ITU

1979
ITU TECHNICAL
CO-OPERATION

International Telecommunication Union

"Tête", which comes from ancient Greek, means "far off", so that "telecommunication" simply means "long-distance communication". The ITU Convention (which is the Organization's Charter) defines it as "any transmission, emission or reception of signs, signals, writing, images and sounds or intelligence of any nature by wire, radio, optical or other electromagnetic systems"—in other words, telegraph, telephone and radio and all their applications such as telex and television.

Telecommunications span the world. Yet, although they easily traverse vast distances and physical obstacles, they often have difficulty when it comes to crossing the man-made frontiers between nations.

This was clear right from the beginning, more than 100 years ago, when people first started sending telegrams from one country to another (the telegrams had to be handed across at the frontier). Some kind of international agreement was necessary.

In 1876 the telephone was invented, and then, towards the close of the 19th century, radio. These new communication media also became international. They also required international organization.

To-day, more and more people merely lift a telephone receiver and call another country or turn a knob and listen to a foreign radio programme. Without the ITU the call would be impossible and the programme inaudible.

With the possibilities of communication via satellites, international agreement is more important than ever.

The ITU is an organization, a Union, of Member countries. At present there are 154 Members.

The Union's headquarters are in Geneva, on the Place des Nations. In this building are to be found the four permanent organs:

General Secretariat
International Frequency Registration Board (IFRB)
International Radio Consultative Committee (CCIR)
International Telegraph and Telephone Consultative Committee (CCITT)

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contents

ITU technical co-operation 1979

This summary is based on the report submitted by the ITU Technical Co-operation Department to the 35th Session of the Administrative Council held in May 1980 in Geneva.

1. The ITU and technical co-operation

For more than a hundred years the International Telecommunication Union (ITU) has served as the medium through which its Member countries can co-operate in the development of telecommunications. Its work in the fields of international regulation, planning, co-ordination and standardization are the very basis of this constant co-operation.

One of the great virtues of telecommunications for mankind is the role it plays in economic and social development. The more one reflects on such development in the less favoured countries, the more obvious it becomes that it is inseparable from telecommunications; everything seems to depend on the capacity for exchanging information and ideas. In a world where distance no longer seems to count, the people of all countries need more and more to be able to depend upon the efficiency of the telecommunication networks.

In many countries network capacity is not growing fast enough to meet the requirements of users both inside and outside these countries. In this century of progress, in which economic and social advancement is inconceivable without an adequate telecommunication network, it can be noted that the growth in gross na-

tional product follows a curve very similar to that of the increase in the number of telephones. In a race against time, more equipment and, above all, more technicians are needed to meet the imperative need for a smoothly-operating world-wide telecommunication network.

In 1952 the ITU joined the United Nations Technical Co-operation Programme. Following the ITU's Plenipotentiary Conference in 1959, the Technical Co-operation Department was set up in 1960 for this purpose within the General Secretariat to administer this assistance, which is provided on request.

As well as the personnel operating in the field, a Group of Engineers in the Technical Co-operation Department is responsible for rendering short-term assistance to the Member countries which request it, either by correspondence or by missions.

2. Technical co-operation activities

In 1979, as in past years, the Union's technical co-operation activities were in conformity with the provisions of Article 4, point 19, of the International Telecommunication Convention (Malaga-Torremolinos, 1973). To this end, the Union continued to: "foster the creation,

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development and improvement of telecommunication equipment and networks in new or developing countries by every means at its disposal, especially its participation in the appropriate programmes of the United Nations".

The volume of aid rendered by the Union to developing countries in 1979 was considerably increased due to the improved financial situation of the United Nations Development Programme (UNDP).

The main features of aid provided from all sources were:

a) 584 expert missions were carried out, against 543 in 1978 (these figures include associate expert assignments);

b) 618 fellows (including 251 participants in short-term group training) underwent training abroad, against 463 in 1978;

c) 210 projects were assigned to the Union, against 198 in 1978;

d) 6 609 758 US dollars' worth of equipment was delivered to various field projects against 5 837 032 dollars' worth in 1978;

e) 4 projects were being implemented, partially or entirely, under sub-contracts, as in 1978.

The total expenditure for project implementation in 1979 amounted to 26 064 268 dollars against 21 614 714 dollars in 1978 (an increase of 20.6%).

The field expenditure broken down by project component and by region is shown in table 1.

3. Three main types of activity

The Union's technical co-operation activities in 1979 continued through the

Table 1

project components	Africa	Americas	Asia and Pacific	Europe and Middle East	inter-regional	total
	(US dollars)					
experts and associate experts	5 013 562	2 386 089	3 021 808	4 637 726	115 110	15 174 295
administrative support personnel	342 458	118 510	235 542	299 748	48 743	1 045 001
sub-contrats	77 882	34 750	—	40 116	—	152 748
fellowships	352 418	172 244	270 023	572 505	—	1 367 190
group training	361 762	191 610	318 614	52 911	—	924 897
equipment	1 419 228	2 053 064	1 886 693	1 247 441	3 332	6 609 758
miscellaneous	156 176	67 380	98 653	423 662	44 508	790 379
total	7 723 486	5 023 647	5 831 333	7 274 109	211 693	26 064 268

implementation of projects which could be grouped under three main headings:

3.1 The promotion of development of regional telecommunication networks

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

In 1979, 71 expert missions (12%) were carried out in connection with the activities related to the promotion of the development of regional telecommunication networks and their integration into the world-wide system.

a) In Africa

Work on the realization of the pan-African telecommunication network (PANAFTEL) using radio-relay systems, submarine cables, satellite communication earth stations and international telephone exchanges made fair progress during the reporting period. The PANAFTEL team of UNDP/ITU experts was involved in many of these activities at one stage or the other. In particular, the pro-ject team gave active assistance in the search for solutions for interfacing, and participated in several bilateral co-ordination meetings. Assistance was also provided in the fields of tariffs, sub-regional numbering, frequency planning, switching and signalling. The project team took every opportunity to give advice on operational and maintenance requirements in the selection of new systems.

Feasibility and pre-investment studies, financed by the Arab Bank for Economic Development in Africa (ABEDA) were commenced for new additional links (Cape Verde—Senegal, Cape Verde—Guinea-Bissau, Guinea-Bissau—Senegal, Guinea-Bissau—Guinea, national links in Niger, Sao Tome and Principe—Cameroon, Sao Tome and Principe—Gabon, Zaire—Uganda, Burundi—Rwanda—Uganda, Tanzania—Madagascar, Congo—Gabon). Many more studies for new links were also carried out in West Africa at the request of the Economic Community of West African States (ECOWAS).

All these activities were, of course, complementary and add to the expansion of PANAFTEL to cover the whole continent.

The experience gained with previously installed equipment and with the equipment recently put into service brought to light some problems of maintenance and operation. These difficulties are now to be tackled, thanks to the UNDP which has indicated its agreement to allocate funds for a complementary project to start in 1980 so as to assist in developing appropriate structures and methods for operation and maintenance.

