cameroon (United Republic of)	S		S	
Central African Empire	—		S	
Congo (People's Rep. of the)	S		S	
Ivory Coast (Republic of the)	S		S	
Egypt (Arab Republic of)	—	A	S	A
Spain ¹⁾	S	A	S	
Ethiopia	S	A	S	
France ²⁾	S	A	S	
Gabon Republic	S		S	A
Ghana	S		S	
Guinea (Republic of)	S		S	
Upper Volta (Republic of)	S		S	
Kenya (Republic of)	S	A	S	A
Liberia (Republic of)	S		S	
Libyan Arab Republic	S		—	
Malawi	—		S	

Country	Broadcasting Agreement VHF/UHF (Geneva, 1963)		Broadcasting Agreement MF (Geneva, 1966)	
	1	2	3	4
Madagascar (Dem. Rep. of)	S		S	
Mali (Republic of)	S		S	
Morocco (Kingdom of)	—		S	
Mauritania (Islamic Republic of)	S		S	
Niger (Republic of the)	S		S	
Nigeria (Federal Republic of)	S	A	S	
Uganda (Republic of)	S	A	S	A
United Kingdom of Great Britain and Northern Ireland ³⁾	S		S	A
Rwanda (Republic of)	S		S	
Senegal (Republic of the)	S	A	S	
Sierra Leone	S	A	—	
Somali Democratic Republic	S		—	
South Africa (Republic of)	S	A	—	
Tanzania (United Republic of)	S	A	S	A
Chad (Republic of the)	S		S	
Togolese Republic	S		S	
Zaire (Republic of)	S		S	
Zambia (Republic of)	—		S	A

¹⁾ With respect to the Canarias.

²⁾ With respect to the Department of Reunion and to French Somaliland (*new denomination*: Afars and Issas).

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
Argentina 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
Guatemala	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 Agreement concerning the radio-telephone service for the Rhine (Brussels, 1970)	
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	—
Austria	—	—	—	—	—	—	S	A	S	A	—	—
Belgium	S	R	S	R	S	A	—	—	S	A	S	—
Byelorussian Soviet Socialist Republic	S	R	—	—	—	—	S	—	S	A ⁵⁾	—	—
Bulgaria (People's Republic of)	S	R	—	¹⁾	—	—	S	—	S	—	—	—
Cyprus (Republic of)	—	—	—	—	—	—	—	—	S	A	—	—
Vatican City State	S	R	—	—	—	—	—	—	S	—	—	—
Denmark	S	R	S	R	S	A	S	A	S	—	—	—
Spain	—	—	—	—	S	—	—	—	S	A ²⁾	—	—
Finland	S	R	—	—	—	—	—	—	S	A	—	—
France	S	R	S	R	S	A	S	A	S	A	S	—
Greece	S	R	S	R	—	—	S	—	S	—	—	—
Hungarian People's Republic	S	R	—	—	—	—	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	—
Morocco (Kingdom of)	S	R	S	R	S	A	—	—	S	A	—	—
Monaco	S	R	S	R	S	A	—	—	S	—	—	—
Norway	S	R	S	R	S	A	S	A	S	—	S ⁴⁾	—
Netherlands (Kingdom of the)	S	R	S	R	S	A	—	—	S	A	S	—
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	S	R	S	A	—	—	S ⁷⁾	A ⁷⁾	—	—
Sweden	—	—	S	R	S	A	S	A	S	—	—	—
Switzerland (Confederation of)	S	R	—	—	—	—	S	A	S	A	S	—
Czechoslovak Socialist Republic	S	R	—	—	—	—	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.”

**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)**

This Agreement, which will come into force on 23 November 1978, was signed on 22 November 1975 by the delegates of the following Members *):

Afghanistan (Republic of)	Vatican City State
Algeria (Algerian Democratic and Popular Republic)	Congo (People's Republic of the)
Germany (Federal Republic of)	Korea (Republic of)
Saudi Arabia (Kingdom of)	Ivory Coast (Republic of the)
Australia	Denmark
Austria	Egypt (Arab Republic of)
Bangladesh (People's Republic of)	United Arab Emirates
Belgium	<i>Spain</i>
Benin (People's Republic of) ¹⁾	Ethiopia
Byelorussian Soviet Socialist Republic	Fiji
Bostwana (Republic of)	Finland
Bulgaria (People's Republic of)	France
Burundi (Republic of)	Gabon Republic
Cameroon (United Republic of)	Gambia (Republic of the)
Central African Empire ²⁾	Ghana
China (People's Republic of)	Greece
Cyprus (Republic of)	Guinea (Republic of)
	Upper Volta (Republic of)

*) In the alphabetical order of the French version of the country names.

¹⁾ Denomination at time of signature: Dahomey (Republic of).

²⁾ Denomination at time of signature: Central African Republic.

³⁾ Denomination at time of signature: Malagasy Republic.

Hungarian People's Republic	Uganda (Republic of)
India (Republic of)	Pakistan
Indonesia (Republic of)	Papua New Guinea
Iran	Netherlands (Kingdom of the)
Ireland	Philippines (Republic of the)
Iceland	Poland (People's Republic of)
Israel (State of)	Portugal
Italy	Qatar (State of)
Japan	Syrian Arab Republic
Jordan (Hashemite Kingdom of)	<i>German Democratic Republic</i>
Kenya (Republic of)	Ukrainian Soviet Socialist Republic
Kuwait (State of)	Roumania (Socialist Republic of)
Lesotho (Kingdom of)	United Kingdom of Great Britain and Northern Ireland
Lebanon	Senegal (Republic of the)
Liberia (Republic of)	<i>Singapore (Republic of)</i>
Libyan Arab Republic	Sudan (Democratic Republic of the)
Liechtenstein (Principality of)	Sri Lanka (Ceylon) (Republic of)
Luxembourg	Sweden
Madagascar (Democratic Republic of) ³⁾	Switzerland (Confederation of)
Malaysia	Tanzania (United Republic of)
Malawi	Chad (Republic of the)
Mali (Republic of)	Czechoslovak Socialist Republic
Morocco (Kingdom of)	Thailand
Mauritius	Togolese Republic
Mauritania (Islamic Republic of)	Tunisia
Monaco	Turkey
Mongolian People's Republic	Union of Soviet Socialist Republics
Mozambique (People's Republic of)	Yemen Arab Republic
Nepal	Yemen (People's Democratic Republic of)
Niger (Republic of the)	Yugoslavia (Socialist Federal Republic of)
Nigeria (Federal Republic of)	Zaire (Republic of)
Norway	Zambia (Republic of)
New Zealand	

The Members mentioned in italics have notified their approval of the Agreement.

Accession

The State of Bahrain has acceded to the Agreement.

VI. 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 1976

SUMMARY OF ESTIMATED EXPENDITURE FOR 1976

EXPENDITURE	Expenditure 1975 Swiss francs	Budget 1976 Swiss francs	Additional credits cf. Res. 647 Swiss francs	Budget 1976 including add. credits Swiss francs
I. BUDGET OF THE UNION				
Section 1 — Administrative Council . . .	856,745	720,000	47,400	767,400
Common Headquarters expenditure:				
Section 2 — Staff	28,818,456	29,105,600	3,462,500	32,568,100
Section 3 — Social Security	5,738,580	5,871,400	956,000	6,827,400
Section 4 — Premises	3,528,258	2,750,000	—	2,750,000
Section 5 — Missions	149,612	135,000	—	135,000
Section 6 — Office and miscellaneous . .	2,200,300	2,255,500	—	2,255,500
Section 7 — Technical aid for the Group of Engineers	299,539	280,000	—	280,000
	41,591,490	41,117,500	4,465,900	45,583,400
Section 11 — World Administrative Broad- casting-Satellite Conference (1977)	—	494,000	37,400	531,400
World Administrative Aero- nautical Radio Conference . .	—	350,000	13,800	363,800
Group of Experts, Radio Regulations (1976)	—	120,000	10,900	130,900
Section 12 — CCIR meetings	311,329	3,320,000	250,200	3,570,200
Section 13 — CCITT meetings	2,730,041	2,378,000	130,800	2,508,800
Section 14 — Regional Administrat. LF/MF Broadcasting Conference . . .	3,496,022	—	—	—
Section 15 — ITU Seminars	—	65,000	—	65,000
Section 16 — Seminars of Member Adminis- trations	183,547	200,000	—	200,000
	48,312,429	48,044,500	4,909,000	52,953,500
Fitting out of CCITT Laboratory	59,744	37,000	—	37,000
Maintenance and renewal of simultaneous interpretation and other electro-acoustical equipment	5,276	10,000	—	10,000
Cancellation of sums due from US Underseas Cable	5,438	—	—	—
	48,382,887	48,091,500	4,909,000	53,000,500
Transfer to ITU Reserve Account (Res. No. 11, Convention, 1973)	1,570,000	2,140,000	1,004,000	3,144,000
Surplus income	343,563	—	—	—
	50,296,450	50,231,500	5,913,000	56,144,500
II. TECHNICAL COOPERATION SPECIAL ACCOUNTS BUDGET				
Section 21 — Technical Cooperation: Administrative costs	6,951,004	7,317,200	1,006,200	8,323,400
III. SUPPLEMENTARY PUBLICATIONS BUDGET				
Total expenditure	10,271,597	5,953,200	284,100	6,237,300
Surplus income	334,497	—	—	—
	10,606,094	5,953,200	284,100	6,237,300

