

**REPORT  
OF THE  
COUNCIL OF THE  
UNITED NATIONS UNIVERSITY**

**GENERAL ASSEMBLY**

OFFICIAL RECORDS: THIRTY-FIFTH SESSION

SUPPLEMENT No. 31 (A/35/31)



**UNITED NATIONS**

New York, 1980

## **NOTE**

**Symbols of United Nations documents are composed of capital letters combined with figures. Mention of such a symbol indicates a reference to a United Nations document.**

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## REPORT OF THE COUNCIL OF THE UNITED NATIONS UNIVERSITY

1. By its resolution 2951 (XXVII), the General Assembly decided on 11 December 1972 to establish the United Nations University and, by its resolution 3081 (XXVIII) of 6 December 1973, adopted its charter (A/9149/Add.2) a year later. In 1980 the University marked its fifth year of operations following the opening of its headquarters in Tokyo in September 1975. It is for this reason that the Council begins this annual report with an overview of the University's first five years.

2. As a whole, however, this report focuses on the period from July 1979 to June 1980. As requested by paragraph 6 of General Assembly resolution 34/112, adopted on 14 December 1979, this report also contains the findings and opinions of the Council on the valuable suggestions and recommendations in the report dated 16 November 1979 and entitled "Fund-raising efforts for the United Nations University" (A/34/654), which was transmitted by the Secretary-General and the Director-General of the United Nations Educational, Scientific and Cultural Organization to the General Assembly. Paragraphs 46 to 52 below respond directly to the suggestions and recommendations on fund-raising possibilities contained in that report.

### A. The first five years

3. The Council noted the satisfactory progress that had been achieved by the United Nations University in the short period corresponding to the term of the first Rector, Mr. James M. Hester. The University had been organized into an operational institution with an established centre and an extensive, international system of 18 problem-oriented networks of scholars and institutions engaged in research, advanced training, and dissemination of knowledge. The University has begun to achieve tangible results in its programmes focused on some of the most pressing global problems and involving many scholars and institutions from both the developing and the industrialized countries, representing diverse schools of thought and cultural traditions. Outside its headquarters in Tokyo with some 100 centre staff members, the University has developed a field organization of 25 associated institutions and close to 100 research and training units located throughout the world. Nearly 500 scholars and scientists have collaborated in its research and advanced training activities. The University has mobilized the expertise of a growing number of scientists in the developing countries, whom the Charter directs the University to attract as members into the international academic community to help it come to grips with "pressing global problems of human survival, development and welfare" (A/9149/Add.2, art. I, para. 2). The University now has 240 Fellows who have received or are undergoing multidisciplinary training in research and management in its associated institutions so that they may better serve their home institutions and countries. The University has produced some 140 publications, including two scientific periodicals. The University has an Endowment Fund of about \$US 140 million, generously paid or pledged by Member States, led by Japan, which contributes to the University's future financial viability and enhances its autonomy. The University has engaged in fruitful collaboration with United Nations Headquarters, the United Nations Educational, Scientific and Cultural

Organization (UNESCO), the United Nations Institute for Training and Research (UNITAR), the World Health Organization (WHO), the Food and Agriculture Organization (FAO), the United Nations Environment Programme (UNEP), the United Nations Development Programme (UNDP), the United Nations Children's Fund (UNICEF) and other agencies and institutes of the United Nations system and with a number of scientific organizations.

4. It is with a sense of continuing challenge that the University is critically examining its immediate future development as a consequence of its intensive review of its work and in the light of new opportunities it faces in a rapidly changing world.

#### B. Council sessions

5. The Council of the United Nations University met three times during the year 1979/80: at its thirteenth session, held at Geneva from 8 to 10 October 1979; its fourteenth session, held at Tokyo from 3 to 7 December 1979; and its fifteenth session, also at Tokyo from 23 to 27 June 1980. At these sessions the Council reviewed the University's progress, considered how it could improve awareness and understanding of the University and its programmes and make its fund-raising more effective, adopted its budget for 1980, and initiated the process of medium-term planning.

#### C. Appointment of a new Rector

6. At its thirteenth session, the Council prepared a panel of candidates for Rector to succeed Mr. James M. Hester, when his five-year term as the first Rector would expire in August 1980. From this list, the Secretary-General of the United Nations, with the concurrence of the Director-General of the United Nations Educational, Scientific and Cultural Organization, appointed as Rector Mr. Soedjatmoko, an outstanding scholar of international development from Indonesia, to assume office on 1 September 1980.

#### D. Election of officers

7. At its fourteenth session, the Council re-elected Mr. Ines Wesley Tanaskovic as Chairman and Mr. Estefania Aldaba-Lim and Mr. Carlos Chagas as Vice-Chairmen. It elected Mr. Shams E. El-Wakil, Mr. Jean Coulomb, and Mr. Malu wa Kalenga as Vice-Chairmen for a first term. It also elected Mr. Abdelsalam Majali as Chairman of the Committee on Finance and Budget. At its fifteenth session, it elected Mr. Reimut Jochimsen as Chairman of the Committee on Programme and Institutional Relations and the members of the Committee on Finance and Budget. All these officers of the Council were elected for a term ending on 31 December 1980.

#### E. Appointment of new Council members

3. In May and June 1980 the Secretary-General of the United Nations, jointly with the Director-General of the United Nations Educational, Scientific and Cultural Organization, in consultation with the institutions concerned, including the United

Nations Institute for Training and Research (UNITAR), appointed 13 new members of the Council to succeed 12 members whose term would expire on 2 May 1980 and another member who had resigned. (A list of the members, officers, and committees of the Council is given in annex I.)

#### F. Rector's five-year review

9. At its fifteenth session, in June 1980, the Rector, Mr. Hester, reviewed the development of the University under his five-year rectorship, enumerating what in his view were the principal accomplishments to date, the unfinished business, the difficulties encountered, and the possibilities for further growth and development. Following this review, the Council unanimously adopted a resolution of appreciation for Mr. Hester's leadership. In that resolution the Council said that the first Rector had "led the University with great distinction from its inception in 1975 as its chief academic and administrative officer and a member of the Council" and that the Council expressed "its profound gratitude and appreciation for his invaluable contribution to the organization and development of the University during its formative years, its highest esteem for his dedicated and dynamic stewardship of the University, and its best wishes for his continued success in all his future endeavours."

#### G. Accomplishments in 1979/80

10. In reviewing the report of the Rector to the Council (annex II), the Council once more drew attention to the progress achieved by the University during the past year: programme activities had been expanded, interaction between programmes continued, and the Endowment Fund had been augmented. Specifically, during 1979/80:

(a) Two more institutions of higher education became associated institutions of the University, to conduct advanced training and research, bringing the total number of associated institutions to 25. Of these, 17 were in developing countries and 8 in industrialized countries. In this connexion the Rector informed the Council that in early July 1980 he would visit Beijing, China, in order to sign a general agreement of co-operation between the University and the Academia Sinica. The Council approved the University's association with two more institutions within the next few months.

(b) Nearly 1,370 scientists, scholars, and policy-makers participated in 78 workshops, seminars, and other scientific meetings organized by the programmes of the University.

(c) There was a substantial increase in the fellowship programme. Sixty United Nations University Fellows completed their training during the year, thus bringing the total of United Nations University trained Fellows to 110. A recent survey showed that a large majority of them were now working in their home institutions or in other scientific or policy-making positions in their home countries. As at the end of June 1980, 80 United Nations University Fellows were already receiving training and conducting research or awaiting to start training and research in the associated institutions of the University. Fifty special fellowships have also been granted to date.

- (d) Interaction among the three programmes of the University resulted in:
- (i) a study on the role of women in conservation of food after harvest, developed by the World Hunger Programme and the Human and Social Development Programme in a series of workshops and case studies in five countries;
  - (ii) an analysis of technologies needed for rural development conducted in a series of scientific meetings organized by the Human and Social Development Programme and the Programme on the Use and Management of Natural Resources;
  - (iii) an analysis of the state of the art of education for development conducted in a meeting organized by the three programmes in September 1979, as a basis for the University's own activity in this area; and
  - (iv) continuation of research and training activities in biocconversion of organic residues for rural communities, jointly organized by the World Hunger Programme and the Natural Resources Programme.

During the third meeting of the Joint Programme Advisory Committee, held in Tokyo in January 1980, possible future joint programme activities were explored, such as on world hunger and the new international economic order and on energy and eco-development.

(e) Two new research and training networks were added, bringing the total to 18: 4 in the World Hunger Programme, 5 in the Human and Social Development Programme, and 9 in the Programme on the Use and Management of Natural Resources.

(f) As the results of the research carried out by the programmes became available during the course of the year, there was a vast increase in publications in 1979/80. The University published 115 books, periodicals, and papers: 4 issues of the periodical Food and Nutrition Bulletin, 11 issues of the periodical ASSET: Abstracts of Selected Solar Energy Technologies; 6 technical publications on arid lands analysis and management, land conservation, protein-energy requirements, bioconversion, interfaces between agriculture, nutrition, and food science, renewable energy prospects, etc.; 92 research reports; and 2 internal programme publications. 1/

#### H. The three programmes

11. The Council noted the developments in each programme and drew attention to the major problems being investigated and the knowledge and perspectives on global problems and conditions emerging from the University's collaborative, multidisciplinary research.

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1/ A complete list of publications of the University during the year appears in the report of the Rector to the Council (annex II below) in each programme section: World Hunger Programme, para. 77; Human and Social Development Programme, para. 119; and Programme on the Use and Management of Natural Resources, para. 186.

1. World Hunger Programme

12. The World Hunger Programme became operational in 1976. By June 1980 it had 11 associated institutions; agreements of association were signed during the year with the Universidad del Valle, Cali, Colombia, and with the Institute of Nutrition, Mahidol University, Bangkok, Thailand.

13. There were 64 regular Fellows in training or awaiting to start training as at June 1980. The total number of regular Fellows already trained or in training was 190. In addition there were 50 special Fellows, 19 of whom had already completed their training. Joint fellowships with the Programme on the Use and Management of Natural Resources had been established and others were being discussed with the Human and Social Development Programme.

14. Research and training activities were being conducted on food and nutrition objectives in national planning and development, in 8 countries; on post-harvest conservation of food, in 9 countries; on protein and energy needs in developing countries, in 15 countries; and on iron deficiency anaemia and its prevention, in 3 countries. (See annex IV for a complete list of the countries involved.) Eleven scientific workshops were organized, in which some 500 scholars participated.

15. Close co-operation had continued with FAO, WHO, UNESCO, and UNICEF. An agreement of co-operation has been signed with the United Nations Research Institute for Social Development (UNRISD) and with the International Food Policy Institute (IFPI). A joint UNU/WHO/FAO meeting to re-examine the global standards of adequate protein-energy requirements was scheduled to take place in 1981.

16. The World Hunger Programme continued to participate fully in the Sub-Committee on Nutrition (SCN) of the United Nations Administrative Committee on Co-ordination (ACC). During the year, the programme had organized several missions to Africa on behalf of this sub-committee to identify institutional training needs in the field of food and nutrition in the Sudan, Ethiopia, Tanzania and Kenya; it had been asked to organize similar missions to Senegal, United Republic of Cameroon, the Ivory Coast, Zaire, Angola and Mozambique.

17. Finally, the programme held a workshop in Bellagio, Italy, from 28 April to 2 May 1980 to review its conceptual basis. The meeting agreed that hunger must be viewed as not only a biological and technological but also a social, cultural, economic, and political problem.

18. Particularly significant was the research being conducted in the area of nutritional requirements, with the support of the United Nations University, utilizing methodology proposed by a United Nations University-sponsored working group of the International Union of Nutritional Sciences (IUNS). A network with units in 11 developing countries was obtaining data for a revision of existing FAO/WHO protein-energy recommendations planned for 1981 with the participation of the United Nations University. The results suggested that the current estimate of a safe protein allowance for adults was inadequate for the long-term maintenance of much of the world's adult population. In addition the present biological methodology for adjusting protein requirements for differences in protein quality tended to underestimate the need for protein from poor diets. In the case of children, a workshop supported by the University had assembled original data showing that present protein and energy allowances did not meet the need for catch-up growth



after episodes of infection. These important results were being published as monographs.

19. With support from WHO, the University and other sources, institutions associated with the University had been in the forefront of research demonstrating that iron deficiency reduced work capacity, lowered cell-mediated immunity to infection, and decreased test performance of school-children. Research supported by the University at the Venezuelan Institute of Scientific Research (IVIC) and the Institute of Nutrition and Food Technology (INTA) was focusing on practical means of preventing iron deficiency by fortification of staple foods. A promising method - using a stable, tasteless form of iron, known as EDTA iron, added to sugar - was now in large-scale field testing by the Institute of Nutrition for Central America and Panama (INCAP) in Guatemala.

## 2. Human and Social Development Programme

20. The Human and Social Development Programme, in its fourth year of operation, continued to be organized in two main subprogrammes: Problems of Development and Technology for Development. This programme was providing a critical forum where different schools of thought interacted to analyse the economic, social, political, and cultural forces that affect the development process, in order to evolve alternative approaches to development.

21. Work had continued in its main five projects. Research on goals, processes, and indicators of development was being conducted in 19 countries; on socio-cultural development alternatives in a changing world, in 17 countries; on sharing of traditional technology, in 7 countries; on research and development systems in rural settings, in 4 countries; and on technology transfer, transformation, and development in the light of the Japanese experience, in Japan. (See annex IV for a list of the countries involved.) In 1979/80 the programme held 28 scientific workshops and seminars organized by its five ongoing projects, with the participation of some 420 scholars. A task force in the Arab region adopted the general theme for a study of alternative futures; a detailed project proposal will be presented to the Council at its 16th meeting, in December 1980. A regional task force meeting to study the Latin American approach to the new international economic order was held in Havana, Cuba, from 2 to 6 June 1980. The programme was studying the possibility of holding similar regional meetings in Africa and China in the near future.

22. The programme had continued to maintain close links of collaboration with other United Nations organizations, including UNESCO, UNITAR, WHO, FAO, UNEP, and UNRISD. A mechanism was established for consultation between the University and the social science sector of UNESCO, and its first meeting was held in Paris from 28 to 29 April 1980. A seminar on the role of new theoretical conceptions in the process of development was to be organized jointly by the University and UNESCO in Ulan Bator, People's Republic of Mongolia, from 19 to 23 August 1980.

23. The projects within the subprogramme on Technology for Development were examining and re-evaluating the currently predominant approach to technological development based principally on technology transfer from the industrialized to the developing countries.

24. The project on research and development systems in rural settings was developing

a methodology for identifying the research and development components of rural community problem-solving through interaction between natural and social scientists and peasants. New insights had been acquired into the socio-economic conditions obstructing the peasants' participation in the choices of technology in their communities.

25. The project on the sharing of traditional technology questioned the assumption that modern technologies were the only instruments of development, studied how traditional technologies had become suboptimal under the impact of modern technologies and cultural influences, and sought pre-conditions for the sharing and improvement of traditional technology. It was studying, for example, the positive function of traditional fishing technology in contrast to the ecological problems caused by modern trawlers, and the ecological value of traditional architecture compared to modern architecture which was insensitive to climatic conditions and the cost of building materials.

26. The scholars in the project on technology transfer, transformation and development: the Japanese experience were considering the way in which transferred and adapted technology was integrated into the Japanese cultural, economic, and organizational setting, and studying how such technology affected endogenous creativity. One important finding was that in certain cases (e.g., in the watch industry), while hard technology was transferred from the West, the Japanese did not adopt the same degree of division of labour predominant in the Western style.

27. The subprogramme on Problems of Development surveyed existing theories and proposed new ones leading to alternative strategies for development. Its two projects had already produced some propositions and a series of case studies examining the predominant assumptions underlying present development planning methodology.

28. The project on goals, processes, and indicators of development was working, among other problems, on determining the parameters of "needs research" (a new field proposed to meet a growing interest of development planners) and was developing the framework for a comparative analysis of quality-of-life problems, alternative life-styles, and many other key concepts of development research and planning.

29. The project on socio-cultural development alternatives in a changing world had produced several case studies examining the conditions of growth of endogenous intellectual creativity in non-Western countries.

30. A series of meetings had been held in order to plan possible future projects: on education for development, on human rights in the context of development, on peace and development, and two meetings on regional perspectives of the new international economic order.

### 3. Programme on the Use and Management of Natural Resources

31. The Natural Resources Programme, in its third year of operation, was concerned with the ecological basis for rural development in the humid tropics, the assessment of the application of knowledge to arid lands, and energy for rural communities.

32. It was conducting research and training activities on integrated energy

projects in two countries, with projected activities in three others; on geothermal energy in two countries; on fuel wood in two countries; on arid lands in four countries, with projected activities in four more; on agro-forestry systems in two countries, with another projected; on highland-lowland interactive systems in four countries, with projected activities in two others; on coastal resources systems in two countries, with projected activities in two more; and on resource systems theory and methodology in two countries, with projected activities in three more. (See annex IV for a list of the countries involved.)

33. The programme had shown notable progress in research projects, in the training of Fellows, and in publications. Its collaborative work in its nine associated institutions (to which the Academia Sinica, Beijing, China, would be added in July 1980) had become fully operational, with some of the research projects nearing the end of their first phase. Of a total of 45 Fellows, 26 had completed their training during the year and 16 were in training as of June 1980. Sixteen workshops were held, with 350 scientists and scholars participating.

34. Eight major titles had been published, and ASSET (Abstracts of Selected Solar Energy Technologies) was being distributed free of charge to solar energy scientists in developing countries and by paid subscription in industrialized countries.

35. The Programme had worked in co-operation with UNESCO, FAO, the United Nations Development Programme, the United Nations Environment Programme, the United Nations Sahelian Office (UNSO), and other bodies, including the International Union of Forestry Research Organizations (IUFRO), the International Geographical Union (IGU), and the Scientific Committee on Problems of the Environment (SCOPE) of the International Council of Scientific Unions (ICSU).

36. In the field of agro-forestry, workshops and research were leading to the re-evaluation of old systems of land use which had previously been regarded as "primitive" but which in fact showed great promise for higher production on a sustained basis. The United Nations University work being carried out in both Central America and Asia was backed by a solid training component to enable the diffusion of agro-forestry systems to many countries which could benefit from the new methodologies.

37. The first phase of the project in Nepal on the mapping of natural hazards (landslides, flooding, erosion, etc.) had been completed, and this had integrated for the first time a study of the perception by the local people of the hazards. The resulting maps would provide a scientific basis for land-use planning and a unique prototype for dealing with similar hazards in other developing countries.

38. The work on water-land interactive systems had identified the "tambak" (brackish-water fishpond) as an acceptable and environmentally sound way to increase protein availability to rural populations. Research sought an understanding of this traditional system in order to improve the management of tambaks and adapt their use to conditions in other countries.

39. The energy subprogramme had concentrated its research efforts on rural energy needs and prospects. It had set out to provide the research and technical support for the construction by the Algerian Government of a village which would derive all of its energy from the natural environment (sun, wind, organic waste material, etc.); the aim had been to explore appropriate methodologies for the development and

introduction into rural communities of integrated, decentralized, self-sufficient energy systems that were reliable and that could be constructed and operated using locally available materials and skills. Detailed studies analysing the present energy supply and consumption patterns in the humid tropics underlined the people's overwhelming dependence on fuel wood in both urban and rural areas, and the susceptibility of fuel-wood-dependent areas to environmental deterioration.

40. In the arid lands subprogramme, several important assessment studies had been published or were in the process of publication. These demonstrated that in solving problems of desertification, the perception of those problems, the acceptance of proposed solutions by the affected population, and organizational or planning deficiencies were probably more important than the sheer knowledge of the conditions and requirements of ecological viability which already existed.

41. The work on bioconversion being conducted jointly with the World Hunger Programme was focused on the need to use presently unutilized organic wastes, generated in the production of food and fibre, as a source for energy and for animal feed. Two important state-of-the-art publications had been produced, and work was progressing on new findings which could be disseminated and tested in various rural situations. It was anticipated that the linkages between village systems and national systems in the field of policy analysis would be explored and strengthened.

42. Finally, in the general area of natural resources, an important work synthesizing what was known - the study by K. Ruddle and W. Manshard, Renewable Natural Resources and Environment: Pressing Problems in the Developing World - had just been completed.