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The progress made, as well as the problems encountered, were reviewed in depth by the PANAFTEL Co-ordinating Committee (Organization for African Unity—OAU; Economic Commission for Africa—ECA; African Development Bank—ADB; Pan-African Telecommunication Union—PATU; and ITU) which met twice during the year in April and December 1979. Each organization is making both individual and concerted efforts to ensure the early implementation and operation of the network, in close co-operation with the various financing institutions involved.

b) In the Americas

The Central American Telecommunications Commission (COMTELCA) proceeded with the planning and implementation of the third phase of regional network development. The Supervisory Group set up by COMTELCA in Tegucigalpa, Honduras, received the active co-operation of the ITU Regional adviser for Central America. The adviser and other ITU experts assisted the telecommunication administrations in Central America in the implementation of their expansion plans concerning, in particular, the installation of new telephone ex-
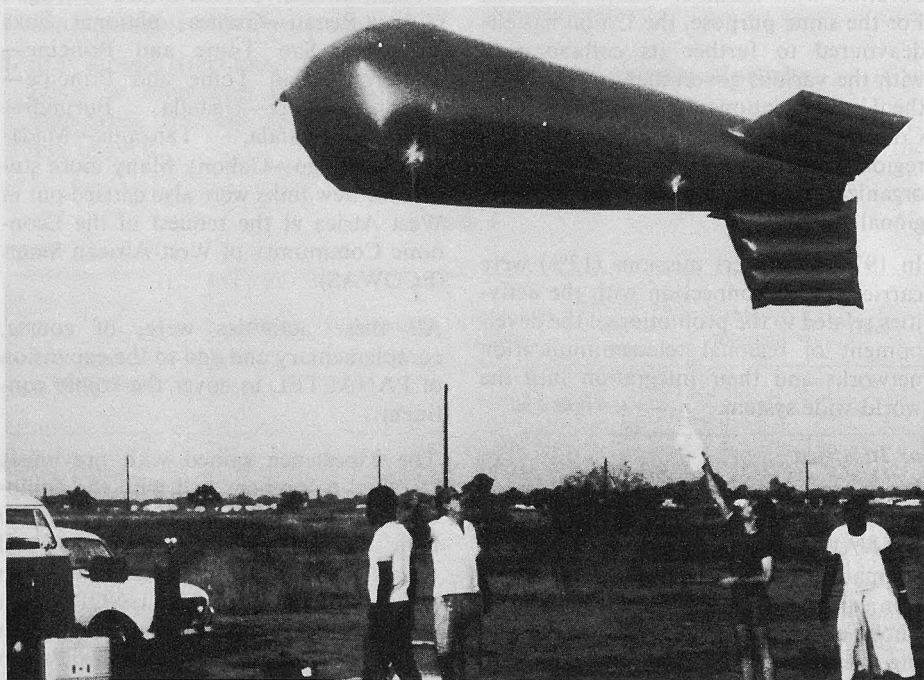
A balloon used to collect meteorological information in connection with propagation testing (Senegal)

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changes and the extension of the transmission systems.

A mission to identify areas and fields where future technical co-operation could be required was carried out by an ITU expert in the Caribbean.

As regards the promotion of telecommunication network development in the Americas Region as a whole, the action undertaken by the Union was mainly channelled through the co-operation programme with the Inter-American Telecommunications Conference (CITEL). One ITU Regional adviser continued to collaborate with the President's Office of COM/CITEL (Executive Committee of CITEL) in the implementation of joint technical co-operation activities. In connection with network development, the work programme comprises the following studies entrusted to CITEL Permanent Technical Committee I:

— plans concerning interconnections, traffic routing and volume per service, transmission, switching and signalling;

— elaboration of a short-term inter-American plan for the development of telecommunications, and the establishment of its implementation phases on the basis of medium- and long-term objectives.

During the reporting period, the Union initiated the preparation of a regional study on the development of public data communication networks (implementation starting in 1980 with a preliminary contribution from the UNDP).

c) In Asia

The activities in Asia constituted a pragmatic approach to the entire question of network development, including allied areas that needed to be brought into perspective. The follow-up on the implementation of the Asian Telecommunication Network has acquired many additional dimensions with activities being harmoniously co-ordinated between national and intercountry programmes. Network development was supported with advice on planning, field surveys, assistance in the preparation of technical specifications and co-ordination of bilateral and multinational activities, particularly in relation to the implementation of intercountry and related links in the region. Though the implementation of the terrestrial links in the western part of the region is facing some delays, the progress in South Asia, in general, was satisfactory with procurement action and funding arrangements having been pursued on a number of proposals involving the countries of the sub-region.

Assistance given to projects in 1979 included:

— specifications for a digital trunk exchange in Singapore;

— a detailed survey of possible sites for additional satellite stations in Singapore;

— co-ordination in the implementation of the intercountry microwave link between India and Bangladesh with follow-up on procurement of equipment and on the installation schedule;

— follow-up on the implementation of the Bangladesh—Nepal microwave link, particularly with regard to the related domestic routes in Bangladesh;

— co-ordination in finalizing the speci-

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fications and implementing the India—Pakistan coaxial cable link;

— specifications for an international telephone exchange in Bangladesh;

— consultations with the United Nations Educational, Scientific and Cultural Organization (UNESCO) on the use of the Asian Telecommunication Network for an exchange of news and feature programmes in Asia.

d) In the Pacific

For the countries in the Pacific, 1979 saw the beginning of the implementation of the feasibility studies conducted in the previous years. The main activities in 1979 were:

— preparation of tender documents, adjudication of tenders and follow-up on contract negotiations with suppliers regarding four major contracts for Fiji, Western Samoa and Tonga, the finances for which were provided by the European Economic Community (EEC). These contracts were in connection with the gateway telephone exchanges for Western Samoa and Tonga, earth stations and related facilities for Western Samoa, single channel per carrier (SCPC) equipment and a telex exchange for Fiji;

— a plan for the development of telecommunications for Tuvalu was prepared. On the basis of the plan a tender document was prepared for the provision of the required international telecommunication component. The tenders were adjudicated at ITU headquarters and contract negotiations were finalized for the turn-key project of the Tuvalu—Fiji HF link;

— continuation of studies by the project team of other aspects relating to the region, such as a distance-teaching service by satellite for the University of the South Pacific, a simple and cost-effective demand assignment system and the use of a transportable satellite earth station during regional natural disasters;

— the provision of continuous advice and assistance in the tariff and accounting fields, leading in the future to simplified accounting systems and, hopefully, to a common regional tariff structure.

The progress in network development was reviewed and endorsed by the representatives of the countries in the region during a regional meeting sponsored by the South Pacific Bureau for Economic Co-operation (SPEC) in November 1979.

In connection with the improvement of international telecommunications for other participating countries, varied action was taken, such as assistance in securing aid funds for the Cook Islands, assistance in evolving various alternatives for international communications for Kiribati, advice on financial and accounting procedures for Papua New Guinea and recommending a suitable telephone switching interface for Nauru to complement its earth station.

e) In the Middle East and Mediterranean Basin

Following the adoption of the Master Plan at the final meeting of the project Feasibility Study/Pre-investment Survey for the Middle East and Mediterranean Basin Telecommunication Network, in September 1978, follow-up activities for

New equipment expands telecommunications capabilities (Saudi Arabia)

the implementation of the regional network commenced in January 1979.

The major achievements during the year were:

□ Within the framework of the Project

A firm plan to standardize the international signalling system among the countries of the region was recommended at the Signalling Conference held at ITU headquarters on 29 and 30 May 1979.

More involvement of the Arab regional organizations (Arab Telecommunication Union—ATU; Arab States Broadcasting Union—ASBU; Arab Satellite Communications Union—ARABSAT) in the implementation of the project in order to harmonize activities in the 21 Arab States, out of the 28 countries participating in the project.

Finalization of the project objectives and detailed work plan to be reviewed annually.

It should also be noted that seven Arab States pledged voluntary contributions amounting to more than 40% of the total 1980 cost of the follow-up project on the development of the telecommunication network in the Middle East and the Mediterranean Basin. The remaining funding will come from the UNDP.

□ By countries of the region following the Master Plan

Links put into service:

Iraq—Syria by microwave
Saudi Arabia—Sudan by microwave
Libya—France by submarine cable.

Links, stations and international centres under implementation:

Syria—Iraq by coaxial cable
Jordan—Syria by microwave
Syria—Turkey by microwave
Iraq—Kuwait by coaxial cable

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Greece—Syria by submarine cable

Bahrain—Qatar—United Arab Emirates by submarine cable

Saudi Arabia—Qatar by microwave

Saudi Arabia—United Arab Emirates by microwave

Saudi Arabia—Yemen A.R. by microwave

Algeria—France by submarine cable

Standard B earth station in Aden, Yemen (P.D.R. of)

Standard B earth station in Djibouti

International transit switching centre in Damascus, Syria

International transit switching centre in Amman, Jordan.