SUMMARY OF ESTIMATED INCOME FOR 1976

INCOME	Income 1975 Swiss francs	Budget 1976 Swiss francs	Additional income Swiss francs	Budget 1976 including add. income Swiss francs
I. BUDGET OF THE UNION				
Contributions				
— Contributions by Union Members for the current year	41,091,550	46,564,700	—	46,564,700
— Contributions by recognized private operating agencies and scientific or industrial organizations to defrayal of expenses of conferences and meetings (Sections 11 to 13):				
— CCIR	1,231,858	1,400,600	—	1,400,600
— CCITT	1,984,667	2,152,600	—	2,152,600
— Contributions by Members and by recognized private operating agencies to defrayal of expenses of the Regional LF/MF Broadcasting Conference	3,496,022	—	—	—
Sundry income	188,595	66,600	—	66,600
	47,992,692	50,184,500	—	50,184,500
Staff seconded to Regional Administrative Conference	120,000	—	—	—
Withdrawal from CCITT Reserve Fund for fitting out the CCITT Laboratory	59,744	37,000	—	37,000
Withdrawal from the Renewal Fund for maintenance and renewal of simultaneous interpretation and other electro-acoustical equipment	5,276	10,000	—	10,000
Withdrawal from Reserve Account for cancellation of debt of US Underseas Cable	5,438	—	—	—
Withdrawal from Reserve Account to cover additional credits	2,113,300	—	5,913,000	5,913,000
	50,296,450	50,231,500	5,913,000	56,144,500
II. TECHNICAL COOPERATION SPECIAL ACCOUNTS BUDGET				
Contribution to Technical Cooperation administrative costs and sums brought forward from previous years	6,951,004	7,317,200	1,006,200	88,323,400
III. SUPPLEMENTARY PUBLICATIONS BUDGET				
Total income	10,606,094	5,662,000	—	5,662,000
Excess expenditure	—	291,200	284,100	575,300
	10,606,094	5,953,200	284,100	6,237,300

ANNEX 2 B

PROFIT AND LOSS ACCOUNT FOR 1976

(Management account) (in Swiss francs)

EXPENDITURE	1976 Budget *	1976 Accounts
I. BUDGET OF THE UNION		
Section 1 — Administrative Council	767,400.—	734,489.20
Common Headquarters expenditure:		
Section 2 — Staff	32,568,100.—	32,542,434.90
Section 3 — Social security	6,827,400.—	6,659,286.35
Section 4 — Premises	2,750,000.—	2,744,812.10
Section 5 — Missions	135,000.—	134,708.95
Section 6 — Office and miscellaneous	2,255,500.—	2,214,359.83
Section 7 — Technical aid for the Group of Engineers	280,000.—	280,152.35
	45,583,400.—	45,310,243.68
Section 11 — World Administrative Conferences	1,026,100.—	958,650.65
Section 12 — CCIR meetings	3,570,200.—	3,792,281.55
Section 13 — CCITT meetings	2,508,800.—	2,644,256.32
Section 15 — ITU Seminars	65,000.—	68,867.85
Section 16 — Seminars of Member Administrations	200,000.—	173,110.95
	52,953,500.—	52,947,411.—
Fitting out the CCITT Laboratory	37,000.—	37,231.10
Maintenance and renewal of simultaneous interpretation and other electroacoustical equipment	10,000.—	4,669.45
Staff expenditure in 1975	1,004,000.—	1,017,000.20
	54,004,500.—	54,006,311.75
Transfer to ITU Reserve Account (Res. No. 11 — Torremolinos Conf.)	2,140,000.—	2,140,000.—
	56,144,500.—	56,146,311.75
Surplus income paid into ITU Reserve Account		570,237.80
	56,144,500.—	56,716,549.55

* Budget for 1976 including additional credits

PROFIT AND LOSS ACCOUNT FOR 1976

(Management account) (in Swiss francs)

INCOME	1976 Budget *	1976 Accounts
I. BUDGET OF THE UNION		
Contributions:		
— Contributions of Members of the Union to defrayal of expenditure for the current year	46,564,700.—	46,867,491.70
— Contributions of private operating agencies and scientific or industrial organizations to defrayal of expenses of conferences and meetings under Sections 12, and 13:		
— CCIR	1,400,600.—	1,391,983.35
— CCITT	2,152,600.—	2,287,333.35
— Sundry income	66,600.—	214,840.60
	50,184,500.—	50,761,649.—
— Withdrawal from CCITT Reserve Fund for fitting out CCITT Laboratory	37,000.—	37,231.10
— Withdrawal from Renewal Fund for maintenance and renewal of simultaneous interpretation equipment	10,000.—	4,669.45
— Withdrawal from ITU Reserve Account to cover additional credits	5,913,000.—	5,913,000.—
	56,144,500.—	56,716,549.55

* Budget for 1976 including additional credits.

PROFIT AND LOSS ACCOUNT FOR 1976

(Management account) (in Swiss francs)

EXPENDITURE	1976 Budget *	1976 Accounts
II. TECHNICAL COOPERATION SPECIAL ACCOUNTS BUDGET		
Section 21 — Technical Cooperation —		
Administrative costs in 1976	8,149,400.—	7,753,513.80
Staff expenditure in 1975	174,000.—	172,113.70
 Excess expenditure brought forward from 1975		869,645.16
	8,323,400.—	8,795,272.66
 III. SUPPLEMENTARY PUBLICATIONS BUDGET		
Sections 24 and 25 — Publications issued in 1976 including overheads	5,034,300.—	8,161,787.57
Section 26 — Publications sold at a loss	1,108,000.—	1,528,182.66
Section 27 — Miscellaneous	95,000.—	190,272.85
	6,237,300.—	9,880,243.08

* Budget for 1976 including additional credits.

PROFIT AND LOSS ACCOUNT FOR 1976

(Management account) (in Swiss francs)

INCOME	1976 Budget *	1976 Accounts
II. TECHNICAL COOPERATION SPECIAL ACCOUNTS BUDGET		
Contribution by UNDP to defrayal of expenditure on projects . . .		6,286,019.30
Contribution for Funds-in-Trust	8,323,400.—	896,135.80
Contribution from The Special Fund for Technical Cooperation . . .		498.85
Other income:		
— Balance of unused credits, 1975		10,907.40
— Sundry income		159,160.95
Partial reimbursement by UNDP of excess administrative costs in 1973		567,430.60
	8,323,400.—	7,920,152.90
Excess expenditure carried forward to 1977		875,119.76
	8,323,400.—	8,795,272.66
III. SUPPLEMENTARY PUBLICATIONS BUDGET		
Sale of publications issued in 1976	4,512,000.—	8,278,789.20
Sale of publications issued in previous years	50,000.—	(616,058.10)
Sale of publications sold at a loss	240,000.—	285,175.50
Advertisements in the Telecommunication Journal	760,000.—	815,674.30
Miscellaneous	100,000.—	211,347.19
Balance of unused credits, 1975		1,722.20
	5,662,000.—	8,976,650.29
Excess expenditure withdrawn from Publications Capital Account . .	575,300.—	903,592.79
	6,237,300.—	9,880,243.08

* Budget for 1976 including additional credits.

ANNEX 3

LIST OF PUBLICATIONS ISSUED BY THE UNION IN 1976

		No. of copies	
1.	12 Notifications, Nos. 1098 to 1109	F	500
		E	650
		S	150
2.	25 General Secretariat Circulars, Nos. 27 to 51	F	580
		E	1,100
		S	280
3.	3 Lists of Publications	F	1,000
		E	2,500
		S	600
4.	Supplement No. 11 to the Volume of Resolutions and Decisions of the Administrative Council, 31st Session, 1976	F	400
		E	500
		S	200
5.	Financial Operating Report for 1975	F	500
		E	600
		S	230
6.	Report on the Activities of the Union 1975	F	650
		E	750
		S	350
7.	Telecommunication Journal, 12 numbers	F	1,850
		E	3,800
		S	850
8.	12 Operational Bulletins, Nos. 120 to 129	F	500
		E	600
		S	170
	Nos. 130 and 131, trilingual		1,270
9.	List of Addresses, 4th edition 1972: Supplements Nos. 9 to 11, trilingual		1,900
10.	Yearbook of Common Carrier Telecommunication Statistics, 3rd edition, 1976, trilingual		1,250
11.	Final Acts of the Regional Administrative LF/MF Broadcasting Conference (Regions 1 and 3), Geneva, 1975	F	750
		E	1,400
		S	200
12.	Radio Regulations, Volumes 1 and 2, edition of 1976,	F	3,500
		E	8,000
		S	2,500
13.	List of Telegraph Offices, 23rd edition 1971: Supplements Nos. 19 and 20, trilingual		20,000
14.	List of Telegraph Offices, 24th edition 1976, trilingual		20,000
15.	List of International Telephone Routes, 16th edition 1976, trilingual		1,000
16.	List of Destination Indicators and Telex Identification Codes, 3rd edition 1973: Supplements Nos. 4 and 5, trilingual		1,600
17.	Table of International Telex Relations and Traffic, 1975, trilingual		750
18.	Routing Table for Offices Connected to the Gentex Service, 4th edition 1972: Amendment No. 32, trilingual		1,000
19.	Routing Table for Offices Connected to the Gentex Service, 5th edition 1976 and Supplement No. 1, trilingual		700