#### I. Programme interaction and coherence

43. The Council believed that although progress had been made in the interaction of the three programmes of the University in the last two years, there was much room for improvement. The Council assigned great importance to interrelating the programmes and subprogrammes of the University in order to obtain more comprehensive knowledge and perspectives on the global problems that were the concern of the University as provided in article I of its charter. The Council believed that a high degree of coherence and an increasing emphasis on deepening the methodological impact of the problem-oriented programmes and networks of the University were essential for its effectiveness.

#### J. Finance and fund-raising

44. The Council noted that the Endowment Fund and operating fund had increased in paid contributions during the year under review by \$US 15.6 million, the main contributions being from Japan (\$US 10.0 million), the United Kingdom of Great Britain and Northern Ireland (\$US 2.3 million), the Federal Republic of Germany (\$US 1.1 million) and Saudi Arabia (\$US 1.0 million). The Council also noted that new pledges to the Endowment Fund, to the operating fund, or both, in the period under review amounted to \$US 326,839. Thus far, only 29 Member States of the United Nations had contributed to the financial support of the University.

45. As at the end of June 1980, the Endowment Fund amounted to \$US 139,169,082, of

which \$US 105,036,189 had already been paid to the University. In addition a total of \$US 2,936,896 had been pledged or received for the operating fund of the University from governmental sources and \$US 378,980 as project support from other sources. The University had participated in extensive consultations on the Interim Fund on Science and Technology for Development to obtain support for an expanded programme of fellowships.

46. At most of its sessions the Council had considered the matter of the University's finances and fund-raising. The Council therefore welcomed the fact that the General Assembly, at its thirty-third session, held in 1978, adopted resolution 33/108 dated 18 December 1978, paragraph 4 of which reads in part as follows: "The General Assembly ... notes that fund-raising results have not proved adequate to sustain the programmes of the United Nations University and requests the Secretary-General of the United Nations and the Director-General of the United Nations Educational, Scientific and Cultural Organization, in consultation with the Rector and the Council of the University, to study ways and means of promoting the awareness and understanding of the programmes and activities of the University ... and to report to the General Assembly at its thirty-fourth session ...". During its thirteenth session, held at Geneva in October 1979, the Council met with the consultant of the Secretary-General, Mr. George Davidson (former Under-Secretary-General for Administration and Management), and the consultant of the Director-General, Mr. Maheshwar Dayal (Adviser to the Ministry of Science and Technology of India), when they were collecting information for the study they were asked to undertake in response to the General Assembly's resolution.

47. Similarly, the Council welcomed the invitation, addressed to it by the General Assembly at its thirty-fourth session, to "consider the valuable suggestions and recommendations" contained in the report of 16 November 1979 entitled "Fund-raising efforts for the United Nations University" (A/34/654) and to report the Council's findings and, if any, opinions to the General Assembly at its thirty-fifth session for further consideration. The Council had given full consideration to the report and the note of the Secretary-General and, in doing so, had been aware that the terms of reference of the consultants appointed by the Secretary-General of the United Nations and the Director-General of UNESCO to undertake the study which produced the report were "... to study ways and means of ensuring sufficient finances for the University, ... to suggest alternative ways and means" for this purpose, ... and "to study ways and means of creating an awareness of the objectives of the University by Governments, the international academic community, and others within the United Nations system" (A/34/654, annex, para. 4). The Council was grateful to the two consultants who had prepared their study analysing the problems confronting the University and its sponsoring organizations, as spelled out in their terms of reference.

48. In particular, the Council welcomed the statements contained in paragraph 39 of the Secretary-General's report, "Fund-raising efforts for the United Nations University", 2/ and the fund-raising possibilities explored in paragraph 40 of the

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2/ "39. It should be recognized that the Rector of the University and his Vice Rector for Development have been tireless in their efforts to raise funds for the University in ways such as those mentioned. They deserve a great deal of credit for this; it has placed an inordinate amount of physical as well as mental strain on them and has required them to devote to fund-raising a disproportionate amount of their time and energy, which could otherwise have been devoted to the administrative

report 3/ which were generally endorsed by the Secretary-General and the Director-General in paragraph 11 of the note by the Secretary-General preceding the report. The suggestions presented under subparagraphs (d), (e), and (f) of paragraph 40 appeared to be innovative ways for the Member States to raise funds for the United Nations University, provided that their implementation would directly contribute to the Endowment Fund of the University and thus would not cause any curtailment of its academic freedom or autonomy. The Council was inclined to believe that the suggestions contained in paragraph 38 offered the basis for an exchange of views among the Member States towards enhancing the Endowment Fund of the University.

49. However, the Council was of the opinion that certain suggestions in paragraph 40 may be inconsistent with the provisions of the University's charter on academic freedom and autonomy, as recognized by the Secretary-General and the Director-General in paragraph 11 of the note. The Council also believed that it was not the proper time to carry out the suggestions under subparagraphs (a) and (b). The Council believed that contributions to the funding of the University should be on a voluntary basis.

(continued)

and academic areas of their important responsibilities. It is hardly fair or reasonable to place on the two top academic officers of the University almost the entire burden of responsibility of raising the funds which the University requires in order to operate. Nor is it appropriate that this responsibility should fall on the shoulders of the members of the University Council, who have been asked to serve primarily because of their academic leadership qualities rather than for their fund-raising ability. In fact, Governments themselves, particularly those Governments which voted the University into existence, should require no strenuous "sales" effort in order to be persuaded that they should make at least an initial contribution to back up the vote of confidence and support which they gave to the concept of a University under United Nations auspices. These initial contributions are required in order to give the University a start and an opportunity to show what it can accomplish. Performance and tangible results should determine thereafter the decision as to subsequent contributions."

3/ For the reader's convenience, the specific suggestions on alternative fund-raising possibilities contained in paragraph 40 may be summarized here as follows: (a) regular compulsory assessment by the General Assembly; (b) assessment of a proportion of the Endowment Fund (\$US 100 million, \$US 200 million, or more) on a one-time basis; (c) inclusion by the United Nations and UNESCO of a modest sum in their budgets on an annually recurring basis; (d) Governments committing themselves to annual "interest equivalents" (10 per cent) of their share of the Endowment Fund; (e) Governments issuing special-purpose "perpetual" bonds for their share of the Endowment Fund and paying interest only; (f) Governments contributing United Nations bonds arising from financing costs of Congo operations (the United Nations now pays \$US 8.5 million per year toward redemption in 1990); (g) use of funds earmarked by Governments for overseas development; (h) financial assistance from intergovernmental agencies, particularly for fellowships; (i) support from foundations, universities, research institutions, and individuals (institutions might lend members of faculty or research or training staff); (j) participation in the use of the \$US 250 million Fund for Science and Technology resulting from the United Nations Conference on Science and Technology for Development.

50. Finally, the Council stated that it had already adopted as policy the very same ideas contained in subparagraphs (g), (h), (i) and (j).

51. In its resolution 34/112, paragraph 4, the General Assembly noted that "while gratifying progress in fund-raising has been made during the past year, the results have not yet proved sufficient to support the programmes of the United Nations University at an adequate level". This was the fundamental problem with which both the sponsoring organizations and the University were confronted. Most Member States had not yet given their financial support to the University although a majority of them had voted for its establishment. The Council deeply appreciated the concern of the General Assembly and the helpful intent of the consultants' study and urged the University's sponsoring organizations to respond positively to the suggestions endorsed by the Council in paragraph 48 above. The Council also hoped that Member States of the United Nations would respond favourably to the appeal of the General Assembly contained in the resolution, "to make substantial contributions to the Endowment Fund, and/or to specific programmes of the University so that its work can continue to make steady progress" (resolution 34/112, para. 8).

52. So far as the United Nations University itself was concerned, it should be understood that, apart from its deep concern with fund-raising, the University was fully aware of and doing its utmost to promote awareness and understanding of itself among Governments and the world-wide academic community. In this connexion, the University had extended its problem-oriented networks and held a number of scientific meetings. It had also greatly intensified its programme of publications (see para. 10).

#### K. Initiation of medium-term planning

53. The Council had initiated the process of medium-term planning during the past year. At its fifteenth session, the Council had discussed a paper entitled "Report on the Development of a Medium-Term Plan for the United Nations University", prepared by an ad hoc committee of the Council. In the Council's view, the primary purpose of medium-term planning was to provide a comprehensive and effective policy direction to the University based on a systematic review of its activities and in pursuance of its Charter and its programme objectives.

54. In view of the appointment of the new Rector, Mr. Soedjatmoko, and 13 new members of the Council, and to enable the new Rector to take charge of the planning process, the Council decided to resume consideration of medium-term planning at its sixteenth session in December 1980.

ANNEX I

Members of the Council of the United Nations University

Membership as at 30 June 1980

Appointed members

Dr. (Mrs.) Ines Wesley Tanascovic, UNESCO National Commission of Yugoslavia and Professor of Informatics, Medical Academy, Belgrade, Yugoslavia (Chairman of the Council)

Dr. (Mrs.) Estefania Aldaba-Lim, former Special Representative for the International Year of the Child, UNICEF, New York, USA; former Minister for Social Services and Development, Manila, Philippines; former Vice-President, Philippine Women's University (Vice-Chairman)

Professor Ungku Abdul Aziz, Vice-Chancellor and Royal Professor of Economics, Univerisiy of Malaya, Kaula Lumpur, Malaysia

Dr. Daniel Adzei Bekoe, Vice-Chancellor, University of Ghana, Legon, Accra, Ghana

Dr. (Mrs.) Elise M. Boulding, Professor and Chairman, Department of Sociology, Dartmouth College, Hanover, New Hampshire, United States of America

Dr. Pawel Bozyk, Professor of Economics, Central School of Planning and Statistics, Warsaw, Poland

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ANNEX II

Report of the Rector of the United Nations University  
to the Council of the United Nations University  
(July 1979-June 1980)

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I. THE UNITED NATIONS UNIVERSITY: NETWORKS OF RESEARCH,  
ADVANCED TRAINING, AND DISSEMINATION OF KNOWLEDGE

1. The United Nations University was created as an instrument of international scholarship to work on "pressing global problems of human survival, development and welfare" (A/9149/Add.2, art. I, para. 2) - concerns that affect the daily lives of people everywhere. In today's interdependent world, all societies have a stake in finding solutions to such problems.

2. While these problems are most starkly manifest in the developing countries, their roots can be traced to all parts of the world, and their impact is felt everywhere. Their solutions require better understanding of the interlinked economic, cultural, social, and political forces that impede equitable human development in both the industrialized and developing parts of the world. This calls for integrating perspectives of many cultures and regions - one of the fundamental tasks of the United Nations University.

3. Those who have developed the programmes of the University have recognized that, in attempting to deal with these global concerns, there are three particular urgent problems to which this new institution must respond:

(a) The necessity for more and better knowledge about the problems and aspirations of people in developing countries;

(b) The need in developing countries for more trained personnel with an appreciation of the multidisciplinary complexities of the problems they face; and

(c) The need for improved dissemination of knowledge among scientists and policy-makers throughout the world: in the flow of knowledge among developing countries; in improved access in developing countries to knowledge generated in industrialized countries; and in wider dissemination in the industrialized world of knowledge and perspectives generated in the developing parts of the world.

4. These needs have shaped the University's response to the directive of its Charter to engage in research, post-graduate training, and dissemination of knowledge. Its networks reach into more than 60 countries around the globe.

5. The University is now approaching the end of its first five years. While this is not a long time in the life of an institution, it does seem an appropriate milestone at which to review the University's initial experience. More detailed accounts of specific programme activities are provided in subsequent sections of this report.

A. Research

6. The University's research efforts have been developed through its world-wide networks of institutions and individual scholars. Nineteen networks are now in operation, each focusing on specific problems. The research is designed not only to provide technical solutions but also to be sensitive to human, social, cultural, and ecological values.

7. The principal emphasis of the United Nations University's research is the attempt to achieve a better understanding of factors that have held back development among the rural poor of the third world. Some 60 per cent of the world's current 4,000 million people live in rural areas, most of them in developing countries. Many are on the bare edge of existence, where a sudden crop failure or other unexpected natural disasters can mean the difference between life and death. The real dimensions of the problems and aspirations of the rural poor, and the ways in which they themselves might help in solving them, have been little understood. The research approaches that have been developed by the University, through its networks of co-operating scientists and scholars, are based on the assumption that without this kind of understanding no amount of outside money and expertise can hope to succeed.

8. Fifty-two per cent of the University's current programme allocations is devoted to research, (while 34 per cent is allocated for training and 11 per cent is for dissemination of knowledge). Some 80 per cent of the research funds are spent in the developing countries themselves. Much of the remainder goes for research on problems with direct relevance to the developing world - as, for example, the studies being conducted on the Japanese experience in modernization (see paras. 111-115 below) - and which seeks to find lessons that may benefit development planners in other parts of the world.

9. Research is also an integral component of the United Nations University's fellowship training. While the research projects of individual Fellows of the University are tailored specifically to the needs of their own countries, they also provide inputs to the work of the networks. Research done by a number of Fellows of the World Hunger Programme, for example, has provided valuable information to the networks dealing with human nutritional requirements in the tropics. This network's research on protein-energy needs in developing countries has yielded significant new information on this neglected subject.

10. The Human and Social Development Programme is engaged in a different kind of research: a broad re-examination of development concepts, strategies, and alternatives by scholars from many cultures, disciplines, and schools of thought. Its objective is to help formulate more effective development policies than those employed in the past. The programme has organized a systematic dialogue about development problems representing many different experiences and points of view. This is a difficult endeavour, but many valuable insights have emerged during the process. The programme is also undertaking significant research on problems of technology and development in a number of practical research projects in rural communities. For example, methods of improving traditional technologies through inputs from modern science are being developed by the work of a network of research units in 23 villages of seven Asian nations.

11. The work of the research networks of the Programme on the Use and Management of Natural Resources is already having an impact on many scientists and agencies concerned with environmental and energy problems. The programme has become a leading instrument for world-wide dissemination of knowledge on applications of solar energy technology suitable to rural communities in developing countries. Its research methodology based on the concept of resource systems has generated intense interest and led to the expansion of its research beyond the humid tropics into temperate regions of the world - in, for example, China.

## B. Advanced training

12. The need for more highly trained people in the developing countries, as they strive towards self-reliance, has been widely recognized for many years. What has not been as clearly perceived, however, is the need for multidisciplinary as well as specialized training. Problems such as malnutrition, poverty, and spoliation of the environment are parts of a whole with larger economic, political, social, and cultural dimensions that need to be understood if effective policies are to be devised. The University's advanced training activities are based on the recognition of this interlocking nature of development problems and stress multidisciplinary approaches.

13. To date, 190 United Nations University fellowships have been awarded, 145 in the World Hunger Programme and 45 in the Natural Resources Programme, where training operations started one year later. During the year under review, 60 University Fellows completed their training. Also 50 special fellowships have been awarded by the World Hunger Programme. The Human and Social Development Programme will begin, in the year ahead, an exchange of young scholars among its networks as a means of widening perspectives among its researchers.

14. The University's Fellows are selected for advanced, multidisciplinary training of an applied nature to meet institutional and national needs. Fellows range in age from those in their late twenties to those in their forties and most are teaching in a university as well as doing research. Some hold posts at relatively high administrative and policy levels. Most have at least a master's degree and more than half have a doctorate.

15. Thirty of the Fellows appointed to date have been women. Identification of candidates and selection of Fellows is a carefully-conducted process, carried out jointly by the United Nations University and the potential Fellow's home institution. An assurance that the Fellow will be employed at the home institution after the training period is important in the selection process. So, too, is recognition of the Fellow's potential, on return home, for contributing to decisions influencing policy. Most University Fellows are teachers of teachers who will be training the staffs, and thereby increasing the intellectual resources of research institutions in their home countries.

16. Most of the Fellows get their training at institutions in other developing countries, with which the University has associations. Others, however, receive training at institutions in industrialized countries with facilities to meet particular training needs.

17. The effectiveness of the United Nations University fellowships has already been manifested. The first comprehensive evaluation of the experience of the World Hunger Programme Fellows who have completed their fellowships shows that they consider their capacity to contribute to solving their countries' problems has been significantly upgraded by their training. Three fourths of the Fellows who have completed their training are already in positions to influence the food and nutrition policies of their countries.

## C. Dissemination of knowledge

18. This function of the University is defined in its charter as a responsibility

to "increase dynamic interaction in the world-wide community of learning and research" (art. I, para. 4). While this function has, of necessity, awaited the result of research activities, during the past year the flow of publications has increased markedly, with 115 new titles published.

19. The University is now publishing two regular periodicals, both designed to answer specific needs in their field. The Food and Nutrition Bulletin is a quarterly under the aegis of the World Hunger Programme, with the collaboration of the Administrative Committee on Co-ordination's Sub-Committee on Nutrition (SCN), the United Nations system's central co-ordinating body in the field of nutrition. It reports on all aspects of global nutrition and other specialized knowledge related to world hunger data for researchers in this field.

20. ASSET (Abstracts of Selected Solar Energy Technology) is a monthly produced by the Natural Resources Programme. It goes free-of-charge to scientists and engineers in the field of solar energy technology in developing countries, and gives them access to up-to-date information on renewable energy sources applicable to their local situations. Some 550 scientists and engineers in 80 developing countries now receive ASSET; in turn, they provide copies of their own scientific contributions to the ASSET office for abstracting, thereby creating a self-generating information network.

21. Many other technical publications and research reports are now appearing (full lists of publications are given in each programme section of this report - see paras. 77, 119 and 186 below). The broad range covered by the publications reflects the wide diversity of the University's programme activities that are now "on stream" and producing new knowledge about major global problems.

22. An important step in the University's knowledge dissemination efforts was taken this past year when it became co-publisher of Development Forum, the only regular publication of the United Nations system in the field of economic and social development. Development Forum has come to be highly regarded in the international community for its success in speaking directly and intelligibly to a diverse audience about development issues. The University's association with Development Forum should greatly aid in the flow of information from the University's networks of scholars and institutions to policy-makers and opinion-formers.

23. The University's knowledge dissemination efforts are not limited to publications. Much valuable information is generated and disseminated in the many workshops, symposia, and other meetings which the University organizes throughout the world. There were 78 such meetings held during the past year in which a total of about 1,370 scholars, scientists and policy-makers participated.

\* \* \* \* \*

24. From the outset, the University has promoted interaction among its three programmes. While the initial stages of several interprogrammatic projects have been encouraging, real interdisciplinary research is difficult to achieve. This is true in national institutions and is all the more so when the effort involves scholars from many cultures and schools of thought. Progress in this area has been more gradual than in the individual programmes.



25. Annual joint meetings of the Programme Advisory Committees of the three programmes have helped to generate intellectual ferment that has promoted interprogrammatic projects, such as studies of bioconversion jointly undertaken by the World Hunger and the Use and Management of Natural Resources Programmes and the role of women in post-harvest conservation undertaken by the World Hunger and the Human and Social Development Programmes. A three-programme effort on education for development is also under study.

26. One of the greatest frustrations of the University's first five years has arisen from the difficulty of building up international awareness of this new institution's purposes and work. The unusual nature of the University's structure and methods of operation and the relatively small scale of its activities at this early stage have made it hard to create a substantial impact on public consciousness. None the less, the University's voice is now heard in many parts of the United Nations system. It is becoming recognized as that system's academic arm. While the University is still very much a new-comer to the international academic scene, it can now claim a growing role in that scene by providing unusual opportunities for sustained and practical international scholarly collaboration focused on specific problems of deep concern to all humanity - now and in the future.

## II. WORLD HUNGER PROGRAMME

### A. Introduction

27. The specific assumption governing the work of the World Hunger Programme is that, in order to help solve food and nutrition problems that prevent human beings from achieving their full potential, it is necessary to clarify public policy issues that affect global and local food availability, distribution, and consumption. The programme seeks to redress serious inadequacies in knowledge, expertise, and research and training resources that impede the efforts of developing countries to eliminate hunger and malnutrition.

