



UNITED NATIONS
ECONOMIC
AND
SOCIAL COUNCIL



Distr.
GENERAL

E/CN.3/525
17 April 1978

ORIGINAL: ENGLISH

STATISTICAL COMMISSION

Twentieth session

~~15-26 January 1979~~

Item 10 of the provisional agenda. Technical co-operation
(b) Training of statistical personnel

REVIEW OF TRAINING OF STATISTICAL PERSONNEL

Report of the Secretary-General

SUMMARY

On the recommendation of the Statistical Commission, the Economic and Social Council adopted resolution 2054 (LXII) which, inter alia, requested the United Nations Development Programme to increase the funds for the training of statisticians, especially the regional funds. The Commission requested the Secretariat to prepare a progress report on the training of statistical personnel for its twentieth session.

The present document, following a discussion of some of the basic issues arising in the training of statistical personnel (paras. 6-25), reviews the training of statistical personnel carried out through the United Nations system at the regional level (paras. 26-61). In addition, training activities undertaken by selected international and regional institutions outside the United Nations system are described (paras. 62-96).

CONTENTS

	<u>Paragraphs</u>	<u>Page</u>
INTRODUCTION	1 - 3	3
I. ACTION BY THE COMMISSION	4 - 5	4
II. REVIEW OF TRAINING OF STATISTICAL PERSONNEL	6 - 96	4
A. Basic issues	6 - 25	4
B. Regional training centres within the United Nations system	26 - 61	9
C. International and regional training centres outside the United Nations system	62 - 96	16
Annex. SUMMARY OF PROFESSIONAL AND MIDDLE-LEVEL STATISTICAL STAFF, 1977, AND REQUIREMENTS, 1978-1987, IN AFRICA		

INTRODUCTION

1. On the recommendation of the Statistical Commission at its nineteenth session, the Economic and Social Council on 5 May 1977 adopted resolution 2054 (LXII), entitled "Financing of training of statisticians, especially through the regional funds of the United Nations Development Programme". The Council requested the United Nations Development Programme (UNDP) to take a sympathetic view of the requirements of the developing Member States for the financing of training of statisticians, especially through its regional funds, and to increase this component in its assistance, with a view to fostering the long-term and lasting development of the statistical services of the developing countries.

2. At the nineteenth session, the Commission placed an item on the training of statistical personnel on the agenda for the twentieth session. 1/ The present document describes the training of statistical personnel carried out within the United Nations system, at the regional level. The document is based on the material provided in response to a request for information sent to the regional commissions and certain regional institutions. The information received from some regions was more complete than that from others, and the document reflects this unevenness in coverage. Despite certain omissions it is hoped that the document provides a useful over-all picture.

3. The present document discusses some of the basic issues arising in the training of statistical personnel and, particularly, the continuing shortage of statisticians in Africa. It draws on a paper presented to a Meeting of the Directors of International Statistical Training Centres, held at Budapest, 2/ and on a recent survey of the training needs of statisticians in Africa. 3/ It describes the regional training centres associated with the United Nations system in considerable detail but does not include an account of the many national training programmes because of the lack of sufficient material for a balanced picture. In addition, it describes some of the international and regional training centres operating outside the United Nations system, which many trainees attend on United Nations fellowships.

1/ Official Records of the Economic and Social Council, Sixty-second Session, Supplement No. 2 (E/5910), chap. XI.

2/ "The co-existence of international, regional and national statistical training centres", paper prepared by the United Nations Statistical Office for the Meeting of the Directors of International Statistical Training Centres, held at Budapest in August 1973.

3/ "Statistical Training Programme for Africa (STPA)" (E/CN.14/CAS.10/5/Rev.1).

I. ACTION BY THE COMMISSION

4. The Commission may wish to comment on the present document, in particular on:

(a) The implementation of the new Statistical Training Programme for Africa;

(b) The training implications of the National Household Survey Capability Programme;

(c) The degree to which the training programmes, while remaining technically sound, should be given an increasingly practical orientation, accompanied by a lowering of academic entry requirements;

(d) The degree to which regional training centres should give greater emphasis to country courses, the appropriate allocation of training objectives and course contents between regional and national training centres and the extent to which certain national centres should be expanded to serve a subregion;

(e) The desirability of extending regional training facilities to include the training of systems analysts and programmers;

(f) The need for the training of trainers; and

(g) The degree to which the regional training centres should undertake research and the ways in which this can be fitted in with the research programmes of the regional commissions and the specialized agencies.

5. Finally, the Commission may wish to ask the Statistical Office to undertake further reviews or studies of statistical training at the national as well as the regional levels.

II. REVIEW OF TRAINING OF STATISTICAL PERSONNEL

A. Basic issues

6. In large measure the existence of international and regional training centres is a reflection of the acute shortage of professional and executive statistical staff, which is hampering the development of statistical offices in many countries of the developing regions, particularly in Africa, and the absence of immediate practical alternatives for reducing the shortages in those countries. They are also a reflection of the highly uneven distribution in the availability of trained and experienced persons, with a few countries enjoying relative abundance in certain specialized statistical fields. United Nations-sponsored centres have, as a rule, more effective facilities than national centres for establishing a teaching staff structure by bringing together persons with the required background from various parts of the world on a regular or a short-term basis. To the extent that in the understaffed statistical offices of many developing countries training

/...

cannot be given effective attention and in the absence of adequate training facilities at the national universities, the international and regional centres perform indispensable tasks.

7. Over and above these considerations, the international and regional centres offer opportunities for a cross-fertilization of experience of people with various backgrounds from countries with differing circumstances. They are also conducive to highlighting awareness of the importance of international comparability in the concepts, methods and classifications used and the shared experience of the participants fosters professional co-operation between countries.

8. Since most universities offer courses in statistics, it may be economical and advantageous if the training centres, regional as well as international, shared the professional and administrative facilities of a university and had the courses certified for a degree by an academic institution of recognized standing. In doing so, care would need to be taken that the course programmes of the centres reflected the most urgent practical needs of the constituent countries. In general, this means that the training programmes should seek to prepare the trainees to carry out specific statistical activities in their home country or to train or guide others in their department to do so. While the heterogeneity of the needs of different countries must be borne in mind, the circumstances of many developing countries require that high priority be accorded to methods for collecting, compiling, evaluating and analysing primary statistics. The introduction of complex systems, where appropriate, such as the national accounts, should take place with this in mind. The programmes must often be adapted for inexperienced, or prospective, statistical officials as well as those who have already had considerable experience in statistical departments. Moreover, the programmes should attempt to accommodate the needs of actual or prospective users of statistics in various governmental departments.