3.2 The strengthening of national telecommunication technical and administrative services in developing countries

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

In 1979, 198 expert missions (34%) were devoted to this type of activity. While the experts concerned acted, for the most part, as advisers, they were also called upon to participate actively in the execution of projects in a number of countries due to the lack of qualified counterparts who were then trained on the job whenever possible. In addition, a number of experts acted as officials, holding operational and executive posts. (National projects under implementation in 1979 are

identified on the world map published in conjunction with this report—*insert.*)

3.3 The development of human resources for telecommunications

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

Fifty-four per cent (315) of all the expert missions in 1979 (584) dealt directly with the development of human resources in telecommunications, the experts serving as instructors, lecturers, training experts or project managers. On a regional basis, the percentage of missions devoted to the field of training was 54% in Africa, 47% in the Americas, 73% in Asia and the Pacific and 41% in the Middle East.

The Union acted as executing agency for important training projects in:

a) Africa

Country projects:

Algeria, Angola, Morocco, Nigeria, So-

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malia, Tunisia and the Zambia-based training project for Namibians.

Multinational projects:

Malawi (Botswana, Lesotho, Malawi, Swaziland).

Senegal (Benin, Central African Republic, Guinea, Ivory Coast, Mali, Mauritania, Niger, Senegal, Togo, Upper Volta).

b) The Americas
Country projects:

Brazil, Guyana, Haiti, Jamaica, Suriname, Trinidad and Tobago.

c) Asia and the Pacific
Country projects:

Afghanistan, Bangladesh, Burma, India, Indonesia, Nepal, Pakistan, Papua New Guinea.

Multinational projects:

Fiji (Cook Islands, Fiji, Kiribati, Nauru, New Hebrides, Niue, Tokelau Islands, Tonga, Tuvalu, Western Samoa).

Singapore (Afghanistan, Burma, Cook Islands, Fiji, Hongkong, India, Indonesia, Korea (Republic of), Malaysia, Maldives, Nepal, Pakistan, Papua New Guinea, Philippines, Singapore, Solomon Islands, Sri Lanka, Thailand, Tonga, Western Samoa).

d) The Middle East
Country projects:

Jordan, Kuwait, Saudi Arabia.

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

Furthermore, a number of training projects provided for one or two experts or instructors who assisted with the development/activities of national training schools (Argentina, Cameroon, Chad, Chile, Colombia, Ecuador, Guatemala, Honduras, Kenya, Netherlands Antilles, Niger, Pakistan, Peru, Portugal, Qatar, Rwanda, Trinidad and Tobago, Turkey).

It is worth while to note the efforts by the Union geared towards the establishment of the following multinational instiutions for high-level and advanced training:

— Multinational high-level telecommunication training school *(Ecole supérieure multinationale des télécommunications)*, Dakar, Senegal. This school will cover training requirements of French-speaking countries in West Africa and possibly in Central Africa. A first course is planned for October 1980 following UNDP/ITU preparatory assistance provided since mid-1979.

— African Regional Advanced Level Training Institution (AFRALTI), Nairobi, Kenya. This institution will cover training requirements of Eastern and Southern African countries. The creation of this new institution was recommended by the various countries concerned during a meeting on telecommunications training needs for Eastern and Southern African countries, held in Addis Ababa, Ethiopia, from 24 to 27 April 1979, with representatives of the OAU, PATU, UNDP and ITU. The meeting also reviewed the basic and medium level training requirements of the 13 countries concerned.

In accordance with the resolution adopted by this meeting, ITU consultants have prepared consolidated proposals for the creation or strengthening of national and multinational schools at the basic and medium level, and for the creation of AFRALTI. These proposals are being submitted to all governments concerned and to various financing institutions so as to meet the various requirements as early as possible. Meanwhile financing has already been secured for some of the national and multinational project proposals.

Other significant points to be mentioned in respect of the development of human resources in the field of telecommunications are the progress of the UNDP/ITU interregional project on Course Development in Telecommunications (CODEV-TEL) and the information on fellowships and seminars.

4. Analysis of ITU inputs

4.1 Experts in the field

In 1979, 584 expert missions (totalling 3203 man-months of service) were executed by 497 experts (as against 543 missions executed by 478 experts in 1978) comprising:

— 442 missions under UNDP, including 12 OPAS assignments (168 in Africa, 83 in the Americas, 101 in Asia and the Pacific, 83 in Europe and the Middle East and 7 interregional);

— 78 missions under Trust Funds (FT), including 6 FT/OPAS assignments (16 in Africa, 10 in the Americas, 52 in Europe and the Middle East);

— 32 associate expert assignments (9 in Africa, 8 in the Americas, 12 in Asia and the Pacific, 3 in Europe and the Middle East);

— 21 short missions financed by the Union under Resolution No. 17 of the Plenipotentiary Conference (Malaga-Torremolinos, 1973);

— 5 missions in Lesotho and Swaziland financed under UNDP/Swedish International Development Agency (SIDA)/ITU;

— 1 mission under the ITU Special Fund for Technical Co-operation;

— 5 missions under the Operational Fund (Administrative Council Resolution No. 798).

In addition to the expert missions listed above, 4 projets were implemented under sub-contracts, carrying a manpower element.

The 497 experts mentioned above were nationals of 48 countries Members of the Union. These experts executed the 584 missions as detailed in table 2 which gives classification by nationality.

From 1975 onwards, there has been a significant improvement in the time required for the recruitement of experts due to the continuing trend towards a greater percentage of short missions for which release and clearance were easier and more rapid to obtain. This trend has become increasingly clear during the past four years and is a reflection of the changing requirements in expertise.

The telecommunication administrations have been most co-operative in releasing highly-qualified specialists to meet the short-term demand. In those cases where ITU has been in a position to request a candidate by name and that candidate has been available, the time element has

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Table 2

number of experts	national of (country)	number of experts	national of (country)
93 (114)	United Kingdom	2 (3)	Austria
62 (72)	France	2	Argentina
45 (54)	India	2	Colombia
	Germany	2	Costa Rica
39 (42)	(Federal Republic of) [1]	2	Jordan
36 (40)	Netherlands [2]	2	Sri Lanka
31 (38)	Sweden [3]	2	Yugoslavia
20 (28)	Italy	1 (2)	Lebanon
17 (19)	Switzerland	1	Algeria
13 (17)	Norway [4]	1	Central African
12 (17)	Canada		Republic
12 (13)	United States	1	Chile
11 (13)	Egypt	1	Cuba
11 (12)	Poland	1	Ghana
11	Australia	1	Greece
10	Japan [5]	1	Guyana
7 (10)	New Zealand	1	Indonesia
9	Pakistan	1	Malaysia
5 (6)	USSR	1	Nepal
5	Portugal	1	Peru
4 (7)	Ireland	1	Philippines
4	Finland	1	Sudan
3 (4)	Belgium	1	Syria
3	Denmark [6]	1	Turkey
3	Ethiopia	1	Upper Volta
		497 (584)	

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

[1] Including 8 associate experts.
[2] Including 18 associate experts.
[3] Including 1 associate expert.
[4] Including 1 associate expert.
[5] Including 1 associate expert.
[6] Including 3 associate experts.

been reduced considerably. Where ITU's requests for expertise have necessitated prospection by the telecommunication administrations, the time factor was greater, unless the administration had a reference system of ready access to probable candidates to facilitate the process. The existence of such candidate identification systems is certainly extremely helpful and the effort put in by administrations to this end is worthy of note and praise.

During the year under report, prospection was carried out for 514 posts (against 444 in 1978) although in fact activity was under way on a total of 589 posts, 75 having been either indefinitely shelved or cancelled.