28. The broad global dimensions of malnutrition are well known: one out of every four human beings, by some estimates, exists today on a diet with nutritional deficiencies that affect health or work performance. What is not as widely recognized, however, is that one of the chief causes of hunger and malnutrition in today's world is maldistribution of food and of its consumption. Understanding the complex reasons for this maldistribution calls for a broad grounding in issues of food and nutrition policy and planning. This was an aspect of the world hunger problem which, in the judgement of the experts who helped plan the programme, was not being sufficiently covered by other agencies or organizations. Thus it is the central concern of the World Hunger Programme's research and training efforts.

### B. Summary of the year

29. As of 30 June 1980, there are 64 regular University Fellows, either in training or waiting to take place for training in the immediate future. Nearly 200 fellowship applications are under study. Thirty-four Fellows completed their training during the year, thus bringing the total number of Fellows trained by the World Hunger Programme to 81. In addition, there are 50 special Fellows, 19 of whom have already completed their training. During the year, the programme organized several missions to Africa on behalf of the Sub-Committee on Nutrition of the Administrative Committee on Co-ordination of the United Nations to identify institutional training needs in the field of food and nutrition in the Sudan, Ethiopia, Tanzania and Kenya, and it has been asked to organize similar missions to Senegal, Cameroon, the Ivory Coast, Zaire, Angola and Mozambique.

30. During the year under review, associated institutions in Canada, Japan and the United Kingdom of Great Britain and Northern Ireland began training their first Fellows. Agreements of association were signed with the Universidad del Valle, Cali, Colombia, and the Institute of Nutrition, Mahidol University, Bangkok, Thailand. The Council has approved the association with the University of the West Indies, with campuses in Jamaica, Trinidad and Barbados.

31. The World Hunger Programme is now associated with the following 11 institutions:

- Central Food Technological Research Institute, Mysore, India
- Centre for Research in Nutrition, Laval University, Quebec, Canada
- Department of Nutrition and Food Science, University of Ghana, Legon, Ghana
- Institute of Nutrition, Mahidol University, Bangkok, Thailand (newly associated this year)
- Institute of Nutrition of Central America and Panama, Guatemala City, Guatemala
- Institute of Nutrition and Food Technology, University of Chile, Santiago, Chile
- International Food and Nutrition Policy Program, Massachusetts Institute of Technology and the Harvard School of Public Health, Cambridge, Massachusetts, United States of America
- Nutrition Centre of the Philippines, Makati, Philippines
- Tropical Products Institute, London, United Kingdom
- Universidad del Valle, Cali, Colombia (newly associated this year)
- Venezuela Institute for Scientific Research, Caracas, Venezuela

32. The programme also includes a training unit based at the National Food Research Institute, Tsukuba, Japan, in the subprogramme on post-harvest conservation of food.

### C. Perspectives and activities of the subprogrammes

33. The World Hunger Programme has three subprogrammes whose work is closely interlinked. The subprogramme on food and nutrition policy and programme planning incorporates the research and training experience developed in the other two subprogrammes - on post-harvest conservation of food and human nutritional requirements and their fulfilment through local diets - and conducts its own specific research and training efforts.

#### 1. Food and nutrition policy and programme planning

34. In market economies and in the commercialized section of subsistence economies, the gap between effective demand for food and human food needs can be approached in many different ways. People can buy more food if prices are lowered (by price controls, subsidies, lower distribution costs, etc.) or if the purchasing power is increased (by better jobs, minimum wages, reduced taxes, etc.). For some families, increased home production can help close the gap. But each of these measures has limitations or disadvantages as well as advantages which need to be taken into account by policy-planners.

35. Nutritional deficiencies can also sometimes be overcome, at least in part, by improving the nutritional value of food, e.g., through the iodization of salt or the iron or vitamin fortification of selected foods. Free or greatly subsidized food distribution can also help the poorest and most vulnerable individuals. There are, in short, a number of policy choices, the implications of which must be carefully balanced, that are open to those responsible for determining food and nutrition policy and development policy.

36. This subprogramme is concerned with understanding the processes responsible for hunger and malnutrition in order to identify necessary and feasible actions to help eliminate them. This requires a multidisciplinary approach to the problem and consideration of a particular country's political and economic constraints and possibilities. In seeking to increase understanding of the interplay of the many factors involved in alleviating hunger and malnutrition, the subprogramme's research and training efforts involve a wide range of disciplines - economics, political science, anthropology, sociology and systems analysis, along with the various nutritional, agricultural and health sciences.

37. Five specific food and nutrition policy issues have been identified that require attention immediately:

(a) Economic, nutritional, and other implications, at both the macro- and micro-levels of large-scale national food subsidy projects compared to more tightly-targeted projects (for example, those aimed at only certain age groups);

(b) Policy, financial, and other implications of building community organizations for achieving food and nutrition objectives. Comparative studies of country experiences are required;

(c) Comparative analysis of the effectiveness of health and/or nutrition intervention programmes in selected countries. Attention here should be directed to evaluating methodologies relevant to field conditions and analysing factors which have determined "success" or "failure";

(d) Analysis of the effects on food consumption of what might be called "interventional" or "global forces" that are largely beyond the control of individual developing countries, such as grain trade practices, capital flows, or energy prices;

(e) Evaluation of existing data for food and nutrition policy analysis. There is a need to assess manageable methodologies and to accept minimum adequate data bases for policy analysis in different situations.

38. The initial centres for training in this subprogramme were: the Institute of Nutrition of Central America and Panama (INCAP) in Guatemala; the Nutrition Centre of the Philippines (NCP); and the International Food and Nutrition Policy Program (IFNP), a co-operative undertaking of two institutions in the United States, the Massachusetts Institute of Technology and the Harvard University School of Public Health. Laval University in Canada and the Institute of Nutrition and Food Technology in Chile have now joined the subprogramme as centres for training.

39. Some Fellows who received training at IFNP have gone on to do field-level work in the application of planning and policy at NCP. In the future, Fellows will go to other associated institutions in developing countries. Training will also begin in the autumn of 1980 at the University of Ghana and the Universidad del Valle, Cali, Colombia.

40. An agreement of association with the University of the West Indies, in Jamaica, Barbados and Trinidad, is expected to be signed soon. The objective of the work proposed by this institution is to provide training at an advanced level in the socio-economic and technical aspects of the interfaces between agriculture, food

science, and human nutrition and, at the same time, to explore the importance of these interfaces for national and regional food and nutrition policy planning. This is the only institution so far proposed for association in the subprogramme which has a strong faculty in the agricultural sciences. It is considered that the association could be helpful for the training of Fellows from English-speaking African countries as well as from the Caribbean region.

41. A preliminary visit was made to the Institute of Nutrition, University of Pernambuco, Recife, Brazil, to explore the possibility of an association in this subprogramme as well as in the subprogramme dealing with human nutritional requirements. The projected training programme will be developed further before a formal proposal for association is discussed. However, it is recognized that a training programme at this institution could be useful for Fellows from Portuguese-speaking Africa until such time as the training and research facilities in those countries are explored and links with them established.

42. During the past year, there were six United Nations University-supported research projects in this subprogramme. Two were in Colombia: one investigating small farm production systems and the other studying the value of a mathematical model for development planning using the nutrition level as the indicator. Two were in Chile - studying ways to promote breast-feeding in urban poor communities and on the purchasing capacity of urban low-income Chilean families. A research project in Venezuela is concerned with prevention in several South American countries of iron deficiency through iron fortification of a diet staple. Another project in this area is a multidisciplinary analysis of food systems and food security in eastern India; this is part of the international study of Foods Systems and Society being undertaken by the United Nations Research Institute for Social Development.

43. The discussions of the 1978 workshop on price policy and nutrition in Latin America are being published and will be distributed to those directly concerned with the subject. Plans are under way to transform some of the material for broader distribution so that those involved in policy formulation and planning can also be reached.

44. The subprogramme has held four workshops so far this year:

(a) Interface problems between nutrition policy and its implementation, Cambridge, Massachusetts, United States, November 1979. The workshop brought together experts in the field of food and nutrition policy, and the proceedings of the meeting will be published and distributed as widely as possible to those concerned with planning and policy formulation;

(b) Nutritional status of rural population in the Sahel, held at Paris, France, April 1980. The workshop reviewed available information about chronic and periodic nutritional deficiencies in different areas of the semi-arid tropics, identified particular food problems in the Sahel, and formulated recommendations for future intervention programmes by multilateral and bilateral agencies in the semi-arid tropics;

(c) Nutritional status of the poor population of Latin America, Santiago, Chile, May 1980. The workshop analysed income trends for the urban and rural poor in Latin America and the impact of different income policies on the present food and

nutrition situation. It stressed those aspects of income policy that are most important in improving the nutritional situation of the poor;

(d) Use of estimates of nutrient requirements for economic planning and agricultural policy, Cambridge, Massachusetts, United States, May 1980. The workshop, held jointly with the subprogramme on human nutritional requirements, proposed guidelines for the use of recommendations on energy requirements and protein allowances for policy-makers and planners, particularly economists and agriculturalists. The discussions were based on the conclusions of the workshop on protein-energy requirements. These, in turn, were based largely on the findings of projects in the World Hunger Programme's protein-energy research network.

45. One difficulty faced in pursuing the objectives of this subprogramme is that there are few appropriate training centres in developing countries. With an added associated institution in Colombia, and the commencement of training at the associated institution in Ghana, the subprogramme is expanding in lesser developed countries and will continue its efforts in this direction. The next institution to be associated with the programme in this subprogramme area will be the University of the West Indies, which is especially appropriate for training persons from English-speaking African countries.

46. Another problem is the paucity of research proposals which have been received from developing countries in response to the identification of the five priority research areas. Some of the proposals are not of sufficiently high quality to be supported by the University and, in some of the priority areas, no proposals have been received at all. One of the obstacles is the limited number of researchers working in this field of study, and another may well be the limited amount of resources the University is able to offer by way of support.

## 2. Post-harvest conservation of food

47. The amount of food lost after the harvest in developing countries ranges from 20 to 40 per cent; the figures are higher for fruits and vegetables in some tropical developing countries. Whatever the exact figures, these losses can have serious nutritional consequences for subsistence farmers and food-short rural areas of the developing world. Until recently, little attention was given to this problem; the efforts that are now under way are due, at least in part, to the stimulus of the World Hunger Programme.

48. Food losses after the harvest are of various types: loss of sheer bulk weight, loss of nutritive value, decreased palatability due to altered taste or smell, and loss of culinary properties. Any of these reduce the amount of food and/or its nutritive value to the consumer. Factors causing losses include spoilage, poor handling, insects, rodents, and moulds.

49. The objective of this subprogramme is to contribute to the quantitative and qualitative conservation of produced food in order to increase its availability for human consumption and to preserve or increase its nutritive value through the development and application of appropriate technologies. Efforts are being concentrated on improving the utilization of crops after harvest as a means of increasing food and nutrients available. Animal and fish products also are included in conservation efforts.

50. The scope of the subprogramme covers all the stages from production to the moment of consumption, including handling, storage, processing, packaging, transporting, distribution, marketing, and ultimate use at home.

51. This subprogramme stresses in particular the need to identify and understand the many existing traditional technologies employed to conserve food; it seeks to improve and transform them into more effective operational techniques. In most cases, such technologies should be those that are most appropriate from the social and ecological point of view and that have the greatest consumer acceptance. This calls for a multidisciplinary effort. It is realized that technologies which are effective in the developed countries may be useless, unacceptable, and even counterproductive in the developing world. The focus is on simple, easily usable and available technologies to be developed through training opportunities and research that have been lacking in this area.

52. The major emphasis of this subprogramme is on training - it is working to provide the developing countries with better staff resources in their own institutions to deal with food conservation problems down to the home and village level. It is not concerned with large-scale commercial processing. Forty-five per cent of all the fellowships awarded to date by the World Hunger Programme have been in this subprogramme. Research is viewed as mainly a tool for training, and the only research proposals supported are those that contribute to training and the increase of institutional competence. An example is the project on post-harvest food losses undertaken at the Universidad del Valle in Colombia. Support was given in an effort to assist that institution to develop its capacity in anticipation of its association with the University, which was formalized this past year.

53. Priority is also given to University Fellows who need help to get started. An example would be the support given to the project on modernization of traditional packaging technologies for food grain storage in Indonesia by Dr. F. G. Winarno, who was a University Special Fellow at Mysore, India, in 1977. a/

54. The Central Food Technological Research Institute in Mysore, India, and the Institute of Nutrition of Central America and Panama in Guatemala have been the main associated institutions for research and advanced training efforts in this subprogramme. The past year, however, saw fellowship training in post-harvest conservation extended to three institutions in industrialized countries: the Centre for Research in Nutrition at Laval University in Quebec, Canada; the Tropical Products Institute in London, United Kingdom; and the National Food Research Institute in Tsukuba, Japan. While the University's linkages with existing institutions have been concentrated in the developing countries, it also forms associations with institutions elsewhere in the world which are judged to have applied research or practical training programmes that apply directly to particular project needs.

55. Active collaboration continued between the associated institution at Laval University, Quebec, Canada and the Institute of Food Technology (ITA) in Dakar, Senegal, through the promotion of joint research projects and fellowship training of ITA personnel in Quebec. When ITA's training capacity is sufficiently developed, it will be considered for association.

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a/ See para. 72 for a description of the special fellowship programme.

56. One of the problems encountered in this subprogramme has been in adapting the highly-specialized technological nature of the programmes of many of the institutions working in the area of post-harvest conservation to the specific training needs of the Fellows. Efforts are being made to overcome this problem through the creation of special training programmes in the associated institutions as well as exploring associations with additional institutions in developing countries.

57. The subprogramme sponsored four workshops over the course of the year. One of these was a joint meeting with the Human and Social Development Programme in Tokyo in September 1979 on the role of women in post-harvest food conservation. This workshop discussed the framework for five case studies currently being undertaken on this topic as an interprogramme project. The other workshops were held in Mysore, India (in July 1979), Yaoundé, United Republic of Cameroon (November 1979) and Bogor, Indonesia (December 1979).

58. The Mysore meeting discussed management of research and development institutions in the area of food science and technology. The meeting in Cameroon, which was organized by the Association of Partially or Wholly French-Language Universities with the University as co-sponsor, was attended by participants from universities of the French-speaking countries of Africa. It helped to identify research priorities, particularly conservation techniques at the village level in these countries. The Bogor workshop was concerned with practical aspects of using fermentation as a means of food conservation in developing countries.

### 3. Human nutritional requirements and their fulfilment through local diets

59. Information on nutritional requirements is still grossly inadequate; what data exists comes largely from studies conducted with healthy young university students in the industrialized countries. In the developing countries, where populations are subject to daily environmental stresses alien to the more advanced countries, pertinent information about diet requirements is very sketchy.

60. This subprogramme has a twofold objective: (a) to help developing countries obtain information on the nutritional requirements of their own populations, through the support of research and training institutions in those countries; and (b) to compile the information necessary to establish internationally recognized estimates of nutritional requirements and safe dietary allowances that are appropriate to developing country populations.

61. The first analytical results from this subprogramme, published by the University in July 1979, provided important guidelines for future research on this question by establishing standard methodologies to be employed in determining protein-energy requirements. The report pointed out that present international recommendations on these requirements are inadequate for developing countries in the tropics because they fail to take sufficiently into account the needs for recovery and catch-up growth following frequent acute and chronic infections and differences in the utilization of nutrients from local diets.

62. During the past year, continued efforts added more knowledge about protein-energy requirements in the developing countries. Support has also been given to studies of iron availability in local diet and the feasibility of iron fortification of staple foods. This is important because of the demonstrated relationship between



iron deficiency and work performance, resistance to infection, and cognitive test performances. The iron deficiency studies are being pursued by a network of Latin American scientists; progress to date was evaluated by network members at a workshop in Caracas in April 1980.

63. Thirteen research projects were under way or completed during the period under review by the protein-energy network. Research projects are located in Brazil, Chile, Colombia, Egypt, Guatemala, India, Mexico, the Philippines, the Republic of Korea and Thailand. There are also units in Japan, the United Kingdom and the United States (one in Berkeley, California, one in Cambridge, Massachusetts) that form part of the network but do not receive financial support from the University.

64. Research findings from this network contributed important input to three workshops held by this subprogramme over the course of the year, one in September and two in May. All three were held at IFNP, the associated institution in Cambridge, Massachusetts, United States; the first two were organized by committees of the International Union of Nutrition Sciences. They were:

(a) Evaluation of protein quality, September 1979;

(b) Protein-energy requirements: significance of recent findings, May 1980;

(c) Use of estimates of nutrient requirements for economic planning and agricultural policy, May 1980. This workshop was held jointly with the subprogramme on food and nutrition policy and programme planning. Economists and planners participated in this meeting which sought to formulate guidelines for policy implementation.

65. The proceedings from all three meetings are in preparation for publication. They will constitute an important contribution to the discussions at a meeting on protein-energy requirements to be held jointly by the University, FAO and WHO in 1981.

66. Research is the principal operational method of this subprogramme, and thus fellowship training is on a smaller group than that in the other two subprogrammes. However, the Institute of Nutrition and Food Technology in Chile commenced training, and the two new associated institutions, the Institute of Nutrition, Mahidol University, Bangkok, Thailand, and the Universidad del Valle, Cali, Colombia, will also be providing advanced training during the second half of 1980. Both were approved by the Council in December 1979. The agreement with Mahidol University comes into effect in July 1980, and the one with the Universidad del Valle in April 1980.

67. The focus of the training in this subprogramme is on research design and methodology and data analysis to enhance the research capability of those being trained for work in their home institutions on completion of the fellowship. By implementing research programmes on their return home, the Fellows thus expand the network of institutions suitable for research in this subprogramme.

#### D. Fellowships

68. During the year under review, 34 Fellows completed their training. As at the end of June 1980, there were 64 Fellows in training or awaiting to take place for

training and research in the associated institutions of the Programme. The total number of World Health Programme Fellows to date has reached 145. Close to 200 applications are now under scrutiny.

69. The geographical distribution of Fellows is as follows: Africa, Europe and Middle East, 31; Asia, 54; Latin America and the Caribbean, 60.

70. During 1979, the Senior Programme Officer of the World Hunger Programme undertook a review of the fellowship programme which produced a number of recommendations, endorsed by the Programme Advisory Committee, for improvement of the fellowship programme. A specific policy designed to meet the special needs of Africa has been initiated for candidates from countries lacking persons in the disciplinary training appropriate for the regular fellowship programme.

71. As a further step in the review process, a meeting of former University Fellows is planned in Cali, Colombia, from 30 July to 1 August, to discuss the training programme in Latin America and how it might be modified or improved.

#### E. Special Fellows

72. Special Fellows are selected key personnel of institutions in developing countries who are awarded fellowships for a period of less than four months to enable them to gain additional experience, or share their experience, in specific fields with the scholars of an associated institution. To date 50 special fellowships have been granted, out of which 19 Fellows have already completed their course of studies.

#### F. Meetings

73. The World Hunger Programme held a workshop in Bellagio, Italy, from 28 April to 2 May 1980, to review its conceptual basis. The meeting agreed that hunger must be viewed as not only a biological and technical, but also a social, cultural, economic and political problem. The Programme Advisory Committee met in Tokyo in January 1980 and its Steering Committee met twice (Vienna, August 1979 and Tokyo, January 1980). The task force for each of the subprogrammes also met twice during the year; each task force helps provide the Senior Adviser to the Rector with guidance on implementation on specific activities of the subprogrammes.

#### G. Co-operation with other United Nations agencies

74. The expert group that helped design the World Hunger Programme, in the autumn of 1975, included a number of individuals familiar with the activities of the various agencies of the United Nations system in the areas of food and nutrition. The programme was carefully designed to complement the activities of these other agencies in areas of priority relevant to the fight against world hunger. Programme work was adapted to the specific mandate in the University charter to operate through the instruments of scholarship: research, advanced training, and the dissemination of knowledge.

75. In post-harvest conservation of food, for example, the more resources FAO can

put into assisting countries in this area, the greater the need for trained University Fellows from those countries to make the best use of this support. Or, in the area of human nutritional requirements, the University work is carefully designed to complement and go beyond the research that FAO and WHO can support. In the area of food and nutrition policy and programme analysis, the University is the one United Nations agency offering advanced multidisciplinary training programmes at the post-masters and post-doctoral levels.