9. One of the important functions of regional training centres is to organize courses in specific fields, e.g., national accounts, external trade, population, sampling etc. for the individual countries or subregions. This enables the centres to train a sizable number of people in specific fields at comparatively low cost. Moreover, it provides opportunities for countries to secure consultation assistance from staff members of the centres on specific technical problems. The inadequate statistical resources at the disposal of the Governments in many developing countries make it difficult to come to grips with short-term but urgent technical problems, especially in statistical methodology and data processing. The staffs of the regional institutes can provide an important service to national statistical authorities by their timely advice. This is an important and economical source of technical assistance which merits careful exploration with a view to its expansion as part of the ongoing support programmes of the regional commissions.

1. Training needs for the National Household Survey Capability Programme

10. It may be noted that the National Household Survey Capability Programme which is being developed by the United Nations involves a large training element, and the

training institutions will need to reorient some of their courses towards the training needs identified in the programme proposal. Training is needed in such areas as over-all survey-planning, applied sampling and survey design, the organization of field operations, statistical administration, data processing, the analysis and evaluation of data and in the production and substantive skills necessary to ensure effective dissemination of the survey results. These requirements imply a large, flexible and diverse training activity that will necessarily draw upon the statistical training centres. It will be necessary to modify some of the existing courses or even to design special courses in some cases. The course guidelines prepared by institutes such as the Statistical Institute for Asia and the Pacific, the manuals prepared by the Institut national de la statistique et des études économiques (INSEE) and specially designed case studies such as Atlántida prepared by the United States Bureau of the Census may be useful in developing new courses or modifying the existing ones. The United States Bureau of the Census has already included in its 1978/79 special training programmes courses of varying lengths dealing with the planning and implementation of continuing multisubject household surveys. These courses would also need to be supplemented by ad hoc regional and national training seminars and workshops. Because the training needs in each country will differ, considerable flexibility must be built into the training activity for this programme, which implies a high degree of planning and co-ordination to ensure that relevant and timely training services are provided to all participating countries.

2. Research

11. Another issue is the degree of research which could profitably be undertaken by the centres. It is recognized that the facilities of many developing countries are inadequate to enable their statisticians to carry out substantial research of a type which would render their statistical practices more effective and efficient and the statistical results more timely, accurate and more conducive to evaluation of error. The training centres could usefully develop research facilities to meet the need for specific research in those different aspects of training for which national facilities are not available and which countries could commission from the centres as required. These research programmes would need to be carefully selected so as to supplement and not duplicate the statistical activities of the United Nations system.

3. Training in electronic data processing

12. Yet another issue is whether regional centres should be encouraged to extend their facilities to train statistical personnel in electronic data processing (EDP) including the use of computer software packages. National institutes often find it difficult to include specialized computer training in their curricula and there are, in any event, considerable economies in such training at regional training centres. The curricula of four selected training centres illustrate this type of training. During its first phase, the Statistical Institute for Asia and the Pacific, in Tokyo, offered as part of its 10-month general course a series of lectures on basic knowledge of EDP systems, with practical exercises in the use of EDP for those government statisticians not directly involved in its

operation. At the Institute of Statistics and Applied Economics, at Kampala, lectures on programming and data processing are offered as parts of the first-year mathematics and first-year statistics course, respectively. At the Institut national de statistique et d'économie appliquée, at Rabat, a course is offered during the second year in FORTRAN. A course for senior census officers and their assistants, offered at the Arab Institute for Training and Research in Statistics, at Baghdad, contained an introduction to computers and data processing. At present the training in these institutions attempts to give statistical personnel an appreciation of the uses of the computer as a tool for building data banks and in statistical analysis. The extension of these facilities to include the training of systems analysts and programmers seems worth exploring.

4. National training centres

13. Despite the evident contribution of the regional training centres, there are occasionally problems which impede the successful implementation of their programmes. These problems range from the political to the academic. Countries with differing systems of education often have difficulty in providing candidates who can meet a single set of entrance requirements, sometimes based on the most advanced systems in the region. This has occurred several times in the African training experience. For example, candidates from certain countries were unable to meet certain basic mathematics and economics requirements for professional-level training at the Institute of Statistics and Applied Economics, Kampala. Similar experiences were encountered with respect to middle-level training, the East African Statistical Training Centre at Dar es Salaam being unable to meet the needs of students from a number of countries in south-eastern Africa. For these reasons national training institutes have a decided advantage over regional centres since there is usually greater homogeneity in the background of the student body in a national centre and training can more easily be tailored to local needs.

14. However, to date, only a few of the developing countries have been able to establish the relatively wider varieties of professional training that could be considered adequate to the statistical demands of economic and social development. In countries such as Brazil, Egypt and India, facilities are adequate to take care not only of their own training needs but also some of the needs of neighbouring countries which have similar conditions and could adapt to the language of instruction. Further extension of such national facilities clearly merits careful attention.

5. Middle-level training

15. In view of the urgency to proceed with practical statistical work, the training of statistical personnel at the middle level is a perennial and pressing problem. Middle-level training has been used extensively in Africa in recent years. It involves the practical aspects of the collection of data, basic calculations and the elements of the presentation of data. Topics such as consistency-checking, coding, the operation of office machinery etc. are also covered, and the graduate of a middle-level course should thus become a well trained statistical assistant.

16. A most effective way of training personnel at this level is to organize within countries national training centres capable of carrying out suitable in-service training and other related training programmes. The establishment of such centres involves the training of people capable of organizing and maintaining them. One of the primary goals of the United Nations in establishing middle-level training centres was to make these centres self-sufficient over a reasonable period of time and hand over all fully operational training centres to national Governments.