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A total of 1299 (1161 in 1978) candidatures were examined by the Union for 376 (411 in 1978) posts for which date limits were reached during 1979.

4.2 Associate expert assignments

On the basis of agreements for the provision of associate experts concluded between the Union and the Governments of Denmark, Federal Republic of Germany, Finland, Japan, Netherlands, Norway, and Sweden, 32 associate experts (3 from Denmark, 8 from Federal Republic of Germany, 1 from Japan, 18 from the Netherlands, 1 from Norway and 1 from Sweden) served on the Union's projects in 1979. All the associate experts, except two who executed technical missions in the South Pacific, were engaged in the training of local staff at the Union's training centre projects in Afghanistan (3), Bangladesh (2), Botswana (1), Haiti (2), Jamaica (3), Jordan (2), Kenya (1), Lesotho (1), Malawi (2), Morocco (1), Nepal (1), Papua New Guinea (2), Somalia (2), Suriname (3), Yemen A.R. (1), Zambia (1) and South Pacific Regional (2 stationed in Fiji).

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

4.3 Volunteers

During 1979, the Union benefited from the services of nine volunteers under the United Nations Volunteer Programme.

These volunteers were assigned to projects in Gambia, Jamaica, Papua New Guinea, Somalia and the Yemen A.R. All are graduates of universities or technical colleges.

4.4 Administrative support personnel

During the year under report, 64 administrative support personnel (administrative assistants, secretaries and drivers) were employed at ITU projects in 25 different countries. Of these, 58 were engaged at UNDP/ITU projects and 6 at a project financed under Trust Fund arrangements until 30 June 1979.

4.5 Fellowships

During 1979 the Union dealt with 618 fellowships awarded for study programmes that commenced, continued or terminated in one or more host countries.

The geographical distribution of the fellowship holders, who realized 984 man-months, excluding short-term awards, was the following:

	man months	(%)
Africa	222	36.0
Americas	101	16.3
Asia	162	26.2
Europe	32	5.2
Middle East	101	16.3

These figures comprise:

a) 438 fellowships awarded under the UNDP, including short-term awards to participants in:

— training workshops (CODEVTEL) held in Trinidad and Tobago, Kuala Lumpur, Nairobi, Brasilia, Tunis and Dacca;

— a co-ordination meeting for the Middle East and Mediterranean Basin telecommunication network held at ITU headquarters;

— a conference on signalling, in connection with the Middle East and Mediterranean Basin telecommunication network, held at ITU headquarters;

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— a seminar on "Rural telecommunications" held in China;

b) 175 fellowships financed jointly by UNDP, Trust Funds and the ITU Special Fund for Technical Co-operation were awarded to participants in the three seminars preparatory to the World Administrative Radio Conference (WARC-79) organized in Nairobi, Panama City and Sidney;

c) 5 fellowships administered by the Union but financed by Belgium as a contribution in kind to the Special Fund for Technical Co-operation.

Once more the Union was able to implement the fellowship programme thanks to the co-operation of the administrations of the host countries. In 1979 many fellowship holders received training in more than one country.

The principal host countries, except for seminars, are given in table 3.

Programmes were also organized in other industrialized and developing countries: Algeria, Brazil, Costa Rica, Ireland, Ivory Coast, Luxembourg, Madagascar, Malaysia, Morocco, Norway, Portugal, Senegal, Spain, Tunisia, Uruguay, Venezuela and Zambia.

Furthermore, programmes were arranged for 18 fellows at ITU headquarters.
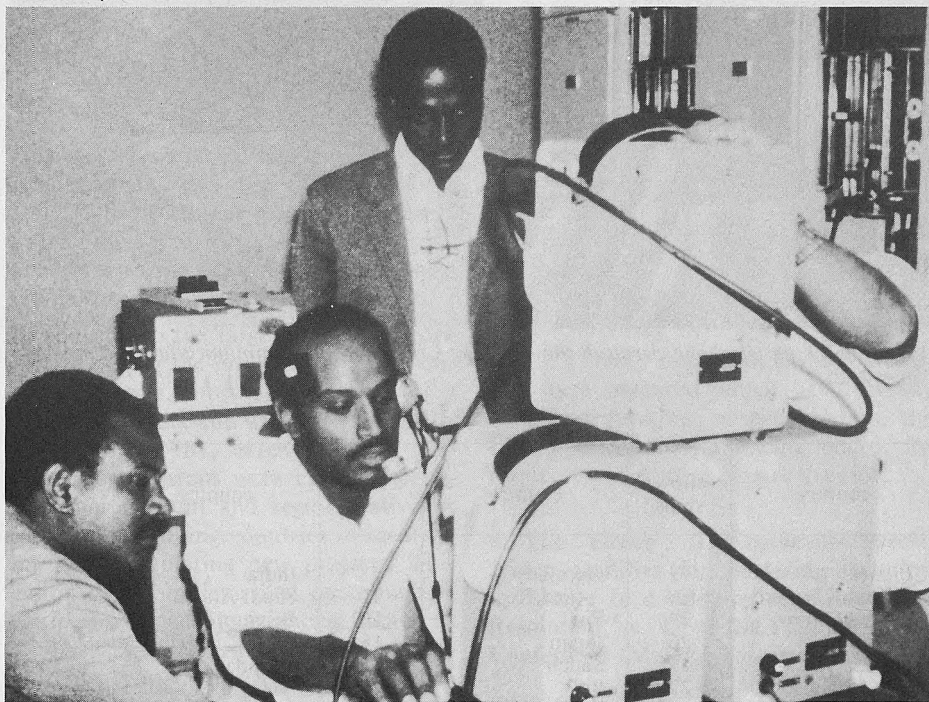
Installation testing (Ethiopia)

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4.6 Procurement of equipment

In the course of 1979, equipment was ordered from suppliers in 28 countries/territories.

More than 80% of the equipment was ordered from suppliers in Australia, the Federal Republic of Germany, Japan, United Kingdom, United States, and Switzerland.

The equipment ordered (6 489 793 dollars' worth) represents a 13.8% increase compared with the total for 1978 (5 703 265 dollars).
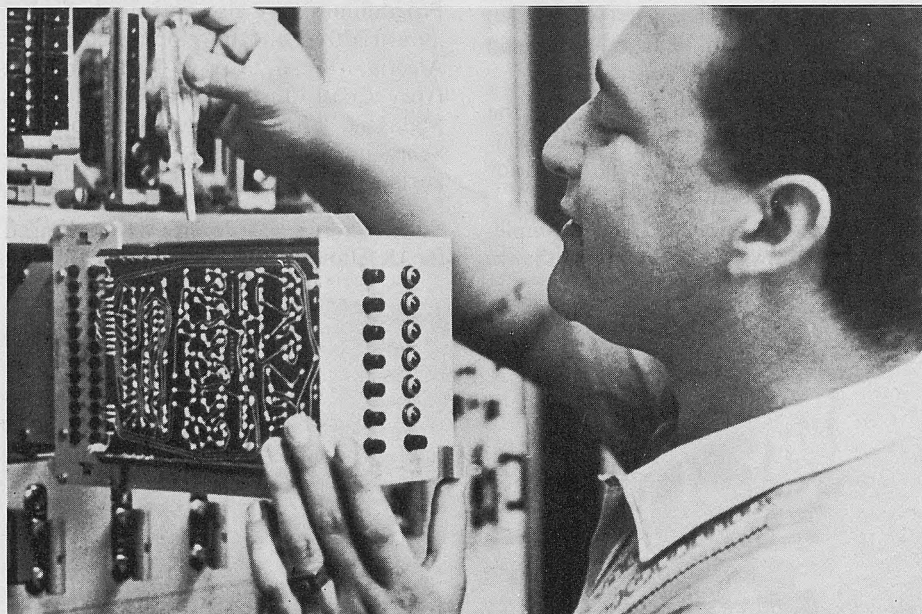
Trainee checking telephone circuit at the Training Centre for Telecommunications Technicians (Venezuela)

Table 3

country	fellow-ships	country	fellow-ships	country	fellow-ships
France	79	Germany		India	11
United Kingdom	66	(Fed.Rep.of)	22	Saudi Arabia	10
United States	29	Fiji	16	Belgium	10
Singapore	26	Japan	16	Egypt	9
Sweden	24	Sudan	15	Canada	8
Switzerland	22	Italy	14	Australia	5
		Netherlands	12		

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The value of equipment delivered during 1979 to field projects was 6 609 758 dollars against 5 837 032 dollars in 1978. This figure also includes equipment ordered in 1978 or before but not delivered until 1979. As at 31 December 1979, the value of purchase orders still pending amounted to 2 150 569 dollars and the Union had received new requisitions of the order of 2 287 200 dollars. In 1979, the Union dealt with the procurement of equipment for 80 projects, 11 of which were multinational.