76. In addition to co-operating with FAO and WHO, the World Hunger Programme also has close links with UNESCO in the area of nutrition education. The Programme organized several missions to Africa on behalf of the Sub-Committee on Nutrition of the Administrative Committee on Co-ordination (ACC) to identify institutional training needs in the field of food nutrition, and has been asked to organize similar missions in the future to other African countries. The Food and Nutrition Bulletin, published by the World Hunger Programme, is used to disseminate the reports of several ACC working groups. Two members of the Advisory Group on Nutrition to the above-mentioned sub-committee are also members of the World Hunger Programme Advisory and Steering Committees, thereby helping to ensure maximum complementarity and specificity of the programme's activities.

#### H. Publications

77. The quarterly journal, Food and Nutrition Bulletin, is now in its second volume. Two supplements to the Bulletin were published during the year, Protein-Energy Requirements Under Conditions Prevailing in Developing Countries in July 1979, and Bioconversion of Organic Residues in November 1979. Three more supplements are planned for the latter half of 1980. A complete list of World Hunger Programme publications appearing during the year under review follows:

- (a) "Protein-Energy Requirements under Conditions Prevailing in Developing Countries: Current Knowledge and Research Needs" (Food and Nutrition Bulletin supplement)
- (b) "Interfaces between Agriculture, Nutrition and Food Science: Proceedings of a Workshop held in Manila, 28 February-3 March 1977" (co-published by United Nations University and the International Rice Research Institute, Los Baños, Philippines)
- (c) "Bioconversion of Organic Residues for Rural Communities" (published jointly with the Programme on the Use and Management of Natural Resources)
- (d) Food and Nutrition Bulletin

Volume 1, Number 4, August 1979

Contents include:

- Food Consumption and Nutrition Targets, Food and Nutrition Issues in the 1980s
- Increasing the Capacity of the International Agencies for Policy Formulation and Programme or Project Preparation in Nutrition

- History of Breast-feeding in Chile
- Improvement of the Nutritional Quality of Food Legumes
- Ligno-Cellulosic Residues: A Suggestion for Freeing Cellulose
- Infant Feeding Practices and the Development of Malnutrition in Rural Gambia
- Progress Achieved in the Field of Nutrition under New Institutional Arrangements
- ACC/SCN Nutrition Summaries on Endemic Goiter and Nutritional Anemia
- Seminar on Nutrition in Health and Agricultural Planning for National Development
- Nutrition Education and Training in Schools of Medicine, Pharmacy and Dentistry
- Book Review of Food, Climate and Man

Volume 2, Number 1, January 1980

Contents include:

- Utilization of Biomass as a Means for Rural Development
- Psycho-Social Aspects of Breast-feeding, including Bonding
- How Nutrition Priorities Can Be integrated into Crop Improvement Programmes
- Improvement of the Nutritional Quality of Sorghum and Pearl Millet
- Progress in Nutritional Improvement of Maize and Triticale
- The Need for Food Utilization and Processing Studies to Supplement Nutritional Evaluation
- Dietary Effect of Fibre on Protein Digestibility
- Interpretation of Data on Human Food Availability and Nutrient Composition
- Vitamin A Deficiency
- Guideline for Production of Edible, Heat-processed Soy Grits and Flours
- Review of memorial issue of Lactation Review honouring Margaret Meade

Volume 2, Number 3, April 1980

Contents include:

- A Look at the Incaparina Experience in Guatemala
- A History of Breast-feeding Practices in the English-speaking Caribbean in the 20th Century

- Timely and Appropriate Complementary Feeding of the Breast-fed Infant -- an Overview
- Rethinking Food and Nutrition Education under Changing Socio-economic Conditions
- Guideline for the Production of Soybean Milk and Soybean Curd at the Village Level

Volume 2, Number 3, June 1980

Contents include:

- Food Aid Policies and Programmes: A Survey of Studies of Food Aid
- Operational Conflicts of Food Aid at the Recipient Level
- Nutritional Implications of Projects giving High Priority to the Production of Staples of Low Nutritive Quality: the Case for Cassava in the Humid Tropics of West Africa
- Interdisciplinary Dialogue on World Hunger: A Summary of the Workshop on Goals, Processes, and Indicators of Food and Nutrition Policy
- Statement and Recommendations of the Joint WHO/UNICEF Meeting on Infant and Young Child Feeding
- Nutrition and Educational Achievement: Part I. Malnutrition and Behavioural Test Indicators
- Methane from Integrated Biological Systems
- Dietary Management of Young Infants who are not adequately Breast-fed
- Guideline for Edible Cottonseed Protein Flours and Related Products

### III. HUMAN AND SOCIAL DEVELOPMENT PROGRAMME

#### A. Introduction

78. The premise underlying the work of this programme is that, to promote human and social development, it is necessary to create a critical world forum for dialogue among researchers from different cultures, schools of thought and social systems to study basic global problems. The programme is concerned with the broad structural problems of development as well as the specific ways technology and society can interact to bring maximum benefit to poor people in rural communities of the developing world.

79. The Human and Social Development Programme takes as its starting point the disappointing results of development strategies of the recent past which have tended to equate economic growth with improvement in the over-all quality of human life. These strategies, more often than not, have failed and most notably in the case of the rural villagers of the third world. While they comprise the bulk of the population of the developing countries, rural villages have realized few benefits from national economic growth. And the "global village" fashioned by the advances of modern communications has both heightened the aspirations of these villagers and, at the same time, made them all the more keenly aware of the inequity of their own lot.

80. The programme has found that it is possible to organize a systematic dialogue on development problems among different schools of thought and to obtain valuable new insights through this process. While this is a difficult endeavour, not necessarily leading to agreement among the different parties, experience has shown that there can be a deepening understanding of one's own position, sometimes leading to quite new perspectives.

81. The programme has five initial projects, two concerned with problems of development and three with technology and development:

- (a) Subprogramme on problems of development
  - (i) Goals, processes, and indicators of development
  - (ii) Socio-cultural development alternatives in a changing world
- (b) Subprogramme on technology and development
  - (i) Research and development systems in rural settings
  - (ii) Sharing of traditional technology
- (iii) Technology transfer, transformation, and development: the Japanese experience.

82. These five projects have developed networks that now involve some 80 research units and the following five associated institutions:

- Colegio de Mexico, Mexico City, Mexico;
- Institute of Developing Economies, Tokyo, Japan;
- Institute of Development Studies, Geneva, Switzerland;
- Marga Institute, Colombo, Sri Lanka;
- Latin American Faculty of Social Sciences, Mexico City, Mexico.

#### B. Summary of the year

83. During the first six months of the year under review, the pilot phase of the five initial projects was completed. Research activities continued during the latter half of the year, while an assessment of the pilot phase experience was conducted by the Programme Advisory Committee in close co-operation with the Project Co-ordinators and the research units.

84. The pilot phase was intended to produce preliminary results which could guide the programme planners in assuring the scientific quality of the research, in developing effective network co-ordination, and in relating the initial projects to other proposed research activities. The over-all goal has been to gain a more systematic grasp of both the broad problems of development and the specific role of technology in the service of development.

85. As planned, now that the pilot phase has been completed, the Programme will start an experimental exchange of University Fellows, firstly within and then between its initial project networks.

86. The delay in starting fellowship activities was motivated by a concern expressed both at the programme's initial experts meeting as well as during subsequent Programme Advisory Committee and task force meetings. It was felt that the Human and Social Development Programme should first establish its research networks in a manner to reflect recent new perspectives on alternative approaches to development; when it moved into its fellowship activities it could thus avoid replication of conventional training programmes. It was pointed out that research units should first be created inside a country, made up of researchers from that country's academic community. After this step, researchers from other countries could be admitted as dialogue partners rather than as foreign experts from whom to learn or as foreign trainees to be taught.

87. Now that the initial pilot phase has been completed, and research units formed by national researchers have been established, exchange researchers will visit other research units of the same project for a period of from three to six months. Specific details for implementing the exchange are now being finalized; these plans will be discussed by the Programme Advisory Committee at a meeting in early 1981. As a start, however, a limited number of exchange scholarships will be awarded to young researchers during 1980, with emphasis on those engaged in field research. If the experiment proves successful, the exchange will be extended to different projects. It is also envisaged that young researchers from outside the networks might be admitted to work within the different research units.

### C. Perspectives and activities of the subprogrammes

88. The two subprogrammes - problems of development and technology and development - are designed to be complementary and mutually reinforcing. They have grown increasingly interactive. An example of interaction is the workshop on technology and development held in Addis Ababa, Ethiopia, in May, which brought together researchers from the three projects concerned with technological dimensions of development: (a) Japanese researchers who are studying their own country's modernization experience for lessons it might offer to development planners elsewhere; (b) researchers from other Asian nations who are examining the role of traditional technologies, and their potential for transformation; and (c) an international team of researchers, from Africa, Asia, and Latin America, who have been studying the links between modern research and development systems in developing countries and the technologies of the traditional sectors.

#### 1. Problems of development

##### (a) Goals, processes and indicators of development

89. This project seeks to contribute to the continuing debate on development and, in particular, to deepen and develop further the discussions, within and without the United Nations family, on why development strategies of the last two decades have produced such disappointing results, and which alternatives should be considered.

90. The practical value of the project is that it contributes to new insights into problem-solving processes and new images of a future world. To this end, the project has set itself a three-fold task of innovation:

(a) Conceptual - in the theory and method of networking;

(b) Organizational - through the networking practice and through the collaborative involvement of academics with populations, e.g., rural and urban workers, peasants, women, etc., normally taken as targets of research rather than collaborators in research;

(c) Methodological - through the use of multidimensional, interparadigmatic dialogue as a research method, which relates to organizational innovation.

91. The project has three components:

(a) Research carried out by each of the twenty units in the network (9 in industrialized countries, 8 in developing countries, and 3 in international organizations). This research has already produced a number of papers, 26 of which were published over the last year;

(b) Subproject meetings permitting collective reflection by groups of researchers working on similar themes - for example, visions of desirable societies, alternative ways of life, or indicators of development. Thirteen such subproject meetings were held during the course of the year;

(c) Annual meetings of the entire network to provide a forum for integration of the themes and a co-operative working together to produce new synergistic insights.



92. The basic "working tools" of the projects are the research papers. The following sampling of titles and authors gives a perspective on the scope of research under way:

"Cultural Identity, Self-Reliance, and Basic Needs",  
Roy Preiswerk

"Basic Human Needs: Methodology and Mobilization",  
Patrick Healey

"Development Theories in the Social Looking-glass: Some Reflections from Theories to 'Development'",  
Gilbert Rist

"Dominant and Alternative Life Styles in Poland",  
Andrzej Sicinski

"Needs - Their Perception and Expression: The Sri Lanka Experience",  
E. L. Wijemanne and  
Earl Wanigasekera

"Towards a Model of Human Growth",  
Telma Nudler

"The Nature and Future of Development in New Zealand",  
David C. Pitt

"The African Personality",  
Bennie A. Khoapa

"Global Social Democracy and the New International Economic Order",  
Fawzy Mansour

93. The Programme Advisory Committee decided in January 1979 that a four-person team, representing the Advisory Committee, the programme staff officers and the project network, should undertake an over-all review of the project. Reports prepared by members of the review team were presented and discussed at the Advisory Committee meeting held in Tokyo in November 1979.

94. The goals, processes, and indicators of development project is co-ordinated through the Institute of Development Studies in Geneva.

(b) Socio-cultural development alternatives in a changing world

95. Development since the Second World War has taken different forms in different regions of the world. All regions today, however, face a variety of problems induced by their development efforts. It is now recognized, for example, that limitless production and consumption, which was for so long a hallmark of the industrialized societies, faces constraints and controls. The world is now at a major turning point where the vision of a growth-oriented civilization is questioned. It is clear that imposing one development solution to different peoples of different regions overlooks the fact that the socio-economic path of each group of people cannot be disassociated from their history and their geo-political position.

96. This project seeks to bring together formative minds from around the world in a study of the socio-cultural development alternatives in today's changing world. The core concern of the project is the endogenous intellectual creativity that has been suppressed in the so-called "Western" forms of development.

97. The nature of such local creativity was explored in two previous regional symposia - one for Asia held in Kyoto in November 1978, and a second for Latin America in Mexico City in April 1979. The papers from these symposia have helped set the scientific orientation of the project during the year under review.

98. Another element of the subproject, designed to complement the regional approach of the symposia, is organizing international seminars on the major problems of today's changing world. The first such seminar, on the theme "science and technology in the transformation of the world", was held in Belgrade, Yugoslavia, in October 1979, with the joint sponsorship of the University of Belgrade. Twenty papers were presented which discussed the various conditions for promoting endogenous intellectual creativity in science and technology.

99. Twenty research units are now included in the project network which is co-ordinated through the National Centre of Scientific Research (CNRS), Paris; their research seeks to deepen and enrich the dialogue from both of the subprojects. Each research unit studies a particular subtheme, either as a follow-up to a meeting which has already occurred or in preparation of future ones.

100. Reports of the two regional symposia and the Belgrade seminar will become available through commercial publishers in English and other languages (Spanish for the Latin American symposium and Japanese for the Asian symposium). In addition, the University has published 20 research papers of the project during the year under review. Among these papers were the following:

"Folk Religion and Spiritual Relief in Modernized Japan",  
Yoshio Yasumaru

"The New Universalism - The New Sociability",  
Miroslav Pecujlic

"Endogenous Intellectual Creativity in Social Sciences",  
K. J. Ratnam

"Endogenous Creativity and the New International Economic Order", Le Thanh Khoi

"On the Social Transformation of China's Minority Nationalities", Hsiao-tung Fei

"Major Asian Intellectual Traditions: Their Philosophy and Creativity",  
K. Satchidananda Murty

"Tradition et Modernité",  
Yves Barel, Christiane Arbaret and Jan Dessau

## 2. Technology and development

### (a) Research and development systems in rural settings

101. The objective of this project is to integrate modern research and development systems in developing countries with the experience and knowledge of rural societies in order to tackle the technological problems of rural development. Its focus is thus on one of the most troubling aspects of development in the last few decades: the tendency of modern research and development systems in the third world countries, staffed by Western-oriented elites, to evolve independently of the real needs of the masses in rural areas.

102. The project is being co-ordinated from the State University of Campinas, Brazil, with the participation of research teams from the following institutions:

- Ethiopian Science and Technology Commission, Addis Ababa, Ethiopia;
- Economic Development Foundation, Rizal, the Philippines;
- Institute for Studies of Rural Development "MAYA A.C.", Mexico City, Mexico.

103. The project completed the pilot phase of its work in April 1979 (with field studies in Ethiopia, Mexico, and the Philippines), and has since been engaged in an in-depth review of its initial experience. An extensive analysis of the research to date was made at a meeting in Manila in November 1979, and a further review was made at the Programme Advisory Committee meeting in Tokyo in January 1980. At both meetings, the concentration was on the methodologies tested during the pilot phase.

104. The Manila meeting took up five considerations: (a) technological "space" - or the limitations set by the local situation on the use of given technologies; (b) contributions of the rural community in helping define such space; (c) analysis of local technologies, involving their breakdown into scientific components to understand them better; (d) reactions of the community to the introduction of technologies; and (e) effects of traditional sectors on the national research and development systems.

(b) Sharing of traditional technology

105. This project involves in-depth studies of traditional technology in 23 villages of seven Asian nations. Research teams are evaluating the needs that such technologies fill and what their potential is, with the input of modern science, to improve the quality of village life. Their activities are centred on five basic areas of life in the developing countries: food, energy, housing, fishing and health.

106. After careful review of the results of pilot studies in these villages (at a project network meeting in Yogyakarta, Indonesia, in spring 1979), it has been decided to shift from the initial emphasis - on traditional technologies and their potential for answering the needs of rural villages - to one of appropriate technology, whatever its roots are. The pilot studies indicated clearly that a more direct approach to the problem lies in identifying those local technologies which might best serve the needs of villagers through transformation by the input of modern science.

107. This viewpoint developed after the pilot studies showed that, while modern technologies have largely bypassed the poor in the villages, traditional technologies, on which they are relying, are largely inadequate to meet village needs in the modern world. While traditional technologies constitute a rich resource, they should be viewed as a base on which to fashion appropriate technologies. The latter, however, should be designed with the over-all economic, social, and political environment in view. It is only with this input that the appropriate technologies can be competitive with, and thus essentially more practical than, imported modern technologies.

108. There are three initial stages to this project: (a) study of traditional technologies in their social setting; (b) assessment of these technologies in their social setting to determine their appropriateness as instruments for development; (c) the actual process of transformation of these technologies.

109. As defined by the project network meeting, the future operational strategy of the work will include the following steps: (a) dissemination of the information obtained from the analysis of individual village studies to all of the units in the network; (b) subsequent monitoring in the field of uses of this information; (c) recommendations for action based on data received from the monitoring process;

and (d) creation of a communications system appropriate to the project needs - which is to say, delivery of information ultimately on a village-to-village basis that can be put to direct, practical use.

110. This project is being co-ordinated through the Marga Institute in Sri Lanka. Established in 1972, the Institute is particularly interested in development issues in Sri Lanka, but also maintains an effective network of linkages with scholars interested in development elsewhere in Asia and the rest of the world. In addition to Sri Lanka, villages being studied in the project are located in Malaysia, Nepal, Indonesia, Japan, the Philippines and Thailand.

(c) Technology transfer, transformation and development: the Japanese experience

111. This project is unique among United Nations University projects in that it is centred on one country: it recognizes, however, the special role of Japan as the one non-Western nation to have joined the ranks of the industrialized countries, and the consequent interest in Japan's experience on the part of third world development thinkers. It seeks basically to answer their question: what is it, in the astounding economic success of this non-Western nation, that might provide lessons for the developing countries?

112. The background for the decision to concentrate one of the University's networks in a single country is that most studies of the Japanese experience to date have tended to compare that country's successes or failures against the performance of the most advanced Western countries. Analyses have thus had little relevance to developing-country planners. Therefore, while data are being gathered and initially evaluated in Japan by a network of research units in 36 institutions throughout the country, they are also being evaluated, increasingly over the last year, by non-Japanese scholars.

113. In the year under review, two meetings were held involving both Japan and developing-world scholars: one in Tokyo, Japan, in February, a second in Addis Ababa, Ethiopia, in May (the latter a joint meeting with the projects on sharing of traditional technology and research and development systems in rural settings). The attention has been directed at making comparisons to identify aspects of Japan's modernization that might be overlooked by studies that are interested primarily in judging Japan's performance against its achievements and failures by standards of the Western countries.

114. The studies in the first phase of this project have now been completed. Their focus was primarily on aspects of "hard technology" in Japan's development during the late nineteenth and early twentieth centuries, such as the creation of the national railway system or the development of the iron and steel industries. The project is now moving to consideration of "soft technology", and looking more closely, from its original data base, at the particular social and cultural climate in which a given technological solution has flourished or failed.

115. A total of 24 research papers have been completed to date in Japanese; 14 of these are now available in English translation. The project is co-ordinated through the Institute of Developing Economies in Tokyo.

D. Projects in planning stage

116. The Human and Social Development Programme has two projects now in the planning stage. Planning meetings have been held in the past year. They are:

(a) Human rights, peace, and international law. Meetings to discuss the eventual dimensions of this project were held in autumn 1979 in The Hague, the Netherlands, and Tokyo, Japan. Participants at these meetings stressed the need for human rights to be considered in more multicultural terms; in particular it was stressed that this project should be defined and implemented in such a way as to give appropriate consideration to the role of human rights in discussions of the new international economic order.

(b) Technical co-operation among developing countries: regional perspectives. The aim of this project is to enable researchers from the major regions of the world to develop research activities that could formulate alternative scenarios for future changes in the international structure. A task force in the Arab region adopted the general theme for a study of alternative futures; a detailed project proposal will be presented to the Council next December 1980. A regional task force meeting to study the Latin American approach to the new international economic order was held in Havana, Cuba, from 2 to 6 May 1980. The programme is studying the possibility of holding similar regional meetings in Africa and the People's Republic of China in the near future.