17. To achieve this goal counterpart personnel, i.e., nationals who work closely with international experts and who would take over the task of training after the latter depart, must be trained themselves. These national personnel will participate in the administrative and training operations of the centre, under the guidance of the international staff. The training of national personnel, although a lengthy process, has a multiplier effect on the statistical capacity of the country if trainers and trainees remain within the country. For example, the centres at Addis Ababa, Achimota and Dar es Salaam, originally established by the United Nations, have now become primarily national centres for middle-level training although they still receive a few trainees from neighbouring countries.

6. Evaluation of training programmes

18. Evaluation of the training programmes and methods of following-up trainees when they return to their statistical work have become the object of increasing attention in recent years, and brief references are made to them in the accounts of the different institutes. The subject is, however, examined in greater detail in another document before the Commission at its present session, "Notes on procedures for evaluating technical co-operation projects and some new directions in technical co-operation in statistics" (E/CN.3/524), where, as an example, the evaluation procedures used by the Statistical Institute for Asia and the Pacific, Tokyo, are analysed. In discussing the major issues raised in the present document, the Commission should, therefore, take into account the issue of evaluation discussed in E/CN.3/524.

7. Statistical Training Programme for Africa (STPA)

19. Since the most serious shortage of trained statisticians is found in Africa, it might be useful to provide a brief account of the steps that are being taken in that region to deal with the shortage.

20. At its second session in 1961, the Conference of African Statisticians initiated an intensive training programme to overcome staff shortages in statistical offices of the African region. Initially, the main emphasis was placed on middle-level training, with a more gradual development of professional facilities.

21. Although the training programme largely fulfilled its original targets, the staff position in many African statistical offices has remained unsatisfactory because of the loss of trained personnel to other government departments, the private sector and more developed countries, and for a number of other reasons.

22. Accordingly, at its ninth session, held at Lomé in October 1975, the Conference of African Statisticians once again expressed its concern about the problems of meeting the needs of Africa. It urged the establishment of a long-term programme for the training of professional statisticians and an examination of a number of financing possibilities in order to ensure continuity. It recommended that a working group be organized to discuss the improvement of existing training centres, the reduction of the losses in trained staff from national statistical offices, the financial resource requirements and the co-ordination of statistical training activities within and outside the region.

23. A mission was undertaken to countries and training centres and other relevant organizations in the region to review the situation. The report of the mission was discussed by a working group which met at Munich in 1977 and, based on its recommendations, the Conference of African Statisticians, at its tenth session, adopted the Statistical Training Programme for Africa (STPA). The STPA represents the latest development in African efforts to provide opportunities for the training of adequate numbers of staff that are required to produce the statistics needed for economic and social development. *Oct '77*

24. The essential objective of STPA is to ensure that the African region has a permanent supply of trained staff for statistical and other services of government as well as for the private sectors. To meet this objective STPA is conceived as a 10-year programme seeking to make Africa self-sufficient by increasing the number of statistical personnel in service. It also seeks to ensure that the centres participating in the programme become self-supporting. During the planned 10-year period of its existence, STPA will provide a framework for co-ordinating the development, improvement and expansion of statistical training facilities in Africa.

25. The information on existing staff and future requirements obtained by the mission and estimates available in the Secretariat of the Economic Commission for Africa (ECA) were brought together and are shown in the annex to the present document. It is estimated that, as against the figure of 4,500 statistical staff currently working in Africa, additional requirements in the period 1978-1987 will amount to 11,500, the larger part of the increase being at the professional level. To meet the requirements it is estimated by ECA that it will be necessary to increase the number of persons currently under training by more than half. The UNDP, in collaboration with ECA, has earmarked an initial US\$ 250,000 to begin this considerable undertaking.

B. Regional training centres within the United Nations system

26. The present section describes six regional training institutions that have been established with the support of the United Nations system, namely the Statistical Institute for Asia and the Pacific (Tokyo); the Arab Institute for Training and Research in Statistics (Baghdad); the Institute of Statistics and Applied Economics (Kampala); the East African Statistical Training Centre (Dar es Salaam); the Institut de statistique, de planification et d'économie appliquée (Yaoundé) and the Institut national de statistique et d'économie appliquée (Rabat).

1. Statistical Institute for Asia and the Pacific (Tokyo)

27. The Statistical Institute for Asia and the Pacific was established in Tokyo in 1969 by the 20 regional member countries of the Economic and Social Commission for Asia and the Pacific (ESCAP), under the aegis of the United Nations, in association with the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the Food and Agriculture Organization of the United Nations (FAO). It is financially supported by contributions from participating ESCAP member and associate member countries as well as by UNDP. In addition, its activities are often supported by extrabudgetary resources that are made available by some developed non-regional member countries of ESCAP.

28. During the first five-year phase of the Institute, the total budget was \$4 million, of which 8 per cent was contributed by the countries of the region, 54 per cent by UNDP and 38 per cent in kind by the host Government, Japan. In the second five-year phase, the total budget was \$4.7 million and the share of contributions was 13, 28 and 59 per cent respectively.

29. The objective of the Institute is to train statistical personnel in applied statistics and to assist in training programmes and related research in applied statistics, with a view to improving the statistical data base in countries of the ESCAP region. The Institute is also engaged in the preparation of manuals and other training materials and provides facilities to officials for carrying out special studies. To date, the Institute has provided statistical training to some 500 statistical personnel from 28 countries in the region.

30. The general course is designed to enable the participants to gain an insight into the statistical data needs of Asian and Pacific countries and the methodologies appropriate for collecting, processing and presenting data useful for economic and social analysis and planning. Thus, the orientation of the course is towards imparting general proficiency to the participants in the major fields of government statistics. The course consists of lectures, workshops and/or seminars in five subjects: statistical methods; demographic and social statistics; economic accounting statistics; economic statistics, and agricultural statistics. In addition, an introductory course in electronic data processing is offered. Since the academic background of the participants is subject to considerable variation, two short supplementary courses in basic mathematics and economic analysis are also offered.

31. Throughout the general course, emphasis is placed on the application of the technical knowledge acquired by the trainees to practical problems they are expected to face in their own countries. Such practical orientation is strengthened by lectures and seminars by guest lecturers who are currently engaged in statistical work in specific fields. For the same purpose, periodical field visits are arranged to enable the trainees to get first-hand knowledge of various techniques of data collection used in censuses and surveys in Japan. The syllabus for the general course is kept under constant review, and revisions are made from time to time in the light of the changing situation and experience gained. The

Institute has conducted, to date, five general courses of 10 months' duration and two more recent general courses of six months' duration.

