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# TECHNICAL CO-OPERATION: TECHNICAL CO-OPERATION IN STATISTICS

## Technical co-operation in statistics rendered by the organs and organizations of the United Nations system, other international organizations and countries

## Report of the Secretary-General

SUMMARY

The present report summarizes the technical co-operation programmes in statistics of the United Nations system, of bilateral agencies and of multilateral agencies outside the United Nations system during the period 1980 to 1984. It updates a previous report, which covered the period 1979 to 1982.

The report also provides information on the main components of the programme of the United Nations system, namely, headquarters staff, field staff, training, equipment and miscellaneous (paras. 10-39). A geographical breakdown of expenditure on the technical co-operation activities currently executed by the United Nations is also presented (paras. 57-58).

In addition, the report presents current activities and emerging issues in statistical training (paras. 59-66) and statistical data processing. The latter concerns, inter alia, the advent of microcomputer systems and training for modern data processing equipment (paras. 73-80). Points for discussion by the Statistical Commission are included (para. 81).

* E/CN.3/1985/1.

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## INTRODUCTION

1. The Statistical Commission, at its twenty-second session, requested the Secretary-General to submit a report on technical co-operation in statistics, including contributions from the United Nations system, other international organizations and countries, taking into account the suggestions made by the Commission during its twenty-second session and considering also the priority needs of least developed countries. 1/

2. The Commission's Working Group on International Statistical Programmes and Co-ordination, at its tenth session, decided that there should be a separate report on the special problems of the statistically least developed countries (E/CN.3/1985/16) and that the present overall report on technical co-operation should include a consideration of emerging new issues in statistical training and in statistical data processing (E/CN.3/1985/17, paras. 22-24). The Working Group agreed that other reports should deal with the National Household Survey Capability Programme (E/CN.3/1985/14) and the Living Standards Measurement Study (E/CN.3/1985/15).

3. The materials assembled in chapters I and II and in the annexes to the present report were supplied by the relevant organizations responding to questionnaires sent from the Statistical Office of the United Nations Secretariat. The estimates provided were partly incompatible and therefore there was considerable difficulty in achieving standardization. In many cases, it seemed difficult for agencies to identify and measure separately technical assistance activities and regular work programme activities. Despite the non-compatibility and limitations of the estimates, the aggregated figures provide an indication of the overall magnitudes involved and broad changes in them.

## I. OVERALL SUMMARY

4. Table 1 presents estimates of the overall level of funding of technical co-operation in statistics by the United Nations system during the period 1980 to 1984. According to available data, an annual average expenditure on technical co-operation in statistics by the United Nations system was at a high of $46.4 million during the three-year period 1980 to 1982, that is, a 62 per cent increase over an annual average of expenditure of $28.6 million during the preceding three-year period 1977 to 1979 ($21.7 million in 1977, $24.2 million in 1978, $39.9 million in 1979). This increase was largely the result of the funding by the United Nations Fund for Population Activities (UNFPA) for the support of the 1980 round of population censuses. As the activity of the 1980 round of population censuses passed its peak and also because of the financial constraint in the funding agencies, the total expenditure on technical co-operation in statistics by the United Nations system fell to $30.6 million in 1983. However, the estimated budget for 1984 shows an increase of $5.3 million to $35.9 million.

Table 1. Estimates of expenditure on technical co-operation in statistics: United Nations system, 1980-1984 a/

| Year | Millions of United States dollars | Year-to-year percentage change | 1980 = 100.0 |
|---|---|---|---|
| 1980 | 44.4 | - | 100.0 |
| 1981 | 47.8 | +7.7 | 107.7 |
| 1982 | 46.9 | -1.9 | 105.6 |
| 1983 | 30.6 | -34.8 | 68.9 |
| 1984 | 35.9 | +17.3 | 80.9 |

a/ The summary data are based on submissions by the United Nations, the International Labour Organisation (ILO), the Food and Agriculture Organization of the United Nations (FAO), the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the World Health Organization (WHO).

Table 2. Estimates of expenditure on technical co-operation in statistics by main forms of activity: United Nations system, 1980-1984 a/

(Thousands of United States dollars)

| Activity | 1980 | 1981 | 1982 | 1983 | 1984 |
|---|---|---|---|---|---|
| Total | 44 419 | 47 752 | 46 874 | 30 603 | 35 861 |
| Staff, total | 25 097 | 27 907 | 27 137 | 20 554 | 23 827 |
| Headquarters staff | 4 569 | 6 698 | 7 245 | 6 672 | 7 101 |
| Field experts | 20 528 | 21 209 | 19 892 | 13 882 | 16 726 |
| Training | 4 246 | 3 593 | 2 502 | 4 082 | 4 928 |
| Equipment | 13 081 | 15 117 | 16 189 | 4 906 | 5 684 |
| Miscellaneous | 1 995 | 1 135 | 1 046 | 1 061 | 1 422 |

a/ The summary data are based on submissions by the United Nations, ILO, FAO, UNESCO and WHO (all sources of funds).

Table 3. Percentage distribution of expenditure by main forms of activity: United Nations system, 1980-1984 a/

| Activity | 1980 | 1981 | 1982 | 1983 | 1984 |
|---|---|---|---|---|---|
| Total | 100 | 100 | 100 | 100 | 100 |
| Staff, total | 56 | 58 | 58 | 67 | 66 |
| Headquarters staff | 10 | 14 | 15 | 22 | 20 |
| Field experts | 46 | 44 | 43 | 45 | 46 |
| Training | 10 | 8 | 5 | 13 | 14 |
| Equipment | 30 | 32 | 35 | 16 | 16 |
| Miscellaneous | 4 | 2 | 2 | 3 | 4 |

a/ Based on the data in table 2.

5. Tables 2 and 3 provide information on the overall expenditure of the United Nations system by main forms of co-operation activity, namely, staff (headquarters staff and field experts), training, equipment and miscellaneous. The main trends in the shares of those components of technical co-operation activity in statistics are as follows:

(a) The staff component (headquarters staff and field experts) constituted an average share of 58 per cent during the period 1980-1982, but increased to an average of 67 per cent during the period 1983-1984. The expenditure for headquarters staff that is responsible for providing technical support towards the formulation and execution of projects in countries constituted an average of 13 per cent during the period 1980-1982, but increased to 21 per cent during the period 1983-1984. The expenditure for country experts or field staff who are executing projects in the countries constituted an average of 45 per cent during the period 1980-1982, but increased to 46 per cent during the period 1983-1984;

(b) The training component fell from 10 per cent in 1980 to 5 per cent in 1982, but increased to a 14 per cent share in 1984;

(c) Provision of equipment constituted 30 per cent in 1980 and increased to a peak of 35 per cent in 1982, mainly owing to the increased provision of computers to process population census data. The share of the equipment fell to 16 per cent during the period 1983-1984;

(d) Miscellaneous expenditure constituted an annual average of 3 per cent during the period under review.