4.7 Sub-contracting

During 1979, the Union entered into four new contracts, in which four companies were involved. Four projects were concerned with sub-contracting.

5. Preparation of new projects

During 1979, the Union was in continuous contact with the administrations and UNDP Resident Representatives in developing countries in particular in connection with the preparation of the third UNDP programming cycle (1982-1986).

In addition to the large volume of work carried out for the implementation of ongoing projects, most of which are of a long-term nature and will extend over the period 1980-1981, extensive work and numerous missions were carried out by headquarters staff and regional advisers to assist developing countries in identifying and formulating new projects. This action was complemented by numerous contacts with various financing bodies, as UNDP assistance cannot cover all requirements in this sector. It should also be noted that many countries have become aware of the advantages in obtaining technical assistance from the Union and a number of new projects are now being financed by the countries concerned under Trust Fund or cost-sharing arrangements.

An important activity under the above heading took place in the African region, where headquarters staff together with regional experts and regional advisers were heavily engaged in analysing requirements and preparing a development strategy with detailed project proposals for the Transport and Communications Decade in Africa (1978-1987). This activity also necessitated various missions and attendance at numerous co-ordination meetings with government representatives and other agencies of the United Nations system. The priorities set for the Decade facilitated approval for additional allocations from various sources, including UNDP, to finance some of the most important regional projects recommended by the Union for the immediate future (e.g. high- and advanced-level training, operation and maintenance of the PANAFTEL network, additional surveys for PANAFTEL routes) although further funding will be needed.

In 1979 many important project proposals were prepared which have already been approved by, or proposed to, the UNDP and other financing bodies for implementation in the years to come.

6. The Group of Engineers—Special Union facilities for rendering technical assistance to developing countries under Resolution No. 17 of the Plenipotentiary Conference (Malaga-Torremolinos, 1973)

The Group of Engineers was at full strength in 1979 and throughout the

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whole year was fully occupied with a considerable number of technical assistance requests.

In view of the wide range of specialities required, a number of requests were responded to by hiring the services of outside specialists. In all, 24 missions were carried out by outside specialists to render the required assistance.

The activities of the Group of Engineers may be broken down under four headings. Most of the work completed falls under the first two.

6.1 Assistance rendered to some administrations on request

Afghanistan: preparation of tender specifications for an international switching centre.

Bangladesh: national telephone network, switching system selection.

Barbados: taking stock of the situation with a view to setting up and installing in Barbados a "maritime and fixed VHF emergency network" (study comprising: technical description of the system proposed and specifications; propagation survey; financial analysis).

Bulgaria: network planning with the aid of computers.

Burundi: planning and operation of a satellite earth station.

Costa Rica: tender evaluation of telephone switching project.

Egypt: evaluation of training programmes and of criteria for the award of certificates for radio officers at the Arab
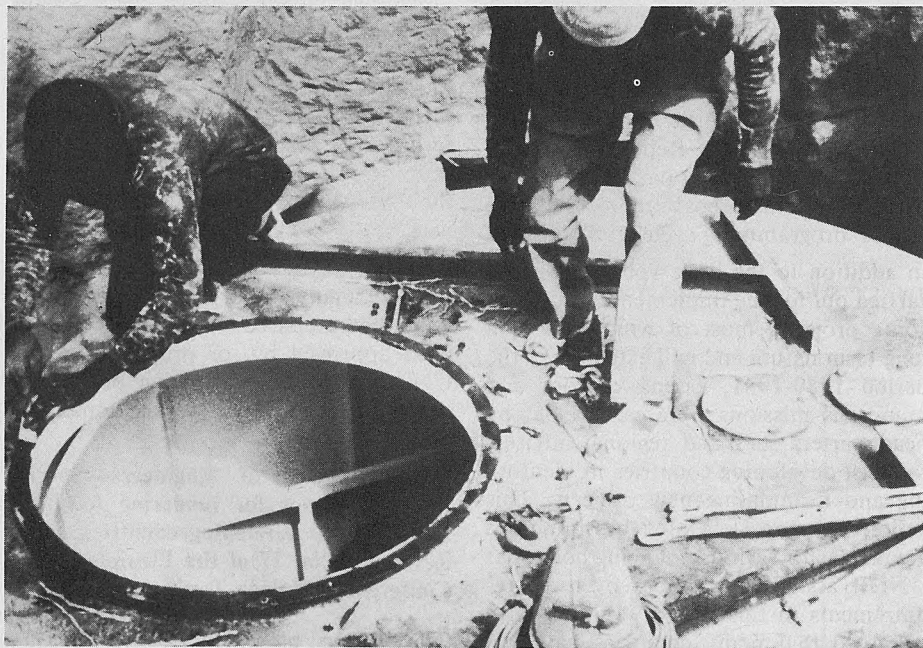
Burying an underground container for radio equipment (West Africa)

Maritime Transport Academy; lectures: Trends and future direction of maritime radiocommunications.

Gabon: organization of telecommunication documentation services.

Gambia: financial and technical analysis of telecommunication services.

Guinea: evaluation of bids for maritime communication equipment.

Haiti: preliminary survey and introductory course on traffic measurements and forecasts.

Liberia: proposal for tariffs revision (international and national traffic).

Madagascar: advice on the establishment of a monitoring service (receiving and measurement centre).

Malta: study on traffic and statistics (statistical requirements for telecommunication management).

Netherlands Antilles: preparation of a manual *Organization and management* intended for the staff of local services and the Telecommunication Administration.

Pakistan: definitive studies concerning the modernization and the reorganization of the mobile maritime services (coast station network): technical proposal; requirements for the project (training and equipment); financial analysis.

Senegal: study on the fading of radio waves in Senegal.

Seychelles: evaluation of various proposals concerning the development of "Radio Seychelles" (advice on development of broadcasting services).

Suriname: supervision of the installation of multiplex equipment and acceptance tests.

Syria: measurements of earth station antennae; studio equipment for radio/television for the ASBU Institute located in Damascus.

Yemen (P.D.R. of): bid evaluation of telephone switching systems.

6.2 Support and advice to specific technical co-operation projects implemented by the Technical Co-operation Department

Africa: drafting of final report, "Preliminary studies concerning the development of maritime radiocommunication in Africa".

Congo: international tariffs: accounting of switched transit traffic.

Congo/Kenya: PATU conference on telecommunications tariffs.

Morocco: maintenance organization project.

Portugal: study on reorganization of qualitative maintenance (formulation of a plan of reorganization).

Tunisia: maintenance organization project.

Global project: methodology field research in rural areas.

6.3 Active participation in and contributions to various meetings

Bahrain: meeting of experts for the establishment of a maritime emergency mutual aid centre.

Geneva (ITU): signalling meeting— Middle East and Mediterranean Basin telecommunication network.

Germany (Federal Republic of): seminar on telecommunication techniques in rural areas.