32. The six-week advanced course is meant to provide a forum for groups of about 15 experienced statisticians from the statistical offices of the countries of the ESCAP region to discuss in depth different aspects of a field of special interest to them. The topic is changed from year to year so as to cover as many fields of current interest as possible. The Institute has so far conducted nine advanced courses.

33. Country or subregional courses have also been arranged by the Institute: a subregional course on international trade statistics and statistical methods, in Fiji; national accounts courses, in the Republic of Korea, Iran and Indonesia; sample surveys, in Sri Lanka and Bangladesh; basic aspects of general applied statistics, in Afghanistan; statistical operations and procedures, in Papua New Guinea; statistical indicators, in Nepal; demographic and social statistics with special reference to population census, in Afghanistan; census field operations, in Afghanistan; collection and compilation of statistics and indexes of consumer prices and other economic indicators, in Iran; national and regional accounts, in the Philippines; and agricultural statistics, in Sri Lanka.

34. The Institute has not so far actively pursued any research programme, due to the limitation of its staff strength which is fully occupied with teaching and training. It is expected that the Institute will undertake applied research work in aspects of training when more staff are available.

35. On their arrival the trainees are given tests in five major subject areas: agricultural statistics; demographic and social statistics; economic accounting and economic statistics; statistical methods and sampling; and basic mathematics. The test enables the faculty to determine the appropriate level of teaching and to pick out the relatively deficient trainees. Throughout the course, regular periodical tests are also conducted.

36. At the end of each course conducted by the Institute, the trainees are given an opportunity to evaluate the course design, course content and the Institute's facilities, through a questionnaire. On the basis of the responses, a report on the trainees' evaluation of the course is prepared for use in designing future courses.

37. The Institute maintains a roster of former trainees with a view to following up the progress through the Institute's Newsletter or special questionnaires. In 1972 as a part of the follow-up, the Institute sent out a questionnaire to the member countries of the ESCAP region to get some reaction to the programme as well as information on the progress of the trainees as evaluated by their supervisory officers. The supervisory officers generally expressed satisfaction with the improved quality of the work of the former trainees.

2. Arab Institute for Training and Research in Statistics (Baghdad)

38. The Arab Institute for Training and Research in Statistics was established at Baghdad in 1976 by 15 Arab countries under the aegis of the United Nations in

association with FAO and UNESCO. It is financially supported by UNDP and the participating countries.

39. The Institute is the successor to the Regional Institute for Research and Training in Statistics for the Near East, which began operation in April 1973. The objective of the Regional Institute, which may be considered as the first phase of the Arab Institute, was to provide training programmes on agricultural censuses for senior staff of national statistical offices of member countries, guidance and training for research on statistical problems and consultancy services in various areas of agricultural statistics.

40. During the first phase, 11 regional and subregional short-term training courses on agricultural census were held; 288 trainees from 19 countries participated. Research activities were undertaken on agricultural statistical subjects of immediate concern to the six countries where the activities were undertaken. The Institute also provided consultation services on a variety of technical subjects in agricultural statistics. At present, during the second phase, the Institute, redesignated the Arab Institute for Training and Research in Statistics, stresses general statistics.

41. The long-range objectives of the Arab Institute are to improve the quality and increase the number of statisticians needed for central and sectoral statistical offices and statistical units and for conducting censuses and surveys in the member countries, and to assist those countries in strengthening their national statistical organizations and training centres and developing and improving all other national statistical activities. The immediate objectives are to provide training in various statistical fields for senior staff and their assistants as well as technical officers who will in turn train large numbers of staff in their own countries, to provide guidance and training for research on statistical methodology and problems of immediate importance and of particular interest to the region, and to provide consultant services in various areas of statistical activities, particularly on surveys, as well as censuses and related data processing. The Institute pays special attention to those countries whose statistical services are at an initial stage of development.

42. The regular training programme of the Institute consists of a nine-month advanced general statistics course at Baghdad for professional statisticians, two specialized courses a year of four to six weeks' duration for technical staff, two country courses, of up to six weeks' duration in individual countries or subregions each year, and a workshop of two to three weeks' duration, conducted each year at Baghdad or elsewhere in the region on topics of immediate importance to current statistical problems.

43. There is also an interim training programme consisting of a nine-month general course for 15 trainees who are university graduates doing statistical work but who received inadequate training in basic statistics. It is expected that this type of course will continue for three years. In addition there is a six-month course for 15 trainees who are junior personnel (incompleted secondary level) for whom training facilities are not available in the participating countries. This course

will be offered in individual countries or subregions on a roving basis and is expected to continue for two years. There are also one-month advanced courses given alternately in statistics of education, science and technology, labour statistics and agricultural statistics for 15 participants each. One such course will be held each year for three years at Baghdad or elsewhere in the region.

44. The programme of the Institute has undergone a number of changes. The six-month regular course held during the first part of 1977 was replaced in October 1977 by a nine-month advanced course in applied statistics, and the roving course was replaced by a nine-month intermediate-level course.

45. The Institute will carry out research related to its training programme and the statistical programmes of the participating countries. The research studies will concentrate on the practical problems of data collection and analysis. A number of international experts have been recruited and a project manager appointed by the United Nations to supervise their work and advise the director. A mid project review by a team representing UNDP, the executing agency and possibly participating countries was scheduled for late 1978.

3. Institute of Statistics and Applied Economics (Kampala)

46. The Institute of Statistics and Applied Economics at Kampala was established under UNDP-sponsorship at Makerere University as a national project also offering regional services. However, efforts to regionalize the project have not been very successful to date. As a national project it continues to be financed from the UNDP country programme for Uganda and from the national budget. Recently the United Nations Fund for Population Activities (UNFPA) made a grant to start a population unit in the Institute.

47. The Institute offers courses leading to the degrees of B.A. and B.Sc. in statistics, mathematics and economics, Bachelor of Statistics and M.Sc. in statistics. The length of the course leading to B.A., B.Sc. and B.Stat. is three years and that leading to M.Sc. one year. The annual output of successful trainees is 17 for B.A. and B.Sc., 25 for B.Stat. and 5 for M.Sc. During the period 1966-1977, 215 statisticians were trained at the professional level.

