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**REPORT**  
**ON THE ACTIVITIES OF**  
**THE INTERNATIONAL**  
**TELECOMMUNICATION UNION**

in

**1972**

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## 1. INTRODUCTION

The basic instrument of the I.T.U. is the International Telecommunication Convention, the current version of which, signed in Montreux in November 1965, entered into force on 1 January 1967 \*). Annexed thereto are the Regulations, established by World Administrative Conferences, which govern on an international basis, the use of radio, the telegraph and the telephone.

The purposes of the Union, as laid down in the Convention, are:

- to maintain and extend international cooperation for the improvement and rational use of telecommunications of all kinds;
- to promote the development of technical facilities and their most efficient operation with a view to improving the efficiency of telecommunication services, increasing their usefulness and making them, so far as possible, generally available to the public;
- to harmonize the actions of nations in the attainment of those common ends.

Under the terms of an Agreement signed in Lake Success in 1947, the United Nations recognized the I.T.U. — which was founded in 1865 — as “ the specialized agency responsible for taking such action as may be appropriate under its basic instrument for the accomplishment of the purposes set forth therein ”.

The supreme organ of the Union is the Plenipotentiary Conference. It meets generally once every five or six years in order to determine the general policies for fulfilling the purposes of the Union and to revise the International Telecommunication Convention if it consider this necessary. By invitation of the Spanish Government the next meeting of the Plenipotentiary Conference is scheduled to open in Malaga-Torremolinos on 14 September 1973.

In intervals between Plenipotentiary Conferences the Administrative Council, composed of twenty-nine Members of the Union, meets annually. It is responsible for taking all steps to facilitate the implementation by the Members and Associate Members of the Union of the provisions of the Convention, of the Regulations, of the decisions of the Plenipotentiary Conference and, where appropriate, of the decisions of other conferences and meetings of the Union.

The Union has four permanent organs: the General Secretariat, the International Frequency Registration Board (I.F.R.B.), the International Radio Consultative Committee (C.C.I.R.) and the International Telegraph and Telephone Consultative Committee (C.C.I.T.T.), the activities of which in 1972 are reviewed in Section 4 of this report.

The activities of the Union in the field of Technical Cooperation are outlined in Section 5.

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\*) In this context, mention should be made of the Draft Constitutional Charter established in accordance with Resolution No. 35 of the Plenipotentiary Conference of Montreux (1965). This Draft Constitutional Charter has been submitted to administrations for consideration.

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## 2. MEMBERSHIP OF THE UNION

1. In 1972, three countries, the Kingdom of Tonga, the Sultanate of Oman and the United Arab Emirates, became Members of the Union, thereby raising the membership of the Union from 140 to 143, i.e.:

- a) the 129 countries or groups of territories mentioned in Annex 1 to the Montreux Convention, 1965;
- b) the following 14 countries which became Members on the deposit of an instrument of accession to the Convention:

|   | which became<br>a Member on |
|---|-----------------------------|
| Republic of Maldives . . . . .          | 28.2.1967                   |
| Guyana . . . . .                        | 8.3.1967                    |
| Kingdom of Lesotho . . . . .            | 26.5.1967                   |
| Barbados . . . . .                      | 16.8.1967                   |
| Republic of Botswana . . . . .          | 2.4.1968                    |
| People's Democratic Republic of Yemen . | 15.8.1968                   |
| Republic of Nauru . . . . .             | 10.6.1969                   |
| Mauritius . . . . .                     | 30.7.1969                   |
| Republic of Equatorial Guinea . . . . . | 2.7.1970                    |
| Kingdom of Swaziland . . . . .          | 11.11.1970                  |
| Fiji . . . . .                          | 5.5.1971                    |
| Kingdom of Tonga . . . . .              | 7.1.1972                    |
| Sultanate of Oman . . . . .             | 28.4.1972                   |
| United Arab Emirates . . . . .          | 27.6.1972                   |

There were no Associate Members.

2. On 29 May 1972, the Administrative Council of the I.T.U., taking into account the United Nations General Assembly Resolution 2758 (XXVI) of 25 October 1971, resolved to restore all its rights to the People's Republic of China in the I.T.U. and recognized the representatives of its Government as the only legitimate representatives of China at the I.T.U.

The Government of the People's Republic of China has acceded to the Montreux Convention, 1965. The notification of accession was deposited with the General Secretariat on 16 November 1972.

3. During 1972 three countries ratified the International Telecommunication Convention, Montreux, 1965, and five countries acceded thereto. On 31 December 1972, the total number of ratifications was 110 and of accessions 24.

4. The position of Members on 31 December 1972 in relation to the Montreux Convention, 1965, and to the Administrative Regulations annexed thereto, is indicated in Table 1 of Annex 1 to this Report. Annex 1 also contains information concerning certain other conventions and agreements relating to telecommunications.

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### 3. THE ADMINISTRATIVE COUNCIL

3.1 The 27th Session of the Administrative Council was held at I.T.U. Headquarters from 27 May to 16 June 1972.

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

Algeria (Algerian Democratic and Popular Republic), the Federal Republic of Germany, the Kingdom of Saudi Arabia, the Argentine Republic, the Commonwealth of Australia, Brazil, Canada, China, the Republic of Dahomey, the United States of America, Ethiopia, France, the Republic of India, Ireland, Italy, Japan, Lebanon, the Malagasy Republic, the Kingdom of Morocco, Mexico, the Federal Republic of Nigeria, Uganda, Pakistan, the People's Republic of Poland, the United Kingdom of Great Britain and Northern Ireland, the Confederation of Switzerland, the Union of Soviet Socialist Republics, the Republic of Venezuela and the Socialist Federal Republic of Yugoslavia.

3.2 Mr. A. Santiago Irrera (Argentina) was elected Chairman and Mr. A. Ponsiglione (Italy) Vice-Chairman and the following Committees were constituted:

*Committee 1 — Finance*

*Chairman:* Mr. R. Rüttschi (Switzerland)

*Vice-Chairman:* Mr. M. Ghazal (Lebanon)

*Committee 2 — Personnel and Pensions*

*Chairman:* Mr. C. E. Lovell (United Kingdom)

*Vice-Chairman:* Mr. H. Baczko (People's Republic of Poland)

*Committee 3 — Technical Cooperation*

*Chairman:* Mr. Thomas E. Nelson (United States)

*Vice-Chairman:* Mr. T. Bouraïma (Dahomey)

The resolutions and decisions adopted either in Plenary Meeting or by Committees are summarized below:

#### 3.3 *Representation of China*

The Council, taking into account United Nations General Assembly Resolution 2758 (XXVI) decided to restore all its rights to the People's Republic of China in the I.T.U. and recognized the representatives of its Government as the only legitimate representatives of China at the I.T.U.

(Resolution No. 693)

#### 3.4 *Financial matters*

##### 3.4.1 *Financial operating report of the I.T.U. for the year 1971*

The Council approved the Financial Operating Report and the Management Report of the I.T.U. Staff Superannuation and Benevolent Funds for 1971.

(Resolution No. 694)

### 3.4.2 *External audit of I.T.U. accounts for the period 1 January to 31 December 1971*

The Council approved the accounts of the I.T.U. for the period 1 January to 31 December 1971, as drawn up and as audited by the Federal Audit Department of the Swiss Confederation.

(Resolution No. 699)

### 3.4.3 *Financial Regulations of the Union*

The Council decided to amend Article 45 of the Financial Regulations of the Union and to replace the “ Principles Governing the Audit Procedures of the United Nations ”, in Annex 3, by “ Additional Terms of Reference Governing External Audit ”.

(Resolution No. 700)

### 3.4.4 *Additional credits for 1972*

The Council approved the following additional credits for 1972. For details, see Section 6.2 and Annex 2.

(Resolution No. 703)

### 3.4.5 *Budgets for the year 1973*

The budgets for 1973 were approved. For details, see under Section 6.2.

(Resolution No. 707)

### 3.4.6 *Extension of the I.T.U. Headquarters building*

The Council instructed the Secretary-General that under no circumstances is the new estimated total cost of 27,122,000.— Swiss francs to be exceeded. The building must be completed and finished in good order within this expenditure limit, any unforeseen additional costs to be met by corresponding savings.

(Resolution No. 710)

The Council also instructed the Secretary-General to submit a detailed report on the building extension at the 28th Session.

(Decision No. 364)

## 3.5 *Personnel matters*

### 3.5.1 *Creation, regrading and abolition of posts*

The Council approved with effect from 1 January 1973:

- the creation of one P.1/P.2 permanent post in the General Secretariat;
- the regrading of two P.3 posts to P.4, one P.2 post to P.3 and one G.7 post to P.1/P.2 in the General Secretariat;
- the regrading of one P.3 post to P.4 and three P.2 posts to P.3 in the Specialized Secretariat of the I.F.R.B.
- the abolition of a G.7 post in the Specialized Secretariat of the I.F.R.B.

(Resolution No. 695)

The Council approved the creation of one P.1 and one P.4 post in the Specialized Secretariat of the I.F.R.B. as from 1 January 1973.

(Resolution No. 697)

The Council also approved the creation of one G.6/G.7 and one G.2 post on a permanent basis in the General Secretariat with effect from 1 July 1972.

(Resolution No. 701)

### 3.5.2 *Creation and regrading of posts charged to the Technical Cooperation budget*

The Council approved, with effect from 1 January 1973, the creation of one P.3, one P.1/P.2, one G.6, one G.5, three G.4 and one G.3 posts on a fixed-term basis up to 31 December 1974. It also approved the regrading of three G.7 posts to P.1/P.2 as from 1 January 1973.

(Resolution No. 698)

### 3.5.3 *Membership of the I.T.U. Staff Pension Committee*

The following persons were appointed to represent the Council on the I.T.U. Staff Pension Committee:

| Members         | Alternate Members | Term  |
|-----------------|-------------------|---|
| Mr. C.E. Lovell | Mr. F.G. Perrin   | Until the end of the 28th Ordinary Session of the Council |
| Mr. J. Kupper   | Mr. O.H. Mohamed  | Until the end of the 29th Ordinary Session of the Council |
| Mr. C. Baudazzi | Mr. H. Baczko     | Until the end of the 30th Ordinary Session of the Council |

(Resolution No. 702)

### 3.5.4 *Employment of translators/interpreters*

The Council decided to extend the validity of Resolution No. 667 to 1973.

(Decision No. 363)

### 3.5.5 *Procedure for the election of the Director of the C.C.I.T.T.*

The Council recommended to the Vth Plenary Assembly of the C.C.I.T.T. the procedure to be adopted for the election of the Director of the C.C.I.T.T. It also recommended that, in view of the extremely heavy programme of work of the C.C.I.T.T. for 1973, the new Director should take up his duties as soon as possible after his election.

(Decision No. 365)



### 3.6 *Conferences*

#### 3.6.1 *Recommendation No. 5 of the European VHF/UHF Broadcasting Conference, Stockholm, 1961*

The Council instructed the Secretary-General to carry out in 1975 a further consultation on the advisability of revising the Regional Agreement for the European Broadcasting Service in the VHF and UHF bands, Stockholm, 1961.

(Resolution No. 696)

#### 3.6.2 *World Administrative Radio Conference for Maritime Mobile Telecommunications*

The Council decided that a World Administrative Radio Conference for Maritime Mobile Telecommunications would meet in Geneva on 22 April 1974 for a period not in excess of 7 weeks, with the following agenda:

- To consider and revise as necessary the provisions of the Radio Regulations and the Additional Radio Regulations for the Maritime Mobile and the Maritime Mobile-Satellite Services and for the Radiodetermination and Radiodetermination-Satellite Services used for maritime purposes, provided that frequency spectrum considerations be confined to those parts of the frequency spectrum already available for these services;

The Council established a non-exhaustive list of items which could be taken into account within the terms of that agenda.

(Resolution No. 704)

#### 3.6.3 *World Administrative Telegraph and Telephone Conference*

The Council decided that a World Administrative Telegraph and Telephone Conference would meet in Geneva from 2 to 11 April 1973 with the following agenda:

- To revise the Telegraph and Telephone Regulations, especially in the light of the recommendations of the Vth Plenary Assembly of the C.C.I.T.T., with respect to the simplification of the provisions of the Telegraph Regulations (Geneva, 1958), and the Telephone Regulations (Geneva, 1958), in accordance with Resolution No. 36 of the Plenipotentiary Conference (Montreux, 1965), and to adopt, as necessary, new provisions to meet the requirements of the telegraph and telephone services.
- To take the necessary steps for subsequent incorporation in the revised Telegraph and Telephone Regulations of such provisions of the Radio and Additional Radio Regulations as the next competent World Administrative Radio Conference may decide to transfer to the Telegraph and Telephone Regulations in pursuance of Resolution No. 37 of the Plenipotentiary Conference (Montreux, 1965).

(Resolution No. 705)

#### 3.6.4 *Plenipotentiary Conference 1973*

The Council, having been informed of the generous offer of the Spanish Government to hold the Plenipotentiary Conference in 1973 in Spain, decided that it would open at Malaga-Torremolinos on 14 September 1973.

(Resolution No. 706)

### 3.7 *Resolutions of the General Assembly of the United Nations*

The Council having noted the resolutions of the 26th Session of the General Assembly submitted to the Council in accordance with Article IV of the Agreement between the United Nations and the I.T.U., invited administrations, in particular those of countries in which there are refugees from dependent territories in Africa, to arrange for training in their vocational centres of a certain number of sponsored refugees wishing to be trained in telecommunications. It also requested the Secretary-General to maintain contact with the United Nations High Commissioner for Refugees, other organs of the United Nations system and with the Organization for African Unity in order to achieve cooperation in this field.

(Resolution No. 708)

### 3.8 *Competition: " Youth in the Electronic Age "*

The Council requested the Secretary-General to convey its congratulations to the administrations which took an active part in the above competition which was organized by the I.T.U. in connection with the First World Telecommunication Exhibition " TELECOM 71 ", and to thank the governments and enterprises which had donated the prizes.

(Resolution No. 709)

### 3.9 *Date and duration of the 28th Session of the Administrative Council*

The Council decided that its 28th Session would be held from 28 April to 18 May 1973.

(Decision No. 362)

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## 4. ACTIVITIES OF THE PERMANENT ORGANS

### 4.1 ACTIVITIES OF THE GENERAL SECRETARIAT

The General Secretariat comprises six departments: Personnel Department, Finance Department, Conferences and Common Services Department, Computer Department, Department of External Relations, and the Technical Cooperation Department.

The work of the *Personnel Department* continued to increase with the expanding activities of the Union, more markedly in connection with the recruitment and administration of Technical Cooperation experts. In addition, the Personnel Department has devoted a considerable amount of time and study to inter-agency meetings and their preparation in relation with the work of the Special Committee of Government Experts set up by the United Nations General Assembly to review the Common System conditions of employment; the final report together with those of ICSAB and the Secretary-General of the United Nations (in consultation with his colleagues) was examined at the 27th session of the Assembly. A Resolution calling for the establishment in January 1974 of an independent International Civil Service Commission commanding the confidence of Governments, Executive Heads and staff was adopted and requires consideration by the governing bodies of the specialized agencies.

The *Finance Department* also continued to develop in proportion to the expansion of Union activities, particularly in the field of technical cooperation. Furthermore, the Department had to cope with additional work resulting from the extension of the Union building and the fluctuations in currency rates which affected the calculation of salaries and allowances.

As a periodic task the *Conferences and Common Services Department* serviced the various meetings and conferences. During the course of the year the Languages Division translated 14,877 pages into Spanish, 10,661 pages into French, and 5,959 pages into English. The Stenographic Pool typed a total of 95,370 pages in English, French and Spanish. The Offset and Stencil Services handled 44,728,985 passages of work through the reproduction equipment. The Publication Service arranged for the production of 230,870 copies of publications. The Sales Service dealt with the sales of publications with a value of 3,391,285 Swiss francs. The Conference Documents Section distributed 1,462,208 items and dispatched 1,191,101 items. The Postal Section dispatched an additional 391,710 items. The physical arrangements for the move of staff and equipment into the new building were completed.

The *Computer Department* continued to provide services for the organs of the I.T.U. as well as for Administrations (for details see Annex 4). The new I.T.U. computer was installed in April 1972 to test converted programmes for the new computer and after about 2,000 hours of testing, the conversion of programmes for almost all of the tasks was successfully completed by the end of the year. The new computer will be fully operational in January 1973. The previous computer has been sold for 100,000 Swiss francs and will be removed from headquarters by mid-January 1973.

Among other applications foreseen for the new computer, is the continued study for helping in the production of C.C.I. documents, as proposed by the C.C.I.T.T. team of experts and adopted by the C.C.I.T.T. Vth Plenary.

The *Department of External Relations* comprises three divisions: Relations with the United Nations and other International Organizations, Relations with Members of the Union, and the Public Relations Division. A special section dealing with the preparation for and work resulting from Conferences and the Administrative Council and the Legal Adviser are also attached to the Department.

During 1972 every attempt was made to continue following the work of the United Nations of concern to the I.T.U., especially with respect to matters concerning inter-agency coordination. The General Secretariat was represented at a number of conferences and meetings where general policy matters were under discussion, particularly in the field of outer space. Among these mention should be made of the 11th Session of the United Nations Legal Sub-Committee and the 9th Session of the Scientific and Technical Sub-Committee of the Committee on the Peaceful Uses of Outer Space and also a meeting of the United Nations Panel on Remote Sensing Systems for Earth Resources Surveys.

As part of the routine work programme of the Division "Relations with Members of the Union", data was collected and coordinated, and manuscripts prepared for monthly Notification, Operational Bulletin, and ten new editions of other service documents or tables, plus 17 supplements. A review was made of the difficulties encountered in the preparation of the service documents concerned with the Maritime Mobile service so as to determine the remedial steps necessary in order to improve the comprehensiveness and accuracy of these publications.

Among the activities of the *Public Relations Division*, mention should be made of the preparations for the celebration of the fourth World Telecommunications Day when prizes were awarded to the winners of the competition "Youth in the Electronic Age". Tens of thousands of young people from all over the world took part in this competition, which was associated with TELECOM-71, the first world telecommunication exhibition, organized by the I.T.U. A brief survey of the work of the Union was given to 40 groups (almost 1,000 people) who visited headquarters during the year. The film "TELECOM—Message to the 21st Century" was commercialized, 94 copies being produced of which 64 have been sold. The film is in English, Spanish, French and German and the Arabic version is in the course of preparation.

The special section referred to above proceeded actively, in close collaboration with representatives of the Spanish Government, with the preparation for the Plenipotentiary Conference, now scheduled to open in Malaga-Torremolinos on 14 September 1973. Coordination with other departments of the General Secretariat was ensured by an inter-departmental working group.

By the end of 1972 the extension of the I.T.U. building, for the supervision of which the Legal Adviser bears the primary responsibility, was sufficiently advanced to permit the occupation of the tower. It was thus possible to give up office space rented in the town. In addition to his work in connection with the building the Legal Adviser continued to give legal support and advice as necessary to other departments.

The normal activities of the *Technical Cooperation Department* are fully covered in Section 5 of this report.

## 4.2 ACTIVITIES OF THE INTERNATIONAL FREQUENCY REGISTRATION BOARD (I.F.R.B.)

### 4.2.1 *Treatment of frequency assignment notices*

The Board continued to carry out its duties as prescribed in the Convention, Montreux, 1965, and the Radio Regulations attached thereto. These duties in relation to the utilization, notification, technical examination and registration of frequencies involved steps to ensure the application both by the administrations and the I.F.R.B. of the provisions of the Radio Regulations. During the year 1972, the Board dealt with a total number of 69,812 frequency notices (66,684 in 1971).

#### 4.2.2 *Technical examination of frequency assignment notices*

The Board effected a 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:

- 18,525 assignments notified under Article 9 of the Radio Regulations (16,889 in 1971).
- 1,674 assignments notified under Article 9A (2,782 in 1971).
- 20,870 assignments notified under Article 10 (16,295 in 1971).

#### 4.2.3 *Interference cases and special assistance to administrations*

The Board formulated a number of suggestions on specific cases of use of frequencies, and made recommendations with a view to the clearance of harmful interference or to rendering special assistance as requested by administrations. This is an aspect of the Board's work to which administrations attach particular importance and which seems to be a field in which the Board's assistance is most valuable. In addition to these specific cases which the Board had to deal with, many times when one of the members of the Board had the opportunity of meeting representatives of administrations, he was able to shed useful light on the procedures for notifying frequency assignments, or on the choice of frequencies to be assigned which would ensure the most effective use of the radio frequency spectrum.

#### 4.2.4 *Broadcasting in the high frequency bands allocated exclusively to this service*

The Board continued to apply the procedure specified in Article 10 of the Radio Regulations for the bands allocated exclusively to the HF Broadcasting Service. In conformity with its terms of reference, it published the four seasonal schedules together with recommendations with a view to improving the utilization of the spectrum. Since the entry into force of this procedure, the number of frequency-hours included in the HF Broadcasting Schedules has grown from approximately 16,700 in November 1960 to approximately 21,000 in November 1972. Despite the increasing use of the frequency bands, the number of apparent incompatibilities remains limited owing in particular to preliminary coordination measures taken by some administrations.

#### 4.2.5 *Monitoring*

Four periodic Summaries of Monitoring Information, numbered 172 (for the period November 1971 to January 1972) to No. 175 (for the period July to October 1972) inclusive and totalling 2,075 pages were issued in 1972. 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 previous Summary (I.F.R.B. Circular-letters No. 241, dated 25 May 1970, and No. 248, dated 23 November 1970, refer).

#### 4.2.6 *Work involving use of the computer*

In 1972, I.F.R.B. utilization of the computer accounted for about 80.5% of the total time for applications (excluding the time used for programmes tests or related tasks, etc.) to carry out the following work:

- a) data processing for maintaining the Master Register;
- b) data processing for the preparation of service documents and other publications, and production of tabulations required for the publication of these documents by the offset process;
- c) technical calculations for the assessment of the probability of harmful interference in accordance with Articles 9 and 10 of the Radio Regulations;
- d) production, at the request of administrations or for the internal use of the Board, of up-to-date tabulations of frequency assignments recorded in the Master Register.

The Board was chiefly concerned with the problems of converting the existing programmes for the UNIVAC 1050 computer to the new SIEMENS 4004-135 machine and the relevant work was done by the end of 1972.

The conversion work and corresponding "parallel" tests were finished at the end of 1972, so that the old UNIVAC machine can be dispensed with from 1 January 1973 as far as the execution of the work is concerned.

#### 4.2.7 *Technical Standards and Rules of Procedure*

In 1972 the I.F.R.B. Technical Standards were not revised or amended since the C.C.I.R. has not made any changes in its Recommendations on which these technical standards are based.

The Board made a detailed analysis of the decisions of the World Administrative Radio Conference for Space Telecommunications, Geneva, 1971, and prepared the general rules to be followed in future in the progressive introduction in the I.F.R.B. Rules of Procedure of procedures for the different space and terrestrial services sharing the same frequency bands.

#### 4.2.8 *Implementation of the Decisions of the World Administrative Maritime Radio Conference, Geneva, 1967*

Although the Final Acts of the World Administrative Maritime Radio Conference, Geneva, 1967, came into force on 1 April 1969, the Conference had arranged for some of the provisions to be implemented gradually. To this end it adopted a time schedule, some stages of which extend up to 1983. The Board therefore continued its efforts to induce administrations to apply the Conference decisions as completely as possible and to this end it continued to draw the attention of administrations, at the appropriate time, to the action required to implement these decisions within the time limits laid down.

For example, in I.F.R.B. Circular-letter No. 281 dated 20 November 1972, the Board reminded administrations of the steps to be taken on 1 January 1973, in accordance with Resolution No. Mar 14, for the gradual reduction of the spacing between the VHF radiotelephone channels listed in Appendix 18 to the Regulations from 50 kHz to 25 kHz. It also drew the

attention of administrations once more to the fact that as from that date they should no longer authorize the installation of double sideband equipments in ship radiotelephone stations operating in the bands between 1 605 and 4 000 kHz.

#### 4.2.9 *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 (on 18 September 1969 for the frequency bands between 10 005 kHz and 17 970 kHz and on 17 September 1970 for the frequency bands between 2 850 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 in 1966 by the Aeronautical Conference. It should be noted in this connection that during 1972 administrations notified the cancellation of some 850 frequency assignments which they had ceased to use and have replaced by new assignments in accordance with the Plan in Appendix 27.

Generally speaking, the stages of implementation of the Allotment Plan for the Aeronautical Mobile (R) Service in the frequency bands allocated exclusively to this service between 2 850 kHz and 17 970 kHz proceeded satisfactorily and, thanks to the cooperation of administrations, the results may be regarded as a success for the Union. After continuing to send reminders to administrations, the Board noted at the end of 1972 that it has received, in accordance with the provisions of Resolution No. Aer 6, notices of the cancellation of approximately 95% of the assignments recorded in the Master Register for the bands concerned and of their replacement by new assignments in conformity with the Plan. Moreover, the Board is continuing its efforts to ensure that administrations which have not yet notified these cancellations take the necessary action urgently so that the Master Register may reflect as faithfully as possible the implementation of the Aeronautical Conference decisions and the actual use made of the frequencies provided in the Plan.

#### 4.2.10 *Implementation of the Decisions of the World Administrative Radio Conference for Space Telecommunications, Geneva, 1971*

The Board continued its study of the various decisions of the Conference with a view to a revision of the Rules of Procedure concerning the treatment and recording of frequency assignments to stations in the Space and Terrestrial Radiocommunication Services (see paragraph 5.2.7).

In its Circular-letter No. 270 of 30 March 1972, the Board gave an analytical summary of the decisions of the Conference.

The Board has prepared the following circular-letters, which will be issued as and when they are finalized:

- i) A circular-letter explaining Appendices 1A, 1B and the forms of notices in Appendix 1A.
- ii) A circular-letter explaining the procedures to be followed in case of notification, coordination and advance publication of frequency assignments to space stations belonging to geostationary satellite systems.
- iii) A circular-letter explaining the procedures to be followed in case of notification, coordination and advance publication of frequency assignments to space stations belonging to non-geostationary satellite systems.



- iv) A circular-letter explaining the procedures to be followed in case of notification, coordination and publication of frequency assignments to terrestrial radiocommunication stations sharing frequency bands with space services.

#### 4.2.11 *Handbook on Recommended Techniques for the Better Utilization and Reduction of Congestion of the High Frequency Radio Spectrum*

The Board finished assembling the contributions from administrations towards the preparation of the "Handbook on Recommended Techniques for the Better Utilization and Reduction of Congestion of the High Frequency Radio Spectrum", further to Recommendation No. 37 of the Panel of Experts. The Board has finished drafting the Handbook in the three working languages of the Union.

#### 4.2.12 *Seminar on Frequency Management and the Use of the Radio Frequency Spectrum*

Pursuant to Administrative Council Resolution No. 528, the I.F.R.B. organized at Union Headquarters in 1972 its sixth Seminar on Frequency Management and the Use of the Radio Frequency Spectrum. The Seminar was held from 2 to 13 October 1972 and simultaneous interpretation was provided in English, Spanish, French and Russian for 107 participants (19 of whom received fellowships from U.N.D.P.) from 57 countries throughout the world and one participant from the World Meteorological Organization. In addition to lectures given by the members of the Board and the staff of its Specialized Secretariat, lectures were given by ten experts who were delegated by administrations.

#### 4.2.13 *Visits and training of administration officials at the I.F.R.B.*

During 1972, a large number of representatives of various administrations visited the I.F.R.B. to study the procedures for the treatment of frequency assignment notices and to obtain advice on the assignment of frequencies suitable for their countries' radiocommunications. Such visits at the Union's Headquarters have been found to be one of the best ways of acquainting officials of administrations with frequency management procedures, the use of the radio spectrum and the work of the Board.

#### 4.2.14 *Technical cooperation*

In accordance with No. 155 of the Convention, important questions concerning I.T.U. technical cooperation are discussed in the Coordination Committee. The I.F.R.B. therefore participated in dealing with those of the questions which had been submitted by the Secretary-General to the Coordination Committee, including experts' reports.

#### 4.2.15 *Miscellaneous*

In accordance with the Convention and the Radio Regulations, members of the I.F.R.B. and staff members of its Specialized Secretariat attended conferences and meetings as representatives either of the I.T.U. or of the Board, in order to assist and collaborate in the treatment of questions concerning frequency utilization.

### 4.3 INTERNATIONAL RADIO CONSULTATIVE COMMITTEE (C.C.I.R.)

#### *Interim Study Group meetings*

During 1972, the activities of the C.C.I.R. were for the major part concerned with the interim meetings held by all Study Groups for which the C.C.I.R. is responsible (with the exception of Study Group 7), which took place in two groups, according to the following schedule:

#### *April*

|  |       |
|--|-------|
| Study Group 1 (Spectrum utilization and monitoring) . . . . .              | 5-21  |
| Study Group 8 (Mobile services) . . . . .                                  | 5-21  |
| CIV (Interim Study Group on Vocabulary) . . . . .                          | 5-11  |
| Study Group 3 (Fixed services and frequencies below about 30 MHz). . . . . | 10-21 |
| Study Group 5 (Propagation in non-ionized media) . . . . .                 | 5-18  |
| Study Group 6 (Ionospheric propagation) . . . . .                          | 5-18  |

#### *July*

|  |      |
|--|------|
| Study Group 4 (Fixed service using communication satellites) . . . . .   | 5-21 |
| Study Group 9 (Fixed service using radio-relay systems) . . . . .  | 5-21 |
| Study Group 10 (Broadcasting service (sound)) . . . . .  | 5-18 |
| Study Group 11 (Broadcasting service (television)) . . . . .   | 5-18 |
| CMTT (CCIR/CCITT Joint Study Group on Transmission of sound broadcasting and<br>television signals over long distances). . . . . | 5-18 |
| Study Group 2 (Space research and radioastronomy) . . . . .  | 5-14 |

A total of 321 participants were registered during the April meetings, representing 28 administrations, 26 recognized private operating agencies, 5 international organizations, 10 scientific or industrial organizations, 2 specialized agencies of the United Nations. Two other organs of the I.T.U. were also represented.

A total of 457 participants were registered during the July meetings, representing 34 administrations, 37 recognized private operating agencies, 6 international organizations, 21 scientific or industrial organizations, 1 specialized agency of the United Nations and 1 organ of the I.T.U.

Many of these participated in the work of more than one Study Group, as will be seen from the recapitulative table given below, which also includes, for purposes of comparison, data relative to the interim meeting of Study Group 7 (Standard frequencies and time signals), held in 1971 at the time of the S.J.M. and which has been mentioned in the Annual Report for that year.

The first part of 1972 was devoted to the preparation and despatch of the preparatory documentation, in particular, that of the meetings held in April. It should be noted that response to the request for timely submission of contributions was, in general, favourable, so that a large part of this documentation was already received in the last months of 1971, thus enabling the greater part to be despatched in good time to reach participants well before the opening of the respective meetings. The total number of pages and figures for all the interim meetings, considering one language only, reached nearly 4,450 pages.

With respect to the meetings proper, many new texts were drafted by the Study Groups while substantial modifications were also made to a considerable number of texts adopted by the XIIth Plenary Assembly. The volume of work represented may be appreciated from the fact

that the conclusions of the interim meetings contain a total of some 3,500 pages in one language.

The period following the interim meetings was fully occupied with the preparation of the Interim Booklets referred to above, and it proved possible to have the manuscripts completed for reproduction within the three months following the conclusion of the respective meetings. Notwithstanding certain material problems concerned with their reproduction, the last booklets were received in the early part of January 1973 and despatch was completed shortly thereafter. This positive result was due to the existence of the Editorial Section in the C.C.I.R., supported by staff detached from the Common Services of the General Secretariat of the I.T.U.

While the conclusions of the interim meetings are essentially proposals for revision in the light of new contributions at the final Study Group meetings scheduled to be held in 1974, a number of questions and study programmes were considered to be of immediate importance, so that they were circulated, at the request of several administrations, for approval by correspondence, in accordance with No. 190 of the Convention. These texts all received the required support and became official C.C.I.R. texts.

*Participation in C.C.I.R. Study Group meetings Geneva, 1971/1972*

| Study Group<br>Administration | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | CMTT | CIV | TOTAL |
|-------------------------------|---|---|---|---|---|---|---|---|---|----|----|------|-----|-------|
| Algeria                       | x | — | x | x | — | — | — | — | — | —  | x  | —    | —   | 4     |
| Fed. Rep. of Germany          | x | x | x | x | x | x | x | x | x | x  | x  | x    | x   | 13    |
| Argentina                     | x | x | x | x | x | x | x | x | x | x  | x  | x    | x   | 13    |
| Australia                     | x | x | x | x | x | x | x | x | x | x  | x  | x    | x   | 13    |
| Austria                       | — | — | — | x | — | — | — | — | — | —  | —  | —    | —   | 1     |
| Belgium                       | — | x | — | x | — | — | — | x | x | x  | x  | x    | —   | 7     |
| Brazil                        | x | x | x | x | x | x | — | x | x | x  | x  | x    | x   | 12    |
| Bulgaria                      | — | — | — | — | — | — | — | — | — | x  | x  | —    | —   | 2     |
| Cameroon                      | — | x | — | x | — | — | — | — | x | —  | —  | x    | —   | 4     |
| Canada                        | x | x | x | x | x | x | x | x | x | x  | x  | x    | x   | 13    |
| Cuba                          | x | x | x | x | x | x | — | x | x | x  | x  | x    | —   | 11    |
| Denmark                       | — | — | — | x | x | — | — | x | x | x  | x  | x    | —   | 7     |
| Spain                         | — | x | — | x | x | x | — | x | x | x  | x  | x    | x   | 10    |
| United States                 | x | x | x | x | x | x | x | x | x | x  | x  | x    | x   | 13    |
| Finland                       | x | x | x | x | x | x | x | x | x | x  | x  | x    | x   | 13    |
| France                        | x | x | x | x | x | x | x | x | x | x  | x  | x    | x   | 13    |
| Hungarian P.R.                | — | — | — | x | — | — | — | — | x | x  | x  | x    | —   | 5     |

| Study Group<br>Administration | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | CMTT | CIV | TOTAL |
|-------------------------------|----|----|----|----|----|----|----|----|----|----|----|------|-----|-------|
| India                         | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x    | x   | 13    |
| Ireland                       | x  | x  | x  | x  | —  | —  | —  | x  | x  | x  | x  | x    | —   | 9     |
| Italy                         | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x    | x   | 13    |
| Japan                         | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x    | x   | 13    |
| Mexico                        | —  | x  | —  | x  | —  | —  | —  | —  | x  | x  | x  | x    | —   | 6     |
| Norway                        | x  | —  | x  | x  | x  | x  | —  | x  | x  | x  | x  | x    | —   | 10    |
| Netherlands                   | x  | x  | x  | x  | x  | x  | —  | x  | x  | x  | x  | x    | x   | 12    |
| P.R. of Poland                | x  | x  | —  | x  | x  | x  | —  | x  | —  | x  | x  | x    | —   | 9     |
| Portugal                      | —  | —  | —  | —  | x  | x  | —  | —  | —  | x  | x  | —    | —   | 4     |
| Roumania                      | x  | x  | x  | x  | x  | x  | —  | x  | x  | x  | x  | x    | x   | 12    |
| United Kingdom                | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x    | x   | 13    |
| Sierra Leone                  | —  | —  | —  | x  | —  | —  | —  | —  | —  | x  | x  | x    | —   | 4     |
| Sweden                        | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x    | x   | 13    |
| Switzerland                   | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x    | x   | 13    |
| Czechoslovakia                | x  | x  | x  | x  | x  | x  | —  | x  | x  | x  | x  | x    | —   | 11    |
| U.S.S.R.                      | x  | —  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x    | —   | 11    |
| Yugoslavia                    | x  | —  | —  | x  | x  | x  | —  | —  | x  | x  | x  | x    | —   | 8     |
| Totals : 34                   | 24 | 24 | 22 | 32 | 25 | 24 | 14 | 25 | 28 | 31 | 32 | 30   | 16  |       |

| Study Group<br>Rec.<br>Private Oper. Ag. etc. | 1   | 2  | 3  | 4   | 5  | 6  | 7  | 8   | 9   | 10  | 11  | CMTT | CIV |
|---|-----|----|----|-----|----|----|----|-----|-----|-----|-----|------|-----|
| Recognized private operating agencies         | 16  | 3  | 7  | 28  | 14 | 10 | 2  | 16  | 20  | 20  | 25  | 26   | 1   |
| International organizations                   | 2   | 3  | 1  | 5   | 2  | 2  | 2  | 4   | 4   | 5   | 55  | 4    | —   |
| Specialized agencies of the United Nations    | —   | 1  | 1  | 1   | —  | —  | —  | 2   | —   | —   | —   | —    | —   |
| Scientific and industrial organizations       | 4   | 4  | 3  | 18  | 2  | 1  | —  | 9   | 13  | 6   | 7   | 12   | 2   |
| Other organs of the I.T.U.                    | 2   | 2  | 2  | 3   | 2  | 2  | —  | 2   | 3   | 2   | 2   | 3    | 2   |
| Registration                                  | 118 | 77 | 77 | 179 | 90 | 91 | 34 | 153 | 162 | 175 | 200 | 166  | 40  |
| Contributions                                 | 56  | 40 | 17 | 87  | 80 | 99 | 4  | 94  | 70  | 81  | 130 | 76   | 7   |

*Other editorial work*

In addition to preparing the interim booklets, the texts approved by correspondence were published as Addenda to the respective volumes of the XIIth Plenary Assembly (New Delhi, 1970).

A modified version of Report 440, which had been approved at the interim meeting of the CIV, on graphical symbols, was also the subject of a revised publication, bearing the number Report 440-1.

The Director would also mention that the Handbook on Monitoring Stations, published following a decision of the XIth Plenary Assembly (Oslo, 1966) has now been completed, with the exception of two chapters, which have not yet been received from the administrations which had undertaken to contribute them.

*Computer usage*

Thanks to the installation of the new computer at I.T.U. Headquarters, a large part of the work previously done outside would in future be accomplished by I.T.U. facilities. In particular, the regular monthly predictions of ionospheric indices and their analysis could be now prepared by using the I.T.U. computer. Nevertheless, due to the lower memory capacity and to the lack of some scientific routines on the UNIVAC computer still used in 1972, a part of the prediction work had this year still be done on outside equipment.

*Technical cooperation*

As in the past, close liaison with the Technical Cooperation Department was maintained, both in the selection of experts and the purchase of technical equipment for the ITU/UNDP projects. The C.C.I.R. Secretariat also collaborated with the T.C.D. in the preparation of a "Presentation of the International Telecommunication Union at the U.N. TECHNICAL PANEL on Satellite Instructional Television Systems", held in New Delhi in December 1972.

*Cooperation with the C.C.I.T.T.*

The Director and several members of the technical staff of the C.C.I.R. Secretariat attended the Vth Plenary Assembly of the C.C.I.T.T., held in Geneva in December 1972, as well as certain meetings of C.C.I.T.T. Study Groups preceding that Assembly, to take part in discussions on subjects of common interest to both C.C.I.s. In addition, members of the C.C.I.R. Secretariat were made available to the C.C.I.T.T. during the Plenary Assembly.

*Cooperation with other International Organizations*

The Director and/or members of the technical staff attended a number of meetings of international organizations, in keeping with the general desire to coordinate, to the extent possible, work of interest to the C.C.I.R. being carried out by such organizations.

Particular mention should be made of the General Assembly of the "Union Radio-Scientifique Internationale", held in Warsaw, which was attended by the Director and a Senior Counsellor. Cooperation with the U.R.S.I. is considered to be of special importance to the C.C.I.R., as that organization studies many scientific radio problems which, although in many cases outside the terms of reference of the C.C.I.R., are nevertheless fundamental to the solution of the C.C.I.R.'s more practically oriented questions.

#### 4.4 ACTIVITIES OF THE INTERNATIONAL TELEGRAPH AND TELEPHONE CONSULTATIVE COMMITTEE (C.C.I.T.T.)

##### 4.4.1 Interim meetings of Study Groups and Working Parties

During 1972 the Study Groups and Working Parties finalized their work on new or amended recommendations and drafted their new list of questions. The meetings, held for this purpose, are listed below.

##### *Meetings held in 1972*

| <i>Date</i>         | <i>Subject of the meeting</i>   | <i>Meeting place</i> |
|---------------------|---|----------------------|
| 17-28 January       | Study Group IV (Maintenance) . . . . .  | Geneva               |
| 2-4 February        | NRD 1 (Interworking of data networks) . . . . .   | Geneva               |
| 7-9 February        | NRD 2 (Interface between data terminal equipments and data networks)                    | Geneva               |
| 14-24 February      | Study Group XI (Telephone signalling and switching) . . . . .                           | Geneva               |
| 22 February-3 March | Study Group XIII (Automatic and semi-automatic telephone networks)                      | Geneva               |
| 6-7 March           | Coordination Group No. 1 . . . . .  | Geneva               |
| 6-8 March           | Visual telephone WP of Study Group XV. . . . .  | Geneva               |
| 6-10 March          | Coordination Committee for the Plan for Europe and the Mediterranean<br>Basin . . . . . | Geneva               |
| 6-10 March          | Joint Working Party NRD (New data network) . . . . .                                    | Geneva               |
| 9-10 March          | Coaxial pairs WP of Study Group XV . . . . .  | Geneva               |
| 13-17 March         | Study Group IX (Telegraph transmission quality) . . . . .                               | Geneva               |
| 20-24 March         | Study Group X (Telegraph switching) . . . . .   | Geneva               |
| 20-24 March         | Special Study Group C (Noise) . . . . .   | Geneva               |
| 24 April-1 May      | Study Group II (Telephone operation and tariffs) . . . . .                              | Geneva               |
| 2-5 May             | Study Group III (General tariff principles; lease of circuits). . . . .                 | Geneva               |
| 8-19 May            | FT 6 (Field trials in Signalling System No. 6) . . . . .                                | Geneva               |
| 8-19 May            | Drafting group for Volume IV. . . . .   | Geneva               |
| 15-19 May           | Special Study Group A (Data transmission) . . . . .                                     | Geneva               |
| 23-26 May           | Programme transmission WP of Study Group XV . . . . .                                   | Geneva               |
| 26-29 June          | Joint Working Party LTG (Use of lines for purposes other than telephony)                | Geneva               |
| 1-4 July            | Working Party II/5 (Human factor in telephony) . . . . .                                | Stockholm            |
| 10-19 July          | <i>Ad hoc</i> Working Party of the World Plan Committee . . . . .                       | Geneva               |
| 24-28 July          | Working Party for the Laboratory . . . . .  | Geneva               |
| 11-15 September     | Working Party of Study Group IV (to study Questions 10/IV and 18/IV)                    | London               |
| 11-22 September     | FT 6 (Field trials of Signalling System No. 6) . . . . .                                | Geneva               |

##### *Pre-plenary meetings*

| <i>Date</i>    | <i>Subject of the meeting</i>  | <i>Meeting place</i> |
|----------------|--|----------------------|
| 13-15 November | Study Group I — Telegraph operation and tariffs (including telex) . . .  | Geneva               |
| 13-15 November | Study Group II — Telephone operation and tariffs . . . . .   | Geneva               |
| 16-17 November | Study Group III — General tariff principles; lease of telecommunication<br>circuits . . . . .                  | Geneva               |
| 13-17 November | Study Group IV — Transmission maintenance of international lines,<br>circuits and chains of circuits . . . . . | Geneva               |
| 20-21 November | Study Group V — Protection against dangers and disturbances of electro-<br>magnetic origin . . . . .           | Geneva               |

| <i>Date</i>            | <i>Subject of the meeting</i>   | <i>Meeting place</i> |
|------------------------|---|----------------------|
| 23-24 November         | Study Group VI — Protection and specifications of cable sheaths and posts . . . . .   | Geneva               |
| 21-22 November         | Study Group VIII — Telegraph equipment and local connecting lines   | Geneva               |
| 16-20 November         | Study Group IX — Telegraph transmission quality; specification of equipment and rules for the maintenance of telegraph channels | Geneva               |
| 28-29 November         | Study Group X — Telegraph switching . . . . .   | Geneva               |
| 27 November-1 December | Study Group XI — Telephone switching and signalling . . . . .   | Geneva               |
| 13-15 November         | Study Group XII — Telephone transmission performance and local telephone networks . . . . .                                     | Geneva               |
| 22-24 November         | Study Group XIII — Automatic and semi-automatic telephone networks  | Geneva               |
| 30 November-1 December | Study Group XIV — Facsimile telegraph transmission and equipment. .   | Geneva               |
| 20-24 November         | Study Group XV — Transmission systems . . . . .   | Geneva               |
| 16-17 November         | Study Group XVI — Telephone circuits . . . . .  | Geneva               |
| 23-27 November         | Sp. A — Data Transmission . . . . .   | Geneva               |
| 27 November-1 December | Sp. D — Pulse code modulation . . . . .   | Geneva               |
| 29 November-1 December | TAF — Tariffs (Africa) . . . . .  | Geneva               |
| 20-21 November         | GAS/5 — Economic conditions and telecommunication development. . .  | Geneva               |
| 27-28 November         | Coordination Africa — Coordination Committee, Africa Plan. . . . .  | Geneva               |
| 29-30 November         | Coordination Asia — Coordination Committee, Asia and Oceania Plan. .  | Geneva               |

Participation in C.C.I.T.T. Study Group meetings and the Vth Plenary Assembly is shown in the following table.