		No. of copies
20.	T.A. Table, Transferred Account Telegraph Service, 4th edition, 1973: Supplement No. 6, trilingual	700
21.	Table of Telegraph Rates, 1975 edition: Supplement No. 2, trilingual	850
22.	General information Relating to the Operation of the International Telegraph Service, 1st edition, 1976 and Supplement No. 1, trilingual	900
23.	International Credit Card for Telegraph Services, 1976, multilingual	120,000
24.	Map of Coast Stations open to Public Correspondence or Participating in the Port Operations Service, 10th edition, 1975 multilingual	10,000
25.	List of Coast Stations, 6th edition, 1976, trilingual	27,500
26.	List of Ship Stations, 16th edition, 1976 and Supplements Nos. 1 to 3, trilingual . .	19,000
27.	List of Radiodetermination and Special Service Stations, Volume I, 6th edition, 1976, trilingual	24,000
28.	Alphabetical List of Call Signs of Stations Used by the Maritime Mobile Service, 7th edition 1974: Supplements Nos. 5 to 7, multilingual	19,500
29.	Alphabetical List of Call Signs of Stations other than Amateur Stations, Experimental Stations and Stations of the Maritime Mobile Service, 6th edition 1974: Supplements Nos. 5 and 6, trilingual	3,100
30.	Supplement to the Latin America Plan, Brasilia, 1973, trilingual	500
31.	General Plan for the Development of the Interregional Telecommunication Network, Geneva, 1975, Parts 1 and 2, trilingual	1,250
32.	Earthing of Telecommunications Installations, 1st edition 1976.	F 300 E 750 S 180
33.	Transmission Planning of Switched Telephone Networks, 1st edition, 1976, Volumes 1 and 2.	F 550 E 1,000 S 300
34.	GAS 3, Manual, 1976 edition	F 450 E 750 S 300
35.	GAS 5, Manual, 1976 edition	F 700 E 1,000 S 400
36.	Documents of the XIIIth Plenary Assembly of the CCIR, Geneva, 1974: Addendum No. 1 to Volume I	F 1,100 E 4,500 S 650
	Supplement to Volume XIII: Alphabetical Index to Volumes I to XII	E 2,000
37.	Report 322: Supplement No. 1	F 1,000 E 3,200 S 400
38.	Report 440-1: Supplement No. 1	F 650 E 1,100 S 300
39.	Report 340: Supplement No. 2, trilingual	1,600
40.	International Frequency List, 8th edition 1975: Preface and Supplement Nos. 1 to 6, trilingual	1,800
	Volume I : Supplements Nos. 3 to 6, multilingual	1,200
	Volume II : Supplements Nos. 3 to 6, multilingual	1,200
	Volume III : Supplements Nos. 3 to 6, multilingual	1,200
	Volume IV : Supplements Nos. 3 to 6, multilingual	1,200
	Volume V a) : Supplements Nos. 3 to 6, multilingual	1,000
	Volume V b) : Supplements Nos. 3 to 6, multilingual	900

		No. of copies
	Volume V c): Supplements Nos. 3 to 6, multilingual	900
	Volume V d): Supplements Nos. 3 to 6, multilingual	900
41.	List of Fixed Stations Operating International Circuits, 8th edition 1975: Supplements Nos. 3 to 6, trilingual	1,300
42.	List of Broadcasting Stations Operating in Bands below 5 950 kHz, 8th edition 1975: Supplements Nos. 2 and 3, trilingual	1,000
43.	List of Stations in the Space Service and in the Radio Astronomy Service, 5th edition 1975: Supplements Nos. 1 and 2, trilingual	800
44.	52 IFRB Weekly Circulars, Nos. 1195 to 1246: Parts I-II-III and Special, trilingual.	430
	Part IV, trilingual	450
45.	4 Summaries of Monitoring Information Received by the IFRB, Nos. 188 to 191, trilingual	500
46.	Tentative High Frequency Broadcasting Schedules, March 1976, May 1976, September 1976, November 1976, trilingual	600
47.	High Frequency Broadcasting Schedules, May 1975, September 1975, November 1975, March 1976, trilingual	470
48.	Seminar on the Planning of Broadcasting Systems in Africa, Lagos, 1971	F 250 E 350
49.	Seminar on the Planning, Operation and Maintenance of Transmission Systems, PANAFTEL II, Dar-es-Salaam, 1974	F 400 E 450
50.	Seminar on Tariffs and Signalling Systems, PANAFTEL IV, Case Study, Yaoundé, 1975	F 500 E 500
51.	IIInd Conference of African Telecommunication Administrations, Kinshasa, 1975	F 400 E 400
52.	Information Booklet No. 19: Fifteenth Report by the International Telecommunication Union on Telecommunication and the Peaceful Uses of Outer Space, 1976	F 4,300 E 6,400 S 2,300

ANNEX 4

ACTIVITIES OF THE COMPUTER DEPARTMENT IN 1976

1. The ITU computer was used for 2,841 hours in 1976. The relevant monthly statistics in percentages of total use by different organs, are shown below.

The total hours used are not directly comparable with those of 1975 since the new Central Processor Unit is much faster (see paragraph 3).

Months	HOURS		% OF CENTRAL PROCESSOR UNIT USE				
	Total use	2nd shift	IFRB	GS	CCIR	CCITT	Misc.
January	236	54	36.35	50.60	2.42	—	10.63
February	258	76	27.92	69.38	1.28	0.03	1.39
March	308	126	41.25	52.95	3.58	1.89	0.33
April	260	78	56.89	29.44	12.60	0.23	0.84
May	237	55	41.80	41.05	17.03	—	0.12
June	197	15	43.21	51.20	5.14	—	0.45
July	195	13	58.50	28.58	12.53	0.07	0.32
August	250	68	64.62	23.46	11.84	0.08	0.01
September	192	10	67.24	30.91	0.20	1.00	0.65
October	269	87	73.78	17.13	8.85	0.21	0.03
November	236	54	63.94	24.91	10.61	0.11	0.43
December	203	21	57.03	25.73	13.97	3.24	0.03
Total	2841	657					
Monthly average	237	55	52.70	37.12	8.34	0.58	1.26

2. The increase in computer use by the IFRB during the second half of the year is due mainly for data processing requirements (about 600 hours) following Resolution Mar2 - 11 of the World Maritime Administrative Radio Conference of 1974.

3. After detailed discussions with the supplier of the computer, the central processor unit and some of the peripherals were replaced by the latest models, which are more powerful, more flexible and much faster. This had inter alia the advantage of improving our throughput by efficient memory management, enhanced operational convenience and facilities for the use of comprehensive application software. Furthermore, the built-in telecommunication control unit of the new central processor unit permits on-line data communication. The system also incorporates an automatic plotter which proved to be an extremely useful and time-saving tool for the work of the CCIR and the IFRB including the World Administrative Radio Conference for the Broadcasting-Satellite Service. The entire change-over was carried out at no extra cost to the Union.

4. During the year, the Department tried to improve efficiency and cut down throughput time by modifying some of the programmes and procedures. Furthermore, to meet the increasing workload and to improve the overall performance of the Department, the following steps are being taken:

- New programming methodology;
- Performance and design evaluation;
- Software project management;
- New data processing standards (see paragraph 31).

5. Despite every effort to perform the required tasks during the normal working hours, the staff had to do 1,598 hours' overtime (this amount does not include the overtime of the professional staff).

6. The Union continued to use outside computers for some of its specific non-recurring tasks which require a computer of greater capacity than that used by ITU in house services, or to meet special demands such as trials of programmes obtained from certain institutions before being adapted to our computer, or conference work.

7. At present, the computer is handling 66 tasks as regular applications. For details concerning the IFRB and the CCIs see Sections 5.2, 5.3 and 5.4 respectively. Apart from its routine work, the Computer Department continues to study various tasks lending themselves to computer applications. If, after preliminary feasibility studies, it is decided to computerize a task in the interests of efficiency, a detailed system analysis is carried out, a computer system is designed, the relevant programmes are written and tested, the necessary manuals compiled and procedures explained to the user. The system in question is then put through a final test, and when the results are fully satisfactory to the user, the system is implemented. Activities along these lines, during 1976, are summarized in the following paragraphs.

8. A microcomputer-based text editing system was developed and successfully implemented. The system supports the off-line capture, storage, updating, and printing of texts and provides the input for the computerized photocomposition system. Using the latest technologies it makes powerful word processing capabilities available for the ITU Typing Pool staff, leading to increased productivity and substantial economies for the Union. The system obviates the lengthy and costly retyping of a text several times. It also considerably reduces the work of proof-reading since for each new version merely the amendments, and not the entire text, have to be checked. Capital investment was kept to a minimum, all software being developed with existing Computer Department manpower. Equivalent commercially available systems, with the software included, and tailored to ITU needs would take long to develop and be very costly.

9. The ITU computerized photocomposition system became operational after several years of research and development work in collaboration with the Belgian Administration and our computer supplier. A programme interfacing the text-editing system with the composition software was developed; software capabilities are thus greatly enhanced. A highly automated procedure is now available for establishing the parallelism of languages of ITU publications, with reduction in the manpower needed for the final page mounting.

10. The CCITT Orange Book (Sixth Plenary Assembly) with a total of around 12,000 printed pages, is being produced using the system described above. Most of the work involved in producing the three versions of the Orange Book (English, French and Spanish) is being accomplished in-house, in less time and at considerably lower cost. It should be stressed that the stored text will not only be used for printing the Orange Book, but will also be available during the next study period for updating and various other printing operations. Moreover, it will serve as a basis for the production of subsequent editions, which will no longer have to be retyped and will therefore be ready even more rapidly. In addition, the full text of the CCITT Orange Book is now being made available on magnetic media for future text processing applications like the production of indices and the building of the ITU Terminology Data Base (see paragraphs 11 and 14).

11. The English version of an alphabetical index to the technical texts of the XIIIth Plenary Assembly of the CCIR produced by the CCIR secretariat was prepared by the same system (see paragraph 9 above) in pursuance of the objectives of the CCIR Resolution 60. This index is the first of its kind relating to the detailed technical contents of the whole set of twelve volumes.

12. The system of photocomposition for ITU publications in the form of lists prepared with the help of the computer continues to be applied ever more widely since its results in faster production, better quality of printing and presentation at a lower cost.

13. The new system for the List of Telegraph Offices which was designed and developed by the Computer Department became operational and was used for the production of the 24th edition by photocomposition.

Powerful updating and retrieval capabilities built into the new system facilitate the maintenance of the data base with the consequent improvement in quality. Microfiche output for internal use is being introduced in substitution of the voluminous listings used in the older system.

14. A system for the building and management of an ITU Terminology Data Base is under development to explore possibilities of association of interrelated applications (ITU Lexicon, CCI indices, ITU List of Definitions, etc.). The first product to be derived from the data base will be an ITU Lexicon containing around 4,000 technical terms in three languages to be used by translators and interpreters.

15. During the year, modifications to the integrated salary/personnel system were required, partly due to changes imposed by the UN common system and partly in order to improve existing procedures. Inter alia, an efficient solution was found to the problem of retroactive payments for the General Services Staff with the help of this system which would otherwise involve voluminous manual work.

16. A new system was developed to calculate the salaries budget and to perform budget control operations. This new system will allow improved control, enabling currency fluctuations to be taken into account.

17. A new procedure was developed to process the Pension Fund end-of-year information, using the computerized salary/personnel system data.