48. The objective of the Institute is to provide high-level professional training in statistics and applied economics to nationals of East Africa and other English-speaking African countries. The Institute has maintained a consistently good training performance and the B.Stat. programme instituted in 1975 is considered most appropriate for government statistical services. The M.Sc. course was begun in January 1973. Expansion of its activities to include trainees from other African countries would appear appropriate, but there are a number of current problems in bringing the Institute up to the capacity required. The Institute co-operates with ECA and other agencies of the United Nations in developing short-term courses of one to three months' duration and one-to two-week workshops of a regional character as well as conducting problem-oriented research.

49. The Institute is staffed half by officials of the host Government and half by internationally recruited experts. The host Government provides a director who has

the over-all responsibility, and the United Nations provides a project manager who co-ordinates the UNDP inputs. A number of counterparts undergo training at the Institute. Students pay tuition fees for B.Stat., B.Sc. (economics with statistics or mathematics with statistics), M.Sc. and Diploma in Statistics/M.Stat. courses. Residential fees are also paid. Tripartite reviews by the local UNDP office, the Ministry of Planning and Economic Development and the Institute are carried out every year.

4. East African Statistical Training Centre (Dar es Salaam)

50. The East African Statistical Training Centre was established at Dar es Salaam in 1965 with the assistance of ECA. Until 1972, the Centre was financed jointly by the United Nations and the East African Community. After 1972, it was fully financed by the East African Community. However, following the dissolution of the Community, new arrangements for financing the Centre have been under consideration, mainly in relation to STPA. The objective of the Centre is to organize courses in statistical methods and related subjects, including mathematics and economics, for middle-level statistical personnel of the East African subregion. The Centre provides training mainly for students from Kenya, the United Republic of Tanzania and Uganda, but Zambia and Nigeria also send students.

51. The Centre conducts introductory and intermediate-level courses in applied statistics mostly for government officials. The courses are for a duration of nine months. Selection for the courses is by interviews which the Centre holds at Dar es Salaam and other major towns in East Africa. Successful intermediate-level trainees can sometimes qualify for admission to the degree courses at the Institute of Statistics and Applied Economics at Makerere University (see paras. 46-49). The Centre has a complement of full-time teaching staff but also obtains assistance from the statistical departments of the three East African States and from ECA for the teaching of special subjects. The cost of training is met by the Governments which sponsor the candidates.

52. The Centre has not made any systematic attempt at a follow-up of the activities of students after training. In the past, the work of the Centre was evaluated primarily by the department of the East African Community under which it fell. An Advisory Board of the Centre assisted in this and also considered proposals for major changes.

5. Institut de statistique, de planification et d'économie appliquée (Yaoundé)

53. The Institut was established in 1976 at Yaoundé, on the foundations of the Institut de formation statistique, which was a UNDP-sponsored project offering training at the middle level. The objective of the Institute is to impart training at different levels to statistical personnel from all French-speaking countries of Africa. The language of instruction is French.

54. The courses offered at the Institute are a one-year course for Agent technique, a two-year course for Adjoint technique and a three-year course for Ingénieur des travaux statistiques (ITS). The last course includes a final year of specialization in either statistics or economics. The training offered is practical

in outlook and includes project work. The Institute also has a wing specializing in teaching agricultural statistics. The training at the Institute emphasizes case studies in planning, executing and analysing the results of a real project. In the first year of the new three-year ITS course there was an output of 15.

55. Evaluation of students in most cases is carried out through written tests conducted at different stages of the course, including computational exercises on solving practical problems. Oral tests are also given. Trainees are also evaluated through work assignments, reports on project work, including field work and term papers.

56. All trainees enjoy fellowships. These are awarded by international agencies, Governments and other organizations. While UNDP support of the project was phased out in mid 1977, it is understood that the Government is requesting continued assistance now that the ITS course has been instituted. In the meantime, the Government of France and the European Economic Community (EEC) have been providing teaching staff and fellowships. In the past, assistance was given by EEC in financing construction.

6. Institut national de statistique et d'économie appliquée (Rabat)

57. The Institute was established at Rabat in 1961, by the Government of Morocco with assistance from ECA and UNDP. The UNDP assistance was phased out in 1972 and the Government has since taken over complete sponsorship. Since 1974 some teaching staff have been received from France and Canada.

58. The Institute was started with the objective of training Moroccans and others from the French-speaking countries of Africa in statistics for economic planning. Later this objective was broadened to include the teaching of theoretical subjects, computer science and research in human sciences. Training is offered at different levels and the language of instruction is French. During the period 1961-1977, the Institute had an output of 282 middle-level and 369 professional-level statisticians.

59. The courses offered at the Institute are as follows: Adjoint technique de la statistique, started in 1968, duration two years, with admission capacity of 100 students; Adjoint technique programmer, started in 1973, duration one year, with admission capacity of 80 students; Ingénieur statisticien, started in 1961, duration three years, with admission capacity of 160 students; Ingénieur analyste, started in 1974, duration three years, with admission capacity of 40 students; and Ingénieur statisticien-économiste, started in 1974, duration two years, with admission capacity of 30 students.

60. The Institute has a full complement of full-time regular teaching staff with six counterparts at present and five others being trained abroad. Staff members of the Institute are engaged in a number of research projects in statistics, economics and demography. Students do not pay fees to the Institute, and scholarships are awarded mostly by the Moroccan Government. The travel of students is financed by their own countries.

61. A survey of alumni and their employers was carried out by the Institute in its attempts to follow up on trainees after their departure. The Canadian International Development Agency periodically sends a team to the Institute to evaluate the projects in the advanced programme of statistics.

C. International and regional training centres
outside the United Nations system

62. This section describes seven international or regional training centres outside the United Nations system which many trainees from developing countries attend with the help of United Nations fellowships. They are the International Statistical Programs Center (Washington), the Centro Interamericano de Enseñanza de Estadística (Santiago), the Centre européen de formation des statisticiens-économistes des pays en voie de développement (Paris), the Centre for Advanced Training in Applied Statistics for Developing Countries (Munich), the International Statistical Education Centre (Calcutta), the Ecole de statistique d'Abidjan (Abidjan) and the Institute of Social Studies (The Hague).