**Participation**  
**in C.C.I.T.T. Study Group meetings and the V<sup>th</sup> Plenary Assembly**  
**(1972)**



Participation in C.C.I.T.T. Study Group meetings and in the Vth Plenary Assembly (1972)  
(excluding meetings held prior to the Plenary Assembly)

| Countries (Administrations<br>and Private Recognized<br>Operating Agencies) | STUDY GROUPS AND THEIR WORKING GROUPS |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     | V A.P. | Total |
|---|---------------------------------------|-----|----|----|---|----|-----|------|----|-----|-------|-------|-------|-----|------|-----|-----|--------|-------|
|   | II                                    | III | IV | IX | X | XI | XII | XIII | XV | XVI | SP. A | SP. C | SP. D | TAF | FT 6 | NRD | LTG |        |       |
| Afghanistan   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Albania   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     | x      | 1     |
| Algeria   |                                       |     |    |    |   |    |     |      |    |     |       |       |       | x   |      |     |     | x      | 2     |
| Germany (F. R. of)  | x                                     | x   | x  | x  | x | x  | x   | x    | x  | x   | x     | x     | x     | x   | x    | x   | x   | x      | 18    |
| Saudi Arabia  |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     | x      | 1     |
| Argentina   | x                                     | x   | x  |    | x | x  |     | x    |    |     | x     | x     |       |     |      |     |     | x      | 9     |
| Australia   | x                                     | x   | x  | x  | x | x  | x   | x    | x  |     | x     | x     | x     |     | x    | x   |     | x      | 15    |
| Austria   | x                                     | x   | x  | x  |   | x  | x   | x    | x  | x   | x     | x     | x     |     |      |     | x   | x      | 14    |
| Barbados  |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Belgium   | x                                     | x   | x  | x  | x | x  | x   | x    | x  | x   | x     | x     | x     |     | x    | x   | x   | x      | 17    |
| Bielorussia   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     | x      | 1     |
| Burma   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Bolivia   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Botswana  |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Brazil  | x                                     | x   |    | x  | x | x  |     | x    |    |     |       |       |       |     |      | x   |     | x      | 8     |
| Bulgaria  |                                       |     |    |    |   |    |     |      |    |     | x     |       |       |     |      |     |     | x      | 2     |
| Burundi   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Cameroon  |                                       |     |    |    |   | x  |     | x    |    |     |       |       |       | x   |      |     |     | x      | 4     |
| Canada  | x                                     | x   | x  | x  | x | x  | x   | x    | x  |     | x     | x     | x     |     |      | x   |     | x      | 14    |
| Central African Rep.  |                                       |     |    |    |   |    |     |      |    |     |       |       |       | x   |      |     |     | x      | 2     |
| Chile   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| China   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     | x      | 1     |
| Cyprus  |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Vatican   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Colombia  |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Congo (Brazzaville)   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     | x      | 1     |
| Korea   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     | x      | 1     |
| Costa Rica  |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Ivory Coast   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     | x      | 1     |
| Cuba  |                                       |     |    |    |   | x  |     | x    |    |     | x     |       |       |     |      | x   | x   | x      | 6     |
| Dahomey   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     | x      | 1     |
| Denmark   | x                                     | x   | x  | x  | x | x  | x   | x    | x  | x   | x     |       | x     |     | x    | x   | x   | x      | 16    |
| Dominican Republic  |                                       |     |    |    |   |    |     |      |    |     | x     |       |       |     |      | x   |     | x      | 3     |
| Egypt   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     | x      | 1     |
| El Salvador   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| United Arab Emirates  |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| French Overseas Territories   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     | x      | 1     |
| Ecuador   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Spain   | x                                     | x   | x  |    |   | x  | x   | x    | x  |     | x     |       | x     |     |      | x   |     | x      | 11    |
| United States   | x                                     | x   | x  |    | x | x  | x   | x    | x  | x   | x     | x     | x     | x   | x    | x   | x   | x      | 17    |
| Ethiopia  |                                       |     |    |    |   |    |     |      |    |     |       |       |       | x   |      |     |     | x      | 2     |
| Fiji  |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Finland   |                                       |     |    |    |   | x  | x   |      |    |     | x     |       | x     |     |      | x   | x   | x      | 7     |
| France  | x                                     | x   | x  | x  | x | x  | x   | x    | x  | x   | x     | x     | x     | x   | x    | x   | x   | x      | 18    |
| Gabon   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     | x      | 1     |
| Ghana   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     | x      | 1     |
| Greece  | x                                     | x   |    |    |   |    |     |      |    |     | x     |       |       |     |      |     |     | x      | 4     |
| Guatemala   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     | x      | 1     |
| Guinea  |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Equatorial Guinea   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Guyana  |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Haiti   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Upper Volta   |                                       |     |    |    |   |    |     |      |    |     |       |       |       | x   |      |     |     | x      | 2     |
| Honduras  |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Hungarian People's Rep.   | x                                     | x   | x  | x  |   | x  |     | x    |    |     | x     | x     |       |     | x    | x   |     | x      | 11    |
| India   | x                                     | x   |    | x  |   | x  | x   |      |    |     |       |       |       |     |      |     |     | x      | 6     |
| Indonesia   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     | x      | 1     |
| Iran  |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     | x      | 1     |
| Iraq  |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |

Participation in C.C.I.T.T. Study Group meetings and in the Vth Plenary Assembly (1972) (continued)  
(excluding meetings held prior to the Plenary Assembly)

| Countries (Administrations<br>and Private Recognized<br>Operating Agencies) | STUDY GROUPS AND THEIR WORKING GROUPS |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     | V A.P. | Total |
|---|---------------------------------------|-----|----|----|---|----|-----|------|----|-----|-------|-------|-------|-----|------|-----|-----|--------|-------|
|   | II                                    | III | IV | IX | X | XI | XII | XIII | XV | XVI | SP. A | SP. C | SP. D | TAF | FT 6 | NRD | LTG |        |       |
| Ireland   |                                       |     |    |    | x |    |     |      |    |     |       |       |       |     |      |     |     | x      | 2     |
| Iceland   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     | x      | 1     |
| Israel  |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     | x      | 1     |
| Italy   | x                                     | x   | x  | x  | x | x  | x   | x    | x  | x   | x     | x     | x     | x   | x    | x   | x   | x      | 18    |
| Jamaica   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Japan   | x                                     | x   | x  | x  | x | x  | x   | x    | x  | x   | x     | x     | x     |     | x    | x   | x   | x      | 17    |
| Jordan  |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Kenya   |                                       |     |    |    |   |    |     |      |    |     |       |       |       | x   |      |     |     | x      | 2     |
| Khmer Republic  |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     | x      | 1     |
| Kuwait  |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     | x      | 1     |
| Laos  |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Lesotho   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Lebanon   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     | x      | 1     |
| Liberia   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Libya   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Liechtenstein   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Luxembourg  |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     | x      | 1     |
| Malaysia  |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     | x      | 1     |
| Malawi  |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Maldives  |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Madagascar  |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     | x      | 1     |
| Mali  |                                       |     |    |    |   |    |     |      |    |     |       |       |       | x   |      |     |     | x      | 2     |
| Malta   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Morocco   |                                       |     |    |    |   |    |     |      |    |     |       |       |       | x   |      |     |     | x      | 2     |
| Mauritius   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Mauritania  |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Mexico  |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     | x      | 1     |
| Monaco  |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     | x      | 1     |
| Mongolia  |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     | x      | 1     |
| Nauru   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Nepal   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Nicaragua   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Niger   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Nigeria   |                                       |     |    |    |   | x  |     | x    |    |     |       |       |       | x   |      |     |     | x      | 4     |
| Norway  | x                                     | x   | x  | x  | x | x  | x   | x    | x  | x   | x     | x     | x     |     |      | x   | x   | x      | 16    |
| New Zealand   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     | x      | 1     |
| Oman  |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Uganda  |                                       |     |    |    |   |    |     |      |    |     |       |       |       | x   |      |     |     | x      | 2     |
| Pakistan  |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     | x      | 1     |
| Panama  |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Paraguay  |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     | x      | 1     |
| Netherlands   | x                                     | x   | x  | x  | x | x  | x   | x    | x  | x   | x     | x     | x     |     | x    | x   | x   | x      | 17    |
| Peru  |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     | x      | 1     |
| Philippines   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Poland (People's Republic of)   | x                                     | x   | x  | x  |   |    | x   | x    |    |     | x     | x     |       |     | x    |     |     | x      | 10    |
| Portugal  | x                                     | x   | x  | x  | x |    |     | x    | x  |     |       |       | x     |     |      |     | x   | x      | 10    |
| Spanish Province in Africa  |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Portuguese Oversea Provinces  |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Syria   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     | x      | 1     |
| Ukraine   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     | x      | 1     |
| Rhodesia  |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Roumania  | x                                     | x   |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     | x      | 3     |
| United Kingdom  | x                                     | x   | x  | x  | x | x  | x   | x    | x  | x   | x     | x     | x     |     | x    | x   | x   | x      | 17    |
| Rwanda  |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Senegal   |                                       |     |    |    |   |    |     |      |    |     |       |       |       | x   |      |     |     | x      | 2     |
| Sierra Leone  |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Singapore   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Somalia   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |
| Sudan   |                                       |     |    |    |   |    |     |      |    |     |       |       |       |     |      |     |     |        |       |

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*Participation in C.C.I.T.T. Study Group meetings and in the Vth Plenary Assembly (1972) (continued)*  
(excluding meetings held prior to the Plenary Assembly)

| Countries (Administrations<br>and Private Recognized<br>Operating Agencies) | STUDY GROUPS AND THEIR WORKING GROUPS |     |    |    |    |     |     |      |     |     |       |       |       |     |                       |     |     | V A.P. | Total |
|---|---------------------------------------|-----|----|----|----|-----|-----|------|-----|-----|-------|-------|-------|-----|-----------------------|-----|-----|--------|-------|
|   | II                                    | III | IV | IX | X  | XI  | XII | XIII | XV  | XVI | sp. A | sp. C | sp. D | TAF | JOINT PARTIES<br>FT 6 | NRD | LTG |        |       |
| Sri Lanka (Ceylon)  |                                       |     |    |    |    |     |     |      |     |     |       |       |       |     |                       |     |     |        |       |
| South Africa  | x                                     | x   |    |    |    |     |     |      |     |     |       |       |       |     |                       |     |     | x      | 3     |
| Sweden  | x                                     | x   | x  | x  | x  | x   | x   | x    | x   | x   | x     | x     | x     |     | x                     | x   |     | x      | 16    |
| Switzerland   | x                                     | x   | x  | x  | x  | x   | x   | x    | x   | x   | x     | x     | x     |     | x                     | x   | x   | x      | 17    |
| Swaziland   |                                       |     |    |    |    |     |     |      |     |     |       |       |       |     |                       |     |     |        |       |
| Tanzania  |                                       |     |    |    |    |     |     |      |     |     |       |       |       | x   |                       |     |     | x      | 2     |
| Chad  |                                       |     |    |    |    |     |     |      |     |     |       |       |       |     |                       |     |     | x      | 1     |
| Czechoslovakia  | x                                     | x   |    |    |    | x   | x   | x    | x   |     | x     | x     | x     |     |                       |     |     | x      | 10    |
| United States Territories   |                                       |     |    |    |    |     |     |      |     |     |       |       |       |     |                       |     |     | x      | 1     |
| Overseas Territories (U. K.)  |                                       |     |    |    |    |     |     |      |     |     |       |       |       |     |                       |     |     | x      | 1     |
| Thailand  |                                       |     |    |    |    |     |     |      |     |     |       |       |       |     |                       |     |     | x      | 1     |
| Togo  |                                       |     |    |    |    |     |     |      |     |     |       |       |       |     |                       |     |     | x      | 1     |
| Tonga   |                                       |     |    |    |    |     |     |      |     |     |       |       |       |     |                       |     |     |        |       |
| Trinidad and Tobago   |                                       |     |    |    |    |     |     |      |     |     |       |       |       |     |                       |     |     |        |       |
| Tunisia   |                                       |     |    |    |    |     |     |      |     |     |       |       |       | x   |                       |     |     | x      | 2     |
| Turkey  |                                       |     |    |    |    |     |     |      |     |     |       |       |       |     |                       |     |     | x      | 1     |
| U.S.S.R.  | x                                     | x   |    |    |    |     | x   |      | x   |     | x     | x     | x     |     |                       | x   |     | x      | 9     |
| Uruguay   |                                       |     |    |    |    |     |     |      |     |     |       |       |       |     |                       |     |     |        |       |
| Venezuela   |                                       |     |    |    |    |     |     |      |     |     |       |       |       |     |                       |     |     |        |       |
| Viet-Nam  |                                       |     |    |    |    |     |     |      |     |     |       |       |       |     |                       |     |     | x      | 1     |
| Yemen (A. R.)   |                                       |     |    |    |    |     |     |      |     |     |       |       |       |     |                       |     |     |        |       |
| Yemen (Aden)  |                                       |     |    |    |    |     |     |      |     |     |       |       |       |     |                       |     |     |        |       |
| Yugoslavia  | x                                     | x   |    |    |    |     | x   |      | x   |     | x     |       | x     |     |                       |     |     | x      | 7     |
| Zaire   | x                                     | x   |    |    |    |     |     |      |     |     |       |       |       | x   |                       |     |     | x      | 4     |
| Zambia  |                                       |     |    |    |    |     |     |      |     |     |       |       |       |     |                       |     |     |        |       |
| <i>Total of countries</i>   | 29                                    | 29  | 20 | 19 | 19 | 25  | 22  | 25   | 20  | 13  | 27    | 19    | 21    | 18  | 14                    | 21  | 15  | 86     |       |
| Number of participants  | 80                                    | 77  | 64 | 33 | 41 | 108 | 57  | 108  | 180 | 45  | 88    | 58    | 210   | 23  | 97                    | 145 | 43  | 355    |       |

#### 4.4.2 Vth Plenary Assembly

##### 4.4.2.1 Organization and proceedings

The Plenary Assembly met from 4 to 15 December 1972 in Geneva, with the participation of 86 administrations, 26 recognized private operating agencies and 18 international organizations, making a total of 358 delegates or observers.

The Plenary Assembly was presided over by Mr. H. Baczko (People's Republic of Poland), who was assisted by the following five Vice-Chairmen:

Messrs. R. T. Black (U.S.A.)  
 J. J. Hernandez-G (Mexico)  
 Y. Makino (Japan)  
 M. A. Sow (Mali)  
 Y. Savitski (U.S.S.R.)

For the C.C.I.T.T. Secretariat Mr. Hummel, Senior Counsellor, had taken over the responsibilities of Acting Director.

At the inaugural meeting, the Assembly stood a minute in silence in memory of the late Director, Mr. J. Rouvière.

The Assembly set up four Committees charged with major administrative decisions to be taken by the Plenary Assembly:

##### *Committee A : Working methods and resources*

*Chairman :* Mr. D. van den Berg (Netherlands)  
*Vice-Chairman :* Mr. J. R. Marchand (Canada)

##### *Committee B : Programme of work of Study Groups*

*Chairman :* Mr. L. Burtz (France)  
*Vice-Chairman :* Mr. M. B. Williams (United Kingdom)

##### *Committee C : Plenary Assembly Budget*

*Chairman :* Mr. M. Ghazal (Lebanon)  
*Vice-Chairman :* Mr. N'D. Cisse (Senegal)

##### *Committee D : Technical Assistance*

*Chairman :* Mr. A. S. Irrera (Argentina)  
*Vice-Chairman :* Mr. A. Gravell (Australia)

The following review of the results of the Vth Plenary Assembly groups into two principal categories:

- Examination and approval of the final reports of Study Groups
- Examination and approval of proposals or reports originating from Member countries or Plenary Assembly Committees.

#### 4.4.2.2 *Results of the work of Study Groups*

##### 4.4.2.2.1 *General*

The study period 1968-1972 can be considered in general as a very successful one, both from the point of view of the results achieved and from the efforts of the Secretariat to keep the running cost as small as possible. There is reason to doubt it will be possible to deal with a further increase in the volume of work if special measures are not taken. Proposals in this connection were submitted by the Secretariat of the C.C.I.T.T. to its Vth Plenary Assembly which thoroughly studied the problem. The decisions and recommendations of the Plenary Assembly on this subject are to be found under section "Organization, methods of work and resources".

In most cases, the elaboration of recommendations, often in form of compromise solutions, did not give rise to special difficulties; however, in certain domains some countries seemed already to be committed. This is due to the fact that it frequently happens in these days, that similar developments are taking place at about the same time in various countries. Many of these developments may be of such nature that no question of an international recommendation concerning them will ever arise. Where such a possibility exists, however, it is desirable in the interests of world wide compatibility of equipment, that the C.C.I.T.T. should be informed before any country becomes committed to particular principles of techniques in connection with a given development.

##### 4.4.2.2.2 *Short outline of the results achieved by the various Study Groups and Working Parties*

###### *Telegraph operation and tariffs*

In accordance with the terms of Resolution No. 36 of the Plenipotentiary Conference of the I.T.U. (Montreux, 1965) Study Group I has completed the drafting of a simplified set of International Telegraph Regulations and C.C.I.T.T. Recommendations which will supplement them. In the presentation of these proposals, the new Regulations have been arranged editorially on lines similar to the proposed Telephone Regulations.

The draft Telegraph Regulations, after having been approved by the Vth Plenary Assembly, will be submitted to the World Administrative Telephone and Telegraph Conference in the spring of 1973.

###### *Telegraph technique*

Study Group VIII continued its work on the standardization of apparatus with International Telegraph Alphabet No. 5 and set up a number of new recommendations laying down the essential characteristics of such printers together with international test texts.

Study Group IX, based on the imminent requirements for medium speed telegraph channels, drafted a recommendation on the frequency division of a primary group to derive 2400 and 9660 baud channels. These channels might be used in switched data networks or as point-to-point circuits. Good progress has also been achieved in the field of time division multiplex systems for analogous channels and for p.c.m. systems, a field which is very promising for the future.

One of the most important tasks of Study Group X, during this study period, was the study of a new telex signalling system, specifically designed for computer-controlled exchanges and with the possibility of handling telex and data traffic with the same system. The new system, approved by the Vth Plenary Assembly, is very much in line with that of a signalling system for data transmission above 50 bauds over anisochronous channels so that administrations will be able if so desired, to merge both systems into one which results in a single network for telex and data.

In the more classical field of use of ARQ-circuits for fully automatic service, the Plenary Assembly decided to drop the further study of charging on the basis of efficient time and to recommend as the only method, charging on the basis of elapsed time with the efficiency factor as a control for forced release or busyding.

### *Data transmission*

One of the most important tasks was the study of modems for increased modulation rates on switched and leased telephone circuits for which there is a significant demand. Since for transmission at 2400 bit/s over leased circuits, there have already been standardized new methods at Mar del Plata (the techniques of which have been taken as a basis for study of 2400 bit/s modems over the switched network), and since a large quantity of modems of each modulation method is already in existence, Study Group Sp. A was not able to standardize on one single method for the switched network application. Therefore, the Plenary Assembly decided that, for an interim period, both methods may be employed and that, in the meantime, study on an improved modulation method should be pursued.

Further recommendations were elaborated on the following subjects: a modem for 4800 bit/s over leased circuits; a list of standardized data signalling rates for synchronous data transmission; an exhaustive list of interchange circuits with their definitions and electrical characteristics; use of acoustic coupling for data transmission and a general method for comparison tests of modems.

In the field of dedicated data networks, recommendations on the following subjects were drafted: user classes and data signalling rates; recommended user facilities; control signalling system between anisochronous data networks; parameters of multiplexing scheme for the interface between synchronous networks and finally on the customer interfaces. Taking account of the considerable study programme in this field and the fact that the studies are dealing with an entirely new international service, besides the existing telephone and telegraph services, the Plenary Assembly decided to give the Joint Working Party NRD the status of a Study Group.

### *Telephone transmission*

Study Group XII made progress with its study of methods of objective measurement of transmission quality, taking into account the results of subjective tests and objective measurements carried out in the C.C.I.T.T. Laboratory and the work done in several countries. It retained the limits at present recommended for propagation time in a telephone call, but was greatly interested in the use of new ways of com-

bating echos. Study Group XVI was associated with some of the work of Study Group XII; in addition, it finished the transmission plan for the switched telephone network and found it necessary to study the characteristics of leased circuits.

Study Group XV studied a large number of questions relating to cables and analogue transmission systems, especially carrier systems with frequency-division multiplex. Although there is as yet no international visual telephone service (telephone calls accompanied by picture transmission) studies are in progress for the standardization, on a world-wide scale if possible, of the basic parameters to be used for the interconnection of national systems.

Special Study Group D studied pulse code modulation systems. Two types of primary order multiplex and two types of secondary multiplex were standardized. A study was made of the interconnection between these different multiplexes and the possibilities of intercontinental transmission via satellite. A study was also made of encoding signals other than speech signals (sound broadcasting, visual telephone, television).

Special Study Group C (Joint C.C.I.T.T./C.C.I.R.) pursued its work on circuit noise and permissible signal power. It undertook a general study of reliability problems, in connection with which Study Group XV began to collect data on the real service reliability of cable transmission systems.

GAS/3 prepared the Handbook entitled "Economic and Technical Aspects of the Choice of Transmission Systems" (1969), to which was added the Appendix on "Propagation" (1971) and the "New Texts" (1972).

### *Telephone operation and tariffs*

Study Group II completed the following work:

1. It defined the scope of the Recommendation on international telephone accounting between Administrations or recognized private operating agencies. This Recommendation (E.250), which was adopted by the IVth Plenary Assembly, completely changes the traditional rules (contained in particular in the Telephone Regulations).
2. It revised the Instructions for the International Telephone Service.
3. It introduced a number of amendments and additions to C.C.I.T.T. Recommendations so that these would elaborate on the general principles, which were the only provisions retained in the draft Telephone Regulations examined by the IVth Plenary Assembly in pursuance of Montreux Resolution No. 36.
4. It prepared Recommendations on a number of subjects, such as:
  - operational procedures and charging rules for:
    - i) international sound programme and television circuits;
    - ii) international conference calls;
  - the charging of reduced rates for international traffic during light traffic period.

### *General tariff principles*

Study Group III concentrated mainly on tariff questions and the conditions governing the use of leased continental and intercontinental circuits.

Four regional tariff groups (Africa, Latin America, Asia, Europe and the Mediterranean Basin) were set up under the auspices of Study Group III by the IVth Plenary Assembly and satisfactory progress was achieved by the TEUREM and TAF groups in the 1969-1972 period.

*Economic studies relating to common carriers in telecommunications*

In October 1972 GAS/5 published a new handbook entitled "Economic Studies—1972" consisting of 8 revised chapters and 11 new chapters dealing in particular with charging procedures in national traffic. It worked on the publication of a telecommunications statistical yearbook which was requested by the IVth Plenary Assembly and it assembled valuable information to define the scope of the yearbook.

*Switching*

Study Group XI followed the progress of the field trials of Signalling System No. 6 which were successfully conducted by Working Party FT 6, a joint working party of Study Groups XI and XIII.

The trials of System No. 6 are undoubtedly one of the major research and development projects recently carried out in telecommunication at international level, whether from the point of view of the outlay on equipment (including circuits), of the mass of data collected or of the amount of work put into it.

Study Group XI was involved in the standardization of System No. 6 and defined policy to be followed with regard to certain basic aspects of the problem.

The use of System No. 6 or of systems derived from it for national networks is already being considered by countries whose networks are technically among the most highly developed. Use of the system was considered in Study Group XI in connection with one of the questions assigned to it.

Study Group XI:

- i) devoted a great deal of time to the specifications of other standardized signalling systems and to the conditions governing their interworking;
- ii) defined the characteristics of a signalling system for demand assignment satellite circuits;
- iii) defined the noise provisions to be observed by circuits traversing an international switching centre;
- iv) undertook studies for the standardization of a high-level programming language for stored programme controlled telephone exchanges.

*Telephone service quality and maintenance of switching equipment*

In addition to being jointly responsible with Study Group XI for the supervision of the tests of System No. 6, Study Group XIII dealt with many subjects. Apart from the problems connected with the operation of demand assignment



satellite telephone circuits and the World Routing Plan, the work of Study Group XIII centred on two groups of subjects:

- - those relating to the *quality of the international telephone service*, including overall grade of service;
- those relating to the organization of switching equipment *maintenance*.

A series of recommendations by way of conclusions to the studies carried out on both groups of subjects was submitted to the Plenary Assembly.

#### *Maintenance*

Study Group IV continued its work on two permanent questions (Q.1/IV and 2/IV) intended to enable a check to be kept on the transmission characteristics of lines, circuits and chains of circuits in the world network. The conclusions were that while the transmission quality was being, in general, maintained, any accurate assessment of reliability expressed in terms of interruptions would not be practicable until new interruption recorders were available. These are now being studied as a matter of urgency by the Study Group (Q.10/IV). Measurement apparatus for maintenance for which specifications have now been drawn up by the Study Group include automatic transmission measuring equipment for telephone-type and for sound-programme circuits and apparatus for the measurement of group-delay distortion.

A limitation in the number of meetings of working parties resulted in an attempt to recover lost ground at a meeting held outside the auspices of the Secretariat, which, while achieving a measure of success, still left a number of studies incomplete. These therefore remain to be finished in the new study period, together with studies of the questions allocated for the period 1973-1976.

#### *Protection*

The Study Groups concerned (Study Groups V and VI) completed a certain number of texts for publication, notably in Volume IX (K and L series Recommendations), the "Directives" for the Protection of Telecommunication Lines against harmful effects from electricity lines (new chapter on "Boost transformers" and "Guide lines for the use of the 'Directives'"), chapters of a handbook on lightning protection, a draft of a handbook on "Earthing", new texts for the "Recommendations for the protection of telecommunication cables against corrosion" and revision of a handbook on the preservation of wooden poles. The work carried out is probably of great interest to countries in the process of developing and extending their line-telecommunication network.

#### *Means of expression*

The Study Group in the C.C.I.T.T. formerly responsible for means of expression (Study Group VII) has now been suppressed and the number of the Study Group has been re-allocated. The work formerly carried out in Study Group VII will now

be done in a joint study group under control of the C.C.I.R. The C.C.I.T.T. Secretariat remains responsible for the classification of certain specialist vocabulary work carried out by individual C.C.I.T.T. Study Groups.

#### 4.4.2.3 *Results of the work of the Plenary Assembly Committees and other decisions*

##### 4.4.2.3.1 *Organization, resources and methods of work*

The Plenary Assembly made a very thorough study of the present work-load, working methods and resources of the C.C.I.T.T. Secretariat on the basis of the report of the team of experts (set by the IVth Plenary Assembly in Resolution No. 7) and the report of Committee A. It was recognized that the C.C.I.T.T. Secretariat can discharge its rapidly growing duties in future only if either the number of engineers is substantially increased or its working methods are changed and drafting groups established at each meeting to assist the Secretariat. The Plenary Assembly, therefore, decided to amend the working methods of the C.C.I.T.T., as laid down in Resolution No. 1, by adopting, inter alia, the following principles:

- final meetings of study groups shall precede the Plenary Assembly by at least 3 months;
- study groups shall set up drafting groups to sum up the results of the meeting;
- questions which have not elicited any contribution shall not be dealt with at a meeting;
- study of questions by correspondence should be encouraged;
- meetings of study groups with common interests should be grouped.

In addition, the Plenary Assembly recommended that a group of technical editors in the C.C.I.T.T. Secretariat be appointed to ensure the use of correct and uniform terminology in the three working languages in the documentation for meetings and the C.C.I.T.T. books. The Plenary Assembly accordingly requested the Administrative Council to approve the appointment of four permanent posts for technical revisers in the C.C.I.T.T.

As for its financial resources, an analysis of the financial needs of the C.C.I.T.T. for the period 1973-1976 was made which took into account the number of questions to be studied and the expected increase in documentation.

The Plenary Assembly attached great importance to the smooth and efficient functioning of the C.C.I.T.T., considering the “development, often described as explosive, of public telecommunications... and the large economic interest of the C.C.I.T.T. Recommendations, through the standardization they provide for the telecommunication undertakings of the Members of the I.T.U.”. An Opinion for submission to the Plenipotentiary Conference was unanimously adopted which expresses the wish “that the Plenipotentiary Conference, Torremolinos, 1973, take into due consideration

- the essential role to be played by the C.C.I.T.T. in the establishment at international level of standards for telecommunication networks, which now can be developed harmoniously only within the framework of a universal world-wide plan.”

#### 4.4.2.3.2 *Programme of work of the study groups*

The Plenary Assembly, basing itself on the report of Committee B, assigned the Questions to the various study groups, noted Questions which are of interest to several study groups and earmarked those which are urgent and should be fully studied and concluded during the study period 1973-1976. Several joint working parties which had finished their work were able to be disbanded, whereas certain rapidly growing activities made it necessary to create new joint working parties. One joint working party which had grown to the size of one of the biggest study groups was transformed into a study group. The Plenary Assembly did not establish a programme of meetings for the period 1973-1976 as it was decided to convene meetings only if contributions to the study programme of the relevant study group have been submitted and because it is extremely different to make any forecast of the activities of the members of a study group. Consequently, it was left to the chairmen to establish their programmes in agreement with the Director and within the limit of the credits authorized by the Administrative Council.

#### 4.4.2.3.3 *Budget control*

In accordance with its terms of reference, Committee C examined the organization of the Plenary Assembly, the facilities made available to the participants and the total expenditure of the Assembly. The observations of Committee C, approved by the Plenary Assembly, can be summarized as follows:

In examining the total expenditure of the Assembly it was noted that every effort had been made to observe the Administrative Council's instructions to exercise strict economy. In spite of this effort, it had not been possible to remain within the budget limits fixed owing to an unforeseeable increase in the output of documentation which was a reflection of the particularly intense activity of the study groups during the last year of the study period. The excess expenditure amounting to 308,000 Swiss francs is attributable mainly to document production placed with offset printers in Geneva, mailing costs and temporary staff during the Plenary Assembly for document production and distribution. In that connection it was stressed that the credits needed for document production depend upon whether the texts can be typed and reproduced by the permanent staff of the I.T.U. or whether this work has to be carried out by staff recruited outside the Union or by printers.

It was also established that it is very difficult to separate the expenditures on the Vth Plenary Assembly itself from that on the final study group meeting.

#### 4.4.2.3.4 *Technical Assistance*

Committee D undertook a careful examination of C.C.I.T.T. activities in connection with Technical Assistance, namely those mentioned in Nos. 188 and 189 of the 1965 Convention and those covered by Administrative Council Resolution No. 448. It decided to adopt a World Plan Committee Opinion as a new C.C.I.T.T. Resolution on the work of the Plan Committees.

In view of the information given by the C.C.I.T.T. Secretariat and the experience of Administrations since the IVth Plenary Assembly, it was felt that the Technical Assistance problems could not be separated from the other work of the C.C.I.T.T. and that they could be handled by other Committees of the Plenary Assembly. In particular, the very useful work done by the special autonomous working parties (GAS) is of interest to all countries and should not therefore be considered merely as an aspect of technical assistance for developing countries only. A number of Opinions and Resolutions were accordingly amended to reflect these considerations. In Resolution No. 1 specific mention is made of the desirability of constituting in future a Plenary Assembly Committee on handbooks and C.C.I.T.T. activities in connection with seminars.

#### 4.4.2.3.5 *Other decisions*

The Plenary Assembly discussed the merits and disadvantages of bound-book form versus loose-leaf form in the light of information provided by the C.C.I.T.T. Secretariat and the General Secretariat. It was decided not to retain the present system of a number of booklets in ring binders and to approve the proposal by the C.C.I.T.T. Secretariat to publish the next book in bound form, with a page size of A4 and with a dark green cover.

To overcome the difficulties in the preparation of the Green Book due to shortage of specialized staff in the C.C.I.T.T. Secretariat, a new Opinion (No. 4) was approved to the effect that the I.T.U. should take such exceptional staffing measures as may be necessary to ensure publication of the C.C.I.T.T. Volumes within one year.

Concerning the "List of persons dealing with questions on international telephony and telegraphy" it was noted that only very few Administrations and R.P.O.A.s communicate all requisite information to the Secretariat. It was therefore decided to delete the relevant Opinion.

When it came to appoint the Chairmen and Vice-Chairmen of the Study Groups, Plan Committees and Special Autonomous Working Parties for the period 1973-1976, the Plenary Assembly introduced a system of multiple vice-chairmanships, i.e. of providing more than one Vice-Chairman for the bigger study groups even though this action was not in line with the Convention. The hope was expressed that the Vice-Chairmen should not only assist the Chairman in the meeting, but

should also take on the chairmanship of working parties, especially of those which are of a more permanent nature. This was regarded as an experimental measure for the duration of the current study period only, so as not to pre-judge the decisions of the forthcoming Plenipotentiary Conference in this respect.

The Plenary Assembly examined and approved the reports by the Acting Director, Senior Counsellor, on C.C.I.T.T. activities and on its Secretariat. The meeting had also to elect a new Director after the decease of the late Director of the C.C.I.T.T., Mr. J. Rouvière, on 21 July 1972. Four candidatures were submitted and the Assembly elected Mr. R. Croze (France) as the new Director of the C.C.I.T.T.

Several invitations to hold study group meetings elsewhere than in Geneva were issued and accepted in principle, subject to authorization of the corresponding expenditure by the Administrative Council.

The French Administration issued an invitation to hold the VIth Plenary Assembly in Paris, probably in the second or third quarter of 1976. The meeting accepted in principle this generous invitation and expressed its gratitude to the French Administration. The necessary budget estimates will be submitted in due time to the Administrative Council.

In closing the Vth Plenary Assembly, the Chairman and various speakers expressed their satisfaction at the excellent spirit of collaboration which prevailed during the Assembly and at the good results achieved.

## 5. TECHNICAL COOPERATION ACTIVITIES

### 5.1 *Appraisal of 1972 activities*

#### 5.1.1 *General*

In rendering technical assistance to new and developing countries the Union acted mainly as an executing agency of the United Nations Development Programme (U.N.D.P.). Thus 89% of the activities were financed by the U.N.D.P. under the now fully merged programme. The remaining 11% were financed under related programmes (Funds-in-Trust, the Fund for West Irian, Associate Experts Schemes). In addition, the Union administered or acted as intermediary for Technical Assistance-in-kind and provided certain assistance through a central Group of Engineers in implementation of Resolution No. 29 of the Plenipotentiary Conference, Montreux 1965.

With the organization, approved for the Technical Cooperation Department by the 24th Session of the Administrative Council, fully implemented and staffed, it has been possible to increase both the quality and quantity of the I.T.U.'s technical cooperation activities. The three regional divisions, one for Africa, one for the Americas and one for Europe and Asia, have facilitated for the Department the establishment and maintenance of a much closer contact than before with the various countries entitled to technical assistance. This contact has been further facilitated by the I.T.U.'s regional experts, on one hand, and by the collaboration with the U.N.D.P.'s resident representatives on the other. It has thereby been possible to increase substantially the Union's programming activities and, with the support of the various services of the Administrative Division, to make the project implementation more effective. The Group of Engineers is now well utilized and the Training Division, in addition to its seminar activity, has continued to study the standardization of advice on training methods and aids. It would also be desirable to improve the evaluation, an activity which has to be more systematically carried out than up to now and to which the Union has therefore to devote more attention in the future.

In 1972 the Union's activities in the field of Technical Cooperation were characterized by accelerated growth both in the volume of aid rendered to developing countries and in the rate at which this aid was delivered.

This is evidenced by the following aggregates:

309 experts (including associate experts) were on mission, 467 fellows (including 108 participants to short-term group training) were undergoing training abroad, U.S. \$1,615,645 equipment was delivered and 6 projects were under implementation following subcontracting. 214 large- and small-scale projects were being carried out or were completed (see Table 1 of Annex 6); and total expenditures for project implementation, U.S. \$8,971,377 was the highest amount attained so far in any one year.

During the year, Asia received the largest share of total annual expenditures — 39.2 per cent. Projects in Africa accounted for 34.6 per cent of the total expenditures and 21.0 per cent went into activities in the Americas. Europe received 4.8 per cent and 0.4 per cent was utilized for an inter-regional project concerning Air Transportable Telecommunication for Natural Disasters.

56 per cent of the expenditures for project implementation in 1972 was for the large-scale

projects of particular importance under the U.N.D.P./I.T.U. programme (see Table 4 of Annex 6), while the total expenditure for all types of projects, by region, was as follows:

|                          |                  |
|--------------------------|------------------|
| Africa . . . . .         | U.S. \$3,104,059 |
| Americas . . . . .       | U.S. \$1,891,689 |
| Asia . . . . .           | U.S. \$3,514,575 |
| Europe . . . . .         | U.S. \$ 430,149  |
| Inter-regional . . . . . | U.S. \$ 30,905   |

During the year, as in the past, the Union's technical cooperation activities contributed to the economic and social development of many developing countries, in particular by assisting them in improving their physical infrastructure and in overcoming the shortage of their institutional and individual skills in the field of telecommunications. The three following types of projects contributed towards the realization of this aim:

*a) The promotion of development of regional telecommunication networks*

The Union continued its efforts to promote the establishment of international telecommunication networks on a pan-continental level in Africa, the Americas and Asia, 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 Economic Commissions, regional and sub-regional telecommunication organizations, the World Bank and regional banks.

During the year under report, the following concrete achievements are worth mentioning:

- the field survey work of over 20,000 km and 17 switching centres for the Pan-African Telecommunication Network was completed. A conference of 32 African countries, African Regional Organizations, multilateral and bilateral financing institutions, was held in Addis Ababa between 30 October and 10 November 1972. Many financing institutions expressed their keen interest in the proposed projects and the African Governments requested the I.T.U. to continue to assure the coordination of various inputs in collaboration with the Organization of African Unity (O.A.U.), the Economic Commission for Africa (E.C.A.) and the African Development Bank (A.D.B.);
- the implementation of the Inter-American Telecommunication Network continued to progress satisfactorily. Several national trunk networks have already been installed and interconnections among different countries have also been completed. In other countries of the Latin American Region plans have been adopted and construction initiated for the realization of several projects aimed at ensuring the complete interconnection of the continent by means of terrestrial systems;
- new earth stations for satellite communications were put into service in the Latin American Region in 1972 and decisions were taken to install similar stations in other countries in the region during the next few years;
- the Asian Telecommunication Survey — Feasibility Studies were completed in November 1972. The viability of major links recommended by the Survey was brought out while others were indicated to be viable in either the short or the intermediate term;

- preliminary work started in October 1972 on the development of a Regional Telecommunication Plan covering many of the countries in the Western Pacific. Such a survey would be complementary to the Asian Survey and would become integrated with it.

39 of the Union's field experts were engaged in this kind of activity during 1972.

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

This type of activity was closely connected with the improvement and modernization of telecommunication facilities in many developing countries, which made it desirable to reorganize the administrative and technical services concerned. 92 of the experts have been employed for this purpose as advisers or as OPAS officers.

*c) The development of human resources required for telecommunications*

Apart from the inclusion of a training element, to the extent possible, in all of the Union's technical cooperation projects, more than half of these were directly aimed at training in various forms. Most important is the assistance being rendered, or having been rendered to administrations in more than 47 new or developing countries in their endeavours to establish national training institutions.

In this regard the Union has also organized one seminar in Asia under the U.N.D.P.; on-the-job training has been carried out by many of the Union's experts and an important fellowship programme has the same aim in view.

178 of the Union's field experts were engaged in the development of human resources required for telecommunications.

As in previous years, almost 65 per cent of the total field expenditure was utilized on training in order to meet the manpower demand in various sectors of telecommunications.

### *5.1.2 Experts in the field in 1972*

The timely recruitment of qualified experts represents the backbone of the efficient and prompt implementation of field projects. It is for this reason that the following analysis is given:

In 1972, 309 experts were under contract as against 255 in 1971. This figure includes all programmes and all categories of experts (U.N.D.P., Funds-in-Trust, associate experts and OPAS officers).

The 309 experts in the field in 1972 were geographically distributed as follows — 95 in Africa, 73 in the Americas, 131 in Asia and the Far East and 10 in Europe.

The experts were nationals of 43 countries, Members of the Union. They are classified by nationality in the following table:



| No.<br>experts | Nationals of (country)      | No.<br>experts | Nationals of (country) |
|----------------|-----------------------------|----------------|------------------------|
| 48             | United Kingdom              | 2              | Peru                   |
| 34             | France                      | 1              | Afghanistan            |
| 28             | Federal Republic of Germany | 1              | Austria                |
| 21 *)          | Sweden                      | 1              | Bangladesh             |
| 20             | India                       | 1              | Brazil                 |
| 17             | Australia                   | 1              | Chile                  |
| 15             | Japan                       | 1              | China                  |
| 14 *)          | Netherlands                 | 1              | Cuba                   |
| 13             | United States of America    | 1              | Denmark                |
| 10             | Switzerland                 | 1              | Ethiopia               |
| 9              | Pakistan                    | 1              | Fiji                   |
| 8              | Argentina                   | 1              | Guyana                 |
| 8              | Canada                      | 1              | Israel                 |
| 7              | Italy                       | 1              | Mali                   |
| 6              | Egypt                       | 1              | Poland                 |
| 6              | Norway                      | 1              | Sierra Leone           |
| 6              | U.S.S.R.                    | 1              | Sudan                  |
| 5              | Belgium                     | 1              | Sri Lanka              |
| 5              | Ireland                     | 1              | Czechoslovakia         |
| 3              | New Zealand                 | 1              | Turkey                 |
| 2              | Colombia                    | 1              | Uruguay                |
| 2              | Morocco                     |                |                        |

\*) Including 8 associate experts.

123 (92 in 1971) of the 309 experts in the field took up their duties during 1972.

The following table compares the periods required for the recruitment of experts in 1969, 1970, 1971 and 1972.

| Period required               | Number of experts |      |      |      |
|-------------------------------|-------------------|------|------|------|
|                               | 1969              | 1970 | 1971 | 1972 |
| up to 6 months . . . . .      | 14                | 33   | 28   | 46   |
| 7 to 8 months . . . . .       | 13                | 16   | 17   | 15   |
| 9 to 10 months . . . . .      | 13                | 15   | 20   | 23   |
| 11 to 12 months . . . . .     | 14                | 7    | 7    | 19   |
| 13 to 18 months . . . . .     | 14                | 6    | 15   | 14   |
| more than 18 months . . . . . | 4                 | 2    | 5    | 6    |
| Total . . . . .               | 58                | 79   | 92   | 123  |

(The recruitment period is counted as the time gap between the date of commencement of prospection and the date on which the expert commences his mission.)

During the year under report, 126 (against 171 in 1971) posts were advertised by circular-letter, telegram or special contacts. Eighteen of these were readvertisements of posts advertised in 1971 or previous years. A total of 658 (581 in 1971) candidatures were examined by the Union for 115 (141 in 1971) posts. Only 292 (214 in 1971) of these candidatures were considered suitable for the posts in question — a rejection of approximately 56 per cent of the candidatures.

The greater part of the 658 candidatures examined by the Union in 1972 were presented by the following countries:

|                               |     |                        |    |
|-------------------------------|-----|------------------------|----|
| United Kingdom                | 107 | Australia              | 14 |
| India                         | 61  | Ireland                | 13 |
| Pakistan                      | 48  | Chile                  | 12 |
| Sweden                        | 48  | Arab Republic of Egypt | 12 |
| France                        | 43  | Italy                  | 12 |
| Netherlands                   | 39  | Switzerland            | 12 |
| Germany (Federal Republic of) | 38  | Argentina              | 11 |
| United States of America      | 32  | New Zealand            | 10 |
| Canada                        | 26  | Philippines            | 10 |
| Japan                         | 24  |                        |    |

The remaining 86 candidates were nationals of 29 Member countries.

More than half — 356 (313 in 1971) — of these 658 candidatures were considered for more than one post.

### 5.1.3 *Fellowships*

In 1972 the Union dealt with a total of 616 fellowships, as against 676 in 1971. The geographical distribution of these fellowships was as follows: 295 (48%) for Africa, 144 (23%) for Asia and the Far East, 109 (18%) for the Americas and 68 (11%) for Europe. The above total comprises:

- 581 fellowships under the U.N.D.P. (this figure includes 108 short-term awards to participants to three seminars — one organized under the I.T.U./U.N.D.P., one by the I.F.R.B. and one by the French Administration under technical assistance in kind in collaboration with the I.T.U. — and participants in specialist meetings in connection with the I.T.U./U.N.D.P. survey in Africa;
- 15 fellowships under the Funds-in-Trust;
- 18 fellowships under an agreement with the Inter-American Development Bank;
- 2 fellowships under the United Nations Relief Operation Dacca, Bangladesh (UNROD).

76 per cent (467) of the 616 fellows were undergoing training (commenced, continued or completed their study programmes) during the year under report. This high percentage of implementation is influenced by the fact that 51 fellowships to participants to seminars (one I.T.U./U.N.D.P., one I.F.R.B. and one under technical assistance in kind) and 57 to participants in specialist meetings (under the I.T.U./U.N.D.P. survey project in Africa) were awarded and implemented in 1972.

The 149 fellowships dealt with but not implemented in 1972 have been brought forward to 1973 for completion of placement arrangements and/or commencement.

During the year under report the host countries again made an extraordinary effort to arrange study programmes for the Union's fellows. However, since 1971, some of the host countries have not been in a position to accept all of the fellows proposed by the Union, due to the saturation of their training facilities. Consequently a number of fellowships have been carried forward to 1973 and subsequent years for implementation.

46 per cent (197) of the study programmes for fellows undergoing training during the year were in the following countries:

|                                      |       |
|--------------------------------------|-------|
| France . . . . .                     | 12.7% |
| United Kingdom . . . . .             | 10.6% |
| Italy . . . . .                      | 8.8%  |
| Germany (Federal Republic) . . . . . | 7.9%  |
| United States of America . . . . .   | 5.5%  |

23 per cent (100) of the study programmes were implemented in a further 20 countries and 31% (136) at the I.T.U./U.N.D.P. — assisted Training Centres in developing countries (105 of which at the Regional Training Centre in Senegal).

In the above analysis, the following groups of fellowships were not taken into consideration:

- i) participants to seminars;
- ii) participants to specialist meetings in connection with the pre-investment survey project in Africa; and
- iii) visits to the Union's Headquarters.

It is worthwhile noting that the following developing countries offered training facilities for fellows: Argentina (6), Brazil (1), Colombia (1), Ethiopia (1), India (1), Kenya (5) and Mexico (1).

5.1.4 *Procurement of equipment*

During the year under report, equipment was ordered from 26 countries, i.e.:

| Country of procurement           | U.N.D.P.  | Funds-in-Trust | Total     |
|----------------------------------|-----------|----------------|-----------|
|                                  | U.S.\$    | U.S.\$         | U.S.\$    |
| Algeria . . . . .                | 527       |                | 527       |
| Germany (Fed. Rep. of) . . . . . | 288,379   | 9,432          | 297,811   |
| Australia . . . . .              | 7,134     |                | 7,134     |
| Austria . . . . .                | 2         |                | 2         |
| Belgium . . . . .                | 5,080     |                | 5,080     |
| Canada . . . . .                 | 35,093    |                | 35,093    |
| Denmark . . . . .                | 5,374     |                | 5,374     |
| Spain . . . . .                  | 220       |                | 220       |
| United States . . . . .          | 254,612   |                | 254,612   |
| Ethiopia . . . . .               | 2,428     |                | 2,428     |
| France . . . . .                 | 95,914    |                | 95,914    |
| Hong Kong . . . . .              | 250       |                | 250       |
| Italy . . . . .                  | 21,157    |                | 21,157    |
| Japan . . . . .                  | 104,468   |                | 104,468   |
| Madagascar . . . . .             | 200       |                | 200       |
| New Zealand . . . . .            | 549       |                | 549       |
| Netherlands . . . . .            | 196,563   |                | 196,563   |
| German Democratic Rep. . . . .   | 1,713     |                | 1,713     |
| United Kingdom . . . . .         | 232,466   |                | 232,466   |
| Senegal . . . . .                | 10,997    |                | 10,997    |
| Singapore . . . . .              | 4,197     |                | 4,197     |
| Sudan . . . . .                  | 1,400     |                | 1,400     |
| Sweden . . . . .                 | 123,668   |                | 123,668   |
| Switzerland . . . . .            | 37,820    |                | 37,820    |
| Zaire . . . . .                  | 2,093     |                | 2,093     |
| Zambia . . . . .                 | 992       |                | 992       |
| Totals . . . . .                 | 1,433,296 | 9,432          | 1,442,728 |

The U.S. \$1,442,728 of equipment ordered was for 41 projects and represented an increase of 5.4% over the 1971 total.

The value of equipment delivered during 1972 to various field projects was U.S. \$1,615,645 against U.S. \$1,630,367 in 1971. This figure also includes equipment ordered in 1971 or before, but not delivered until 1972. It does not include equipment provided under a subcontract by ARE (Italy) for the pilot radio link Sana'a-Taiz-Aden, details of which are given in Table 2 of Annex 6. As at 31 December 1972 the value of purchase orders still pending amounted to U.S. \$869,235 and the I.T.U. had received new requisitions of the value of U.S. \$676,219.

Field projects and U.N.D.P. Resident Representatives concerned were regularly kept informed by the Union of developments in the procurement of equipment.

In addition a considerable amount of preparatory work was accomplished in 1972 with a view to preparing lists of recommended equipment for training centres, such as printing shops, workshops, audio-visual instruction, language laboratories, classroom furniture and office machines. These lists will be distributed to project managers and/or experts to facilitate the selection of equipment within the framework of the funds available for a given project.

Preparatory work was carried out in regard to the revision of the Union's internal procedures for the procurement of equipment so as to make the procedures consistent with the policy and practice of the U.N.D.P. and other Participating and Executing Agencies.

#### 5.1.5 *Utilization of sub-contractors*

In the course of 1972 the Union continued its utilization of sub-contractor services along the lines of the U.N.D.P. recommendations and on the basis of the limited, but positive, experience in 1969, 1970 and 1971.

Table 2 of Annex 6 gives details of the projects being implemented by the Union under sub-contracting during the year under report.

#### 5.1.6 *Factors affecting implementation*

Implementation of a large and diversified programme of development projects in the field of telecommunications proved, from the beginning of the Union's participation in the United Nations technical assistance system, to be a very complex operation involving the meshing of highly interdependent activities. Even where the objectives of a project are precisely defined, there can be difficulties in maintaining the scheduled delivery of specified quality — problems may arise with timing and many other factors can adversely affect implementation.

Fortunately most of the difficulties experienced at the U.N.D.P./I.T.U. assisted projects have been of a temporary nature and were usually resolved in the course of project implementation.

The key monitoring devices for project management continued to be:

- a) progress reports prepared by field personnel for the Union;
- b) Resident Representatives' reports to U.N.D.P. Headquarters and the Union;
- c) inspection of projects by the Union's staff from Headquarters and on-the-spot intervention in the case of problem projects. This latter form of management remains inadequate still, in spite of the fact that it can quickly, and with immediate effect, improve the situation in the project concerned, thereby saving unnecessary expenses. In 1972, 28 missions were effected by the members of the Technical Cooperation Department to 45 developing countries.

*On the Union's side*, the most prevalent and significant constraint on project implementation was:

- a) the difficulties encountered in the timely bringing together of the conditions necessary for the commencement of field operations;
- b) in some cases, the inadequate support and supervision of field operations due to the heavy workload on the professional staff concerned at the Union's Headquarters.

In 1972, difficulties in finding qualified candidates for certain expert posts were, as in previous years, mainly due to the real shortage of specialists in some classical and new sophisticated fields, the language requirements (French and Spanish in particular for instructor posts) and the difficult environmental conditions. In this regard it should be noted that the incentives offered by bilateral aid programmes in regard to leave, allowances for unattractive duty stations and housing continued to be more enticing than those the U.N.D.P./I.T.U. system could offer.

A slight improvement in the prospection of candidates for field assignments has been noted. Field vacancy notices continued to be sent to more than 400 different addresses (administrations, U.N.D.P. field offices, National Committees on Technical Assistance, operating agencies participating in the work of the Union and some professional institutions, etc.) and were followed up by special contacts where necessary, as difficulties remain in the filling of certain posts.

The Union's difficulties in recruitment of qualified expertise for its technical cooperation programmes are, in principle, no different from those experienced by other Participating and Executing Agencies. The average delay in recruitment of field experts for the United Nations System is longer than that experienced by the I.T.U. Even when taking these positive points into consideration, the situation is still not fully satisfactory and every endeavour has been made to shorten the delays.

The most frequent long-standing problems on *the side of governments* were the inability to supply sufficient qualified counterpart staff and the shortage or frequent absence of adequate facilities. This latter was especially acute in the training projects, which require buildings or other large facilities. Projects in isolated sites were also frequently hampered by the lack of access roads or by housing problems. Political crises can also perturb the implementation of even a smoothly functioning project.

In some cases the difficulties were attributable to *circumstances not exclusively the responsibility of either the Union or the government concerned*. Some of these had their origin in lengthy delays in the preparation and negotiation of projects, differences in the interpretation of a project's objectives, etc.

#### 5.1.7 Sectors of activity

The training of the engineering staff (medium-level and senior technicians) of public telephone, telegraph and radio administrations still continues to consume more of the Union's efforts today than the training of other staff, although the administrations are also realizing the importance of systematic training of operators and administrative and managerial staff. Furthermore, the benefit of specialized training for staff of all levels is being recognized. Consequently, the assistance the Union is rendering in the establishment of institutions and the preparation of course programmes is very diversified and in many countries quite comprehensive. Moreover, the Union is endeavouring, to the extent that is desired by the recipient countries, to include also the engineering side of sound broadcasting and television, as well as the telecommunication side of other services, in its training programmes. In some countries, the Union is even training staff for telecommunication industry, as also for other governmental bodies responsible for meteorology, civil aviation, maritime communications, etc.

The advisory services rendered within the Union's technical cooperation activities are naturally still more diversified. They include virtually all sectors of application of telecommunication techniques and all activities of a telecommunication organization.

## 5.2 *The Union's participation in the United Nations Development Programme (U.N.D.P.)*

### 5.2.1 *General features*

Under the U.N.D.P., 94 countries received assistance during the year through individual country projects. Of these, 31 were in Africa, 27 in Asia, 28 in the Americas and 8 in Europe. In addition, assistance was provided to various countries under 21 regional projects and two multi-country projects and one inter-regional project.

During the year, 270 experts (including 9 O.P.A.S. officers) were on missions of varying duration. Of these experts, 88 were working in Africa, 105 in Asia, 67 in the Americas and 10 in Europe. Details of expert missions are incorporated in Table 1 of Annex 6.

In 1972, the Union dealt with 581 fellowships under the U.N.D.P. (this includes 51 fellowships to participants in seminars -- one I.T.U./U.N.D.P., one I.F.R.B. and one under technical assistance in kind -- and 57 short-term fellowships awarded to high-ranking officials from Telecommunication Administrations in Africa to enable them to attend specialist meetings in connection with the Union's pre-investment survey). Holders of 329 of these fellowships (excluding fellowships to participants to seminars and specialist meetings) were undergoing training in various host countries during the year and the remaining fellowships have been carried forward into 1973 and subsequent years for implementation. Details concerning the fellows undergoing training are included in Table 1 of Annex 6.

A comparative table on the provision of experts and fellowships in 1971 and 1972 is given in Table 3 of Annex 6.

Training and demonstration equipment was ordered during the year for 32 countries, to a total value of U.S. \$1,433,296.

The total expenditure under U.N.D.P. amounted to U.S. \$7,959,526.

#### 5.2.1.1 *Seminars*

In 1972, as part of its regional activities under the U.N.D.P., the Union organized one seminar, in Kuala Lumpur, Malaysia.

The theme of the Kuala Lumpur seminar was "Planning and development of telecommunication networks outside of large cities and the maintenance of telecommunication services". It was attended by nationals of 18 countries of Asia and the Far East Region, 50 of whom participated on a full-time basis, and 58 on a part-time basis. The Union awarded 31 fellowships to participants to the seminar. The administrations of Sweden, Malaysia, Japan and Australia lent their support by furnishing, free of charge, specialists to lecture and to guide the seminar discussions. The Malaysian Government acted as host while the Telecommunication Administration collaborated with the Union in the organization of the seminar.

#### 5.2.1.2 *Operational assistance (O.P.A.S.)*

Nine O.P.A.S. officers recruited under the U.N.D.P., in addition to five under the Funds-in-Trust/O.P.A.S. arrangements, served in eleven different countries.

Four of these were employed in Africa, six in Asia and four in the Americas, all carrying out duties of a managerial and/or operational nature.

#### 5.2.1.3 *Large-scale projects of particular importance*

The Union, in 1972, acted as executing agency for 37 U.N.D.P. large-scale projects of particular importance. Of these, 31 projects were in the training sphere, three were pre-investment surveys (two surveys for the African Telecommunication Network and the Asian Feasibility Studies), one was in the field of developing satellite communications (India), one for the establishment of a pilot telecommunication link between the Yemen Arab Republic and the People's Democratic Republic of Yemen and one for the establishment of a telecommunication link between Bathurst (Gambia) and Kaolack (Senegal). Nine of these were new projects approved by the U.N.D.P. in 1972, i.e. preparatory assistance for the Institute of Technology for Telecommunications and Electronics (Oran), Algeria; Telecommunications Training Institute (La Paz), Bolivia; preparatory assistance for the Federal School for Posts and Telecommunications (Yaoundé), Cameroon; Training of telecommunication junior engineers and senior technicians (Bandung), Indonesia (Phase II); Telecommunication Training Centre (Baghdad), Iraq (Phase II); preparatory assistance for the establishment of a Faculty of Telecommunications (Ulan Bator), Mongolia; Telecommunication Training Centre, Singapore; preparatory assistance for the establishment of a Multinational Telecommunication Training Centre (Rufisque), Senegal; and Telecommunication link between Bathurst (Gambia) and Kaolack (Senegal).

Eight projects came to an end during the year under report, i.e. National School for Telecommunication Studies (Algiers) Algeria; Electronics and Telecommunications Training and Research (Popayan and Bogota) Colombia; Telecommunication Training Centre (Accra) Ghana; Telecommunication Training Centre (Bandung) Indonesia (Phase I); Telecommunication Training Centre (Baghdad) Iraq (Phase I); Telecommunication Training Centre (Kuala Lumpur) Malaysia (Phase II); Post and Telegraph Centre (Khartoum) Sudan (Phase II); Pre-investment Survey for the African Telecommunication Network (East Africa).

In addition, the Union carried out preliminary operations under authorizations from the U.N.D.P.: in the East African Community, with a view to the establishment of a multinational telecommunication and postal training centre in Nairobi; in Laos, with a view to the establishment of a telecommunication training centre in Vientiane; in Libya, with a view to the establishment of a telecommunication training institute in Beida; and in Malawi with a view to establishing a multinational telecommunication and postal training centre in Zomba.

Table 4 of Annex 6 gives a list of the important large-scale projects for which the Union was executing agency on 31 December 1972. 14 were located in Africa, 5 in the Americas, 17 in Asia and 1 in Europe. The data in paragraph 5.2.1 covers also assistance provided under these specific projects.