6. Table 4 provides estimates of expenditure on technical co-operation in statistics of seven bilateral agencies supplying data. It shows that the total expenditure was $32,731,000 in 1983 and $34,234,000 in 1984. The average percentage shares of various components were 50 per cent for staff and field experts, 20 per cent for training, 11 per cent for equipment and 19 per cent for miscellaneous.

Table 4. Estimates of expenditure on technical co-operation in statistics by main forms of activity: bilateral agencies, 1983-1984 a/

(Thousands of United States dollars)

| Activity | Expenditure | | Per cent distribution | |
|---|---|---|---|---|
| | 1983 | 1984 | 1983 | 1984 |
| Total | 32 731 | 34 234 | 100 | 100 |
| Staff and field experts | 16 846 | 16 724 | 51 | 49 |
| Training | 6 516 | 6 802 | 20 | 20 |
| Equipment | 3 105 | 4 128 | 10 | 12 |
| Miscellaneous | 6 264 | 6 580 | 19 | 19 |

a/ Summary data based on submissions by Finland, Germany, Federal Republic of, Hungary, Japan, Spain, United Kingdom of Great Britain and Northern Ireland and the United States of America.

Table 5. Estimates of expenditure on technical co-operation in statistics by main forms of activity: multilateral agencies, 1983-1984 a/

(Thousands of United States dollars)

| Activity | Expenditures | | Per cent distribution | |
|---|---|---|---|---|
| | 1983 | 1984 | 1983 | 1984 |
| Total | 3 454 | 2 744 | 100 | 100 |
| Staff and field experts | 2 526 | 1 693 | 73 | 62 |
| Training | 433 | 437 | 13 | 16 |
| Equipment | - | 168 | - | 6 |
| Miscellaneous | 495 | 446 | 14 | 16 |

a/ Summary data based on submissions by the International Statistical Institute, the Organization of American States and the Statistical Office of the European Communities.

7. Table 5 shows estimates of expenditure on technical co-operation in statistics by the multilateral agencies outside the United Nations system. The total expenditure was $3.5 million in 1983 and $2.7 million in 1984. The headquarters staff and field experts component constituted 73 per cent in 1983 and 62 per cent in 1984.

## II. DETAILED REPORT

8. The present section is structured according to the main forms of technical co-operation activities, namely, headquarters staff, field experts, training, equipment and miscellaneous, that were discussed in the previous section for all contributing organizations of the United Nations system. Under each component of technical co-operation, a general description of activity is provided, followed by brief quantitative information of the activity for all contributing organizations of the United Nations system. Detailed quantitative information on the activities of the United Nations system for the period 1980 to 1984, including the level of expenditure and the number of headquarters and field staff supporting the programme, is contained in annex I.

9. Brief summaries on technical co-operation in statistics by the bilateral agencies and the multilateral agencies outside the United Nations system are provided in subsections B and C, respectively.

## A. United Nations system

10. The data are the aggregates of individual submissions from the statistical offices of the United Nations, the regional commissions, ILO, FAO, UNESCO and WHO. The expenditure data of the Statistical Office of the United Nations Secretariat include some components attributable to demographic analysis and projections, and the data should be viewed in that context.

11. Agencies of the United Nations system which submitted written statements but not data are the International Civil Aviation Organization (ICAO), the World Bank and the International Monetary Fund (IMF).

### 1. Headquarters staff

12. The United Nations system provided 960 work-months of technical support towards the formulation and execution of country projects, at a cost of $4,569,000 in 1980, as shown in table A of annex I. At the end of 1982, the total number of work-months had increased to 1,360, at a cost of $7,245,000. The increase was mainly the result of the increased provision of technical support for the 1980 round of population censuses. In 1984, 1,138 work-months of technical support were provided, at a cost of $7,101,000. This represented 20 per cent of the system's total expenditure in 1984.

13. The United Nations provides the services of interregional advisers at Headquarters and regional advisers in the various regions. There are two interregional advisers, one in demographic and social statistics and one in computer data processing. In the regional commissions, there are 15 regional and technical advisers: four advisers on population and demographic statistics, four on data processing and one each on national accounts, industrial statistics, household survey, civil registration and vital statistics, statistical training, sampling, and cartography.

14. In addition to interregional and regional full-time staff, there are staff located at Headquarters who provide technical support to the programme on a full-time basis. These include six technical advisers in a variety of subject areas and in data processing. There are also three interregional projects, one of which is concerned with the development and distribution of software packages for computer editing and tabulation. This project has two technical advisers. The second project is the Central Co-ordinating Unit of the National Household Survey Capability Programme (NHSCP), which has four technical advisers and provides assistance to national statistical offices, in collaboration with the statistical division of the concerned regional commission, in the formulation of continuing survey programmes. The third project has three technical advisers who provide technical support to population, demographic and related projects. The total work-months of the technical advisers and support staff are included in table B of annex I below.

15. In 1980, ILO provided 61 work-months of technical support for the execution of its technical co-operation in statistics programme, at a cost of $345,000. In 1984, this increased to 76 work-months, at a cost of $614,000, as shown in table B of annex I.

16. In 1980, FAO provided 190 work-months of support, at a cost of $866,000, towards the formulation and execution of its technical co-operation programme in agricultural and related statistics. In 1984, the support decreased to 78 work-months, at a cost of $571,000.

17. The United Nations Educational, Scientific and Cultural Organization provided 78 work-months of technical support for the execution of its technical co-operation in statistics programme, at a cost of $297,000 in 1980. In 1984, its technical support decreased to 42 work-months, at a cost of $227,000.

18. In 1980, WHO provided 383 work-months of technical support for the execution of its technical co-operation in statistics programme, at a cost of $1,283,000. In 1984, its technical support consisted of 372 work-months, at a cost of $1,457,000.