#### E. Programme field organization

117. Research units of the Human and Social Development Programme are based at the institutions listed below:

##### 1. Project on goals, processes and indicators of development

- (a) Institute of Development Studies, Geneva, Switzerland (co-ordinating institution)
- (b) African Institute for Economic Development and Planning, Dakar, Senegal
- (c) Bariloche Foundation, San Carlos de Bariloche, Argentina
- (d) Centre for Policy Research, University of Science Malaysia, Penang, Malaysia
- (e) Centre for the Study of Developing Societies, New Delhi, India
- (f) Chair in Conflict and Peace Research, University of Oslo, Oslo, Norway
- (g) Committee "Poland Year 2000", Polish Academy of Science, Warsaw, Poland
- (h) Division of Systems Studies, University of Bucharest, Bucharest, Romania
- (i) Colegio de Mexico, Mexico City, Mexico
- (j) GAMMA, University of Montreal, Montreal, Canada
- (k) Institute for Peace Science, Hiroshima University, Hiroshima, Japan
- (l) Institute of International Relations, University of the West Indies, Kingston, Jamaica
- (m) Marga Institute, Colombo, Sri Lanka
- (n) Mershon Center, Ohio State University, Columbus, Ohio, United States of America
- (o) Peace Research Institute, Sweden, Göteborg, Sweden

- (p) Project Group "Development and Underdevelopment/World Economy", Max Planck Institute, Starnberg, Federal Republic of Germany
- (q) Science Policy Research Unit, University of Sussex, Brighton, United Kingdom
- (r) Union of International Associations, Brussels, Belgium
- (s) United Nations Institute for Training and Research (UNITAR), Geneva, Switzerland
- (t) World Future Studies Federation, Rome, Italy

2. Project on socio-cultural development alternatives in a changing world

- (a) National Centre of Scientific Research, Paris, France (co-ordinating institution)
- (b) Caribbean Development and Co-operation Committee, Port of Spain, Trinidad and Tobago
- (c) Centre of Development Studies, University of Venezuela, Caracas, Venezuela
- (d) Centre for East Asian Studies, McGill University, Montreal, Canada
- (e) Centre for Economic and Social Research and Studies, University of Tunis, Tunisia
- (f) Centre of Higher Research, National Institute of Anthropology and History, Mexico City, Mexico
- (g) Centre for Political Studies, School of Social Sciences, Jawaharlal Nehru University, New Delhi, India
- (h) Centre for the Study of the Practices and Representations of Socio-Economic Changes, University of Grenoble, Grenoble, France
- (i) Department of Bengali, University of Chittagong, Chittagong, Bangladesh
- (j) Department of Political and Social Sciences, Complutensian University of Madrid, Madrid, Spain
- (k) Department of Sociology, University of Ibadan, Ibadan, Nigeria
- (l) East Asian History of Science Library, University of Cambridge, Cambridge, United Kingdom
- (m) Fernand Braudel Center for the Study of Economies, Historical Systems and Civilizations, State University of New York at Binghamton, Binghamton, United States of America
- (n) Institute of Arab Research and Studies, Cairo, Egypt
- (o) Institute for the History of Arabic Science, University of Aleppo, Aleppo, Syria
- (p) Institute of International Relations for Advanced Studies on Peace and Development in Asia, Sophia University, Tokyo, Japan
- (q) Institute of National Planning, Cairo, Egypt
- (r) Institute of Pacific Studies, The University of the South Pacific, Suva, Fiji
- (s) Thai Khadi Research Institute, Thammasat University, Bangkok, Thailand
- (t) University of Belgrade, Belgrade, Yugoslavia

3. Project on research and development systems in rural settings
  - (a) State University of Campinas, Campinas, Sao Paulo, Brazil (co-ordinating institution)
  - (b) Economic Development Foundation, Rizal, Philippines
  - (c) Ethiopian Science and Technology Commission, Addis Ababa, Ethiopia
  - (d) Institute for Studies of Rural Development "Maya A.C.", Mexico City, Mexico
  - (e) State University of Campinas, Sao Paulo, Brazil
  
4. Project on sharing of traditional technology
  - (a) Marga Institute, Colombo, Sri Lanka (co-ordinating institution)
  - (b) Consumers Association of Penang, Penang, Malaysia
  - (c) Development Research and Communication Group, Kathmandu, Nepal
  - (d) Dian Desa, Yogyakarta, Indonesia
  - (e) Gakushuin University, Tokyo, Japan
  - (f) Institute of Philippine Culture, Quezon City, Philippines
  - (g) Thai Khadi Research Institute, Thammasat University, Bangkok, Thailand
  
5. Project on technology transfer, transformation, and development: the Japanese experience
  - (a) Institute of Developing Economies, Tokyo, Japan (co-ordinating institution)
  - (b) Bunkyo Women's College, Tokyo
  - (c) Department of Agriculture, University of Tokyo, Tokyo
  - (d) Department of Engineering, Tokyo Institute of Technology, Tokyo
  - (e) Department of Humanities, Tsukuba University, Tsukuba
  - (f) Department of Law and Economics, Aichi University, Toyohashi
  - (g) Faculty of Arts, Rikkyo University, Tokyo
  - (h) Faculty of Arts, Hanazono University, Kyoto
  - (i) Faculty of Commerce and Economics, Senshu University, Tokyo
  - (j) Faculty of Commerce, Hitotsubashi University, Tokyo
  - (k) Faculty of Economics, Hosei University, Tokyo
  - (l) Faculty of Economics, Kanazawa College of Economics, Kanazawa
  - (m) Faculty of Economics, Toyo University, Tokyo
  - (n) Faculty of Education, Niigata University, Niigata
  - (o) Faculty of Humanities, Ibaragi University, Mito
  - (p) Faculty of Law and Letters, Kanazawa University, Kanazawa
  - (q) Faculty of Political Science and Economics, Hiroshima University, Hiroshima

- (r) Faculty of Social Sciences and Humanities, Tokyo Metropolitan University, Tokyo
- (s) Faculty of Sociology, Hitotsubashi University, Tokyo
- (t) Faculty of Sociology, Kansai University, Osaka
- (u) Faculty of Technology, Toyo University, Tokyo
- (v) Institute of Economic Research, Hitotsubashi University, Tokyo
- (w) Japan Export Metal Flatware Industry Association, Tsubame
- (x) Land Utilization Section, Department of Farm Management and Land Utilization, National Institute of Agricultural Sciences, Tokyo
- (y) Mitsui Research Institute for Social and Economic History, Tokyo
- (z) Niizu High School, Niizu
- (aa) Nuttari High School, Nuttari
- (bb) Office of Policy Formation, Tokyo Metropolitan Government, Tokyo
- (cc) Planning Division, Planning and Co-ordination Bureau, National Land Agency, Tokyo
- (dd) Sanjo City Library, Sanjo
- (ee) Sendai Dai-ichi High School, Sendai
- (ff) Toei Ironware Co., Ltd., Sanjo
- (gg) Tokyo Gakugei University, Tokyo
- (hh) Tsubame High School, Tsubame
- (ii) Tsubame Industrial High School, Tsubame
- (jj) Wako University, Tokyo

#### F. Meetings and workshops

118. During the year under review, the Human and Social Development Programme held the following scientific meetings and workshops:

##### 1. Goals, processes and indicators of development

- |     |                            |   |
|-----|----------------------------|---|
| (a) | 1-7 September 1979         | Subproject meeting on dialogues, Penang, Malaysia                                 |
| (b) | 10-12 October 1979         | The fourth Hiroshima University symposium on peace studies, Hiroshima, Japan      |
| (c) | 28-29 January 1980         | Subproject meeting on rights, Geneva, Switzerland                                 |
| (d) | 31 January-1 February 1980 | Subproject meeting on processes in the United Nations system, Geneva, Switzerland |
| (e) | 22-24 February 1980        | Subproject meeting on alternative ways of life, Geneva, Switzerland               |
| (f) | 25-27 February 1980        | Subproject meeting on alternative strategies and scenarios, Geneva, Switzerland   |



- (g) 28-29 February 1980      Subproject meeting of Economic Study Group, Geneva, Switzerland
- (h) 5-13 April 1980      Joint subprojects workshop on alternative ways of life, visions of desirable societies, visions of desirable worlds and ecology, Alfaz del Pi, Spain
- (i) 9-11 May 1980      Subproject meeting of Energy Study Group, Crottorfschloss, Federal Republic of Germany
- (j) 30 May-1 June 1980      Subproject meeting of Dictionary Group, Warsaw, Poland
- (k) 2-4 June 1980      Subproject meeting on concepts/theories of development, Geneva, Switzerland
- (l) 5-7 June 1980      Subproject meeting on forms of presentation, Geneva, Switzerland
- (m) 19-22 June 1980      Subproject meeting on non-territorial systems, Brussels, Belgium

2. Socio-cultural development alternatives in a changing world

- (a) 22-26 October 1979      First international seminar on science and technology in the transfer of the world, Belgrade, Yugoslavia
- (b) 12-13 March 1980      Subproject workshop: technical interpretations of the rise of capitalism in Europe and the nature of traditional Chinese society: a comparative historical and sociological study, Cambridge, United Kingdom
- (c) 31 March-1 April 1980      Subproject meeting: socio-cultural political and economic prerequisites of cultural creativity in southern Europe, Madrid, Spain
- (d) 30 June-1 July 1980      Second subproject workshop: les modernités et leurs espaces spécifiques, Grenoble, France

3. Research and development systems in rural settings

12-16 November 1979      Project meeting, Manila, Philippines

4. Sharing of traditional technology

17-21 March 1980      Network meeting, Penang, Malaysia

5. Human rights

- (a) 16-18 October 1979      The right to development at the international level, The Hague, the Netherlands
- (b) 7-9 November 1979      Task force meeting on human rights, Tokyo, Japan

- (a) 25-28 February 1980      Symposium on problems of assimilation of foreign technology, Tokyo, Japan
  - (b) 5-9 May 1980              Joint interproject meeting on technology and development, Addis Ababa, Ethiopia
7. Programme Advisory Committee meetings
- (a) 2-6 November 1979        Fourth meeting, Tokyo, Japan
  - (b) 21-25 January 1980       Fifth meeting, Tokyo, Japan
8. General meetings
- (a) 2 July 1979                Consultative meeting with Japanese scholars, Tokyo, Japan
  - (b) 29-30 January 1980       United Nations University-Institute for Peace Science Study meeting on the Human and Social Development Programme, Tokyo, Japan

#### G. Publications

119. During the year under review, the following research papers\* were published:

1. Project on goals, processes and indicators of development

- (a) "On the Decline and Fall of Empires: The Roman Empire and Western Imperialism Compared" by Johan Galtung, Tore Heistad, and Eric Ruge
- (b) "An issues paper contributed by the Food Study Group" by Susan George
- (c) "Development Theories in the Social Looking-glass: Some Reflections from Theories to 'Development'" by Gilbert Rist
- (d) "Towards a Model of Human Growth" by Thelma Nudler
- (e) "Cultural Identity, Self-Reliance, and Basic Needs" by Roy Preiswerk
- (f) "Basic Human Needs: Methodology and Mobilization" by Patrick Healey
- (g) "Global Militarization and its Remedy" by Hirohiko Seki
- (h) "Global Social Democracy and the New International Economic Order" by Fawzy Mansour
- (i) "Notes for an Epistemology of Holism" by Oscar Nudler
- (j) "Scientific Revolution and Inter-paradigmatic Dialogues" by Kinnide Mushakoji
- (k) "Aspects of the Iranian Revolution" by M. Taghi Farvar

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\* Research papers are prepared by consultants, participating scholars, or programme staff members involved in a particular research project of the University. They are distributed on a limited basis for comments and reaction.

- (l) "Preliminaries on a Comparative Analysis of the Various Viewpoints on the Quality of Life" by M. C. Botez, I. Ionescu Sisesti, A. M. Sandi and A. Vasilescu
- (m) "The Organizational Context of Development: Illuminating Paths for Wider Participation" by Chadwick F. Alger
- (n) "About Critical Group Size" by Yona Friedman
- (o) "Needs - Their Perception and Expression: The Sri Lanka Experience" by E. L. Wijemanne and Earl Wanigasekera
- (p) "Representation, Comprehension and Communication of Sets: the Role of Number" by Anthony J. N. Judge
- (q) "Economic Indicators and the GPID" by Kimon Valaskakis and Iris Martin
- (r) "Approaching the Peculiarity of the Caribbean Plight within the Paradcx of the Representative State in the Contemporary World-System" by Herb Addo
- (s) "The African Personality" by Bennie A. Khoapa
- (t) "Negative and Positive Sides of Norwegian Life Style" by Dag Poleszynski
- (u) "Attitudes of the Dutch Population on Alternative Life Styles" by Peter Ester
- (v) "Dominant and Alternative Life Styles in Poland" by Andrzej Sicinski
- (w) "Austria in the Year 1979" by Lore Scheer and Fred Prager
- (x) "Ways of Life in Finland" by Barbara and J. P. Roos
- (y) "The Quaternary Sector" by Yona Friedman
- (z) "The Nature and Future of Development in New Zealand" by David C. Pitt

2. Project on socio-cultural development alternatives in a changing world

- (a) "Intellectual Creativity in Endogenous Culture" by Takeo Kuwabara
- (b) "Endogenous Intellectual Creativity in Social Sciences" by K. J. Ratnam
- (c) "On the Social Transformation of China's Minority Nationalities" by Hsiao-tung Fei
- (d) "Endogenous Creativity and the New International Order" by Le Thanh Khoi
- (e) "Endogenous Intellectual Creativity: The Ethos of the Composite Culture of India" by Rasheeduddin Khan
- (f) "The Concept of Specificity: Positions" by Anouar Abdel-Malek
- (g) "Folk Religion and Spiritual Relief in Modernized Japan" by Yoshio Yasumaru
- (h) "The Dialectics between Response to Exogenous and Autochthonous Innovation in India in the 19th and 20th Centuries with Special Reference to Modern Bengal" by Barun De
- (i) "Socio-cultural Creativity in the Converging and Restructuring Process of the New Emerging World" by Takdir S. Alisjahbana
- (j) "Tradition et Modernité" by Yves Barel, Christiane Arbaret and Jan Dessau

- (k) "Pour une Etude de la Transformation des Structures Familiales en Milieu Urbain" by Bruna Ribes
- (l) "Social Aspects of Endogenous Intellectual Creativity: The Problems of Obstacles - Guidelines for Research" by Hussein S. Alatas
- (m) "Social Aspects of Endogenous Intellectual Creativity" by Anisuzzaman
- (n) "Towards a People-centred Endogenous Intellectual Creativity: Historical Testimony from the Philippines" by Hollisteiner
- (o) "Endogenous Intellectual Creativity and the Emerging New International Order" by Paul Lin
- (p) "Major Asian Intellectual Traditions: Their Philosophy and Creativity" by K. Satchidananda Murty
- (q) "A Principle of Group Formation in Japan" by Keiichi Sakuta
- (r) "The Life and Work of Prince Damrong Rajanubhab (1862-1943) as an Historical Testimony of Endogenous Thai Intellectual Creativity" by Sulak Sivaraksa
- (s) "Way of Thinking in Traditional Philosophy - Prospects and Limits" by Keiji Yamada
- (t) "The New Universalism - The New Sociability" by Miroslav Pecujlic

3. Project on technology transfer, transformation and development: the Japanese experience

- (i) Available in English and Japanese:
  - (a) "The Modernization of Metal Mining in Japan" by Fumio Yoshiki
  - (b) "Town Organizations in Prewar Tokyo" by Hachiro Nakamura
  - (c) "Technology of Traditional Industry and the Role of the Craftsmen" by Shogo Koyano
  - (d) "Development of Local Culture and the Irrigation System of the Azusa Basin" by Akira Tamaki
  - (e) "Irrigation Water Rights Disputes in Japan - as Seen in the Azusa River System" by Isao Hatate
  - (f) "Land Improvement Investment and Farming Operations in Japan - as Seen in the Azusa River System" by Naraomi Imamura
  - (g) "Origin and Development of Iron and Steel Technology in Japan" by Ken-ichi Lida
  - (h) "Japan's Discovery, Import, and Technical Mastery of Railways" by Katsumasa Harada
  - (i) "Railway Construction as Viewed from Local Society" by Eiichi Aoki
  - (j) "The Development of the Eyeglass Industry in Japan" by Tatsuzo Ueda
  - (k) "Technology and Labour in Japanese Coal Mining" by Nisaburo Murakushi
  - (l) "Historical Background of Technology Transfer, Transformation, and Development in Japan" by Takeshi Hayashi

- (m) "The History and Future of Rice Cultivation in Hokkaido" by Man'emon Takahashi
- (n) "Transformation and Development of Technology in the Japanese Cotton Industry" by Takeo Izumi
- (ii) Available in Japanese (English translation of titles):
  - (a) "Industrialization and Transportation in Japan" by Hirofumi Yamamoto
  - (b) "Development of Road Construction Technology in Japan" by Ichiro Ishii
  - (c) "Metamorphosis of Economic Accumulation and Social Change" by Takashi Tomosugi
  - (d) "Organization of the Irrigation System of the Hata Canal" by Kenzo Horii
  - (e) "Technology Transfer in the Japanese Cotton Industry" by Kozaburo Kato
  - (f) "Irrigation and Local Leaders in the Azusagawa Water System" by Isao Hatate
  - (g) "History of the Glass Industry in the Early Meiji Era" by Shigeo Kikuura
  - (h) "Development of Hokkaido and Technology Transfer" by Kiyohide Seki, Tatsu Taniuchi, and Man'emon Takahashi
  - (i) "Changes in Investment for Land Improvement and Structure of Agricultural Enterprises" by Naraomi Imamura
  - (j) "Traditional Metal Mining Technology in Pre-Meiji Japan" by Junnosuke Sasaki

#### H. Co-operation with other United Nations agencies

120. The programme has continued to maintain close links of collaboration with other United Nations organizations. A mechanism was established for consultation between the University and the social sciences sector of UNESCO, and its first meeting was held in Paris from 27 to 29 May 1980. A seminar on the role of new theoretical conceptions in the process of development is to be organized jointly by the University and UNESCO in Ulan Bator, People's Republic of Mongolia, from 9 to 23 August.

#### IV. PROGRAMME ON THE USE AND MANAGEMENT OF NATURAL RESOURCES

##### A. Introduction

121. The basis of the work of the Programme on the Use and Management of Natural Resources is that there are two needs in stimulating the provident and ecologically sound use of the earth's finite resources: (a) the generation of new knowledge and techniques relating to renewable resource use; and (b) the dissemination and application of existing knowledge to selected critical problems of resource use, especially in developing countries.

122. During its third year of operation, the programme not only continued its rapid expansion, but also began to produce the first tangible results. Forty-two University Fellows were identified and placed, eight major titles were published, 16 workshops and meetings were held, six research and training units began work, and the general agreement of co-operation with the Academia Sinica of Beijing, China, will become operative at the beginning of July.

123. Geographically, the programme began operating in eight more countries - the People's Republic of China, Mexico, Tanzania, India, Republic of Korea, Japan, Nepal and Malaysia. Through this broader outreach and the strengthening of links between institutions, the programme is beginning to have an impact in its selected areas of concentration. Nevertheless, extrapolating this progress in terms of research and training to progress in terms of improved resource management and an improvement in the quality of life should be done cautiously. The programme is acutely aware of the gap which exists between academics and the real world, and efforts are being made to ensure that each project will ultimately have practical application and that, in keeping with the directives of the University's Charter, the knowledge gained is disseminated in a way that will maximize its impact.

##### B. Summary of the year

124. In contrast to the first two years when a more pragmatic strategy was followed, the programme during the past year concentrated on working out the conceptual basis for the various projects, and proceeded to implementation. This has already led to a more even geographical balance and has increased the possibilities for exchange between different regions. For these reasons, the name of the energy subprogramme was changed from "rural energy systems" to "energy systems for rural communities", and the activities concerned with fuel wood have been linked to it. Intense interest in the concept of resource systems by countries such as China and the Republic of Korea has resulted in expansion of the first subprogramme (ecological basis for rural development) to include, in addition to the humid tropics, the subtropics and even the temperate regions.

125. Perhaps the most remarkable development over the last year has been the convergence of the various projects and subprogrammes. Despite the diversity of the programme's nine major themes, the links between them have become more apparent and dynamic. Bogor Agricultural University, to cite an example from one of the

associated institutions, is not only concentrating on water-land interactive systems but also helping with the coastal zone training project. Similarly, agro-forestry is relevant to fuel wood considerations and thus to studies of energy systems, as well as the physical aspects of highland-lowland interactive systems.