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San Marino: regional meeting on natural disasters for the countries of the Mediterranean Basin.

6.4 Special activities undertaken on the instructions of the Secretary-General

Austria: conference on science and technology.

France: meeting of GAS 6—tender evaluation methods.

France/United Kingdom: fact-finding mission regarding trends in radiobroadcasting and television studio equipment.

United Kingdom: participation at the second Advisory Working Party of the Teletraffic project in view of the definition of the curriculum of the basic course and the specialized course in teletraffic.

United States: UNESCO conference concerning the "Preparatory Meeting of Experts for the Intergovernmental Planning Conference to Develop Institutional Arrangements for Systematic Collaborative Consultation on Communication Development Activities, Needs and Plans".

On all occasions (except for meetings in Geneva), it was necessary for a member of the Group of Engineers or an outside specialist to visit the administration/country concerned in order to carry out the mission in question.

The necessary preparations were made for the following missions in January 1980:

Burundi: bid evaluation for an international switching centre.

Malta: traffic studies and a viability study for a satellite earth station.

Oman: operation of the international switching centre.

San Marino: broadcasting.

Thailand: reorganization of the frequency test section.

A total of 300 081 Swiss francs was disbursed in application of Resolution No. 7 out of the ordinary budget of the Union.

The engineers spent about 65% of their time on activities related to missions outside Geneva including preparation, actual time spent on mission and follow-up activities.

Within the framework of their activities the engineers have maintained close contact with the International Radio Consultative Committee (CCIR), the International Telegraph and Telephone Consultative Committee (CCITT), and the International Frequency Registration Board (IFRB) and, wherever applicable, with the CCIs' Study Groups in session in Geneva.

The members of the Group of Engineers were frequently consulted by staff of telecommunication administrations visiting Geneva, in particular during TELECOM 79 and WARC-79.

One member of the Group of Engineers dealt on a part-time basis with a pilot project on the organization of a maintenance system in Morocco, financed by the UNDP. Another member of the Group of Engineers continued to deal on a part-time basis with the co-ordination and implementation of the project on integrated rural development.

The members of the Group of Engineers have sought the opportunity to up-date their knowledge of developments in their respective fields, mainly through corre-

Student testing an underground cable pillar (Cook Island)

spondence with manufacturers on specific technical problems.

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

The second phase of the interregional project on Course Development in telecommunications (CODEVTEL) began on 1 January 1979. The project is financed by the UNDP and will last for four years. As a result of the positive results of the first phase, the project has been integrated into the activities of the Technical Co-operation Department, and its methods are increasingly being applied in training projects.

Seventy-eight countries had previously intimated their desire to participate in the project and, by the end of 1979, 36 of these had given their formal approval. Visits were made to almost all of them to assist in initiating surveys of training requirements. Most of the remaining 42 countries have also been visited in order to provide the administrations with further information on the aims and execution of the project.

A major result was the preparation and publication in provisional form of the *Training development guidelines* prepared under the CODEVTEL project. This document, issued in English, French and Spanish, provides concrete standards and guidelines for the development of training and also serves as a reference manual for internationl co-operation in this field.

Eight workshops for training course developers were held, in Bangladesh, Ecuador, Kenya, Malaysia, Portugal (2), Trinidad and Tobago, and Tunisia. The workshop is given in two parts, each of two weeks' duration, with an interval of several months between the first and second parts. As a general rule, each workshop grouped participants from several administrations and a total of 127 course developers completed or began their training during the year.

To ensure co-ordination of the training development activities in Latin America, the first Regional symposium on telecommunication training methodology was convened in Brasilia in November.

The production of training packages is progressing and during the year under review 24 countries undertook or announced their intention of undertaking the development or adaptation of one or more courses using the CODEVTEL methodology.

The Working Group on training standards met in September and the *Reference manual for the design and operation of training establishments* prepared by the Training Division was examined. The Group's views have been incorporated in a revised text being published during 1980. The Manual contains chapters on training policy, manpower planning, physical facilities, management of training, the systems approach to training, socio-cultural aspects, etc.

The Group also considered possible procedures for international co-operation in training development and sharing of training material among administrations and recommended the creation of an International Co-operative Programme for Training Development. In view of the complexity of the issues involved, an *ad hoc* task force met from 14 to 25 April 1980 to prepare specific proposals regarding the structure of the Programme.

The instructor-training workshop developed by the Training Division was administered in Afghanistan, Guatemala, Malaysia and Suriname, to a total of 64 instructors.

As well as travel necessitated by these workshops and by missions concerning CODEVTEL, professional staff of the Training Division carried out advisory or evaluation missions to Burma, Curaçao and Tunisia and visited the Telecommunication Training Centre in Singapore. Staff members also participated in international and inter-agency meetings on educational technology and in a meeting to discuss the findings of the telecom-

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munications training needs survey for Eastern and Southern Africa.

8. Application of other Resolutions of the Plenipotentiary Conference (Malaga-Torremolinos, 1973)

8.1 Special measures for the least developed countries (Resolution No. 19)

In 1979 activities financed from the UNDP Special Fund for the Least Developed Countries (excluding UNDP/ITU projects financed from Indicative Planning Figures of the least developed countries) included:

— telecommunication training and operations, Burundi: initial project activities during 1979 only covered the award of two fellowships;

— National Telecommunication Training Institute (second phase) Mogadiscio, Somalia, where assistance was given by 3 experts for a total period of 32 months, 1 consultant for 2 months and 3 United Nations Volunteers for a total of 26 months;

— financing of a training project for the Yemen Arab Republic under which 31 technicians have received awards for studies in the Arab States in the region.

In 1979 the Union disbursed 290 310 dollars for assistance in the telecommunication field for the above-listed least developed countries.

It is worth mentioning that under Resolutions Nos. 17 and 21 of the Plenipotentiary Conference (Malaga-Torremolinos, 1973), the Union provided expert assistance to seven least developed countries and awarded 8 short-term fellowships to nationals of 24 least developed countries.

8.2 Special Fund for Technical Co-operation (Resolution No. 21)

During the year under report four contributions were made to the Fund:

— Belgium offered 5 fellowships as their contribution in kind to the Fund;

— the Government of Korea (Republic of) contributed in cash 17 200 Swiss francs;

— the Government of the Netherlands contributed in cash 21 023 Swiss francs;

— the Government of Nigeria contributed in cash 12 020 Swiss francs.

In 1979, out of the Fund, a short-term expert mission was financed in connection with the preparation of a report on the state of telecommunication services in the least developed countries.

The Fund also enabled the Union to finance three short-term fellowships for nationals of Belize, Mali and Nepal. Furthermore, the Fund financed the participation of fellowship-holders from 20 least developed countries from Africa, from the Yemen Arab Republic and the People's Democratic Republic of Yemen at the WARC-79 Seminar organized by the Union in Nairobi.

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

In addition, the Congo received equipment to the value of 7723 Swiss francs.

The total expenditure of the Fund during the year amounted to 111 065 Swiss francs.

8.3 Seminars (Resolution No. 25)

In preparation for WARC-79 the Union organized three regional seminars as follows:

□ Nairobi (12-23 February 1979) for the African and Arab countries, financed by the ITU Special Fund for Technical Cooperation with a contribution from the Government of France and held at the Kenyatta Conference Centre at the invitation of the Government of Kenya. Two hundred and four officials from 53 developing countries of the two Regions, 13 lecturers from industrialized countries and 21 observers from various administrations and intergovernmental organizations attended the seminar.

□ Panama (12-23 March 1979) for Latin America and the Caribbean Region, hosted by the Government of Panama, with financial contributions from the Governments of Canada and Sweden. The seminar was attended by 70 officials from 23 developing countries of Region 2, as well as by lecturers and observers from the administrations of other regions and by representatives of international organizations and other institutions.