1. International Statistical Programs Center (Washington)

63. The Center, part of the United States Bureau of the Census, has been conducting formal statistical training programmes at Washington, D.C. since 1946. The objective has been to teach essential concepts of official statistics, how to produce and use them and how to constantly improve the system. The training places heavy emphasis on applied skills; basic theory is acquired in academic courses taken at a university. Over the years, as needs changed, both the programme content and the methods of teaching have changed. Courses in data systems, data management, statistical methods, non-sampling error and evaluation of coverage have gradually replaced some of the basic statistics courses that had become more available within the national educational system.

64. The current programme covers a broad spectrum of statistical activities associated with censuses and current surveys. The training is intended primarily for statisticians and computer data systems technicians who have some experience in national statistical offices. The courses are arranged in an integrated programme for each of five specializations: population statistics and demographic analysis; sampling and survey methods; agricultural surveys and censuses; economic surveys and censuses; and computer data systems.

65. General topics that are offered to all participants include mapping for censuses and surveys, statistical methods, questionnaire design, preparation of statistical reports and management of statistical activities. A workshop on training for statistical activities, a seminar on statistical applications of remote-sensing imagery and a seminar on small-area geocoding for socio-economic analysis are also offered.

66. Special programmes are arranged in statistical management, publication of data, cartography and other topics, and short courses are offered to census planners in the years preceding the world rounds of censuses. Additionally, training

documents and case studies on census-survey operations are developed, specifically for the use of the statistical offices of developing countries. The Center has recently redesigned its special programmes with the specific purpose of bringing them into correspondence with the training needs identified in the proposal for the National Household Survey Capability Programme. It is offering special training programmes of varying lengths to provide survey statisticians an opportunity to gain practical experience in various aspects of the planning and implementation of a continuing multisubject household survey programme.

67. Despite minimum requirements for enrolment, heterogeneity in experience and in English-language proficiency make it necessary to use a variety of teaching techniques. The traditional "lecture" method is used sparingly; on the other hand, generous use is made of visual and audio-visual aids. Laboratory sessions, in which problems are tested and solved, are co-ordinated with class sessions. The "project" method is another technique in which participants work on problems that involve several operations and the application of related principles. Simulated work experience in the form of field survey projects, described above, are particularly effective, once the theory and principles have been acquired in the classroom. Periodic tests measure progress and reveal points that need reinforcing; for participants with English as a second language, combined written and oral tests are used.

68. In the current programmes, the training is handled by full-time staff. Each participant has an instructor/advisor who not only handles formal training but also assists in assignments, arranges conferences with specialists and monitors the progress. In so far as is possible, the instructors have overseas experience.

69. For candidates who qualify for statistical training but are unable to obtain fellowships or to leave their countries, a correspondence course in the planning and implementation of multisubject household surveys has recently been developed. Materials especially prepared for statisticians from developing countries are used as the basic documents. Study guides and self-correcting tests direct the student through the narrative text and illustrations. With the development of more documents in the detail and form appropriate for self-study, statistical training by correspondence holds much promise.

70. In the early part of the training year, after participants have had three or four months of training, each is asked to complete an informal questionnaire about his objectives, accomplishments and any suggestions for change. The questions provide a basis for modification of a programme early in the year.

71. Follow-up attempts have been made, both by the organization sponsoring the trainee and the Center. Sponsors usually interview the participants prior to their return to their home countries and periodically attempt to find out what kind of work they are doing and for what organizations they are working after their return to their countries. Several years ago, the Center developed a questionnaire with a detailed check list of duties most statisticians carry out. Each incoming trainee completes the questionnaire on the basis of the job he was filling before he arrived for training. A year or so after his return home, he is asked to complete a

/...

similar questionnaire for the job he is currently holding. The post-training questionnaire asks also for the participant's views on his training and the use made of materials and ideas gained at the Center. The follow-up results are used to bring the curricula and methods up to date.

72. The United States Agency for International Development (USAID) funds staff support. Participants are funded by different sponsors - USAID, the United Nations, the specialized agencies, the Organization of American States, private research foundations or Governments. Sponsors are assessed a programme fee which varies by sponsor and by workload. The Center, with the help of various United States statistical agencies, has to date trained some 5,000 statisticians from approximately 100 developing countries.

2. Centro Interamericano de Enseñanza de Estadística (Santiago)

73. The Centre, known as CIENES, was established at Santiago in 1962, on the basis of an agreement between the Government of Chile and the Organization of American States (OAS). It is supported by the General Secretariat of OAS, the Inter-American Statistical Institute, the Government of Chile and the University of Chile. The objective of the Centre is to impart statistical training to technical personnel from member States of OAS, including those engaged in teaching and scientific research.

74. A four-and-a-half-month course in statistical techniques is offered to those who have had some university training and statistical work experience. This course usually contains some specialized modules; in 1978, for example, there was a module on agricultural censuses and one on education statistics. A six-month course is offered in economic and social statistics, and selected students stay for an additional two months or so for intensive training in specialized areas. An 11-month course in mathematical statistics leading to an M.Sc. degree is also offered. There has been a tendency to have the courses cover more ground, at the same time reducing their duration. The Master's course was reduced from 18 to 11 months and the statistical techniques course from six-and-a-half to four-and-a-half months.

75. The Centre organizes special courses of varying duration outside Santiago, in some particular fields of official statistics or on a specialized aspect of statistical methodology. The Centre also assists in organizing national training programmes in different countries. The language of instruction is usually Spanish, with an occasional course in English. An introductory course in Spanish for participants from English-speaking States is available.

76. The Centre has a complement of full-time teaching staff who also consult with different institutions of OAS member States. Specialists from other institutions are occasionally invited to lecture. A maximum of five scholarships per year is granted to professionals who join the Centre for a period of three months and carry out research in selected areas. The Centre also undertakes research projects based on requests made by different organizations. Scholarships covering fees, living and travelling expenses are granted principally by OAS, central banks of different countries, universities and research institutes, USAID and the Ford Foundation.