126. Workshops, University Fellows and the exchange of researchers are the means by which these links are built and are ways to create the multidisciplinary of the programme projects. At the same time, connexions continued to be explored with the World Hunger and Human and Social Development Programmes. A joint project of the Natural Resources and World Hunger Programmes on bio-conversion is developing rapidly, with one set of workshop proceedings published, another set in press, and two research and training units in operation. Plans are under way for several joint Natural Resources-Human and Social Development workshops. One joint project in the Philippines is studying existing resource use systems in order to analyse the impact of introducing carefully selected new technologies.

127. Co-operation with other United Nations agencies increased commensurate with the programme's expansion. UNESCO is helping to support a mountain hazards mapping project in Nepal; discussions on co-operation are under way with the United Nations Environment Programme (UNEP); a memorandum of agreement has been negotiated with the United Nations Sudano-Sahelian Office (UNSO); and the University sponsored, together with UNESCO and the United Nations, a workshop on coastal zone management in the Caribbean.

128. In one sense, the only accurate definition of the Natural Resources Programme is the sum total of its activities. The individuality or character of the programme cannot be defined by a single word or phrase, as it is a cluster of specific features which makes it distinct. Most important are those characteristics of the University which all three programmes share - the autonomy and academic freedom of the United Nations University; the concept of the University as an idea-generating organization and as a world-wide community of scholars; and direct contact with universities and other academic organizations rather than contact through government channels. Added to these are the characteristic modes of operation that include emphasis on multidisciplinary research and training, building of networks, the exchange of scholars, and careful selection of University Fellows. One of the most significant benefits of these characteristics, in practical terms, is the programme's flexibility and the speed with which it can carry out its functions.

129. Obviously many agencies are sponsoring research and training on the problems of renewable resource use. However, training usually takes place in the industrialized countries, and few institutions are emphasizing the creation of networks and exchanges between centres with similar problems. Although duplication is often heard as a criticism, the problems are so vast that lack of funds, inefficient utilization of resources and poor planning are each more serious than the potential "overlapping" of work by agencies grappling with a complex global deficiency of knowledge and expertise. Through constant consultation with other agencies, both inside and outside the United Nations system, the programme can take full advantage of its flexibility to focus on specific critical problems of resource use that otherwise tend to be neglected.

### C. Perspectives and activities of the subprogrammes

130. The programme's activities are organized into three basic subprogrammes: (a) the ecological basis for rural development; (b) assessment of the application of knowledge to arid lands problems; and (c) energy systems for rural communities.

#### 1. The ecological basis for rural development

131. This subprogramme is concerned with the problem of renewable resource management in the face of rapid population growth, higher aspirations of the local population, and increasing economic demand. While it initially concentrated on the humid tropics, the relevance of and increased interest in its work have necessitated geographical expansion to include countries such as Nepal, China, and the Republic of Korea.

132. Despite varying rates of implementation, the outlines of a network are now appearing in three project areas: (a) agro-forestry systems; (b) water-land interactive systems; and (c) highland-lowland interactive systems. Activities in the field of coastal zone resources are also taking shape, and showing this project's increasing relevance to the concerns of this subprogramme.

133. Each project has a common methodology in which problems are approached by using the concept of resource systems. These systems can be roughly defined as an entire chain of events in which a raw material is collected and transformed into an end-product or a service. This approach has proved useful for both research and training as it helps to ensure a comprehensive view of the problems and to facilitate interdisciplinary co-operation. In addition to this common methodological base, there has been an increasing awareness of the links between projects as they have developed in the last two years. This is one of the more exciting indications of the vitality of the programme's work; a continued fostering of these interactions should further reinforce the networks and encourage a holistic view in research and training.

134. In addition to the four project areas mentioned above, the Natural Resources Programme has been trying to apply and refine further the concept of resource systems. In the year under review, the proceedings of the 1978 and 1979 workshops on the theory and methodology of resource systems were published, and a series of case studies were commissioned to test the application of the systems concept to various research and resource management problems. The first of these has already been completed, and it is expected that approximately 15 studies will be prepared and published over the next two years.

135. Support is also being provided for the establishment and initial work of the Resource Policy Institute at Chung-Ang University, Seoul, Republic of Korea. Studies under way include a resource systems survey of marginal areas, a detailed survey of resource use in fishing households, and the reclamation of upland areas.

136. Finally, the University, together with the Academia Sinica, China, is establishing an institute in north-east China which will conduct research on agro-ecosystems. Negotiations are nearly complete to make this an associated institution; research and training activities are expected to begin there in late 1980.



(a) Agro-forestry systems

137. In much of the humid tropics, increasing populations and rising demands for food and raw materials for export press heavily on the traditional systems that have evolved mainly to meet subsistence needs and local exchange. The resulting intensification of agriculture, often using imported techniques which are inappropriate to tropical conditions, almost always leads to a vicious cycle of environmental deterioration and a lowering of productive capacity.

138. One of the most promising methods for sustaining high productivity while minimizing social and environmental damage is agro-forestry, which combines tree and field crops, and sometimes livestock as well. Studies of traditional land-use practices could provide much of the information needed to develop agro-forestry techniques appropriate for different locations and cultures.

139. The Tropical Agricultural Research and Training Centre (CATIE) in Turrialba, Costa Rica, an associated institution, is serving as the main centre for the agro-forestry systems project. As a typical associated institution, CATIE is conducting research and advanced training under University auspices, with University Fellows from Thailand, Kenya, Nigeria, and Venezuela already in residence or selected. Research is under way both on traditional and new agro-forestry systems, including the use of trees in pastures, in combination with perennial crops, as live fence posts and to stabilize slopes.

140. Research is also under way on different tree/crop combinations at Chiang Mai University in Thailand; several University Fellows from Thailand have also been to CATIE to reinforce this work. Further possibilities for research and training are being investigated in Cameroon and Papua New Guinea, while close communication is being maintained with the International Union of Forest Research Organizations (IUFRO) and the International Council for Research in Agro-Forestry (ICRAF). Together with the latter, a workshop on agro-forestry systems in Africa is planned for early 1981, the third regional workshop on this topic. The first of these dealt with Latin America, and the proceedings has been published in both English and Spanish; the second brought together South-East Asian scientists in November 1979, and the proceedings of this is now in press.

141. Given the recent increased world-wide interest in agro-forestry, the need for scientists with training in this interdisciplinary field is acute. The project's training efforts are designed to meet precisely this need, but there are only a few institutions which can offer this type of training. This information gap also means that the impact of the programme's publications is potentially very great. This research is considered critical for the solution of the combined agricultural and fuel wood requirements of the rural population of the developing countries, but the limited funds for agro-forestry do not begin to meet the research and training needs.

(b) Highland-lowland interactive systems

142. In much of the tropics, the highlands have a healthier environment than the lowlands and they therefore tend to support larger populations, but on a relatively fragile resource base. Excessive pressure on highland resources often leads to deforestation, and the resulting chain reaction of erosion, flooding, and sedimentation can have severe consequences for the livelihood of those in the

lowlands as well as the highlands. In addition to the physical interactions, however, there are increasing social and economic ties between the two areas, and a clear understanding of these ties is necessary before resources in either area can be effectively managed.

143. The initial work at Chaing Mai University in northern Thailand has centred on establishing agro-forestry test plots and related measurements of soil erosion and soil fertility. However, the introduction of new crops and the building of roads, schools, and medical clinics in the project area are typical of widespread changes that are now taking place, and the effect of these changes are being carefully monitored through socio-economic surveys.

144. The main development in this project over the past year has been the execution of the first phase of field work on mountain hazards mapping in Nepal. Adapting techniques from the Swiss Alps and American Rocky Mountains, a multidisciplinary team of scientists is attempting to map the degree of danger posed by physical processes such as landslides, gullying, and flooding in an intensively-terraced area on the edge of the Kathmandu Valley. In addition to the actual map production, a considerable amount of related scientific work is being conducted to understand the geomorphic processes involved. Anthropologists are also determining the classification of the hazards and the degree of danger as perceived by the local population, since this understanding is critical if any management policies are to be successfully implemented. Thus this project will have three main benefits: (a) the generation of prototype mountain hazards maps which will be useful for land-use planning, the siting of roads, etc; (b) an understanding of the cause of landslides and other mountain hazards and the development of management techniques to minimize the problems; and (c) the training of a group of Nepali scientists, through United Nations University Fellowships and field experience, who are capable of continuing the work on their own. As the University of Bern (Switzerland) has been playing a key role in this project, a formal link is expected to be established in 1980.

(c) Water-land interactive systems

145. Considering the pressures for development and an expansion of production on the one hand, and the environmental constraints so often present on the other, an examination of the interactions between land and water is critical for future development, especially in coastal areas. Freshwater swamps, rivers, and estuaries provide an important source of protein over large areas for people often on minimal diets. Changes in the watershed, caused by development projects or through deforestation, can severely disrupt the local economic and social system and reduce its resource base. The project on water-land interactive systems is aimed at understanding a series of traditional systems that combine land-and-water-based production, and then developing policies and training programmes that will lead to more effective management.

146. The associated institution in this network is Bogor Agricultural University in Indonesia, initially concentrating on work in Asia. Here there is an ongoing analysis of brackish-water fish ponds (tambak). It is hoped that by understanding the complex ecological interactions both within the tambak and with agricultural practices in the uplands, improved management policies can be designed which are applicable to other countries in the region. The danger is that these delicate systems can be destroyed by careless management policies in the catchment area or adjacent coastal zone.

147. A related study has been initiated in the Pearl River Delta near Guangzhou (formerly Canton), People's Republic of China, where there is an equally complex system of fish ponds, dikes, mulberry trees, and silkworm breeding. Together with the Academia Sinica's Institute of Geography, the nutrient and energy flows of sample ponds are being monitored as a first step towards understanding and modernization.

148. Supporting work on brackish-water and coastal fisheries is also being organized at the International Centre for Living Aquatic Resources in the Philippines and at the University of Malaya, Kuala Lumpur. The University of Kagoshima, Japan, is serving as a training centre for University Fellows and also as the base for a small research project on the influence of land-based agricultural systems on coastal fisheries. It is expected that Bogor Agricultural University will play an increasingly important role in training University Fellows as the results of its research project emerge.

149. In summary, this project is serving to develop a basic understanding of the impact of development and changing farming practices in the uplands on these various South-East Asian fish production systems. During 1981, the potential for extending the network into southern Asia will be explored.

#### (d) Coastal zone resource systems

150. Given the large number of United Nations agencies concerned with marine resources and the limitations of staff and funds, the implementation of the coastal zone project was deliberately slowed down until the first three subprogrammes were established. The initial task force meeting was not held until 1978; it recommended concentrating on the shallow coastal zones, with the first step being the establishment of a series of one-year training courses in developing countries.

151. The first such course began in Indonesia in mid-1979, with the field training site being a delta adjacent to the site of the tambak studies. Six young Indonesian scholars are being trained in techniques of research, survey, and problem-solving necessary for effective coastal resource management; they meet from time to time, on an informal basis, with the researchers from the water-land interaction project. The training period begins and concludes with a workshop; the proceedings of the first such workshop is now in press, and it will be published both in Indonesian and English. By continuing and expanding the course over several years, the project is attempting to create a self-reinforcing network of trained persons working on coastal resource management and research, as well as a set of studies illustrating particular kinds of human impact on coastal areas. Efforts are being made to establish similar programmes in the Middle East and Latin America.

## 2. Assessment of the application of knowledge to arid lands problems

152. The arid lands of the world (defined to include hyperarid, arid, and semi-arid) cover about one-third of the earth's surface. At least 14 per cent of the world's total population lives in these areas, many of whom are among the "poorest of the poor". The most extensive arid areas are in Africa, Asia, and Australia, but important sections of North and South America are also represented. In many of these areas, the people living in the arid lands are often bypassed by development projects. Increasing pressure on the land, caused in part by population growth and the breakdown of traditional resource allocation systems, has meant that when rainfall is poor, the alternatives are fewer. Overgrazing and the cutting of trees

for fuel and fodder can actually reduce the biological productivity, thus leading to a vicious cycle where the local inhabitants suffer a drastic drop in living standards and a spread of desert-like conditions. This process is called desertification, and the global nature of the problem was highlighted by a United Nations conference in 1977. There it was made clear that the wealth of scientific and technical knowledge accumulated over decades was not contributing significantly to solutions of the problems of arid lands.

153. The basic assumption of the subprogramme is therefore that sufficient knowledge exists to alleviate the most immediate problems of arid lands if it can be effectively applied. In short, there is a need to understand better the human, social, economic, and political processes taking place, for technical knowledge ignoring these factors has proved inadequate.

154. The subprogramme was launched with a series of studies assessing the flow of information from scientists and academic institutions to planners, decision-makers and the local people. It is now moving towards the development of proposals for a reorientation of development projects as well as for creating a more effective framework for applying technical knowledge. The ultimate goal is to improve the quality of life for the inhabitants of arid lands.

155. The results of the commissioned studies are in the process of being published, or will soon be made available to scientists working on arid lands problems. Five studies have already been published, including one spelling out the difficulties of "development" in the Sultanate of Oman and the United Arab Emirates, and the proceedings of two workshops. The fourth is an examination of selected development projects in the Sudan, and it provides not only valuable insight into the problems associated with the planning and execution of arid lands development projects, but also implications for research and training. Because of its importance, this report has been selected as the basis for a workshop in early 1981, to be attended by some of the project leaders of the development projects studied. In this way, it is hoped to identify obstacles to the application of scientific knowledge and to suggest lines of action, not only for the areas studied in the Sudan, but for arid lands elsewhere. The fifth report is a series of perception studies on desertification. This will be an important contribution to an area which is little understood but basic to the execution of development projects in arid lands; namely, how people who are affected perceive desertification and the suggested solutions.

156. At the University of Khartoum, the Sudan, the subprogramme's first associated institution, five studies assessing the problems of applying knowledge are nearly complete. These will be used as the basis for an evaluation workshop in late 1980 or early 1981. In addition, links with the University of Swansea (United Kingdom) and the University of Hamburg (Federal Republic of Germany) are helping to reinforce the University's activities in the Sudan. A programmatic workshop was held in Hamburg in October 1979 to discuss the evolution of the work of the subprogramme, consider priorities for future research, discuss the structure and operations of an African network, and advise on curricula for training programmes.

157. The University of New South Wales in Australia is the second associated institution in the network, and it will serve as an increasingly important training facility for University Fellows as the subprogramme expands. In this respect, its strong links to the Commonwealth Scientific and Industrial Research Organization (CSIRO) are especially valuable, as United Nations University Fellows at the University of New South Wales will be able to visit and work with some of the CSIRO divisions.

158. During the year under review, the Central Arid Zone Research Institute in Jodhpur, India, became a research and training unit. Research is focusing on the problems of transferring research results to the local farmers, and the first University Fellows are expected to arrive in late 1980.

159. A workshop was held in Mexico in February 1980 to discuss ongoing work in Latin America relevant to the subprogramme and the possibilities for co-operation. As a result of this workshop and a subsequent series of site visits, research and training units are being established at the agricultural universities in Sotillo, Mexico, and Lima, Peru.

### 3. Energy systems for rural communities

160. With increasing global awareness of the importance of energy in determining the quality of life, it has become apparent that most rural areas in developing countries have always had very low levels of per capita energy consumption. Since 60 per cent of the world's population resides in such communities, it is appropriate that this subprogramme work on ways to provide them with energy. By providing substantial quantities of energy to these communities, many opportunities open up to rural society: increased local agricultural and industrial production; improved conservation of the local ecosystems, especially vegetation; increased time available for children to learn and mothers to care for families - in general, the opportunity to expand the horizons of the rural society to make it capable of undertaking its own technological and cultural development.

161. The emphasis of the subprogramme is on renewable, decentralized sources of energy, which are appropriate to the dispersed nature of most rural communities. The view is that energy must be seen as a comprehensive system which is dependable and renewable and utilizes local human and material resources to the maximum extent possible. Questions have recently been raised concerning the economic accessibility of the poorer segments of rural communities to rural electrification once it has been installed. This, coupled with the fact that fossil fuels are also generally too costly for the majority of these populations, stresses the need for a viable alternative. The primary goal of this subprogramme, therefore, is to conduct multidisciplinary research and advanced training which will lead to the development of a methodology ensuring the successful introduction of energy systems based on the optimal utilization of available solar, bioconversion, wind, and other environmentally sound, renewable sources.

162. The Natural Resources Programme had initially conceived its studies of rural energy consumption patterns, centring on fuel wood use in the developing countries, as part of its work on ecological considerations in the third world. However, with the broadening of the focus to energy systems, it seemed more appropriate to include the research on fuel wood in this subprogramme on energy. Efforts are now under way to expand this project from its original base in Africa to other geographical areas, notably in South-East Asia.

163. Through existing institutions, the University is strengthening the capability of developing countries to carry out research and training in energy systems. A principal component of these efforts is an information dissemination service to provide scientists and engineers in developing countries with up-to-date information on technologies applicable to other local conditions, and contacts with colleagues working on similar problems in other developing countries. An attempt is also made

to inform researchers and decision-makers in industrialized countries of the type of research required in the developing countries with the expectation that institutions in industrialized countries will be interested in carrying out some of this research.

(a) Integrated energy projects

164. The primary approach employed by the University involves research on providing energy to rural communities through multidisciplinary studies of traditional energy-consumption patterns and needs, on methods of improving traditional technology and adapting new technology to local conditions, and on effective methods for introducing these innovations into rural communities. A series of integrated pilot energy projects is being established.

165. Since the University recognizes that different countries and communities have different cultural backgrounds, priorities, and motivational values, as well as different available natural, human, and economic resources, it is necessary to establish pilot projects in a variety of geographical, cultural, and economic environments. The objective of this effort is to develop a methodology for planning and realization of energy systems which can be successfully applied to rural communities throughout the world. This requires a full comprehension of the local, economic, socio-cultural, institutional, health, and environmental aspects, as well as the technical problems involved. Emphasis is placed on integrating all available renewable energy sources into a single energy system and, in turn, integrating that system into the fabric of local society. Each pilot project will include a training component in the technological adaptation, as well as in the process of selecting, integrating and introducing components of new energy systems and improved traditional systems for such communities.

166. The first integrated energy project was launched in September 1978 in Algeria, where the National Organization for Scientific Research, an associated institution, is undertaking the planning and execution of the project. An integrated solar village is being planned and constructed at Ain Haneche in the commune of Ouled-Sidi-Brahim in the Wilaya of M'Sila by the Organization's Research Centre on Architecture and Urban Planning.

167. The Algerian project is concerned primarily with architecture, building materials, and energy use, including the application of solar energy to tasks such as water pumping, heating, and desalination. A portable meteorological station has been established to collect base-line data on the solar radiation, prevailing wind, and precipitation conditions at the site.

168. A second project is under way in Tanzania. Here the emphasis is on adapting renewable energy systems to traditional villages and other structures rather than constructing a new village as in Algeria. A rural energy research centre is under construction in Dodoma, the new capital; since the influx of population to the new capital will deprive villages in the area of much of their present energy sources, the centre will develop energy systems to provide six villages in diverse localities with alternative energy provisions. Biogas, wind, and appropriate solar technologies will be employed.

169. In addition to these activities, an evaluation mission has visited South, South-East and East Asia; discussions are continuing about possible projects in these areas as well as in other parts of Africa.

170. A subprogramme workshop held in Arusha, Tanzania, in March 1980 was the occasion for exchange of information by participants from more than 10 project teams on village energy systems, working throughout the world. This provided valuable information about technical details and general methodology for such projects and contacts for future expansion of the subprogramme network.

171. Discussions are also under way for the establishment of solar energy training units, with emphasis on rural technologies, in India and France; it is expected that training courses can be established in late 1980 and early 1981.

172. At the end of May 1979 in Atlanta, Georgia, United States, in conjunction with the International Solar Energy Congress, the University convened a seminar on solar technology in rural settings. The purpose of this meeting was to generate and collect information provided by 12 case studies of the introduction of solar energy technology into rural communities in developing countries. The proceedings of the two meetings will be published; these will be the first complete publications to be devoted to the results obtained from the introduction of renewable energy technology to rural communities.