□ Sydney (29 March-10 April 1979) for Asia and the Pacific Region, jointly financed by the Government of Australia and the UNDP. The Australian Administration hosted the event in Sydney. The seminar was attended by 96 participants from 26 countries of the Region, 12 lecturers from industrialized countries and 47 observers from various administra-

tions and intergovernmental organizations.

The following developed countries provided, free of charge, lecturers to the three above-mentioned seminars: Australia (3), Canada (3), France (3), Federal Republic of Germany (2), Italy (1), Japan (3), Sweden (1), United Kingdom (3), United States (5) and USSR (4).

In collaboration with the Government of China, the Union organized a study tour from 27 August to 15 September 1979 in China on rural telecommunication infrastructure. Fourteen participants from 14 countries of the region attended the tour, which was financed by the UNDP.

A regional seminar preparatory to the Regional Administrative MF Broadcasting Conference (Region 2) was held in Brasilia from 16 to 20 July 1979 and attended by 39 representatives of 21 countries of the region. The seminar was organized by the Brazilian Administration in collaboration with the Union, pursuant to a resolution adopted by the 3rd meeting of CITEL.

The Administration of Brazil provided most of the funds required for the implementation of the seminar, the remainder being supplied by an allocation from the UNDP.

The Posts and Telecommunications Administration of the Federal Republic of Germany, with the participation of the Union, organized a seminar on telecommunication techniques in rural areas, which took place from 28 May to 9 June 1979 in Hamburg. Forty officials from 37 developing countries participated, their expenses being partially covered by the host country.

8.4 Training of refugees (Resolution No. 24)

In close consultation with the OAU, the ITU has, since 1977, assisted the South West African Peoples Organization (SWAPO) in the training of Namibians under a UNDP project which has been extended up to 31 December 1980. The project is being implemented at the Posts and Telecommunications Training College, Ndola, Zambia.

During 1979, 31 training courses were delivered for a total of 502 trainee weeks in electricity, electronics, basic telephony and telegraphy, as well as postal services, to a total of 37 trainees. The training programme included field practice periods of varying duration.

Upon completion of their training most of the Namibian trainees are posted with the Posts and Telecommunications Corporation in Zambia where they acquire valuable experience in their work.

Together with UNESCO, the ITU will provide training in radio programme production and equipment maintenance for Namibian nationals. The ITU will purchase a VHF–FM transmitter, similar to those already in use in Namibia, and train technicians in its operation and maintenance to ensure the continuity of broadcasting services following independence.

After an initial analysis of the requirements of Namibia for further trained telecommunication personnel, the ITU has proposed a fellowship programme for Namibian nationals. Resources for its implementation are not yet available and the Union will continue to seek funding.

The Union has had several contacts with the representatives of the Palestine Liberation Organization (PLO) in connection with the provision of training facilities for refugees. As a result of these discussions, in 1980 the PLO will be invited to attend the technical seminars organized within the framework of the project on the implementation of the Middle East and Mediterranean Basin Telecommunication Network. Two fellowships for each seminar will be awarded through this project to two Palestinian technicians proposed by the PLO.

9. Operational Fund—Application of Resolution No. 798 of the Administrative Council

In 1979, four short-term consultant missions were carried out in connection with the preparation of a report on the state of telecommunication services in the least developed countries.

Furthermore, out of the Fund one Regional adviser for Africa was financed during a 2-month period until UNDP financing was obtained.

The total disbursement in the course of the year amounted to 60 198 Swiss francs, so that on 31 December 1979 the balance of the Fund stood at 24 385 Swiss francs.

10. Financial resources

In providing technical assistance to developing countries, the Union remained fully dependent on external financial resources, except for the assistance rendered by the Group of Engineers and also through the Operational Fund and the contributions made by the specialized secretariats of the CCIR, the CCITT and

the IFRB. Thus, in 1979, 20 716 336 dollars (79.5%) of the total value (26 064 268 dollars) of assistance rendered to developing countries was financed by UNDP, while the remainder (5 347 932 dollars) came from Trust Funds, associate expert arrangements and other sources.

Table 4 shows the source of financing in 1979 classified by region.

10.1 United Nations Development Programme

In 1979, 162 projects were assigned to the Union by the UNDP, 142 of which were country projects (54 in Africa, 23 in the Americas, 34 in Asia and the Pacific and 31 in Europe and the Middle East). The remaining 20 consisted of 19 regional/multinational projects (9 in Africa, 2 in the Americas, 6 in Asia and the Pacific, 1 in Europe and 1 in the Middle East) and one inter-regional project. During the year under report, 22 projects were completed and 15 had no activity.

Out of 162 UNDP/ITU projects, 42 required major contributions by the governments concerned and the UNDP. Twenty-five of these projects were in training sphere, the remainder concerned development of networks, facilities, services or research (16) and feasibility study (1).

Furthermore, in 1979 the UNDP financed the services of 11 Regional advisers, as against 7 in 1978. In order to meet pressing requirements for such expertise in the Middle East and Latin America, the UNDP financed 3 Regional adviser posts out of its special alloction for "sectoral support".

It should be noted that the development in the UNDP/ITU technical assistance

activities of regional (sub-regional/multinational) character further improved in the course of the year. The total input under these projects amounted to 3 596 584 dollars as against 3 076 584 dollars in 1978.

In addition, in 1979, the Universal Postal Union (UPU) was associated with the Union, for the postal section, in the execution of the following projects for which the Union is the executing agency: training centres in Afghanistan, Argentina, Burma and Portugal.

The Union continued to participate in one UNESCO project for the development of sound and television broadcasting in Bangladesh.

The Union was also responsible for the implementation of projects in three least developed countries financed from the UNDP Special Fund for Least Developed Countries.

As a result of its improved financial situation in 1979, the UNDP made a contribution to the Union's technical co-operation activities of 20 716 336 dollars, which in dollar terms is 29.2% higher than in 1978. This is the highest implementation figure so far achieved by the ITU under the UNDP programme. However, it should be noted that, due to the new trend of project activities, the number of experts' man-months implemented in 1979 reached the same level as in 1974 (2450 months) while the number of experts' missions increased during the same period by 46.3% from 315 experts in 1974 to 442 experts in 1979.

In real terms also, the Union's activities under the UNDP were increased in 1979 as compared with 1978. Thus the number of experts' man-months delivered in-

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Table 4

financial resources	Africa	Americas	Asia and Pacific	Europe and Middle East	inter-regional	total
	(US dollars)					
UNDP	6 805 711	4 395 333	5 521 353	3 793 868	200 071	20 716 336
Trust Funds	435 922	477 832	81 415	3 395 852	—	4 391 021
associate experts	275 586	146 329	227 430	84 389	11 622	745 356
other sources	206 267	4 153	1 135	—		211 555
total	7 723 486	5 023 647	5 831 333	7 274 109	211 693	26 064 268
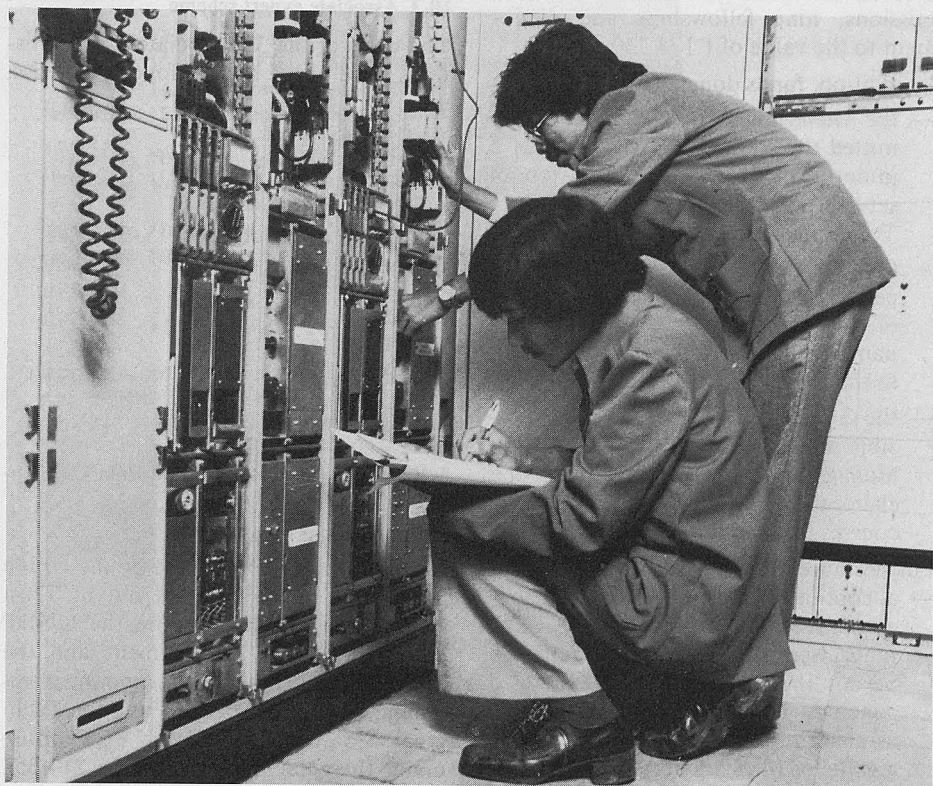
Master control station, Cibinong (Indonesia)