In addition, the Union administered 56 general service category staff (secretaries and drivers) engaged for various large-scale projects in the countries concerned and 8 on small-scale projects.



#### 5.2.1.4 *Regional experts*

Ten of the 270 experts on mission in 1972 were regional experts. Three of the regional experts terminated their assignments in the course of the year and prospection was undertaken for the recruitment of replacements for two of the posts thus vacated.

The main task of these regional experts was to provide Administrations with advice and assistance in the preparation of project requests under the U.N.D.P. In addition, they gave sectoral support to the U.N.D.P. Resident Representatives, in accordance with the new U.N.D.P. procedures, and also, on request, advised developing countries on problems arising in regard to training of telecommunication staff. A meeting of regional experts was held at the I.T.U. Headquarters in Geneva from 7 to 11 February 1972.

#### 5.2.1.5 *Collaboration with other U.N. Executing Agencies on U.N.D.P.-assisted projects*

Under an administrative arrangement concluded in 1968 with the Inter-American Development Bank (IDB), concerning the execution of the pre-investment study for the Inter-American Telecommunication Network (a U.N.D.P. project for which the IDB is the Executing Agency in association with the Union), U.S. \$87,600 has been reserved to enable the Union to award 21 fellowships to nationals of countries participating in the project. Three fellows completed their training in 1971, four continued their studies during the year under report and eleven commenced their programmes. The remaining three fellowships will be implemented in 1973. (Effective expenditure in 1972 amounted to U.S. \$43,441.)

On the basis of agreements signed with the Universal Postal Union (U.P.U.) in 1970 and 1971, collaboration continued on the training centre projects in Afghanistan, Turkey and Zambia, for which the I.T.U. is the Executing Agency in association with the U.P.U. Similar agreements were under negotiation in regard to the implementation of a training centre in the Cameroon and a multinational training centre in Malawi, for which the I.T.U. is the Executing Agency in association with the U.P.U.

The International Civil Aviation Organization (I.C.A.O.) is associated with the Union in regard to the implementation of a further training centre project in Nepal, for which the Union is the Executing Agency.

During the year under report, the Union continued to work in association with the United Nations Educational, Scientific and Cultural Organization (UNESCO) on a feasibility study for a regional television system for education for South America, for which UNESCO is the Executing Agency. An I.T.U. communication system planning coordinator resumed his mission in July 1972 and three experts recruited by the Union took up their assignments. (Total expenditure for the Union's participation amounted to U.S. \$37,213.)

In addition, the Union and the Inter-Governmental Maritime Consultative Organization (I.M.C.O.) embarked on preliminary studies in connection with a joint project dealing with radio maritime telecommunication facilities in Africa. Two specialists were recruited by the Union in 1972 and carried out short missions together with a specialist from I.M.C.O.

### 5.3 *Related aid programmes*

#### 5.3.1 *Funds-in-Trust*

15 experts served under the Funds-in-Trust arrangements, i.e. 5 in Saudi Arabia, 5 in Kuwait, 1 in Libya, 2 in Venezuela and 2 in the Republic of Zaire.

In addition, 6 officers were employed under the Funds-in-Trust/O.P.A.S. arrangements, i.e. 1 in Jamaica, 4 in Kuwait and 1 in Surinam.

On the basis of an arrangement concluded with the Government of Algeria in 1971, 12 fellowships were awarded under this scheme. 10 fellows commenced their programme in 1972 and the remaining 2 will take up their studies in 1973. 3 fellowships for Venezuela and 1 for Kuwait were also implemented under this scheme during the year under report.

Equipment to the value of U.S. \$9,432 was ordered for the large-scale project in Kuwait.

In addition, the Union administered four general service category staff (secretaries and drivers) engaged in the large-scale project in Kuwait.

The total cost of these Funds-in-Trust projects in 1972 was U.S. \$386,254.

Details of the Funds-in-Trust projects are incorporated in Table 1 of Annex 6.

#### 5.3.2 *FUNDWI (Funds of the United Nations for the Development of West Irian)*

The Union continued to act as Executing Agency for the telecommunication repair and rehabilitation project in West Irian for which it has been responsible since 1969. As from July 1972 the project was incorporated in the U.N.D.P.'s normal activities. Details of the activities under this project are given in Table 1 of Annex 6. (Total expenditure up to inclusion project in U.N.D.P. normal activities U.S. \$376,967.)

#### 5.3.3 *United Nations Relief Operation Dacca (U.N.R.O.D.)*

During the year under report assistance in the field of telecommunications was provided to Bangladesh under the United Nations relief operation. Two experts were recruited and one fellowship was implemented on behalf of U.N.R.O.D. Details of this assistance are given in Table 1 of Annex 6. (Total expenditure U.S. \$17,466.)

#### 5.3.4 *Associate expert scheme*

On the basis of agreements for the provision of associate experts concluded between the Union and the Governments of Denmark, the Netherlands and Sweden, 16 associate experts (8 from the Netherlands and 8 from Sweden) served on the Union's projects in 1972. All were engaged in the training of local staff, one working with an I.T.U./O.P.A.S. senior lecturer in Jamaica and the others at the Union's training centre projects in Afghanistan (2), Iran (3), Lesotho (1), Malaysia (1), Singapore (4), Venezuela (1) and Zambia (3). Details of their assignments are given in Table 1 of Annex 6.

It is to be noted that all the costs of these associate expert missions were borne by the donor countries, i.e. the Netherlands and Sweden. The total value of this assistance in 1972 amounted to U.S. \$168,492.

The services rendered by the associate experts continued to be extremely beneficial to the Union's projects. One associate expert completed his third year of service in 1972 and returned to his home country.

#### 5.3.5 *Volunteers*

During 1972, the Union benefited from the services of 15 volunteers, 7 of which were provided by the Swiss Government, 2 by the United States Peace Corps, 2 by the United Nations Association (U.N.A.) of the United Kingdom and 4 under the United Nations Volunteer programme.

While the 2 Peace Corps and 2 U.N.A. volunteers gave instruction in English at the U.N.D.P./I.T.U. telecommunication training centre project in Afghanistan, all 7 Swiss volunteers gave classes in basic telecommunication subjects under the direction of the Union's experts. 2 served at the U.N.D.P./I.T.U. telecommunication training centre project in Madagascar and 5 assisted the Union's instructor in telecommunication training, recruited under a U.N.D.P./I.T.U. project, at the telecommunication school in the Central African Republic. The cost of this assistance was borne by the donor Governments, the recipient Governments providing such facilities as housing and medical services in accordance with separate agreements.

Three of the volunteers under the programme of United Nations Volunteers served at the High Institute of Telecommunication in Iran and the fourth was assigned to the Swaziland Industrial Training Institute in Swaziland. All are graduates of universities or technical colleges.

#### 5.3.6 *Technical assistance in kind*

In this field, the Union in 1972 continued to issue information on the assistance offered by its Member countries. Details on courses organized in India and Italy for nationals of new or developing countries were furnished by circular letter.

In connection with the Kuala Lumpur seminar, the Telecommunication Administrations of Australia, Malaysia and Sweden offered the Union and the U.N.D.P., free of charge, the services of two lecturers each and Japan offered one lecturer.

In addition, the Post and Telecommunication Administration of France organized, in collaboration with the I.T.U., a seminar on "Standards for training in telecommunications" in Evian under this scheme of assistance. It was attended by 110 participants from 45 technically advanced and developing countries. The Union awarded 13 fellowships under the U.N.D.P. to participants from developing countries and the French Government gave 6 fellowships.

#### 5.4 *Preparation of new projects*

During the year under report, the Union was in continuous contact with the Administrations and U.N.D.P. Resident Representatives in developing countries in order to assist them in the preparation of requests for new projects, as well as for the continuation of existing projects, where this was felt to be appropriate.

Particularly significant progress was achieved in the preparation of requests for the following U.N.D.P./I.T.U. assisted important large-scale projects:

*a)* Projects where preliminary operations or preparatory assistance are under implementation on the basis of U.N.D.P. approval in 1971/1972 and for which formal project approval is expected in 1973, as also second phase projects:

- Institute of Technology for Telecommunications and Electronics, Oran, Algeria;
- Multinational Telecommunications and Postal Training Scheme in East Africa (Kenya, Uganda and Tanzania);
- Higher Posts and Telecommunications School, Yaoundé, Cameroon;
- Telecommunication Training Centre, Santiago, Chile (Phase II);
- Regional Training Centre for Telecommunications, INCATEL (Costa Rica, El Salvador, Guatemala, Nicaragua) San Salvador, El Salvador;
- Telecommunication Training Centre, Vientiane, Laos;
- Telecommunication Training Institute, Beida, Libya;
- Multinational Posts and Telecommunications Training Scheme for Botswana, Lesotho, Malawi and Swaziland;
- Telecommunication Training Centre and Telecommunication Engineering Faculty at State Polytechnic, Ulan Bator, Mongolia;
- Assistance in the implementation of the National Telecommunication Plan, Paraguay (Phase II);
- Multinational Telecommunication Training Centre, Rufisque, Senegal.

*b)* New projects which will be presented to the U.N.D.P. in 1973:

- Training and research in telecommunications, Brazil;
- Higher Telecommunication Training School, Central African Republic;
- Training of teaching staff and research in telecommunications, Colombia;
- Telecommunication Training Centre, Ecuador;
- Installation of a radiocommunication network, Equatorial Guinea;
- Institute of Telecommunications, Israel;
- Telecommunication Training Centre, Jamaica;
- Telecommunication Training Centre, Jordan;
- Telecommunication Training Centre, Khmer Republic;
- National Telecommunication Development Plan, Nigeria;
- Telecommunication Training Centre, Uruguay;
- Telecommunication Training Centre, Viet-Nam.

Furthermore, the Union was involved in the preparatory work, which had reached an advanced stage, in regard to the request for U.N.D.P./I.T.U. assistance for the following important large-scale projects:

*a)* *Africa*

Creation of training centres in the Ivory Coast and Tunisia in the broadcasting and television fields, in Morocco on audio-visual techniques; a telecommunication test, repair and maintenance centre in Sudan, a Phase II project for the Training Centre in Zambia; a follow-up project on the

implementation of the Pan-African Telecommunication Network and a project for radio monitoring and frequency management for Africa.

*b) Americas*

Creation of training centres and/or establishment of test and development institutions in Argentina, Cuba and Peru; regional project for the survey of propagation conditions of radio-electric emissions; U.P.U./I.T.U. project for the reorganization of postal and telegraph services in Venezuela.

*c) Euro-Asia*

Creation of training centres in Bangladesh, India, Lebanon, Syria, Roumania and the Western Pacific; regional monitoring and frequency management projects in Indonesia, Singapore, the Middle East and the Western Pacific; long-term telecommunication planning in Iran, maintenance organization and procedures in Indonesia; implementation of the recommendations of the Asia Regional Telecommunication Survey; development of regional telecommunication plan for the Western Pacific and expertise in telecommunication planning and administration for Bangladesh.

*5.5 Activities under Resolution No. 29 of the Plenipotentiary Conference (Montreux, 1965)*

In 1972 the Group of Engineers worked full strength through June. A resignation in June and a transfer at the beginning of November left two full-time engineers at the year's end. A temporary assignment filled one of the posts during the latter part of the year, while one of the two posts was under advertisement. This was required because of numerous requests for assistance from developing countries. In responding to these requests, one or more of the engineers visited Cyprus, Ethiopia, Ghana, Guatemala, Indonesia, the Ivory Coast, Kenya, Lesotho, Libya, Mauritius, Mexico, Nigeria, Saudi Arabia, Senegal, Sudan, Surinam, Swaziland and Thailand. The engineers were assisted during this period by three outside expert missions.

Some examples of the specialist advice provided by the engineers in the course of the year are given below:

- educational television, via satellite, in a joint mission with UNESCO;
- maritime radiocommunication, in consultation with the Intergovernmental Maritime Consultative Organization (I.M.C.O.) and with the International Radio Maritime Committee (I.R.M.C.);
- coordination of tender specification evaluations;
- advice to a group of specialists sub-contracted by a government;
- assistance in microwave acceptance tests;
- advice on standardization of signalling;
- consultation on national network planning;
- advice on domestic rate and tariff structure;

- assistance in the refinement and adjustment of a five-year telecommunications plan;
- preparation of tender specifications for replacement of local exchanges;
- preparation of contract specifications, etc.

One engineer continued to work on the preparation of parameters for detailed specifications of an air-transportable earth station to be used in cases of natural disasters. The detailed specifications, for which a contract has been awarded, will be completed early in 1973.

Members of the Group of Engineers, during their time in Geneva, continued to support the staff of the Technical Cooperation Department in seminar planning, in advice on a variety of subjects within their field of specialization and consulted on a continuing basis with the I.F.R.B. and the C.C.I.s on technical matters pertaining to their specialities. In addition, information and advice was provided to requesting administrations by correspondence.

#### *5.6 Activities conducted in pursuance of Resolution No. 31 of the Plenipotentiary Conference (Montreux, 1965)*

In pursuance of point 4 of the Resolution, the small committee of experts, proposed in 1971, was formed under the heading "Working Group on Training Standards". This Group, which also works by correspondence, held its first plenary meeting in Geneva from 13 to 20 December 1972. On the basis of job profiles, it examined methods of classifying various jobs in the telecommunication sphere with a view to the later establishment of standardized training profiles. As a first attempt along these lines, a comparison of different training methods for line technicians was commenced in order to define in how far it was possible to standardize training methods for such personnel.

During the latter half of 1972, more than 700 training manuals were examined, classified and compared by the Training Division of the Technical Cooperation Department, as a first measure towards investigating possibilities for standardizing the contents of certain of these manuals, which are generally produced by experts working at I.T.U. training centres.

Two officials from the Technical Cooperation Department have, jointly or separately, participated in informative meetings on the latest developments in audio-visual technology. One of the officials also visited Germany (Federal Republic), the United Kingdom and Sweden to collect information on advanced experiments in training carried out by the Telecommunication Administrations of these countries and to investigate possibilities of these Administrations collaborating in the training of instructors in new or developing countries.

Studies on the preparation, by instructors, of programmes utilizing teaching machine methods have been pursued.

In connection with the above activities, an international meeting of training specialists, organized by the French Administration at the instigation of and in collaboration with the Union (see point 5.3.6), should also be noted.

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## 6. ADMINISTRATION OF THE UNION

### 6.1 STAFF MATTERS

6.1.1 On 31 December 1972, 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 1971 are given in brackets).

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                 | 288                 | 69         | 359       |
| I.F.R.B. . . . .              | 5                 | 94                  | 6          | 105       |
| C.C.I.T.T. . . . .            | —                 | 31                  | 3          | 34        |
| C.C.I.R. . . . .              | 1                 | 28                  | —          | 29        |
|                               | 8 (9)             | 441(439)            | 78 (68)    | 527 (516) |

6.1.2 The manning table in the 1972 budget comprised 509 posts, 490 of them permanent. Table 1 shows that the number of staff under *contract* is greater than the number of established *posts*. This is due to the fact that a number of fixed-term contracts were issued for work lasting not less than one year which resulted from Administrative Council decisions (use of Spanish, translators/interpreters). The following separations from service took place during the year as regards staff on permanent or fixed-term contracts: 2 retirements, 3 ends of contract, 15 resignations or transfers and 2 deaths.

6.1.3 The size of the Union staff is such that it must be supplemented or reinforced when the volume of work increases temporarily, when regular staff is not available or when jobs have to be done for which the corresponding posts do not exist: 1) Conferences and meetings \*) obviously account for the major proportion of temporary staff, whether they are language staff, staff to carry out all the operations connected with document production and distribution, simultaneous interpretation equipment operators, and so on. 2) A temporary increase in urgent work—for example, a service document which has to be published by a certain date or computer programmes that have to be transcribed—must be absorbed by short-term staff. 3) Sometimes it is more econ-

\*) In 1972: Administrative Council — Technical Cooperation (7 meetings) — C.C.I.R. (interim meetings) — C.C.I.T.T. (15 meetings; pre-Plenary meetings; Vth Plenary Assembly) — I.F.R.B. (Seminar).



omical 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 1972 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—e.g. secretaries or office assistants—whereas only one section is supplemented), the corresponding figure is shown in brackets after the title of the post.

TABLE 2

*Staff engaged on short-term contracts*

|  | Number<br>of contracts | Total number<br>of working days |
|--|------------------------|---------------------------------|
| 1  | 2                      | 3                               |
| Interpreters (4) . . . . .   | 237 (228)              | 3,001 *) (4,023 *)              |
| Engineers (14 Technical Cooperation) . . . . .   | 6 (3)                  | 1,051 (373)                     |
| Analyst/programmers (8) . . . . .  | 1 (2)                  | 70 (261)                        |
| Translators (12), precis-writers, revisers (7) . . . . .   | 67 (58)                | 2,719 (2,522)                   |
| Administrative officers . . . . .  | 2 (—)                  | 143 (—)                         |
| Proof-readers . . . . .  | 5 (7)                  | 287 (330)                       |
| Draughtsman (1), designers (2) . . . . .   | 9 (15)                 | 1,002 (1,590½)                  |
| Secretaries, office assistants, bookkeepers, checkers . . . . .  | 83 (96)                | 6,946 (8,197)                   |
| Shorthand-typists, typists (pool 14), clerks, telex operator (1) . . . . .   | 217 (189)              | 12,954 (14,623)                 |
| Telephone operators (3) . . . . .  | 56 (45)                | 354 (357)                       |
| Offset operators (6) . . . . .   | 5 (3)                  | 245 (288)                       |
| Punch-card operators (10) . . . . .  | 3 (—)                  | 125 (—)                         |
| Roneo operators (5), document assembly staff (5) . . . . .   | 63 (31)                | 3,462 (4,440)                   |
| Simultaneous interpretation equipment operators . . . . .  | 16 (18)                | 411 (641½)                      |
| Documents distribution/dispatching staff (12), . . . . .<br>other document staff (5), messengers (11), chauffeurs (3), storekeepers (2), cloakroom attendants, night watchmen (2), lift attendants . . . . . | 81 (82)                | 4,914 (6,366)                   |
|  | 851 (777)              | 37,684 (44,012)                 |

(In columns 2 and 3 the 1971 figures are bracketed).

\*) Four interpreters were also employed throughout the year on fixed-term contracts.

6.1.4 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 |    | I.F.R.B. |    | C.C.I.T.T. |    | C.C.I.R. |    | Totals |    |
|-------------------|---------------------|----|----------|----|------------|----|----------|----|--------|----|
| Elected officials | 2                   |    | 5        |    | —          |    | 1        |    | 8      |    |
|                   | P                   | FT | P        | FT | P          | FT | P        | FT | P      | FT |
| D.1 . . . . .     | 4                   | —  | —        | —  | 2          | —  | 2        | —  | 8      | —  |
| P.5 . . . . .     | 5                   | —  | 3        | —  | 2          | —  | 2        | —  | 12     | —  |
| P.4 . . . . .     | 15                  | 6  | 5        | —  | 3          | —  | 5        | —  | 28     | 6  |
| P.3 . . . . .     | 22                  | 18 | 19       | 2  | 7          | —  | 3        | —  | 51     | 20 |
| P.2 . . . . .     | 15                  | 3  | 4        | 1  | 3          | —  | —        | —  | 22     | 4  |
| P.1 . . . . .     | 7                   | —  | 4        | —  | 2          | —  | 1        | —  | 14     | —  |
| G.7 . . . . .     | 16                  | 1  | 7        | —  | 1          | —  | 1        | —  | 25     | 1  |
| G.6 . . . . .     | 27                  | 4  | 13       | —  | 3          | —  | 3        | —  | 46     | 4  |
| G.5 . . . . .     | 54                  | 7  | 17       | 1  | 7          | 3  | 6        | —  | 84     | 11 |
| G.4 . . . . .     | 53                  | 2  | 14       | —  | —          | —  | 5        | —  | 72     | 2  |
| G.3 . . . . .     | 39                  | 12 | 8        | 1  | 1          | —  | —        | —  | 48     | 13 |
| G.2 . . . . .     | 25                  | 14 | —        | 1  | —          | —  | —        | —  | 25     | 15 |
| G.1 . . . . .     | 6                   | 2  | —        | —  | —          | —  | —        | —  | 6      | 2  |
|                   | 288                 | 69 | 94       | 6  | 31         | 3  | 28       | —  | 441    | 78 |
| Totals . . . . .  | 359                 |    | 105      |    | 34         |    | 29       |    | 527    |    |

(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.

6.1.5 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 1972 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 36 in 1972 (for 130 officials). Table 5 concerns the Headquarters staff whose salaries are paid from the technical cooperation budget and Table 6 concerns technical cooperation experts. The number of nationalities represented in these three categories of staff was 51 in 1972 (for 376 officials) as against 49 in 1971 (for 347 officials).

TABLE 4

*Geographical distribution on 31 December 1972*

(Officials whose salary is 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     |
|--|-------------------|-----|---------|-------|---------|---------|---------|-------|-------|-------|-----------|
| Afghanistan . . .                                  |                   |     |         | 1     |         |         |         |       |       |       | 1         |
| Germany (Fed. Rep. of) .                           |                   | 1   |         | 1     | 2       | 1       | 1       |       | 1     |       | 7         |
| Argentine Rep. .                                   | 1                 |     | 1       |       |         |         |         |       |       |       | 2         |
| Australia (C'wealth of) . .                        | 1                 |     | 1       |       |         |         |         |       |       |       | 2         |
| Belgium . . . .                                    |                   |     |         | 1     | 1 (-)   |         |         |       |       |       | 3 (2)     |
| Brazil . . . . .                                   |                   |     |         |       | 1 (1)   |         |         |       |       |       | 2         |
| Canada . . . . .                                   |                   |     |         | (2)   |         | 1 (-)   | 1       |       |       |       | — (1)     |
| China . . . . .                                    |                   |     | 1       |       | 1       |         |         |       |       |       | 2 (3)     |
| Denmark . . . . .                                  |                   |     |         |       | 1       |         |         |       |       |       | 1         |
| Egypt . . . . .                                    |                   |     |         |       |         | 1       |         |       |       |       | 1         |
| Spain . . . . .                                    |                   |     |         |       | 3       | 2       | 2       |       |       |       | 7         |
| U.S.A. . . . .                                     | 1                 | 1   |         | 2     |         |         |         |       |       |       | 4         |
| France . . . . .                                   | 1 (2)             | 2   | 2       | 1     | 6       | 4       | 1       | 2     |       | 1 (-) | 20        |
| Haiti (Rep. of) . .                                |                   |     |         |       | 1       |         |         |       |       |       | 1         |
| Hungarian People's Rep. .                          |                   |     |         |       | 1       |         |         |       |       |       | 1         |
| India (Rep. of) . .                                |                   | 1   |         | 1     | 1       |         | 1 (-)   |       |       |       | 4 (3)     |
| Indonesia (Rep. of)                                |                   |     |         |       | 1 (-)   | (1)     |         |       |       |       | 1         |
| Iran . . . . .                                     |                   |     |         |       | 1       |         |         |       |       |       | 1         |
| Iraq (Rep. of) . .                                 |                   |     |         |       | 1       |         |         |       |       |       | 1         |
| Ireland . . . . .                                  |                   |     |         |       | (1)     |         |         |       |       |       | — (1)     |
| Italy . . . . .                                    |                   |     |         | 1     | 1       |         | 1       |       |       |       | 3         |
| Japan . . . . .                                    | 1                 |     |         | 1 (-) | 3       | 1 (2)   |         |       |       |       | 6         |
| Morocco (Kingdom of) .                             | 1                 |     |         |       | 1 (-)   |         |         |       |       |       | 2 (1)     |
| Mexico . . . . .                                   |                   |     |         | 1 (-) | (1)     |         |         |       |       |       | 1         |
| Norway . . . . .                                   |                   |     |         |       |         |         |         |       | (1)   | 1 (-) | 1         |
| Pakistan . . . . .                                 |                   |     |         |       | 1       |         |         |       |       |       | 1         |
| Paraguay . . . . .                                 |                   |     |         | 1     |         |         |         |       |       |       | 1         |
| Netherlands (Kingdom of the) . .                   |                   |     |         |       | 1 (-)   | (1)     |         |       |       |       | 1         |
| Poland (People's Rep. of) . . . .                  |                   |     |         |       | 1       |         |         |       |       |       | 1         |
| Syria . . . . .                                    |                   |     |         |       |         | 1       |         |       |       |       | 1         |
| United Kingdom of Gt. Britain and Northern Ireland |                   | 1   | 4 (3)   | 2 (3) | 1       | 2       | 1       | 1     | (1)   |       | 12 (13)   |
| Sweden . . . . .                                   |                   |     |         |       | 1       |         |         |       |       |       | 1         |
| Switzerland (Conf. of) . . .                       |                   |     | 1       | 5 (4) | 7 (9)   | 7       | 6 (5)   | 1 (2) | 1     |       | 28 (29)   |
| Czechoslovak Soc. Rep. . . .                       |                   | 1   |         |       | 1       |         |         |       |       |       | 2         |
| Tunisia . . . . .                                  | 1                 |     |         |       |         |         |         |       |       |       | 1         |
| Turkey . . . . .                                   |                   |     | 1       |       |         | 1       |         |       |       |       | 2         |
| U.S.S.R. . . . .                                   | 1                 |     |         | 1     | 2       |         |         |       |       |       | 4         |
| Yugoslavia (Fed. Soc. Rep. of) .                   |                   |     | 1       |       |         |         |         |       |       |       | 1         |
|  | 8 (9)             | 7   | 11 (10) | 19    | 41 (42) | 22 (24) | 14 (12) | 4 (5) | 2 (4) | 2 (-) | 130 (132) |

(Wherever changes have taken place, the figure for 1971 appears in brackets.)

TABLE 5

*Geographical distribution on 31 December 1972*

(Officials whose salary is paid from the Technical Cooperation Budget)

| Country   | D.1 | P.4   | P.3     | P.2   | P.1 | Total   |
|---|-----|-------|---------|-------|-----|---------|
| Germany (Fed. Rep. of) . . . . .                                |     |       | 1       |       |     | 1       |
| Argentina . . . . .   |     |       | 1 (—)   |       |     | 1 (—)   |
| Brasil . . . . .  |     |       | (1)     |       |     | — (1)   |
| Korea (Rep. of) . . . . .                                       |     |       |         | 1     |     | 1       |
| Ethiopia . . . . .  |     | 1 (—) | (1)     |       |     | 1       |
| France . . . . .  |     | 1     | 1       | 1     |     | 3       |
| Greece . . . . .  |     |       | 1       |       |     | 1       |
| India (Rep. of) . . . . .                                       |     | 1     | 1       |       |     | 2       |
| Italy . . . . .   |     | 1     |         | 1     |     | 2       |
| Japan . . . . .   |     |       | 1 (2)   |       |     | 1 (2)   |
| Netherlands (Kingdom of the) . . .                              |     | 1     |         |       |     | 1       |
| United Kingdom of Gt. Britain and<br>Northern Ireland . . . . . |     | (1)   |         |       |     | — (1)   |
| Sweden . . . . .  | 1   |       | 2       |       |     | 3       |
| Switzerland (Conf. of) . . . . .                                |     | (1)   | 1 (—)   | 1 (—) | (1) | 2       |
| U.S.S.R. . . . .  |     |       | 1       |       |     | 1       |
| Yugoslavia (Fed. Soc. Rep. of) . . .                            |     | 1     |         |       |     | 1       |
|   | 1   | 6 (7) | 10 (11) | 4 (3) | (1) | 21 (23) |

(The figures for 1971 appear in brackets.)

TABLE 6

*Geographical distribution on 31 December 1972*

(Experts whose salary is paid from the Technical Cooperation Budget)

| Country                       | P.1    | P.2   | P.3   | P.4       | P.5     | P.6     | Total     |
|-------------------------------|--------|-------|-------|-----------|---------|---------|-----------|
| Afghanistan . . . . .         |        |       |       | 1 (-)     |         |         | 1 (-)     |
| Germany (Fed. Rep. of) . .    |        |       | 1 (-) | 15 (14)   | 5 (5)   | 1 (-)   | 22 (19)   |
| Argentina . . . . .           |        |       |       | 1 (1)     | 3 (3)   | 1 (1)   | 5 (5)     |
| Australia . . . . .           |        |       |       | 4 (1)     | 5 (3)   | - (1)   | 9 (5)     |
| Belgium . . . . .             |        |       |       | 3 (3)     | 1 (1)   |         | 4 (4)     |
| Brazil . . . . .              |        |       |       |           | 1 (1)   |         | 1 (1)     |
| Canada . . . . .              |        |       | 1 (1) | 2 (1)     | 2 (2)   |         | 5 (4)     |
| Chile . . . . .               |        |       |       |           | 1 (-)   |         | 1 (-)     |
| China . . . . .               |        |       |       |           | - (1)   |         | - (1)     |
| Colombia . . . . .            |        |       |       | 1 (-)     | 1 (1)   |         | 2 (1)     |
| Cuba . . . . .                |        |       |       | 1 (1)     |         |         | 1 (1)     |
| Denmark . . . . .             |        |       |       | 1 (1)     |         |         | 1 (1)     |
| Egypt . . . . .               |        |       |       | 2 (2)     | 2 (2)   |         | 4 (4)     |
| United States . . . . .       |        |       |       | 3 (2)     | 5 (4)   | 2 (2)   | 10 (8)    |
| Ethiopia . . . . .            |        |       |       |           | 1 (-)   |         | 1 (-)     |
| France . . . . .              |        | - (1) | 2 (1) | 19 (19)   | 4 (2)   | 2 (2)   | 27 (25)   |
| Guyana . . . . .              |        |       |       | 1 (1)     |         |         | 1 (1)     |
| India . . . . .               |        | 1 (1) |       | 12 (13)   | 4 (3)   | 1 (1)   | 18 (18)   |
| Ireland . . . . .             |        |       |       | 2 (2)     | 2 (2)   |         | 4 (4)     |
| Israel . . . . .              |        |       |       | 1 (1)     |         |         | 1 (1)     |
| Italy . . . . .               |        |       |       | 3 (1)     | 2 (2)   |         | 5 (3)     |
| Japan . . . . .               |        |       |       | 7 (9)     | 2 (2)   | 1 (1)   | 10 (12)   |
| Morocco . . . . .             |        |       |       |           |         | 1 (1)   | 1 (1)     |
| Norway . . . . .              |        |       |       | 2 (2)     | 2 (2)   | 1 (1)   | 5 (5)     |
| New Zealand . . . . .         |        |       |       | 2 (3)     |         |         | 2 (3)     |
| Pakistan . . . . .            |        |       |       | 5 (4)     | 2 (3)   |         | 7 (7)     |
| Netherlands . . . . .         | 7 (3)  | 1 (-) |       | 3 (2)     | 1 (2)   |         | 12 (7)    |
| Peru . . . . .                |        |       |       |           | 2 (1)   |         | 2 (1)     |
| Poland (People's Rep. of) . . |        |       |       | 1 (1)     |         |         | 1 (1)     |
| United Kingdom . . . . .      |        |       | 1 (2) | 19 (15)   | 10 (11) | 2 (4)   | 32 (32)   |
| Sierra Leone . . . . .        |        |       |       | 1 (-)     |         |         | 1 (-)     |
| Sudan . . . . .               |        |       |       |           | 1 (-)   |         | 1 (-)     |
| Sweden . . . . .              | 8 (1)  |       |       | 9 (4)     | 2 (2)   | 1 (1)   | 20 (8)    |
| Switzerland . . . . .         |        |       | 1 (-) | 2 (1)     | 3 (1)   |         | 6 (2)     |
| Czechoslovakia . . . . .      |        |       |       | - (1)     |         |         | - (1)     |
| Turkey . . . . .              |        |       |       | 1 (-)     |         |         | 1 (-)     |
| U.S.S.R. . . . .              |        | - (1) |       | 1 (2)     | - (2)   |         | 1 (5)     |
| Uruguay . . . . .             |        |       |       |           | 1 (1)   |         | 1 (1)     |
|                               | 15 (4) | 2 (3) | 6 (4) | 125 (107) | 65 (59) | 13 (15) | 226 (192) |

(The figure for 1971 appears in brackets)

## 6.2 FINANCIAL MATTERS

In accordance with Article 10, number 146, of the Convention (Montreux, 1965) and Article 46 of the I.T.U. Financial Regulations, the Secretary-General prepares and submits each year to the Administrative Council a Financial Operating Report containing all relevant information on the financial administration and the accounting results of the past year. After the report has been examined and approved by the Administrative Council, it is sent to the Members of the Union. Nevertheless, to give an idea of the credits allocated to the different activities of the Union, the budget for 1972 is reproduced in Annex 2 to this report.

In accordance with the provisions of Article 16 of the Convention, (Montreux, 1965) and Articles 2 and 6 of the I.T.U. Financial Regulations, the budget of the Union comprises, on the one hand, recurrent expenditure (Administrative Council, General Secretariat, International Frequency Registration Board, the Secretariats of the International Consultative Committees and the Union's laboratories and technical equipment) and, on the other, expenditure on plenipotentiary conferences, world administrative conferences and all meetings of the International Consultative Committees. There are also two supplementary budgets, namely, the Technical Cooperation Special Accounts budget (administrative costs) and the supplementary publications budget.

Additional Protocol I to the Convention (Montreux, 1965) fixes the limits within which the Administrative Council is authorized to establish the annual budgets of the Union. For 1972, however, a limit was adopted for recurrent expenditure only which was 3% higher than the amount of 20,400,000 Swiss francs fixed for 1971. The limit for recurrent expenditure in 1972 is thus 21,012,000 Swiss francs. Paragraph 5 of this Additional Protocol authorizes the Administrative Council to exceed this limit to take account of increases in the salary scales, pension contributions or allowances, including post adjustments, established by the United Nations for application to its staff employed in Geneva, and fluctuations in the exchange rate between the Swiss franc and the U.S. dollar which would involve additional expenses for the Union.

At its 26th Session, 1971, by Resolution No. 689, the Administrative Council approved the budgets for 1972 amounting to:

26,489,300 Swiss francs for recurrent expenditure, of which

20,726,300 Swiss francs are within the limit of expenditure

5,763,000 Swiss francs are outside the limit,

3,194,000 Swiss francs for conferences and meetings, including seminars;

35,000 Swiss francs for expenses covered by the Renewal Fund for simultaneous interpretation and sound recording equipment and by the C.C.I.T.T. Reserve Fund;

4,619,600 Swiss francs for Technical Cooperation administrative costs;

2,980,000 Swiss francs for the supplementary publications budget.

In the same Resolution, the Administrative Council fixed the amount of the contributory unit for 1972 at 58,200 Swiss francs, on the basis of the classification chosen by Members in accordance with numbers 212 and 213 of the Convention (Montreux, 1965), i.e. on the basis of a total of 479½ units.

Finally, in accordance with Article 16, number 230, of the Montreux Convention, the Administrative Council fixed a figure of 10,000 Swiss francs as the annual unit of contribution in 1972 towards defraying the expenses of meetings of the C.C.I.R. and the C.C.I.T.T. payable by the

recognized private operating agencies, scientific or industrial organizations and international organizations not exempt by virtue of Council Resolution No. 574.

By Resolution No. 703 adopted at its 27th Session, the Administrative Council authorized the inclusion in the 1972 budget of additional credits intended mainly to cover expenditure arising from changes in the employment conditions of the common system of the United Nations and the specialized agencies and to meet the expenses of the C.C.I. Study Groups.

Under this Resolution, the budget for 1972 was fixed at the following amounts:

26,986,700 Swiss francs for recurrent expenditure, of which

20,796,500 Swiss francs are within the limit of expenditure and

6,190,200 Swiss francs are outside the limit;

3,785,000 Swiss francs for conferences and meetings, including seminars;

35,000 Swiss francs for expenditure covered by the Renewal Fund for simultaneous interpretation and sound recording equipment and by the C.C.I.T.T. Reserve Fund;

5,018,000 Swiss francs for Technical Cooperation administrative costs;

2,980,000 Swiss francs for the supplementary publications budget.

By its 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 the rates and class of post adjustment as and when those changes are put into force by the United Nations for the staff of the United Nations Office at Geneva.

The pensionable remuneration of staff in the Professional category and above was increased by 5% on 1 July 1972. The salary scale of staff in the General Service category was changed by the United Nations on 1 July 1972, with effect retroactively from 1 April 1972, and the post adjustment paid to staff in the Professional category and above raised by 1 class by the United Nations as from 1 August 1972.

Also, the official exchange rate of the U.S. dollar was reduced from 3.84 to 3.80 as from 1 October 1972 and the salary scales of staff in the General Services category were again amended by the United Nations with effect from 1 December 1972.

These changes were applied to the staff of the Union on the same dates. They resulted in an increase of 514,500 Swiss francs in the ordinary budget and 91,300 Swiss francs in the Technical Cooperation Special Accounts budget.

The ordinary budget of the Union (recurrent expenditure) and the Technical Cooperation Special Accounts budget finally amounted to 27,501,200 Swiss francs and 5,109,300 Swiss francs respectively in 1972.

At its 27th Session, by Resolution No. 707, the Administrative Council also approved the budget for 1973 for the following amounts:

28,054,200 Swiss francs for recurrent expenditure;

1,500,000 Swiss francs for recurrent expenditure entailed by installation in new premises;

5,237,000 Swiss francs for conferences and meetings, including seminars;

35,000 Swiss francs for expenditure covered by the Renewal Fund for simultaneous interpretation and sound reproduction equipment and by the C.C.I.T.T. Reserve Fund;

5,656,000 Swiss francs for Technical Cooperation administrative costs;

6,372,000 Swiss francs for the supplementary publications budget.

By the same Resolution, the Administrative Council fixed the amount of the contributory unit in 1973 at 67,600 Swiss francs on the basis of the classification chosen by Members in accordance with numbers 212 and 213 of the Convention (Montreux, 1965), i.e. on the basis of a total of 480½ units.

The Administrative Council also decided to fix a figure of 12,500 Swiss francs as the annual unit of contribution in 1973 towards defraying the expenses of meetings of the C.C.I.R. and the C.C.I.T.T. payable by recognized private operating agencies, scientific and industrial organizations and international organizations not exempt by virtue of Resolution No. 574.

*Classification of the Members of the Union for the apportionment of Union expenditure in 1972*

At the end of 1971, the Union had 140 Members contributing on the basis of a total of 479½ units. It had no Associate Members.

As a result of the accession of 2 new Members in 1972, the I.T.U. had 143 Members on 31 December 1972, contributing on a basis of 481½ units towards Union expenditure.

*Cash resources*

The liquid assets of the Union were in a difficult position in 1972 and in August 1972 advances had to be requested from the Swiss Confederation. These advances did not exceed 4,000,000.— Swiss francs and were reimbursed in December 1972 when contributions were received for 1973.

*Contributions in arrears*

Total amounts due on 31 December for the years 1970, 1971 and 1972 are as follows:

|                            |                            |
|----------------------------|----------------------------|
| 31 December 1970 . . . . . | 9,383,605.28 Swiss francs  |
| 31 December 1971 . . . . . | 10,006,576.71 Swiss francs |
| 31 December 1972 . . . . . | 11,318,136.00 Swiss francs |

It will be noted that the amount of the arrears has again increased, by 1,311,559.29 Swiss francs.

Annex 7 to this report shows the situation of the main debtors to the Union on 31 December 1972.

*I.T.U. Staff Superannuation and Benevolent Funds and membership of the United Nations Joint Staff Pension Fund*

The following table shows the distribution of I.T.U. staff members among the various funds on 31 December 1972.

|   | Working<br>Staff | Pensioned<br>Staff | Widows'<br>Pensions | Orphans'<br>Pensions |
|---|------------------|--------------------|---------------------|----------------------|
| Provident Fund . . . . .                  | 1                | 20                 | 6                   | —                    |
| Reserve and Complement Fund . . . . .     | —                | 10                 | 4                   | 3                    |
| United Nations Joint Staff Pension Fund   |                  |                    |                     |                      |
| — Headquarters staff . . . . .            | 526              | 25                 | 10                  | 10                   |
| — Technical Cooperation experts . . . . . | 224              | 6                  | 3                   | 5                    |
| TOTAL . . . . .                           | 751              | 61                 | 23                  | 18                   |



The Management Report of the I.T.U. Staff Superannuation and Benevolent Funds which constitutes Part Two of the Financial Operating Report for 1972, gives full information on the activities of the Management Board of those Funds.

Further information on the United Nations Joint Staff Pension Fund is contained in the Report on the financial operations resulting from participation of the Union in the Joint Fund, which constitutes Part Three of the Financial Operating Report for 1972.

## 7. RELATIONS WITH THE UNITED NATIONS AND OTHER INTERNATIONAL ORGANIZATIONS

### UNITED NATIONS

During 1972 the I.T.U. was represented, within the limits of available resources, at meetings of the United Nations when matters of common interest were under discussion. As in the past, the work of the Economic and Social Council and its two Committees was closely followed during the summer session which is held in Geneva.

The I.T.U. also continued to participate in the work of the Administrative Committee on Coordination and to cooperate with the Advisory Committee on Administrative and Budgetary Questions, the Consultative Committee on Administrative Questions, the International Civil Service Advisory Board, the Consultative Committee on Public Information and the Inter-Organization Board for Information Systems and Related Activities in the field of economic and social development.

In accordance with Administrative Council Resolution No. 636, the I.T.U. continued to pay special attention to meetings dealing with the peaceful uses of outer space and in 1972 was represented at meetings of the Legal Sub-Committee and the Scientific and Technical Sub-Committee of the United Nations Committee on the Peaceful Uses of Outer Space and also at a meeting of the United Nations Panel on Remote Sensing Systems for Earth Resources Surveys, created in accordance with General Assembly Resolution 2733C (XXV).

Pursuant to General Assembly Resolution 2130 (XX), the 11th Report on Telecommunication and the Peaceful Uses of Outer Space was presented to the Economic and Social Council and to the United Nations Committee on the Peaceful Uses of Outer Space.

Every effort has been made to collaborate with the Joint Inspection Unit and to provide information requested by the Inspectors. The only reports issued in 1972 of concern to the I.T.U. were one containing the outcome of the study initiated in 1971, at the request of the Administrative Committee on Coordination, of the operational communications requirements of the various organizations in the United Nations system, and one on the introduction of cost accounting in the Organizations of the United Nations family. These reports were submitted to the Administrative Council at its 28th Session.

### REGIONAL ORGANIZATIONS

#### *Africa*

I.T.U. collaboration with regional and sub-regional organizations in Africa was re-enforced in 1972.

The O.A.U., E.C.A. and A.D.B. have been kept continuously informed on the development of the Pan-African Telecommunication survey project with the I.T.U. inviting them to comment on all draft reports of consultants and taking due note of their comments. The highlight of the collabor-

ation in this respect was the October/November 1972 Implementation Meeting on the Pan-African project at Addis Ababa which was organized by the I.T.U. and co-sponsored by the O.A.U., E.C.A., A.D.B. and the U.N.D.P. The O.A.U. and E.C.A. also contributed materially to the organization and holding of the meeting.

Furthermore, the two I.T.U. regional experts stationed in Yaounde and Dakar have sent copies of their regular reports to the regional expert stationed in Addis Ababa, enabling the latter to inform the O.A.U. and E.C.A. on telecommunication developments in the continent as a whole. A very good working relation has been established between the I.T.U. regional expert and the O.A.U. and E.C.A. officers responsible for telecommunication whereby a free flow of information has been maintained.

The I.T.U. was invited to all major meetings of the O.A.U., E.C.A., A.D.B. and the U.A.M.P.T., where it was represented at the highest possible level. Whenever the engagements of the Secretary-General allowed, he himself, accompanied by senior officials, took part in the deliberations of these organizations.

The I.T.U. has been requested to advise on the setting up of an African Telecommunications Union for which it gave a positive and constructive aide-memoire for African Administrations to consider. This item was also briefly discussed on the occasion of the meeting at Addis Ababa, referred to above.

### *Latin America*

The Headquarters of the Union maintained contact with the Economic Commission for Latin America (E.C.L.A.) through one of the I.T.U. Regional Experts stationed in the area.

Following consultations between E.C.L.A. and I.T.U., it was decided that a Memorandum of Understanding be concluded in order to strengthen the links of cooperation already existing between the two organizations.

The Memorandum provides for the exchange of information by E.C.L.A. and I.T.U. on activities of mutual interest, including the convening of conferences and meetings and for the provision of mutual assistance on questions which may effect telecommunication development and progress. The memorandum was signed in Santiago de Chile on 29 September 1972 by the Secretary-General of I.T.U. and the Executive Secretary of E.C.L.A.

Special mention should also be made of the excellent relations which have been established between the I.T.U. and the Organization of American States and in particular its Inter-American Telecommunications Conference (CITEL).

In accordance with the CITEL Organization Plan, the next meeting of the Conference will be held in 1975.

During 1972, two meetings of the Permanent Steering Committee of CITEL (COM/CITEL), organized in Caracas and Mexico respectively, were also attended by the three I.T.U. experts on the continent.

The three I.T.U. Regional Experts in Latin America have cooperated closely with the CITEL authorities, a cooperation which was particularly important in the implementation of the project for a pre-investment study for the Inter-American Telecommunication Network. This project, executed by the Inter-American Development Bank in association with the I.T.U. under the financial assistance of the U.N.D.P., was terminated at the end of 1971.

### *Europe, Mediterranean and Middle East Region*

Technical assistance projects in the form of expert advice and fellowship programmes have been established in close cooperation with the United Nations Development Programme European Office in Geneva.

There have also been contacts between the I.T.U. and the Economic Commission for Europe.

*Asia and the Far East*

With an increasing awareness that telecommunications form an important input into economic and social development, the existing cooperation between the I.T.U. and the Economic Commission for Asia and Far East (ECAFE) has achieved a new landmark as reflected in the Report of the Third Session of the Telecommunication Sub-Committee held during October 1972. With the end of 1972, the pre-investment survey for the Asian Telecommunication Network which was being carried out with the participation of as many as 12 countries of the ECAFE region reached its concluding phase and a point of departure as it entered an active phase of implementation. This has spurred the Telecommunications Sub-Committee to bring into focus the usefulness of undertaking similar studies in the rest of the region and has urged the I.T.U. to augment the Joint ECAFE/I.T.U. team in such a way as would deal not only with the implementation of the Network but undertake similar pre-investment studies in other parts of the region as well as provide advisory services in different sectors, including radio monitoring, broadcasting, traffic studies, etc. A large number of recommendations have emerged as a result of the deliberations of the Telecommunications Sub-Committee for being implemented during the Second United Nations Development Decade. The more important of these recommendations is to give the highest priority to the implementation of the regional telecommunication network and to assign the Senior Regional Expert of the I.T.U. as a Coordinator for all action programme in this connection. The special appreciation of the technical assistance rendered to the region by regional experts of ECAFE/I.T.U. Unit by all countries and the desire to continue this happy collaboration between ECAFE and I.T.U. is particularly significant because this is an index of the most useful work that is being carried out by the team of experts in various sectors where their advice and assistance is sought.

The meetings of the Sub-Committee had full representation of the I.T.U. Headquarters and the ECAFE/I.T.U. Unit. The review of developments in the field of telecommunications undertaken in these meetings is expected to enable developing countries to frame the national communications policies towards an integrated development in all branches and types of communications. The highlights of the joint deliberations touched upon the core problems of the region in the field of telecommunications in respect of planning, management and various other development support facilities and training for all services, including broadcasting and monitoring. The objective of establishing "Asian Telecommunity" was again discussed as a worthwhile objective into which the regional development should ultimately lead.

The Union was also represented at the meetings of the Asian Broadcasting Union held in Iran. The Engineering Committee met from 1-3 October 1972 at Shiraz while the General Assembly met from 9-14 October 1972 at Teheran. The members of the Asian Broadcasting Union have enthusiastically welcomed and offered cooperation in preparing for the proposed Seminar on Planning of Broadcasting Systems which I.T.U. has proposed to the United Nations Development Programme as extremely appropriate in the context of the forthcoming I.T.U.'s LF/MF Regional Conference of 1974-1975. The General Assembly adopted a Resolution making several constructive suggestions for the content of the proposed Seminar on Broadcasting as well as other Resolutions to push forward relevant studies as would contribute to the Regional LF/MF Broadcasting Conference 1974-1975 as well as to the preparations for Regional Conferences on Satellite Broadcasting that I.T.U. may hold in the future.

## SPECIALIZED AGENCIES

The Headquarters of the Union continued to maintain close relations with the agencies which have a special interest in telecommunications, i.e. the United Nations Educational, Scientific and Cultural Organization (UNESCO), the International Civil Aviation Organization (I.C.A.O.), the World Meteorological Organization (W.M.O.) and the Inter-Governmental Maritime Consultative Organization (I.M.C.O.).

I.T.U. officials attended the UNESCO Preparatory Conference of Governmental Experts to Formulate a Draft Convention on the Legal Status of Ocean Data Acquisition Systems, the 2nd Meeting of the Committee of Governmental Experts on Problems in the Field of Copyright and of the Protection of Performers, Producers of Phonograms and Broadcasting Organizations, raised by Transmission via Space Satellites convened by UNESCO and the World Intellectual Property Organization, and a meeting of Experts on the Draft Declaration of Guiding Principles on the use of Broadcasting for the Free Flow of information, the Spread of Education and Greater Cultural Exchange. An official of the I.T.U. also joined a UNESCO Mission of Experts to Africa which surveyed the potentialities of space communication for education, information and development in Africa south of the Sahara.

As regards I.C.A.O., I.T.U. Headquarters were represented at the 5th Meeting of the Panel on the Application of Space Techniques relating to Aviation (ASTRA) and at the 7th Air Navigation Conference.

The I.T.U. was represented at the W.M.O. Technical Conference on the means of acquisition and communication of ocean data.

Two meetings of the Maritime Safety Committee of I.M.C.O., two meetings of its Subcommittee on Radiocommunications and two sessions of the Panel of Experts on Maritime Satellites were attended by officials from I.T.U. Headquarters.

Close collaboration has also been maintained with the Universal Postal Union (U.P.U.) with particular reference to the coordination of procedures for the settlement of balances of accounts.

#### RELATIONS WITH OTHER INTERNATIONAL ORGANIZATIONS

Apart from the specialized agencies and the regional organizations mentioned above, the Headquarters of the Union maintained close collaboration with a number of international organizations, among which mention should be made of the following:

African and Malagasy Postal and Telecommunications Union (U.A.M.P.T.)  
 Arab Telecommunication Union  
 Asian Broadcasting Union (A.B.U.)  
 Committee on Space Research (COSPAR)  
 Danube Commission  
 European Broadcasting Union (E.B.U.)  
 Inter-American Association of Broadcasters (I.A.A.B.)  
 International Astronautical Federation (I.A.F.)  
 International Broadcasting and Television Organization (O.I.R.T.)  
 International Council of Scientific Unions (I.C.S.U.)  
 International Criminal Police Organization (INTERPOL)  
 International Electrotechnical Commission (I.E.C.)  
 International Organization for Standardization (I.S.O.)  
 International Red Cross Committee (C.I.C.R.)  
 International Marine Radio Association (C.I.R.M.)  
 International Union of Radio Science (U.R.S.I.)  
 International Special Committee on Radio Interference (C.I.S.P.R.)  
 International Telecommunications Satellite Consortium (INTELSAT)  
 Inter-Union Committee on Allocation of Frequencies for Radio Astronomy  
 and Space Science (I.U.C.A.F.)  
 Union of National Radio and Television Organizations of Africa (U.R.T.N.A.)

\* \* \*

A complete list of meetings of the United Nations and other international organizations in which officials of the Union participated in 1972 appears in Annex 5 to this report.

ANNEX 1

**POSITION ON 31 DECEMBER 1972  
OF MEMBER COUNTRIES IN RELATION TO THE ACTS OF THE UNION**

Table I. *Montreux Acts (1965) and Regulations annexed thereto:*

- International Telecommunication Convention, Montreux, 1965;
- Optional Additional Protocol to the International Telecommunication Convention, Montreux, 1965, on the Compulsory Settlement of Disputes;
- 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);
- Telegraph and Telephone Regulations (Geneva, 1958).

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).