18. A special effort is being made to improve the quality of data in the address bank sending out questionnaires. At present, there are about 40,000 addresses in the bank.

19. A system was developed to process the World and Regional Plans information and was applied to produce the latest World Plan and Latin America Plan.

20. Increased use of microfiche output provides additional flexibility for the users while reducing consumption of paper. Microfiche output was introduced into the existing Sales-Debtors-Dispatch system as well as into the new procedure developed for Salaries Budget and Budget Control.

21. A programme was developed to apply a computerized standard procedure in checking all call-signs with regard to their allocation and formation in accordance with the Radio Regulations.

22. As a first stage in a Project Management Information system for the Technical Cooperation Department, a procedure to produce and process project status reports was developed. The system is ready for implementation in the first quarter of 1977.

23. Assistance, including the preparation of special programmes, has been given to the Technical Cooperation Department by the processing of statistical data and the calculation of alternative routings for the Middle East Telecommunication Network.

24. Necessary software help was provided to the IFRB engineers for the preparation of the Satellite-Broadcasting Conference.

25. Data on magnetic media continued to be supplied to administrations at cost and to the private sector on a profit basis. The demand was higher than last year. Data are also available now on microfiche for some files.

26. System and programme maintenance continued to require a significant percentage of our systems development resources. Owing to this and to the limited systems and programming staff available, progress in some areas was not as rapid as might have been desired.

27. A new job accounting system, which monitors the detailed resource utilization of each programme in the multiprogramming environment, was developed. The data gathered are summarized in the Department's monthly reports and is a useful input for the cost investigation being undertaken by the Finance Department.
28. A new system was developed and implemented by the Operations Division for the transmission of data files on a remote batch processing mode between the computer and the new terminals installed in various services.
29. Work continued on the development of new procedures and utility programmes for a further improvement of computer operating efficiency.
30. The increasing number of users and programmes and upgrading of the equipment in the Computer Centre, made necessary a complete revision of ITU Data Processing Standards and Conventions. At a small cost, participation of consultants from a reputable software house was arranged. The object was to achieve optimal use of the multi-programming environment of our computer centre and to improve the overall programming productivity of the Union.
31. The Department represented the Union at several international meetings and contributed to their work on data bases and computer/communications.
32. As a part of a UNDP project and at the initiative of the Brazilian Administration, the Department organized a one-week seminar in Brazil, outlining the use of computers for telecommunication tasks at ITU Headquarters.
33. Thirty-two courses and information sessions were organized during the year to inform the staff concerned with computer use about new developments and recent procedures applied in the ITU computer.
34. Explanations and, when required, advice were given to administrations and visitors to Headquarters concerning the Union's computer work and computer problems.

ANNEX 5

**CONFERENCES AND MEETINGS
AT WHICH THE UNION WAS REPRESENTED IN 1976**

Number of participants

	Officials from Head- quarters	Regional experts
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A. UNITED NATIONS

1.	Administrative Committee on Coordination (ACC), Sub-Committee on Marine Science and its applications, Geneva, 26-28 January.	1	
2.	Administrative Committee on Coordination (ACC), 4th Session of Sub-Committee on Education and Training, Geneva, 16-18 February . . .	1	
3.	1st Meeting on the activities of the United Nations system for rural development, Washington, 8-12 March	1	
4.	Conference on problems of rural telecommunications & broadcasting in the Sahelian Area organized by CLISS and UNSO, Ouagadougou, 15-19 March	2	3
5.	Ad Hoc Task Force on implementation of recommendations of 7th Special Session of the General Assembly, Geneva, 17-19 March	2	
6.	30th Session of the Scientific and Technical Sub-Committee of the Committee on the Peaceful Uses of Outer Space, Geneva, 22 March-9 April . .	4	
7.	32nd Session of the United Nations Economic and Social Commission for Asia and the Pacific, Bangkok, 24 March-2 April		1
8.	Administrative Committee on Coordination (ACC), Sub-Committee on Science and Technology, Ad Hoc Working Group on application of computer science and technology to development, Paris, 3-7 May . .	1	
9.	15th Session of Legal Sub-Committee of the Committee on the Peaceful Uses of Outer Space, Geneva, 3-28 May	3	
10.	APEC Meeting on Action Programme for Economic Cooperation among Non-Aligned and Other Developing Countries, Georgetown, Guyana, 18-20 May	1	
11.	Inter-Agency Meeting on Assistance to Mozambique, Geneva, 17 June . . .	1	
12.	19th Session of the Committee on the Peaceful Uses of Outer Space, New York, 23 June-2 July	1	
13.	1st Meeting of the Task Force on Rural Development, Geneva, 1-3 September	1	
14.	9th Session of the Inter-Organization Board for Information Systems and Related Activities (IOB), Geneva, 2-3 September	1	
15.	Inter-Agency Meeting on Language Arrangements, Documentation and Publications, Rome, 7-10 September	1	
16.	Administrative Committee on Coordination (ACC), Sub-Committee on Outer Space Activities, 1st Meeting, Rome, 13-17 September	1	
17.	Conference on economic cooperation between developing countries, Mexico City, 13-21 September	1	
18.	84th Session of the Administrative Committee on Coordination (ACC), Preparatory Committee, New York, 3-10 October	1	

		<i>Number of participants</i>	
		Officials from Head- quarters	Regional experts
19.	Administrative Committee on Coordination (ACC), Working Party on Indexing of Documents, New York, 15-19 November	1	
20.	22nd Session of the Advisory Committee on the Application of Science and Technology to Development, Geneva, 22 November-3 December. . .	1	
B. SPECIALIZED AGENCIES			
<i>Food and Agriculture Organization (F.A.O.)</i>			
21.	Meeting of Donor Countries participating in the FAO Associate Expert Scheme, Rome 24 June	1	
<i>International Civil Aviation Organization (ICAO)</i>			
22.	Communications Divisional Meeting, Montreal, 9-24 September	2	
<i>Inter-governmental Maritime Consultative Organization (IMCO)</i>			
23.	2nd Session of the International Conference on the Establishment of an International Maritime Satellite System, London, 9-27 February . .	1	
24.	34th Session of the Maritime Safety Committee, London, 3 May	1	
25.	16th Session of Sub-Committee on Radiocommunications, London, 19-23 July	2	
26.	3rd Session of the International Conference on the Establishment of an International Maritime Satellite System, London, 1-3 September	1	
<i>United Nations Educational, Scientific and Cultural Organization (UNESCO)</i>			
27.	Intergovernmental Conference on Communication Policies in Latin America, Quito, 14-23 June	2	
28.	CASTARAB — Conference of Ministers of Arab States Responsible for the Application of Science and Technology to Development, Rabat, 16-25 August		1
29.	Meeting of Fellowships Officers, Paris, 22 September	2	
30.	UNISIST Working Group on Technology of Systems' Interconnection, (First Meeting), Paris, 22-24 November	2	
<i>World Intellectual Property Organization (WIPO)</i>			
31.	4th Session of WIPO Working Group on Scientific Discoveries, Geneva, 10-15 May	1	
32.	3rd Session of the Ad Hoc Group of Governmental Experts on the revision of the Paris Convention, Geneva, 8-15 June	1	
33.	3rd Ordinary Session of the WIPO Conference, Geneva, 27 September-5 October	2	
<i>World Meteorological Organization (WMO)</i>			
34.	Commission for Basic Systems Study Group on Data Transmission Techniques, Geneva, 5-9 April	2	
35.	11th Session of the Working Group on Meteorological Telecommunications, Geneva, 11-20 May	3	
36.	28th Session of the WMO Executive Committee, Geneva, 8-17 June	1	

Number of participants

Officials from Head- quarters	Regional experts
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37.	Informal Planning Meeting on the Improvement in Observational Data Coverage over the Oceans, Geneva, 21-25 June	1
38.	7th Session of the Working Group on the Global Telecommunications System of the WMO Commission for Basic Systems (CBS), Geneva, 6-17 September	3
39.	Extraordinary Session of the Commission for Basic Systems of the WMO, Geneva, 1-12 November	2
40.	WMO Technical Conference on the Applications of Marine Meteorology to the High Seas and Coastal Zone Development, Geneva, 22-26 November	2
41.	7th Session of the Commission for Marine Meteorology, Geneva, 29 November-10 December	3

C. INTERNATIONAL OR REGIONAL ORGANIZATIONS

European Conference of Postal and Telecommunications Administrations (C.E.P.T.)

42.	Extraordinary Session of the CEPT Plenary Assembly, Göteborg, 10-11 March	1
43.	Extraordinary Session of the " Telecommunications " Commission, Stockholm, 10-18 June	1
44.	Meeting of CEPT Sub-Group on pulse code modulation (PCM), Paris, 17-23 November	1
45.	Meeting of CEPT Working Group on Digital Switching, Darmstadt, 6-10 December	1

International Marine Radio Association (CIRM)

46.	59th CIRM Technical Committee Meeting, Dubrovnik, 31 May-2 June	1
47.	60th CIRM Technical Committee Meeting, London, 1-3 December	1

Inter-American Telecommunications Conference (CITEL)

48.	Seminar on Satellite Broadcasting and Special Meeting of Permanent Technical Committee II (Radio Broadcasting), Rio de Janeiro, 16-21 August	4
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Committee on Space Research (COSPAR)

49.	XIXth Plenary Meeting, Philadelphia, 8-19 June	2
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Danube Commission

50.	Meeting of Experts on Questions of Radiocommunications, Budapest, 12-22 January	1
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International Organization for Standardization (ISO)

51.	Meeting of Working Group 3 of Sub-Committee 4 of the Technical Committee 97 of ISO (Data Transmission), Paris, 28 November-1 December	1
51.bis	Tenth ISO General Assembly, Geneva, 20-24 September	2

Inter-Union Commission on Allocation of Frequencies for Radio Astronomy and Space Science (IUCAF)