## 2. Field staff

19. Field staff comprise all staff employed at the country level whose duties are directly related to the execution of country projects and whose remuneration is charged to the country projects. Thus, it includes all country experts, associate experts and volunteers in statistics, data processing and related areas.

20. In 1980, a total of 328 field experts were engaged in country projects executed by the United Nations system at a cost of $20,528,000. The number of experts increased to 366 in 1981 and to 369 in 1982, and then decreased to 234 in 1983. However, in 1984, it rose slightly to 240. The total cost of maintaining them amounted to $16,727,000 in 1984, representing 47 per cent of the total cost of the technical co-operation programme of the United Nations system in 1984.

21. The United Nations technical co-operation programme in statistics, executed by the Department of Technical Co-operation for Development of the United Nations Secretariat, remains the largest within the United Nations system. In 1980, a total of 195 field experts were engaged, at a total cost of $14,617,000. The number of experts fell to 175 in 1982, and in 1983 further fell to 121. In 1984, it remained almost unchanged at 124, at a cost of $10,096,000. The decrease was partly the result of the completion of the 1980 round of population censuses and partly because of the financial constraint on the part of the funding agencies.

22. The ILO technical co-operation programme had five field experts in both 1983 and 1984 at a cost of $398,000 and $200,000, respectively.

23. The FAO programme had 73 experts in 1980, 98 in 1981 and 96 in 1982. The number fell to 83 in 1983 and 88 in 1984. The expenditure for 1984 was $4,634,000. The programme was funded through United Nations Development Programme (UNDP) country funds and the FAO technical co-operation programme.

24. The UNESCO technical co-operation programme had 11 field experts in 1983 and 9 in 1984. There were 12 in 1980, 13 in 1981 and 12 in 1982. The cost for 1983 and 1984 was $745,000 and $700,000, respectively.

25. The expenditure of WHO for field experts was $1,742,000 in 1980 and rose to a high of $1,831,000 in 1982. It then fell to $914,000 in 1983 and $1,096,000 in 1984.

### 3. Training

26. Training comprises fellowships in training institutions, observations at national statistical offices or centres, regional or headquarters offices of international or bilateral organizations and attendance at workshops, working groups and seminars located in or outside the home country.

27. In 1980, the expenditure on training of the United Nations system was $4,246,000, or 9.6 per cent of the total expenditure, but decreased, in 1981, to $3,593,000 and, in 1982, to $2,502,000. However, in 1983, despite the overall decrease of expenditures in other components, the expenditure on training rose to $4,082,000. In 1984, it increased further to $4,928,000. The share of the training component in the total expenditure was 13.3 per cent in 1983 and 13.7 per cent in 1984.

28. The United Nations expenditure on training component was $3,458,000 in 1980, $2,792,000 in 1981, $1,623,000 in 1982, $3,037,000 in 1983 and $3,779,000 in 1984.

29. The ILO expenditure on training was $16,000 in 1980, $25,000 in 1981, $44,000 in 1982, $54,000 in 1983 and $19,000 in 1984.

30. The FAO expenditure on training was $111,000 in 1980, $285,000 in 1981, $191,000 in 1982, $465,000 in 1983 and $541,000 in 1984.

31. The UNESCO expenditure on training was $231,000 in 1980, $61,000 in 1981, $324,000 in 1982, $96,000 in 1983 and $142,000 in 1984.

32. The WHO expenditure on training was $430,000 in 1980, $430,000 in 1981, $320,000 in 1982, $430,000 in 1983 and $447,000 in 1984.

33. The International Civil Aviation Organization continued its informal statistics workshop programme. Three workshops were conducted in different regions of the world in 1983 and one was planned for late 1984. The workshops normally last about one week and are assisted by statistical experts from ICAO headquarters.

34. The World Bank and IMF provided training locally to counterpart staff through ad hoc missions to countries.

### 4. Equipment

35. Equipment includes computer hardware and software (either bought or rented), vehicles, cartographic and printing equipment, calculating machines etc. The annual share of the equipment component in the total expenditure of the technical co-operation programme of the United Nations system during the period 1980-1982 was

high: 30 per cent, 32 per cent and 35 per cent, respectively. This was largely the result of the increased provision of computers for the data processing of the 1980 round of population censuses. However, it decreased to 16 per cent in 1983 and 1984. In absolute terms, annual total expenditure on equipment was $13,081,000 in 1980, $15,117,000 in 1981 and $16,189,000 in 1982. In 1983, it decreased to $4,906,000, about one third of the 1982 level, and to $5,684,000 in 1984.

36. The United Nations share was the largest in the system: $11,644,000 in 1980, $13,595,000 in 1981, $14,708,000 in 1982, $3,965,000 in 1983 and $4,597,000 in 1984.

37. The FAO expenditure on equipment was also significant during the period 1980 to 1984. The annual expenditure on equipment was $783,000 in 1980, $868,000 in 1981, $1,096,000 in 1982, $736,000 in 1983 and $764,000 in 1984.

38. The WHO expenditure on equipment was $654,000 in 1980, $654,000 in 1981, $384,000 in 1982, $197,000 in 1983 and $316,000 in 1984.

### 5. Miscellaneous

39. Miscellaneous comprises such local costs as the bonuses and salaries of census enumeration staff for the conducting of population censuses or related activities, vehicle repair and maintenance and other residuals. It amounted to $1,995,000 in 1980, $1,135,000 in 1981, $1,046,000 in 1982, $1,061,000 in 1983 and $1,422,000 in 1984. The share of the expenditure on miscellaneous items in 1984 was 4 per cent of the total expenditure.

## B. Bilateral agencies

40. Responses outlining technical co-operation in statistics were received from the following countries: Finland, German Democratic Republic, Germany, Federal Republic of, Hungary, India, Japan, Spain, the Union of Soviet Socialist Republics, United Kingdom of Great Britain and Northern Ireland, and United States of America. Because of space limitations, it is only possible to provide brief summaries below.

### 1. Finland

41. Finland's technical co-operation programme in statistics was restricted to the provision of experts. In 1983, Finland provided two experts to countries in Africa.

### 2. German Democratic Republic

42. The German Democratic Republic continued to provide technical co-operation in statistics to Cuba and Mozambique by sending advisers and experts in 1983 and 1984. During the period, training courses in statistics and data processing were conducted in the German Democratic Republic.