Tables V.1 to V.6. *Special Agreements:*

- Special Regional Agreement Concerning the Use of the 100-104 MHz Band by the Broadcasting Service (1962);
- Special Agreement for Use of the 582-606 MHz Band for Radionavigation Purposes (Brussels, 1962);
- Special Agreement in Connection with the Use of VHF and UHF in Fixed and Mobile Services in Frontier Areas (Brussels, 1963);
- 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);
- Special Agreements Concerning the Coordinated Use of Frequencies between 29.7 and 470 MHz by the Fixed and Land Mobile Services (Vienna, 1969 and 1970);
- Special Agreement Concerning the Introduction of the Broadcasting Service in the Frequency Band 100-104 MHz (Darmstadt, 1971).

Table I.

POSITION ON

The letter S means that the Act concerned has been signed.  
The letter A in columns 3 or 5 means accession; in the other columns, it means approval.

| Country or group of territories<br>(In the alphabetical order of the French version<br>of the country names) | CONVENTION, etc.                           |                     |   |                          |   |
|--|--|---------------------|---|--------------------------|---|
|  | Plenipotentiary Conference, Montreux, 1965 |                     |   |                          |   |
|  | Class of<br>contribution<br>No. of units   | Convention,<br>etc. | Date on which the<br>instrument of rati-<br>fication or accession<br>was deposited with<br>the General<br>Secretariat | Opt. Add.<br>Protocol ** | Date on which the<br>instrument of rati-<br>fication or accession<br>was deposited with<br>the General<br>Secretariat |
|  |  |                     |   |                          |   |
| 1  | 2  | 3                   | 4   | 5                        | 6   |
| Afghanistan . . . . .  | 1/2  | S <sup>1)</sup>     | 31. I. 1969   | S                        | 31. I. 1969   |
| Albania (People's Republic of) . . . . .   | 1/2  | A                   | 5. V. 1969 <sup>40)</sup>   | —                        |   |
| Algeria (Algerian Democratic and Po-<br>pular Republic) . . . . .  | 3  | S <sup>1)</sup>     | 24. IX. 1968 <sup>2)</sup>  | —                        |   |
| Germany (Federal Republic of) <sup>41)</sup> . . . . .   | 20   | S <sup>1)</sup>     | 16. XII. 1968 <sup>30)</sup>  | —                        |   |
| Saudi Arabia (Kingdom of) . . . . .  | 1  | S <sup>1)</sup>     | 6. IX. 1968 <sup>2)</sup>   | —                        |   |
| Argentine Republic . . . . .   | 15   | S <sup>1)</sup>     | 17. V. 1967   | —                        |   |
| Australia (Commonwealth of) . . . . .  | 18   | S <sup>1)</sup>     | 25. I. 1967   | S                        | 25. I. 1967   |
| Austria . . . . .  | 1  | S <sup>1)</sup>     | 23. I. 1969   | S                        | 23. I. 1969   |
| Barbados . . . . .   | 1/2  | A                   | 16. VIII. 1967  | —                        |   |
| Belgium . . . . .  | 8  | S <sup>1)</sup>     | 23. VI. 1971  | S                        | 23. VI. 1971  |
| Bielorussian Soviet Socialist Republic . . . . .   | 1  | S <sup>1)</sup>     | 29. V. 1969 <sup>2)</sup>   | —                        |   |
| Burma (Union of) . . . . .   | 1  | S <sup>1)</sup>     | 16. VII. 1970   | S                        |   |
| Bolivia . . . . .  | 3  | S <sup>1)</sup>     | 24. IX. 1970  | S                        |   |
| Botswana (Republic of) . . . . .   | 1/2  | A                   | 2. IV. 1968   | —                        |   |
| Brazil . . . . .   | 5  | S <sup>1)</sup>     | 12. VII. 1968   | S                        |   |
| Bulgaria (People's Republic of) . . . . .  | 1  | S <sup>1)</sup>     | 5. VIII. 1969 <sup>43)</sup>  | —                        |   |
| Burundi (Republic of) <sup>17)</sup> . . . . .   | 1/2  | A                   | 21. IV. 1971  | —                        |   |
| Cameroon (United Republic of) <sup>62)</sup> . . . . .   | 1/2  | S <sup>1)</sup>     | 24. IV. 1968  | —                        |   |
| Canada . . . . .   | 18   | S <sup>1)</sup>     | 31. VIII. 1966 <sup>2)</sup>  | S                        | 30. I. 1967   |
| Central African Republic . . . . .   | 1/2  | S <sup>1)</sup>     | 15. VIII. 1966  | S                        | 15. VIII. 1966  |
| Chile . . . . .  | 3  | S <sup>1)</sup>     | 9. VII. 1971 <sup>2)</sup>  | —                        |   |
| China (People's Republic of) <sup>58)</sup> . . . . .  | 15   | A                   | 16. XI. 1972 <sup>60)</sup>   | —                        |   |

Convention, Regulations

31 DECEMBER, 1972

| ADMINISTRATIVE REGULATIONS       |  |   |   |  |                  |    |                  |    |    |                                 |   |                          |                  |  |                  |    |                  |  |
|----------------------------------|--|---|---|--|------------------|----|------------------|----|----|---------------------------------|---|--------------------------|------------------|--|------------------|----|------------------|--|
| Administrative Radio Conferences |  |   |   |  |                  |    |                  |    |    |                                 |   |                          |                  | Administrative Telegraph<br>and Telephone Conference |                  |    |                  |  |
| Radio Regulations                |  |   |   |  |                  |    |                  |    |    | Additional<br>Radio Regulations |   |                          |                  | Geneva<br>(1953)                                     |                  |    |                  |  |
| A.R.C.<br>Geneva<br>(1959)       | Partial<br>Revision<br>E.A.R.C.<br>Geneva<br>(1963)<br>(space) | Partial<br>Revision<br>E.A.R.C.<br>Geneva<br>(1966)<br>(aeronautical) | Partial<br>Revision<br>W.A.R.C.<br>Geneva<br>(1967)<br>(maritime) | Partial<br>Revision<br>W.A.R.C.<br>Geneva<br>(1971)<br>(space-2) |                  |    |                  |    |    | A.R.C.<br>Geneva<br>(1959)      | Partial<br>Revision<br>W.A.R.C.<br>Geneva<br>(1967)<br>(maritime) | Telegraph<br>Regulations |                  | Telephone<br>Regulations                             |                  |    |                  |  |
| 7                                | 8  | 9   | 10  | 11   | 12               | 13 | 14               | 15 | 16 | 17                              | 18  | 19                       | 20               | 21   | 22               | 23 | 24               |  |
| S                                | A <sup>4)</sup>  | —   | A <sup>4)</sup>   | —  | A <sup>4)</sup>  | —  | —                | —  | —  | S                               | A <sup>4)</sup>   | —                        | —                | —  | A <sup>4)</sup>  | —  | A <sup>4)</sup>  |  |
| S                                | <sup>40)</sup>   | —   | <sup>40)</sup>  | —  | <sup>40)</sup>   | —  | <sup>40)</sup>   | —  | —  | S                               | <sup>40)</sup>  | —                        | <sup>40)</sup>   | —  | A                | —  | A                |  |
| —                                | A <sup>4)</sup>  | S   | A   | S  | A <sup>4)</sup>  | S  | A                | S  | —  | —                               | A <sup>4)</sup>   | S                        | A                | —  | A <sup>4)</sup>  | —  | A <sup>4)</sup>  |  |
| S                                | A <sup>23)</sup>   | S   | A <sup>32)</sup>  | S  | A <sup>41)</sup> | S  | A <sup>41)</sup> | S  | A  | S                               | A   | S                        | A <sup>41)</sup> | S  | A <sup>3)</sup>  | S  | A                |  |
| S                                | A <sup>4)</sup>  | —   | A <sup>4)</sup>   | S  | A <sup>4)</sup>  | —  | —                | S  | —  | S                               | A <sup>4)</sup>   | —                        | —                | S  | A <sup>4)</sup>  | S  | A <sup>4)</sup>  |  |
| S                                | A <sup>24)</sup>   | S   | A <sup>3)</sup>   | S  | A                | S  | A                | S  | A  | S                               | A <sup>24)</sup>  | S                        | A                | —  | A <sup>27)</sup> | —  | A <sup>27)</sup> |  |
| S                                | A  | S   | A   | S  | A                | S  | A                | S  | A  | S                               | A   | S                        | A                | S  | A                | S  | A                |  |
| S                                | A  | S   | A   | —  | A                | S  | A                | S  | —  | S                               | A   | S                        | A                | S  | A                | S  | A                |  |
| —                                | A <sup>4)</sup>  | —   | A <sup>4)</sup>   | —  | A <sup>4)</sup>  | —  | —                | —  | —  | —                               | A <sup>4)</sup>   | —                        | —                | —  | A <sup>4)</sup>  | —  | A <sup>4)</sup>  |  |
| S                                | A  | S   | A   | S  | A                | S  | A                | S  | —  | S                               | A   | S                        | A                | S  | A <sup>3)</sup>  | S  | A                |  |
| S                                | <sup>1)</sup>  | S   | A   | —  | A <sup>34)</sup> | —  | <sup>1)</sup>    | S  | —  | S                               | <sup>1)</sup>   | —                        | <sup>1)</sup>    | S  | A                | S  | A                |  |
| S                                | A  | —   | A <sup>4)</sup>   | —  | A <sup>4)</sup>  | —  | A <sup>4)</sup>  | —  | —  | S                               | A   | —                        | A <sup>4)</sup>  | S  | A                | S  | A                |  |
| S                                | A <sup>4)</sup>  | —   | A <sup>4)</sup>   | —  | A <sup>4)</sup>  | —  | A <sup>4)</sup>  | —  | —  | S                               | A <sup>4)</sup>   | —                        | A <sup>4)</sup>  | —  | A <sup>4)</sup>  | —  | A <sup>4)</sup>  |  |
| —                                | A <sup>4)</sup>  | —   | A <sup>4)</sup>   | —  | A <sup>4)</sup>  | —  | —                | —  | —  | —                               | A <sup>4)</sup>   | —                        | —                | —  | A <sup>4)</sup>  | —  | A <sup>4)</sup>  |  |
| S                                | A  | —   | A <sup>4)</sup>   | S  | A <sup>4)</sup>  | S  | —                | S  | —  | S                               | A   | S                        | —                | —  | A                | —  | A                |  |
| S                                | <sup>1)</sup>  | S   | <sup>1)</sup>   | S  | A <sup>12)</sup> | S  | <sup>1)</sup>    | S  | —  | S                               | <sup>1)</sup>   | S                        | <sup>1)</sup>    | S  | A                | S  | A                |  |
| —                                | A <sup>4)</sup>  | —   | A   | —  | A <sup>4)</sup>  | —  | A <sup>4)</sup>  | —  | —  | —                               | A <sup>4)</sup>   | —                        | A <sup>4)</sup>  | —  | A <sup>4)</sup>  | —  | A <sup>4)</sup>  |  |
| —                                | A  | —   | A   | —  | A <sup>4)</sup>  | S  | —                | S  | —  | —                               | A   | S                        | —                | —  | A <sup>4)</sup>  | —  | A <sup>4)</sup>  |  |
| S                                | A  | S   | A <sup>3)</sup>   | S  | A                | S  | A                | S  | A  | S                               | A <sup>3)</sup>   | S                        | A                | S  | A                | —  | <sup>1)</sup>    |  |
| —                                | A  | —   | A   | —  | —                | —  | —                | S  | —  | —                               | A   | —                        | —                | —  | A <sup>4)</sup>  | —  | A <sup>4)</sup>  |  |
| —                                | A <sup>4)</sup>  | —   | A <sup>4)</sup>   | —  | A <sup>4)</sup>  | S  | A <sup>4)</sup>  | S  | —  | —                               | A <sup>4)</sup>   | S                        | A <sup>4)</sup>  | —  | A <sup>4)</sup>  | —  | A <sup>4)</sup>  |  |
| —                                | <sup>60)</sup>   | —   | <sup>60)</sup>  | —  | <sup>60)</sup>   | —  | <sup>60)</sup>   | —  | —  | —                               | <sup>60)</sup>  | —                        | <sup>60)</sup>   | —  | A <sup>4)</sup>  | —  | A <sup>4)</sup>  |  |

<sup>\*)</sup> Convention, Final Protocol, Additional Protocols.  
<sup>\*\*\*)</sup> Optional Additional Protocol on the Compulsory Settlement of Disputes.

Table I.

| Country or group of territories<br>(In the alphabetical order of the French version<br>of the country names)               | CONVENTION, etc.                           |                      |   |                         |   |
|--|--|----------------------|---|-------------------------|---|
|  | Plenipotentiary Conference, Montreux, 1965 |                      |   |                         |   |
|  | Class of<br>contribution<br>No. of units   | Convention,<br>etc.* | Date on which the<br>instrument of rati-<br>fication or accession<br>was deposited with<br>the General<br>Secretariat | Opt. Add.<br>Protocol** | Date on which the<br>instrument of rati-<br>fication or accession<br>was deposited with<br>the General<br>Secretariat |
|  |  |                      |   |                         |   |
| 1  | 2  | 3                    | 4   | 5                       | 6   |
| Cyprus (Republic of) . . . . .   | ½  | S <sup>1)</sup>      | 9. VI. 1971   | S                       | 9. VI. 1971   |
| Vatican City State . . . . .   | ½  | S                    | 6. IV. 1968   | S                       |   |
| Colombia (Republic of) . . . . .   | 3  | S <sup>1)</sup>      |   | —                       |   |
| Congo (People's Republic of the) <sup>48)</sup> . .  | ½  | S <sup>1)</sup>      | 21. XII. 1966   | S                       | 24. I. 1969   |
| Korea (Republic of) . . . . .  | 1  | S <sup>1)</sup>      | 14. III. 1967   | S                       | 14. III. 1967   |
| Costa Rica . . . . .   | ½  | S <sup>1)</sup>      |   | S                       |   |
| Ivory Coast (Republic of the) . . . . .  | 1  | S <sup>1)</sup>      | 15. I. 1968   | S                       |   |
| Cuba . . . . .   | 1  | S <sup>1)</sup>      | 12. II. 1969  | —                       |   |
| Dahomey (Republic of) . . . . .  | ½  | S <sup>1)</sup>      | 10. XI. 1967  | —                       |   |
| Denmark . . . . .  | 5  | S <sup>1)</sup>      | 9. XI. 1966   | A                       | 9. XI. 1966   |
| Dominican Republic . . . . .   | 3  | A                    | 20. III. 1968   | —                       |   |
| Egypt (Arab Republic of) <sup>45)</sup> . . . . .  | 5  | S <sup>1)</sup>      | 12. IX. 1969  | —                       |   |
| El Salvador (Republic of) . . . . .  | 3  | —                    |   | —                       |   |
| United Arab Emirates . . . . .   | 1  | A                    | 27. VI. 1972  | —                       |   |
| Group of Territories represented by the<br>French Overseas Post and Telecom-<br>munication Agency <sup>33)</sup> . . . . . | 1  | S                    | 29. V. 1967   | S                       |   |
| Ecuador . . . . .  | 1  | S <sup>1)</sup>      | 10. X. 1969   | —                       |   |
| Spain . . . . .  | 3  | S <sup>1)</sup>      | 6. VI. 1967   | —                       |   |
| United States of America . . . . .   | 30   | S <sup>1)</sup>      | 29. V. 1967 <sup>2)</sup>   | —                       |   |
| Ethiopia . . . . .   | 1  | S <sup>1)</sup>      | 29. VII. 1967   | —                       |   |
| Fiji . . . . .   | ½  | A                    | 5. V. 1971  | A                       | 18. I. 1972   |
| Finland . . . . .  | 3  | S <sup>1)</sup>      | 3. II. 1967   | S                       | 22. VI. 1967  |
| France . . . . .   | 30   | S                    | 29. V. 1967   | —                       |   |
| Gabon Republic . . . . .   | ½  | S <sup>1)</sup>      | 16. IV. 1971  | S                       |   |
| Ghana . . . . .  | 1  | S <sup>1)</sup>      |   | S                       |   |
| Greece . . . . .   | 1  | S <sup>1)</sup>      | 26. VII. 1968   | S                       | 26. VII. 1968   |
| Guatemala . . . . .  | 1  | S <sup>1)</sup>      | 12. X. 1972   | S                       |   |

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

Convention, Regulations (cont.)

| ADMINISTRATIVE REGULATIONS       |                  |   |                 |  |                 |  |                 |   |    |                              |                 |  |                 |   |                  |                       |                 |
|----------------------------------|------------------|---|-----------------|--|-----------------|--|-----------------|---|----|------------------------------|-----------------|--|-----------------|---|------------------|-----------------------|-----------------|
| Administrative Radio Conferences |                  |   |                 |  |                 |  |                 |   |    |                              |                 |  |                 | Administrative Telegraph and Telephone Conference |                  |                       |                 |
| Radio Regulations                |                  |   |                 |  |                 |  |                 |   |    | Additional Radio Regulations |                 |  |                 | Geneva (1958)                                     |                  |                       |                 |
| 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) |    | A.R.C. Geneva (1959)         |                 | Partial Revision W.A.R.C. Geneva (1967) (maritime) |                 | Telegraph Regulations                             |                  | Telephone Regulations |                 |
| 7                                | 8                | 9   | 10              | 11   | 12              | 13   | 14              | 15  | 16 | 17                           | 18              | 19   | 20              | 21  | 22               | 23                    | 24              |
| —                                | A                | S   | A               | —  | A <sup>4)</sup> | S  | A <sup>4)</sup> | S   |    | —                            | A               | S  | A <sup>4)</sup> | —   | A                | —                     | A               |
| S                                | A                | S   | A               | —  | A <sup>4)</sup> | —  | A               | S   |    | S                            | A               | —  | A               | —   | A                | —                     | A               |
| S                                |                  | S   |                 | S  |                 | S  |                 | S   |    | S                            |                 | S  |                 | S   |                  | S                     |                 |
| —                                | A                | —   | A <sup>4)</sup> | —  |                 | —  | A               | S   |    | —                            | A               | —  | A               | —   | A <sup>4)</sup>  | —                     | A <sup>4)</sup> |
| S                                | A                | S   | A               | —  | A               | S  | A               | S   | A  | S                            | A               | S  | A               | S   | A                | S                     | A               |
| S                                |                  | —   |                 | —  |                 | —  |                 | —   |    | S                            |                 | —  |                 | —   |                  | —                     |                 |
| —                                | A <sup>30)</sup> | —   | A               | —  | A <sup>4)</sup> | S  |                 | S   |    | —                            | A               | S  |                 | —   | A <sup>4)</sup>  | —                     | A <sup>4)</sup> |
| S                                | <sup>1)</sup>    | S   | <sup>1)</sup>   | S  | A               | S  | <sup>1)</sup>   | S   |    | S                            | <sup>1)</sup>   | —  | <sup>1)</sup>   | —   | <sup>1)</sup>    | —                     | <sup>1)</sup>   |
| —                                | A                | —   | A               | —  | A <sup>4)</sup> | —  |                 | —   |    | —                            | A               | —  |                 | —   | A <sup>4)</sup>  | —                     | A <sup>4)</sup> |
| S                                | A                | S   | A               | S  | A               | S  | A               | S   | A  | S                            | A               | S  | A               | S   | A                | S                     | A               |
| S                                | A <sup>4)</sup>  | —   | A <sup>4)</sup> | —  | A <sup>4)</sup> | —  |                 | —   |    | S                            | A <sup>4)</sup> | —  |                 | —   | A                | —                     | A               |
| S                                | A <sup>4)</sup>  | S   | A <sup>4)</sup> | —  | A <sup>4)</sup> | —  | A <sup>4)</sup> | S   |    | S                            | A <sup>4)</sup> | —  | A <sup>4)</sup> | S   | A                | S                     | A               |
| S                                |                  | —   |                 | —  |                 | —  |                 | —   |    | S                            | <sup>5)</sup>   | —  | <sup>5)</sup>   | S   |                  | S                     | <sup>5)</sup>   |
| —                                | A <sup>4)</sup>  | —   | A <sup>4)</sup> | —  | A <sup>4)</sup> | —  | A <sup>4)</sup> | —   |    | —                            | A <sup>4)</sup> | —  | A <sup>4)</sup> | —   | A <sup>4)</sup>  | —                     | A <sup>4)</sup> |
| S                                | A                | S   | A               | S  | A               | S  | A               | S   |    | S                            | A               | S  | A               | S   | A                | S                     | A               |
| —                                | A <sup>4)</sup>  | —   | A <sup>4)</sup> | —  | A <sup>4)</sup> | —  | A <sup>4)</sup> | —   |    | —                            | A <sup>4)</sup> | —  | A <sup>4)</sup> | —   | A <sup>4)</sup>  | —                     | A <sup>4)</sup> |
| S                                | A <sup>3)</sup>  | S   | A               | S  | A               | S  | A               | S   |    | S                            | A               | S  | A               | S   | A                | S                     | A               |
| S                                | A <sup>25)</sup> | S   | A               | S  | A               | S  | A               | S   | A  | —                            | <sup>1)</sup>   | —  | <sup>1)</sup>   | S   | A <sup>28)</sup> | —                     | <sup>1)</sup>   |
| S                                | A                | S   | A               | S  | A <sup>4)</sup> | S  |                 | S   |    | S                            | A               | S  |                 | S   | A                | S                     | A               |
| —                                | A <sup>4)</sup>  | —   | A <sup>4)</sup> | —  | A <sup>4)</sup> | —  | A <sup>4)</sup> | —   |    | —                            | A <sup>4)</sup> | —  | A <sup>4)</sup> | —   | A <sup>4)</sup>  | —                     | A <sup>4)</sup> |
| S                                | A                | S   | A               | —  | A               | S  | A               | S   | A  | S                            | A               | S  | A               | S   | A                | S                     | A               |
| S                                | A                | S   | A               | S  | A               | S  | A               | S   |    | S                            | A               | S  | A               | S   | A <sup>3)</sup>  | S                     | A               |
| —                                | A                | —   | A               | —  | A <sup>4)</sup> | —  | A <sup>4)</sup> | S   |    | —                            | A               | —  | A <sup>4)</sup> | —   | A <sup>4)</sup>  | —                     | A <sup>4)</sup> |
| S                                | A                | S   | A               | S  |                 | S  |                 | S   |    | S                            | A               | S  |                 | —   | A                | —                     | A               |
| S                                | A                | S   | A               | —  | A <sup>4)</sup> | S  |                 | S   |    | S                            | A               | S  |                 | S   | A                | S                     | A               |
| —                                | A <sup>31)</sup> | —   | A <sup>4)</sup> | —  | A <sup>4)</sup> | —  | A <sup>4)</sup> | —   |    | —                            | A               | —  | A <sup>4)</sup> | —   | A                | —                     | A               |



Table I.

| Country or group of territories<br>(In the alphabetical order of the French version<br>of the country names) | CONVENTION, etc.                           |                      |   |                          |   |
|--|--|----------------------|---|--------------------------|---|
|  | Plenipotentiary Conference, Montreux, 1965 |                      |   |                          |   |
|  | Class of<br>contribution<br>No. of units   | Convention,<br>etc.* | Date on which the<br>instrument of rati-<br>fication or accession<br>was deposited with<br>the General<br>Secretariat | Opt. Add.<br>Protocol ** | Date on which the<br>instrument of rati-<br>fication or accession<br>was deposited with<br>the General<br>Secretariat |
| 1  | 2  | 3                    | 4   | 5                        | 6   |
| Guinea (Republic of) . . . . .   | ½  | S <sup>1)</sup>      | 3. X. 1966  | —                        |   |
| Equatorial Guinea (Republic of) . . . . .  | ½  | A                    | 2. VII. 1970  | —                        |   |
| Guyana . . . . .   | ½  | A                    | 8. III. 1967  | —                        |   |
| Haiti (Republic of) . . . . .  | 1  | S                    |   | S                        |   |
| Upper Volta (Republic of) . . . . .  | ½  | S <sup>1)</sup>      | 5. IV. 1968   | —                        |   |
| Honduras (Republic of) . . . . .   | ½  | —                    |   | —                        |   |
| Hungarian People's Republic . . . . .  | 1  | S <sup>1)</sup>      | 20. I. 1969 <sup>39)</sup>  | —                        |   |
| India (Republic of) . . . . .  | 13   | S <sup>1)</sup>      | 1. XII. 1967  | —                        |   |
| Indonesia (Republic of) . . . . .  | 1  | S <sup>1)</sup>      | 12. I. 1970 <sup>40)</sup>  | —                        |   |
| Iran . . . . .   | 1  | S <sup>1)</sup>      | 11. II. 1969  | —                        |   |
| Iraq (Republic of) . . . . .   | 1  | S <sup>1)</sup>      | 15. VII. 1969 <sup>2)</sup>   | —                        |   |
| Ireland . . . . .  | 3  | S                    | 17. V. 1967   | —                        |   |
| Iceland . . . . .  | ½  | S <sup>1)</sup>      | 8. III. 1967  | —                        |   |
| Israel (State of) . . . . .  | 1  | S <sup>1)</sup>      | 20. III. 1968   | —                        |   |
| Italy . . . . .  | 10   | S <sup>1)</sup>      | 28. X. 1968   | —                        |   |
| Jamaica . . . . .  | 1  | S <sup>1)</sup>      | 2. IV. 1969 <sup>2)</sup>   | —                        |   |
| Japan . . . . .  | 20   | S                    | 30. VIII. 1967  | S                        | 30. VIII. 1967  |
| Jordan (Hashemite Kingdom of) . . . . .  | ½  | S <sup>1)</sup>      | 1. III. 1967  | —                        |   |
| Kenya . . . . .  | ½  | S <sup>1)</sup>      | 25. X. 1968   | —                        |   |
| Khmer Republic <sup>50)</sup> . . . . .  | 1  | A                    | 13. IX. 1968  | —                        |   |
| Kuwait (State of) . . . . .  | 1  | S <sup>1)</sup>      | 11. IV. 1968 <sup>2)</sup>  | —                        |   |
| Laos (Kingdom of) . . . . .  | ½  | S                    | 27. IX. 1967  | —                        |   |
| Lesotho (Kingdom of) . . . . .   | ½  | A                    | 26. V. 1967   | —                        |   |
| Lebanon . . . . .  | 1  | S <sup>1)</sup>      | 10. I. 1967   | —                        |   |
| Liberia (Republic of) . . . . .  | 1  | S <sup>1)</sup>      |   | —                        |   |
| Libyan Arab Republic <sup>41)</sup> . . . . .  | ½  | A                    | 15. VIII. 1968  | —                        |   |

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

Convention, Regulations (cont.)

| ADMINISTRATIVE REGULATIONS       |                                |   |                  |  |                                |  |                 |   |    |                              |                  |  |                 |   |                  |                          |                  |
|----------------------------------|--------------------------------|---|------------------|--|--------------------------------|--|-----------------|---|----|------------------------------|------------------|--|-----------------|---|------------------|--------------------------|------------------|
| Administrative Radio Conferences |                                |   |                  |  |                                |  |                 |   |    |                              |                  |  |                 | Administrative Telegraph and Telephone Conference |                  |                          |                  |
| Radio Regulations                |                                |   |                  |  |                                |  |                 |   |    | Additional Radio Regulations |                  |  |                 | Geneva (1958)                                     |                  |                          |                  |
| A.R.C.<br>Geneva<br>(1959)       |                                | Partial Revision<br>E.A.R.C.<br>Geneva<br>(1963)<br>(space) |                  | Partial Revision<br>E.A.R.C.<br>Geneva<br>(1966)<br>(aeronautical) |                                | Partial Revision<br>W.A.R.C.<br>Geneva<br>(1967)<br>(maritime) |                 | Part al Revision<br>W.A.R.C.<br>Geneva<br>(1971)<br>(space-2) |    | A.R.C.<br>Geneva<br>(1959)   |                  | Partial Revision<br>W.A.R.C.<br>Geneva<br>(1967)<br>(maritime) |                 | Telegraph<br>Regulations                          |                  | Telephone<br>Regulations |                  |
| 7                                | 8                              | 9   | 10               | 11   | 12                             | 13   | 14              | 15  | 16 | 17                           | 18               | 19   | 20              | 21  | 22               | 23                       | 24               |
| —                                | A <sup>4)</sup>                | —   | A                | —  | A                              | —  | A               | —   |    | —                            | A <sup>4)</sup>  | —  | A               | —   | A <sup>4)</sup>  | —                        | A <sup>4)</sup>  |
| —                                | A <sup>4)</sup>                | —   | A <sup>4)</sup>  | —  | A <sup>4)</sup>                | —  | A <sup>4)</sup> | —   |    | —                            | A <sup>4)</sup>  | —  | A <sup>4)</sup> | —   | A <sup>4)</sup>  | —                        | A <sup>4)</sup>  |
| —                                | A <sup>4)</sup>                | —   | A <sup>4)</sup>  | —  | A                              | S  | A               | —   |    | —                            | A <sup>4)</sup>  | S  | A               | —   | A <sup>4)</sup>  | —                        | A <sup>4)</sup>  |
| —                                |                                | —   |                  | —  |                                | —  |                 | —   |    | —                            |                  | —  |                 | —   | A <sup>4)</sup>  | —                        | A <sup>4)</sup>  |
| —                                | A <sup>4)</sup>                | —   | A                | —  | A <sup>4)</sup>                | —  | A               | S   |    | —                            | A <sup>4)</sup>  | —  | A               | —   | A <sup>4)</sup>  | —                        | A <sup>4)</sup>  |
| —                                |                                | —   |                  | —  |                                | —  |                 | —   |    | —                            |                  | —  |                 | —   |                  | —                        |                  |
| S                                | A <sup>4)</sup> <sup>39)</sup> | S   | A <sup>4)</sup>  | S  | A <sup>4)</sup> <sup>42)</sup> | S  | A               | S   |    | S                            | A <sup>4)</sup>  | S  | A               | S   | A                | S                        | A                |
| S                                | A                              | S   | A                | S  | A                              | S  | A               | S   |    | S                            | A                | S  | A               | S   | A                | S                        | A <sup>26)</sup> |
| S                                | A                              | S   | A <sup>4)</sup>  | S  | A <sup>4)</sup>                | S  | A <sup>4)</sup> | S   |    | S                            | A                | S  | A <sup>4)</sup> | S   | A                | S                        | A                |
| S                                | A                              | —   | A <sup>4)</sup>  | —  | A <sup>4)</sup>                | —  |                 | S   |    | S                            | A                | —  |                 | S   | A                | S                        | A                |
| S                                | A <sup>4)</sup>                | —   | A <sup>4)</sup>  | —  | A <sup>4)</sup>                | —  | A <sup>4)</sup> | S   |    | S                            | A <sup>4)</sup>  | —  | A <sup>4)</sup> | —   | A <sup>4)</sup>  | —                        | A <sup>4)</sup>  |
| S                                | A                              | S   | A                | S  | A                              | S  | A               | S   |    | S                            | A                | S  | A               | S   | A                | S                        | A                |
| S                                | A                              | S   | A                | —  | A                              | S  | A               | S   |    | S                            | A                | S  | A               | S   | A                | S                        | A                |
| S                                | A                              | S   | A                | —  | A <sup>4)</sup>                | S  |                 | S   |    | S                            | A                | S  |                 | S   | A                | S                        | A                |
| S                                | A <sup>21)</sup>               | S   | A                | S  | A                              | S  |                 | S   |    | S                            | A <sup>21)</sup> | S  |                 | S   | A <sup>21)</sup> | S                        | A <sup>21)</sup> |
| —                                | A <sup>4)</sup>                | S   | A <sup>20)</sup> | S  | A <sup>4)</sup>                | S  | A <sup>4)</sup> | S   |    | —                            | A <sup>4)</sup>  | S  | A <sup>4)</sup> | —   | A <sup>4)</sup>  | —                        | A <sup>4)</sup>  |
| S                                | A                              | S   | A                | S  | A                              | S  | A               | S   | A  | S                            | A                | S  | A               | S   | A                | S                        | A                |
| S                                | A                              | —   | A <sup>4)</sup>  | —  |                                | S  |                 | —   |    | S                            | A                | S  |                 | S   | A                | S                        | A                |
| —                                | A <sup>4)</sup>                | —   | A                | —  | A                              | —  | A               | S   |    | —                            | A <sup>4)</sup>  | —  | A               | —   | A <sup>4)</sup>  | —                        | A <sup>4)</sup>  |
| S                                | A                              | S   | A                | —  | A <sup>4)</sup>                | —  |                 | —   |    | S                            | A                | —  |                 | —   | A                | —                        | A                |
| S                                | A                              | S   | A                | S  | A <sup>4)</sup>                | S  | A               | S   |    | S                            | A                | S  | A               | —   | A                | —                        | A                |
| —                                | A                              | —   | A                | —  | A <sup>4)</sup>                | —  | A               | —   |    | —                            | A                | —  | A               | —   | A                | —                        | A                |
| —                                | A <sup>4)</sup>                | —   | A <sup>4)</sup>  | —  |                                | —  |                 | —   |    | —                            | A <sup>4)</sup>  | —  |                 | —   | A <sup>4)</sup>  | —                        | A <sup>4)</sup>  |
| S                                | A                              | S   | A                | —  |                                | —  |                 | —   |    | S                            | A                | —  |                 | S   | A                | S                        | A                |
| —                                | A                              | S   |                  | —  |                                | S  |                 | S   |    | —                            | A                | S  |                 | —   | A                | —                        | A                |
| S                                | A <sup>4)</sup>                | —   | A <sup>4)</sup>  | —  | A <sup>4)</sup>                | —  |                 | S   |    | S                            | A <sup>4)</sup>  | —  |                 | S   | A <sup>4)</sup>  | S                        | A <sup>4)</sup>  |

Table I.

| Country or group of territories<br>(In the alphabetical order of the French version<br>of the country names) | CONVENTION, etc.                           |                       |   |                          |   |
|--|--|-----------------------|---|--------------------------|---|
|  | Plenipotentiary Conference, Montreux, 1965 |                       |   |                          |   |
|  | Class of<br>contribution<br>No. of units   | Convention,<br>etc. * | Date on which the<br>instrument of rati-<br>fication or accession<br>was deposited with<br>the General<br>Secretariat | Opt. Add.<br>Protocol ** | Date on which the<br>instrument of rati-<br>fication or accession<br>was deposited with<br>the General<br>Secretariat |
| 1  | 2  | 3                     | 4   | 5                        | 6   |
| Liechtenstein (Principality of) . . . . .  | ½  | S <sup>1)</sup>       | 12. XII. 1967   | S                        | 12. XII. 1967   |
| Luxembourg . . . . .   | ½  | S <sup>1)</sup>       | 31. XII. 1968   | S                        | 31. XII. 1968   |
| Malaysia . . . . .   | 3  | S <sup>1)</sup>       | 6. IX. 1968   | —                        |   |
| Malawi . . . . .   | ½  | S <sup>1)</sup>       | 17. I. 1969   | A                        | 16. XII. 1966   |
| Maldives (Republic of) <sup>15)</sup> . . . . .  | ½  | A                     | 28. II. 1967  | —                        |   |
| Malagasy Republic . . . . .  | 1  | S <sup>1)</sup>       | 18. VIII. 1967  | S                        | 30. IX. 1970  |
| Mali (Republic of) . . . . .   | ½  | S <sup>1)</sup>       | 14. III. 1968   | —                        |   |
| Malta . . . . .  | ½  | S <sup>1)</sup>       | 9. V. 1969  | S                        | 9. V. 1969  |
| Morocco (Kingdom of) . . . . .   | 1  | S <sup>1)</sup>       | 17. X. 1968   | —                        |   |
| Mauritius . . . . .  | ½  | A                     | 30. VII. 1969   | —                        |   |
| Mauritania (Islamic Republic of) . . . . .   | ½  | S <sup>1)</sup>       | 13. VIII. 1969  | S                        | 13. VIII. 1969  |
| Mexico . . . . .   | 5  | S <sup>1)</sup>       | 2. XI. 1967   | S                        |   |
| Monaco . . . . .   | ½  | S                     | 22. IV. 1969  | S                        |   |
| Mongolian People's Republic . . . . .  | ½  | S <sup>1)</sup>       | 29. X. 1971 <sup>2)</sup>   | S                        |   |
| Nauru (Republic of) . . . . .  | ½  | A                     | 10. VI. 1969  | —                        |   |
| Nepal . . . . .  | ½  | S <sup>1)</sup>       | 1. VII. 1967 <sup>2)</sup>  | —                        |   |
| Nicaragua . . . . .  | 1  | S <sup>1)</sup>       | 30. I. 1969   | S                        |   |
| Niger (Republic of the) . . . . .  | ½  | S <sup>1)</sup>       | 22. VI. 1967  | —                        |   |
| Nigeria (Federal Republic of) . . . . .  | 2  | S <sup>1)</sup>       | 21. I. 1967   | —                        |   |
| Norway . . . . .   | 5  | S <sup>1)</sup>       | 13. IX. 1968  | A                        | 13. IX. 1968  |
| New Zealand . . . . .  | 5  | S <sup>1)</sup>       | 13. IV. 1967 <sup>14)</sup>   | A                        | 18. VIII. 1969  |
| Oman (Sultanate of) . . . . .  | ½  | A                     | 28. IV. 1972  | —                        |   |
| Uganda . . . . .   | ½  | S <sup>1)</sup>       | 1. IV. 1967   | —                        |   |
| Pakistan . . . . .   | 3  | S <sup>1)</sup>       | 1. VI. 1967 <sup>2)</sup>   | —                        |   |
| Panama . . . . .   | ½  | S <sup>1)</sup>       | 24. IX. 1971  | S                        |   |
| Paraguay . . . . .   | 1  | S <sup>1)</sup>       | 8. IX. 1967   | S                        | 31. V. 1968   |

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

Convention, Regulations (cont.)

| ADMINISTRATIVE REGULATIONS       |                 |   |                 |  |                 |  |                 |   |    |                              |                 |  |                 |   |                 |                          |                 |
|----------------------------------|-----------------|---|-----------------|--|-----------------|--|-----------------|---|----|------------------------------|-----------------|--|-----------------|---|-----------------|--------------------------|-----------------|
| Administrative Radio Conferences |                 |   |                 |  |                 |  |                 |   |    |                              |                 |  |                 | Administrative Telegraph and Telephone Conference |                 |                          |                 |
| Radio Regulations                |                 |   |                 |  |                 |  |                 |   |    | Additional Radio Regulations |                 |  |                 | Geneva (1958)                                     |                 |                          |                 |
| A.R.C.<br>Geneva<br>(1959)       |                 | Partial Revision<br>E.A.R.C.<br>Geneva<br>(1963)<br>(space) |                 | Partial Revision<br>E.A.R.C.<br>Geneva<br>(1966)<br>(aeronautical) |                 | Partial Revision<br>W.A.R.C.<br>Geneva<br>(1967)<br>(maritime) |                 | Partial Revision<br>W.A.R.C.<br>Geneva<br>(1971)<br>(space-2) |    | A.R.C.<br>Geneva<br>(1959)   |                 | Partial Revision<br>W.A.R.C.<br>Geneva<br>(1967)<br>(maritime) |                 | Telegraph<br>Regulations                          |                 | Telephone<br>Regulations |                 |
| 7                                | 8               | 9   | 10              | 11   | 12              | 13   | 14              | 15  | 16 | 17                           | 18              | 19   | 20              | 21  | 22              | 23                       | 24              |
| —                                | A <sup>4)</sup> | S   | A <sup>4)</sup> | —  | A <sup>4)</sup> | —  |                 | S   |    | —                            | A <sup>4)</sup> | —  |                 | —   | A <sup>4)</sup> | —                        | A <sup>4)</sup> |
| S                                | A               | S   | A               | S  | A               | —  | A               | S   |    | S                            | A               | —  | A               | S   | A <sup>3)</sup> | S                        | A               |
| S                                | A               | S   | A               | S  | A               | S  | A <sup>3)</sup> | S   |    | S                            | A               | S  | A <sup>3)</sup> | S   | A               | S                        | A               |
| —                                | A <sup>4)</sup> | —   | A               | —  | A <sup>4)</sup> | —  |                 | —   |    | —                            | A <sup>4)</sup> | —  |                 | —   | A <sup>4)</sup> | —                        | A <sup>4)</sup> |
| —                                | A <sup>4)</sup> | —   | A <sup>4)</sup> | —  |                 | —  |                 | —   |    | —                            | A <sup>4)</sup> | —  |                 | —   | A <sup>4)</sup> | —                        | A <sup>4)</sup> |
| —                                | A <sup>4)</sup> | —   | A               | —  | A               | —  | A               | —   |    | —                            | A <sup>4)</sup> | —  | A               | —   | A <sup>4)</sup> | —                        | A <sup>4)</sup> |
| —                                | A               | —   | A               | —  | A <sup>4)</sup> | —  |                 | S   |    | —                            | A               | —  |                 | —   | A <sup>4)</sup> | —                        | A <sup>4)</sup> |
| —                                | A <sup>4)</sup> | —   | A <sup>4)</sup> | S  | A <sup>4)</sup> | S  | A <sup>4)</sup> | —   |    | —                            | A <sup>4)</sup> | S  | A <sup>4)</sup> | —   | A <sup>4)</sup> | —                        | A <sup>4)</sup> |
| S                                | A <sup>3)</sup> | S   | A               | —  | A <sup>4)</sup> | —  |                 | S   |    | S                            | A               | —  |                 | S   | A               | S                        | A               |
| —                                | A <sup>4)</sup> | —   | A <sup>4)</sup> | —  | A <sup>4)</sup> | —  | A <sup>4)</sup> | —   |    | —                            | A <sup>4)</sup> | —  | A <sup>4)</sup> | —   | A <sup>4)</sup> | —                        | A <sup>4)</sup> |
| —                                | A <sup>4)</sup> | —   | A <sup>4)</sup> | —  | A <sup>4)</sup> | —  | A <sup>4)</sup> | S   |    | —                            | A <sup>4)</sup> | —  | A <sup>4)</sup> | —   | A <sup>4)</sup> | —                        | A <sup>4)</sup> |
| S                                | A               | S   | A               | S  | A <sup>4)</sup> | S  |                 | S   |    | S                            | A               | S  |                 | S   | A               | S                        | A               |
| S                                | A               | S   | A <sup>4)</sup> | —  | A <sup>4)</sup> | S  | A <sup>4)</sup> | S   |    | S                            | A               | S  | A <sup>4)</sup> | S   | A               | S                        | A               |
| —                                | <sup>1)</sup>   | —   | <sup>1)</sup>   | —  | <sup>1)</sup>   | —  | <sup>1)</sup>   | —   |    | —                            | <sup>1)</sup>   | —  | <sup>1)</sup>   | —   | A <sup>4)</sup> | —                        | A <sup>4)</sup> |
| —                                | A <sup>4)</sup> | —   | A <sup>4)</sup> | —  | A <sup>4)</sup> | —  | A <sup>4)</sup> | —   |    | —                            | A <sup>4)</sup> | —  | A <sup>4)</sup> | —   | A <sup>4)</sup> | —                        | A <sup>4)</sup> |
| S                                | A               | —   | A <sup>4)</sup> | —  | A <sup>4)</sup> | —  |                 | —   |    | S                            | A               | —  |                 | —   | A               | —                        | A               |
| S                                | A <sup>4)</sup> | —   | A <sup>4)</sup> | —  | A <sup>4)</sup> | —  |                 | S   |    | S                            | A <sup>4)</sup> | —  |                 | —   | A <sup>4)</sup> | —                        | A <sup>4)</sup> |
| —                                | A               | —   | A <sup>4)</sup> | —  | A               | —  | A               | S   |    | —                            | A               | —  | A               | —   | A <sup>4)</sup> | —                        | A <sup>4)</sup> |
| —                                | A               | —   | A               | —  |                 | —  |                 | S   |    | —                            | A               | —  |                 | —   | A <sup>4)</sup> | —                        | A <sup>4)</sup> |
| S                                | A               | S   | A <sup>4)</sup> | S  | A               | S  |                 | S   |    | S                            | A               | S  |                 | S   | A               | S                        | A               |
| S                                | A               | S   | A               | S  | A               | S  | A               | S   |    | S                            | A               | S  | A               | S   | A               | —                        | A               |
| —                                | A <sup>4)</sup> | —   | A <sup>4)</sup> | —  | A <sup>4)</sup> | —  | A <sup>4)</sup> | —   |    | —                            | A <sup>4)</sup> | —  | A <sup>4)</sup> | —   | A <sup>4)</sup> | —                        | A <sup>4)</sup> |
| —                                | A <sup>4)</sup> | S   | A               | —  | A               | —  | A               | S   |    | —                            | A <sup>4)</sup> | —  | A               | —   | A <sup>4)</sup> | —                        | A <sup>4)</sup> |
| S                                | A <sup>3)</sup> | S   | A <sup>3)</sup> | S  | A               | S  | A <sup>3)</sup> | S   |    | S                            | A               | S  | A <sup>3)</sup> | S   | A               | S                        | A               |
| —                                | A               | —   | A <sup>4)</sup> | —  | A <sup>4)</sup> | —  | A <sup>4)</sup> | —   |    | —                            | A               | —  | A <sup>4)</sup> | —   | A               | —                        | A               |
| S                                | A               | —   | A               | —  | A               | —  | A               | S   |    | S                            | A               | —  | A               | S   | A               | S                        | A               |

Table I.

| Country or group of territories<br>(In the alphabetical order of the French version<br>of the country names)  | CONVENTION, etc.                           |                      |   |                          |   |
|---|--|----------------------|---|--------------------------|---|
|   | Plenipotentiary Conference, Montreux, 1965 |                      |   |                          |   |
|   | Class of<br>contribution<br>No. of units   | Convention,<br>etc.* | Date on which the<br>instrument of rati-<br>fication or accession<br>was deposited with<br>the General<br>Secretariat | Opt. Add.<br>Protocol ** | Date on which the<br>instrument of rati-<br>fication or accession<br>was deposited with<br>the General<br>Secretariat |
| 1   | 2  | 3                    | 4   | 5                        | 6   |
| Netherlands (Kingdom of the) . . . . .  | 8  | S <sup>1)</sup>      | 27. XII. 1966 <sup>19)</sup>  | S                        | 14. I. 1971   |
| Peru . . . . .  | 2  | S <sup>1)</sup>      | 1. III. 1967  | —                        |   |
| Philippines (Republic of the) . . . . .   | 1  | S <sup>1)</sup>      | 1. XI. 1972   | S                        |   |
| Poland (People's Republic of) . . . . .   | 3  | S <sup>1)</sup>      | 17. I. 1969 <sup>2)</sup>   | —                        |   |
| Portugal . . . . .  | 3  | S <sup>1)</sup>      | 10. IX. 1968  | —                        |   |
| Spanish Province in Africa <sup>47)</sup> . . . . .   | 1  | S                    | 6. VI. 1967   | —                        |   |
| Portuguese Oversea Provinces . . . . .  | 3  | S                    | 10. IX. 1968  | —                        |   |
| Syrian Arab Republic . . . . .  | 1  | S <sup>1)</sup>      | 1. VI. 1968   | —                        |   |
| Ukrainian Soviet Socialist Republic . . .   | 3  | S <sup>1)</sup>      | 8. VIII. 1969 <sup>2)</sup>   | —                        |   |
| Rhodesia . . . . .  | 1  | — <sup>11)</sup>     | — <sup>11)</sup>  | — <sup>11)</sup>         | — <sup>11)</sup>  |
| Roumania (Socialist Republic of) . . . .  | 1  | S <sup>1)</sup>      | 29. IX. 1969 <sup>45)</sup>   | —                        |   |
| United Kingdom of Great Britain and<br>Northern Ireland, the Channel Islands<br>and the Isle of Man . . . . . | 30   | S <sup>1)</sup>      | 4. I. 1967  | S                        | 4. I. 1967  |
| Rwanda (Republic of) . . . . .  | ½  | S <sup>1)</sup>      | 11. XII. 1969 <sup>46)</sup>  | S                        |   |
| Senegal (Republic of the) . . . . .   | 1  | S <sup>1)</sup>      | 5. VI. 1967   | S                        | 12. XII. 1967   |
| Sierra Leone . . . . .  | ½  | S <sup>1)</sup>      | 24. II. 1972  | —                        |   |
| Singapore (Republic of) <sup>16)</sup> . . . . .  | 1  | S <sup>1)</sup>      | 23. XI. 1967  | A                        | 23. XI. 1967  |
| Somali Democratic Republic <sup>51)</sup> . . . . .   | 1  | S <sup>1)</sup>      | 5. II. 1971   | —                        |   |
| Sudan (Republic of the) . . . . .   | 1  | S <sup>1)</sup>      |   | —                        |   |
| Sri Lanka (Ceylon) (Republic of) <sup>59)</sup> . . .   | 1  | S                    | 13. I. 1967   | —                        |   |
| South Africa (Republic of) <sup>18)</sup> . . . . .   | 8  | A                    | 11. XI. 1966  | —                        |   |
| Sweden . . . . .  | 10   | S <sup>1)</sup>      | 8. I. 1968  | A                        | 8. I. 1968  |
| Switzerland (Confederation of) . . . . .  | 10   | S <sup>1)</sup>      | 5. I. 1967  | S                        | 5. I. 1967  |
| Swaziland (Kingdom of) . . . . .  | ½  | A                    | 11. XI. 1970  | —                        |   |
| Tanzania (United Republic of) . . . . .   | ½  | S <sup>1)</sup>      | 7. X. 1967  | —                        |   |

\*) Convention, Final Protocol, Additional Protocols.