52.	Preparatory meeting of the World Administrative Radio Conference of 1979, Grenoble, 23-25 August	1
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		<i>Number of participants</i>	
		Officials from Head- quarters	Regional experts
<i>International Electrotechnical Commission (IEC)</i>			
53.	Meeting of Committee 29 (Electroacoustic), Washington D.C., 30 March-2 April	1	
54.	Working Group " P " of Joint Coordination Committee CCI/IEC on Vocabulary, Stockholm, 21-23 April	1	
55.	41st IEC General Meeting, Nice, 17-29 May	1	
56.	Meeting IEC Technical Committee, Nice, 17-29 May	1	
<i>International Radio and Television Organization (OIRT)</i>			
57.	Special Meeting of the Bureau of the Technical Committee, Prague, 28 September-1 October	1	
<i>International Astronomical Union (IAU)</i>			
58.	IAU XVIth General Assembly, Grenoble, 24 August-2 September	1	
<i>European Broadcasting Union (EBU)</i>			
59.	Working Party C Meeting (Digital Coding of Sound and Television), Rennes, 9-16 February	1	
60.	Technical Committee Meeting (Computerization problems in view of the next Broadcasting-Satellite Conference), Rennes, 4-8 October	1	
<i>Union of National Radio and Television Organizations of Africa (URTNA)</i>			
61.	Annual Meeting of URTNA, Abidjan and Yamoussoukro, 28 January-8 February	1	
D. OTHER MEETINGS			
<i>Interpol</i>			
62.	6th Conference of international police telecommunication authorities, Saint-Cloud, 15-19 March	1	
<i>Swiss Federal Political Department</i>			
63.	3rd Session of Diplomatic Conference on the Reaffirmation and Development of International Humanitarian Law Applicable in Armed Conflicts, Geneva, 21 April-11 June	5	
<i>League of Arab States</i>			
64.	3rd Conference of Arab Ministers of Communications, Cairo, 12-15 April	2	1
SYMPOSIA, SEMINARS			
65.	International Symposium on Automation in Broadcasting, Paris, 17-19 March	1	
66.	3rd International Electromagnetic Compatibility Symposium, Wroclaw, 22-24 September	1	
67.	Meeting for the " Regional Agreement " concerning the Radio Telephone Service for the Rhine, Munich, 27 September-1 October.	2	
68.	Seminar on Satellite Broadcasting, Kyoto, 10-18 September	1	

		<i>Number of participants</i>	
		Officials from Head- quarters	Regional experts
69.	Seminar on Regional Cooperation in Use of Satellite Communications for Education and Development in Africa, Addis Ababa, 27 September-1 October	1	
70.	Symposium on Switching, Kyoto, 24-30 October	1	
71.	VIIIth International Teletraffic Congress, Melbourne, 8-17 November. . . .	1	
72.	Seminar on Domestic Telecommunications, NIRT, Teheran, 10-15 December	1	
73.	Regional Telecommunication Meeting of the South Pacific Countries, Apia, Western Samoa, 5-9 July	1	

SUPPLEMENT TO THE LIST OF MEETINGS OR CONFERENCES
ATTENDED BY THE CCIR DURING 1975

	<i>Officials from the CCIR</i>
<i>Institution of Electrical Engineers (IEE)</i>	
Conference on Spectrum Utilization in Radio Communication, London, 11-14 February	1
IEE Symposium — Satellite Communication Systems Technology, London, 7-10 April	2
<i>Institute of Electrical and Electronics Engineers (IEEE)</i>	
3rd Electromagnetic Compatibility Symposium, Montreux, 20-22 May	2
<i>International Electrotechnical Commission (IEC)</i>	
Meeting of Working Groups and Technical Committees 12 and 60, Paris, 10-22 March	1
Technical Committee No. 60, Paris, 17-22 March	1
Meeting of Technical Committees 1, 3 and Sub-Committee 3A, The Hague, 15-27 September	1
<i>Inter-Governmental Maritime Consultative Organization (IMCO)</i>	
Radio Technical Commission for Maritime Services, St. Louis. 20-30 April	1
<i>International Special Committee on Radio Interference (CISPR)</i>	
CISPR Meeting, Montreux, 23-31 May	2
<i>European Space Agency (ESA)</i>	
4th Symposium on Space and Radio Communication, Paris, 5-7 June.	1
Meeting of European Space Agency, Paris, 27 June.	1
<i>International Union of Radio Science (URSI)</i>	
General Assembly (incl. Symposium on Telecommunication Noise and Interference Environment), Lima, 11-19 August	1

ANNEX 6

TABLE 1

LIST OF UNDP/ITU PROJECTS IN 1976

COUNTRY, Title of Project and No.	Date of project approval month/year	Probable date of end of project month/year	Total UNDP Contribution \$	Assistance Rendered in 1976 ¹			
				Experts/ man-months	a) Fellows/ man-months b) Cost group training \$	a) Equip. b) Sub-contr.	Total Expend. \$
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
AFRICA							
<i>Algeria</i> ALG/72/009 — Institute of the Technology of Telecommunications and Electronics	12/72	07/77	1,622,576	10/92.7	—	a) 8,518	367,389
<i>Benin</i> BEN/71/001 — Posts and Telecommunications	03/71	06/77	135,724	—	a) 1/7	—	5,250
<i>Botswana</i> BOT/73/002 — Adviser to Director of Posts & Telecommunications	01/74	01/77	122,106	1/12	—	—	46,062
<i>Burundi</i> BDI/75/010 — Telecommunications Adviser	10/75	12/79	161,700	—	—	—	—
<i>Cameroon</i> CMR/71/525 — Postal & Telecommunication Training Institute	01/72	12/77	1,192,151	5/55	—	a) 13,186	232,193
<i>Cape Verde Islands</i> CVI/75/005 — Assistance to Telecommunication and Radiocommunication Services	09/75	12/78	43,598	1/6	a) 3/5.5	—	28,758
<i>Central African Empire</i> CAF/74/009 — Telecommunication Training CAF/75/013 — Development of Telecommunications	09/74 07/75	01/78 03/77	120,531 30,360	— 2/2.2	a) 4/43 —	— —	47,650 8,524
<i>Egypt</i> EGY/69/577 — Telecommunications Training & Research Institute	06/69	01/78	1,798,569	2/5	a) 9/27	a) 187,713	241,093
EGY/73/021 — Upgrading Cairo Telephone Cable Networks	04/73	01/77	85,309	—	—	b) 23,302	23,452
<i>Ghana</i> GHA/68/018 — Air-Conditioning Maintenance	03/69	03/76	125,782	—	a) 2/3	—	3,300
GHA/68/020 — Telecommunications	12/68	10/76	23,025	—	a) 1/9	—	9,900
GHA/72/015 — Assistance to the Posts & Telecommunications Administration	11/73	01/77	210,498	—	a) 4/23.5	—	26,050
<i>Guinea</i> GUI/72/016 — Development of Telecommunications	03/75	12/78	882,200	3/28	a) 3/11 b) 3,004	a) 111,281	230,845

Notes 1-18, see page 127.

TABLE 1 (cont.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Guinea-Bissau</i>							
GBS/75/006 — Restoration and Reorganization of Telecom.	03/75	09/77	250,585	3/24.5	a) 4/8 b) 7,124	a) 46,376	155,812
GBS/75/007 — Special Assistance to Broadcasting Service	03/75	12/77	155,500	2/12	—	a) 49,652	96,775
<i>Equatorial Guinea</i>							
EQG/74/001 — Development of Telecommunications	09/75	06/78	615,100	2/2	—	—	10,064
<i>Upper Volta</i>							
UPV/71/004 — Organization of the National P & T Training School	05/71	12/76	116,259	—	a) 3/13.5	—	12,575
<i>Lesotho</i>							
LES/74/071 — Broadcasting Adviser . . .	07/75	12/76	9,519	—	—	a) 2,121	2,121
LES/75/041 — Fellowship-counterpart to Director of Posts and Telecommunications	07/75	02/76	1,875	—	a) 1/0.5	—	375
<i>Morocco</i>							
MOR/74/007 — Establishment of a Postal and Telecom. Institute using Audio-Visual Techniques	07/74	06/78	1,247,435	10/17	a) 13/75	a) 50,767	173,866
<i>Mauritania</i>							
MAU/73/006 — Telecommunications . . .	03/74	07/79	172,466	1/9	a) 5/36.5 b) 1,400	—	63,583
MAU/74/009 — National Telecommunications School, Nouakchott	02/75	12/77	155,793	1/12	—	a) 16,488	63,662
<i>Mozambique</i>							
MOZ/76/003 — Evaluation Mission . . .	10/76	12/76	10,500	2/2	—	—	7,761
<i>Niger</i>							
NER/69/006 — Telecommunications . . .	07/70	10/78	272,341	1/12	a) 2/14.5 b) 1/6	a) 5,588	63,322
<i>Nigeria</i>							
NIR/68/534 — Posts and Telecommunications Training Centre, Oshodi ²	06/68	12/78	2,570,413	10/87.2	a) 1/3 b) 48,416	a) 150,625	558,162
NIR/69/028 — Telecommunications ² . . .	11/69	12/77	481,699	1/12	—	—	46,648
NIR/72/010 — National Telecommunications Development Planning ²	08/73	12/77	1,567,724	4/14	a) 1/3.5	a) 2,766 b) 355,734	436,042
<i>Rwanda</i>							
RWA/68/011 — Telecommunications Adviser	11/68	12/76	266,536	—	a) 1/1	—	750
<i>Senegal</i>							
SEN/72/011 — Telecommunications Planning and Training of Personnel	12/74	06/78	255,863	2/10.3	a) 6/33.5	—	67,155
<i>Sierra Leone</i>							
SIL/73/006 — Telecommunications Advisory Services	10/73	12/76	197,776	2/12	—	—	46,528
<i>Somalia</i>							
SOM/68/019 — Telecommunication Training	12/68	11/76	150,448	—	—	622	622
SOM/74/021 — National Institute of Telecommunication Training	03/75	12/78	215,423	3/18	b) 1,030	a) 26,818	103,901
SOM/75/021 — System of Telecommunication Maintenance	01/75	06/76	109,188	3/9	—	—	34,838
<i>Sudan</i>							
SUD/71/552 — Test, Repair and Maintenance Centre, Khartoum ³	08/73	03/77	207,857	2/16.4	—	a) 983	65,433
SUD/74/016 — Space Communications . .	08/74	01/78	124,931	1/12	a) 2/4	a) 57	49,057
SUD/74/017 — Microwave Systems . . .	08/74	01/78	114,600	1/11	—	—	43,728
SUD/74/020 — Telecommunication Development ⁴	05/74	01/77	235,234	2/8.3	a) 5/5	a) 121,378	160,618