### 3. Germany, Federal Republic of

43. The Federal Republic of Germany provided technical co-operation in statistics by sending experts to developing countries and providing fellowships for attendance at workshops and seminars conducted by the Munich Centre for Advanced Training in Applied Statistics for Developing Countries. Currently available data indicate that the total cost of technical co-operation in statistics was approximately $710,000 in 1983 and $341,000 in 1984.

### 4. Hungary

44. In 1983, Hungary provided expert services to Cuba for developing a household survey system and to Mongolia for further developing the Mongolian household budget survey and related data processing methods. Also, in 1983, 12 Vietnamese statisticians studied various economic statistics in Hungary.

### 5. India

45. India provided limited technical co-operation in statistics, mainly in the forms of expert services and of education and training in statistics to the countries of Asia and Africa under the Colombo Plan, the Special Commonwealth African Assistance Plan (SCAAP) and the Indian Technical Economic Co-operation Programme (ITEC).

### 6. Japan

46. Japan's technical co-operation in statistics included mainly the provision of financial and technical support to the Statistical Institute of Asia and the Pacific (SIAP), which is located in Tokyo. Training, therefore, is the main element in Japan's technical co-operation in statistics. The total cost of Japan's technical co-operation in statistics was $1,787,000 in 1983 and $1,927,000 in 1984.

### 7. Spain

47. Spain provided five experts to countries in Latin America and also conducted courses on statistics, in Spain, for Latin American statisticians.

### 8. Union of Soviet Socialist Republics

48. The Union of Soviet Socialist Republics provided technical co-operation in statistics in the forms of advisory services and training. In 1983, 14 experts were sent to countries in Africa, Asia and Latin America. Training courses in agricultural and economic statistics, statistical data collection and data processing were conducted in the Soviet Union for statisticians from developing countries.

### 9. United Kingdom of Great Britain and Northern Ireland

49. The United Kingdom provided a wide range of technical co-operation in statistics, with a total of 23 field experts in 1983 and 22 field experts in 1984. This includes a programme of support for statistical training institutions in developing countries and provision of fellowships for training in the United Kingdom. The estimated total cost was $2.1 million in 1983 and $2.0 million in 1984.

### 10. United States of America

50. The United States of America continued to provide, through the International Statistical Programs Center (ISPC) of the United States Bureau of the Census and other governmental bodies, a programme of statistical training to meet the needs of developing countries. The courses continued to be held in population and demographic statistics, health, energy, agriculture, national accounts, price and labour statistics. Advisory services and equipment were also provided to various countries. The estimated total cost of technical co-operation in statistics was $27.8 million in 1983 and $29.9 million in 1984.

## C. Multilateral agencies outside the United Nations system

51. The multilateral agencies outside the United Nations system which provided data were the International Statistical Institute, the Organization of American States and the Statistical Office of the European Community and the Council for Mutual Economic Assistance (CMEA).

### 1. International Statistical Institute

52. Technical co-operation rendered by the International Statistical Institute included visits to developing countries for survey and analysis projects and work at Headquarters on the World Fertility Survey. These are financed by grants from UNFPA, the United States Agency for International Development (USAID) and the Overseas Development Administration of the United Kingdom (UKODA). The total expenditure was $1,959,000 in 1983 and $1,217,000 in 1984.

### 2. Organization of American States

53. The Organization of American States provided technical co-operation in statistics to countries in the Americas and Caribbean region, amounting to $1,318,000 in 1983 and $963,600 in 1984. The expenditure on field staff amounted to $463,900 in 1983 and $307,000 in 1984, whereas expenditure on training was $443,300 in 1983 and $436,500 in 1984.

### 3. Statistical Office of the European Communities

54. The technical co-operation activities of the Statistical Office of the European Communities (EUROSTAT) have three facets: (a) the technical expertise of EUROSTAT for the European Communities' own aid programmes, (b) co-ordination of the activities of member States, and (c) it's own activities.

55. The Statistical Office of the European Communities continues to take a particularly active part in training activity. A major activity in 1984 was the follow-up of the comprehensive study on statistical training needs for Africa. This study was designed to allow an effective response by the European Economic Community (EEC) to the ACP (African, Caribbean and Pacific) ministers' request for funding by the European Development Fund (EDF).

56. In 1984, EUROSTAT provided 50 work-months of headquarters staff, at a cost of $100,800; four field experts, at a cost of $84,000; equipment, at a cost of $168,000; and miscellaneous items of $210,000. In all, $562,800 was spent by EUROSTAT for its technical co-operation programme in 1984.

## III. GEOGRAPHICAL BREAKDOWN OF EXPENDITURE ON TECHNICAL CO-OPERATION IN STATISTICS

57. At its twenty-second session, the Statistical Commission suggested that future reports should include a geographical breakdown of the recipients of technical co-operation and the amount given. 2/ Annex II gives the expenditure on country projects in statistics, which were being executed during the period 1983-1984, by the Department of Technical Co-operation for Development of the United Nations Secretariat, with technical backstopping by the Statistical Office. Owing to lack of time, no information was obtained from other United Nations agencies for completing this table.

58. A total of 169 country projects were being executed in 90 countries, at a cost of $11.2 million in 1983 and $16.4 million in 1984. In Africa, there were 58 projects in 34 countries and their total expenditure was $4.9 million in 1983 and $7.5 million in 1984. In the Americas and Caribbean region, there were 21 country projects in 19 countries or areas, at a total cost of $1.2 million in 1983 and $2.3 million in 1984. In the Asia and the Pacific region, there were 44 country projects in 20 countries or areas, at a cost of $2.7 million in 1983 and $3.1 million in 1984. In the Europe/Middle East/Mediterranean region, there were 39 country projects in 17 countries, at a total cost of $2.4 million in 1983 and $3.4 million in 1984.

## IV. ISSUES IN STATISTICAL TRAINING

59. Two factors, among others, emphasize the current and emerging issues in the training of statistical and data processing personnel. First, the attrition of personnel trained in those fields, because of the lure of financially more attractive sectors, continues to be a major problem for the national statistical offices of the developing countries, particularly for the statistically least developed ones. Secondly, there is at present a conscious demand in those

countries for improved data in all sectors, in order to work out more realistic and more efficient development planning of the national economy. As a result, there has been a significant increase in their statistical and data processing activities in many developing countries, and it has led to a growing need for more trained personnel.