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

Convention, Regulations (cont.)

| ADMINISTRATIVE REGULATIONS       |                 |   |                 |  |                  |  |                 |   |    |                              |                 |  |                 |   |                  |                       |                 |
|----------------------------------|-----------------|---|-----------------|--|------------------|--|-----------------|---|----|------------------------------|-----------------|--|-----------------|---|------------------|-----------------------|-----------------|
| Administrative Radio Conferences |                 |   |                 |  |                  |  |                 |   |    |                              |                 |  |                 | Administrative Telegraph and Telephone Conference |                  |                       |                 |
| Radio Regulations                |                 |   |                 |  |                  |  |                 |   |    | Additional Radio Regulations |                 |  |                 | Geneva (1958)                                     |                  |                       |                 |
| 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) |    | A.R.C. Geneva (1959)         |                 | Partial Revision W.A.R.C. Geneva (1967) (maritime) |                 | Telegraph Regulations                             |                  | Telephone Regulations |                 |
| 7                                | 8               | 9   | 10              | 11   | 12               | 13   | 14              | 15  | 16 | 17                           | 18              | 19   | 20              | 21  | 22               | 23                    | 24              |
| S                                | A               | S   | A               | S  | A                | S  | A               | S   |    | S                            | A               | S  | A               | S   | A <sup>3)</sup>  | S                     | A               |
| S                                | 1)              | —   | 1)              | —  | 1)               | —  | 1)              | S   |    | S                            | 1)              | —  | 1)              | —   | 1)               | —                     | 1)              |
| S                                | A <sup>4)</sup> | S   | A               | —  | A                | —  | A               | S   | A  | S                            | 1)              | —  | A               | —   | 1)               | —                     | 1)              |
| S                                | 1)              | S   | 1)              | S  | 1)               | S  | 1)              | S   |    | S                            | 1)              | S  | 1)              | S   | A                | S                     | A               |
| S                                | A               | S   | A               | S  | A <sup>4)</sup>  | S  |                 | S   |    | S                            | A               | S  |                 | S   | A                | S                     | A               |
| —                                | A               | S   | A               | —  |                  | —  |                 | —   |    | —                            | A               | —  |                 | —   | A                | —                     | A               |
| S                                | A               | —   | A               | S  | A <sup>4)</sup>  | S  |                 | S   |    | S                            | A               | S  |                 | S   | A                | S                     | A               |
| —                                | A <sup>4)</sup> | —   | A <sup>4)</sup> | —  | A <sup>4)</sup>  | —  |                 | S   |    | —                            | A <sup>4)</sup> | —  |                 | —   | A <sup>4)</sup>  | —                     | A <sup>4)</sup> |
| S                                | 1)              | S   | A               | —  | A <sup>34)</sup> | —  | 1)              | S   |    | S                            | 1)              | —  | 1)              | S   | A                | S                     | A               |
| —                                | A               | —   | A               | —  |                  | —  |                 | —   |    | —                            | A               | —  |                 | S   | A                | S                     | <sup>38)</sup>  |
| S                                | A <sup>4)</sup> | S   | A <sup>4)</sup> | S  | A <sup>4)</sup>  | S  | A <sup>4)</sup> | S   |    | S                            | A <sup>4)</sup> | S  | A <sup>4)</sup> | S   | A                | S                     | A               |
| S                                | A               | S   | A               | S  | A                | S  | A               | S   | A  | S                            | A               | S  | A               | S   | A                | S                     | A               |
| —                                | A <sup>4)</sup> | —   | A               | —  | A                | —  | A               | S   |    | —                            | A <sup>4)</sup> | —  | A               | —   | A <sup>4)</sup>  | —                     | A <sup>4)</sup> |
| —                                | A               | —   | A               | —  | A                | S  | A               | S   |    | —                            | A               | S  | A               | —   | A <sup>4)</sup>  | —                     | A <sup>4)</sup> |
| —                                | A <sup>4)</sup> | —   | A               | —  | A <sup>4)</sup>  | —  | A               | —   |    | —                            | A <sup>4)</sup> | —  | A               | —   | A <sup>4)</sup>  | —                     | A <sup>4)</sup> |
| —                                | A <sup>4)</sup> | —   | A <sup>4)</sup> | S  | A <sup>3)</sup>  | S  | A <sup>3)</sup> | S   |    | —                            | A <sup>4)</sup> | S  | A <sup>3)</sup> | —   | A <sup>4)</sup>  | —                     | A <sup>4)</sup> |
| —                                | A <sup>4)</sup> | —   | A <sup>4)</sup> | —  | A <sup>4)</sup>  | —  | A <sup>4)</sup> | —   |    | —                            | A <sup>4)</sup> | —  | A <sup>4)</sup> | —   | A <sup>4)</sup>  | —                     | A <sup>4)</sup> |
| S                                | A               | —   |                 | —  |                  | —  |                 | —   |    | S                            | A               | —  |                 | S   | A                | S                     | A               |
| S                                | A <sup>4)</sup> | —   | A <sup>4)</sup> | —  | A                | S  | A               | S   |    | S                            | A <sup>4)</sup> | S  | A               | S   | A <sup>4)</sup>  | S                     | A <sup>4)</sup> |
| S                                | A               | S   | A               | S  | A                | S  | A               | S   | A  | S                            | A               | S  | A               | S   | A                | S                     | <sup>5)</sup>   |
| S                                | A               | S   | A               | S  | A <sup>4)</sup>  | S  | A               | S   | A  | S                            | A               | S  | A               | S   | A <sup>29)</sup> | S                     | A               |
| S                                | A               | S   | A               | S  |                  | S  |                 | S   |    | S                            | A               | S  |                 | S   | A                | S                     | A               |
| —                                | A <sup>4)</sup> | —   | A <sup>4)</sup> | —  | A <sup>4)</sup>  | —  | A <sup>4)</sup> | —   |    | —                            | A <sup>4)</sup> | —  | A <sup>4)</sup> | —   | A <sup>4)</sup>  | —                     | A <sup>4)</sup> |
| —                                | A <sup>4)</sup> | S   | A               | —  | A                | —  | A               | S   |    | —                            | A <sup>4)</sup> | —  | A               | —   | A <sup>4)</sup>  | —                     | A <sup>4)</sup> |

Table I.

| Country or group of territories<br>(In the alphabetical order of the French version<br>of the country names)   | CONVENTION, etc.                           |                     |   |                         |   |
|--|--|---------------------|---|-------------------------|---|
|  | Plenipotentiary Conference, Montreux, 1965 |                     |   |                         |   |
|  | Class of<br>contribution<br>No. of units   | Convention,<br>etc. | Date on which the<br>instrument of rati-<br>fication or accession<br>was deposited with<br>the General<br>Secretariat | Opt. Add.<br>Protocol** | Date on which the<br>instrument of rati-<br>fication or accession<br>was deposited with<br>the General<br>Secretariat |
| 1  | 2  | 3                   | 4   | 5                       | 6   |
| Chad (Republic of the) . . . . .   | ½  | S <sup>1)</sup>     | 30. X. 1968   | S                       | 30. X. 1968   |
| Czechoslovak Socialist Republic . . . . .  | 3  | S <sup>1)</sup>     | 3. I. 1968 <sup>2)</sup>  | —                       |   |
| Territories of the United States of America  | 25   | S <sup>1)</sup>     | 29. V. 1967 <sup>2)</sup>   | —                       |   |
| Overseas Territories for the international<br>relations of which the Government of<br>the United Kingdom of Great Britain<br>and Northern Ireland are responsible <sup>22)</sup> | 1  | S                   | 7. III. 1968 <sup>37)</sup>   | S                       | 7. III. 1968  |
| Thailand . . . . .   | 2  | S <sup>1)</sup>     | 28. II. 1969 <sup>2)</sup>  | S                       |   |
| Togolese Republic . . . . .  | ½  | S <sup>1)</sup>     | 8. VIII. 1967   | S                       |   |
| Tonga (Kingdom of) . . . . .   | ½  | A                   | 7. I. 1972  | —                       |   |
| Trinidad and Tobago . . . . .  | 1  | S <sup>1)</sup>     | 13. XII. 1967   | S                       |   |
| Tunisia . . . . .  | 2  | S <sup>1)</sup>     | 1. IV. 1967   | —                       |   |
| Turkey . . . . .   | 2  | S <sup>1)</sup>     | 29. VIII. 1968  | —                       |   |
| Union of Soviet Socialist Republics . . . .  | 30   | S <sup>1)</sup>     | 16. IV. 1969 <sup>2)</sup>  | —                       |   |
| Uruguay (Oriental Republic of) . . . . .   | 1  | A                   | 12. VI. 1971 <sup>52)</sup>   | —                       |   |
| Venezuela (Republic of) . . . . .  | 3  | S <sup>1)</sup>     | 2. IV. 1969   | —                       |   |
| Viet-Nam (Republic of) . . . . .   | 1  | A                   | 15. I. 1968 <sup>38)</sup>  | A                       | 15. I. 1968 <sup>55)</sup>  |
| Yemen Arab Republic <sup>53)</sup> . . . . .   | 1  | A                   | 12. V. 1972 <sup>57)</sup>  | —                       |   |
| Yemen (People's Democratic Republic<br>of) <sup>54)</sup> . . . . .  | ½  | A                   | 15. VIII. 1968  | —                       |   |
| Yugoslavia (Socialist Federal Republic<br>of) <sup>10)</sup> . . . . .   | 1  | S <sup>1)</sup>     | 22. XII. 1967   | —                       |   |
| Zaire (Republic of) <sup>56)</sup> . . . . .   | 1  | S <sup>1)</sup>     | 21. IV. 1971  | S                       |   |
| Zambia (Republic of) . . . . .   | 1  | S <sup>1)</sup>     | 13. XII. 1967   | S                       |   |

\*) 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 (Montreux, 1965).  
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 the Inter-

national Telecommunication Convention (Montreux, 1965) or acceded thereto.  
5) See the statement or statements appearing in the Final Protocol annexed to the International Telecommunication Convention (Geneva, 1959).  
6)-9)  
10) Formerly: Yugoslavia (Federal Socialist Republic of).  
11) See Administrative Council Resolution No. 599.  
12) See Notification No. 1000.

Convention, Regulations (end)

| ADMINISTRATIVE REGULATIONS       |                  |   |                 |  |                  |  |                 |   |    |                              |                 |  |                 |   |                  |                       |                 |
|----------------------------------|------------------|---|-----------------|--|------------------|--|-----------------|---|----|------------------------------|-----------------|--|-----------------|---|------------------|-----------------------|-----------------|
| Administrative Radio Conferences |                  |   |                 |  |                  |  |                 |   |    |                              |                 |  |                 | Administrative Telegraph and Telephone Conference |                  |                       |                 |
| Radio Regulations                |                  |   |                 |  |                  |  |                 |   |    | Additional Radio Regulations |                 |  |                 | Geneva (1958)                                     |                  |                       |                 |
| A.R.C.<br>Geneva<br>(1959)       |                  | Partial Revision<br>E.A.R.C.<br>Geneva<br>(1963)<br>(space) |                 | Partial Revision<br>E.A.R.C.<br>Geneva<br>(1966)<br>(aeronautical) |                  | Partial Revision<br>W.A.R.C.<br>Geneva<br>(1967)<br>(maritime) |                 | Partial Revision<br>W.A.R.C.<br>Geneva<br>(1971)<br>(space-2) |    | A.R.C.<br>Geneva<br>(1959)   |                 | Partial Revision<br>W.A.R.C.<br>Geneva<br>(1967)<br>(maritime) |                 | Telegraph Regulations                             |                  | Telephone Regulations |                 |
| 7                                | 8                | 9   | 10              | 11   | 12               | 13   | 14              | 15  | 16 | 17                           | 18              | 19   | 20              | 21  | 22               | 23                    | 24              |
| —                                | A                | —   | A               | —  | A <sup>4)</sup>  | S  |                 | —   |    | —                            | A               | S  |                 | —   | A <sup>4)</sup>  | —                     | A <sup>4)</sup> |
| S                                | 1)               | S   | 1)              | S  | 1)               | S  | 1)              | S   |    | S                            | 1)              | S  | 1)              | S   | A                | S                     | A               |
| —                                | A <sup>25)</sup> | S   | A               | 13)  | A                | S  | A               | S   | A  | —                            | 1)              | —  | 1)              | —   | A <sup>23)</sup> | —                     | 1)              |
| S                                | A                | S   | A               | S  | A                | —  | A               | S   | A  | S                            | A               | —  | A               | —   | A                | —                     | A               |
| S                                | A                | —   | A               | S  | A <sup>4)</sup>  | —  |                 | S   | A  | S                            | A               | —  |                 | —   | A                | —                     | A               |
| —                                | A <sup>4)</sup>  | —   | A               | —  | A <sup>4)</sup>  | S  |                 | S   |    | —                            | A <sup>4)</sup> | S  |                 | —   | A <sup>4)</sup>  | —                     | A <sup>4)</sup> |
| —                                | A <sup>4)</sup>  | —   | A <sup>4)</sup> | —  | A <sup>4)</sup>  | —  | A <sup>4)</sup> | —   |    | —                            | A <sup>4)</sup> | —  | A <sup>4)</sup> | —   | A <sup>4)</sup>  | —                     | A <sup>4)</sup> |
| —                                | A <sup>4)</sup>  | —   | A <sup>4)</sup> | —  | A <sup>4)</sup>  | —  |                 | —   |    | —                            | A <sup>4)</sup> | —  |                 | —   | A <sup>4)</sup>  | —                     | A <sup>4)</sup> |
| S                                | A                | —   | A               | —  |                  | S  |                 | S   |    | S                            | A               | S  |                 | S   | A                | S                     | A               |
| S                                | A <sup>4)</sup>  | —   | A <sup>4)</sup> | —  | A <sup>4)</sup>  | S  |                 | S   |    | S                            | A <sup>4)</sup> | S  |                 | S   | A                | S                     | A               |
| S                                | 1)               | S   | A               | S  | A <sup>34)</sup> | S  | 1)              | S   |    | S                            | 1)              | S  | 1)              | S   | A                | S                     | A               |
| S                                | A <sup>4)</sup>  | —   | A <sup>4)</sup> | —  | A <sup>4)</sup>  | —  | A <sup>4)</sup> | S   |    | S                            | A <sup>4)</sup> | —  | A <sup>4)</sup> | —   | A <sup>4)</sup>  | —                     | A <sup>4)</sup> |
| S                                | A <sup>4)</sup>  | —   | A <sup>4)</sup> | S  | A <sup>4)</sup>  | S  | A <sup>4)</sup> | S   | A  | S                            | A <sup>4)</sup> | S  | A <sup>4)</sup> | S   | A <sup>4)</sup>  | S                     | A <sup>4)</sup> |
| —                                | A                | —   | A               | —  | A <sup>4)</sup>  | S  |                 | S   |    | —                            | A               | S  |                 | S   | A                | S                     | A               |
| —                                | A <sup>4)</sup>  | —   | A <sup>4)</sup> | —  | A <sup>4)</sup>  | —  | A <sup>4)</sup> | —   |    | —                            | A <sup>4)</sup> | —  | A <sup>4)</sup> | —   | A <sup>4)</sup>  | —                     | A <sup>4)</sup> |
| —                                | A <sup>4)</sup>  | —   | A <sup>4)</sup> | —  | A <sup>4)</sup>  | —  |                 | —   |    | —                            | A <sup>4)</sup> | —  |                 | —   | A <sup>4)</sup>  | —                     | A <sup>4)</sup> |
| S                                | A                | S   | A               | S  | A                | S  | A               | S   |    | S                            | A               | S  | A               | S   | A                | S                     | A               |
| —                                | A <sup>4)</sup>  | S   | A               | S  | A <sup>4)</sup>  | —  | A <sup>4)</sup> | S   |    | —                            | A <sup>4)</sup> | —  | A <sup>4)</sup> | —   | A <sup>4)</sup>  | —                     | A <sup>4)</sup> |
| —                                | A <sup>4)</sup>  | —   | A               | —  | A <sup>4)</sup>  | —  |                 | —   |    | —                            | A <sup>4)</sup> | —  |                 | —   | A <sup>4)</sup>  | —                     | A <sup>4)</sup> |

13) The signature on behalf of the United States of America is valid also for the Territories of the United States of America.  
14) The Government of New Zealand declared that this ratification also applies to the Cook Islands, Niue and the Tokelau Islands pursuant to Article 20 of the Convention.  
15) Formerly: Maldives Islands.  
16) Formerly: Singapore.  
17) Formerly: Burundi (Kingdom of).  
18) See Administrative Council Resolution No. 619.  
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.

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."

<sup>21)</sup> 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 Administrative Regulations annexed thereto which were in force on that date, i.e. the Telegraph and Telephone Regulations (Geneva, 1958), which came into force on 1 January 1960, and the Radio Regulations (Geneva, 1959) which came into force on 1 May 1961.

<sup>22)</sup> The Government of the United Kingdom of Great Britain and Northern Ireland ratified the International Telecommunication Convention, Montreux, 1965, in respect of the following Overseas Territories for the international relations of which they are responsible (Notification No. 1004):

**Associated States**

Antigua  
Dominica  
Grenada  
St. Christopher, Nevis and Anguilla  
St. Lucia

**Protected States**

Brunei  
Swaziland a)  
Tonga a)

**Other Territories**

The Bahama Islands  
Bermuda  
British Antarctic Territory (including South Orkney Islands, South Shetland Islands and Graham Land)  
British Honduras  
British Virgin Islands  
Cayman Islands  
Falkland Islands (Colony and Dependencies, including South Georgia and the South Sandwich Islands)  
Fiji a)  
Gibraltar  
Hong Kong  
Mauritius a)  
Montserrat  
Pitcairn Islands Group  
St. Helena (including Ascension Island and Tristan da Cunha)  
St. Vincent  
Seychelles  
Turks and Caicos Islands  
Western Pacific High Commission territories including:  
British Solomon Islands Protectorate  
Central and Southern Line Islands  
Gilbert and Ellice Islands Colony  
New Hebrides (United Kingdom — French Condominium)

a) Now an Independent State, Member of the I.T.U.

<sup>23)</sup> See Notifications Nos. 855, 876 and 880.

<sup>24)</sup> 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.

<sup>25)</sup> 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.)

<sup>26)</sup> In a letter dated 23 December 1961, the Indian Administration announced that it had approved the Telephone Regulations (Geneva, 1958), while reserving the right not to comply with the following provisions of those Regulations in running its services:

1. Article 16, paragraph 1 (validity of bookings);
2. Article 19, paragraph 3 (operating principles);
3. Article 21, paragraphs 1 and 2 (limitation of the duration of calls);
4. Article 35 (charging for calls booked with special facilities);
5. Article 36, paragraphs 2 and 3 (charges for booking changes).

(Notification No. 883.)

<sup>27)</sup> In approving these Regulations, the Argentine Administration declared that, in its relations with other Administrations, it will not apply the provisions and obligations of the said Regulations, Appendixes and Resolutions which those Administrations, by formulating reservations, have not accepted or have not agreed to apply.

<sup>28)</sup> In a note, the United States Embassy in Berne declared that "the deposit of the instrument of ratification of the Telegraph Regulations (Geneva, 1958) and the Final Protocol to those

Regulations constitutes the notification of approval by the United States of America, including all territories under the jurisdiction of the United States of America."

The United States Embassy declared furthermore:

"It should be noted that the ratification by the United States of America of the Regulations and Final Protocol is made subject to the declarations as set forth in the instrument of ratification. The declarations contained in the text of the instrument of ratification replace and are in lieu of the declarations which appear "For the United States of America" in the said Final Protocol."

(Note by the General Secretariat: the text of this instrument is reproduced in Notification No. 829.)

<sup>29)</sup> In approving the Telegraph Regulations (Geneva, 1958), the Swedish Government reserved the right, notwithstanding Article 8, paragraph 5 (Nos. 49 and 50) of the said Regulations, to apply an overall rate per word, including the Danish transit charge, for telegrams the normal routing of which passes through Denmark

<sup>30)</sup> 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.)

<sup>31)</sup> See Notification No. 911.

<sup>32)</sup> See Notification No. 977.

<sup>33)</sup> Comprising the following territories:

Comoro Islands,  
New Caledonia and Dependencies,  
French Polynesia,  
St. Pierre and Miquelon,  
French Territory of the Afars and Issas,  
French Southern and Antarctic Territories,  
Wallis and Futuna.

This ratification also applies to the Anglo-French Condominium of the New Hebrides.

<sup>34)</sup> See Notifications Nos. 1004 and 1013.

<sup>35)</sup> See Notifications Nos. 1007, 1009 and 1010.

<sup>36)</sup> See Notifications Nos. 1014, 1016, 1020, 1021, 1023, 1024, 1025, 1027, 1035, 1036 and 1037.

<sup>37)</sup> See Notification No. 1004.

<sup>38)</sup> See Notification No. 834.

<sup>39)</sup> In ratifying the Convention, the Government of the Hungarian People's Republic confirmed the statements Nos. XI, XIV and XXV contained in the Final Protocol to the aforementioned Convention.

It also confirmed some of the statements appearing in the Additional Protocol to the Radio Regulations, Geneva, 1959, in the following terms:

"The Hungarian People's Republic reserves the right to use the frequency bands attributed to the "radio-location" service mentioned in Article 5 of the Radio Regulations, Geneva, 1959, in conformity with the requirements of its radio services.

The Hungarian People's Republic also reserves the right to use the frequency band 415-490 kHz mentioned in Article 5 of the Radio Regulations, Geneva, 1959, on its territory for the aeronautical radionavigation service.

The Hungarian People's Republic accepts the use of the broadcasting schedules in the broadcasting frequency bands 5 950-26 100 kHz mentioned in Article 5 of the Radio Regulations, Geneva, 1959, only insofar as they facilitate the preparation of the final frequency allocation plan for the bands concerned."

<sup>40)</sup> In acceding to the Convention, the Government of the People's Republic of Albania made the following statements and reservations:

1. The Government of the People's Republic of Albania declares that the decision adopted by the Plenipotentiary Conference of the International Telecommunication Union, Montreux, 1965, to recognize the credentials of Chiang Kai-shek's representative to take part in the Conference and to sign the Final Acts on behalf of China is illegal since the only legitimate representatives of China entitled to undertake commitments on its behalf are those appointed by the Government of the People's Republic of China.

2. The Government of the People's Republic of Albania declares that it does not consider the Saigon authorities as representing the interests of the people of South Viet-Nam.

3. The Government of the People's Republic of Albania declares that it does not recognize the claims of the representatives of South Korea to speak on behalf of the whole Korean people.

4. The Government of the People's Republic of Albania declares that its accession to this Convention in no way implies recognition of the present Government of the Republic of South Africa and does not entail any obligation towards that Government.

5. 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.

6. The Government of the People's Republic of Albania reserves the right to take any measures it deems necessary to safeguard its interests 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.

41) See Notifications Nos. 1023, 1024, 1034, 1035 and 1036.

42) See Notification No. 1019.

43) In ratifying the Convention, the Government of the People's Republic of Bulgaria confirmed the reservation made when the Final Protocol was signed (No. XIII).

44) Formerly: Libya (Kingdom of).

45) The instrument was accompanied by a letter from the Ambassador Extraordinary and Plenipotentiary of the Socialist Republic of Roumania in Berne, reading as follows:

"In depositing the instrument of ratification of the International Telecommunication Convention signed at Montreux on 12 November 1965, I have the honour to make the following declaration on the instructions of my Government:

The Council of State of the Socialist Republic of Roumania considers that

a) the continuation of the dependent status of certain territories referred to in Article 20 of the Convention is not in accordance with the Declaration on the Granting of Independence to Colonial Countries and Peoples adopted by the General Assembly of the United Nations on 14 December 1960 in resolution 1514 (XV), which proclaims the necessity to put an end, rapidly and unconditionally to colonialism in all its forms and manifestations;

b) the provisions of Article 1, Nos. 6 and 7, of the Convention are not in accordance with the principle that all States have the right to become parties to multilateral treaties governing questions of general interest.

The Government of the Socialist Republic of Roumania considers that the Federal Republic of Germany is not competent to extend to West Berlin the application of the International Telecommunication Convention signed at Montreux on 12 November 1965, because West Berlin is not a part of the territory of the Federal Republic of Germany."

46) In ratifying the Convention, the Government of the Republic of Rwanda confirmed the reservation which appears in the Final Protocol to the aforesaid Convention under No. LI and supplemented it as follows:

"The Government of the Republic of Rwanda reserves the right to take such action as it considers necessary to protect its interests, should Members or Associated Members fail to observe in any way the provisions of the International Telecommunication Convention (Montreux, 1965) or of the Annexes and Regulations, or should the reservations made by other countries jeopardize the proper operation of its telecommunication services or entail any increase in its contributory share in the defrayal of Union expenses."

47) Formerly: Spanish Provinces in Africa.

48) Formerly: Congo (Republic of the) (Brazzaville).

49) In ratifying the Convention, the Government of the Republic of Indonesia specified that it has withdrawn the part of its statement concerning the Government of the "Federation of Malaysia" which appears in paragraph 1 of statement No. XXXIII in the Final Protocol to the aforesaid Convention.

50) Formerly: Cambodia (Kingdom of).

51) Formerly: Somali Republic.

52) In acceding to the Convention, the Government of the Oriental Republic of Uruguay stated specifically that it did not accept the principle that Members of the Union not belonging to the region concerned should take part in regional conferences and meetings with voting rights. (See Final Protocol No. VI).

53) Formerly: Yemen.

54) Formerly: Southern Yemen (People's Republic of).

55) Formerly: United Arab Republic.

56) Formerly: Congo (Democratic Republic of the).

57) In acceding to the Convention, the Government of the Yemen Arab Republic has made the following statement:

"We have acceded to this Convention *in toto*, reserving the right to take such action as we may consider necessary to protect our interests, should a Member or Associate Member of the Union fail in any way to observe the provisions of the said Convention, or should the reservations made by such Member or Associate Member jeopardize our telecommunication services.

This accession is not valid with respect to the Member appearing in Annex 1 to this Convention under the name of Israel, and in no way implies its recognition. It also in no way implies recognition of the present Government of the Republic of South Africa, and does not entail any obligation towards that Government."

58) See Administrative Council Resolution No. 693.

59) Formerly: Ceylon.

60) The notification of accession contains the following statements:

1. The Government of the People's Republic of China has decided to accede to the International Telecommunication Convention signed in Montreux, Switzerland, on November 12, 1965, but makes reservations on the articles concerning the assignment and utilization of radio frequencies in the Radio Regulations annexed to the Convention.

2. The signatures on the International Telecommunication Convention and the ratification thereof made by the Chiang Kai-shek clique in the past by usurping the name of China are illegal and therefore null and void.

3. The representatives of the so-called "Republic of Vietnam" and the "Republic of Korea" have no right to sign the above-mentioned Convention on behalf of the Vietnamese and the Korean peoples.

61) Formerly: Federal Republic of Germany.

62) Formerly: Cameroon (Federal Republic of).

**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 or group of territories   | Broadcasting Agreement VHF/UHF (Geneva, 1963) |   | Broadcasting Agreement MF (Geneva, 1966) |   |
|---|---|---|--|---|
| 1   | 2   | 3 | 4  | 5 |
| Algeria (Algerian Democratic and Popular Republic) . . . . .  | —   |   | S  |   |
| Botswana (Republic of) . . . . .  | —   |   | —  |   |
| Burundi (Republic of) . . . . .   | —   |   | S  |   |
| Cameroon (United Republic of) . . . . .   | S   |   | S  |   |
| Central African Republic . . . . .  | —   |   | S  |   |
| Congo (People's Rep. of the) . . . . .  | S   |   | S  |   |
| Ivory Coast (Republic of the) . . . . .   | S   |   | S  |   |
| Dahomey (Republic of) . . . . .   | S   |   | S  |   |
| Egypt (Arab Republic of) . . . . .  | —   | A | S  | A |
| Group of Territories represented by the French Overseas Post and Telecomm. Agency <sup>1)</sup> . . . . . | S   | A | S  |   |
| Spain . . . . .   | S   | A | S  |   |
| Ethiopia . . . . .  | S   | A | S  |   |
| France <sup>2)</sup> . . . . .  | S   | A | S  |   |
| Gabon Republic . . . . .  | S   |   | S  | A |
| Ghana . . . . .   | S   |   | S  |   |
| Guinea (Republic of) . . . . .  | S   |   | S  |   |
| Equatorial Guinea (Rep. of) . . . . .   | —   |   | —  |   |
| Upper Volta (Republic of) . . . . .   | S   |   | S  |   |
| Kenya . . . . .   | S   | A | S  | A |
| Lesotho (Kingdom of) . . . . .  | —   |   | —  |   |
| Liberia (Republic of) . . . . .   | S   |   | S  |   |
| Libyan Arab Republic . . . . .  | S   |   | —  |   |
| Malawi . . . . .  | —   |   | S  |   |
| Malagasy Republic . . . . .   | S   |   | S  |   |

| Country or group of territories  | Broadcasting Agreement VHF/UHF (Geneva, 1963) |   | Broadcasting Agreement MF (Geneva, 1966) |   |
|--|---|---|--|---|
| 1  | 2   | 3 | 4  | 5 |
| Mali (Republic of) . . . . .   | S   |   | S  |   |
| Morocco (Kingdom of) . . . . .   | —   |   | S  |   |
| Mauritius . . . . .  | —   |   | —  |   |
| Mauritania (Islamic Republic of) . . . . .   | S   |   | S  |   |
| Niger (Republic of the) . . . . .  | S   |   | S  |   |
| Nigeria (Federal Republic of) . . . . .  | S   | A | S  |   |
| Uganda . . . . .   | S   | A | S  | A |
| Spanish Province in Africa . . . . .   | S   | A | S  |   |
| Portuguese Overseas Provinces . . . . .  | S   | A | S  |   |
| Rhodesia . . . . .   | S <sup>3)</sup>                               | A | —  |   |
| Rwanda (Republic of) . . . . .   | S   |   | S  |   |
| Senegal (Republic of the) . . . . .  | S   | A | S  |   |
| Sierra Leone . . . . .   | S   | A | —  |   |
| Somali Democratic Republic . . . . .   | S   |   | —  |   |
| Sudan (Republic of the) . . . . .  | —   |   | —  |   |
| South Africa (Republic of) <sup>4)</sup> . . . . .   | S   | A | —  |   |
| Swaziland (Kingdom of) . . . . .   | —   |   | —  |   |
| Tanzania (United Republic of) . . . . .  | S   | A | S  | A |
| Chad (Republic of the) . . . . .   | S   |   | S  |   |
| Overseas Territories for the international relations of which the Government of the U.K. of Great Britain and Northern Ireland are responsible . . . . . | S   |   | S  | A |
| Togolese Republic . . . . .  | S   |   | S  |   |
| Zaire (Republic of) . . . . .  | S   |   | S  |   |
| Zambia (Republic of) . . . . .   | —   |   | S  | A |

<sup>1)</sup> With respect to French Somaliland (*new denomination: French Territory of the Afars and Issas*) and the Comoro Islands.

<sup>2)</sup> With respect to the Department of Reunion.

<sup>3)</sup> The Agreement was signed on behalf of the Federation of Rhodesia and Nyasaland.

<sup>4)</sup> See Administrative Council Resolution No. 619.

**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 or territories              | Inter-American Radio Agreement (FIAR) (Washington, 1949) |   | North-American Regional Broadcasting Agreement (NARBA) (Washington, 1950) |   |
|-------------------------------------|--|---|---|---|
| 1                                   | 2  | 3 | 4   | 5 |
| Argentine Republic . . . . .        | S  |   | —   |   |
| Bolivia . . . . .                   | S  |   | —   |   |
| Brazil . . . . .                    | 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 or territories   | Inter-American Radio Agreement (FIAR) (Washington, 1949) |   | North-American Regional Broadcasting Agreement (NARBA) (Washington, 1950) |      |
|--|--|---|---|------|
| 1  | 2  | 3 | 4   | 5    |
| Guatemala . . . . .  | S  |   | —   |      |
| Haiti (Republic of) . . . . .                                  | —  | A | —   |      |
| Honduras (Republic of) . . . . .                               | S  | A | —   |      |
| Mexico . . . . .   | S  | A | —   |      |
| Nicaragua . . . . .  | S  | A | —   |      |
| Panama . . . . .   | S  |   | —   |      |
| Paraguay . . . . .   | —  | 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 or group of territories   | European<br>Broadcasting<br>Convention<br>(Copenhagen,<br>1948) | European<br>Regional<br>Convention<br>for the mari-<br>time mobile<br>radio service<br>(Copenhagen,<br>1948) | Regional<br>Arrangement<br>concerning<br>Maritime<br>Radiobeacons<br>in the Euro-<br>pean Area<br>of Region 1<br>(Paris, 1951) | Regional<br>Agreement<br>in the bands<br>68-73 MHz<br>and 76-<br>87.5 MHz<br>(Geneva,<br>1960)<br>) | Regional<br>Agreement<br>for the Euro-<br>pean Broad-<br>casting Area<br>(Stockholm,<br>1961) | Regional<br>Agreement<br>concerning<br>the radio-<br>telephone<br>service for<br>the Rhine<br>(Brussels,<br>1970) |   |   |    |                 |                 |    |
|---|---|--|--|---|---|---|---|---|----|-----------------|-----------------|----|
| 1   | 2   | 3  | 4  | 5   | 6   | 7   | 8 | 9 | 10 | 11              | 12              | 13 |
| Albania (People's Republic of) . . . . .  | S   | R  | —  | —   | —   | —   | S | — | —  | —               | —               | —  |
| Algeria (Algerian Democratic and Popular<br>Republic) . . . . .   | —   | —  | —  | —   | —   | —   | — | — | —  | —               | —               | —  |
| Germany (Federal Republic of) . . . . .   | —   | —  | —  | —   | —   | —   | S | A | S  | A <sup>6)</sup> | S               | —  |
| Austria . . . . .   | —   | —  | —  | —   | —   | —   | S | A | S  | A               | —               | —  |
| Belgium . . . . .   | S   | R  | S  | R   | S   | A   | — | — | S  | A               | S               | —  |
| Bielorussian Soviet Socialist Republic . .  | S   | R  | —  | —   | —   | —   | S | — | S  | A <sup>5)</sup> | —               | —  |
| 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  | —               | —               | —  |
| Egypt (Arab Republic of) . . . . .  | —   | —  | —  | —   | —   | —   | — | — | —  | —               | —               | —  |
| Spain . . . . .   | —   | —  | —  | —   | S   | —   | — | — | S  | A <sup>2)</sup> | —               | —  |
| 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  | —               | —               | —  |
| Iraq (Republic of) . . . . .  | —   | —  | —  | —   | —   | —   | — | — | —  | —               | —               | —  |
| 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               | —               | —  |
| Jordan (Hashemite Kingdom of) . . . . .   | —   | —  | —  | —   | —   | —   | — | — | —  | —               | —               | —  |
| Lebanon . . . . .   | —   | —  | —  | —   | —   | —   | — | — | S  | —               | —               | —  |
| Libyan Arab Republic . . . . .  | —   | —  | —  | —   | —   | —   | — | — | —  | —               | —               | —  |
| Liechtenstein (Principality of) . . . . .   | —   | —  | —  | —   | —   | —   | — | — | —  | —               | —               | —  |
| Luxembourg . . . . .  | —   | —  | —  | —   | —   | —   | — | — | S  | —               | S               | —  |
| Malta . . . . .   | —   | —  | —  | —   | —   | —   | — | — | —  | —               | —               | —  |
| 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 <sup>4)</sup> | —  |
| 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               | —               | —  |
| Portuguese Oversea Provinces . . . . .  | —   | —  | —  | —   | S   | —   | — | — | —  | —               | —               | —  |
| Syrian Arab Republic . . . . .  | —   | —  | —  | —   | —   | —   | — | — | —  | —               | —               | —  |
| Ukrainian Soviet Socialist Republic . . .   | S   | R  | —  | —   | —   | —   | S | A | S  | A <sup>5)</sup> | —               | —  |
| Roumania (Socialist Republic of) . . . .  | S   | R  | —  | —   | —   | —   | S | A | S  | —               | —               | —  |
| United Kingdom of Great Britain and<br>Northern Ireland, the Channel Islands<br>and the Isle of Man . . . . .   | S   | R  | S  | R   | S   | A   | — | — | S  | A               | —               | —  |
| 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  | —               | —               | —  |
| Overseas Territories for the international<br>relations of which the Government of<br>the United Kingdom of Great Britain<br>and Northern Ireland are responsible . . | —   | —  | —  | —   | —   | —   | — | — | S  | A               | —               | —  |
| 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 <sup>5)</sup> | —               | —  |
| 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).



<sup>1)</sup> The People's Republic of Bulgaria has given notice that its coast stations use the frequencies assigned to them in the Copenhagen Plan.

<sup>2)</sup> 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.

<sup>3)</sup> The Union of Soviet Socialist Republics has given notice that its coast stations use the frequencies assigned to them in the Copenhagen Plan.

<sup>4)</sup> As a participating Administration.

<sup>5)</sup> 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 Bielorussian 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 Bielorussian 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 Bielorussian SSR.

<sup>6)</sup> 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."

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#### Tables V.1 to V.6. Special Agreements

##### V.1. Special Regional Agreement concerning the use of the 100-104 MHz band by the broadcasting service (1968)

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.

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*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).

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##### V.2. Special Agreement for use of the 582-606 MHz band for radionavigation purposes (Brussels, 1968)

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).

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**V.3. 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).

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**V.4. 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.*

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**V.5. 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.*

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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.*

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A third such Agreement was signed at Vienna on 24 October 1969 by the following Administrations: Austria and Socialist Federal Republic of Yugoslavia.

*This Agreement, which was approved without reservation by these Administrations, came into force on 1 March 1970.*

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**V.6. 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.*

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ANNEX 2

**BUDGET FOR 1972**

## SUMMARY OF ESTIMATED EXPENDITURE FOR 1972

| EXPENDITURE   | Expenditure<br>1971 | Budget<br>1972 | Addi-<br>tional<br>credits | Suppl.<br>credits<br>cf. Resolu-<br>tion 647 | Budget<br>1972<br>including<br>additional<br>credits |
|---|---------------------|----------------|----------------------------|--|--|
| Swiss francs  |                     |                |                            |  |  |
| I. BUDGET OF THE UNION  |                     |                |                            |  |  |
| <i>Sect. 1.</i> Administrative Council . . . . .  | 507,657             | 494,800        | 33,000                     | —  | 527,800  |
| Common Headquarters expenditure:  |                     |                |                            |  |  |
| <i>Sect. 2.</i> Staff . . . . .   | 18,401,204          | 19,195,500     | 443,000                    | 408,300                                      | 20,046,800   |
| <i>Sect. 3.</i> Social security . . . . .   | 3,724,340           | 3,935,000      | 14,300                     | 106,200                                      | 4,026,900  |
| <i>Sect. 4.</i> Premises . . . . .  | 1,244,276           | 1,262,000      | 14,700                     | —  | 1,276,700  |
| <i>Sect. 5.</i> Missions . . . . .  | 127,903             | 100,000        | —                          | —  | 100,000  |
| <i>Sect. 6.</i> Office and misc. expenses . . . . .   | 1,112,956           | 1,502,000      | 21,000                     | —  | 1,523,000  |
|   | 25,118,336          | 26,489,300     | 497,400                    | 514,500                                      | 27,501,200   |
| <i>Sect. 7.</i> I.T.U. conferences under No. 208<br>of the Convention:                                  |                     |                |                            |  |  |
| World Admin. Radio Conference Space<br>Telecommunications . . . . .                                     | 2,004,343           | —              | —                          | —  | —  |
| Plenipotentiary Conf. . . . .   | —                   | 19,000         | —                          | —  | 19,000   |
| <i>Sect. 8.</i> C.C.I. meetings under No. 209 of<br>the Convention:                                     |                     |                |                            |  |  |
| C.C.I.R. . . . .  | 767,147             | 1,300,000      | 426,000                    | —  | 1,726,000  |
| C.C.I.T.T. . . . .  | 1,696,661           | 1,750,000      | 165,000                    | —  | 1,915,000  |
| <i>Sect. 10.</i> Other expenditure:   |                     |                |                            |  |  |
| Prep. of a draft Const. Charter . . . . .   | 9,198               | —              | —                          | —  | —  |
| I.T.U. Seminars . . . . .   | —                   | 45,000         | —                          | —  | 45,000   |
| Seminars of I.T.U. Member Admins. . . . .   | —                   | 80,000         | —                          | —  | 80,000   |
|   | 29,595,685          | 29,683,300     | 1,088,400                  | 514,500                                      | 31,286,200   |
| Expenditure on fitting out C.C.I.T.T.<br>Laboratory . . . . .   | 20,879              | 20,000         | —                          | —  | 20,000   |
| Maintenance and renewal of simultaneous<br>interpretation and sound reproduction<br>equipment . . . . . | 9,804               | 15,000         | —                          | —  | 15,000   |
|   | 29,626,368          | 29,718,300     | 1,088,400                  | 514,500                                      | 31,321,200   |
| Transfer to I.T.U. Reserve Account . . . . .  | 38,667              | —              | —                          | —  | —  |
|   | 29,665,035          | 29,718,300     | 1,088,400                  | 514,500                                      | 31,321,200   |
| II. TECHNICAL COOPERATION SPECIAL ACCOUNTS BUDGET   |                     |                |                            |  |  |
| <i>Sect. 11.</i> Techn. Coop. Admin. costs . . . . .  | 4,304,421           | 4,619,600      | 398,400                    | 91,300                                       | 5,109,300  |
| Carried forward to following year . . . . .   | 592,208             | —              | —                          | —  | —  |
| <i>Sect. 12.</i> Public information costs . . . . .   | —                   | —              | —                          | —  | —  |
|   | 4,896,629           | 4,619,600      | 398,400                    | 91,300                                       | 5,109,300  |
| III. SUPPLEMENTARY PUBLICATIONS BUDGET  |                     |                |                            |  |  |
| Total expenditure . . . . .   | 6,185,695           | 2,956,700      | —                          | —  | 2,956,700  |
| Surplus income . . . . .  | 39,585              | 23,300         | —                          | —  | 23,300   |
|   | 6,225,280           | 2,980,000      | —                          | —  | 2,980,000  |
| <i>Pro. mem.:</i>   |                     |                |                            |  |  |
| IV. SUPPLEMENTARY BUDGET FOR THE CONSTRUCTION OF A WING ON THE I.T.U. BUILDING                          |                     |                |                            |  |  |
| Total expenditure . . . . .   | 4,290,579           | 4,550,170      | —                          | —  | 4,550,170  |

## SUMMARY OF ESTIMATED INCOME FOR 1972

| INCOME  | Income<br>1971 | Budget<br>1972 | Addi-<br>tional<br>income | Suppl.<br>income<br>cf. Resolu-<br>tion 647 | Budget<br>1972<br>including<br>additional<br>income |
|---|----------------|----------------|---------------------------|---|---|
| Swiss francs  |                |                |                           |   |   |
| I. BUDGET OF THE UNION  |                |                |                           |   |   |
| Contributions:  |                |                |                           |   |   |
| — Contributions of Members and Associate Members of the Union to expenditure for the current year .   | 26,363,334     | 27,906,900     | —                         | —   | 27,906,900  |
| — Contributions of private operating agencies and scientific or industrial organizations to expenses of confs. and meetings under Sections 7 and 8: |                |                |                           |   |   |
| — World Administrative Radio Conference Space Telecommunications  | 20,969         | —              | —                         | —   | —   |
| — Plenipotentiary Conference . .  | —              | —              | —                         | —   | —   |
| — C.C.I.R. . . . .  | 563,750        | 715,000        | —                         | —   | 715,000   |
| — C.C.I.T.T. . . . .  | 818,125        | 1,045,000      | —                         | —   | 1,045,000   |
| Sundry income . . . . .   | 133,074        | 16,400         | —                         | —   | 16,400  |
|   | 27,899,252     | 29,683,300     | —                         | —   | 29,683,300  |
| Withdrawal from C.C.I.T.T. Res. Acc. for fitting out C.C.I.T.T. Lab. . . . .  | 20,879         | 20,000         | —                         | —   | 20,000  |
| Withdrawal from Renewal Fund for the maint. and renewal of simult. int. and sound reproduction equipment . . . .                                    | 9,804          | 15,000         | —                         | —   | 15,000  |
|   | 27,929,935     | 29,718,300     | —                         | —   | 29,718,300  |
| Withdrawal from I.T.U. Reserve Acc. . .   | 1,735,100      | —              | 1,088,400                 | 514,500                                     | 1,602,900   |
|   | 29,665,035     | 29,718,300     | 1,088,400                 | 514,500                                     | 31,321,200  |
| II. TECHNICAL COOPERATION SPECIAL ACCOUNTS BUDGET   |                |                |                           |   |   |
| Contributions to Techn. Coop. administrative costs and sums brought forward from previous years . . . . .   | 4,896,629      | 4,619,600      | 398,400                   | 91,300                                      | 5,109,300   |
| Postg. of Pub. Inf. costs to S.F. proj. . .   | —              | —              | —                         | —   | —   |
|   | 4,896,629      | 4,619,600      | 398,400                   | 91,300                                      | 5,109,300   |
| III. SUPPLEMENTARY PUBLICATIONS BUDGET  |                |                |                           |   |   |
| Total income . . . . .  | 6,225,280      | 2,980,000      | —                         | —   | 2,980,000   |
|   | 6,225,280      | 2,980,000      | —                         | —   | 2,980,000   |
| Pro. mem.:  |                |                |                           |   |   |
| IV. SUPPLEMENTARY BUDGET FOR THE CONSTRUCTION OF A WING ON THE I.T.U. BUILDING  |                |                |                           |   |   |
| Drawn on F.I.P.O.I. loan and advances of funds from the I.T.U. . . . .  | 4,290,579      | 4,550,170      | —                         | —   | 4,550,170   |

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# ANNEX 3

## LIST OF PUBLICATIONS ISSUED BY THE UNION IN 1972

|     |  | <i>No. of copies</i> |        |
|-----|--|----------------------|--------|
| 1.  | 12 Notifications, Nos. 1050 to 1061 . . . . .  | F                    | 500    |
|     |  | E                    | 600    |
|     |  | S                    | 150    |
| 2.  | 15 General Secretariat Circulars, Nos. 70 to 85 . . . . .  | F                    | 600    |
|     |  | E                    | 800    |
|     |  | S                    | 200    |
| 3.  | Supplement No. 7 to the Volume of Resolutions and Decisions of the Administrative Council,<br>27th Session 1972. . . . . | F                    | 400    |
|     |  | E                    | 500    |
|     |  | S                    | 200    |
| 4.  | Financial Operating Report for 1971 . . . . .  | F                    | 500    |
|     |  | E                    | 600    |
|     |  | S                    | 230    |
| 5.  | Report on the Activities of the Union 1971 . . . . .   | F                    | 650    |
|     |  | E                    | 750    |
|     |  | S                    | 350    |
| 6.  | Telecommunication Journal, 12 numbers . . . . .  | F                    | 1,800  |
|     |  | E                    | 3,400  |
|     |  | S                    | 800    |
| 7.  | 12 Operational Bulletins, Nos. 73 to 84 . . . . .  | F                    | 500    |
|     |  | E                    | 600    |
|     |  | S                    | 150    |
| 8.  | List of Addresses, 3rd edition 1969:<br>Supplements Nos. 10 to 13, trilingual . . . . .                                  |                      | 1,500  |
|     |  |                      |        |
| 9.  | List of Cables forming the World Submarine Network, 18th edition 1972, trilingual . . . . .                              |                      | 1,050  |
| 10. | Table A, Telegraph Rates of the European System, 5th edition 1972, trilingual . . . . .                                  |                      | 600    |
| 11. | Table C, Through Telegraph Rates of the European System, 8th edition 1972, trilingual . . . . .                          |                      | 900    |
| 12. | Table of international Telex Relations and Traffic, 1971, trilingual . . . . .   |                      | 750    |
| 13. | Radio Regulations: Loose leaves 1971 . . . . .   | F                    | 3,250  |
|     |  | E                    | 6,000  |
|     |  | S                    | 3,200  |
| 14. | List of Telegraph Offices, 23rd edition 1971:<br>Supplements Nos. 3 to 6, trilingual . . . . .                           |                      | 20,000 |
|     |  |                      |        |
| 15. | List of international Telephone Routes, 12th edition 1972, trilingual . . . . .  |                      | 950    |
| 16. | Telecommunication Statistics, 1971, trilingual . . . . .   |                      | 1,200  |
| 17. | Routing Table for Offices taking Part in the Gentex Service, 4th edition 1972, trilingual . . . . .                      |                      | 950    |



|     |  | <i>No. of copies</i> |   |
|-----|--|----------------------|---|
| 18. | List of Coast Stations, 4th edition 1970:<br>Supplement No. 3, trilingual . . . . .  |                      | 29,000  |
| 19. | List of Ship Stations, 12th edition 1972 and supplement, trilingual . . . . .  |                      | 21,500  |
| 20. | List of Radiodetermination and Special Service Stations, 5th edition 1971:<br>Supplements Nos. 1 and 2, trilingual . . . . .   |                      | 23,100  |
| 21. | Alphabetical List of Call Signs of Stations used by the Maritime Mobile Service, 5th edition 1970:<br>Supplement No. 6, multilingual . . . . .   |                      | 25,600  |
| 22. | Alphabetical List of Call Signs of Stations used by the Maritime Mobile Service, 6th edition 1972 and Supplement No. 1, multilingual . . . . .   |                      | 23,500  |
| 23. | Alphabetical List of Call Signs of Stations other than Amateur Stations, Experimental Stations and Stations of the Maritime Mobile Service, 4th edition 1970:<br>Supplement No. 8, multilingual . . . . .  |                      | 3,250   |
| 24. | Alphabetical List of Call Signs of Stations other than Amateur Stations, Experimental Stations and Stations of the Maritime Mobile Service, 5th edition 1972 and Supplements Nos. 1 and 2, multilingual . . . . .  |                      | 3,200   |
| 25. | General Plan for the Development of the Interregional Network, 1971-1974-1978 (Venice 1971), trilingual . . . . .  |                      | 1,700   |
| 26. | C.C.I.T.T. GAS 3 Handbook, Economic and Technical Aspects of the Choice of Transmission Systems, new texts prepared during study period 1969-1972 . . . . .  | F<br>E               | 1,000<br>2,000  |
| 27. | C.C.I.T.T. GAS 5 Handbook, Economic Studies at the National Level in the Field of Telecommunications (1964-1972) . . . . .   | F<br>E<br>S          | 1,100<br>2,500<br>1,000   |
| 28. | Documents of the XIIth Plenary Assembly of the C.C.I.R., New Delhi 1970:<br>Addendum No. 2 to Volume III . . . . .   | F<br>E<br>S          | 1,100<br>3,050<br>650   |
| 29. | Report 440, General Graphical Symbols for Radiocommunications, XIIth Plenary Assembly of C.C.I.R., New Delhi 1970 . . . . .  | F<br>E<br>S          | 650<br>1,050<br>350   |
| 30. | Handbook for Monitoring Stations:<br>Chapters 8, 12, 14, 15, 17, 19 . . . . .  | F<br>E<br>S          | 600<br>900<br>300   |
| 31. | International Frequency List, 6th edition 1971:<br>Preface : Supplements Nos. 4 to 6, trilingual . . . . .<br>Volume I : Supplements Nos. 3 to 6, multilingual . . . . .<br>Volume II : Supplements Nos. 3 to 6, multilingual . . . . .<br>Volume III : Supplements Nos. 3 to 6, multilingual . . . . .<br>Volume IV : Supplements Nos. 3 to 6, multilingual . . . . .<br>Volume V <i>a</i> ) : Supplements Nos. 3 to 6, multilingual . . . . .<br>Volume V <i>b</i> ) : Supplements Nos. 3 to 6, multilingual . . . . .<br>Volume V <i>c</i> ) : Supplements Nos. 3 to 6, multilingual . . . . .<br>Volume V <i>d</i> ) : Supplements Nos. 3 to 6, multilingual . . . . . |                      | 1,400<br>1,250<br>1,250<br>1,250<br>1,200<br>1,000<br>950<br>900<br>850 |
| 32. | Annual High Frequency Broadcasting Frequency List, 5th edition 1972, trilingual . . . . .  |                      | 450   |
| 33. | List of Fixed Stations operating international Circuits, 6th edition 1971:<br>Supplements Nos. 3 to 6, trilingual . . . . .  |                      | 1,350   |
| 34. | List of Broadcasting Stations operating in Bands below 5950 kc/s, 6th edition 1971:<br>Supplements Nos. 2 and 3, trilingual . . . . .  |                      | 1,000   |

*No. of copies*

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|-----|---|---|-------|
| 35. | List of Stations in the Space Service and in the Radioastronomy Service, 3rd edition 1971: Supplements Nos. 1 and 2, trilingual . . . . .                           |   | 1,250 |
| 36. | I.F.R.B. Weekly Circulars, Parts I-II-III-IV and Special, Nos. 991 to 1041, trilingual . . .  |   | 400   |
| 37. | Summaries of monitoring Information received by the I.F.R.B., Nos. 172 to 175, trilingual   |   | 600   |
| 38. | Tentative High Frequency Broadcasting Schedules, May 1972, September 1972, November 1972, March 1973, trilingual . . . . .  |   | 560   |
| 39. | High Frequency Broadcasting Schedules, September 1970, November 1970, March 1971, May 1971, trilingual . . . . .  |   | 480   |
| 40. | Information Booklet No. 10: Eleventh Report by the International Telecommunication Union on Telecommunication and the peaceful Uses of Outer Space (1972) . . . . . | F | 4,300 |
|     |   | E | 6,400 |
|     |   | S | 2,300 |

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## ANNEX 4

### COMPUTER UTILIZATION BY THE I.T.U. IN 1972

1. The use of different computer facilities by the Union during 1972, excluding the work for the changeover to the new computer, is indicated below. For easy and direct comparison, the 1971 figures are also shown.

|  | <i>Hours of use</i> |      |
|--|---------------------|------|
|  | 1972                | 1971 |
| UNIVAC 1050 (I.T.U.): Applications . . . . . | 2743                | 2626 |
| Tests . . . . .                              | 236                 | 161  |
| Total. . . . .                               | 2979                | 2787 |
| IBM 370 (I.C.C.) . . . . .                   | 1¼                  | ¼    |
| CDC 6500/6600 (C.E.R.N.) . . . . .           | 1                   | 2    |

Applications increased during 1972. In testing, priority was given to the preparation of test data for the conversion of existing programmes for the new computer and consequently the development of new tasks was kept to a minimum.

Comparison of the hours used on UNIVAC, IBM and CDC should not be made as they are different machines of different sizes of different speed and capacity.

The Union continued to make use of external computers for some of its specific non-repetitive tasks which require a computer of bigger capacity than the I.T.U. in-house service need, or to meet special demands such as the trials of programmes obtained from some institutions before being adapted to our computer.

Table I at the end of this Annex gives the monthly statistics of the use of UNIVAC 1050 computer in terms of applications and tests as well as the percentages of the total use made by the different organs.