TABLE 1 (cont.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Swaziland</i>							
SWA/68/011 — Telecommunication Training	07/69	01/78	106,577	—	a) 1/12	—	16,934
SWA/72/008 — Financial Controller (OPAS)	07/72	01/77	90,208	1/4.5	—	—	15,056
SWA/73/008 — Chief Engineer, Telecommunications	08/73	12/77	157,932	1/12	—	—	39,932
<i>Chad</i>							
CHD/68/012 — Telecommunication Training	11/68	01/77	360,535	—	a) 1/8.5	—	6,375
CHD/74/004 — Development of Telecommunications	09/74	01/79	266,650	1/12	a) 1/2.5 b) 2,975	a) 19,352 b) 39,046	113,035
CHD/75/021 — National School of Telecommunications, SARH (LDC)	10/76	01/77	250,000	—	—	—	—
CHD/75/021 — National School of Telecommunications, SARH	10/76	06/80	478,950	—	—	—	—
<i>Tunisia</i>							
TUN/72/006 — Postal and Telecommunications School, Tunis	07/75	12/78	731,550	6/54	a) 16/44.5	a) 5,535	249,937
<i>Zaire</i>							
ZAI/66/510 — National School of Telecommunications	01/66	01/76	1,274,886	—	—	a) 124	124
ZAI/75/008 — Telecommunications Development	02/76	12/77	59,600	1/12	—	—	46,377
<i>Zambia</i>							
ZAM/68/019 — Telecommunications Adviser	03/69	06/76	202,830	1/4	—	—	15,696
ZAM/71/516 — National Postal Telecommunications Training Centre	01/71	06/78	1,110,243	6/65.5	—	a) 18,780	288,357
ZAM/74/024 — Strengthening of GPO Microwave Section	01/75	12/77	17,442	1/4	—	—	13,199
<i>Regional Projects</i>							
RAF/68/853 — Regional Telecom. Adviser (East Africa)	03/69	01/77	355,395	1/11	—	—	59,847
RAF/69/857 — Regional Telecom. Adviser (West Africa)	03/70	01/77	247,807	1/12	—	—	52,051
RAF/70/116 — Telecommunication Pre-Investment Survey	06/70	01/77	857,932	—	—	b) 15,100	15,100
RAF/70/851 — Regional Telecommunications Adviser (Central Africa)	12/70	09/76	188,535	1/9	—	—	41,039
RAF/71/155 — Multinational Posts & Telecommunications Training Scheme (Kenya, Uganda, Tanzania)	07/71	08/78	2,811,993	13/136.4	a) 3/9.5 b) 15,216	a) 37,761	619,127
RAF/71/170 — Regional Telecommunication Training Centre	01/71	01/78	1,879,598	3/33	a) 1/0.5 b) 77,179	a) 19,128	230,879
RAF/71/208 — National Postal Telecom. Training Centre, Malawi	10/70	12/76	1,751,221	9/84	a) 2/9.5 b) 60,033	a) 21,767	431,796
RAF/71/231 — Telecommunications	06/71	07/76	1,050,305	—	—	b) 74,589	74,589
RAF/71/232 — Radio Monitoring and Frequency Management	06/74	04/77	98,459	1/6	—	—	28,267
RAF/71/255 — Telecom. Link Gambia-Senegal	01/72	03/77	537,666	1/5	a) 2/2	a) 22,626 b) 219,832	265,510
RAF/72/122 — Survey of Maritime Radio-communication	11/72	01/77	140,224	2/7	b) 253	—	36,764
RAF/73/023 — Transport and Communications	03/75	12/77	327,350	4/36.7	—	a) 2,740	173,793
RAF/73/076 — Investment Survey of National and Inter-Country Links	07/74	01/77	572,972	—	—	b) 55,800	56,057
RAF/74/003 — Identification Mission for the Establishment of Special Telecom. Services	04/74	12/77	57,356	2/13	—	—	56,397

TABLE 1 (cont.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>LATIN AMERICA</i>							
<i>Antigua</i> ANT/74/009 — Telephone system management	05/74	12/76	65,963	1/4	—	—	13,950
<i>Netherlands Antilles</i> NAN/74/007 — Telecommunication Training Centre	02/75	03/77	118,315	2/19.6	—	—	75,629
<i>Argentina</i> ARG/74/007 — Communications	03/75	12/77	212,158	1/12	—	a) 74,968	121,559
<i>Belize</i> BZE/72/003 — Assistance to the Belize Telephone Authority (OPAS)	05/72	01/78	172,964	1/12	1/1	—	43,614
<i>Bolivia</i> BOL/71/518 — Telecommunication Training Institute ⁵	01/72	12/77	1,488,884	4/16	—	a) 110,738	183,643
<i>Brazil</i> BRA/71/011 — Frequency management and monitoring	05/71	12/77	138,905	1/0.5	—	—	1,900
BRA/74/009 — Telecommunication Research and Development ⁶	03/75	12/78	1,159,845	8/67.4	—	—	319,351
BRA/74/010 — Human Resources-Telecom. Training ⁷	01/75	12/78	985,105	8/73.6	—	a) 7,312	309,104
<i>Chile</i> CHI/73/003 — Telecommunication Training Centre, Phase II	06/73	06/78	714,781	2/23.5	4/19.5	a) 8,485	126,505
CHI/76/010 — Participant to IFRB Seminar	09/76	12/76	2,330	—	b) 2,184	—	2,184
<i>Colombia</i> COL/72/035 — Training of Teaching Personnel & Promotion of Research in Telecommunications	01/75	12/78	600,000	3/18	a) 4/36	a) 49,785	163,248
<i>Costa Rica</i> COS/72/014 — Telecommunications	05/73	01/77	85,922	1/0.5	—	—	3,044
<i>Cuba</i> CUB/73/004 — Development of Telecom. Services	12/73	12/77	477,077	—	—	—	143,817
<i>Ecuador</i> ECU/72/006 — National Telecommunication Training Centre	08/72	03/78	923,314	5/46	—	a) 43,380	230,734
ECU/73/008 — Rural Telecommunications	11/73	01/77	75,611	1/2	—	—	7,600
ECU/73/009 — Unification of the Telecommunication Network	10/73	01/77	75,266	1/1.5	—	—	5,849
<i>El Salvador</i> ELS/73/010 — Telecommunications ⁸	07/74	01/77	231,416	3/13.5	—	—	52,429
ELS/74/012 — Technical Assistance in Telecommunications	12/74	01/77	33,910	1/3.2	—	—	9,570
<i>Guatemala</i> GUA/73/002 — Telecommunications ⁹	05/74	06/77	265,015	5/27.7	a) 1/2	—	109,468
<i>Guyana</i> GUY/73/003 — Telecommunication Training Centre	07/73	01/77	118,792	1/6	a) 1/3	—	27,219
<i>Jamaica</i> JAM/72/009 — Telecommunication Training Centre	05/73	11/78	511,274	4/30	a) 2/7	a) 43,460	182,250
<i>Mexico</i> MEX/70/032 — Telecommunications	10/70	02/76	134,735	—	a) 1/1	—	1,100
MEX/74/041 — National Telecommunication School	01/75	12/76	106,700	2/8.6	—	—	33,406

TABLE 1 (cont.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Nicaragua</i>							
NIC/71/006 — Administration and Organization of Telecoms.	03/72	01/77	38,330	—	a) 1/1	—	750
NIC/73/010 — Telecommunications	06/74	01/77	108,551	1/3.8	a) 4/7	—	20,173
<i>Paraguay</i>							
PAR/72/011 — Institute of Telecommunications	01/74	06/77	616,665	7/44.7	b) 3,600	a) 51,628	238,499
<i>Peru</i>							
PER/73/024 — Telecommunications Development and Training	08/74	12/77	277,550	3/17.3	a) 1/2	a) 25,503	94,450
<i>Trinidad and Tobago</i>							
TRI/72/010 — Telecommunication Admin. and Management	12/72	01/78	84,900	1/8	—	—	30,600
TRI/73/005 — Telecommunications	10/74	09/79	598,250	3/15.5	—	a) 24,051	85,393
<i>Uruguay</i>							
URU/73/001 — Telecommunication Training Centre	08/73	01/77	238,856	2/24	—	a) 25,752	126,635
<i>Venezuela</i>							
VEN/70/529 — Training Centre for Telecom. Technicians	06/70	01/76	1,063,188	—	—	a) 164	254
<i>Regional Projects</i>							
RLA/69/856 — Radio Frequency Management	06/69	12/76	293,462	1/6	—	—	25,932
RLA/72/094 — Central American Institute of Telecoms. (INCA TEL)	06/73	01/79	1,404,830	6/55.5	a) 2/16	a) 124,944	372,661
RLA/74/016 — Regional Integration of Telecommunications	06/74	06/76	121,467	2/2.2	—	—	10,825
RLA/74/023 — Transport and Communications	12/74	12/76	88,281	1/12	—	—	52,312
RLA/74/028 — Radio Frequency Management Infrastructure and follow-up	04/75	12/77	201,204	2/24	b) (2,144)	a) 3,012	113,637
<i>Caribbean region</i>							
CAR/75/002 — Telecommunication Administration and Management	07/75	12/77	108,500	1/12	b) 2,220	—	54,500
<i>ASIA AND PACIFIC</i>							
<i>Afghanistan</i>							
AFG/68/017 — Telecommunication Services	11/68	01/77	728,684	3/24	—	—	94,808
AFG/70/525 — Telecommunication Training Centre (Phase II)	01/70	12/77	1,988,444	7/78	b) 4,982	a) 25,505	351,446
AFG/74/039 — Telecommunication Network Planning Unit	08/75	07/77	139,603	3/26.7	—	—	104,883
<i>Bangladesh</i>							
BGD/72/022 — Telecommunication Training Centre	09/73	05/79	898,000	1/12	—	a) 126,633	175,830
<i>Burma</i>							
BUR/74/045 — Telecommunications & Postal Training Centre	12/76	12/80	1,103,000	—	—	—	—
BUR/74/047 — Assistance in the Development of Telephone and Telegraph Systems	04/76	12/77	103,950	2/11.5	—	a) 5,108	49,977
<i>India</i>							
IND/70/609 — Expansion of the Satellite Communication Earth Station	06/70	03/77	1,494,843	1/5.5	a) 3/11	a) 179,385 b) 7,466	227,152
IND/72/037 — Telecommunication Training Centre	08/73	08/78	1,337,825	10/23.1	a) 4/12 b) 2,218	a) 280,222	396,444
IND/74/029 — Signals and Telecommunications	06/74	12/77	18,700	—	—	—	—