## A. Current activities

60. National training centres organize training at the middle level and, in some cases, at an advanced level too. A few require external assistance to organize such courses. The United Nations, the regional commissions and the specialized agencies, together with other international organizations and statistically more developed countries are providing direct and indirect assistance to several national training centres. During 1983-1984, approximately 30 countries received technical support for training from one or more external sources. However, one would note in this connection that many developing countries could pay more attention to systematic training of primary level statistical personnel - statistical clerks, coders and editors, data entry personnel and computing staff. The same applies, more or less, to the training of field enumerators. It is important that, for overall statistical development, the national training centres should undertake statistical training at the primary level as one of their main activities.

61. As regards the development of syllabuses for statistical and data processing courses at primary and intermediate levels, it may be noted that individual training centres, national, subregional or regional, as well as other organizers of ad hoc courses, develop syllabuses to cover areas that need immediate attention. With respect to general guidelines, it may be recalled that, in the early 1960s, the Economic and Social Commission for Asia and the Pacific (ESCAP) (at that time the Economic Commission for Asia and the Far East (ECAFE)) published the Manual on Training of Statistical Personnel at the Primary and Intermediate Levels and its Supplement for training those engaged in day-to-day statistical operations. In the 1970s, concerned organizations in each region gave considerable thought to this task. Currently, in the Economic Commission for Africa (ECA) region, emphasis is being placed under the Statistical Training Programme for Africa (STPA), on co-operative development of teaching programmes through the introduction of guide syllabuses for statistical and data processing courses at the middle level and also for in-service training.

62. In addition to regular courses offered by the national training centres, short training courses are proving very useful to meet the immediate needs. Ad hoc courses have always been organized by statistically developed countries for the developing countries either at the national level or at the regional level. France, the German Democratic Republic, Germany, the Federal Republic of, Hungary, India, Japan, the Netherlands, Spain, the Union of Soviet Socialist Republics, the United Kingdom of Great Britain and Northern Ireland, and the United States of America play an important role in this area. Under a project funded by the Swedish International Development Authority (SIDA), UNESCO is placing growing emphasis on short training courses. Mention should also be made of the courses on household

surveys organized by India in collaboration with ESCAP and those on national accounts organized by Centro Interamericano de Enseñanza de Estadística (CIENES)/FAO in collaboration with the Economic Commission for Latin America (ECLA). During 1983-1984, in the region of the Economic Commission for Western Asia (ECWA), short training courses were organized on industrial statistics, household expenditure surveys, labour force surveys and sampling techniques. Regional training centres, such as the Statistical Institute for Asia and the Pacific (Tokyo), the Arab Institute for Training and Research in Statistics (Baghdad) etc., provide a considerable amount of assistance in the organization and conduct of short-term courses at the national or regional levels. It is felt, however, that co-ordination and exchange of information and experience is needed so that the developing countries may derive maximum benefit from such courses.

63. Another emerging issue concerns the training of trainers. The regional institutes as well as the national and subregional training centres, including universities, play a significant role in this area. The importance of the training of trainers lies in the fact that a competent trainer would be very useful in national training centres, particularly in conducting short-term training courses organized on an ad hoc basis. But because of the varying complexity of the subject-matter in different branches of statistics, the training of trainers is also very complex. As yet, no guide syllabus is known to be available, but it is considered that practice teaching should form an important part of any such curriculum.

64. At present, it is not known if any of those courses given at the national or subregional training centres, including universities and other institutes, are specially oriented towards the training of trainers. Mention should be made here that under a subcontract from the United Nations, the International Statistical Programs Center (United States Bureau of the Census) developed a syllabus for the training of trainers while organizing a series of training courses for the staff of the National Statistical Institute of Ecuador.

## B. Technical co-operation among developing countries

65. A project for on-the-job training of statistical and data processing personnel of the developing countries was initiated by the Department of Technical Co-operation for Development of the United Nations Secretariat as an activity to promote technical co-operation among developing countries. Under this project, selected developing countries that are statistically least developed in general are requested to nominate candidates for training in other developing countries that are considered to have the capability of offering on-the-job training in specific fields. The project is designed essentially to provide opportunities for some developing countries to have their young and inexperienced professionals trained in other developing countries. Problems are encountered in the implementation of this project for several reasons. The most important of these is that the host countries, being developing countries themselves, often have serious limitations in respect of providing facilities to the trainees. However, the programme has been enthusiastically received by the statistically least developed countries, and in 1982-1983, 17 fellows from 12 countries received training in 9 developing countries. The Department of Technical Co-operation for Development has extended the programme for the biennium 1984-1985.

### C. International fellowships leading to higher academic degrees/diplomas

66. Lastly, an issue that constantly arises concerns fellowships for higher academic degrees or diplomas. Since accredited higher academic degrees or diplomas generally lead to important job opportunities and promotions, the desire to obtain these through long-term study at a university or an institute in a developed country is still strong among the recipients of fellowships in developing countries. Although sometimes the international organizations offer such fellowships on an ad hoc basis depending on the merits of individual cases, in general fellowships are given in order to follow those courses that are considered to be useful for carrying out the work in a national statistical office. In this regard, some general guidelines are needed to specify cases where departures from the usual policy would be desirable in the interest of countries requesting such long-term fellowships.

## V. ISSUES IN STATISTICAL DATA PROCESSING

### A. Current activities

67. The United Nations technical co-operation activities in statistical data processing remained at a significant level during the period 1983-1984, although expenditure on data processing was much lower than during the period 1980-1982 when a number of computers and other equipment were provided for the data processing of the 1980 round of population censuses. UNDP and UNFPA have continued to fund the bulk of the projects, and most funds were used for the purchase of equipment, computer rentals, expert services and various forms of training for national staff.

68. The number of statistical data processing projects supported by the Statistical Office remained at approximately 70, but their implementation was greatly affected by recent financial constraints within the two major funding agencies, UNDP and UNFPA. At present, an interregional adviser in computer methods, attached to the Statistical Office, executes short-term missions on the uses of electronic data processing equipment, computer techniques and computer-based systems related to statistics. In addition, there are four full-time technical advisers in computer methods and data processing in the Office, who provide the substantive technical support for country projects. Further, three regional advisers in data processing provide substantive technical support to countries in Africa, Asia and the Pacific.