77. The OAS has carried out a number of evaluation studies at the Centre. The Centre does not have a formal system of obtaining the views of the students regarding the courses, but students are often asked about their difficulties or about the usefulness of the programme. The Centre keeps a record of the location and occupation of former students and a questionnaire is sent to them periodically.

3. Centre européen de formation des statisticiens-économistes des pays en voie de développement (Paris)

78. The Centre, known as CESD, was established in 1962 in Paris jointly by several agencies including the EEC and the Ecole nationale de la statistique et de l'administration économique (ENSAE). It is financially supported by both organizations. The objective of the Centre is to train statistician-economists from developing countries, especially those associated with EEC.

79. The courses, which are given in French, were originally at two levels: Ingénieurs des travaux statistiques and the more advanced Ingénieurs statisticiens-économistes. The students follow a two-year or three-year programme, depending on their background. Courses at the intermediate level ceased in 1976 because of the establishment of training centres in the least developed countries, such as the one at Kigali, Rwanda. During the period 1963-1976, 221 students from the least developed countries were trained at this level.

80. Most of the Centre's courses at the advanced level are similar to those of ENSAE and include economic theory and planning, national accounts, public finance, demography, survey design etc. The Centre admits about 25 candidates per year, with admission procedures similar to those at ENSAE/ Between 1964 and 1977, 147 students obtained the diploma of Ingénieur statisticien-économiste.

81. The fellowships for CESD are awarded by EEC, international agencies and sponsors in the countries where the trainees come from. The majority of the courses are taught by full- or part-time staff of ENSAE. The special courses are taught by part-time staff. The Administrative Council of the Centre evaluates the work of the Centre so far as curriculum is concerned. Student representatives participate in the Administrative Council and in the Scientific Committee, and give their opinions and suggestions regarding teaching.

4. Centre for Advanced Training in Applied Statistics for Developing Countries (Munich)

82. The Centre was established at Munich in 1972 jointly by the Government of the Federal Republic of Germany, EEC and CESD (see paras.78-81 above). The activities of the Centre are meant to benefit mainly the developing countries associated with EEC, whose membership was increased to 46 by the Lomé Convention, which came into effect in April 1976. Among the signatory States, 37 are located in Africa, six in the Caribbean and three in the Pacific. The participation of other countries is not excluded, depending on demand and the availability of funds.

83. The objective of the Centre is the further training of qualified statisticians working in developing countries in order to meet the increasing demand for practically oriented training and research. Owing to limited staff strength, the Centre has not so far undertaken any research.

84. The training provided at the Centre concentrates on the practical application of statistical methods to provide solutions suited to the specific problems of the developing countries, the updating of theoretical knowledge and the instruction in new methods which have been developed since the participants completed their original studies. Special emphasis is placed on the exchange of international experience and the practical application of statistical methods which meet the needs of the developing countries. Normally the courses include a study tour of two weeks during which the participants are given the opportunity to establish contact with representatives of EEC and various national statistical offices to discuss working methods and examine their applicability to their own national conditions.

85. All courses, which are given alternately in English and French, were originally for four months, but in 1977, short-term courses were introduced. Each course covers a central statistical topic, and the long-term course programme is established by EEC and the statistical offices of the developing countries.

86. Teaching is done mainly by guest lecturers from the Government of the Federal Republic of Germany with support from national and international agencies. The Centre is financed jointly by the Federal Republic of Germany and the European Development Fund of EEC. The Federal Ministry of Economic Co-operation covers the current costs, including expenditures for the lecturers, while EEC grants the fellowships including travel and miscellaneous costs. The Centre is managed by Carl Duisberg-Gesellschaft. It has a Scientific Council, in which the funding agencies are represented, which meets twice a year to discuss the work and future programme. The Centre does not conduct examinations. Instead, trainees are required to write a report on the status of statistics of their speciality in their home country.

5. International Statistical Education Centre (Calcutta)

87. The Centre was established at Calcutta in 1950 and is operated jointly by the International Statistical Institute and the Indian Statistical Institute, under the auspices of UNESCO and the Government of India. The Centre provides training in theoretical and applied statistics at various levels to participants from countries in Asia, the Middle East and from the Commonwealth countries in Africa.

88. The first eight months of the regular 10-month course are devoted to training on general statistical methods, including a six-week training in official statistics conducted by the Central Statistical Organisation of India. During the remaining two months, the trainees specialize in a selected branch of applied statistics. In addition a few persons are admitted, on an individual basis, for special courses of varying durations and in different subject fields. Facilities are also available for research and advanced study by senior visiting statisticians

from abroad. Since its inception, the Centre has provided training to nearly 800 trainees from 43 countries of Asia, Africa and the Middle East.

89. In the early years, the Centre was supported by UNESCO, but now the cost is largely borne by the Government of India. No fees are charged for the instruction provided by the Centre. The majority of candidates are supported by fellowships awarded by the Government of India, particularly those under the Technical Co-operation Scheme of the Colombo Plan and the Special Commonwealth African Assistance Plan. Some are supported by their own Governments and a few are sponsored by the United Nations, the specialized agencies or private organizations. Altogether, over 450 trainees have been awarded fellowships.

90. The Centre is located in the Indian Statistical Institute at Calcutta. Teaching is carried out by the staff of the Indian Statistical Institute, with the help of a visiting professor provided by the International Statistical Institute, and the statistical officers of the Government of India at New Delhi. The Centre uses the computer facilities of the Indian Statistical Institute, Calcutta, located in the same building. It offers special courses on automatic data processing and specialization-training to regular-course trainees opting for data processing. Though the Centre has not made any systematic attempt to follow up the activities of students after training at the Centre, it receives ad hoc comments from former students on the usefulness of the courses.

6. Ecole de statistique d'Abidjan (Abidjan)

91. The School was established in 1961 by the Government of the Ivory Coast to meet its own requirements as well as those of other French-speaking countries. It has over the years received assistance from the Government of France as well as EEC, and limited support has been provided by the United Nations in the form of fellowships.

92. The school offers courses for Ingénieur des travaux statistiques, annual admission capacity of 20 students, duration of course three years; Adjoint technique, annual admission capacity of 20 students, duration one year; and Agent technique, annual admission capacity of 20 students, duration one year. During the period 1961-1977, 352 students were trained at the middle level and 341 at the professional level.