(b) Fuel wood project

173. The most important energy source in virtually all developing countries, certainly in rural areas, is fuel wood. This is leading to rapid deforestation and even to desertification in many parts of the world. Even with unexpected technological breakthroughs in the use of solar energy, wood will still be the most common fuel for the majority of the world's population for years to come. In addition, an understanding of the existing rural energy systems is necessary before any efforts can be made at technological innovation. For these reasons, this project is conducting a number of studies on fuel wood use and consumption, both on local and global scales.

174. At the University of Ife in south-western Nigeria, an intensive study of fuel wood and other energy production, distribution, and utilization is nearing completion. Looking at energy systems along transects running from the urban centres of Ibadan, Ife, and Ogbomosho to the rural areas, the project is collecting a wealth of survey data necessary for the effective energy policy formulation and the possible introduction of fuel wood plantations and solar energy. University Fellows from countries with similar conditions are working with the project for up to a year before returning to their own countries to apply their experience. The Ford Foundation has also been providing support for this project.

175. A similar, but smaller-scale, project is just getting under way in Malaysia. This study will compare energy systems on the east and west coasts of Malaysia, and anticipates an exchange of University Fellows with the Ife project.

176. On the global scale, a comprehensive study of wood and charcoal use throughout the developing areas of the eastern hemisphere is nearing completion. The resulting publication should clearly indicate the dependence of the rural developing world on wood, and the environmental consequences of this dependence. A similar study is planned for Latin America.

177. The proceedings of the 1978 workshop at the University of Ife was published this year. Another workshop in Bordeaux, France, in May 1980 brought together

experts on energy and fuel wood use in rural communities, and the proceedings is being prepared for publication.

(c) Geothermal energy

178. With increased emphasis on the value of energy throughout the world, interest has grown in geothermal energy in those developing countries which have such energy sources available. In view of this strong interest, and the fact that geothermal energy in some countries can be a very significant environmentally and economically sound energy source, a practical, high-level training programme in the field has been established by the University in co-operation with the National Energy Authority of the Government of Iceland, assisted by the University of Iceland.

179. This programme consists of a series of eight short courses concerned with specific aspects of geothermics. In the inaugural course in 1979, there were two University Fellows from the Philippines and two special Fellows from the People's Republic of China. In the 1980 course, there are six Fellows from the People's Republic of China, El Salvador, Honduras, and the Philippines.

180. The University is also sponsoring a Standing Advisory Committee on Geothermal Energy Training which will meet on a biannual basis to exchange information on and examine existing international training programmes. The first meeting of this committee is planned for November 1980 in Pisa, Italy. It will include participants from relevant United Nations agencies - such as UNDP and UNESCO, leaders of other United Nations-sponsored training courses in Italy, Japan, and New Zealand, and managers of geothermal development projects from a number of developing countries.

(d) Dissemination of information

181. An information dissemination programme designed to break the isolation of scientists in developing countries who are working in the fields of solar, bioconversion, and wind energy technologies was launched by the University in January 1979 with the publication of a monthly journal, ASSET: Abstracts of Selected Solar Energy Technology. Some 500 scientists and engineers from 80 developing countries are now participating in the ASSET information exchange network which involves, in addition to providing network participants with ASSET free of charge, receiving copies of their own scientific contributions for abstracting in the journal. Thus each issue includes abstracts from recent books, journals, reports, and conference proceedings relevant to rural communities in developing countries, as well as many contributions from individual scientists in the network. Steps are now being taken to explore the possibility of publishing a French edition of ASSET. An attempt is also being made through the distribution of ASSET to inform researchers and decision-makers in industrialized countries of the type of research required in developing countries; the expectation is that institutions in industrialized countries will be interested in carrying out some of this research.

182. Work is continuing on a series of monographs on renewable energy sources and their utilization. These monographs provide up-to-date information on: (a) the state-of-the-art of these energy technologies and their relevance to developing nations; (b) hitherto neglected traditional technologies and principles upon which they operate; and (c) the social, cultural, economic, environmental, and institutional aspects involved in introducing these technologies in developing countries. The first monographs in the series will appear in the second half of 1980.



183. Mention should be made of one publication of the energy subprogramme, Renewable Energy Prospects. This publication is the proceedings of a conference on non-fossil fuel and non-nuclear fuel energy strategies, held in Honolulu, Hawaii, United States, in January 1979, which was organized and co-sponsored by the University. Because it was able to bring together so many distinguished scientists in the field of energy, the conference was very important, and the papers contained in this volume (published by Pergamon Press, Oxford, United Kingdom) should have a wide impact.

#### D. Programme field organization

184. The world-wide field organization of the Programme on the Use and Management of Natural Resources is as follows:

##### 1. Associated Institutions

###### (i) Actual

- (a) Bogor Agricultural University, Bogor, Indonesia
- (b) Chiang Mai University, Chiang Mai, Thailand
- (c) National Energy Authority, Reykjavik, Iceland
- (d) National Organization for Scientific Research, Algiers, Algeria
- (e) Tropical Agricultural Research and Training Centre, Turrialba, Costa Rica
- (f) University of Colorado, Boulder, Colorado, United States of America
- (g) University of Ife, Ile-Ife, Nigeria
- (h) University of Khartoum, Khartoum, the Sudan
- (i) University of New South Wales, Sydney, Australia

###### (ii) Projected

- (a) Academia Sinica, Beijing, People's Republic of China
- (b) University of Bern, Bern, Switzerland

##### 2. Research and Training Units

###### (i) Actual

- (a) Central Arid Zone Research Institute, Jodhpur, India
- (b) Chung-Ang University, Seoul, Republic of Korea
- (c) Institute of Geography, Academia Sinica, Guangzhou, People's Republic of China
- (d) International Institute for Aerial Survey and Earth Sciences, Enschede, Netherlands
- (e) Kagoshima University, Kagoshima, Japan

- (f) National Institute of Oceanology of the Indonesian Institute of Sciences, Jakarta, Indonesia
  - (g) National Institute of Science and Technology, Manila, Philippines
  - (h) National Planning Commission, Kathmandu, Nepal
  - (i) Tanzania National Scientific Research Council, Dar-es-Salaam, Tanzania
  - (j) University of Kyushu, Fukuoka, Japan
  - (k) University of Malaya, Kuala Lumpur, Malaysia
  - (l) University of Papua New Guinea, Port Moresby, Papua New Guinea
  - (m) University of Swansea, Swansea, United Kingdom
- (ii) Projected
- (a) Agricultural University, La Molina, Lima, Peru
  - (b) Autonomous Agricultural University "Antonio Narro", Saltillo, Mexico
  - (c) East-West Center, Honolulu, Hawaii, USA
  - (d) Southeast Asian Fisheries Development Center, Manila, Philippines
  - (e) University of Hamburg, Hamburg, Federal Republic of Germany

#### E. Meetings and workshops

185. During the year under review the Programme on the Use and Management of Natural Resources held, among others, the following scientific meetings and workshops:

- (a) 9-11 July 1979 Coastal zone management meeting, Jakarta, Indonesia
- (b) 12-18 September 1979 Workshop on coastal zone management, Jakarta, Indonesia
- (c) 10-30 September 1979 Training seminar on coastal zone management, Jakarta, Indonesia
- (d) 24 September-5 October 1979 Workshop on coastal development and management of the Caribbean region, Mexico City (co-sponsored with the Intergovernmental Oceanographic Commission)
- (e) 29 October-1 November 1979 Workshop on training and management for arid lands, Hamburg, Federal Republic of Germany
- (f) 3 November 1979 Meeting on data systems for resources development and management in developing countries, Hamburg, Federal Republic of Germany
- (g) 12-16 November 1979 Workshop on agro-forestry for rural communities, Chiang Mai, Thailand

- (h) 11-14 December 1979 World hunger-natural resources workshop on bioconversion of organic residues, Bali, Indonesia
- (i) 21-25 January 1980 Joint Advisory Committee meeting, Tokyo, Japan
- (j) 25-29 February 1980 Workshop on arid lands management, Saltillo, Mexico
- (k) 3-7 March 1980 Workshop on energy/climate interactions, Munster, Federal Republic of Germany
- (l) 24-28 March 1980 Workshop on energy for rural communities, Arusha, Tanzania
- (m) 5-10 May 1980 Workshop on fuel and power for rural communities in the third world, Bordeaux, France
- (n) 11-14 May 1980 Task force on arid lands management in Francophone Africa, Paris, France

#### F. Publications

186. The Programme on the Use and Management of Natural Resources issued the following publications during the year under review:

- (a) "Development Projects in the Sudan: An Analysis of Their Reports with Implications for Research and Training in Arid Lands Management" by Heinz-Ulrich Thimm
- (b) "Workshop on Arid Lands Management in the Sudan", edited by J. A. Mabbutt
- (c) "Conservation and Development in Northern Thailand: Proceedings of a Programmatic Workshop on Agro-Forestry and Highland-Lowland Interactive Systems", edited by J. D. Ives, S. Sabhasri and P. Voraurai
- (d) "Renewable Energy Prospects: Proceedings of a Conference on Non-Fossil Fuel and Non-Nuclear Fuel Energy Strategies", edited by W. Bach, W. Manshard, W. H. Matthews and H. Brown (published by Pergamon Press, Oxford and New York)
- (e) "Rural Energy Systems in the Humid Tropics", edited by W. B. Morgan and R. P. Moss
- (f) "Social and Environmental Aspects of Desertification", edited by J. A. Mabbutt and A. W. Wilson
- (g) "Proceedings of Jakarta Workshop on Coastal Resources Management", edited by C. F. Bird and A. Soegiarto
- (h) "Bedouins, Wealth and Change: A Study of Rural Development in the United Arab Emirates and the Sultanate of Oman" by Rainer Cordes and Fred Scholz
- (i) "Seminare sur l'Energie solaire pour les Communautés rurales"
- (j) "Spatial Factors in Resource Systems" by Dennis A. Rondinelli
- (k) "Perception of Desertification", edited by R. L. Heathcote
- (l) "ASSET: Abstracts of Selected Solar Energy Technology", Volume 1, Number 7 (July 1979) through Volume 2, Number 6 (June 1980)

## V. INTERPROGRAMME ACTIVITIES

### A. Introduction

187. Interaction among the three programmes has been encouraged from the start as a logical function of an interdisciplinary approach to the world's problems. Because the University is concerned with finding practical solutions and not just gathering specialized data, it must combine knowledge from many disciplines.

188. An informal interdisciplinarity has come to characterize the day-to-day work of the University as natural convergences between the programmes' activities become apparent. Lines of similar interest emerge in virtually every meeting involving representatives of the three programmes.

189. The formal structuring of interaction, however, is a time-consuming process, a fact that has become increasingly clear as the University has begun to implement interprogrammatic activities. Traditional universities have often found the road to multidisciplinary a difficult one; the problems become even more difficult and challenging when an effort is being made to integrate the expertise of scholars and scientists from many cultures and schools of thought.

190. None the less, much progress has been made in the first five years. The three annual meetings of the Joint Programme Advisory Committees have been very fruitful. These meetings have greatly helped the University in its task of conceptualizing and organizing an interdisciplinary pursuit of knowledge to illuminate global problems and seek solutions to them.

### B. Activities

191. Interaction among the three programmes of the University resulted in: (a) a study on the role of women in conservation of food after harvest being developed by the World Hunger Programme and the Human and Social Development Programme in a series of workshops and case studies in five countries; (b) an analysis of technologies needed for rural development being conducted in a series of scientific meetings organized by the Human and Social Development Programme and the Programme on the Use and Management of Natural Resources; (c) an analysis of the state-of-the-art of education for development conducted in a meeting organized by the three programmes in September 1979, as a basis for the University's own activity in this area; and (d) continuation of research and training activities in bioconversion of organic residues for rural communities jointly organized by the World Hunger Programme and the Natural Resources Programme.

#### 1. Role of women in post-harvest conservation

192. A consultative meeting to launch this joint project of the World Hunger and Human and Social Development Programmes was held in Tokyo in September 1979. An introductory paper on the role and status of women in post-harvest food conservation is being prepared. A series of case studies are to be carried out in

Costa Rica, India, Indonesia, Sri Lanka, and Tanzania by teams of women researchers, including, in each instance, a food technologist/nutritionist and a social scientist. A summary of the complete study will be published in the Food and Nutrition Bulletin, and the over-all review, analysis, and each of the four case studies will be published in booklet form.

## 2. Technology for rural development

193. This project in the Philippines recognizes that special efforts are needed to build new viable technologies through endogenous efforts and to adapt available technologies to the developmental needs of each rural society.

194. The first phase of this joint project began in 1979 with a Natural Resources Programme training project for six junior scientists from the National Institute of Science and Technology, the Philippines. Under the supervision of both physical and social scientists, the trainees are collecting and analysing renewable resource and energy use data in a village in Laguna Province in Luzon. Special attention is paid to the local practices of intercropping, traditional swidden (slash-and-burn) cultivation systems, and fuel wood consumption. This benchmark study of traditional village resource use systems and socio-economic parameters will be used to analyse the potential for introducing technological innovation.

195. Similar data is being collected in a village in Palawan as part of the Human and Social Development Programme's project on the sharing of traditional technology. By comparing data from the two villages and studying the effects of carefully introduced change, an understanding will be gained of the process and diffusion of change, at the micro-level.

## 3. Education for development

196. This project has the premise that education is one of the fundamental instruments in the transformation of society. It is conceived as an interprogramme activity in which the Human and Social Development Programme has the co-ordinating role and the other two actively participate. A September 1979 task force meeting at Sussex University, United Kingdom, brought together participants from many parts of the world, including representatives of all three University programmes, to examine existing education structures and training methodologies as well as innovative experiments in education and the learning process. The Sussex workshop discussed the general orientation that such a project should take within the directives of the University Charter and recommended that the potential goals should be discussed widely within the University since it should manifestly encompass the work of all three programmes.

## 4. Bioconversion of organic residues for rural communities

197. Bioconversion is one of the common denominators in the World Hunger Programme's concern with improved nutrition and the Natural Resources Programme's concern with proper management of materials and energy and protection of the environment. Bioconversion involves agricultural production, food, and feed processing for digestibility and safety, and the treatment of wastes generated in the course of producing and consuming food and fodder.

198. The proceedings of the Conference on the State-of-the-Art of Bioconversion, held in Guatemala in 1978, was published by the University during the past year; it provides a comprehensive review of bioconversion studies relevant to village settings.

199. A second workshop was held in Bali, Indonesia, in December 1979 on the bioconversion of ligno-cellulosic and starchy wastes. This drew attention to the large quantities of banana, oil palm, rubber seed, coconut husk and other residues available in South-East Asia. The workshop, which was jointly sponsored by the University and the Governments of Indonesia and the Netherlands, also discussed the possibility of a bioconversion project which might be supported by the Netherlands.

200. Project activities have been launched with University support for a village bioconversion project in Madras, India. A second project has been initiated in Chile to study the bioconversion of cellulosic residues into sugars. The network of activities ~~will be expanded~~ in 1981, particularly in the field of biogas.

## VI. PROGRAMME SUPPORT ACTIVITIES

### A. Academic services

201. This section serves the three programmes of the University in disseminating the knowledge generated by them and from other sources and in providing the programmes with a variety of information necessary for their activities. Its functions include publishing, the United Nations University Centre library, and information referral.

#### 1. Publishing

202. The University's publications programme continued to grow during the year with the expansion of the University's research activities. Food and Nutrition Bulletin, published quarterly, and ASSET (Abstracts of Selected Solar Energy Technology), published monthly, enjoyed growing readerships.

203. Food and Nutrition Bulletin carries scientific articles and technical information on the world hunger problem and efforts to combat it, with special attention given to the work of the World Hunger Programme. Published in collaboration with the Sub-Committee on Nutrition of the Administrative Committee on Co-ordination, it incorporates and continues the PAG Bulletin, formerly published by the United Nations Protein-Calorie Advisory Group. ASSET contains abstracts of currently available books, articles, reports, and conference papers, with emphasis on information of value to rural communities in the developing countries. It forms the basis of an information network in developing countries among scientists and engineers in this broad field of solar energy who might otherwise remain isolated from one another and from valuable information.

204. During the year, the University also issued 115 publications designed to inform scientists and scholars about the work of its programmes.

205. The World Hunger Programme extended its Technical Publication Series which contains reports of programme workshops, conferences, and other meetings. The series permits wide dissemination of the information derived from such meetings.

206. The Human and Social Development Programme added several new titles to its three publication series: Development Publication Series, Research Paper Series, and Programme Document Series. The three series serve to increase international dialogue and dissemination of information about the emerging concepts of development and related approaches and policies discussed and analysed at meetings around the world.

207. The Programme on the Use and Management of Natural Resources expanded its Technical Publication Series and Technical Report Series which present research results, reports of meetings, and state-of-the-art reports on subjects relevant to the programme's interests. Publications in these two series are designed to be useful not only to ecologists, environmental scientists, geographers, and agriculturalists, but also to social scientists and other development specialists who are concerned with development in rural settings.

208. During the period under review, the University contracted for several of its publications to be published through commercial and institutional publishers in order to realize optimal dissemination with minimal financial outlay. These publishers include Oxford University Press, Pergamon Press, the International Rice Research Institute and Sijthoff and Noordhoff. Besides these undertakings, the University took steps to expand its editorial facilities both inside and outside the centre.

209. Keeping pace with increased publications production, the University has improved its distribution systems, including the use of deposit libraries and the appointment of national distributors. Efforts were also made to improve mailing lists for official and programme distribution.

## 2. Referral and library services

210. The referral programme of Academic Services has continued its steady development. The University Centre library has continued to grow and its on-line retrieval system is in full operation. The computer system maintained by Academic Services is serving the University particularly in budget record control and mailing list operations.

### B. Information services

211. The objective of the work of Information Services is "to increase world-wide awareness and understanding of the University among opinion-formers and policy-makers - particularly in academic and scientific communities, and governmental, non-governmental, and other international organizations - in order to gain their support for its aims and activities".

212. The principal methods used to achieve this objective during the period under review were the printed word, briefing of influential media, and film distribution.

213. The Newsletter continued to appear quarterly and to improve its coverage of the University's activities both in its news pages and "Work in Progress" supplement. Special attention was given to including articles which explained in a straightforward way how the University's networks actually operate at the level of the researchers concerned.

214. At the end of the year under review the Newsletter appeared in a larger size and revised layout. This change was intended to give more coverage of University activities and to make it easier for busy readers to select items of special interest to them. The change to a larger size was preferred to increased frequency, mainly on the grounds of cost.

215. The print order for the Newsletter is approximately 28,000 in four languages; it is thus the single largest medium of communication of the University and necessarily addresses a readership with very varied interests and attitudes.

216. The print order increased by about 5,000 during the year. At the same time, the quality of distribution was improved. Approximately 4,000 names of doubtful relevance were checked and removed. The requirements of United Nations Information Centres and certain UNDP offices were checked and supplies increased considerably



as a result. Similar checking was undertaken with other organizations. A system of "cleaning" the mailing lists was introduced whereby addressees are, first, asked to confirm their interest on a form designed for computer input, and, subsequently, those who have not replied are informed that supplies will stop if the form is not completed. By the end of the year most addressees in Europe had been sent the first stage of this operation.

217. The improvement of the Newsletter mailing list is a long-term task, but in the year under review a useful start was made.

218. In order to reduce mailing costs of the Newsletter from Tokyo, decentralization of mailing was introduced. All North American addresses were handled by the American Council for the United Nations University; the New York Liaison Office continued to distribute to delegations and United Nations offices; most European countries were handled by the University's London office.

219. The range of University information publications is now as follows: Newsletter, Illustrated Annual Report, UNU ("basic") brochure, Talking Points about UNU. Each of these publications is intended to meet a specific need and readership. For the conference on the United Nations University in Science and Technology for Development, a special brochure was written and printed at short notice and proved a useful general addition to the range.

220. Following the success of the "Third Year" illustrated brochure, a "Fourth Year" brochure was produced. Printing delays led to it appearing later than is desirable. It is generally thought that these illustrated annual brochures meet an important need. Although the official annual report contains almost all the information anyone could want about the University, it is inevitably presented in a dense, rather unattractive form; those who use it will, for the most part, be those who already have an interest in the University. There will still be a large number of people whose attention has to be won, by an attractive presentation, and kept, by accessible deployment of facts and figures.