69. Almost all technical co-operation projects include a training component in order to promote the development of national substantive and technical strength, and to build technological self-reliance within the country. With a computer installation, there are various aspects of training that are important. Of importance is training of statisticians, as well as of data processing personnel, in how to utilize computing systems effectively in the execution of a task, whether processing census data or other survey data. Such a basic understanding can best be brought about through the use of United Nations experts, working on the job with dedicated national counterparts. During the period 1983-1984, nearly 30 field experts and consultants provided technical support and training to the data

processing projects executed by the Department of Technical Co-operation for Development and technically backstopped by the Statistical Office.

70. The role of software continues to become even more important in enabling countries to use computers effectively in order to process their data. UNFPA has continued to make funds available to the Department of Technical Co-operation for Development for the continued development and delivery of programmes for data editing and cross-tabulation under the Software Development Project. The activities of the software project emphasize: (a) the delivery of available software - UNEDIT for editing and XTALLY or COXTALLY (COBOL version of XTALLY) for cross-tabulation - to countries wanting it; (b) the enhancement of the capabilities of those packages; and (c) training in the use of the software.

71. The establishment, where possible, of some long-term arrangements with regional or national computer-centre/institutions is pursued in order to provide demonstration and training in the use of the software packages and to provide broader and better support for the dissemination of the software. Towards this end, when opportunities arise, regional or national institutions are invited to collaborate in demonstration and training.

72. In 1983, the software project delivered data-editing and tabulation software packages to 42 countries and conducted a training workshop in Tunisia in population data tabulation for the French-speaking African countries.

## B. New issues in statistical data processing

### 1. Microcomputer systems in statistical data processing

73. The extent to which microcomputer-based systems can now make a significant contribution to the work of national statistical offices is an important issue, as is the issue of their medium- and long-term potential for supporting statistical data processing activities. Microcomputers are already being used at the very least on an experimental basis in most statistical offices in developed countries. As the technology underlying microcomputer systems progresses, microcomputers will achieve capacities and speeds more and more like present minicomputers and even mainframes, while being much easier to use. Thus, microcomputers eventually will offer capabilities equal to or greater than many of the computers that now support statistical data processing activities in developing countries.

74. The introduction of microcomputers in developing countries has proceeded somewhat faster than that of computer technology in general, in part because of the low prices, the relative simplicity of the systems, and the relative ease of sending them to a repair depot for maintenance. Nevertheless, many developing countries do not yet have an adequate level of support for such systems, and this lack of support limits the extent to which the technology can be utilized for continuous reliable data processing activity.

75. Because of the promise of this technology, a number of statistical offices in developed countries are studying its potential for supporting bilateral aid

assistance to developing countries. For example, the United States Bureau of the Census has recently published a report, "Considerations for use of microcomputers in developing country statistical offices". As Governments and international agencies gain experience with this technology, more information of this sort will become available to fill the previous information void. Such publications and information will work directly to the benefit of the developing countries in ascertaining what are the appropriate roles of those developments in their own national offices.

## 2. Microcomputer-based data base management systems

76. In recent years, the use of data base management systems has become increasingly widespread among larger organizations using computer systems. However, the statistical offices have typically not been able to use commercially oriented data base management systems because of the significant differences between statistical and administrative data processing activities. Administrative, or commercial, files are generally quite dynamic, and access to them is generally on an individual record basis, with statistical aggregation being a necessary but secondary objective. Statistical data files, on the other hand, tend to be either static or extended on a known periodic basis. Statistical aggregation, retrieval of aggregates for presentation, and analysis are primary objectives, whereas the requirement to access individual entities is secondary.

77. An exception to the above categorization must be made in the case of data base systems that have a so-called relational character and whose structure incorporates elements of transposed and inverted files. This structure is more natural and useful for typical statistical entities such as census and survey microdata and economic time series. One of the most successful statistical data base management packages, the RAPID system, was created at Statistics Canada and is based upon these types of underlying data structures.

78. A number of relational data base management systems are beginning to appear in the microcomputer environment. They are smaller and slower than their mainframe counterpart, but their capacities and performance are sure to grow with the technology over time. While it remains to be seen how useful such developments will be for statistical offices, it is likely that some of those systems will offer some useful capabilities.

## 3. Training for modern data processing equipment

79. The availability of tailored user-friendly software packages and the advent of the microcomputer, in particular, should make statistical data processing and analysis readily available to statisticians with a minimum of training in data processing. However, a specially trained data processing cadre will be indispensable in the organization and control of large-scale data processing which will be dependent on mini or mainframe computers. In such cases, at least, the statisticians should receive adequate training to understand the process and work closely with data processing personnel to utilize the modern facilities to the maximum.

80. Awareness of up-to-date computer techniques and software packages and training in them is not as widespread among statistical data processing personnel in developing countries as it should be. The access to literature and training in modern data processing techniques is often limited. There should be more emphasis on periodic refresher courses in up-to-date data processing techniques, and exposure to modern equipment and techniques not only by specialized data processing personnel but also by statisticians. Since representation of computer manufacturers and suppliers in most developing countries is inadequate, the opportunities available to statistical data processing personnel to become aware of the developments in computer techniques are very limited. Therefore, participation of statisticians and statistical data processing personnel in training programmes, seminars and workshops organized by the United Nations and its specialized agencies and also by Governments and other bodies would be viewed even more important in future.

## VI. POINTS FOR DISCUSSION

81. The Commission may wish to:

(a) Comment on technical co-operation in statistics, including its breakdown by components, subject areas and countries;

(b) Review the emerging issues in statistical training and statistical data processing;

(c) Discuss the adequacy and format of the present report and the scope of future reports on this subject.

## Notes

1/ Official Records of the Economic and Social Council, 1983, Supplement No. 2 (E/1983/12), para. 104.

2/ Ibid., para. 100.