TABLE 1 (cont.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
IND/74/044 — Fellowships — Trunk Exchanges	08/74	02/78	79,700	—	a) 4/11.5	—	11,250
IND/74/092 — Path Propagation Test for India-Afghanistan Troposcatter Link Feasibility	07/76	01/77	7,500	—	—	b) 7,500	7,500
IND/76/021 — Expansion of Monitoring Facilities and Satellite Transmission . .	09/76	12/77	7,260	—	—	—	—
<i>Indonesia</i>							
INS/71/536 — Telecommunication Training Centre	01/72	01/79	2,266,926	3/34.5	a) 4/16.5	a) 19,373	185,387
INS/73/015 — Telecommunications Installation and Maintenance	06/73	05/77	403,239	4/34.5	—	a) 10,887	152,583
INS/74/036 — Testing and Development Centre	09/75	12/78	68,300	—	—	—	—
INS/74/037 — Training and Operation and Maintenance Personnel for Domestic Satellite Communication System . . .	10/75	12/78	153,700	—	—	—	—
<i>Iran</i>							
IRA/70/522 — Telecommunication Training Institute ¹⁰	11/68	06/77	1,531,074	5/29.1	a) 17/24 b) 7,712	a) 30,905	190,454
<i>Laos</i>							
LAO/71/506 — National Telecommunication Training Centre	03/72	12/76	690,274	5/31	—	a) (2,565)	119,562
<i>Malaysia</i>							
MAL/72/018 — Crossbar Switching Maintenance	06/72	01/77	107,364	1/4	—	—	4,753
<i>Maldives</i>							
MDV/72/001 — Establishment of an HF Communications Station	10/74	01/77	116,443	1/0.3	a) 1/4	a) 86,796	90,436
<i>Mongolia</i>							
MON/71/510 — Establishment of a Faculty of Telecommunications at the State Polytechnic and Telecommunications Training Centre	06/72	09/78	1,102,639	4/47	a) 5/15	a) 248,544	453,625
<i>Nepal</i>							
NEP/71/521 — Telecommunication and Civil Aviation Training Centre	01/71	12/76	881,931	1/9.9	a) 4/16.5	a) 6,804	70,586
NEP/74/025 — Planning of Broadcasting Services	05/75	12/75	8,979	—	—	—	—
<i>Pakistan</i>							
PAK/68/539 — Telecommunication College	01/68	12/77	1,334,287	5/49.5	a) 6/48	a) 212,754	468,875
<i>Papua New Guinea</i>							
PNG/73/002 — Telecommunication Technical Training	12/73	12/77	99,290	1/7.9	—	—	34,717
<i>Western Samoa</i>							
WES/71/011 — Telecommunication Senior Technician	02/72	12/77	363,528	2/24	—	a) 8,400	90,972
WES/73/004 — Telecommunication Training	09/73	12/77	94,807	—	a) 1/3	—	3,300
<i>Singapore</i>							
SIN/71/514 — Telecommunication Training Centre TELECENTRE ¹¹	01/72	12/77	1,365,455	8/53.3	a) 3/6.5	a) 49,544	269,268
SIN/74/011 — Ponggol Radio Receiving Station	08/75	12/77	13,950	—	—	—	—
SIN/74/018 — Drafting of Stored Programme Control Exchange Specification ¹²	08/75	01/77	27,650	1/7	—	—	26,600
SIN/74/020 — Training of Telecommunication Engineers	08/75	12/78	33,000	—	—	—	—
<i>Sri Lanka</i>							
SRL/71/527 — Telecommunication Training School	01/71	12/76	633,261	1/6	—	a) 33,631	62,272

TABLE 1 (cont.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SRL/73/039 — Supervision of Installation and Training in Maintenance of Telex Exchange	05/74	12/76	42,375	—	—	b) 11,641	11,641
<i>Tonga</i>							
TON/74/002 — Development of Telecommunications	03/75	04/77	144,000	1/3	—	—	11,573
TON/74/003 — Radio Technician	11/74	06/79	46,200	—	a) 1/12	—	13,200
<i>Regional Projects</i>							
RAS/68/852 — Telecommunication Advisory Services	01/68	03/76	649,153	3/9	—	—	43,932
RAS/69/164 — Feasibility Studies for the Asian Telecommunication Network . .	06/69	12/76	501,708	—	a) 3/6.5	—	7,150
RAS/74/003 — Coordination of Maritime Telecommunication Services and Facilities	04/75	01/77	46,548	1/3.6	—	—	16,267
RAS/74/004 — Telecommunication Training (South Pacific)	04/74	12/78	174,180	1/12	—	a) 32,661	87,200
RAS/74/005 — Feasibility Study — Reg. Telecom. Network in South Pacific . .	05/74	01/78	86,560	1/12	b) 1,327	—	57,163
<i>EUROPE AND MIDDLE EAST</i>							
<i>Albania</i>							
ALB/71/001 — Sound Broadcasting and Television	12/71	06/77	10,658	—	—	—	—
ALB/71/002 — School of Telecommunications	12/71	06/77	18,605	—	—	—	—
<i>Saudi Arabia</i>							
SAU/67/516 — Broadcasting and Telecommunication Training Centres ¹³ . .	01/67	12/76	2,962,440	11/117	a) 2/7	a) 991,749	1,475,312
<i>Bulgaria</i>							
BUL/71/020 — Development of Television	07/71	12/77	12,896	—	—	—	—
BUL/73/010 — Development of Television	05/73	12/77	11,549	—	a) 1/1	—	1,100
BUL/73/011 — Organization, Construction and Operation of Radio Centres broadcasting several programmes	05/73	12/77	3,600	—	—	—	—
BUL/74/050 — Use of Telephone Channels for Data Transmission	09/74	12/77	3,600	—	—	—	—
BUL/75/020 — Telecommunication Research Adviser	10/75	12/76	6,475	1/1	b) 987	—	4,911
<i>United Arab Emirates</i>							
UAE/73/005 — Telecommunication Adviser ¹⁴	05/74	10/79	94,804	1/12	—	a) 20	46,791
<i>Greece</i>							
GRE/75/002 — Telecommunication fellowships	06/75	06/77	19,800	—	a) 5/14	—	15,500
<i>Hungary</i>							
HUN/74/003 — Mathematical models of non-linear circuits	02/75	07/76	6,600	—	a) 1/6	—	6,600
<i>Iraq</i>							
IRQ/71/521 — Telecommunication Training ¹⁵	04/72	01/77	553,850	2/12.2	a) 4/13.5 b) 1,983	a) 32,766	108,756
<i>Israel</i>							
ISR/73/029 — Institute of Telecommunications	08/73	01/77	808,943	4/27.3	a) 4/8 b) 2,850	a) 336,420	454,654
ISR/75/020 — Economic Analysis of Telecommunication System Management .	10/75	12/76	4,400	—	a) 1/4	—	4,400
<i>Jordan</i>							
JOR/73/007 — Telecommunication Training Centre	09/73	05/79	1,986,296	7/68.6	a) 8/19.5	a) 56,146	367,537

TABLE 1 (cont.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Lebanon</i>							
LEB/74/008 — Telecommunication Maintenance	10/74	12/76	109,258	—	—	b) 11,756	11,756
<i>Oman</i>							
OMA/73/002 — Director of Telecommunications (OPAS)	06/73	06/79	1,066,523	4/43.6	a) 4/17	—	169,805
<i>Poland</i>							
POL/69/011 — Telecommunications	03/69	06/76	42,559	—	a) 2/6	—	6,600
<i>Yemen Arab Republic</i>							
YEM/68/009 — Adviser, Radiocommunications and Telephony	01/70	01/78	394,893	2/24	b) 604	—	98,277
YEM/73/016 — Telecommunications Feasibility Study	06/74	12/76	116,893	—	—	—	712
YEM/74/011 — Training in Telecommunication Systems, Technology and Administration	02/75	01/77	124,255	—	a) 12/91.5	—	69,225
YEM/75/033 — Telecommunication Feasibility Study (Phase II) ¹⁶	08/76	12/77	165,200	—	—	a) 7,216	7,216
<i>Yemen (People's Dem. Republic of)</i>							
PDY/74/001 — Senior Telephony Adviser	06/74	01/77	36,009	—	—	—	—
<i>Czechoslovakia</i>							
CZE/73/001 — Modern Techniques in Telecommunications	01/74	06/77	21,200	—	a) 5/5 b) 1,268	—	6,418
<i>Turkey</i>							
TUR/67/528 — Telecommunication Training	01/67	01/76	1,589,570	—	—	a) 15,628	15,725
<i>Regional Projects (Middle East)</i>							
REM/71/197 — Sana'a/Aden Pilot Telecommunication Link	01/71	08/77	1,007,704	—	a) 1/8.5	—	7,244
REM/71/296 — New Telecommunications Techniques	01/74	12/76	133,286	—	—	—	—
REM/72/038 — Preinvestment Survey for the Middle East Telecommunications Network	09/73	12/75	381,212	—	b) 1,917	—	1,917
REM/75/027 — Feasibility Study/Preinvestment Survey of the Middle East Telecommunications Network ¹⁷	06/75	12/78	351,464	13/71.8	b) 18,546	a) 2,025	397,794
<i>Interregional projects</i>							
INT/74/017 — Curriculum Development in Telecommunication Training ¹⁸	01/75	06/78	825,807	5/60	b) 22,494	a) 1,291 b) 30,502	373,048
INT/74/035 — Preliminary Studies for the Development of Maritime Radiocommunication	06/75	06/76	49,203	3/4.9	—	—	26,215

Note: The figures given in column (5) represent posts and not 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 (5), (6) and (7).