93. The full-time teaching staff, apart from the director, comes from bilateral sources, with national teaching only on a part-time basis. A plan for the recruitment and training of national teaching staff has been prepared and courses in data processing and demography are also planned for which further external assistance is being sought. Currently, there is spare capacity which could be used to help meet requirements of other French-speaking countries at both the middle and professional levels.

7. Institute of Social Studies (The Hague)

94. The Institute was established at The Hague in 1952. It was founded by the 10 universities in the Netherlands and is financially supported by the Government of

the Netherlands. It works in close collaboration with the Central Bureau of Statistics of the Netherlands and the Central Statistical Office of the United Kingdom.

95. The objective of the Institute is to contribute to national and international efforts to understand and solve problems of economic and social development. In 1962, eight-month courses in statistics and national accounting were started. The Institute also carries out research and collaborates with universities and governmental agencies in developing countries on teaching and research programmes. Trainees prepare research papers adapting statistical methods to conditions prevailing in developing countries. The Institute admits about 25 trainees from developing countries annually.

96. Teaching is provided by the staff of the Institute with the help of guest lecturers from government statistical offices, universities etc. Tuition fees are charged by the Institute but are reimbursed by the Netherlands Ministry of Foreign Affairs. Fellowships are awarded by the Netherlands Government and also by international organizations and sponsoring Governments.

SUMMARY OF PROFESSIONAL AND MIDDLE-LEVEL STATISTICAL STAFF, 1977, AND REQUIREMENTS, 1978-1987, IN AFRICA

	Staff in post, 1977						Requirements, 1978-1987					
	Professionals			Middle level			Professionals			Middle level		
	CSO	Other government	Total	CSO	Other government	Total	CSO and other government	Other sectors	Total	CSO and other government	Other sectors	Total
<u>North Africa</u>												
Algeria	17	3	39	80	10	100	320	170	490	400	30	430
Libyan Arab Jamahiriya	11	8	22	53	5	58	45	20	65	60	25	85
Morocco	50	52	189	150	30	200	350	200	550	300	50	350
Sudan	58	10	78	228	20	253	50	20	70	65	25	90
Tunisia	42	8	84	207	10	232	230	130	360	250	50	300
<u>West Africa</u>												
Benin	8	1	18	25	5	50	37	11	48	65	15	80
Cape Verde	2	-	2	15	-	15	15	-	15	25	-	25
Gambia	2	-	5	3	-	6	20	5	25	34	5	39
Ghana	23	5	40	31	60	141	245	130	375	37	40	77
Guinea	3	-	9	15	-	20	60	10	70	110	15	125
Guinea-Bissau	-	-	-	10	-	10	15	5	20	25	5	30
Ivory Coast	9	12	46	35	40	105	68	20	88	130	30	160
Liberia	16	5	22	41	10	46	22	10	32	40	15	55
Mali	20	22	74	50	20	80	42	13	55	80	100	180
Mauritania	7	-	9	12	10	22	18	5	23	35	5	40
Niger	8	1	9	11	-	11	28	9	37	50	10	60
Nigeria	86	32	138	125	30	245	800	100	900	1	100	1 200
Senegal	14	8	41	23	10	61	68	20	88	125	25	150
Sierra Leone	14	-	16	23	-	23	16	10	26	30	15	45
Togo	24	3	36	60	5	70	39	12	51	70	15	85
Upper Volta	7	1	16	28	5	43	42	14	56	75	20	95
<u>Central Africa</u>												
Angola	3	-	8	10	-	15	25	10	35	45	15	60
Burundi	3	1	4	4	5	9	29	9	38	60	10	70
United Republic of Cameroon	31	21	76	190	50	240	122	38	160	130	30	160
Central African Empire	5	2	9	12	10	32	34	10	44	60	15	75
Chad	3	-	3	10	10	20	19	5	24	35	5	40
Congo	7	5	16	48	30	58	42	13	55	75	20	95
Equatorial Guinea	-	-	-	-	-	-	6	5	11	10	5	15
Gabon	7	1	10	5	5	15	29	9	38	50	10	60
Rwanda	1	4	5	23	10	33	33	10	43	60	15	75
Sao Tome and Principe	-	-	-	5	-	5	8	5	13	10	5	15
Zaire	34	14	49	42	20	67	100	21	121	25	30	55
<u>East Africa</u>												
Botswana	11	-	11	12	2	14	42	10	52	66	15	81
Comoros	-	-	-	1	3	5	15	5	20	25	5	30
Djibouti	1	2	3	6	4	10	8	5	13	10	5	15
Ethiopia	24	26	62	2	57	69	48	10	58	90	15	105

SUMMARY OF PROFESSIONAL AND MIDDLE-LEVEL STATISTICAL STAFF, 1977, AND REQUIREMENTS, 1978-1987, IN AFRICA^{a/}

	Staff in post, 1977						Requirements, 1978-1987					
	Professionals			Middle level			Professionals			Middle level		
	CSO	Other government	Total	CSO	Other government	Total	CSO and other governmental	Other sectors	Total	CSO and other governmental	Other sectors	Total
East Africa (continued)												
Kenya	23	-	29	86	5	111	136	30	166	315	40	355
Lesotho	12	1	13	26	5	31	51	10	61	60	15	75
Madagascar	28	11	65	17	10	37	62	19	81	110	25	135
Malawi	12	15	28	13	5	18	25	10	35	45	15	60
Mauritius	9	6	22	52	2	59	38	5	43	210	5	215
Mozambique	4	-	9	16	-	16	30	10	40	55	15	70
Seychelles	3	-	3	-	-	-	1	5	6	1	5	6
Somalia	9	3	13	26	-	26	21	5	26	55	5	60
Swaziland	7	1	10	11	1	12	26	5	31	61	5	66
United Republic of Tanzania	30	4	38	56	18	79	121	20	141	317	25	342
Uganda	17	16	67	9	5	34	96	20	116	86	25	111
Zambia	23	8	36	42	31	113	100	30	130	375	40	415
Total	728	312	1 482	1 997	541	2 979	3 797	1 248	5 045	5 547	935	6 482

^{a/} Excluding Egypt, Namibia, Réunion, South Africa, Southern Rhodesia and Western Sahara.