2. Table II at the end of this Annex gives a list of main computer applications where the computer print-out is used, in some cases to produce I.T.U. publications by the offset process; in others the processing and calculations carried out by the computer assist the General Secretariat and the other secretariats to perform some of their tasks.

3. The testing of converted programmes was largely carried out until April 1972 on the Siemens installations. From the beginning of testing, late 1971, until this date, every possible step was taken to minimize testing of programmes on computer facilities outside the I.T.U. Programme conversion was confined mainly to coding and testing, the latter on limited test data. So far as possible, detailed tests were held in abeyance to be carried out on the I.T.U. Siemens 4004. These

steps resulted in a substantial economy for the Union, because outside computer time, which is more expensive, was kept to the minimum necessary.

The use of different computer facilities for the programme conversions to the new computer is indicated below:

|   | <i>Hours of use</i> |
|---|---------------------|
| Siemens 4004 (I.T.U.) . . . . .         | 1700                |
| Siemens 4004 (Siemens/Zurich) . . . . . | 222                 |
| Siemens 4004 (Bobst/Lausanne) . . . . . | 25                  |
| IBM 360 (I.L.O.) . . . . .              | 6                   |
| IBM 360 (SISCO/Geneva) . . . . .        | 52                  |
|   | <hr/>               |
| Total . . . . .                         | 2005                |
|   | <hr/>               |

The use of different machines was mainly for reasons of economy, but at times technical needs warranted such action. For instance, the conversion of 7-track magnetic tapes to 9-track could only be carried out on the IBM 360 of SISCO in Geneva.

The necessary work related to the changeover to the new computer is practically completed. The major applications were transferred to Siemens 4004 in January 1973.

4. In addition to the work resulting from the changeover, the following new computer applications were implemented and some studies were started:

*a) Implementations:*

- List of call-signs of stations used in the Maritime Mobile Services (List VIIA and its supplements).
- Certain types of invoices for the Sales Section.
- More detailed statistics for the Reproduction Service, by machine and by production for each I.T.U. Organ.
- Computations of the noise level equivalent to the effect of quantizing distortion on, telephone transmission (C.C.I.T.T.).
- Conversion of data received on tape for Ship Station List.
- Analytical table and listing for photothèque.

*b) Studies:*

- Relative merits of either further computerization of work in the Sales Section and for general accounting, or of having independent machinery. Specifications worked out for independent machinery for day-to-day work, repetitive work to be computerized.
- Preliminary approach to a computerized personnel payroll system.
- Telephone network planning and optimization (T.C.D.).
- Preliminary study for the World Plan Committee (C.C.I.T.T.).

5. Extensive studies on principles for the adaptation of programmes of the methods and procedures to produce publications with the help of the new I.T.U. computer is in progress. This is

associated with the study of the team of experts which has reviewed the working methods of the C.C.I.T.T. New methods proposed to be employed in the production of publications were adopted by the Vth Plenary Assembly of the C.C.I.T.T.

The studies on this text treatment system included mainly:

- Extended discussions and call for advice from text treatment software houses, specialists in this field and printers using such software.
- Studies on the latest software developed by Siemens (COSY-35).
- Text treatment computer printer chain study for the Union's needs.
- Tentative market research concerning appropriate data capture equipment.

6. The I.T.U. continued to cooperate actively with the U.N. consultative bodies in the question of electronic data processing.

The I.T.U. is a member of the Inter-Organization Board (I.O.B.) for the development of policy and work programmes for Inter-Agency management information and documentation systems particularly for the purpose of supporting social and economic development activities such as technical cooperation. The Union provides the Chairman of the Standing Committee which is responsible for the guidance of the work programme of the Director of the I.O.B. Secretariat and his staff. The I.T.U. is also a member of the Management Committee of the International Computer Centre in an observer capacity, particularly for the non-capital participants using the Centre.

Furthermore, the Union assisted the I.O.B. with the feasibility study of its management information and documentation systems and is participating in the pilot study of a system register of technical cooperation projects in the U.N. family.

7. For the past year and a half, efforts were spent in seeking offers for the previous computer in many countries and through different sources.

A final attempt which coincided with a change of plan by one of the prospective customers resulted in the sale of the machine by the Union for 100,000 Swiss francs, with all expenses, including the dismantling and transportation of the computer, paid by the customer. The computer was transferred to the purchaser in mid-January 1973. The 100,000 Swiss francs received will be credited to the computer changeover and programme conversion costs which are being amortized over the years 1971-1976.

TABLE I

*1972: UNIVAC 1050 Computer use*

| Month                    | Total use | Applications | Test | % of total use         |                                  |          |            |       |
|--------------------------|-----------|--------------|------|------------------------|----------------------------------|----------|------------|-------|
|                          |           |              |      | I.F.R.B. <sup>1)</sup> | G.S. <sup>1)</sup> <sup>2)</sup> | C.C.I.R. | C.C.I.T.T. | Misc. |
| Jan.                     | 231       | 211          | 20   | 85.0                   | 13.5                             | 0.8      | —          | 0.7   |
| Feb.                     | 255       | 240          | 15   | 74.1                   | 23.2                             | 0.5      | —          | 2.2   |
| March                    | 254       | 236          | 18   | 67.7                   | 23.7                             | 1.2      | —          | 7.4   |
| April                    | 165       | 149          | 16   | 75.1                   | 20.5                             | 0.6      | —          | 3.8   |
| May                      | 254       | 233          | 21   | 83.9                   | 13.3                             | 0.6      | —          | 2.2   |
| June                     | 217       | 203          | 14   | 79.5                   | 16.9                             | 1.2      | —          | 2.4   |
| July                     | 256       | 229          | 27   | 81.0                   | 16.4                             | 0.5      | —          | 2.1   |
| Aug.                     | 289       | 261          | 28   | 75.7                   | 18.0                             | 0.1      | —          | 6.2   |
| Sept.                    | 268       | 254          | 14   | 79.3                   | 10.1                             | 0.1      | 3.6        | 6.9   |
| Oct.                     | 276       | 250          | 26   | 71.0                   | 17.9                             | 0.2      | —          | 10.9  |
| Nov.                     | 288       | 269          | 19   | 82.8                   | 8.5                              | 0.6      | —          | 8.1   |
| Dec.                     | 226       | 208          | 18   | 84.3                   | 14.3                             | 0.1      | —          | 1.3   |
| Total hours              | 2979      | 2743         | 236  |                        |                                  |          |            |       |
| Monthly average          | 248       | 228          | 20   | 78.3                   | 16.4                             | 0.5      | 0.3        | 4.5   |
| Monthly average for 1971 | 231       | 218          | 13   | 69.1                   | 15.6                             | 1.0      | 0.1        | 14.2  |

<sup>1)</sup> If one takes only the percentage of application hours, excluding tests, the I.F.R.B. average use would be 80.5%, the General Secretariat 14.6%, but the percentage of use will vary in the light of the processing capabilities of the new machine and individual programmes.

<sup>2)</sup> Towards the end of the year, some of the General Secretariat applications which were ready early, were transferred to the new machine. The total computer use by the General Secretariat is therefore actually higher than shown in this table.

TABLE II

*Main Computer applications at the I.T.U. (1972)*

— Maintenance of the Master International Frequency Register (MIFR)

— Technical Examination (interference calculations up to 28 MHz)

— I.F.R.B. Weekly Circular:

a) RR Article 9

b) RR Article 10

c) Special Sections

- Recapitulative Special Sections to I.F.R.B. Weekly Circulars
- Investigation Procedure (RR 516)
- Special Technical Examination study (RR Article 9, Section VII)
- MIFR Tabulations for different studies
- Extracts and retrieval of information from different files for studies or other purposes (headquarters, administrations, etc.)
- International Frequency List (List I):
  - a)* Edition
  - b)* Supplements
- Fixed Stations (List II):
  - a)* Edition
  - b)* Supplements
- Broadcasting Stations/below 5950 kc/s (List IIIA):
  - a)* Edition
  - b)* Supplements
- Broadcasting Stations/between 5950 kc/s and 26.1 Mc/s (List IIIB)
- Annual High Frequency Broadcasting Frequency List
- High Frequency Broadcasting Schedules:
  - a)* Tentative
  - b)* Final
- Summary of Monitoring Information:
  - a)* Normal
  - b)* HFBC (for headquarter use)
- Call Signs of Stations used by Maritime Mobile Service (List VIIA):
  - a)* Edition
  - b)* Supplements
- Call Signs of Stations other than Maritime Mobile Service (List VIIB):
  - a)* Edition
  - b)* Supplements
- Ship Stations (List V):
  - a)* Edition
  - b)* Supplements
- List of Telegraph Offices:
  - a)* Edition
  - b)* Supplements
- Geographical Positions Indices by:
  - a)* Station Names
  - b)* Country
- C.C.I.R. (Monthly calculation of predictions for Ionospheric propagation indices)
- C.C.I.R. Studies (Study Groups 5 and 6)
- C.C.I.T.T. Computations
- Technical Cooperation reporting for the U.N.D.P.
- Integrated systems for Sales Section, Debtors accounts and Despatch Service



- Reproduction Service: Cost analysis, cost imputations, various production statistics and machines occupancy
- Salary Budget
- Staff Budget Control
- Payment listing to the bank for regular staff
- Pension Fund
- Health Insurance Fund
- Inventory of office furniture and miscellaneous
- Analytical indices for:
  - a)* Journal
  - b)* Archives
  - c)* Photothèque
- Computer statistics

# ANNEX 5

## CONFERENCES AND MEETINGS AT WHICH THE UNION WAS REPRESENTED IN 1972

|                   |   | <i>Number of participants</i> |                 |
|-------------------|---|-------------------------------|-----------------|
|                   |   | <i>Officials</i>              |                 |
|                   |   | <i>from</i>                   | <i>Regional</i> |
|                   |   | <i>Headquarters</i>           | <i>Experts</i>  |
| A. UNITED NATIONS |   |                               |                 |
| 1.                | Economic Commission for Asia and the Far East: 20th Session of the Transport and Communications Committee, Bangkok, 10-17 January . . . . .   | —                             | 1               |
| 2.                | 40th Session of the Consultative Committee for Public Information, Vienna, 14-17 February . . . . .   | 1                             | —               |
| 3.                | 35th Session of the Consultative Committee on Administrative Questions, New York, 6-17 March . . . . .  | 1                             | —               |
| 4.                | Economic Commission for Asia and the Far East: 28th Session, Bangkok, 15-17 March . . . . .   | —                             | 1               |
| 5.                | 70th Session of Preparatory Committee of the Administrative Committee on Coordination, London, 20-30 March . . . . .  | 1                             | —               |
| 6.                | 56th Session of the Administrative Committee on Coordination, London, 10-11 April   | 2                             | —               |
| 7.                | 8th Session of the Committee for Development Planning, Geneva, 10-21 April  | 1                             | —               |
| 8.                | 11th Session of the Legal Sub-Committee of the Committee on the Peaceful Uses of Outer Space, Geneva, 10 April-5 May . . . . .  | 3                             | —               |
| 9.                | 9th Meeting of the Scientific and Technical Sub-Committee of the Committee on the Peaceful Uses of Outer Space, and Working Group on Remote Sensing of the Earth by Satellite, New York, 3-12 May . . . . . | 1                             | —               |
| 10.               | Meeting of the Administrative Committee on Coordination Sub-Committee on the U.N. Development Decade, Geneva, 2-3 July . . . . .  | 1                             | —               |
| 11.               | 53rd Session of the Economic and Social Council, Geneva, 3-28 July . . . . .  | 5                             | —               |
| 12.               | Meeting of the Centre for Economic and Social Information, Geneva, 6-8 July   | 1                             | —               |
| 13.               | Meeting of the United Nations Joint Staff Pension Board and Standing Committee, Paris, 10-19 July . . . . .   | 2                             | —               |
| 14.               | Economic Commission for Africa: 3rd Meeting of the Technical Committee of Experts, Addis Ababa, 1-8 September . . . . .   | —                             | 1               |
| 15.               | 4th Session of the Inter-Organization Board for Information Systems and Related Activities (IOB), Geneva, 11-13 September . . . . .   | 2                             | —               |
| 16.               | Economic Commission for Asia and the Far East: 3rd Session of the Telecommunication Sub-Committee, Bangkok, 2-9 October . . . . .   | 1                             | 1               |
| 17.               | Economic Commission for Africa: 4th Session of the Conference of African Planners, Addis Ababa, 4-13 October . . . . .  | —                             | 1               |
| 18.               | Office of the High Commissioner for Refugees: 23rd Session of the Executive Committee of the High Commissioner's Programme, Geneva, 9-18 October  | 1                             | —               |
| 19.               | 72nd Session of the Preparatory Committee of the Administrative Committee on Coordination, New York, 9-20 October . . . . .   | 1                             | —               |
| 20.               | 58th Session of the Administrative Committee on Coordination, New York, 25-26 October . . . . .   | 2                             | —               |
| 21.               | 17th Session of the Advisory Committee on the Application of Science and Technology to Development, Geneva, 23 October-1 November . . . . .   | 1                             | —               |

|     |   | <i>Number of participants</i>              |                             |
|-----|---|--|-----------------------------|
|     |   | <i>Officials<br/>from<br/>Headquarters</i> | <i>Regional<br/>Experts</i> |
| 22. | Economic Commission for Asia and the Far East: 5th Session of the Typhoon Committee, Bangkok, 15-21 November . . . . .  | —  | 1                           |
| 23. | Economic Commission for Asia and the Far East: Meeting of the Working Party on Operational and Technical Aspects of Asian Shipping Development, Bangkok, 27 November-4 December . . . . . | —  | 1                           |
| 24. | Meetings of the Pension Committee and Fifth Committee, New York, 1-6 December   | 1  | —                           |
| 25. | Technical Panel on Satellite Instructional Television Systems, New Delhi, 12-20 December . . . . .  | 1  | 1                           |

## B. SPECIALIZED AGENCIES

*United Nations Educational, Scientific and  
Cultural Organization (UNESCO)*

|     |  |   |   |
|-----|--|---|---|
| 26. | Preparatory Conference of Governmental Experts to formulate a Draft Convention on the Legal Status of Ocean Data Acquisition Systems (ODAS), Paris, 31 January-11 February . . . . .   | 1 | — |
| 27. | UNESCO/WIPO — 2nd Committee of Governmental Experts on Problems in the Field of Copyright and of the Protection of Performers, Producers of Phonograms and Broadcasting Organizations raised by Transmission via Space Satellites, Paris, 9-17 May . . . . . | 1 | — |
| 28. | Meeting of Experts on the Draft Declaration of Guiding Principles on the Use of Space Broadcasting for the Free Flow of Information, the Spread of Education and Greater Cultural Exchange, Paris, 23-26 May . . . . .                                       | 1 | — |

*World Meteorological Organization (W.M.O.)*

|     |  |   |   |
|-----|--|---|---|
| 29. | WMO/IOC — Preparatory Session of the Group of Experts on IGOS Technical Design and Development and Service Requirements (ITECH), Geneva, 13-17 March | 2 | — |
| 30. | Technical Conference on the Means of Acquisition and Communication of Ocean Data, Tokyo, 3-9 October . . . . .                                       | — | 1 |
| 31. | 4th Session of the WMO/IOC/Group of Experts on Telecommunication, Geneva, 12-19 December . . . . .   | 2 | — |

*Inter-Governmental Maritime Consultative Organization  
(I.M.C.O.)*

|     |   |   |   |
|-----|---|---|---|
| 32. | 9th Session of the Sub-Committee on Radiocommunications, London, 17-21 January                        | 1 | — |
| 33. | 25th Session of the Maritime Safety Committee, London, 20-24 March . . . . .                          | 1 | — |
| 34. | 1st Session of the Panel of Experts on Maritime Satellites, London, 3-5 July                          | 2 | — |
| 35. | 10th Session of the Sub-Committee on Radiocommunications, London, 5-8 July                            | 2 | — |
| 36. | 26th Session of the Maritime Safety Committee, London, 30 October-3 November                          | 1 | — |
| 37. | Extraordinary Session of the Panel of Experts on Maritime Satellites, London, 6-10 November . . . . . | 1 | — |

*World Health Organization (W.H.O.)*

|     |  |   |   |
|-----|--|---|---|
| 38. | 49th Session of the Executive Board, Geneva, January . . . . . | 1 | — |
|-----|--|---|---|

|   |   | <i>Number of participants</i>              |                             |
|---|---|--|-----------------------------|
|   |   | <i>Officials<br/>from<br/>Headquarters</i> | <i>Regional<br/>Experts</i> |
| <i>Universal Postal Union (U.P.U.)</i>  |   |  |                             |
| 39.   | Meeting of the Executive Board, Berne, 18-26 May . . . . .  | 1  | —                           |
| <i>International Civil Aviation Organization (I.C.A.O.)</i>                   |   |  |                             |
| 40.   | 5th Meeting of the ASTRA Panel, Montreal, 10-21 January . . . . .   | 1  | —                           |
| 41.   | 7th Air Navigation Conference, Montreal, 5-29 April . . . . .   | 1  | —                           |
| C. INTERNATIONAL ORGANIZATIONS  |   |  |                             |
| <i>International Red Cross Committee (I.C.R.C.)</i>                           |   |  |                             |
| 42.   | Study Group on Medical Transport Identification and Marking, Geneva, 5-11 May   | 1  | —                           |
| <i>European Broadcasting Union (E.B.U.)</i>                                   |   |  |                             |
| 43.   | 24th Meeting of the Technical Committee, Munich, 10-14 April . . . . .  | 2  | —                           |
| <i>Danube Commission</i>  |   |  |                             |
| 44.   | XXXth Session of the Danube Commission, Budapest, 11-22 April . . . . .   | 1  | —                           |
| 45.   | Meeting of Experts on Radiocommunications, Budapest, 8-15 December . . . .  | 1  | —                           |
| <i>International Marine Radio Association (C.I.R.M.)</i>                      |   |  |                             |
| 46.   | 51st Meeting of the Technical Committee, Stockholm, 13-15 June . . . . .  | 2  | —                           |
| <i>International Electrotechnical Commission (I.E.C.)</i>                     |   |  |                             |
| 47.   | Meeting of the I.E.C. Technical Committee No. 12 (Radiocommunications),<br>Las Palmas, 25-28 January . . . . .                          | 1  | —                           |
| 48.   | Meeting of Working Group No. 3 (Transmitters and transposers for monochrome<br>and colour television), London, 21-24 February . . . . . | 1  | —                           |
| <i>International Union of Radio Science (U.R.S.I.)</i>                        |   |  |                             |
| 49.   | XVIIth General Assembly, Warsaw, 21-29 August . . . . .   | 2  | —                           |
| <i>International Special Committee on Radio Interference<br/>(C.I.S.P.R.)</i> |   |  |                             |
| 50.   | Meetings of Working Groups and Steering Committee, Baden-Baden, 10-19 April   | 1  | —                           |
| <i>European Conference of Posts and Telecommunications<br/>(C.E.P.T.)</i>     |   |  |                             |
| 51.   | VIIth Ordinary Session, The Hague, 11-22 September . . . . .  | 2  | —                           |
| <i>International Bureau for Weights and Measures (B.I.P.M.)</i>               |   |  |                             |
| 52.   | Meeting of the Consultative Committee for the Definition of the Second, Sèvres,<br>France, 6-8 July . . . . .                           | 1  | —                           |

|  |   | <i>Number of participants</i> |                             |
|--|---|-------------------------------|-----------------------------|
|  |   | <i>Officials<br/>from</i>     | <i>Regional<br/>Experts</i> |
|  |   | <i>Headquarters</i>           |                             |
| <i>International Press Telecommunications Council (I.P.T.C.)</i> |   |                               |                             |
| 53.  | Meeting of the Satellite Committee, Paris, 29 March . . . . .   | 1                             | —                           |
| <i>International Civil Defence Organization</i>                  |   |                               |                             |
| 54.  | VIth World Conference for Civil Defence, Geneva, 22-29 February . . . . .   | 1                             | —                           |
| <i>International Criminal Police Organization (I.C.P.O.)</i>     |   |                               |                             |
| 55.  | Meeting of Chiefs of Stations in the International Police Radio Network, St.-Cloud,<br>13-15 June . . . . .   | 1                             | —                           |
| <i>Arab States Broadcasting Union (A.S.B.U.)</i>                 |   |                               |                             |
| 56.  | First Arab Conference on Space Communications, Amman, 23-26 September   | —                             | 1                           |
| <i>African Development Bank</i>                                  |   |                               |                             |
| 57.  | 8th Annual Meeting of the Board of Governors, Algiers, 17-22 July . . . . .   | —                             | 1                           |
| <i>Organization of African Unity (O.A.U.)</i>                    |   |                               |                             |
| 58.  | 9th Ordinary Session of the Conference of Chiefs of State and of Government,<br>Rabat, 12-15 June . . . . .   | —                             | 1                           |
| <i>Asian Broadcasting Union (A.B.U.)</i>                         |   |                               |                             |
| 59.  | 9th General Assembly, Teheran, 9-14 October . . . . .   | —                             | 1                           |
| <i>Organization of American States (O.A.S.)</i>                  |   |                               |                             |
| 60.  | 1st Meeting of the Permanent Steering Committee of the Inter-American Tele-<br>communications Conference, (COM/CITEL), Caracas, 2-4 February . . . .  | —                             | 3                           |
| 61.  | 2nd Meeting of the Permanent Steering Committee of the Inter-American Tele-<br>communications Conference (COM/CITEL), and meetings of the Permanent<br>Technical Committees I and III, Mexico City, 23-27 October . . . . . | 1                             | —                           |

## D. OTHER MEETINGS

*A.S. Popov Society*

|     |  |   |   |
|-----|--|---|---|
| 62. | Scientific Session of the Society, Moscow, 23-25 May . . . . . | 1 | — |
|-----|--|---|---|

*European North American Committee (EURNAC)*

|     |   |   |   |
|-----|---|---|---|
| 63. | Conference on "Television and the Society of the 70's", Lésigny, Paris, 20-23 April | 1 | — |
|-----|---|---|---|

*Note:* Invitations to a considerable number of other meetings were declined either due to lack of credits or since the agenda did not, in the opinion of the Coordination Committee, justify I.T.U. representation.

ANNEX 6

**TECHNICAL ASSISTANCE PROVIDED IN 1972  
UNDER THE AUSPICES OF THE I.T.U.**

|  | <i>Page</i> |
|--|-------------|
| Table 1 — Assistance provided to developing countries during the period 1 January to 31 December 1972                                  | 114         |
| Table 2 — Projects implemented under sub-contracting during 1972 . . . . .   | 155         |
| Table 3 — Assistance provided in 1972 under the U.N.D.P. . . . .   | 157         |
| Table 4 — Important large-scale projects approved by U.N.D.P. for which I.T.U. is Executing Agency as<br>at 31 December 1972 . . . . . | 158         |

TABLE 1

*Assistance provided to developing countries during the period  
1 January to 31 December 1972 under all programmes*

[U.N.D.P.—including O.P.A.S.; Funds-in-Trust—including O.P.A.S.;  
Associate Experts and Volunteers, United Nations Relief Operation Dacca (U.N.R.O.D.)]

The information given in this table is classified by region, country and programme. Projects of a regional or multinational nature are given at the end of the text of the region concerned.

*Notes :*

1. For each country or regional/multinational project, the assistance provided has been given project by project, with an indication of the type of assistance rendered (experts, fellowships, equipment).
2. *Expert* assistance is indicated by two figures separated by a stroke, the first figure representing the number of experts who served during the year under report, and the second the total man-months of service rendered by these experts.
3. *Fellowships* are also indicated by two figures separated by a stroke. The first figure represents the number of fellows undergoing training abroad during the year and the second figure gives the number of man-months of training received by these fellows during 1972.  
The fellowship figures preceding the narrative part do not include participants to  
— Seminars  
— Specialist meetings (in connection with the pre-investment survey in Africa)  
Information on this type of group training is included in the narrative part under the project concerned.
4. *Equipment*—the U.S. dollar amount indicates the value of equipment ordered during 1972.
5. In the case of expert assistance provided to countries in the Americas Region, the total number of experts shown in the text of the Report and in this table do not correspond. This is due to the fact that, for the eleven multi-country experts working in Central America (9) and the Caribbean (2), the assistance has been broken down on the basis of the countries assisted by the experts.

## 1. REGION: AFRICA

## ALGERIA (U.N.D.P.)

Experts: 9/66

Fellows: 3/17

Equipment: \$3,419

A. *Title*: National School for Telecommunications Studies (E.N.T.), Algiers

As the I.T.T.E. (Institute of Technology for Telecommunications and Electronics) became operational in Oran, the activities of E.N.T. began to decline. No new course was started in 1972.

Three technicians' courses came to an end (61 students qualifying out of 69) and one senior technicians' course (15 students qualifying). In all, the following students have been trained since the project began in 1965:

— 187 senior technicians ("inspecteurs")

— 572 technicians ("contrôleurs")

No expert worked under the heading of this project in 1972. The laboratories were transferred gradually between February and August 1972 to the I.T.T.E. in Oran.

B. *Title*: Institute of Technology for Telecommunications and Electronics (I.T.T.E.), Oran

The first intake of 300 students (supervising technicians and chief supervising technicians), reduced to 230 by the end of 1972, continued their training, mainly in electronics.

The team of I.T.U. experts from the E.N.T. (a Project Manager, an expert in electronics, one in transmission, and one in radio), was reinforced by an educational psychologist, an expert in switching and one in sound and television broadcasting. A new Project Manager was appointed towards the end of the year.

The I.T.T.E. at present operates in difficult conditions (provisional premises, new teaching methods being tried out...).

The team of experts has concentrated on the final organizational structure of the Institute (study of the requirements of users, programmes and training modules, equipping of laboratories, teaching methods and aids to be employed).

A specialist in modern training methods and materials carried out a one-month advisory mission in the early part of 1972.

Two fellows completed their studies in switching and transmission and in training methods in France and a third fellow studied teaching methods in Switzerland.

## ALGERIA (FIT)

Fellows: 10/40

Ten fellows commenced their study programmes in VHF radio (3), radio frequencies, switching (2), HF, SSB radio (3) and HF radio in France, Italy and Switzerland. One of the fellows studying VHF radio and the one studying radio frequencies also attended the I.F.R.B. Seminar.

## BOTSWANA (U.N.D.P.)

Fellows: 1/3

One fellow studied telephony in Kenya during the year under report.

## CAMEROON (U.N.D.P.)—1

Experts: 2/9

The Telecommunications Adviser, who served until May 1972, was based in Buea and acted as regional chief for Western Cameroon. He directed much of the work connected with expansion (network cables, automatic switching equipment, radio and carrier links), drew up plans for the future development of the telephone and telegraph services of the region and reorganized the maintenance and fault-clearing services.

A second expert, who took up his duties on 15 August 1972, was based in Yaoundé as Adviser to the Ministry.

His first activity was centered on problems of network equipment maintenance (immediate action and long-term plans), the study of modifications in the power supply and air-conditioning systems of the Northern radio-relay



link and proposals for the re-arrangement of the manufacturer's installations and on examination of the proposed extensions of the link.

## CAMEROON (U.N.D.P.)—

Experts: 2/21

Equipment: \$31,345

*Title:* Federal School of Posts and Telecommunications (E.S.P.T.), Yaoundé

This project is being implemented in collaboration with the Universal Postal Union (U.P.U.) and covers, in addition to the activities in Yaoundé, the coordination of training programmes at the Telecommunication Training School in Buea. The Project Manager and the power plant expert took up their duties at the beginning of 1972; the U.P.U. expert in postal training arrived during December.

Studies so far carried out have included the general organization of the buildings, the programme for technicians ("vérificateurs" and "contrôleurs") and the installations and equipment for the general and specialized laboratories.

The first intake of technicians (32), recruited by competition, began working in provisional classrooms and laboratories on 1 December 1972. Two intakes of junior technician students were also trained (17 at Yaoundé and ten at the Training School in Buea) and several classes of supervising technicians, senior and junior technicians for the postal services.

## CENTRAL AFRICAN REPUBLIC (U.N.D.P.)—1

Experts: 1/12

Fellows: 1/12

The instructor in telephone installations continued to conduct 2nd-year courses for controllers at the National School for Posts and Telecommunications and to train his national counterpart. During the 1971/1972 scholastic year, training at the school was provided at five levels to 44 students, including several from neighbouring countries. For the 1972/1973 scholastic year, two additional courses have been introduced in the school.

The expert was assisted by five volunteers provided by the Government of Switzerland, and one instructor provided by the Government of France. They gave instruction in basic telecommunication subjects.

Two of the five Swiss volunteers completed their assignments in September 1972 and were replaced by two further Swiss volunteers. The fifth volunteer took up his duties towards the end of the year.

One fellow commenced his programme of studies in switching in France in January 1972.

## CENTRAL AFRICAN REPUBLIC (U.N.D.P.)—2

Experts: 1/1½

At the request of the Government of the Central African Republic, a Telecommunications Adviser went to Bangui on 18 October for six weeks on a preparatory assistance mission for the formulation of the document concerning the Higher Telecommunications School project included in the country programme adopted by the U.N.D.P. Governing Council in June 1972.

Having examined the different problems in detail he redrafted the project document for submission to the competent organs of the country concerned and the U.N.D.P.

## EAST AFRICAN COMMUNITY (U.N.D.P.)

(Kenya, Tanzania, Uganda)

Fellows: 2/3

One fellow terminated his studies in telecommunication engineering in the United Kingdom in February 1972. He will resume his programme in 1973-1974. A second fellow studied training in telecommunications in Ethiopia, Nigeria, the Sudan and the United Kingdom.

## IVORY COAST (U.N.D.P.)

A short-term fellowship was awarded to permit a participant from the Ivory Coast to take part in the I.F.R.B. Seminar on frequency management in Geneva.

## IVORY COAST (U.N.D.P./O.P.A.S.)

Experts: 1/12

An O.P.A.S. officer specialized in vocational training continued to give courses to senior technicians (11 in the outgoing class and 26 in the new intake) and technicians (12 and 21 respectively) in cable and radio relay transmission at the Posts and Telecommunications School. He also completed the setting up of the laboratories. A counterpart instructor and a laboratory assistant were trained.

## DAHOMY (U.N.D.P.)

Experts: 2/16

Fellows: 2/4

Equipment: \$5,961

For six months, January to June, the expert in the organization of telecommunications operational services assisted the Director-General of the Office of Posts and Telecommunications (O.P.T.) in Dahomey in all questions relating to telecommunications operation.

He submitted numerous recommendations on personnel management, telephone accounting, stores accounting and service quality. He also participated directly in the transformation of premises and the revision of the procedures in the accounting and subscriber services.

The expert responsible for training senior technician staff in switching and local networks advised on and assisted in the setting up of classrooms and laboratories. He established lists of teaching equipment to be purchased, and prepared course material. He then gave a refresher training course (switching, overhead and underground lines) to 40 technicians and a technician training course to 18 students.

Two fellows commenced their studies in telecommunication engineering in France in 1972.

## EGYPT (ARAB REPUBLIC OF) (U.N.D.P.)

Experts: 5/52

Fellows: 15/53

Equipment: \$198,252

*Title:* Technical Training and Research Institute for Telecommunications, Cairo

The overall progress of the project has been very satisfactory during 1972. The expert team was at its full complement by the middle of the year and equipment worth \$220,000 has been delivered so far. Detailed training materials, including training aids for 20 new courses, have been prepared and developed by the experts; 67 basic courses and 17 refresher courses were also undertaken; whilst 2,842 students were trained and 1,733 students graduated (completed training successfully) during this year. The experts conducted 398 man-courses for the counterpart staff.

15 counterpart staff have been abroad on fellowships during the year, 12 returning to Egypt having completed their training; the remaining three will finish their studies in 1973. The fellows studied in the fields of transmission, computers in telecommunications (2), telegraphy (2), training in telecommunications (4), accounting in telecommunications, telecommunication administration, traffic, electronics, workshop practice and air-conditioning in Germany (Federal Republic), France, Italy, Sweden, the United Kingdom and the United States.

One short-term fellowship was awarded to permit a participant from Egypt to take part in the Seminar on Standards for Training in Telecommunications in France.

## GAMBIA (U.N.D.P.)

Experts: 1/12

Fellows: 2/6

The telecommunication training expert, in collaboration with his counterpart, continued to run the training centre, devising and conducting refresher and field training courses in the fields of telephony, telegraphy, radio-communications, line plant practice and line transmission, up to the intermediate technician level. 39 students completed their courses at the Centre in 1972.

Two fellows were sent to Australia and the United Kingdom to study broadcasting engineering and telephone sales and traffic management.

Sixteen trainees, sponsored by various administrations and a private operating agency in Gambia, were enrolled in 1972.

## GHANA (U.N.D.P.)

Experts: 1/12

Fellows: 2/8

The expert in air-conditioning maintenance continued to assist in the implementation of routine maintenance schedules and inspections, ensuring that all records were kept up to date; gave on-the-spot instruction, theoretical and practical, for existing maintenance staff, and supervised contractors and direct labour staff on airconditioning equipment installations.

The expert gave instruction and training to the counterpart, who returned from a two-year fellowship in air-conditioning in the United States, to enable him to take over the duties in due course.

A further fellow completed his studies in radiocommunications and teaching methods in the Netherlands at the beginning of the year.

## GUINEA (REPUBLIC OF) (U.N.D.P./O.P.A.S.)

Experts: 1/1/2

The radio engineer O.P.A.S. terminated his assignment in the first half of January 1972.

A short-term fellowship was awarded to enable a participant from Guinea to take part in the I.F.R.B. Seminar on frequency management in Geneva.

## EQUATORIAL GUINEA (U.N.D.P.)

Fellows: 2/24

Two fellows were studying telecommunication planning and telecommunication operations in Venezuela, at the I.T.U./U.N.D.P. Training Centre for telecommunication technicians, throughout the year.

A short-term fellowship was awarded to permit a participant from Equatorial Guinea to take part in the Seminar on Standards for Training in Telecommunications in France.

## UPPER VOLTA (U.N.D.P.)

Experts: 2/8

Fellows: 1/2

For three months, May to August 1972, the expert in telephone switching advised the office of Posts and Telecommunications in his field of speciality. He participated, inter alia, in the definition of different general plans (network, routine, numbering, charging, etc.) and drawing up of technical specifications for future automatic exchanges in the large towns.

The expert in training of senior technician telephony staff, who arrived in August 1972, prepared and gave a course on the R6 and Pentaconta automatic switching equipment to seven technicians and a further training course on the introduction of semi-automatic operation for senior technicians.

One fellow commenced his training in telecommunication engineering in France in November 1972.

## LESOTHO (U.N.D.P.)—1

Experts: 1/12

Fellows: 1/4

As of 1972, the expert who had previously advised the Government on its domestic and international tariff policy was requested to act as General Telecommunication Adviser to the Posts and Telecommunications Department. Substantial results have been obtained in the resolving of rates and tariffs problems and in training staff in accounting procedures. The Adviser also prepared short and long-term development plans.

One fellow commenced his studies in tariffs in the Sudan in September 1972.

## LESOTHO (U.N.D.P./O.P.A.S.)—2

Experts: 1/9

An O.P.A.S. officer was assigned as Director of Posts and Telecommunications and Civil Aviation Department in April 1972.

## LIBYA (U.N.D.P.)

Experts: 2/21

*Title:* Telecommunication Training Institute, Beida

The project commenced in January 1972 under pre-project activity operations with the appointment of the Project Manager and an outside plant expert.

The major proportion of work carried out during the year was predominantly concerned with setting up an organization to get the training institute into operation. Six unit-type courses were completed during the second half of 1972 and 71 trainees graduated. The course programme and supporting organization of the Institute have been prepared to provide on-the-job training for existing staff.

The installation of two language laboratories has now been completed and purchasing procedures for many items of equipment necessary for the laboratories and required for each of the training wings was in progress.

## LIBYA (FIT)

Experts: 1/½

A telecommunication consultant and an official of the I.T.U. Headquarters, both specialized in microwaves, visited Libya in September/October 1972. They assisted the Government in the evaluation of contractors' survey reports and made specific recommendations.

## MADAGASCAR (U.N.D.P.)

Experts: 4/15

Fellows: 6/20

*Title:* National Institute of Telecommunications and Posts, Antanetibé

This project, which started in July 1964, was completed by the end of 1972 with the departure of the last expert, who had remained at the project site throughout 1972 to continue training courses in meteorological electronics.

An evaluation mission by three I.T.U. consultants was effected in mid-1972 to review the operations of the Institute which had then been run for a full year with hardly any external assistance. While providing a useful follow-up on previous assistance by advising on improvements in the conduct of training courses and of certain organizational matters, the mission also identified certain needs for additional assistance to ensure continuous advanced training of instructors and for the introduction of modern methods of instruction at the Institute. Recommendations were also made with regard to improving current arrangements for the training of the increasing number of students of other African countries expected to attend courses at the Institute.

Two Swiss volunteers worked at the project in 1972. They gave courses in electronics, mathematics and radio-electricity. One of the volunteers completed his two-year assignment in June 1972.

Six fellows studied long-distance lines, radio, radar, transmission, telegraphy and telephony in Belgium, France and Switzerland during the year.

## MALAWI (U.N.D.P.)

Fellows: 10/60

Ten fellows studied telecommunication engineering in Kenya and the United Kingdom during 1972.

## MALI (U.N.D.P.)

Experts: 1/7

Fellows: 1/1

Equipment: \$933

The expert (instructor in telephone switching) devised a syllabus for a further training course for staff in service at the technician and senior technician level covering general training (applied electronics) and telephone switching. Three booklets of lectures were prepared and printed to facilitate this training.

One fellow commenced his one year study programme in teaching methods in France.

## MAURITANIA (U.N.D.P.)

Fellows: 4/48

Four fellows continued their studies in radiocommunications (2) and switching (2) in France throughout 1972.

## NIGER (U.N.D.P.)

Fellows: 2/14

Equipment: \$7,564

One fellow continued his studies in transmission in France throughout the year and another fellow commenced his programme in the same speciality in France in November 1972.

## NIGERIA (U.N.D.P.)—1

Experts: 4/48

Two of the experts, one in radio frequency management and the other in radio monitoring, continued to work together on the improvement of radiocommunication services. Under the supervision of the experts, the building up of a new frequency register for Nigerian assignments has reached a satisfactory stage for frequencies up to 30 MHz. Four major reports and a number of recommendations have been made available to the Administration for consideration in the development of a frequency usage policy. A proposal for the establishment of a Radio Monitoring Service for Nigeria for country-wide coverage was prepared by the expert in radio monitoring.

The expert for long-distance plant maintenance proposed to set up a centralized fault control scheme for Nigeria; this proposal was accepted for implementation. The expert also assisted in routine tests on the microwave systems.

The expert for local fault control and maintenance was occupied during the year with designing a procedure for reporting, clearing and recording of faults in local telephone networks. Instructions have been given on how to perform systematically preventive maintenance of external plant as a precondition for a good standard engineering practice.

## NIGERIA (U.N.D.P.)—2

Experts: 5/41

Fellows: 2/6

Equipment: \$55,164

*Title:* Posts and Telecommunications Training Centre, Oshodi

During the year under report, the first Project Manager left and a new Project Manager was appointed in September. The experts (Project Manager and three instructors) started mainly to set up a new training scheme for basic assistant technical officer courses of three years' duration. New syllabi for the first year, common for all sections, were established. Some \$125,000 of equipment was ordered and purchased so far, and 168 Nigerian students started their training. Syllabi for second year radio and transmission, and telegraphy courses have been set up by experts. A total of 140 trainees graduated from the Centre in 1972.

Two fellows were undergoing training, one in radiocommunications and teaching methods in Italy and the United Kingdom and the other in training and telecommunications in Australia, the Arab Republic of Egypt, Thailand and the United Kingdom.

## SOMALI REPUBLIC (U.N.D.P.)

Experts: 1/12

The technical instructor ran the Training Centre in Mogadiscio throughout the year. Training was given to 38 students on a technicians' induction course; it is estimated that about 32 will complete the course early in 1973. During the year the school trainees helped to organize and run the Posts and Telecommunications Pavilion at the Mogadiscio Trade Exhibition, demonstrating automatic exchange equipment, telex links, HF radio links, etc.

## RWANDA (U.N.D.P.)

Experts: 1/12

Fellows: 10/36

Equipment: \$1,402

The Adviser in telecommunication techniques gave advice on the organization and operation of the service, the rational use of existing equipment, the planning of telecommunication networks and vocational training. Service quality was improved, six new telephone exchanges installed and microwave links with the capital were brought into operation. A microwave link with Uganda was installed plus several HF links with other countries. Twenty-four morse operators and teleprinter operators were trained.

Ten fellows commenced training programmes in transmission (4), radio (3), telegraphy and switching (2) at the I.T.U./U.N.D.P. training centres in Madagascar, Senegal and Zaïre.

## SENEGAL (U.N.D.P.)

Fellows: 6/51

Six fellows continued their studies in the fields of telex, radio (2), switching (2) and switching and transmission in France during the year under report.

## SUDAN (U.N.D.P.)—1

Experts: 2/10

Two experts, one Adviser on telecommunication planning, organization and staffing and an expert in telecommunication traffic, started their missions in August. They investigated the existing organization, activities and current practices and procedures of the Department of Telecommunications. A recommendation for the Central Planning Unit to be set up as a self-contained unit dealing with all aspects of planning, from the initial study and forecasting to the final detailed planning and projecting, has been approved in principle.

A number of proposals have been made for improving the collection of traffic information.

## SUDAN (U.N.D.P.)—2

Experts: 2/20

Equipment: \$9,034  
(U.N.H.C.R.)

The experts, one specialized in radio and transmission and the other in telephone switching and telegraphy, worked together to assist the Telecommunications Training Centre in establishing additional audio-visual aids. A video tape recorder was set up for use in the training of telecommunications technicians. A laboratory with 8 teaching machines offering 35 programmes on various topics such as electronics, electrical engineering, mathematics, computer programming and management, was set up and was in regular use by the staff and trainees.

Testing equipment was introduced in order to encourage the use of objective type tests as opposed to the traditional essay type examinations. Three specialized courses were undertaken by the students and staff—telegraph test equipment, VHF multi-channel telephony and basic semi-conductors. The national staff carried on with routine courses for which they were already trained.

The radio transmission expert assisted in the setting up of HF radiocommunications facilities in the Southern Sudan and neighbouring countries in connection with the repatriation of some 180,000 refugees. Provision of

these communication facilities was made available at a crucial phase of the work of the United Nations High Commissioner for Refugees.

A short-term fellowship was awarded to permit a participant from the Sudan to take part in the seminar on Standards for Training in Telecommunications in France.

#### SUDAN (U.N.D.P.)—3

Experts: 5/11

Fellows: 2/4

Equipment: \$24,402

*Title:* Post and Telegraph Training Centre, Khartoum (Phase II)

The project was successfully terminated in March 1972 having achieved most of the objectives set out in the Plan of Operation, and even exceeding them in certain respects. The Training Centre is now functioning, as was originally intended, as a specialized training establishment for the P. and T. Department, with a wide range of specialized courses of which the greater part are conducted by national staff who have largely been trained at the Centre or on fellowships abroad. These staff, working originally as counterparts to the members of the international team, are of a high calibre and can be relied on to continue with realistic telecommunication training.

The total number of trainee/weeks completed during the second phase was about 19,000; over 200 courses had been held, twice as many of them having been conducted by national staff as by the expert instructors. The Centre has 42 trained national personnel (instructors and demonstrators) as well as a training and efficiency officer and full supporting staff.

Some \$400,000 has been invested in equipment since the commencement of the project and now the Centre is one of the best-equipped of such institutions in this whole region.

Two fellows completed their training in telephone and telegraph traffic in the United Kingdom at the beginning of the year under report.

#### SWAZILAND (U.N.D.P./O.P.A.S.)

Experts: 1/12

The O.P.A.S. lecturer in electrical engineering and telecommunications completed his assignment at the end of 1972 at the Swaziland Industrial Training Institute. During his 3-year assignment, he taught 68 telecommunication technician students and 53 electricians and electrical craft students at different levels. He also assisted in planning new classroom and laboratory facilities. Future assistance to this project will be provided through a U.N. volunteer who took up his assignment at the end of 1972.

#### CHAD (U.N.D.P.)

Experts: 2/24

Fellows: 2/18

The two experts, a professor in general radio techniques, responsible for courses in electricity, radio-electricity and radiocommunications and an instructor in practical training (radio) continued their missions at the National Telecommunications School at Sarh. In the two courses for senior technicians and technicians, 13 and 10 students respectively received diplomas, including several students from the Central African Republic and the People's Republic of the Congo. At present, for the school year 1972/1973, the senior technician class has 30 students, including some from the Central African Republic and the People's Republic of the Congo.

A volunteer provided by the Swiss Government assisted the experts under a bilateral programme.

Two fellows were undergoing training at the I.T.U./U.N.D.P. Training Centre in Madagascar during the year. One studied telecommunication engineering and the other radiocommunications.

#### Togo (U.N.D.P.)

Fellows: 3/27

Three fellows were undergoing training in France. Two fellows continued their studies in transmission and long-distance lines and in telecommunication engineering and the third commenced his programme of studies in teaching methods.

A short-term fellowship was awarded to permit a participant from Togo to take part in the Seminar on Standards for Training in Telecommunications in France.

## TUNISIA (U.N.D.P.)

Fellows: 3/6

Three fellows studied the use of computers in telecommunications, switching and long-distance lines in Germany (Federal Republic), France and Sweden during the year.

A short-term fellowship was awarded to permit a participant from Tunisia to take part in the Seminar on Standards for Training in Telecommunications in France.

## ZAIRE (REPUBLIC OF) (U.N.D.P.)

Experts: 4/44

Equipment: \$11,979

*Title:* Telecommunication Schools, Kinshasa

As the project is entering its final phase, the mission was continued by the Acting Project Manager and three instructors. During the year 21 engineer/technicians and 26 technicians graduated from the two telecommunication schools.

## ZAIRE (REPUBLIC OF) (FIT)

Experts: 2/24

The expert in automatic telegraphy continued his mission. He advised on and assisted in putting into service new links, new telex circuits and voice-frequency multichannel telegraph terminals. He prepared the installation of new telex exchanges. At the same time, he organized courses for the technicians who would later be responsible for the maintenance of the above-mentioned circuits and equipment.

The expert in radio maintenance, working at the earth station of N'Sele, concerned himself with the expansion and normal operation of the station. To this end, he adapted it to new developments in satellite communications and studied its reliability with respect to telegraph signal transmission. He supervised and assisted the maintenance service and prepared a set of instructions for the maintenance technicians.

## ZAMBIA (U.N.D.P.)—1

Experts: 1/12

The Telecommunication Adviser to the Ministry of Power, Transport and Works has provided valuable assistance in a large variety of ways. These include advice and assistance on the organization, development and management of telecommunication services, visits abroad to assist with technical discussions for the supply of equipment, and the recruitment of technical staff being supplied under a bilateral aid programme.

## ZAMBIA (U.N.D.P.)—2

Experts: 6/54

Equipment: \$8,806

*Title:* The G.P.O. Staff Training College, Ndola

The project, which started in 1971, was fully operational during 1972, with three I.T.U. experts (including the Project Manager), two U.P.U. experts and three associate experts. These associate experts were provided by the Government of the Netherlands. Courses continued to be given at various levels in engineering, telecommunication and postal operations and services to a total of 1,352 trainees as compared to a total of 890 trainees in 1971. Audio-visual aids were introduced to supplement the training. New engineering techniques were introduced and four new laboratories were set up. Other developments at the College were the opening of the hostel catering for 150 trainees per week, the expansion of recreational areas, and the formulation of definite plans to enlarge the college and increase its training output from 150 to 300 trainees per week.

## AFRICA REGIONAL (U.N.D.P.)

Experts: 3/31

Three Regional Experts were in post during 1972 to serve countries of East Africa, West Africa and Central Africa. (The countries of North Africa were served by the Regional Expert for North Africa and the Middle East).



One regional expert was stationed in Addis Ababa, Ethiopia, throughout the year and covered Botswana, Ethiopia, Kenya, Lesotho, Madagascar, Malawi, Mauritius, the Seychelles, Somalia, Sudan, Swaziland, Tanzania, Uganda and Zambia. He maintained constant liaison with the United Nations Economic Commission for Africa and with the Organization of African Unity on all matters relating to telecommunications. Several countries (Botswana, Kenya, Malawi, Mauritius, Somalia, Tanzania, Zambia) were visited by the expert who advised them on a variety of problems, e.g., organization, coordination of assistance, and planning of telecommunication training. The Regional Expert also attended the Board of Governors' meeting of the African Development Bank.

The second Regional Expert, assigned until August 1972, was stationed in Yaoundé, Cameroon, and covered Burundi, the Cameroon, the Central African Republic, Chad, Congo, Equatorial Guinea, Gabon, Guinea, Nigeria, Rwanda and Zaïre. He continued to advise governments in the Central African Region in the setting up of training institutions and the improvement of existing ones with the view of consolidating training at each level on a regional basis. In Cameroon, the expert assisted the Project Manager in the initial stage of the Telecommunication Training Institute project, in the preparation of which he had taken an active part. He also provided direct assistance to the Governments of Chad, Congo and Zaïre in their review of telecommunication training facilities and of their overall development programme for telecommunications.

The third Regional Expert, stationed throughout the year in Dakar, Senegal, covered Dahomey, Gambia, Ghana, Guinea, Ivory Coast, Liberia, Mali, Mauritania, Niger, Senegal, Sierra Leone, Togo and Upper Volta. With the exception of Dahomey and Upper Volta, the expert visited all other countries, as also Nigeria at least once to advise governments in various aspects of telecommunication development. He assisted them in the review of existing national and regional projects in relation to current needs, also providing technical advice, whenever necessary, for the detailed preparation of project documents required by the U.N.D.P.

The Regional Experts furthermore participated in various regional meetings and provided assistance to the consultants engaged on the Pan-African Network Survey Project. They also gave assistance in the drawing up of "Country Briefs" for U.N.D.P. country programming exercises and had, therefore, detailed discussions with Resident Representatives in all countries visited concerning I.T.U. projects and local needs for further assistance in the field of telecommunications.

#### AFRICA REGION TARIFF STUDY (U.N.D.P.)

Experts: 2/3

Two consultants, specialized in tariffs, continued the study initiated in 1971 to obtain basic information on technical and economic factors needed to determine tariff standards for the African continent. A questionnaire in this respect was sent to the countries concerned, most of which were assisted by the experts in the preparation of their replies to the questionnaire during 1971. In April 1972, the experts completed this assistance when visiting Ethiopia, Kenya, Uganda and Zambia.

They were later called to assist in the preliminary study of these replies in view of preparing recommendations for the Plenary Assembly of the C.C.I.T.T.

#### AFRICA REGIONAL (U.N.D.P.)

Experts: 1/12

#### *Title:* Pre-investment Survey for the Pan-African Telecommunication Network

The project implementation that had started in 1971 by awarding contracts for survey work to the following firms: Norconsult (Norway), Preece, Cardew & Rider (U.K.), and Sofrecom (France) continued during 1972.

All the field surveys were terminated during the year under report, and the work at home-office, preparing the draft final reports, was also terminated for Norconsult and Sofrecom. Preece, Cardew & Rider produced the draft final report for the routes included in the original contract. For the amended routes in Tanzania (field work terminated 13.12.72), the reports were under preparation.

New contracts were signed during 1972 with Sofrecom (France) for a sub-project in West Africa, as well as with Swedtel (Sweden) for another sub-project in West Africa.

With these contracts, all work included in the original request has been started.

During 1972, the consultants on the West Africa sub-projects terminated the field surveys and continued the work at home-office on the draft final reports. These will be delivered early in 1973.

The Pan-African Telecommunication Network that was surveyed during 1971 and 1972 includes 20,000 km of terrestrial telecommunication links between 28 countries in Africa. In addition to this, 18 international switching centres have been studied. The use of existing and planned earth stations in Africa has been considered.

During the year, the following working party meetings were held in connection with the project and short-term fellowships were awarded to participants from the countries listed below (number of fellowships indicated in brackets) who attended meetings held in:

- *Accra (Ghana)*—Dahomey (1), Ivory Coast (1), Liberia (1), Sierra Leone (1), Togo (1)
- *Lagos (Nigeria)*—Dahomey (1)

A specialized meeting on tariff questions was held in the I.T.U. Headquarters in Geneva with the five consultants engaged by the I.T.U. Specialists from the C.C.I.T.T. and the African Tariff Study Group (T.A.F.) were present at this meeting.