¹ Amounts shown in column (8) without corresponding information on assistance rendered in columns (5), (6) and (7) represent either the settlement of prior years' commitments or the expected cost of assistance to be rendered in 1977.

² to ¹⁸ Includes a Government cost-sharing contribution of (US dollars):

² 850,000;	³ 5,965;;	⁴ 90,745;
⁵ 60,247;	⁶ 57,153;	⁷ 11,622;
⁸ 24,811;	⁹ 47,380;	¹⁰ 54,058;
¹¹ 50,000;	¹² 11,400;	¹³ 1,083,050;
¹⁴ 26,325;	¹⁵ 43,230;	¹⁶ 2,139;
¹⁷ 10,000;	¹⁸ 74,562;	

TABLE 2

PROJECTS IMPLEMENTED BY SUBCONTRACTORS IN 1976

Contracts signed in prior years

Title of Project	Participating country(ies)	Value of Contracts US\$	Contractor	Man/ months 1976 ¹	Amounts paid 1976 US\$
(1)	(2)	(3)	(4)	(5)	(6)
Television studio and transmitter station, Ahmedabad (ESCES) — IND/70/609	India	267,600	NIPPON ELECTRIC CO. LTD., Tokyo, Japan	—	23,953 ^{2 4}
National Telecommunications development Planning — NIR/72/010	Nigeria	700,000 ³	SWEDTEL, Stockholm, Sweden	8/67	355,734
Preinvestment survey for the Pan-African telecommunication network (PANAFTEL) in West & Central Africa — RAF/71/231	Cameroon, Congo, Central African Empire, Equatorial Guinea	220,000	SOFRECOM, Paris, France	—	25,400 ⁴
		300,000	ACRES-INTERTEL LTD., Montreal, Canada	—	43,088 ⁴
		50,000	SWEDTEL, Stockholm, Sweden	—	6,101 ⁴
Telecommunication link between Banjul and Koalack — RAF/71/255	Gambia and Senegal	436,000	THOMSON-CSF, Levallois-Perret, France	—	219,832
Preinvestment survey for the Pan-African telecommunication network (PANAFTEL) in East Africa — RAF/70/116	Ethiopia, Kenya, Somalia, Sudan	220,000	PREECE, CARDEW & RIDER, London, United Kingdom	—	15,100 ⁴
Telecommunication maintenance and On-the-Job training — LEB/74/008	Lebanon	102,735	SWEDTEL, Stockholm, Sweden	3/3	11,756 ⁴
Finance & accounts — Reorganization of the general post office, Zambia — ZAMBIA (FIT)	Zambia	183,700	W.D. SCOTT & CO., Sydney, Australia	4/12	50,770 ⁴
Preinvestment surveys in Central and East Africa (Project 1) — RAF/73/076 Sub-Project 1)	Kenya, Malawi, Somalia, Tanzania, Zaire and Zambia	319,375	PREECE, CARDEW & RIDER, Brighton, United Kingdom	4/8	55,800
Cairo telecommunication network, up - grading of telephone cable networks — EGY/73/021	Egypt	84,023	SWEDTEL, Stockholm, Sweden	2/10	23,302 ⁴

¹ Where no man/months are indicated the field work has either terminated or not yet started.² Concerns equipment only and is consequently included in the amount of US \$ 4,812,154 (points 6.2 and 6.4.7)³ Revised in 1976.⁴ Final payments.

TABLE 2 (cont.)

(1)	(2)	(3)	(4)	(5)	(6)
Supply and installation of an HF radio telephone and telex link between Lesotho and Kenya (FIT)	Kenya and Lesotho	388,850	CABLE & WIRELESS CO., London, United Kingdom	2/6	140,748
Expert study to establish a long-term and a short-term plan for the development of telecommunications in the Republic of Chad — CHD/74/004	Chad	59,980	MORCOM SYSTEMS INC., Washington D.C., USA	3/3	39,046 ⁴
Advisory services to the Govt. of India adjustment, operation and maintenance of video tape-recorders — IND/70/609	India	10,000	INTERNATIONAL VIDEO CORPORATION, Sunnyvale, California, USA	—	7,466 ⁴
CODEVTEL — Workshops Nos. 1 & 2 training courses — INT/74/017	Geneva and Nairobi, Kenya	30,000	THE CONSULTING SERVICES GROUP OF BELL CANADA, Montreal, Canada	—	30,502 ⁴

ANNEX 7

ARREARS *

	Year	Contributions	Publications	Total
Angola (People's Rep. of)	1973-75	—	11,240.35	11,240.35
Benin (People's Rep. of)	1971-75	62,917.70	5,079.45	67,997.15
Bolivia (Rep. of)	1973-75	18,956.35	3,010.40	21,966.75
Central African Empire	1974-75	62,254.25	13,930.—	76,184.25
Chile	1974-75	64,380.85	19,752.90	84,133.75
Comoros (State of the)	1972-75	—	11,584.45	11,584.45
Ivory Coast (Rep. of the)	1974-75	84,763.85	15,566.32	100,330.17
Cuba	1975	—	68,260.—	68,260.—
Dominican Republic	1973-75	147,029.75	11,066.80	158,096.55
Egypt (Arab Rep. of)	1974-75	—	14,396.24	14,396.24
Ecuador	1974-75	—	23,762.50	23,762.50
Ethiopia	1972-75	—	20,638.30	20,638.30
Iran	1975	—	19,886.40	19,886.40
Italy	1974-75	—	205,434.75	205,434.75
Khmer Republic	1971-75	186,167.72	24,368.93	210,536.65
Lao People's Dem. Rep.	1971-75	152,840.70	15,853.55	168,694.25
Liberia (Rep. of)	1972-75	100,937.90	—	100,937.90
Mauritania (Islamic Rep. of)	1972-75	38,093.11	2,685.—	40,778.11
Nicaragua	1975	55,310.15	—	55,310.15
Niger (Rep. of the)	1973-75	15,934.64	—	15,934.64
Nigeria (Fed. Rep. of)	1975	11,634.80	12,521.—	24,155.80
Panama (Rep. of)	1973-75	105,054.05	18,564.25	123,618.30
Paraguay (Rep. of)	1972-75	56,983.35	11,505.35	68,488.70
Peru	1975	—	9,734.20	9,734.20
Philippines (Rep. of the)	1973-75	—	26,398.55	26,398.55
Syrian Arab Republic	1974-75	—	8,519.30	8,519.30
Rwanda (Rep. of)	1973-75	1,160.45	14,902.45	16,062.90
Sierra Leone	1975	54,576.35	1,288.—	55,864.35
Somali Dem. Rep.	1974-75	12,917.10	6,091.—	19,008.10
Sudan (Dem. Rep. of the)	1975	—	16,513.53	16,513.53
Chad (Rep. of the)	1970-75	197,927.70	11,818.10	209,745.80
Togolese Republic	1975	27,390.95	—	27,390.95
Union of Soviet Socialist Republics	1975	—	11,915.95	11,915.95
Uruguay (Oriental Rep. of)	1973-75	661.45	43,049.20	43,710.65
Venezuela (Rep. of)	1974-75	—	19,872.15	19,872.15
Zaire (Rep. of)	1973-75	73,670.25	60,954.90	134,625.15
Zambia (Rep. of)	1974-75	—	7,009.90	7,009.90

* This list mentions only amounts above 5,000 Swiss francs.

	Year	Contributions	Publications	Total
Germany — Buchhandl. Rauschenplatt Cuxhaven	1974	—	8,763.—	8,763.—
Argentina — Empresa Nacional Telecom. — Empresa Nacional Corr. et Telegr.	1975	—	12,750.—	12,750.—
Brazil — ENTEL SA	1964-68	39,660.70	—	39,660.70
Colombia — Empresa Nacional Telecom.	1971-75	—	40,329.80	40,329.80
United States — Transp. Off., Fort George	1973-75	—	8,513.15	8,513.15
— CCA Electronics Corp., Silver Spring	1973-75	15,254.75	—	15,254.75
— Navsat Systems, Salt Lake City	1970-75	40,351.55	—	40,351.55
— Page Communic. Eng. Inc.	1975	18,376.60	—	18,376.60
— FCC	1975	—	13,531.70	13,531.70
— US Army	1972-75	—	7,552.25	7,552.25
— Naval Reg. Fin. Center	1975	—	32,714.—	32,714.—
Italy — Honeywell Inf. Syst. Milan	1975	9,188.30	—	9,188.30
Kenya — East African Ext. Telecom.	1975	—	6,393.20	6,393.20
Lebanon — OGERO, Beirut	1974-75	—	5,861.50	5,861.50
Liberia — Liberian Telecom. Corp.	1972-75	—	10,719.05	10,719.05
Nigeria — Nigerian External Telecom. Ltd.	1973-75	16,773.45	22,557.85	39,331.30
Peru — Minist. Marina	1975	—	7,294.—	7,294.—
Portugal — SEMA Electron., Lisbon	1972-75	—	28,940.25	28,940.25
United Kingdom — Independent Broad. Aut.	1975	9,188.30	—	9,188.30
— Potter Ltd. London	1973-75	—	27,769.10	27,769.10
Tunisia — Minist. Défense Nationale	1973-75	—	5,571.10	5,571.10
Yugoslavia — Elektronska Industrija, Beograd . .	1971-75	71,457.80	—	71,457.80
Rhodesia	1966-74	489,600.—	—	489,600.—
		2,241,414.87	1,015,723.32	3,257,138.19
Other debtors		14,704.75	407,006.32	421,711.07
Total		2,256,119.62	1,422,729.64	3,678,849.26