## Annex I

## TECHNICAL CO-OPERATION PROGRAMME IN STATISTICS, 1980-1984: UNITED NATIONS SYSTEM

Table A. Expenditure by main forms of activity and sources of funds

(Thousands of United States dollars)

| Activity and sources of funds | 1980 | 1981 | 1982 | 1983 | 1984 a/ |
|---|---|---|---|---|---|
| **Headquarters staff** | | | | | |
| Work-months | (960) | (1 297) | (1 360) | (1 122) | (1 138) |
| Cost | 4 569 | 6 698 | 7 245 | 6 672 | 7 101 |
| Training - cost | 501 | 1 045 | 1 211 | 2 053 | 1 240 |
| Total cost | 5 070 | 7 743 | 8 456 | 8 725 | 8 341 |
| **United Nations Development Programme** | | | | | |
| Field experts - number | (194) | (230) | (233) | (142) | (151) |
| - cost | 10 738 | 10 723 | 9 972 | 8 771 | 11 116 |
| Training - cost | 1 586 | 1 588 | 875 | 1 453 | 2 191 |
| Equipment - cost | 4 210 | 3 550 | 7 133 | 2 085 | 2 654 |
| Miscellaneous - cost | 355 | 348 | 279 | 531 | 655 |
| Total cost | 16 889 | 16 209 | 18 259 | 12 840 | 16 616 |
| **United Nations Fund for Population Activities and other sources of funding** | | | | | |
| Field experts - number | (134) | (136) | (136) | (92) | (89) |
| - cost | 9 790 | 10 486 | 9 920 | 5 111 | 5 611 |
| Training - cost | 2 159 | 960 | 416 | 575 | 1 498 |
| Equipment - cost | 8 871 | 11 567 | 9 056 | 2 822 | 3 030 |
| Miscellaneous - cost | 1 640 | 787 | 767 | 530 | 767 |
| Total cost | 22 460 | 23 800 | 20 159 | 9 038 | 10 906 |
| **All sources of funds** | | | | | |
| Staff, total - cost | 25 097 | 27 907 | 27 137 | 20 554 | 23 827 |
| Headquarters staff - cost | 4 569 | 6 698 | 7 245 | 6 672 | 7 101 |
| Field experts - number | (328) | (366) | (369) | (234) | (240) |
| - cost | 20 528 | 21 209 | 19 892 | 13 882 | 16 727 |
| Training - cost | 4 246 | 3 593 | 2 502 | 4 082 | 4 929 |
| Equipment - cost | 13 081 | 15 117 | 16 189 | 4 906 | 5 684 |
| Miscellaneous - cost | 1 995 | 1 135 | 1 046 | 1 061 | 1 422 |
| TOTAL COST | 44 419 | 47 752 | 46 874 | 30 603 | 35 863 |

a/ Data are based on the 1984 budget.

Table B. Expenditure by organization and main forms of activity

(Thousands of United States dollars)

| Organization and activity | | 1980 | 1981 | 1982 | 1983 | 1984 a/ |
|---|---|---|---|---|---|---|
| **A. United Nations b/** | | | | | | |
| (a) Headquarters staff | (work-months) | (248) | (581) | (621) | (571) | (570) |
| | Cost | 1 778 | 3 748 | 4 001 | 4 036 | 4 232 |
| (b) Field experts | | 14 617 | 14 367 | 12 707 | 7 515 | 10 096 |
| (c) Training | | 3 458 | 2 792 | 1 623 | 3 037 | 3 779 |
| (d) Equipment | | 11 644 | 13 595 | 14 708 | 3 965 | 4 597 |
| (e) Miscellaneous | | 1 693 | 879 | 635 | 640 | 920 |
| Total | | 33 190 | 35 381 | 33 674 | 19 193 | 23 624 |
| **B. International Labour Organisation** | | | | | | |
| (a) Headquarters staff | (work-months) | (61) | (68) | (79) | (76) | (76) |
| | Cost | 345 | 395 | 529 | 527 | 614 |
| (b) Field staff | | 229 | 131 | 303 | 398 | 200 |
| (c) Training | | 16 | 25 | 44 | 54 | 19 |
| (d) Equipment | | - | - | 1 | - | - |
| (e) Miscellaneous | | - | - | 3 | 20 | 10 |
| Total | | 590 | 551 | 880 | 999 | 843 |
| **C. Food and Agriculture Organization of the United Nations** | | | | | | |
| (a) Headquarters staff | (work-months) | (190) | (225) | (238) | (75) | (78) |
| | Cost | 866 | 1 081 | 1 147 | 546 | 571 |
| (b) Field staff | | 3 263 | 4 080 | 4 133 | 4 310 | 4 634 |
| (c) Training | | 111 | 285 | 191 | 465 | 541 |
| (d) Equipment | | 783 | 868 | 1 096 | 736 | 764 |
| (e) Miscellaneous | | 127 | 79 | 90 | 318 | 344 |
| Total | | 5 150 | 6 393 | 6 657 | 6 375 | 6 854 |
| **D. United Nations Educational, Scientific and Cultural Organization** | | | | | | |
| (a) Headquarters staff | (work-months) | (78) | (40) | (20) | (44) | (42) |
| | Cost | 297 | 190 | 110 | 220 | 227 |
| (b) Field staff | | 677 | 889 | 918 | 745 | 700 |
| (c) Training | | 231 | 61 | 324 | 96 | 142 |
| (d) Equipment | | - | - | - | 8 | 7 |
| (e) Miscellaneous | | 4 | 6 | 5 | 5 | 8 |
| Total | | 1 209 | 1 146 | 1 357 | 1 074 | 1 084 |
| **E. World Health Organization** | | | | | | |
| (a) Headquarters staff | (work-months) | (383) | (383) | (402) | (356) | (372) |
| | Cost | 1 283 | 1 284 | 1 458 | 1 343 | 1 457 |
| (b) Field experts | | 1 742 | 1 742 | 1 831 | 914 | 1 096 |
| (c) Training | | 430 | 430 | 320 | 430 | 447 |
| (d) Equipment | | 654 | 654 | 384 | 197 | 316 |
| (e) Miscellaneous | | 171 | 171 | 313 | 78 | 140 |
| Total | | 4 280 | 4 281 | 4 306 | 2 962 | 3 456 |

a/ Data are based on the 1984 budget.

b/ Including regional commissions.