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creased by 17.1% and the fellowship man-months delivered increased by 12.6%. Finally, 21.6% more equipment, in US dollar terms, was delivered than during the previous year.

10.2 Trust Funds

During 1979, Trust Fund arrangements were in force between the Union and each of the following countries: Argentina, Guatemala, Kuwait, Netherlands Antilles, Niger, Oman, Qatar, Saudi Arabia, Yemen A.R., Yemen (P.D.R. of), and Zaire. Assistance was provided to these countries in the form of 62 expert missions, nine fellowships and equipment to the value of 1 173 739 dollars.

In addition, funds donated by:

— the Government of Switzerland permitted the continued assignment of 2 junior experts and the provision of services for the National School of Telecommunications in Chad;

— the Government of the Netherlands permitted the continued assignment of a 4-man team of experts for Suriname and the purchase of equipment to the value of 84 980 dollars;

— the Government of Sweden made possible the appointment of a Project Manager for a project aimed at the elaboration of teletraffic engineering courses for world-wide dissemination.

Furthermore, on the basis of:

— a contract signed between the Government of Somalia and the EEC, funds were provided by the latter to permit the one remaining expert to conclude his mission in Mogadiscio as also the purchase of equipment to a value of 1463 dollars;

— funds made available by the ABEDA

for the development of the telecommunication network in Africa, 6 experts carried out feasibility study missions in various countries in Africa;

— funds made available by Gulf Vision (representing the Governments of Bahrain, Iraq, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates) for a propagation survey project, one expert in meteorology undertook an exploratory mission in the Gulf States.

Total Trust Fund contributions amounted to 4 391 021 dollars.

10.3 Associate expert scheme

The costs of the 32 associate expert missions were borne by the donor countries, i.e.:

	dollars
Denmark	51 071
France	(2 598)*
Germany (Federal Republic of)	213 481
Japan	22 585
Norway	1 299
Netherlands	349 699
Sweden	41 524
Switzerland	68 295
Total	745 356

* Reimbursement on fares and from UN Pension Fund.

10.4 Other sources

Five experts were provided by the Union to Lesotho and Swaziland out of Trust Fund arrangements between the UNDP and the Swedish Government and the Union furnished a limited amount of assistance under its Special Fund for Technical Co-operation. Total expenditure under these items amounted to 211 553 dollars.

Other information publications on the ITU:

Book — From semaphore to satellite, 1793-1965 (1965)

Booklet No. 1 — 1865-1965, a hundred years of international co-operation (1967)

Booklet No. 2 — ITU and space radiocommunication (1968)

Booklet No. 3 — Eighth Report by the International Telecommunication Union on telecommunication and the peaceful uses of outer space (1969)

Booklet No. 4 — Symposium "Space and Radiocommunication", Paris, 1969 (1969)

Booklet No. 5 — World Telecommunication Day—17 May 1969 (1969)

Booklet No. 6 — Ninth Report by the International Telecommunication Union on telecommunication and the peaceful uses of outer space (1970)

Booklet No. 7 — World Telecommunication Day—17 May 1970 (1971)

Booklet No. 8 — Tenth Report by the International Telecommunication Union on telecommunication and the peaceful uses of outer space (1971)

Booklet No. 9 — Speeches made at the inaugural meeting of the second World Administrative Radio Conference for Space Telecommunications on 7 June 1971 (1971)

Booklet No. 10 — Eleventh Report by the International Telecommunication Union on telecommunication and the peaceful uses of outer space (1972)

Booklet No. 11 — Twelfth Report by the International Telecommunication Union on telecommunication and the peaceful uses of outer space (1973)

Booklet No. 12 — Inauguration of the ITU tower (1973)

Booklet No. 13.— PANAFTEL—The Pan-African telecommunication network (1974) (1979)

Booklet No. 14 — Symposium "Space and Radiocommunication", Paris, 1973 (1974)

Booklet No. 15 — Thirteenth Report by the International Telecommunication Union on telecommunication and the peaceful uses of outer space (1974)

Booklet No. 16 — What is ITU? (1974) (1979)

Booklet No. 17 — Fourteenth Report by the International Telecommunication Union on telecommunication and the peaceful uses of outer space (1975)

Booklet No. 18 — Space radiocommunications system for aid following natural disasters (1975)

Booklet No. 19 — Fifteenth Report by the International Telecommunication Union on telecommunication and the peaceful uses of outer space (1976)

Booklet No. 20 — Centenary of the telephone (1976)

Booklet No. 21 — Sixteenth Report by the International Telecommunication Union on telecommunication and the peaceful uses of outer space (1977)

Booklet No. 22 — Telecommunication and development (1978)

Booklet No. 23 — Seventeenth Report by the International Telecommunication Union on telecommunication and the peaceful uses of outer space (1978)

Booklet No. 24 — The ITU and vocational training (1978)

Booklet No. 25 — Eighteenth Report by the International Telecommunication Union on telecommunication and the peaceful uses of outer space (1979)

Booklet No. 26 — Fifty years of the CCIR (1979)

Booklet No. 27 — Nineteenth Report by the International Telecommunication Union on telecommunication and the peaceful uses of outer space (1980)

ITU'S WORLDWIDE TECHNICAL CO-OPERATION

ARCHIVES U.I.T. GENÈVE

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National Telecommunications Laboratory
Message switching centre
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Training of teaching personnel and promotion of research in telecommunications

Cuba 4
Development of telecommunication services

Ecuador 10
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El Salvador 3
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Assessment of the Telecommunications Administration
Preparation of short-, medium- and long-term training plans
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Guyana 11
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Haiti 6
Telecommunications development

Honduras 2
Training Centre of the Empresa Hondureña de Telecomunicaciones (HONDUTEL)

Jamaica 5
Telecommunications and electronic training

Netherlands Antilles 7
Telecommunication Training Centre
Chief, Financial Department (OPAS)

Suriname 12
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Telecommunication Training Centre
Radio-relay systems

Trinidad and Tobago 8
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Assistance to the Trinidad and Tobago Telephone Co Ltd.

Uruguay 16
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Middle East and Mediterranean Basin telecommunication network (Phase III—"implement")
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Implementation of Middle East and Mediterranean Basin telecommunication network
Radio propagation study and proposal for frequency plan
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Niger 46
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Multinational School of Telecommunications, Rufisque—Senegal (39)
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World Administrative Radio Conference (Seminar—Sydney)

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