In November 1972, a large meeting for all African states was held in Addis Ababa. All the African Governments directly involved in the surveys (28) were invited, as also any other government interested in participating. A total of 31 African countries attended the meeting, which dealt with technical, economic and financial matters. Financial institutions from all over the world were invited to participate on the last subject. Apart from the U.N.D.P., the O.A.U. (Organization of African Unity) and the E.C.A. (Economic Commission for Africa), participants from I.B.R.D. (International Bank for Reconstruction and Development), E.F.D. (European Fund for Development), A.D.B. (African Development Bank) and 11 bilateral financing governments/institutions took an active part in the deliberations.

Short-term fellowships were awarded to enable nationals of the following countries to participate in this meeting: Botswana (2), Cameroon (1), Central African Republic (2), Chad (2), Dahomey (2), Kenya (2), Tanzania (2), Uganda (2), Gabon (2), Ghana (2), Guinea (1), Ivory Coast (2), Liberia (2), Lesotho (2), Mali (2), Niger (1), Nigeria (2), Congo (2), Rwanda (2), Senegal (2), Sierra Leone (2), Somalia (2), Sudan (2), Togo (2), Upper Volta (2), Zaïre (2), Zambia (2).

The Project Manager stationed in Dahomey (Cotonou), since August 1971, returned to I.T.U. Headquarters in Geneva in October 1972, as the field surveys were about to end in Africa, and the subsequent activities required close contact with the C.C.I.T.T., C.C.I.R., I.F.R.B. and the Technical Cooperation Department.

#### AFRICA REGIONAL (U.N.D.P.-I.T.U./I.M.C.O.)

Experts: 2/2

A joint I.T.U./I.M.C.O. mission was carried out at the end of 1972 to identify maritime radiocommunication needs in relation to the development of shipping activities. The first two phases of the mission were completed by two experts in 1972 who surveyed separately countries in East Africa and Madagascar, and countries in Central Africa; the third phase of the mission to West Africa will take place early in 1973.

The experts reviewed operational facilities and staffing infrastructure. They made immediate technical recommendations for implementation by each country surveyed and prepared a programme of assistance for the planning and development of maritime radiocommunications, including the training of personnel and the provision of some essential equipment.

#### CENTRAL AFRICA REGIONAL (U.N.D.P.)

Experts: 1/1

A Telecommunication Adviser visited the countries of Central Africa (Central African Republic, People's Republic of the Congo, United Republic of Cameroon, Gabon Republic and the Republic of Chad) in November and December 1972 to define national and regional training programmes. He studied the existing situation of telecommunications in the countries in the region, their foreseeable development, the situation with regard to technical staff and the organization and functioning of existing vocational training centres.

#### MULTINATIONAL PROJECT (U.N.D.P.)

Experts: 7/37

Equipment: \$10,641

*Title:* Multinational Posts and Telecommunications Training Institute (Malawi, Botswana, Lesotho, Swaziland), Malawi (Zomba)

This project, initiated in 1971, was not yet fully operational and continued to be implemented under pre-project activities, pending its approval in January 1973.

The aim of the project is to develop a Multinational Institute catering for medium-level training of post and telecommunication personnel for Malawi, as well as for Botswana, Lesotho and Swaziland where low-level training in basic telecommunications is given locally at the national institute.

In Malawi, the Project Manager continued to review the scope and extent of telecommunications training in the area and to supervise the experts assigned to the three other countries. He also participated in various developments for the establishment of the Institute, such as providing basic information and proposals for the building of the Training Centre, setting up an office, classrooms and library in temporary premises and preparing courses scheduled to start in 1973. Two instructors in telephone switching and outside plant arrived in November 1972.

The instructor in general telephony and telegraphy assigned to the Telecommunication Training Institute of Botswana arrived in October 1972. After reviewing training facilities in the country, he started drawing up programmes for the courses scheduled to start in January 1973.

As of August 1972, an instructor in general telephony and telegraphy took up his activities in Maseru, Lesotho, to assist in the development of the national Telecommunications Training Institute. He was occupied in the preparation of courses, in coordination with other training facilities, and in advising on the set-up of the classrooms and work areas. An associate expert to teach elementary telecommunication subjects, provided by the Government of the Netherlands, also arrived in December 1972.

In Swaziland, where the instructor in general telephony and telegraph engineering has been on duty since 1971, a comprehensive training programme was prepared and carried out during the year and training aids produced. Courses were given to 70 students in maintenance, installation of customers' equipment, overhead construction and maintenance, and underground cable jointing. The expert continued the training of his counterpart who is being prepared to be sent on a fellowship abroad.

#### MULTINATIONAL PROJECT (U.N.D.P.)

Experts: 5/47

Fellows: 100/575

Equipment: \$87,548

*Title:* Multinational Telecommunication Training Centre (Ivory Coast, Dahomey, Guinea, Upper Volta, Mali, Mauritania, Niger, Senegal, Togo), Senegal (Rufisque)

With the arrival of the telecommunication operation instructor in March and that of the telegraph and telex instructor in December, the project had its full complement of I.T.U. experts. Five counterpart instructors have taken up their posts.

Sixty-five students out of sixty-eight received their senior technician diplomas at the end of their training in September in five different specialities (transmission, switching, radio, telegraphy/telex and operation).

A total of 90 students commenced their studies in October with the second intake. Fifty-three students from the following countries received fellowships under this project: Ivory Coast (4), Dahomey (8), Upper Volta (4), Mali (10), Mauritania (9), Niger (9) and Togo (9). Five fellows from Rwanda are attending the courses on the basis of fellowships awarded under the U.N.D.P. programme for that country.

A further group of 46 students who had commenced their studies in December 1971, terminated their training in September 1972: Ivory Coast (6), Dahomey (10), Upper Volta (2), Mali (9), Mauritania (3), Niger (1), Togo (15). In addition one trainee from the Ivory Coast studied in Senegal from January to September 1972.

In addition to their teaching duties, the experts continued the detailed study of programmes and laboratory equipment, put the material received into use and began drafting lecture booklets for the courses.

#### MULTINATIONAL PROJECT (U.N.D.P.)

Experts: 1/4

*Title:* Multinational Posts and Telecommunications Training Institute and Three National Training Institutes (Kenya, Uganda, Tanzania)

This project envisages the reinforcement of the East African Posts and Telecommunications Corporation's Central Training School in Nairobi and the development of three Regional Training Schools in Nairobi, Dar-es-Salaam and Kampala. A Project Manager was assigned to East Africa in September 1972 under pre-project activities to assist in the preparation of the project request which had to be substantially revised. The draft project document was submitted to U.N.D.P., New York, in December 1972 and was based on the recommendations of a U.N.D.P./I.T.U. evaluation mission which reviewed the situation on the spot in November 1972.

## 2. REGION: AMERICAS

## ARGENTINA (U.N.D.P.)

Experts: 2/2

Fellows: 2/6

The expert in satellite communications assisted and gave advice to E.N.T.E.L. (Empresa Nacional de Telecomunicaciones) on the acceptance tests and maintenance procedures of the new installations for the earth station sited at Balcarce. This latter will operate in conjunction with INTELSAT IV satellites.

A specialist in telegraph message handling was appointed for a short mission to advise the Government concerning the establishment of a new telegraph message handling system, its scope and characteristics.

Two fellows studied frequency management and data processing in Italy, Portugal and Spain during the year.

## ARGENTINA (I.D.B.)

Fellows: 3/9

Under an agreement signed between the Union and the Inter-American Development Bank (I.D.B.) regarding a large-scale project for which the latter is the Executing Agency, three fellows studied telecommunication techniques and satellite communications (2) in Spain and Italy.

## BAHAMAS (U.N.D.P./O.P.A.S.)

Experts: 1/6

An O.P.A.S. officer served as Chief Engineer in the Bahamas Telecommunication Corporation (BATELCO) until the end of June 1972. He assisted BATELCO in the planning of a national training scheme, the expansion of the telecommunication system and the development of a telex switching centre.

## BARBADOS (U.N.D.P.)

Experts: 1/8

The multinational expert in telecommunication administration and tariffs, stationed in Barbados, assisted and advised the following countries in the Caribbean area—Barbados, Dominica, Guyana, St. Kitts, St. Lucia and Surinam—in his specialized field. In particular, he advised on the increase of internal telephone rates, the general development of the internal telephone system in St. Kitts and St. Lucia, and in the re-drafting of legislation for telecommunications.

## BOLIVIA (U.N.D.P.)

Experts: 3/21

Fellows: 9/38

The expert in radio frequency management and monitoring completed his two-year mission in La Paz in August 1972. He was involved in the re-organization of the services dealing with frequency management and in the installation of a monitoring station in Amachuma, near La Paz.

\$32,000 worth of equipment for the monitoring station, provided by the I.T.U. in 1971, was put into operation.

The Telecommunication Adviser completed a three-year mission in 1972, during which he had provided general advice on the opening of the international telephone and telegraph services, in charge of the state enterprise—ENTEL (Empresa Nacional de Telecomunicaciones); advised and assisted in drafting the General Law of Telecommunications which was ratified by the Government and put into force; assisted in the elaboration of the rules and regulations of the Law which were submitted to the Government; and studied and advised on the re-organization of the Directorate General of Telecommunications.

The tariffs expert studied the existing situation in his field of speciality. He has commenced a detailed study of the tariffs on the basis of information provided by the State Telecommunication Enterprise and Operating Agencies, with a view to the complete reconstruction of the tariff system.

Nine fellows studied telegraphy, telephony (2), telex services, microwaves, telecommunication techniques (2), training in telecommunications and frequency management in Argentina, Brazil, Chile, Italy, Spain, Paraguay, the United Kingdom, Venezuela and at the I.T.U. Headquarters during the year under report.

#### BRAZIL (U.N.D.P.)

Experts: 1/7

The expert in frequency management and organization of a monitoring service gathered and checked the data required for the establishment of a National Frequency Register and for the submission of frequency assignments to the I.F.R.B. His duty station was first in Rio de Janeiro, then in Brazilia where DENTEL (Departamento Nacional de Telecomunicaciones) had been transferred.

He participated in the study of the possible re-organization of frequency management as well as in that required for the setting up of a frequency monitoring station near Porto Alegre.

#### BRAZIL (I.D.B.)

Fellows: 4/9

Under an agreement signed between the Union and the Inter-American Development Bank (I.D.B.) regarding a large-scale project for which the latter is the Executing Agency, four fellows studied transmission in Germany (Federal Republic), Denmark, France, Italy, the United Kingdom and Switzerland during the year.

#### CHILE (U.N.D.P.)

Experts: 8/86

Fellows: 5/23

Equipment: \$71,084

*Title:* Telecommunication Training Centre (CENET), Santiago

The project continued to progress in 1972 greatly overshooting the initial objectives. In 1972 CENET trained 1,476 engineers, technicians and workmen coming from almost all the national and private telecommunication companies of Chile.

An amendment concerning the administrative re-organization of the Centre was signed on 13 April 1972.

On 28 September 1972, the Secretary-General of the I.T.U. participated in the laying of the cornerstone of the new CENET building.

In June 1972 the Administrative Council (U.N.D.P.) approved the sum of \$685,000 for the second phase of the project which is to commence in November 1973 and continue until 1976.

Five fellows studied television techniques, radio, microwaves (2), and telephony in Spain, the United States, France, Italy, the Netherlands and the United Kingdom. The fellow studying radio also took part in the Seminar on Standards for Training in Telecommunications in France.

#### CHILE (I.D.B.)

Fellows: 1/1

Under an agreement signed between the Union and the Inter-American Development Bank (I.D.B.) regarding a large-scale project for which the latter is the Executing Agency, one fellow commenced his training in switching in France during the year.

#### COLOMBIA (U.N.D.P.)—1

Experts: 1/8

The radio frequency management expert completed a one-year mission in August 1972. He advised on the utilization of the radio spectrum and suggested operating procedures for improving the utilization of radiocommunication services and for avoiding harmful interference.

A short-term fellowship was awarded to permit a participant from Colombia to attend the I.F.R.B. Seminar on frequency management.

## COLOMBIA (U.N.D.P.)—2

Experts: 1/5

Fellows: 1/3

Equipment: \$329

The telecommunication training expert completed his mission in June 1972. He made recommendations on training policies and elaborated a general training plan. He also assisted in a study related to the development of telecommunications in rural areas.

One fellow studied electronics in the Netherlands during the year.

## COLOMBIA (I.D.B.)

Fellows: 2/12

Under an agreement signed between the Union and the Inter-American Development Bank (I.D.B.) regarding a large-scale project for which the latter is the Executing Agency, two fellows studied telephone traffic and power plant in the United States and the United Kingdom in 1972.

## COSTA RICA (U.N.D.P.)

Experts: 6/10

Fellows: 1/4

The multinational expert in telecommunication traffic, who was stationed in Costa Rica, was transferred to Honduras. A multinational expert in telegraphy and telex systems who took up his duties as from the end of November 1972, is now stationed in San José. Both experts advised and assisted I.C.E. (Instituto Costarricense de Electricidad) in the planning and organization of the national and international telecommunication systems.

Four other multinational experts stationed in the Central American area also visited the country periodically to advise and assist in transmission, telegraph and telephone exchanges, administration and tariffs, and organization of telecommunication services.

One fellow studied administration of telecommunications in Spain, France, the Netherlands and Sweden. He also took part in the Seminar on Standards for Training in Telecommunications in France.

## DOMINICA (U.N.D.P.)

Experts: 1/1

The multinational expert in telecommunication administration and tariffs, stationed in Barbados, advised and assisted the Government in his specialized field.

## DOMINICAN REPUBLIC (U.N.D.P.)

Experts: 1/5

A telecommunication adviser commenced his mission in August 1972. He advised on telecommunication problems and, in particular, concerning the establishment of a national telex system.

## DOMINICAN REPUBLIC (U.N.D.P.)

Experts: 1/1

The multinational expert in telegraph and telephone exchange equipment, stationed in Haiti, continued to advise and assist the Dirección General de Correos y Telecomunicaciones during the month of January. In particular, he assisted in a pre-investment project to be financed by the Inter-American Development Bank.

## EL SALVADOR (U.N.D.P.)

Experts: 5/12

Fellows: 2/7

The multinational expert in telegraph and telephone equipment assisted and advised ANTEL (Administración Nacional de Telecomunicaciones) until the end of May 1972. In particular, he assisted in the expansion of the inland telephone network and reviewed the offers of switching equipment which was later installed in the principal

cities. In the case of the line carrier and concentrator equipment, he gave advice from the technical and economic points of view.

Three other multinational experts in the Central American area also visited the country periodically and advised and assisted the Government on matters pertaining to administration and tariffs, transmission and telegraph and telephone exchanges.

A multinational expert in outside plant was appointed at the end of 1972.

Two fellows were undergoing training in frequency management and external plant in Germany (Federal Republic), Spain, Portugal, Sweden and at the I.T.U. Headquarters. The fellow studying frequency management also attended the I.F.R.B. Seminar.

#### ECUADOR (U.N.D.P.)—1

Experts: 1/12

Fellows: 2/12

The expert in frequency management and monitoring continued to assist the Department in charge of these matters in the re-organization of the National Frequency Register and the preparation of notifications to be sent to the I.F.R.B. He also gave training courses to the staff of the Department and practical training for the monitoring of radio-frequency emissions by means of mobile units. Furthermore, the expert collaborated in the planning and setting up of a monitoring station now in the course of installation.

Two fellows commenced their studies in frequency management and monitoring in Germany (Federal Republic). The fellow studying frequency management also attended the I.F.R.B. Seminar.

In addition a short-term fellowship was awarded to permit a further national of Ecuador to attend the I.F.R.B. Seminar on frequency management.

#### ECUADOR (U.N.D.P.)—2

Experts: 1/1

During the month of October 1972, a Telecommunication Training Adviser was appointed to prepare the final draft of the project document for the Telecommunication Training Centre.

#### ECUADOR (U.N.D.P.)—3

Experts: 1/12

The telecommunication network planning expert concluded the elaboration of the National Telephone Plan for long-distance networks as well as a plan for international telephone, telegraph and telex services. In this connection he evaluated subscriber growth in Quito, Guayaquil and all the other main towns of the country. He likewise gave advice on the elaboration of the General Law on Telecommunications now in force.

#### ECUADOR (I.D.B.)

Fellows: 1/11

Under an agreement signed between the Union and the Inter-American Development Bank (I.D.B.) regarding a large-scale project for which the latter is the Executing Agency, one fellow commenced his training in telecommunication techniques in Spain during the year.

#### GUATEMALA (U.N.D.P.)

Experts: 4/15

Fellows: 2/7

The two multinational experts continued to give technical assistance in telegraph and telephone exchange equipment and in transmission to GUATEL (Empresa Guatemalaca de Telecomunicaciones). The expert in transmission made an evaluation of the offers of equipment for the long-distance network to be implemented in accordance with the National Development Plan. He also advised on the ship-to-shore communications.

The expert in telegraph and telephone exchange equipment advised on the national telephone numbering

plan and drafted comments on the specifications prepared for open bids in connection with the 8,700 lines for the internal network and the 21,000 lines for Guatemala City.

Two other multinational experts stationed in Central America also visited the country periodically to assist and advise the Government in regard to traffic, and administration and tariffs.

Two fellows commenced their programme of studies in telecommunication techniques in the United States.

#### GUYANA (U.N.D.P.)—1

Experts: 1/12

Fellows: 1/6

The expert in telecommunication engineering continued to give training to intermediate and senior level technicians at the Guyana Technical Institute in Georgetown. He also conducted a 12-week seminar on "Performance Objectives of Telecommunication Services" for senior officers of the Guyana Telecommunication Corporation (G.T.C.) at the Headquarters of the Corporation.

One fellow commenced his studies of radio relay system planning in Canada and the United Kingdom.

A short-term fellowship was awarded to permit a participant from Guyana to take part in the Seminar on Standards for Training in Telecommunications in France.

#### GUYANA (U.N.D.P.)—2

Experts: 1/1

The multinational expert in telecommunication administration and tariffs, stationed in Barbados, advised and assisted the Government in his specialized field.

#### HAITI (U.N.D.P.)

Experts: 1/10

The multinational expert in telegraph and telephone exchange equipment stationed in Port-au-Prince continued to give technical assistance to CONATEL (Conseil National des Télécommunications) in his speciality and, in particular, assisted in the installation of automatic exchanges and networks at 11 main localities in the country. He also worked on the preparation of a project document for a large-scale project which would require the services of two experts in administration and planning.

#### HAITI (I.D.B./U.N.D.P.)

Fellows: 1/11

Under an agreement signed between the Union and the Inter-American Development Bank (I.D.B.) regarding a large-scale project for which the latter is the Executing Agency, one fellow completed his studies in transmission in France in 1972.

#### HONDURAS (U.N.D.P.)

Experts: 5/12

Fellows: 1/3

The multinational expert in organization and operation of telecommunication services and tariffs, stationed in Tegucigalpa, assisted and advised the Directorate General of Telecommunications in his specialized field.

In addition, the multinational expert in transmission, stationed in Nicaragua, prepared a National Transmission Plan for the Directorate General of Telecommunications, which also made provision for comprehensive development of the internal telecommunications.

The multinational expert in telecommunication traffic, also stationed in Tegucigalpa as from June 1972, advised and assisted the Government in his specialized field.

In addition three other multinational experts in the Central American area, specialized in administration and tariffs, transmission and telegraph and telephone exchange equipment, visited Honduras periodically to advise and assist the Government.

One fellow completed his studies in the field of statistics, traffic and tariffs, in Spain in 1972.



## BRITISH HONDURAS (U.N.D.P.)—1

Experts: 4/3

Four of the multinational experts stationed in Central America also visited the country periodically and advised and assisted the Government in the fields of administration and tariffs, traffic, transmission, and telegraph and telephone exchange equipment.

## BRITISH HONDURAS (U.N.D.P./O.P.A.S.)—2

Experts: 1/4

An operations manager (O.P.A.S.) commenced his mission in September 1972. He assisted the management of the National Telephone System of Belize which has been operational since July 1971. The O.P.A.S. officer has helped to establish an operational procedure and has advised in the expansion programme of six new telephone exchanges which, when completed, will be connected with the national toll system by means of radio relay links.

A national counterpart has been appointed Chief Executive Officer and will replace the O.P.A.S. officer once the U.N.D.P./I.T.U. project has terminated.

More than 400 subscribers have been added to the National Telephone System as well as further PABXs, PMBXs and 60 multi-telephone installations.

## JAMAICA (U.N.D.P./O.P.A.S.)—1

Experts: 2/22

Fellows: 1/1

The O.P.A.S. senior lecturer in telecommunication engineering continued to give courses to intermediate and senior-level technicians and management personnel at the College of Arts, Science and Technology, Kingston, until the end of October. During this period, he was assisted by an associate expert in electrical engineering, provided by the Government of the Netherlands. The associate expert participated in the preparation of the courses and lectured at the College.

One fellow completed his studies in advanced electronics in the United States at the beginning of the year.

## JAMAICA (U.N.D.P.)—2

Experts: 1/2

The senior lecturer in telecommunication engineering advised the Principal of CAST (College of Arts, Science and Technology) on the setting up of a Telecommunication Training Centre within the College, with the assistance of U.N.D.P./I.T.U. He also drafted a project document for submission to the U.N.D.P.

## JAMAICA (FIT/O.P.A.S.)—3

Experts: 1/12

The O.P.A.S. officer in telephone management continued to render assistance to the Jamaican Public Utility Commission, which forms part of the Ministry of Public Utility and Housing. In particular, he was involved in the installation of the common control switching centres, new switchboards, automatic message accounting, computer accounting and a new telex switching centre.

## MEXICO (U.N.D.P.)

Fellows: 9/63

Nine fellows studied data transmission (2), traffic engineering, television community antennae, legislation of telecommunications, earth stations (2), telephony (planning operations) and telephone exchanges (trunk networks) in Germany (Federal Republic), in the United States and the United Kingdom during the year.

## NICARAGUA (U.N.D.P.)—1

Experts: 4/9

The multinational expert in transmission, stationed in Nicaragua, continued to assist and advise the Government of Nicaragua on the development of the internal and international telecommunication system. In particular, he advised and assisted in the planning of an earth station for satellite communication and collaborated with the other I.T.U. experts in assisting COMTELCA (Comisión de Telecomunicaciones para Centro America) in its various activities.

In addition, the country received advice and assistance from three other multinational experts stationed in Central America during periodic visits. The specialized fields covered were administration and tariffs, telecommunication traffic and telegraph and telephone exchange equipment.

## NICARAGUA (U.N.D.P.)—2

Experts: 1/8

Fellows: 2/11

An expert in organization and operation of telecommunication services and tariffs commenced his mission in May 1972. He assisted and advised TELCOR (Dirección General de Telecomunicaciones y Correos de Nicaragua), particularly in the structural organization and in the drafting of a manual as a guideline for executive posts and other categories of employees.

Two fellows studied earth stations and telecommunication techniques in Spain during the year under report.

In addition a short-term fellowship was awarded to permit a participant from Nicaragua to take part in the I.F.R.B. Seminar on frequency management.

## PANAMA (U.N.D.P.)

Experts: 4/10

Fellows: 3/7

The multinational expert in organization and operating of telecommunication services and tariffs, stationed in Panama, continued to assist and advise the Government of Panama in his speciality.

The transmission expert, stationed in Nicaragua, also visited Panama frequently in order to assist the Authorities in his speciality.

In addition advice and assistance were furnished to the Government in the fields of telecommunication traffic and telegraph and telephone exchange equipment by two other multinational experts in the Central American region.

Three fellows were undergoing training during the year. One fellow completed his studies in telecommunications practice in Colombia. Two others studied frequency management in Portugal and at the I.T.U. Headquarters, where they also attended the I.F.R.B. Seminar in their field of specialization.

## PARAGUAY (U.N.D.P.)—1

Experts: 1/12

Fellows: 1/7

The adviser on radio frequency management and control served in Paraguay throughout the year.

He put the national frequency register into shape and installed the equipment (purchased under I.T.U./U.N.D.P. in 1971), which was used for the installation of a monitoring centre near Asuncion. This equipment was officially handed over to the Paraguayan authorities in September 1972.

One fellow studied frequency management in Italy, Mexico and at the I.T.U. Headquarters where he attended the I.F.R.B. Seminar in his field of specialization.

## PARAGUAY (U.N.D.P.)—2

Experts: 5/46

Equipment: \$21,132

The implementation of the training centre project continued normally in 1972. The following important developments are worth mentioning: the taking up of office of the new project manager and the new national director; the notable advancement of the level of training proposed by the Centre; and the signing of Amendment No. 1 to the Plan of Operations on August 14, covering the extension of the missions of the international experts and the allocation of \$100,000 for the purchase of equipment.

During the scholastic year 1971/1972, 330 students attended courses, including refresher training, at the Paraguayan Institute of Telecommunications, in the fields of telephone switching, transmission and outside plant. They also attended basic courses in electricity and electronics.

## PARAGUAY (I.D.B.)

Fellows: 2/3

Under an agreement signed between the Union and the Inter-American Development Bank (I.D.B.) regarding a large-scale project for which the latter is the Executing Agency, two fellows commenced their studies in tariffs (international) and microwaves and satellite communications in Spain and the United States towards the end of the year under report.

## PERU (U.N.D.P.)

Experts: 4/19

Fellows: 3/12

The expert in telegraphy and telex took up his duties in November and worked on the technical evaluation of the bids for the provision of telex equipment.

The expert in telecommunication organization and planning has closely collaborated with the Peruvian Administration on the elaboration of the staffing plan and the study of the organization and functions of ENTEL (Empresa Nacional de Telecomunicaciones). Furthermore, he made a preliminary study for the creation of a National Research and Training Centre for Telecommunications (INICTEL) for which the Government has requested a contribution from U.N.D.P. The expert also participated in the revision of the National Plan of Telecommunications.

The expert in radio relay systems carried out an introductory mission of one month in March-April and took up his duties from the end of August for a term of one year. He gave advice on the contract concerning the provision of a trunk microwave network being installed by the manufacturer. In addition he advised on different aspects related to the implementation of smaller projects intended to link different cities to the main networks.

Two fellows completed their studies in telephony and microwaves in Spain and Italy and a third fellow commenced his programme of training in economics of telecommunications in Spain during the year under report.

Two short-term fellowships were awarded to permit participants from Peru to attend the I.F.R.B. Seminars on frequency management.

## PERU (I.D.B.)

Fellows: 1/5

Under an agreement signed between the Union and the Inter-American Development Bank (I.D.B.) regarding a large-scale project for which the latter is the Executing Agency, one fellow studied tariffs and traffic in Argentina and Italy during the year.

## ST. KITTS (U.N.D.P.)

Experts: 1/1

Fellows: 1/2

The multinational expert in telecommunication administration and tariffs, stationed in Barbados, visited the country and advised on the expansion of the internal telephone system. In particular, he studied the specifications and tenders for telephone exchange equipment and prepared a report for the Government.

One fellow commenced his training in international telephone traffic in Canada during the year under report.

## ST. LUCIA (U.N.D.P.)

Experts: 1/1

The multinational expert in telecommunication administration and tariffs stationed in Barbados, visited the country and gave advice in his specialized field. In particular, he studied and analysed the inland telephone system and drafted a report on it containing a proposal for future development.

## SURINAM (FIT/O.P.A.S.)

Experts: 1/12

The O.P.A.S. officer, in his capacity of senior staff engineer, advised the Telephone and Telegraph Corporation (L.T.T.) on transmission matters. He has devoted his efforts to the maintenance of the transmission network which has been newly installed and which includes a radio relay system, FDM equipment and VHF links. He also drew up a set of instructions for maintenance, measurement of service quality and quality control. In addition to these tasks, the officer took the initiative to plan a training programme for the national staff of technicians.

## SURINAM (U.N.D.P.)

Experts: 2/1

The multinational expert in telecommunication administration and tariffs, stationed in Barbados, assisted the Telephone and Telegraph Corporation (L.T.T.) in his field. In particular, he advised on traffic and tariff problems, organizational matters, training, quality of service measurement and productivity statistics.

The multinational expert in telegraph and telephone exchange equipment, stationed in Haiti, also advised and assisted the Government in his specialized field.

## URUGUAY (U.N.D.P.)

Fellows: 3/14

Equipment: \$10,098

Two fellows completed their studies in monitoring in Italy and Portugal and a third fellow commenced his training in satellite communications in India during the year under report.

## VENEZUELA (U.N.D.P.)—1

Experts: 2/24

The expert in telegraph organization and operation gave advice on the integration of postal and telegraph services. With this objective in view, he participated in the preparation of a preliminary version of the Plan for the Re-organization and Development of Postal and Telegraph Services 1973-1977, which is part of the National Development Plan. Likewise he took part in the drafting of the project document concerning technical assistance from U.N.D.P. for a project which would be implemented by the U.P.U. (Universal Postal Union) in collaboration with the I.T.U.

The expert in radio frequency management and monitoring has given special lectures to personnel in charge of administrative aspects of frequency registration and monitoring. In addition, he collaborated in the study, taking place in the Administration, for the improvement of its organization and also gave advice on broadcasting problems.

## VENEZUELA (U.N.D.P.)—2

Experts: 8/67

Fellows: 3/15

Equipment: \$3,415

*Title:* Training Centre for Telecommunication Technicians (Phase II), Caracas

In the Training and Research Centre of the Campaña Nacional de Telefonos de Venezuela (C.A.N.T.V.), 258 courses in different fields were given during the year to 3,406 students, including some from other countries.

In the research laboratories, various activities were carried out. The creation of a model that measures the length of the calls from coin-run machines is worth mentioning.

The regional training units established at Maracaibo and Puerto la Cruz, annexes of the main centre in Caracas, continued to organize courses for the local staff. During the year, some I.T.U. experts visited these units with a view to coordinating the training courses.

An associate expert in technical training, provided by the Government of the Netherlands, took up his duties at the end of the year.

Three fellows studied teaching in telecommunications, telecommunication engineering and laboratory techniques in the United States, France and the Netherlands during the year.

## VENEZUELA (FIT)

Experts: 2/17

Fellows: 3/6

Under a Funds-in-Trust arrangement concluded between the Compañía Nacional de Telefonos de Venezuela (C.A.N.T.V.) and the Australian Post Office and administered by the I.T.U., two Australian experts were on mission in Venezuela during 1972. They were mainly concerned with the maintenance of switching and transmission equipment. In particular, the experts developed norms and operational instructions for better utilization of the installations. Both experts have stressed the importance of the training of medium-level technicians in order to ensure the proper maintenance of the equipment. The experts prepared technical reports dealing with provision and utilization of permanent counters in crossbar exchanges, general maintenance of crossbar equipment and utilization of alarm systems.

Three fellows studied electronic switching, long-distance communications and trunk cables in Australia during the year under report.

## AMERICAS REGIONAL (U.N.D.P.)

Experts: 3/36

Three regional experts were working in the Americas Region throughout 1972.

One of the regional experts was stationed in Brazil and during the year visited Argentina, Bolivia, Chile, Cuba, Mexico, Paraguay, Peru, Uruguay and Venezuela.

The second regional expert was stationed in Caracas and visited Colombia, the Dominican Republic, Ecuador, Guyana, Haiti, Mexico, Surinam and Trinidad and Tobago during 1972.

The third regional expert was stationed in Panama and was on mission in Costa Rica, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua and Venezuela. This regional expert also had the task of coordinating the work carried out by the seven multinational experts working in Central America who were stationed in Costa Rica, El Salvador, Guatemala (2), Honduras, Nicaragua and Panama. The preparation of specifications, the analysis of offers, studies of tariffs, traffic and operation have been the main questions resolved in this area.

The main objective of the work of the three regional experts was the development of telecommunications on a regional basis. To this end, they assisted governments and U.N.D.P. Resident Representatives in identifying and formulating country requirements and in the establishment of "country briefs". In addition, they were involved in the preparation of requests to U.N.D.P. for assistance in the establishment of telecommunication training centres in Bolivia (project approved at the January 1972 Session of the U.N.D.P. Governing Council), Brazil, the Dominican Republic, Haiti, Paraguay (supplementary assistance approved at the January 1972 Session of the U.N.D.P. Governing Council), Ecuador, Peru, Surinam, Jamaica, Uruguay, as well as a training centre for a number of countries in Central America. Preliminary studies were begun with regard to training centre projects in Argentina and Mexico.

The regional experts also participated in the meetings of the COM/CITEL (Comité Permanente de la Conferencia Inter-América de Telecomunicaciones) in Venezuela and Mexico and of COMTELCA (Comisión de Telecomunicaciones para Centro América).

Furthermore, the experts rendered assistance on different subjects such as planning of networks, evaluation of bids related to the provision of equipment, standards for interconnection of international services, organization of technical departments within the Administration, maintenance standards and procedures, etc.

## AMERICAS REGIONAL (U.N.D.P.-UNESCO/I.T.U.)

Experts: 4/15

*Title:* Feasibility study of a regional system of tele-education for the countries of South America

The objective of the mission was that of determining how the existing facilities could be enlarged to meet the educational requirements of the countries concerned—what the best technical solution would be and whether a regional approach was more feasible than a national one.

Nine countries would be visited by the experts between August 1972 and March 1973 for the collection of data on existing and planned television transmitting facilities, microwave or coaxial cable networks and main

distribution systems, the investment and annual running costs for the first two items, and frequency planning for television channels. As far as the collection of data was concerned the mission had progressed satisfactorily.

The difficulties faced by the mission were limited to the change of the mission's objectives which had originally been intended to deal only with the use of satellites and which now considers also classical telecommunication facilities. This addition would require that a longer period of time be spent in each of the countries concerned.

#### MULTINATIONAL PROJECT (U.N.D.P.)

Experts: 1/12

*Title:* Central American Institute of Telecommunications (INCATEL) (Costa Rica, Guatemala, Nicaragua, El Salvador), El Salvador (San Salvador)

One expert was appointed as project manager designate for the pre-project phase of the INCATEL project. Since his appointment, he has assisted in the drafting of a project document for the regional training centre. This document has been approved by the Administrations of the four participating countries. He also assisted the host country in the drafting of a public law concerning the institute. This law was passed by the Salvadorean Legislature in July 1972.

Meanwhile, in the light of the very urgent need for trained personnel, the first basic course was begun during the second half of 1972. Forty-seven students from the four participating countries were enrolled. In order to strengthen the training staff, a request for two instructors in radiocommunications and switching and also for funds with which to buy training equipment was made and approved by the U.N.D.P.

#### MULTINATIONAL PROJECT (U.N.D.P.)

Experts: 1/12

During the reporting period the senior expert in the planning of rural telecommunications visited the countries participating in the project with a view to setting up working groups and gathering data on existing or projected long-distance and rural networks; classifying the rural zones of the continent; preparing general plans for the development of telecommunications in these zones; studying the transmission systems most adequate for rural telecommunications; elaborating technical specifications for small capacity telephone exchanges; evaluating investment, operation and maintenance costs of rural systems; and studying the production capacity of Latin American countries in connection with equipment for rural networks.

The countries participating in the project have shown great interest and have taken an active part in the study.

#### AMERICAS REGIONAL (U.N.D.P.)

Experts: 2/17

The objective of the mission was to create the conditions required for the economical and orderly use of the radio-spectrum. During 1972 the mission coordinator and multinational expert stationed in Lima, Peru, was responsible for coordinating the activities of the experts in this field stationed in Bolivia, Brazil, Colombia, Ecuador, Venezuela and Trinidad. He also carried out the preparatory work for the Sao Paulo Seminar on Broadcasting and took follow-up action in Colombia and Bolivia where the I.T.U. experts in this speciality have completed their assignments.

As a result of the activities of the I.T.U. experts, measures have been taken by the countries concerned to revise national laws and regulations, to set up monitoring stations, to plan the usage of the radio frequency spectrum according to international agreements and register the radio frequencies with the I.F.R.B. and to train personnel to carry out these objectives.

A second multi-country expert was appointed from August 1972 in order to give direct assistance to countries in the Caribbean area. His duty station is in Port-of-Spain (Trinidad). The main areas of assistance rendered by the second expert were to up-date legislation dealing with radiocommunications and to reorganize radio regulatory services in Barbados, Dominica, the Dominican Republic, Guyana, Surinam and Trinidad and Tobago.

## 3. REGION: ASIA

## AFGHANISTAN (U.N.D.P.)—1

Experts: 4/48

Fellows: 1/6

Equipment: \$13,604

The expert in telecommunication organization and general planning completed his assignment in December 1972. Detailed plans and proposals relating particularly to maintenance and major new construction procedures and practices were prepared by the expert.

The expert in carrier frequency and line transmission techniques prepared plans for a basic national line transmission system. He also assisted with the maintenance and repair of operational equipment at various centres while demonstrating the technique to local staff.

The expert in telex equipment prepared detailed plans and equipment specifications for an automatic telex exchange, including automatic error-correcting and voice-frequency channelling equipment. These plans and specifications were used as a basis for international tendering procedure and the expert made a technical evaluation of the offers received. A similar exercise was started regarding telex subscriber equipment.

The HF radiocommunication expert repaired and overhauled operational equipment. A cost estimate for new stations and technical justification for them was prepared as the basis for a Government request for a World Bank loan.

One fellow studied automatic exchanges in Germany (Federal Republic) during the year.

Two short-term fellowships were awarded under a regional project to enable participants from Afghanistan to attend the seminar on Planning and Development of Telecommunication Networks Outside of Large Cities and the Maintenance of Telecommunication Services held in Malaysia.

## AFGHANISTAN (U.N.D.P.)—2

Experts: 8/85

Fellows: 3/16

Equipment: \$19,590

*Title:* Telecommunication Training Centre, Kabul

During 1972 there were six training experts and two associate experts, both latter provided by the Government of Sweden, at the Centre. The project is being carried out in collaboration with the Universal Postal Union (U.P.U.) and includes postal training and an expert from the U.P.U. was assigned to the Centre.

Three long-term technician courses and one preparatory course were conducted from January to June for 104 trainees. In June, 26 third-year students graduated, eight in communication electronics and 18 in telephony and outside plant. As from September, three technician courses were conducted, one first-year course with 29 trainees, one second-year course with 20 and one third-year course with 27 trainees.

On short-term courses for in-service personnel, 18 staff members were trained in teleprinter maintenance and VFT and six attended a carrier equipment fault-finding course.

The training of operators continued and a further 36 new telephone operators completed their courses.

On the postal side, 33 clerks (new entrants) were trained in two long-term courses. A third similar course commenced in November with eight students. Twenty-two in-service clerks were retrained and refresher courses were given for 16 postal supervisors.

Four volunteers, two provided by the United States Peace Corps and two by the United Nations Association of the United Kingdom, continued to give courses in the English language throughout the year.

Three fellows studied telegraphy, automatic exchanges and outside plant in Germany (Federal Republic), Norway, Turkey and the United Kingdom.

A short-term fellowship was awarded to permit a participant from Afghanistan to take part in the Seminar on Standards for Training in Telecommunications in France.

## SAUDI ARABIA (FIT)---1

Experts: 1/12

During the year, continued assistance was given to the Ministry of Communications by the expert on manual and automatic telephone systems in several matters relating to the telephone network. These included the successful implementation of the first phase of the project which provides for the installation of automatic exchange

equipment with a capacity for the connection of over 76,000 lines, in ten major towns. The expert also assisted in the processing of tenders for the further expansion of the automatic systems.

In addition, the expert participated in planning and programming new projects as part of the implementation of the Five-Year Development Plan.

#### SAUDI ARABIA (FIT)—2

Experts: 3/4

A short-term mission consisting of a team of three experts in transmission advised the Ministry of Communications on the long-distance back-bone route and assisted in the technical evaluation of tenders for this project.

#### SAUDI ARABIA (FIT)—3

Experts: 1/2

As a result of deficiencies experienced in the operation of recently installed broadcasting stations, the Government requested assistance in the technical investigation of the problem. An expert in broadcast engineering undertook a short-term mission in the course of which five medium- and short -wave broadcasting stations were inspected and advice was given on measures to improve their operating efficiency.

#### SAUDI ARABIA (U.N.D.P.)

Experts: 5/26

*Title:* Telecommunication and Broadcasting Training Centre, Jeddah

Training at the preparatory training school, Jeddah, continued under the guidance of the Project Manager, the instructor in outside plant and the workshop instructor. The first-year course was completed and those students who qualified have commenced the second-year course. A course on radio operational procedures was also conducted for in-service personnel, the first of a series of modular courses planned for radio operators.

The construction of the training buildings for the Jeddah Training Centre commenced towards the end of the year. Premises have been leased to accommodate the preparatory training school at Riyadh.

The Project Manager has submitted proposals to the Government for the coordination of telecommunication training provided by contractors with that of the Training Centre.

#### UNITED NATIONS RELIEF OPERATION IN DACCA (UNROD)

Experts: 2/8

Fellows: 1/1

A training expert evaluated the demand and the available facilities for training staff in telecommunication subjects. The former Regional Telecommunication Training School, Dacca (R.T.T.S.), was found most suitable to become the nucleus of a new TELECENTRE (Telecommunications Training Centre). The project document regarding U.N.D.P. assistance to the Training Centre was formulated and sent to the Bangladesh Authorities. As a preparatory action a one-month fellowship in telecommunication training in Malaysia was awarded and implemented in favour of the national director designate of the planned TELECENTRE.

On a proposal from the I.T.U., an expert was attached to the U.N. Relief Operation in Dacca (UNROD) as adviser on Telecommunication matters. He assessed the most urgent needs for a gradual rehabilitation of the telecommunications network and the coordination of the offered Technical Assistance and aid from bilateral sources. He has outlined the foreign exchange requirements for a five-year plan for the Bangladesh Telephone and Telegraph Department (B.T.T. Dept.) for adequate growth rate. Recommendations on the policy to be followed in various areas of telecommunications and on specialist study groups, on long-term Technical Assistance to the B.T.T. Dept. and on a basic management structure for the B.T.T. Dept. were elaborated and conveyed to the Authorities.

The adviser was also concerned with the telecommunication facilities of the Civil Aviation, Police and Railway Departments, and produced rehabilitation programmes for the telecommunications networks of these Departments.



## COOK ISLANDS (U.N.D.P.)

Two short-term fellowships were awarded under a regional project to enable participants from the Cook Islands to attend the seminar on Planning and Development of Telecommunication Networks Outside of Large Cities and the Maintenance of Telecommunication Services held in Malaysia.

## KOREA (U.N.D.P.)

Fellows: 1/5

A fellow completed his training in coaxial cables in the United Kingdom during the year.

In addition, a short-term fellowship was awarded under a regional project to enable a participant from Korea to attend the seminar on Planning and Development of Telecommunication Networks Outside of Large Cities and the Maintenance of Telecommunication Services held in Malaysia.

## FIJI ISLANDS (U.N.D.P.)

Two short-term fellowships were awarded under a regional project to enable participants from the Fiji Islands to attend the seminar on Planning and Development of Telecommunication Networks Outside of Large Cities and the Maintenance of Telecommunication Services held in Malaysia.

## GILBERT AND ELLICE ISLANDS (U.N.D.P.)

Two short-term fellowships were awarded under a regional project to enable participants from the Gilbert and Ellice Islands to attend the seminar on Planning and Development of Telecommunication Networks Outside of Large Cities and the Maintenance of Telecommunication Services held in Malaysia.

## HONG KONG (U.N.D.P.)

A short-term fellowship was awarded under a regional project to enable a participant from Hong Kong to attend the seminar on Planning and Development of Telecommunication Networks Outside of Large Cities and the Maintenance of Telecommunication Services held in Malaysia.

## INDIA (U.N.D.P.)

Experts: 1/12

Fellows: 1/6

Equipment: \$70,820

*Title:* Expansion of the Experimental Satellite Communication Earth Station (E.S.C.E.S.), Ahmedbad

This project is a support project for the proposed experiment designated "Satellite Instructional Television Experiment" (SITE), for studying the technical feasibility of direct broadcasting of television programmes for community viewing in rural areas via satellite without a terrestrial rebroadcasting network. The project is related to the U.N.D.P./UNESCO-assisted Television Production and Studio Technical Operations Training Centre, Poona, on which it will rely for programme material and personnel.

In 1972 major emphasis was placed on design and construction of all sub-systems, using Indian engineers and Indian components as far as possible. These objectives have been substantially met, with assistance from the I.T.U. Technical Coordinator and the assistance provided on site under a sub-contract by Hughes Aircraft Systems International. Major and specialized small components not made in India are being supplied using U.N.D.P. funds. U.N.D.P. funds have also been provided for specialized components required for television receivers to be used in the villages, for direct reception from the satellite.

The E.S.C.E.S. (established in 1962 with I.T.U./U.N.D.P. assistance) modification effort was in an advanced stage with most of the prototypes of all sub-systems nearing completion. The I.T.U. coordinator has also helped to formulate precisely the job requirements of additional expertise foreseen in the allied fields of production technology, environmental testing connected with the ground receiving installations.

One fellowship, awarded in 1971, in planning and operation schedule and control of operations and maintenance at large in earth stations in Spain, the United Kingdom and the United States, was completed with great benefit to the incumbent.

## INDIA (U.N.D.P.)

Fellows: 14/44

Equipment: \$20,837

Fourteen fellows were undergoing training in Australia, Belgium, Canada, Germany (Federal Republic), the United Kingdom and the United States during the year. They studied telegraph services, underground cables, coaxial cables, automatic trunk exchanges, signalling and switching for intercontinental telephone and telex (2), railway communications (5), design and maintenance of switching centres, crossbar telephone systems and frequency management.

In addition, two short-term fellowships were awarded to permit two participants from India to take part in the I.F.R.B. seminar on frequency management, as also two under a regional project, to enable participants from India to attend the Seminar on Planning and Development of Telecommunication Networks Outside of Large Cities and the Maintenance of Telecommunication Services held in Malaysia.

## INDONESIA (U.N.D.P.)—1

Experts: 3/33

Fellows: 2/14

In connection with a project for telecommunication equipment maintenance and planning, an expert in telecommunication maintenance organization continued working in Indonesia to November 1972, when he completed his mission. Two additional experts took up their duties during the first quarter of the year. Their specialities were telephone switching and system planning, and telegraph switching and system planning.

The activities of the telephone switching expert were concentrated more upon the project for the preparation of a specification for a national switching system, described separately in this report.

Following detailed investigations, the telegraphy expert elaborated proposals for the improvement of the operational efficiency of the telegraph offices. To initiate planning of a Gentex network, an origin to destination survey was organized and the resulting statistics analyzed while demonstrating to counterpart staff the techniques involved. A readjustment of tenders for telegraph machines was carried out at the request of the International Bank for Reconstruction and Development (I.B.R.D.).

Two fellows were undergoing training in organization, test and fault control and in telegraph switching in Germany (Federal Republic) and Japan during the year.

Two short-term fellowships were awarded under a regional project to enable participants from Indonesia to attend the seminar on Planning and Development of Telecommunication Networks Outside of Large Cities and the Maintenance of Telecommunication Services held in Malaysia.

## INDONESIA (U.N.D.P.)

The project for the preparation of a specification for a national switching system was established as a result of an urgent request from the Government for expertise in switching, transmission and signalling. A loan has been negotiated with the I.B.R.D. (International Bank for Reconstruction and Development) for the provision of telecommunication equipment which will enable the automatic establishment of long distance calls by dialling through facilities for operators in the first instance, leading later to subscriber trunk dialling. Two experts, for short-term missions, in the field of national telephone switching systems and in transmission signalling were required. It was not possible to engage these experts in time, but satisfactory progress was achieved and continues by utilizing the assistance and advice of engineers at I.T.U. Headquarters and of the telephone switching expert. Several visits to Indonesia were made by I.T.U. engineers during 1972 and essential national transmission and numbering plans were in an advanced stage by the end of the year.

This project has an important relationship to the feasibility studies carried out under the Asian Telecommunication Survey project.

## INDONESIA (U.N.D.P.)—2

Experts: 8/75

Fellows: 3/15

Equipment: \$186,862

*Title:* Telecommunication Training Centre, Bandung (Phase II)

Three more instructors arrived on the project during 1972, i.e. those in outside plant; telephone and telegraph traffic; and in transmission. The Project Manager retired at the end of 1972. Government counterpart staff totalled 37.

The project began its second phase on 1 January 1972. The primary objective of the second phase was to introduce training for graduate junior engineers. The situation was satisfactory by November 1972 when there were 23 applicants.

An official inauguration ceremony was held on World Telecommunications Day, 17 May 1972.

The syllabi for the junior engineer course and for additional subjects in the senior technician courses were completed by April 1972. With the exception of the junior engineer course, all course schedules were fulfilled at the Centre and also at the five Regional Training Units (R.T.U.s) associated with the project. Four classes, totalling 100 trainees, for the senior technician course were commenced during May 1972, and 97 of the trainees successfully completed training in common subjects by the end of the year before progressing into separate specialized subjects. The R.T.U.s were slightly handicapped by the lack of adequate training equipment but the situation will be improved with the delivery of equipment already ordered and the implementation of recommendations made by instructors from the Centre following their visits to the R.T.U.s.

In addition to training activities, the Centre continued with the production of Engineering Instructions (E.I.) of which 96 had been completed by the end of the year. Thirty-eight of these were written in the Indonesian language with the assistance of counterparts. The production of the E.I.s as well as over 8,000 pages of text material and other miscellaneous items was facilitated by the printing unit at the Centre.

At the instigation of the I.T.U., the Project Manager organized a meeting in October 1972 of the various bilateral and multilateral technical assistance teams currently rendering assistance in the general field of telecommunications in Indonesia. The meeting was accepted by all the teams as an essential measure to coordinate their activities and further meetings are scheduled.

Building plans for new laboratories and a diesel engine room, with a total area of 3,360 square metres, were completed in February 1972 and construction work commenced in July. Plans for a dormitory building were in progress during 1972.

Three fellows were undergoing training in outside plant, power plant and radio microwaves in Australia, Germany (Federal Republic), Japan and Thailand.

#### INDONESIA (U.N.D.P./FUNDWI to 1 July 1972)

Experts: 4/48

Fellows: 2/6

Equipment: \$262,099

*Title:* Telecommunications Repair and Rehabilitation, Jayapura, West Irian

The technical assistance activities appropriate to FUNDWI ended in June 1972. After that date, activities continued with funds provided by U.N.D.P. for Indonesia. Negotiations were started during 1972 for a follow-up project, orientated towards telephony with particular emphasis on training. The assistance provided so far was primarily in the repair, rehabilitation and modification of radiocommunication and telegraphy equipment.

Local technicians attended courses at the Regional Training Unit in Jayapura and also at the Telecommunication Training Centre, Bandung.

Two fellows studied telegraphy and outside plant in the Netherlands during the year.

#### IRAN (U.N.D.P.)

Experts: 10/91

Equipment: \$29,850

*Title:* Telecommunication Training Institute, Teheran

The Project Manager served throughout the reporting period. One expert completed his assignment in January and five training experts joined the project. In addition to two associate experts specialized in mathematics and physics and electricity and magnetism, provided by the Government of the Netherlands, who served at the project throughout the year, the Swedish Government provided an associate expert for workshop training. Their activities have made a remarkable contribution to the success of the project.

Three U.N. volunteers were assigned to this project in the second half of 1972, one from India, one from Pakistan and one from Austria. They were assisting in teaching physics, mathematics and electrical laboratory work.

There were nearly 70 national technical counterpart staff lecturing at the Institute. The number of trainees—mainly new intakes—increased from 434 to 760 in 1972. Fifty-one have successfully completed a two-year junior technician training course. The new intakes (17% ab-initio engineers, 41% senior technicians, and 42% junior technicians) are selected through a pattern established last year, namely by paper screening, aptitude tests and personal interviews.

Since the project commenced, 16 laboratories and workshops have been established (two mechanical workshops for training and external plant training, four basic electrical laboratories, four basic electronics laboratories; and six specialist laboratories). Two more workshops for mechanical and electrical repairs are under installation.

Apart from the co-manager's participation in the seminar on Standards for Training in Telecommunications in France on the basis of a short-term fellowship, the fellowships have not been implemented.

#### IRAN (U.N.D.P.)

Two short-term fellowships were awarded under a regional project, to enable participants from Iran to attend the seminar on Planning and Development of Telecommunication Networks Outside of Large Cities and the Maintenance of Telecommunication Services held in Malaysia.