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Annex II

GEOGRAPHICAL BREAKDOWN OF EXPENDITURE ON TECHNICAL CO-OPERATION IN STATISTICS, 1983 AND 1984: UNITED NATIONS a/

(Thousands of United States dollars)

| Country or area | Number of projects | 1983 | Number of projects | 1984 |
|---|---|---|---|---|
| AFRICA b/ | | | | |
| Angola | (1) | 33 | (2) | 356 |
| Benin | (3) | 10 | (3) | 394 |
| Botswana | (1) | 168 | (1) | 121 |
| Burkina Faso | (0) | - | (1) | 132 |
| Burundi | (1) | 77 | (1) | 94 |
| Cape Verde | (2) | 160 | (2) | 139 |
| Comoros | (2) | 136 | (3) | 240 |
| Congo | (1) | 41 | (1) | 135 |
| Equatorial Guinea | (2) | 260 | (2) | 363 |
| Ethiopia | (2) | 268 | (1) | 231 |
| Gabon | (1) | 25 | - | - |
| Gambia | (1) | 76 | (1) | 53 |
| Ghana | (2) | 781 | (3) | 671 |
| Guinea | (2) | 212 | (2) | 145 |
| Guinea-Bissau | (1) | 12 | - | - |
| Kenya | (1) | 165 | (1) | 190 |
| Liberia | (2) | 305 | (1) | 227 |
| Malawi | (5) | 599 | (5) | 848 |
| Mali | (1) | 151 | (1) | 456 |
| Mauritania | (1) | -2 | - | - |
| Mozambique | (1) | 102 | (1) | 45 |
| Namibia | (2) | 46 | (2) | 2 |
| Niger | (1) | 47 | (1) | 110 |
| Nigeria | (0) | - | (1) | 162 |
| Rwanda | (2) | 132 | (2) | 32 |
| Sao Tome and Principe | (1) | 28 | (0) | - |
| Sierra Leone | (2) | 274 | (3) | 691 |
| Swaziland | (1) | 26 | (1) | 69 |
| Togo | (1) | 54 | (1) | 126 |
| Uganda | (1) | -3 | (1) | - |

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| Country or area | Number of projects | 1983 | Number of projects | 1984 |
|---|---|---|---|---|
| AFRICA b/ (continued) | | | | |
| United Republic of Tanzania | (2) | 118 | (1) | 87 |
| Zaire | (1) | 178 | (2) | 597 |
| Zambia | (3) | 239 | (3) | 369 |
| Zimbabwe | (2) | 160 | (3) | 452 |
| Total, Africa | (52) | 4 878 | (53) | 7 537 |
| AMERICAS AND CARIBBEAN b/ | | | | |
| Barbados | (1) | 74 | (1) | 61 |
| Belize | (1) | -1 | (1) | 30 |
| Bolivia | (1) | -1 | (0) | - |
| Caribbean | (3) | 340 | (2) | 312 |
| Cayman Islands | (1) | 5 | (0) | - |
| Colombia | (0) | - | (2) | 400 |
| Costa Rica | (1) | 17 | (1) | 374 |
| Cuba | (1) | 10 | (0) | - |
| Ecuador | (1) | 31 | (0) | - |
| Guatemala | (1) | 47 | (1) | 25 |
| Haiti | (1) | 128 | (1) | 169 |
| Honduras | (0) | - | (1) | 11 |
| Mexico | (2) | 284 | (1) | 386 |
| Montserrat | (1) | 62 | (0) | - |
| Nicaragua | (2) | 69 | (3) | 199 |
| Paraguay | (2) | 31 | (1) | 64 |
| Suriname | (1) | 15 | (1) | 152 |
| Trinidad and Tobago | (0) | - | (2) | 98 |
| Uruguay | (1) | 79 | (1) | 35 |
| Total, Americas and Caribbean | (21) | 1 190 | (19) | 2 316 |

| Country or area | Number of projects | 1983 | Number of projects | 1984 |
|---|---|---|---|---|
| ASIA AND THE PACIFIC b/ | | | | |
| Afghanistan | (3) | 75 | (2) | 115 |
| Bangladesh | (1) | 269 | (1) | 278 |
| Bhutan | (0) | - | (1) | 157 |
| Brunei Darussalam | (1) | - | (1) | 33 |
| Burma | (6) | 654 | (5) | 785 |
| China | (4) | 727 | (4) | 107 |
| Indonesia | (2) | 56 | (3) | 290 |
| Korea, Republic of | (0) | - | (1) | 45 |
| Lao People's Democratic Republic | (1) | -5 | (1) | 130 |
| Malaysia | (1) | -3 | (1) | -5 |
| Maldives | (1) | 60 | (1) | 101 |
| Mongolia | (2) | 156 | (2) | 339 |
| Nepal | (5) | 252 | (3) | 168 |
| Pacific Islands (Trust Territory) | (2) | 51 | (0) | - |
| Pakistan | (2) | 101 | (1) | 82 |
| Philippines | (1) | 64 | (1) | 108 |
| Samoa | (4) | 25 | (1) | 75 |
| Sri Lanka | (2) | 186 | (3) | 249 |
| Vanuatu | (1) | 42 | (1) | 46 |
| Viet Nam | (0) | - | (2) | 50 |
| Total, Asia and the Pacific | (38) | 2 710 | (35) | 3 153 |
| MIDDLE EAST/MEDITERRANEAN/EUROPE b/ | | | | |
| Bahrain | (1) | 1 | (0) | - |
| Bulgaria | (1) | 2 | (1) | 23 |
| Democratic Yemen | (3) | 280 | (2) | 302 |
| Djibouti | (1) | 325 | (1) | 167 |
| Egypt | (2) | 256 | (3) | 98 |

| Country or area | Number of projects | 1983 | Number of projects | 1984 |
|---|---|---|---|---|
| MIDDLE EAST/MEDITERRANEAN/EUROPE b/ (continued) | | | | |
| Jordan | (1) | -2 | (0) | - |
| Kuwait | (2) | 268 | (1) | 232 |
| Libyan Arab Jamahiriya | (3) | 220 | (2) | 480 |
| Morocco | (1) | 69 | (4) | 369 |
| Saudi Arabia | (2) | -2 | (0) | - |
| Somalia | (2) | 256 | (5) | 232 |
| Sudan | (2) | 136 | (2) | 122 |
| Syrian Arab Republic | (2) | 217 | (1) | 188 |
| Tunisia | (2) | 62 | (1) | 30 |
| Turkey | (2) | 63 | (2) | 98 |
| United Arab Emirates | (2) | -7 | (1) | 78 |
| Yemen | (3) | 282 | (3) | 964 |
| Total, Middle East, Mediterranean, Europe | (32) | 2 426 | (30) | 3 383 |
| Grand total, all country projects | (143) | 11 204 | (137) | 16 389 |

a/ Data are limited to those country projects that were executed by the Department of Technical Co-operation for Development of the United Nations Secretariat, with technical support by the Statistical Office. Data for 1984 are based on the 1984 budget approved as of 30 September 1984.

b/ Regional groupings are those used by the Department of Technical Co-operation for Development for country projects.

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