#### IRAQ (U.N.D.P.)—1

Experts: 1/12

The activities of the General Telecommunication Adviser were fully engaged throughout the year in providing advice and assistance on many aspects of the Government's intensive programme of telecommunication development. The more important of these were the planning and design of the long-distance automatic dialling network, the establishment of a new Telephone and Telegraph Traffic Department and the preparation of specifications and plans for the telex exchange and central telegraph office.

#### IRAQ (U.N.D.P.)—2

Experts: 3/8

*Title:* Telecommunication Training Centre, Baghdad (Phases I and II)

With the winding up of U.N.D.P./I.T.U. assistance under Phase I of the Telecommunication Training Centre project in mid-1972, the final activities of the Project Manager were directed mainly towards preparations for the introduction of Phase II. The second phase of the project will increase the training capacity of the Centre from 150 to 300 trainees. It will expand the training to cover the advanced techniques required for maintenance of the modern equipment now being installed and will open up the possibilities for research. The new equipment will be accommodated in a large extension to the buildings at the Centre, which was commenced towards the end of the year.

The new Project Manager for Phase II of the project and the instructor in automatic telephone switching took up their posts in December and were engaged in the preparation of training programmes.

Two short-term fellowships were awarded to permit participants from Iraq to take part in the Seminar on Standards for Training in Telecommunications in France.

#### ISRAEL (U.N.D.P.)

Fellows: 2/3

One fellow completed his training in transmission networks and cables in Canada, the United Kingdom, the Netherlands, Germany (Federal Republic) and Switzerland. A second fellow commenced his programme of studies in economics in telecommunications in the United States.

#### JORDAN (U.N.D.P.)

Experts: 5/41

Fellows: 6/29

Equipment: \$2,223

The telephone cable networks and line transmission expert continued to assist the Government in his speciality. His activities were mainly directed towards the adoption of standard procedures for maintenance and fault clearance of local cable networks and the planning of an extension to the local distribution scheme at Aqaba.

The Telecommunication General Adviser and switching engineer contributed towards the study and preparation of the telecommunication sector of the national three-year development plan (1973-1975). He also assisted in the planning for the proposed Telecommunication Training Centre.

The stores organization expert completed his investigation into the situation of the stores and supply procedure of the Ministry of Communications. His report and recommendations were accepted by the Ministry and he has since been engaged in assisting the introduction of revised procedures.

The microwave and radio expert continued to assist in the planning, design, preparation of specifications and installation of the microwave network. He also conducted training courses in microwave techniques at the engineer level and organized on-the-job training for selected technicians.

A line plant and subscriber installation instructor was assigned to Jordan for a short mission.

Six fellows were undergoing training during the year in crossbar exchanges (2), cable networks (2), carrier systems and frequency management in Belgium, the United Kingdom and at the I.T.U. Headquarters. The fellow studying frequency management also attended the I.F.R.B. Seminar.

#### KUWAIT (FIT)—1

Experts: 1/6

Basic training courses for technicians, assistant technicians and telephone/teleprinter operators were conducted by the telecommunication instructor whose assignment terminated in July. During the first half of the year a total of 156 students in the various categories attended the courses.

#### KUWAIT (FIT/O.P.A.S.)—2

Experts: 4/48

The Government was assisted by a police radiocommunication planning engineer (O.P.A.S.) who, in the course of the year, was engaged in the consolidation of the existing police network and in advance planning for the full police scheme, the implementation of which is expected in 1973-1974.

In the Ministry of Posts, Telegraphs and Telephones, the Assistant Chief Engineer, Planning—senior radio-communication engineer (O.P.A.S.)—collated statistical data and prepared a traffic study for the development of international services. He was also concerned with the establishment of a maintenance control organization.

The Ministry was also assisted by two other O.P.A.S. officers, the senior telecommunication engineer (telephony), whose responsibilities covered the installation, operation and maintenance of all telephone services and the senior telecommunication engineer (cables and transmission) whose activities were concerned with the maintenance of the external distribution and trunk networks.

#### KUWAIT (FIT)—3

Experts: 4/16

Fellows: 1/1

Equipment: \$9,432

*Title:* Telecommunication Training Centre, Kuwait

Operations at the Telecommunication Training Centre commenced in the latter half of the year when the Project Manager and three training experts, in the fields of telephone switching, telegraphy and outside plant, took up their posts. The Project Manager has been occupied by administrative matters concerning the management of the Centre. These have included, among others, the recruitment of support staff, drafting of rules and regulations, and the establishment of an organization for the Training Centre. To provide the training experts with a foundation from which to start their work, a programme of study for each has been established within the Post Telephone and Telegraph Departments.

The Training Centre buildings were completed about two years before the arrival of the experts and some repairs and maintenance work are now necessary. Further work also remains to be carried out to equip the Centre adequately.

One fellow studied telecommunication administration in Turkey, the Arab Republic of Egypt and in Sudan.

#### LAOS (U.N.D.P.)

Experts: 2/6

*Title:* Telecommunication Training Centre, Vientiane

An expert visited Laos during July/August 1972 together with an I.T.U. Regional Expert to establish lists of equipment required for the Centre. They were joined in mid-August by the newly recruited Project Manager.

The equipment lists, covering items to be provided under U.N.D.P. and bilateral aid, have been established. Accommodation plans and other counterpart support for the Training Centre were also finalized, with the Government of Laos.

The full project activities are scheduled to begin in 1973.

#### LEBANON (U.N.D.P.)

Experts: 1/0 (four days)

A short preliminary visit to Beirut was made by an expert in broadcast engineering in order to identify the problems relating to a proposed project for the development of the Lebanese broadcasting services.

#### MALAYSIA (U.N.D.P./O.P.A.S.)—1

Experts: 1/3

The O.P.A.S. officer completed his 18-month mission as a Telecommunication Controller (network management and service quality control) in March. He was broadly concerned with various aspects of maintenance and service quality in telecommunications. Specifically, this involved the introduction of air pressurization of the toll cables in the capital, and the identification and clearance of major faults. A counterpart officer was trained in the context of the pressurization project and has now taken over the O.P.A.S. officer's duties.

#### MALAYSIA (U.N.D.P.)—2

Experts: 2/20

Fellows: 3/5

The training expert successfully continued his mission at the Regional Training Unit at Kota Kinabalu, Sabah (East Malaysia) during the year. An associate expert, provided by the Government of Sweden, joined him in April. They programmed pre-service, in-service and special courses for technicians and linesmen. More than 182 staff have been trained with the assistance of five counterparts in the fields of radio and general subjects, switching and subscriber apparatus and external line plant.

The associate expert has also been supervising practical work and installation work at the new site of the Training Unit at Inanam. The training activities ceased at the old, temporary location on 30 September. During the last months of the year the staff and trainees of the Training Unit were occupied with shifting equipment to the new site and having it installed there. This included installation of a PABX, audio-visual aids, loudspeaker system, antennae, etc.

Three fellows completed their studies in traffic, training in telecommunications and crossbar exchanges in Australia and New Zealand.

#### MALAYSIA (U.N.D.P.)—3

Experts: 1/5

The expert in crossbar exchange maintenance investigated the telephone traffic situation in the Kuala Lumpur multi-exchange area and possible modifications to the equipment installed. He succeeded in solving most of the problems in cooperation with the national staff concerned, by re-arranging inter-connecting lines and the redistribution of subscribers having a heavy traffic load. He elaborated lists for spare parts and tools needed for the proper maintenance of the crossbar exchanges. In addition, with the assistance of his counterpart, he prepared and implemented a course in maintenance of crossbar systems at the local Telecommunications Training Centre.

#### MALAYSIA (U.N.D.P.)—4

Experts: 1/12

The expert in test and development of line plant achieved the following main objectives—specifications, drawings, a tender schedule, and engineering instructions have been prepared for an integral bearer unit type aerial cable and its components; specifications, a tender schedule and engineering instructions covering wire connectors and heat shrink tubing enclosures have been prepared; the allowable line losses within the Malaysian National

Transmission Plan have been calculated by the method given in C.C.I.T.T. Recommendations on Local Telephone Networks; the current specification of a small size, fully filled, concentric layer plastic cable has been amended to a unit type cable and the range of sizes expanded from 100 to 400 pairs; considerable progress has been made on the standardization of materials in that obsolete items have been identified and disposal action commenced which will result in a reduction of items held to a quarter of the original and lead to more efficient stock control.

Other activities have included the introduction of a new type drop wire, a recommendation on the use of insulated aerial open-wire lines, lightning protection using gas arrestors, revision of earthing procedures, design and introduction of a submarine cable and evaluation of tenders for this item, and also jointers' tools.

#### MALAYSIA (U.N.D.P.)—5

Experts: 1/2

The expert in computer techniques took up his duties in November and assisted and advised the Telecommunications Department on the practicability of computer application to telephone billing, stores, payroll, management information, financial, traffic and engineering studies, and local line plant records.

#### MALAYSIA (U.N.D.P.)—6

Experts: 1/1

An expert in crossbar exchange maintenance assisted the Government in clearing traffic congestion within and between individual telephone exchanges.

#### MONGOLIA (U.N.D.P.)

Experts: 1/1

*Title:* Telecommunication Training Centre and Faculty of Telecommunications at the Polytechnic Institute, Ulan Bator

A Preparatory Assistance Project was approved by the U.N.D.P. in April 1972, which provided for six months' service of the Project Manager and two short missions of experts to set out the equipment requirements.

Activities on the project will commence early in 1973 and will be concerned particularly with the final assessment of the courses to be given and the number of trainees to pass through each course as well as the establishing of lists of equipment required for training.

#### NEPAL (U.N.D.P.)

Experts: 8/38

Equipment: \$4,745

*Title:* Establishment of a Telecommunications and Civil Aviation Training Centre, Kathmandu

This project, undertaken by the I.T.U. in association with I.C.A.O., is aiming to train engineers and technicians for the Nepal Telecommunications Board (N.T.B.), and technicians and operators for the Department of Civil Aviation (D.C.A.). The Plan of Operations was signed in March and the Project Manager and the seven training experts (four in telecommunications and three in civil aviation subjects) were fielded between June and October.

So far four counterpart instructors have been employed. The air traffic control instructor was sent to the Regional Training Centre of I.C.A.O. at Bangkok for one week in order to study the installation and operation of special equipment on order for the Nepal Training Centre. The training experts have undertaken surveys on types and subjects of training needed in the departments concerned as well as on the equipment installed in the technical centres.

The experts have established lists of equipment needed for a regular training programme and a certain amount has already been ordered.

## NEPAL (U.N.D.P.)

Equipment: \$830

This equipment was supplied for outside work in regard to maintenance and installation of external plant following the mission of the General Adviser who terminated his assignment at the end of 1971.

Two short-term fellowships were awarded under a regional project to enable participants from Nepal to attend the Seminar on Planning and Development of Telecommunication Networks Outside of Large Cities and the Maintenance of Telecommunication Services held in Malaysia.

## OMAN (SULTANATE OF) (U.N.D.P.)

Experts: 1/3

At the request of the Government, a General Telecommunication Adviser commenced a mission to survey the telecommunication requirements in the country and to advise on the organization, modernization and expansion of the services with a view to meeting the growing demands in telecommunications resulting from the economic development of the Sultanate.

## PAKISTAN (U.N.D.P.)

Fellows: 5/21

Five fellows were undergoing training in air-conditioning in telecommunication installations, coaxial cables (2), telecommunication networks and maintenance of EMD exchanges in Australia, Germany (Federal Republic) and Japan.

## PAKISTAN (U.N.D.P.)

Experts: 1/12

Equipment: \$51,304

*Title:* Telecommunication Staff College, Haripur

The activity in the College continued with the assistance of the I.T.U. Project Manager and 69 national instructors. Ninety-eight courses of various lengths in more than 60 subjects were implemented, attended by 626 trainees, 32 of which came from Jordan and the Maldives.

The Government has continued the construction of buildings on the site for new laboratories, classrooms, a hostel, and residences, the expenditure totalling approximately \$139,000. It has also contributed the major part of the equipment so far, worth about \$35,900, such as: an EMD telephone exchange, a large PABX, a telex exchange, air-conditioning plant, and a fault-tracing laboratory for switching equipment. The U.N.D.P./I.T.U. financed equipment, comprising printing machines, air-conditioning equipment, and test and measuring instruments have been ordered.

## PAPUA AND NEW GUINEA (U.N.D.P.)

Fellows: 2/2

Two fellows studied training in telecommunications in Malaysia, Thailand and Turkey during the year.

In addition, two short-term fellowships were awarded under a regional project to enable participants from Papua and New Guinea to attend the Seminar on Planning and Development of Telecommunication Networks Outside of Large Cities and the Maintenance of Telecommunication Services held in Malaysia.

## PHILIPPINES (U.N.D.P.)

Experts: 1/3

The planning expert completed his assignment in April 1972, having assisted the Government in regard to the preparation of a full inter-dialling plan in Greater Manila, the revision of the terms of reference of the Telecommunications Development Board (T.D.B.). He also advised on matters concerning international regulations and frequency management.



Two short-term fellowships were awarded under a regional project to enable participants from the Philippines to attend the Seminar on Planning and Development of Telecommunication Networks Outside of Large Cities and the Maintenance of Telecommunication Services held in Malaysia.

#### SYRIAN ARAB REPUBLIC (U.N.D.P.)

Experts: 1/2

To meet the increasing demand for trained personnel arising from the development of its telecommunication services, the Government of Syria has initiated a proposal for the establishment of a Telecommunication Training Centre at Damascus. A short-term mission was undertaken by a training expert to advise the Government on planning and accommodation requirements for the Training Centre building.

#### WESTERN SAMOA (U.N.D.P.)

Experts: 1/4

An expert in radio and telegraphy continued to assist and advise the Government in his specialized field. In April 1972 he was transferred to an O.P.A.S. post and integrated into the establishment of the national telecommunication organization.

#### WESTERN SAMOA (U.N.D.P./O.P.A.S.)

Experts: 1/8

Following a transfer, an O.P.A.S. officer was appointed in April 1972 with the rank of Telecommunication Controller.

He participated in negotiations for a World Bank loan of \$2.6 million to develop the national telecommunications system. Detailed selection of sites for additional radio relay stations was in progress during the year and the existing radio relay system was expanded.

Improvements in operational procedure and extensions to the manual switchboard of the Apia telephone exchange were made.

Programmes were prepared for overseas training of local staff, some of whom were selected and placed in overseas training establishments.

#### SINGAPORE (U.N.D.P.)—1

Experts: 1/1

The expert on telex and data transmission completed his assignment in February 1972. He advised and assisted the Government in regard to semi- and fully-automatic telex switching systems, the formulation of policies and general specifications for a suitable integrated message retransmission system, as also for the introduction of a data transmission system for regional and international services. In addition, he prepared detailed specifications for international telex switching equipment.

#### SINGAPORE (U.N.D.P.)—2

Experts: 1/2

Fellows: 1/3

An expert in traffic engineering and local exchange planning took up his assignment in October 1972. He commenced training local engineers in the techniques of design and dimensioning of metropolitan networks, particularly where common control crossbar switching equipment was involved; and in telephone traffic engineering. He also gave advice and assistance concerning appropriate types of instrumentation equipment for the Singapore network.

One fellow commenced his training in traffic engineering and local exchange planning in Australia.

In addition, two short-term fellowships were awarded under a regional project to enable participants from Singapore to attend the Seminar on Planning and Development of Telecommunication Networks Outside of Large Cities and the Maintenance of Telecommunication Services held in Malaysia.

## SINGAPORE (U.N.D.P.)—3

Experts: 10/54

Equipment: \$80,822

*Title:* Telecommunication Training Centre (TELECENTRE), Singapore

Following preliminary activities in 1971, the TELECENTRE project commenced on 1 January 1972 under a Preparatory Assistance Budget.

In addition to the Project Manager, five training experts and four associate experts, of which the latter were provided by the Government of Sweden, worked at the project.

A total of 95 courses were held in 1972, attended by 1,006 trainees.

An assessment was made of the training needs, in the artisan and technician categories, for new entrants to the three telecommunication organizations—Singapore Telephone Board; Telecommunication Authority of Singapore; and Radio and Television Singapore.

Training aids and audio-visual equipment, together with teaching machines and equipment for basic courses, arrived on site during the latter half of 1972. Additional equipment lists were approved and orders placed. Satisfactory progress was made regarding the counterpart provision of furniture and fittings, and also with literature for the basic courses. A total of 50 counterpart staff were assigned to the project.

Accommodation plans were finalized and documentation for the contract/tendering procedures for the requisite building construction were prepared. Meanwhile, temporary accommodation was provided in three locations.

## SRI LANKA (U.N.D.P.)—1

Experts: 1/4

Fellows: 1/5

An expert in frequency management and monitoring stations advised on the up-dating of Sri Lanka's Frequency Assignment Register and in drafting a specification for the establishment of a radio frequency measuring and monitoring station. A quite comprehensive survey and a recommendation for the monitoring station has been produced which would require U.N.D.P./I.T.U. assistance.

One fellow commenced his studies in traffic in the United Kingdom.

In addition, a short-term fellowship was awarded under a regional project to enable a participant from Sri Lanka to attend the Seminar on Planning and Development of Telecommunication Networks Outside of Large Cities and the Maintenance of Telecommunication Services held in Malaysia.

## SRI LANKA (U.N.D.P.)—2

Experts: 1/7

*Title:* Telecommunications Training School, Colombo

The Project Manager arrived in June; he is also switching instructor on the project. His principal activity has been one of a preparatory nature.

Counterparts for the I.T.U. experts have been selected and two of them already assigned to the Project Manager.

The existing Training Centre continues to have an average load of 45 trainees per week, trained by five national instructors. The Project Manager/instructor in telephone switching gave two series of "appreciation lectures" on crossbar switching to key personnel in the Telecommunication Engineering Department. Intensive courses in crossbar switching for engineers, inspectors and senior technicians have been prepared. He also assisted with his specialist counterpart in the acceptance testing of two new switching centres.

The Government acquired new premises to replace and extend the present overcrowded facilities for the Centre. These premises have been renovated.

## CHINA (U.N.D.P.)

Experts: 2/16

With the phasing out of U.N.D.P. activities in Taiwan, the two experts—a telecommunication training adviser and an expert in telecommunication accounting and subscriber billing—were withdrawn during May 1972. The training adviser, who was attached to the Telecommunication Training Centre at Panchiao, assisted in and advised on the development and expansion of vocational training.

The expert in telecommunication accounting and subscriber billing was engaged primarily in electronic data processing (EDP), particularly the problems relating to the use of Chinese characters in EDP and the application of the technique to the preparation of invoices.

Two short-term fellowships were awarded under a regional project to enable participants to attend the Seminar on Planning and Development of Telecommunication Networks Outside of Large Cities and the Maintenance of Telecommunication Services held in Malaysia.

#### THAILAND (U.N.D.P.)

Experts: 5/35

Fellows: 6/25

Equipment: \$35,931

*Title:* Telecommunication Training, Test and Development Centre, Bangkok (Phase II)

This project was implemented in two phases over the period starting in 1962 and terminating in June 1972. The Project Manager and three instructors completed their assignments in 1972 and the remaining expert will depart early in 1973.

During the reporting period, a number of new courses were started—regular training courses for outside plant technicians and newly recruited engineers and special courses covering PCM systems, and transhorizon radio links; the latter had been prepared entirely by Thai staff.

Three engineering seminars were held for high-level engineers of the Telephone Organization of Thailand (T.O.T.) and of the Post and Telegraph Department (P. & T. Dept.). Tests were carried out on a data modem and on data links, over this period, as preparation for further investigations. Special committees were set up for drafting and approval of Engineering Instructions and they dealt with 34 Engineering Instructions and 58 Specifications; 59 Specifications were drafted for wide circulation, inviting comments. Three additional laboratory rooms were completed.

During the first half of the year, 509 trainees completed courses; 277 trainees were continuing training courses by the end of June 1972. Three counterpart assistant instructors joined the outside plant section and there was thus a staff of 11 counterparts at the Training Centre and 10 at the Test and Development Centre, in addition to 11 instructors and 30 assistant instructors.

Six fellows studied telecommunication administration, telephone switching (2), transmission and training in telecommunications, research and development in telecommunications and outside plant in India, Japan, Sweden, the United Kingdom and at the I.T.U. Headquarters.

#### THAILAND (U.N.D.P.)

Two short-term fellowships were awarded under a regional project to enable participants from Thailand to attend the Seminar on Planning and Development of Telecommunication Networks Outside of Large Cities and the Maintenance of Telecommunication Services held in Malaysia.

#### VIET-NAM (U.N.D.P.)

Experts: 2/12

Fellows: 2/5

Two experts, one in telephone switching and one in radio relay systems, continued working in Viet-Nam during 1972. They provided in-service training for local technicians, renovated derelict equipment for training purposes and rendered general assistance on the maintenance of operational equipment while giving practical demonstration and instruction to local staff. Technical notes for instruction in essential theory and principles were prepared by the experts and formal tuition was given to the technical staff.

Two fellows completed their studies in organization and management of telecommunication services and frequency management in Belgium and Switzerland during the year.

In addition, two short-term fellowships were awarded under a regional project to enable participants from Viet-Nam to attend the Seminar on Planning and Development of Telecommunication Networks Outside of Large Cities and the Maintenance of Telecommunication Services held in Malaysia.

#### YEMEN ARAB REPUBLIC (U.N.D.P.)

Experts: 2/24

Fellows: 2/7

Equipment: \$990

Two courses for teleprinter operators were conducted by the expert on radio, 22 students being successful in the examinations. The company operating external telecommunications for the Yemen Arab Republic intends opening branch offices at Taiz and Hodeida and the expert advised the Government regarding the internal links

required for this purpose. As a preliminary step towards improving the internal telecommunications of the country, the expert has initiated the provision of HF radio links between towns which have no other means of telecommunication. The Government has purchased twenty 25-watt SSB transceivers for this project.

The automatic telephone exchanges at Taiz and Hodeida are to be extended, and the expert in telephony was mainly engaged in assisting the Government in planning the extensions, preparing specifications and evaluating tenders. In addition, considerable progress was made in planning the countrywide telephone network. A draft numbering plan for the northern part of the country was completed and that for the rest of the country was in preparation. A scheme for the provision of local services in the northern area, the types and capacities of the inter-urban connections, was completed. The radio and telephony experts worked in collaboration on the production of the network plans.

Two fellows completed their training in telecommunication administration in the Arab Republic of Egypt, the United Kingdom, Germany (Federal Republic) and at the I.T.U. Headquarters during the year. One of the fellows also studied frequency management and took part in the I.F.R.B. Seminar.

YEMEN ARAB REPUBLIC/PEOPLE'S DEMOCRATIC REPUBLIC OF YEMEN (U.N.D.P.)

Experts: 1/12

Fellows: 1/2

Equipment: \$109,498

*Title:* Pilot Telecommunication Link, Sana'a-Aden

This project suffered a severe setback as a result of the accident in February in which the helicopter crashed while transporting equipment to the Jebel Aros repeater station. The contractor executed scheduled installation work at the other four stations in the link system. This work was completed in only six weeks. Subsequently the contractor resupplied the lost material for the Jebel Aros station.

During the year, the Project Manager acted as liaison between the Government officials of the two Yemens. He also visited I.T.U. Headquarters in Geneva to assist in developing a new policy concerning the Jebel Aros repeater station. Various solutions to the problem of transporting equipment to the summit have been considered; however, it appears likely that the provision of an aerial ropeway will be the solution most acceptable to all parties concerned. It has the additional advantage that it will be a means of transporting goods to the hill-farming area near the repeater station site. The transport problem has, however, caused considerable delay to the execution of the project.

A fellow from the Yemen Arab Republic spent a short period in the People's Democratic Republic of Yemen studying tropospheric scatter and later in the year commenced training in this speciality in the United Kingdom.

PEOPLE'S DEMOCRATIC REPUBLIC OF YEMEN (U.N.D.P.)

Experts: 1/2

As his project terminated early in the year, the activities of the General Telecommunication Adviser were directed towards the consolidation of work already done. Also, pending the assumption of duty by the Project Manager designate for the Sana'a-Aden pilot link, the General Telecommunication Adviser assisted in the early activities of the project.

ASIA REGIONAL (U.N.D.P.)

Experts: 3/25

There were three Regional Experts, based in Bangkok, during 1972. The Regional Expert specialized in radiocommunications completed his assignment early in the year.

The Senior Regional Expert visited India, Iran, Laos, the Philippines, Singapore and Viet-Nam to assist with the programming and general preparations for U.N.D.P./I.T.U. projects planned for implementation in those countries. He also assisted several countries in the region on current problems relating to telecommunication services, with special reference to organizational matters.

The Regional Expert in telecommunication traffic engineering and economics prepared papers for, and subsequently participated in, a Seminar on Tariffs in Kuala Lumpur. He also visited Sri Lanka and the Maldives to assist with tariff and traffic problems, including the preparation of national numbering schemes. Similar detailed assistance was also given to the Telecommunication Administration in Thailand. Preliminary work for a telecommunication development plan was carried out in West Irian and in Papua and New Guinea. In addition, he visited Indonesia and Iran to give assistance in his field of speciality.

The Regional Experts collectively prepared numerous specialized papers and participated in: the ECAFE

Telecommunication Sub-Committee; Seminars relating to the Asian Telecommunication Survey; the Typhoon Committee; and the Working Party on Operational and Technical Aspects of Asian Shipping Development.

#### MIDDLE EAST AND NORTH AFRICA REGIONAL (U.N.D.P.)

Experts: 1/9

The Regional Telecommunication Expert was stationed at Beirut, Lebanon, to assist and advise the Governments in the area on the development of telecommunication services in the Middle East and North Africa. During the year he visited Algeria, Jordan, Kuwait, Morocco and Tunisia for discussions with the appropriate authorities in these countries and gave advice on various matters relating to their telecommunication services. He also assisted in the preparation of proposals for regional projects dealing with a Feasibility Study/Pre-investment Survey for the Middle East Network, advanced training courses in new telecommunication techniques and regional radio monitoring and frequency management.

The Regional Expert attended the inaugural ceremonies for the Telecommunication Training Centre, Kuwait, and the Earth Station, Jordan, and also the Conference of the Organization for African Unity at Rabat.

#### SOUTH-EAST ASIA AND THE FAR EAST REGIONAL (U.N.D.P.)

Experts: 5/33

Fellows: 1/4

*Title:* South-East Asia and the Far East Feasibility Studies

The last of the five parts to this Survey, covering India, Pakistan and Thailand, was completed during October 1972. Direct activities on the project ended in November 1972.

At the ECARE Telecommunications Sub-Committee, held in Bangkok during October 1972, all of the countries concerned expressed their appreciation of the Survey reports. A working group of delegates from ten of the twelve countries which participated in the project was set up to study the procedural mechanics for early realization of the Survey recommendations. It was recommended that U.N.D.P./I.T.U. should continue to provide technical expertise in the specialized fields required for implementation of the recommendations, as this would generate greater opportunities for attracting additional capital investments for upgrading domestic routes and for extension of the networks. National coordinators from each country were being nominated and the first meeting of these coordinators is scheduled to take place in Singapore early in 1973.

One of the major technical problems revealed by the Survey was the need for agreement between the countries regarding the standardization of signalling codes and transmission criteria. A seminar dealing with these aspects has been proposed.

The project was officially terminated on 31 December 1972 and appropriate follow-up and implementation activities are planned.

A fellow from Laos received training in radio in France under this project.

#### WESTERN PACIFIC REGIONAL (U.N.D.P.)

Experts: 2/5

Early in 1972 the U.N.D.P. approved a five-month survey in various aspects of technical assistance requirements in the field of telecommunications in the British Solomon Islands, Cook Islands, Fiji, Gilbert and Ellice Islands, New Hebrides, Papua and New Guinea, Tonga and Western Samoa. Two specialists—an expert in radio telephone planning and a telecommunication training adviser—were recruited during October/November 1972 and were based in Suva, Fiji.

Their primary objective was to assess the current position and detail the technical assistance requirements of each telecommunication organization with particular regard to the operational organization, staff, equipment and development plans.

#### 4. REGION: EUROPE

##### ALBANIA (U.N.D.P.)

Fellows: 9/26

Nine fellows studied in Italy during 1972 in the fields of radio (2), television studio equipment, television techniques (2), underground and submarine cables, microwaves, telegraphy and automatic telephony.

## BULGARIA (U.N.D.P.)

Fellows: 10/23

Ten fellows studied holography, microwaves, electro-acoustics (2), videotape recording, monitoring, television techniques, electro-acoustic measurements and radio (2) in Belgium, France, Germany (Federal Republic), Italy and the United States.

## HUNGARY (U.N.D.P.)

Fellows: 1/3

One fellow studied telecommunication networks in Austria during the year.

## SPAIN (U.N.D.P.)

Fellows: 3/3

Three fellows studied telecommunication legislation, accounting and administration and economics in France and Switzerland during the year.

## MALTA (U.N.D.P.)

Experts: 1/12

The expert in cable network planning continued to render assistance in his specialized field. At the conclusion of his assignment, cable network plans for the long-term development of the telephone service had been completed for the whole of the system. He also assisted in establishing a cable planning and records office, the lack of which had previously proved a serious deficiency in the telecommunication organization.

## POLAND (U.N.D.P.)

Fellows: 5/15

Five fellows studied transmission, telecommunication techniques, telephony, radio and television measurements and frequency management in Denmark, France, Italy, Sweden and at the I.T.U. Headquarters. The fellow studying frequency management also participated in the I.F.R.B. Seminar.

## ROUMANIA (U.N.D.P.)

Experts: 1/2

Fellows: 3/5

Equipment: \$3,771

An expert in data transmission (networks and organization) commenced a short-term mission to advise the national telecommunication administration regarding the organization and adaptation of the telecommunication network required for the introduction of data transmission on an extensive scale.

Two fellows completed their study programmes in satellite communications and data transmission in Germany (Federal Republic) and Italy during the year under report. A third fellow commenced his training programme in data transmission in Germany (Federal Republic).

## TURKEY (U.N.D.P.)—1

Experts: 1/7

Fellows: 1/2

Equipment: \$4,394

This small-scale project has been concerned with the development and design of VHF/UHF radio link equipment suitable for local manufacture. The work was carried out at the Arastirma Laboratory, Istanbul, where the expert in development and design of VHF/UHF radio link equipment was engaged in the development and production of prototype equipment. Although work has been hampered to some extent by delays in obtaining adequate supplies, the prototype equipment is expected to be ready for field trial early in 1973.

One fellow studied satellite communications in Italy.

## TURKEY (U.N.D.P.)—2

Experts: 7/70

Fellows: 3/6

Equipment: \$76,052

*Title:* National Telecommunication Training Centre

The year was marked by a significant increase in the activities of the Training Centre. The most notable feature was the successful application of a revised and extended training programme. The revision was directed mainly towards greatly shortened and more intensive courses. As a result, the number of students completing courses was 1,216, an increase of 94% over the previous year, although the amount of instructional effort, expressed in student hours, increased by only 46%.

Delays have been experienced in finding a suitably qualified candidate for the post of Instructor in Telecommunication Management and activities in this wing have been conducted under the direct guidance of the Project Manager.

Work was started on the extension to the Centre and substantial progress has been made.

Three fellows studied switching, training in telecommunications and traffic in Canada, France and the United Kingdom.

A short-term fellowship was awarded to enable a participant from Turkey to take part in the Seminar on Standards for Training in Telecommunications in France.

TABLE 2

*Projects implemented under subcontracting during 1972*

| Project title  | Participating country(ies)   | Value of subcontract<br>\$ | Subcontractor  | Amounts paid in 1972<br>\$ |
|--|--|----------------------------|--|----------------------------|
| Pre-Investment Survey for Pan-African Telecommunication Network (East Africa) RAF-70-116             | Ethiopia, Kenya, Somalia, Sudan (Project I)  | 171,600                    | NORCONSULT<br><i>Oslo, Norway</i>                          | 53,444                     |
|  | Botswana, Tanzania, Zambia (Project II)  | 123,750                    | PREECE, CARDEW & RIDER<br><i>London, United Kingdom</i>    | 64,975                     |
| Pre-Investment Survey for Pan-African Telecommunication Network (West and Central Africa) RAF-71-231 | Dahomey, Gambia, Guinea, Mali, Mauritania, Niger, Senegal, Upper Volta (Projects 1 and 2)    | 265,566                    | ACRES INTERTEL LTD.<br><i>Montreal, Canada</i>             | 3,619                      |
|  | Cameroon, Central African Republic, Congo, Equatorial Guinea, Nigeria (Projects 3/4 and 5/6) | 193,849                    | SOFRECOM<br><i>Paris, France</i>                           | 150,234                    |
|  | Dahomey, Nigeria (Project 4B)  | 27,815                     | SWEDTEL<br><i>Stockholm, Sweden</i>                        | 18,864                     |
| Prospecting and Survey for National Telecommunication Network in Guinea (GUI-72-005)                 | Guinea   | 62,530                     | ACRES INTERTEL LTD.<br><i>Montreal, Canada</i>             | 1,940                      |
| Pilot Link Sana'a-Taiz-Aden (REM-71-197)   | Yemen Arab Republic, Yemen (People's Democratic Republic of)                                 | 574,960 *)                 | ARE—Applicazioni Radio Elettroniche<br><i>Milan, Italy</i> | 107,166 **)                |
| Development of Ahmedabad Experimental Earth Station (IND-70-609)                                     | India  | 200,200                    | HUGHES AIRCRAFT<br><i>Palo Alto, U.S.A.</i>                | 28,723                     |

\*) The amount of the contract will be increased after U.N.D.P. approval.

\*\*) Including helicopter rental.



TABLE 2  
*Projects implemented under subcontracting during 1972*

| Title of project  | Participating countries | Value of subcontracts (\$) | Subcontractor  | Amounts paid in 1972 (\$) |
|---|-------------------------|----------------------------|--|---------------------------|
| Evaluation of tenders for Libyan P. & T. (Funds-in-Trust TA)        | Libya                   | 9,300                      | NACHRICHTENTECHNISCHE BERATUNG (NTB)<br><i>Zürich, Switzerland</i> | 4,989                     |
| Re-organization of Lebanon Telecommunications Services (LEB-71-007) | Lebanon                 | 48,000                     | SWEDTEL<br><i>Stockholm, Sweden</i>                                | 20,000                    |

TABLE 3  
*Assistance provided in 1972 under U.N.D.P.*

| Region           | Number of approved projects <sup>a)</sup> | Number of countries which received assistance <sup>b)</sup> | Man/months                  |                                   | Value of equipment delivered (US \$) | Total expenditures (US \$) |
|------------------|---|---|-----------------------------|-----------------------------------|--------------------------------------|----------------------------|
|                  |   |   | of expert services rendered | of fellowship programmes realized |                                      |                            |
| (1)              | (2)                                       | (3)   | (4)                         | (5)                               | (6)                                  | (7)                        |
| Africa . . . . . | 69  | 31  | 88/703.5                    | 183/447                           | 470,831                              | 2,998,807                  |
| Asia . . . . .   | 62  | 27  | 105/743                     | 59/230.5                          | 538,471                              | 2,889,593                  |
| Americas . . . . | 51  | 28  | 67/542                      | 52/222                            | 132,133                              | 1,701,245                  |
| Europe . . . . . | 20  | 8   | 10/92.5                     | 35/84                             | 83,054                               | 366,626                    |
| Inter-regional . | 1   | —   | —                           | —                                 | —                                    | 50,000                     |
| Total . . . . .  | 203                                       | 94  | 270/2081                    | 329/983.5                         | 1,224,489                            | 8,006,271                  |

a) The figures include regional projects.

b) The figures do not include assistance rendered under regional projects.

TABLE 4

Important large-scale projects approved by the U.N.D.P. for which I.T.U. is Executing Agency as of 31.12.1972  
(in the order of the dates of approval of projects)

| Country                                | Description of Project   | Date of Approval by U.N.D.P. | Duration in years | Assistance being provided by U.N.D.P. |                            |                              | Estimated Project Costs (U.S. \$) |                                     |           |
|--|--|------------------------------|-------------------|---------------------------------------|----------------------------|------------------------------|-----------------------------------|-------------------------------------|-----------|
|  |  |                              |                   | No. experts man/months                | No. fellowships man/months | Value of equipment (U.S. \$) | U.N.D.P. allocation               | Government counterpart contribution | Total     |
| 1                                      | 2  | 3                            | 4                 | 5                                     | 6                          | 7                            | 8                                 | 9                                   | 10        |
| Approved projects in operation in 1972 |  |                              |                   |                                       |                            |                              |                                   |                                     |           |
| Iraq *)<br>IRQ-62-505                  | Telecommunication Training Centre, Baghdad . . . . .                                   | Jan. 1962                    | 6½                | 9/435                                 | 8/78                       | 315,845                      | 1,259,700                         | 1,608,441                           | 2,868,141 |
| Algeria *) 1)<br>ALG-64-503            | National School for Telecommunication Studies, Algiers . . . . .                       | Jan. 1964                    | 8                 | 11/602                                | 15/145                     | 195,830                      | 1,488,580                         | 7,698,524                           | 9,187,104 |
| Colombia<br>COL-64-512                 | Electronics and Telecommunications Training and Research, Popayan and Bogota . . . . . | Jan. 1964                    | 5                 | 8/351                                 | 20/202                     | 380,780                      | 1,185,608                         | 1,962,563                           | 3,148,171 |
| Ghana<br>GHA-64-512                    | Telecommunication Training Centre, Accra . . . . .                                     | Jan. 1964                    | 5                 | 10/338                                | 8/90                       | 270,000                      | 987,022                           | 1,431,497                           | 2,418,519 |
| Madagascar *)<br>MAG-64-505            | National Institute of Telecommunications and Post, Antanotibé . . . . .                | Jan. 1964                    | 7¾                | 8/398                                 | 11/141                     | 275,300                      | 1,188,270                         | 2,052,496                           | 3,240,766 |
| Zaire                                  | National School of Telecommunications, Kinshasa . . . . .                              | Jan. 1966                    | 6                 | 9/552                                 | 11/156                     | 249,250                      | 1,527,310                         | 2,597,990                           | 4,125,300 |
| Saudi Arabia<br>SAU-67-516             | Telecommunications and Broadcasting Training Centre, Jeddah . . . . .                  | Jan. 1967                    | 5                 | 12/372                                | 12/144                     | 45,000                       | 1,111,340                         | 5,755,905                           | 6,867,245 |

|                             |  |           |   |        |        |         |           |           |           |
|-----------------------------|--|-----------|---|--------|--------|---------|-----------|-----------|-----------|
| Chile<br>CHI-67-521         | Telecommunications Training Centre, Santiago . . . . .   | Jan. 1967 | 5 | 8/324  | 9/126  | 295,000 | 1,145,790 | 671,772   | 1,817,562 |
| Malaysia<br>MAL-67-515      | Telecommunications Training Centre, Kuala Lumpur (Phase II). . . . .   | Jan. 1967 | 3 | 10/273 | 5/33   | 74,925  | 697,750   | 791,684   | 1,489,434 |
| Turkey *)<br>TUR-67-528     | National Telecommunications Training Centre, Ankara 2) . . . . .   | Jan. 1967 | 5 | 13/533 | 39/276 | 401,437 | 1,842,082 | 4,027,821 | 5,869,903 |
| Indonesia<br>INS-68-516     | Telecommunications Training Centre, Bandung . . . . .  | Jan. 1968 | 3 | 8/256  | 8/61   | 668,200 | 1,278,032 | 1,280,913 | 2,558,945 |
| Pakistan<br>PAK-68-539      | Telecommunications Staff College, Haripur  | Jan. 1968 | 5 | 8/192  | 16/96  | 336,970 | 923,680   | 1,819,135 | 2,742,815 |
| Sudan<br>SUD-68-531         | Post and Telegraph Centre, Khartoum, (Phase II) . . . . .  | Jan. 1968 | 3 | 8/301  | 15/94  | 151,380 | 905,925   | 850,666   | 1,756,591 |
| Nigeria<br>NIR-68-534       | Post and Telecommunications Training Centre, Oshodi . . . . .  | June 1968 | 3 | 9/243  | 16/108 | 295,000 | 1,018,125 | 6,604,612 | 7,622,737 |
| Paraguay<br>PAR-68-519      | Assistance in the implementation of the National Telecommunication Plan . . .  | June 1968 | 3 | 5/162  | —/—    | 111,000 | 544,210   | 108,242   | 652,452   |
| Asia Regional<br>RAS-69-164 | Asian Telecommunication Network—Feasibility Study (Participants: Afghanistan, India, Indonesia, Iran, Khmer Republic, Laos, Malaysia, Nepal, Pakistan, Republic of Viet-Nam, Singapore and Thailand) . . . . . | June 1969 | 2 | 5/140  | 2/1    | 12,300  | 470,160   | 69,420    | 539,580   |
| Thailand<br>THA-69-532      | Telecommunications Training Test and Development Centre, Bangkok (Phase II)  | June 1969 | 3 | 8/192  | 11/64  | 106,503 | 595,246   | 920,445   | 1,515,691 |
| Egypt<br>EGY-69-577         | Technical Training and Research Inst. for Telecommunications, Cairo . . . . .  | June 1969 | 4 | 5/168  | 27/145 | 395,000 | 939,900   | 2,650,873 | 3,590,773 |
| Afghanistan<br>AFG-70-525   | Telecommunications Training Centre, Kabul (Phase II) 2) . . . . .  | Jan. 1970 | 5 | 11/513 | 12/72  | 119,930 | 1,375,700 | 418,938   | 1,794,638 |

| 1                                   | 2   | 3         | 4  | 5      | 6      | 7       | 8         | 9          | 10         |
|-------------------------------------|---|-----------|----|--------|--------|---------|-----------|------------|------------|
| India<br>IND-70-609                 | Expansion of the Experimental Satellite Communication Earth Station, Ahmedabad <sup>4)</sup> . . . . .  | June 1970 | 4  | 1/48   | 4/48   | 665,000 | 1,043,300 | 1,117,942  | 2,161,242  |
| Iran<br>IRA-70-522                  | Telecommunications Training Centre, Teheran . . . . .   | Jan. 1970 | 5  | 8/402  | 15/156 | 366,275 | 1,514,070 | 4,369,088  | 5,883,158  |
| Venezuela<br>VEN-70-529             | Training Centre for Telecommunications Technicians, Caracas (Phase II) . . . .  | June 1970 | 4  | 10/360 | 20/104 | 43,000  | 1,108,050 | 12,085,781 | 13,193,831 |
| Africa *)<br>Regional<br>RAF-70-116 | Pre-Investment Survey for the African Telecommunication Network <sup>4)</sup> (Requesting Governments: Botswana, Ethiopia, Kenya, Somalia, Sudan, Tanzania, Zambia) . . . . .   | June 1970 | 3  | 5/111  | —/—    | —       | 762,200   | 59,100     | 821,300    |
| Sri Lanka<br>CEY-71-527             | Telecommunication Training School, Colombo . . . . .  | Jan. 1971 | 2½ | 3/66   | 7/36   | 140,600 | 345,100   | 85,000     | 570,700    |
| Nepal<br>NEP-71-521                 | Telecommunication and Civil Aviation Training Centre, Amand Niketan <sup>3)</sup> . .   | Jan. 1971 | 4  | 8/330  | 33/136 | 298,500 | 1,264,745 | 338,000    | 1,602,745  |
| Zambia<br>ZAM-71-516                | National Telecommunication and Postal Training Institute, Ndola <sup>2)</sup> . . . . .   | Jan. 1971 | 3  | 6/150  | 16/62  | 35,000  | 485,240   | 3,159,000  | 3,644,240  |
| Middle East<br>REM-71-197           | Sana'a-Taiz-Aden Pilot Telecommunication Link <sup>4)</sup> . . . . .   | Jan. 1971 | 2½ | 1/21   | 4/24   | 12,000  | 666,650   | 1,281,881  | 1,948,531  |
| Africa<br>Regional<br>RAF-71-231    | Pan African Telecommunication Survey (West and Central Africa Sector <sup>4)</sup> (Requesting Governments: Cameroon, Central African Republic, People's Republic of Congo, Ivory Coast, Dahomey, Gambia, Ghana, Guinea, Equatorial Guinea, Upper Volta, Liberia, Mali, |           |    |        |        |         |           |            |            |

|   |  |            |    |        |                |         |           |           |           |
|---|--|------------|----|--------|----------------|---------|-----------|-----------|-----------|
|   | Mauritania, Niger, Rwanda, Senegal, Sierra Leone, Chad, Togo and Zaire) . .  | June 1971  | 2  | 1/24   | Group training | —       | 360,000   | 151,000   | 511,000   |
| Algeria<br>ALG-72-009                   | Institute of Technology for Telecommunications and Electronics (I.T.T.E.), Oran.   | Dec. 1972  | 2  | 11/189 | 20/47.5        | 80,000  | 630,500   | 6,668,400 | 7,298,900 |
| Bolivia<br>BOL-71-518                   | Telecommunication Training Institute, La Paz . . . . .   | Jan. 1972  | 2½ | 7/150  | 8/80           | 250,000 | 699,600   | 1,564,000 | 2,263,600 |
| Cameroon<br>CMR-71-525                  | Federal School for Posts and Telecommunications, Yaoundé . . . . .   | Jan. 1972  | 4  | 5/172  | 7/114          | 260,000 | 786,400   | 2,696,000 | 3,482,400 |
| Indonesia<br>INS-71-536                 | Training of Telecommunications Junior Engineers and Senior Technicians, Bandung . . . . .  | Jan. 1972  | 4  | 10/420 | 23/138         | 250,000 | 1,420,100 | 3,050,000 | 4,470,100 |
| Iraq<br>IRQ-71-525                      | Telecommunication Training Centre, Baghdad (Phase II) . . . . .  | April 1972 | 4  | 7/216  | 15/132         | 205,000 | 890,000   | 1,470,722 | 2,360,722 |
| Mongolia<br>MON-71-510                  | Establishment of a Faculty of Telecommunication at the State Polytechnic Institute and Telecommunication Training Centre, Ulan Bator . . . . . | June 1972  | 1  | 3/8    | —/—            | 261,000 | 288,500   | 76,902    | 365,402   |
| Singapore<br>SIN-71-514                 | Telecommunications Training Centre, Singapore . . . . .  | Jan. 1972  | 4  | 8/294  | 13/78          | 249,000 | 1,073,200 | 2,586,000 | 3,659,200 |
| East African<br>Community<br>RAF-69-155 | Multinational Telecommunication and Postal Training Centre (Kenya, Uganda, Tanzania). . . . .  | Oct. 1969  | —  | 5/35   | —/—            | —       | 108,366   | —         | —         |
| Senegal<br>Regional<br>RAF-71-170       | Regional Telecommunication Training Centre, Rufisque . . . . .   | Jan. 1971  | 1½ | 5/54   | 1/4            | 111,967 | 371,700   | —         | —         |

\*) Includes supplementary earmarkings approved by the U.N.D.P. Governing Council.

1) Project terminated as at 31.12.1971. Under revision, continued under ALG-72-009.

2) With the participation of the U.P.U. for the postal sector of the project.

3) With the participation of the I.C.A.O. for the aeronautical sector of the project.

4) Includes a substantial subcontract component.

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ANNEX 7

LIST OF DEBTORS IN ARREARS ON 31 DECEMBER 1972 \*)

|   | Years   | Total due<br><i>Swiss francs</i> |
|---|---------|----------------------------------|
| Bolivia . . . . .   | 1950-72 | 2,528,362.35                     |
| Burundi (Republic of) . . . . .                                     | 1969-71 | 5,105.30                         |
| Central African Republic . . . . .                                  | 1972    | 30,409.50                        |
| Chile . . . . .   | 1962-72 | 1,204,029.20                     |
| Colombia (Republic of) . . . . .                                    | 1966-72 | 17,939.30                        |
| Korea (Republic of) . . . . .                                       | 1971-72 | 13,190.70                        |
| Costa Rica . . . . .  | 1960-72 | 253,022.95                       |
| Dominican Republic . . . . .  | 1959-72 | 1,715,749.75                     |
| El Salvador (Republic of) . . . . .                                 | 1961-72 | 1,905,559.65                     |
| Ecuador . . . . .   | 1971-72 | 24,199.65                        |
| Ethiopia . . . . .  | 1966-71 | 8,021.40                         |
| France . . . . .  | 1971    | 75,750.10                        |
| Ghana . . . . .   | 1971-72 | 20,498.70                        |
| Guatemala . . . . .   | 1971-72 | 33,318.45                        |
| Haiti (Republic of) . . . . .                                       | 1955-72 | 762,485.70                       |
| India (Republic of) . . . . .                                       | 1971    | 19,167.70                        |
| Indonesia (Republic of) . . . . .                                   | 1971    | 6,677.70                         |
| Iran . . . . .  | 1971    | 12,857.20                        |
| Khmer Republic . . . . .  | 1969-72 | 17,176.62                        |
| Liberia (Republic of) . . . . .                                     | 1972    | 5,679.25                         |
| Mauritania (Islamic Republic of) . . . . .                          | 1968-72 | 23,528.94                        |
| Mexico . . . . .  | 1971    | 41,819.45                        |
| Nigeria (Federal Republic of) . . . . .                             | 1971    | 9,797.44                         |
| Pakistan . . . . .  | 1970-72 | 32,397.81                        |
| Peru . . . . .  | 1966-72 | 293,960.20                       |
| Philippines (Republic of the) . . . . .                             | 1970-72 | 68,733.70                        |
| Syrian Arab Republic . . . . .                                      | 1971    | 12,880.20                        |
| Rhodesia . . . . .  | 1966-72 | 335,259.50**)                    |
| Rwanda (Republic of) . . . . .                                      | 1969-71 | 5,576.95                         |
| Somali Democratic Republic . . . . .                                | 1969-72 | 31,113.85                        |
| Sudan (Democratic Republic of the) . . . . .                        | 1970-72 | 63,901.80                        |
| Chad (Republic of) . . . . .  | 1970-72 | 40,799.—                         |
| Uruguay (Oriental Republic of) . . . . .                            | 1962-72 | 621,903.16                       |
| Venezuela (Republic of) . . . . .                                   | 1968-72 | 213,431.34                       |
| Yemen Arab Republic . . . . .                                       | 1961-72 | 508,479.80                       |
| Argentina — Empresa Nacional de Telecomunicaciones . . . . .        | 1970-71 | 21,807.—                         |
| Brazil — ENTEL S.A., Rio de Janeiro . . . . .                       | 1964-68 | 31,489.95                        |
| Colombia — Empresa Nacional de Telecomunicaciones, Bogota . . . . . | 1962-71 | 9,799.55                         |
| Japan — Japan Radio Co. Ltd. . . . .                                | 1971    | 11,209.—                         |
| Surinam . . . . .   | 1968-71 | 11,706.90                        |
| United Kingdom — Cable and Wireless Ltd., London . . . . .          | 1971    | 11,457.20                        |
| — PYE TMC Ltd., London . . . . .                                    | 1970    | 8,793.75                         |

\*) Excluding the amounts due for publications supplied in 1972, settlement of which is not required until 1973.

\*\*) See Resolution No. 676.

|   | Years   | Total due<br><i>Swiss francs</i> |
|---|---------|----------------------------------|
| U.S.A. — North American Rockwell Corp., Downey . . . .              | 1971-72 | 9,376.30                         |
| — American Teleph. and Telegr. Co., N.Y. . . . .                    | 1971    | 21,114.70                        |
| — I.T.T. World Communications Inc., New York . .                    | 1971    | 16,629.—                         |
| — NAVSAT Systems Inc., Salt Lake City . . . . .                     | 1970-71 | 16,773.30                        |
| — Finance and Accounts Office, U.S. Army, Washing-<br>ton . . . . . | 1970-71 | 7,572.50                         |
| Yugoslavia — Elektronska Industrija, Beograd . . . . .              | 1971-72 | 16,412.50                        |
| — Iskra-Krank, Ljubljana . . . . .                                  | 1970-72 | 11,485.75                        |
|   |         | <hr/>                            |
|   |         | 11,168,411.71                    |
| Other debtors . . . . .   |         | 149,724.29                       |
|   |         | <hr/>                            |
|   |         | 11,318,136.—                     |
|   |         | <hr/>                            |