221. During the year, an important information initiative by the University was the decision, approved by the Council, to become co-publisher of the United Nations periodical Development Forum. The agreement took effect from 1 March 1980 for two years, and it is therefore too early to judge whether its objectives will be met. These objectives are: to establish, more quickly and probably more economically than would be possible by other means, an easily recognizable, comprehensible and appropriate presence for the University in the international opinion-forming and policy-making communities which are relevant to its interests; to serve the University's charter obligation to disseminate knowledge "in furtherance of the purposes and principles of the Charter of the United Nations"; and to serve the University's objective of establishing itself as a critical forum on development issues.

222. During the year, the University continued to have modest success in obtaining coverage of its aims and activities in influential media. Several articles resulted from briefings given at UNCSTD, including one in the internationally circulated New Scientist; in addition two valuable features about the University appeared in the widely-read UNCSTD conference newspaper.

223. A general article about the University by the New York United Nations correspondent of Gemini News Agency was widely used in third world newspapers. Elsewhere, a full-page article appeared in the London Times Higher Educational Supplement, and the Guardian of London carried a feature on the University's solar energy projects which produced more than 60 enquiries. The internationally-circulated Japanese English-language publication PHP carried a long interview about the University with the Rector. The Third World Media syndication service carried two articles about the University. The BBC Overseas Service featured the University, and particularly the Human and Social Development Programme, in a 30-minute broadcast which was also re-edited into features in several different languages. Many articles and news stories appeared in local publications in connexion with University visits, meetings, and workshops; in addition articles placed by programme staff appeared in scientific and other specialist publications.

224. Notwithstanding the publicity summarized above, there was evidence during the year that, at their present stage of development, the University's activities have only a limited appeal for the more important media. They are not on a large enough scale to command attention, and their quality can only be proved by results which are not yet available. The concept of the University remains of interest, but it is a story that can only be told once by each newspaper and its impact may be limited and transitory. This difficulty underlines the necessity for increased efforts by Information Services to extract what might be called the news essence from programme activities and to deploy it as effectively as possible.

225. In Japan, Information Services obtained fairly satisfactory coverage of events and announcements in the press. However, less success was met in getting coverage of the substance of the University programmes.

226. The National Federation of UNESCO Associations and the United Nations Association in Japan regularly carry specially written articles or items about the University in their respective monthly newspapers which have a combined circulation of 52,000. The Newsletter and Annual Report are sent to each of the 240 UNESCO and 47 United Nations Association chapters throughout Japan. Both organizations have also assisted with the promotion of the Japanese edition of the United Nations University film, and, as a result, 50 screenings have taken place in different parts of the country. There has also been a steady, if relatively small, number of requests (60 in all) for screenings of the film from other organizations. Arrangements are currently in hand for the film to be promoted and distributed by two companies specializing in educational film distribution, and, as a result, quite extensive screenings to high schools and universities should take place.

227. In seeking greater visibility for the University in Japan, and finding ways of demonstrating that the University is providing an international intellectual stimulus there, Information Services has co-sponsored with the United Nations Information Centre and/or UNICEF three major seminars on the United Nations or development subjects. These have been useful, but more of them are needed and on a larger scale with planned follow-ups. Information Services has also tried to find platforms for Council and Advisory Committee members when they are in Tokyo under the concept of "UNU Lectures", which Dr. Wesley, Council Chairman, inaugurated in December 1978. Drs. Gaudry and Löwbeer subsequently gave talks in this series, but many more Council members have been ready to speak than it has been possible to find invitations for. Clearly further efforts must be made in this direction.

228. A largely remade version of the United Nations University film, entitled "Networks of Knowledge", was completed during the year; it includes sequences on each of the three programmes and lasts 30 minutes. This film is intended primarily for showing to audiences wishing to understand in some detail the objectives and activities of the University. It was produced in Arabic, English, French and Spanish, and copies have been placed with United Nations Information Centre and UNDP offices in 90 countries.

229. No addition was made to the staff of Information Services during the year (with the exception of two translators and their secretaries whose transfer was the result of a reorganization). The University's Information Representative in London and Chief of Liaison Office in New York continued to play an important part in the activities of Information Services as did the Executive Director of the American Council for the United Nations University for certain activities.

### C. Administrative services

230. The Administrative Services Division provides management, legal, conference, personnel, recruitment and staff, financial, budget, and other administrative services and support to all the programmes, divisions and staff, both at the University Centre in Tokyo and in the field.

231. The world-wide expansion of the activities of the University has placed an increasingly heavy load on all sections of the Administrative Services Division. As the budget grows and increases, all allocations are primarily to programme activities. The percentage of financial resources allocated to the Administrative Services Division has declined from 15 per cent in 1978 to 13 per cent in 1979 to 11 per cent in 1980.

232. The activities of the sections of the Division, which are co-ordinated by the Director of Administration, are as follows:

#### 1. Conference and General Services

233. This section makes arrangements for world-wide travel of Council members, staff, consultants in numerous University programme meetings in different parts of the world. It is responsible for provision of essential services at the Tokyo Centre, viz. a centralized registry for receipt and dispatch of communications, telex and telephone operations, conference rooms and other related facilities and services. This also includes effective management and utilization of office space and furnishings made available by the Government of Japan for the Tokyo Centre. An increase of 10 staff members during this period made space allocation a difficult problem to resolve.

234. The section also handles contractual arrangements for printing University reports, documents and publications, and procurement of required equipment and supplies. The procurement activities have expanded to include purchase of equipment and supplies on behalf of associated institutions as well as for other United Nations agencies.

235. During the year under review, the section made logistic and administrative arrangements for three sessions of the University Council, two held in Tokyo

and one in Geneva, 12 programme meetings held in Tokyo, and one seminar in Belgrade. Arrangements included conference facilities, per diem, simultaneous interpretation and document reproduction.

## 2. Personnel services

236. During the period under review, this section shifted its main emphasis and grew considerably in complexity and volume; this has been reflected in the reorganization of staff assigned to this section. Having more or less completed the innovatory tasks of helping the University evolve its basic adaptations of United Nations personnel policies and procedures, the section has now grown into an efficient processing machine for implementing these adaptations, in many instances in fields where Personnel is not usually involved - such as the establishment of financial contracts for specific work assignments to associated institutions. Of the 12 basic items on which Personnel maintains statistics, it is expected that between 6,000 and 8,000 individual items will have been processed during the year.

## 3. Finance

237. This section manages the investment portfolio of the Endowment Fund and effects payment for services rendered in various parts of the world. The expansion of University activities, the increase in the number of meetings at headquarters and elsewhere and the over-all increase in University personnel resulted in a substantial increase in the number of financial commitments and payments.

## 4. Budget

238. This section, which came into existence in 1979, has developed guidelines for budget preparation and implementation and introduced new techniques for financial control. The University delivered about 90 per cent of its 1979 approved budget and each organizational unit of the University was able to stay within its approved budget for the period under review.

## 5. Legal services

239. The Legal Counsel provides legal advice to all units of the University, including assistance in the preparation of letters of agreement, memoranda of understanding, and co-operated with a consultant in the development of draft statutes for the University. In addition, the Legal Counsel participated in discussions in United Nations Headquarters, New York, concerning various complex administrative matters which cannot be resolved by correspondence.

## 6. United Nations University Liaison Office to the United Nations, New York

240. The University maintains an office in New York responsible for liaison activities with all elements of United Nations Headquarters, Member States, and non-government organizations. In addition to these responsibilities, during the period under review, the Liaison Office also aided with information distribution functions.

## VII. FUND-RAISING, FINANCE AND BUDGET

### A. Fund-raising

241. During the period July 1979 to June 1980, approximately \$US 15.6 million was pledged and/or contributed to the University by 18 Governments. These contributions, for the most part, reflect payments on endowment pledges made in previous years or the continuation of annual contributions. The Government of Austria increased its annual contributions by 50 per cent. Three countries - Ethiopia, Indonesia, and Sri Lanka - made new pledges to the Operating Fund of the University. Pledges to the Endowment Fund and operating fund from 29 Governments now total \$142,070,978, of which \$107,877,856 has been received. A number of other Governments are at present seriously considering the possibility of pledges and/or contributions to the work of the University.
242. Contributions in support of specific projects were also received from non-governmental and other sources, totalling \$US 378,980.
243. A number of Governments, institutions, and others have made indirect contributions in cash and in kind in support of meetings, workshops and seminars. It should also be noted that the University's support to associated institutions, research units, and other participants in the University networks has in turn helped in obtaining extra funds for the activities of these institutions from the Government and other sources within their countries.
244. The Rector and the Vice-Rector for Planning and Development visited 21 countries during the period under review, and staff members of the Planning and Development Division visited 25 countries during this period for fund-raising purposes.
245. The University Information Representative in London has also undertaken a number of preparatory visits to countries in Europe. The University Liaison Office in New York keeps in regular touch with the Permanent Missions to the United Nations. The Planning and Development Division further maintains contact with the embassies of Member States in Tokyo in order to mobilize their co-operation and support for the work of the University.
246. It has been consistently recognized that fund-raising is very closely linked with the development of the University's programme activities. In the early years, fund-raising was largely based on hopes to be fulfilled in the years ahead. The University has now been in operation for nearly five years and Governments and other potential donors look for evidence of the progress achieved by the University as well as its long-term plans.
247. Two developments that took place in the latter part of 1979 should be mentioned in this regard. In furtherance of resolution 33/108, paragraph 4, adopted at the thirty-third session of the General Assembly on 18 December 1978, "to study ways and means of promoting the awareness and understanding of the programmes and activities of the University with a view to establishing a more stable financial situation and thereby strengthening the University", the Secretary-General of the United Nations

and the Director-General of UNESCO invited two consultants, Mr. G. Davidson, formerly United Nations Under-Secretary-General for Administration and Management, and Mr. M. Dayal, Adviser to the Ministry of Science and Technology of the Government of India, to undertake the study and prepare a report. The study was completed during the period August-September 1979.

248. The report of the study sets out very clearly, among other things, the unique problems involved in building this novel world-wide institution, in establishing its identity, and in communicating this to government and academic leaders the world over, in order to secure financial support for the Endowment Fund. The Council and the Rector and his colleagues have welcomed the fresh light the study has thrown on these problems, of which they have been aware from the inception of the University, and appreciate the report's valuable recommendations and suggestions concerning alternative fund-raising possibilities and how to improve awareness and understanding, particularly of the programme activities of the University. These recommendations are being followed up.

249. In October 1979, the Swedish and Norwegian Governments sent a three-man delegation to visit the University headquarters in Tokyo in order to study at first hand the evolution of the work of the University. The delegation consisted of: Mr. Karl Eric Knutson, Director of the Swedish Agency for Research Co-operation with Developing Countries, Mr. Torbjørn Sirevag, Director-General of the Research Department of the Norwegian Ministry of Education, and Mr. Uno Svedin of the Swedish Council for Planning and Co-ordination of Research. The report of their study is expected to form the basis of a reconsideration by the Governments of Sweden and Norway and, it is hoped, other Nordic countries, of the nature and level of their continued support or of new contributions for the work of the University.

250. A number of other Governments, especially in Europe and the Middle East, are at present seriously reviewing the possibility of their pledges and/or contributions to the Endowment Fund and operating fund of the University. The Governments of these countries are, in various ways, making their own independent assessments of the progress of the University before deciding on their support for it. It is hoped that, during the latter half of 1980, a number of Governments will announce their pledges to the University Endowment Fund.

251. An important development in 1979 was the University's participation in the United Nations Conference on Science and Technology for Development in Vienna in August. The University's presence there helped to bring to the attention of Governments and non-governmental organizations the availability, in the University, of a ready instrument within the United Nations system, with proven institutional and organizational capabilities to help implement some of the concerns of UNCSTD. The University is actively participating in the follow-up of UNCSTD. It has maintained close touch and co-operation with UNDP and the Office of the Director-General for Development and International Economic Co-operation in the United Nations, and has participated in the interagency meetings convened by UNDP on the Interim Fund for Science and Technology for Development established by the General Assembly upon the recommendation of UNCSTD (resolution 34/218 of 19 December 1979). The University expects to benefit directly from the Interim Fund, and the Planning and Development Division, in close collaboration with the programmes, is preparing the University's first proposal for obtaining support from the Interim Fund; the proposal is primarily concerned with fellowships and related institutional and co-ordinating functions.

252. The Division has also intensified discussions with a number of intergovernmental and non-governmental bodies including foundations with a view to obtaining financial support.

253. The main thrust of the University's fund-raising efforts continues to be solicitation of funds for the Endowment Fund. The long-term goal for that Fund still remains at \$US 500 million and approximately half of this amount is a goal to be achieved by the mid-1980s. However, the University has now reached a point where the programmes are developing rapidly and need greater resources than are provided by Endowment Fund income. The Planning and Development Division has therefore initiated an intensive drive to obtain funds in support of projects from private sources, especially foundations. A first mission has already been undertaken to a number of foundations in Europe, and this will be followed by visits to foundations in other parts of the world.

254. Unlike most United Nations organizations, the University is not financed by annual subventions from the General Assembly or Member States. Income is derived mainly from the Endowment Fund - a funding concept which provides stability for the planning and execution of programme activities, ensures the objectivity of the University's research, and protects it from many pressures that might accompany other forms of funding.

255. The Endowment Fund, a capital fund made up of voluntary contributions from Member States, has two parts: one for support of all the University's activities, and the other limited to support of activities concerning developing countries.

256. The University's Charter grants it autonomy within the framework of the United Nations, including full authority to allocate its funds as it deems appropriate for its programme activities. Its financial administration is conducted within the rules and regulations of the United Nations, and its funds are audited by the United Nations Board of Auditors.

257. The composition of the United Nations University Endowment Fund a/ as at 30 June 1980 is as follows:

	<u>Pledged</u>	<u>Paid</u>
Japan	\$US 100,000,000 (over 5 years) (September 1973)	\$US 90,000,000
Venezuela	10,000,000 (over 5 years) (August 1975)	4,000,000
United Kingdom	9,784,736 (over 5 years) (£5,000,000)(December 1978) <u>b/</u>	4,260,799

a/ Some of the pledges are announced in convertible currencies of the respective countries and paid subsequently. The dollar amounts for such pledges were calculated at the United Nations exchange rates at the time the pledges were made; however, these dollar amounts are subject to change depending on the United Nations exchange rates at the time of the actual payments.

b/ Earmarked for the special section of the Endowment Fund for support of programme activities concerning developing countries.

	<u>Pledged</u>	<u>Paid</u>
Saudi Arabia	\$US 5,000,000 (over 5 years) (March 1977)	\$US 3,070,000
Sudan	5,000,000 (over 5 years) (December 1976)	-
Germany, Fed. Rep.	4,324,324 (over 4 years) (DM 8,000,000)(April 1979)	1,085,482
Ghana	2,500,000 (over 5 years) (May 1976)	1,500,000
Senegal	1,028,807 (over 5 years) (CFA 250,000,000)(August 1977)	226,193
India	750,000 (over 5 years) (February 1977)	412,500
Thailand	500,000 (over 5 years) (March 1979)	200,000
Sweden	231,215 (August 1975)	231,215
Holy See	50,000 (February 1977)	50,000
<b>Total:</b>	\$US 139,169,082	\$US 105,036,189

258. Operating contributions and project support received from or pledged by Governments as of 30 June 1980 are:

Austria	\$238,800	January 1977
	61,600	October 1977
	72,000	September and November 1978
	65,430	June 1979
	47,040	September 1979
Sweden	208,877	November 1977
	114,155	February 1979
Norway	180,018	April 1976
	189,251	May 1977
	194,780	February 1978
	196,715	November 1979
	202,799	January 1980
Switzerland*	171,717	Pledged February 1978; paid \$185,305
Netherlands	100,000	July 1976
	100,000	July 1977
	100,000	December 1978
Zaire	100,000	July 1977
Libyan Arab Jamahiriya	50,000	December 1976
	50,000	February 1977
	50,000	Pledged August 1977
	25,000	January 1980
	25,000	March 1980

\* Project support



Philippines	\$50,000	Pledged June 1978; paid \$30,000
Nigeria	50,000	Pledged December 1978; paid \$20,000
Greece	35,000	June 1980
	30,000	June 1979
	25,000	July 1978
	20,000	January 1976
	20,000	December 1977
Senegal	22,087	January 1975
	24,005	July 1978
United Republic of Tanzania	20,000	May 1980
Ghana	14,790	November 1975
	14,790	June 1977
	14,750	May 1975
Malaysia	10,000	July 1978
	10,000	March 1979
Tunisia	10,000	Pledged November 1977; paid \$5,183
Indonesia	10,000	June 1980
Chile	5,000	March 1979
Sri Lanka	5,000	Pledged November 1979; paid \$1,000
Ethiopia	2,000	July 1979
Cyprus	1,292	June 1978
	<hr/>	
Total	\$2,936,896	
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## B. Finance and Budget

### 1. Income

259. During the 12-month period ended 31 December 1979, the total funds available for the operation of the University amounted to \$US 9,167,369, including interest income of \$US 8,608,665 earned by the Endowment Fund.

260. The assets of the United Nations University including the Endowment and other funds as at 31 December 1979 amounted to \$US 146,236,014. This amount includes \$US 48,295,130 of pledged contributions to the Endowment Fund not yet received from Governments.

1980 income is budgeted as follows:

	<u>US dollars</u>
Interest income from the Endowment and other funds already received	9,243,000
Interest income from the Endowment Fund contributions in 1980 pledged and confirmed in writing	300,000
Operating contributions	450,000
Programme contributions	100,000
Unencumbered fund balance	<u>4,000,000</u>
Total	14,093,000

261. Operating and programme contributions are those intended by the donors for expenditures for current operations and not as contributions to the Endowment Fund.

262. The unencumbered fund balance represents the excess of income over expenditures during the last fiscal year. Until disbursed, it remains on deposit, earning interest.

## 2. Expenditures

263. During the 12-month period ended 31 December 1979, the total obligations incurred for the operations of the University amounted to \$US 9,281,660, of which \$US 1,809,214 was unliquidated obligations as at 31 December 1979. The actual expenditure in 1979 and the budgeted expenditure for 1980 are shown below.

### (a) 1979 actual expenditures

	<u>US dollars</u>	<u>Percentage</u>
Programme Division	6,871,721	74.0
Administrative Services	1,307,443	14.1
Rector's Office	445,324	4.8
Planning and Development	367,510	4.0
Council	289,662	3.1
	<u>9,281,660</u>	<u>100.0</u>

### (b) 1980 planned expenditures

	<u>US dollars</u>	<u>Percentage</u>
Programme Division	10,786,000	78.0
Administrative Services	1,560,000	11.3
Planning and Development	556,000	4.0
Rector's Office	579,000	4.2
Council	280,000	2.0
Contingency Fund	70,000	0.5
	<u>13,831,000</u>	<u>100.0</u>

264. The breakdown of the Programme Division's budgeted expenditure for 1980 is as follows:

	<u>US dollars</u>	<u>Percentage</u>
Programme (external) <u>a/</u>	7,766,000	72.0
Programme (internal) <u>b/</u>	1,260,000	11.7
Information Services	1,113,000	10.3
Academic Services	647,000	6.0
	<hr/> 10,786,000	<hr/> 100.0

a/ Includes all costs of programme activities with the exception of staff salaries and common staff costs.

b/ Includes all costs of staff salaries and common staff costs of the three programmes.

265. Resources allocated in 1980 to the three programmes for external and internal costs are shown below:

	<u>US dollars</u>	
	<u>External</u>	<u>Internal</u>
World Hunger Programme	2,722,000	379,000
Human and Social Development Programme	2,511,000	461,000
Use and Management of Natural Resources	2,533,000	420,000
	<hr/> 7,766,000	<hr/> 1,260,000

ANNEX III

Members of Programme Advisory Committees, co-ordinators of subprogrammes and projects and staff members of the United Nations University

(as at 30 June 1980)

A. Members of Programme Advisory Committees and co-ordinators of subprogrammes and projects

1. World Hunger Programme

(a) Members of the Advisory Committee

\*Dr. Guillermo Arroyave, Interregional Co-ordinator for Western Hemisphere and UNU Resident Co-ordinator;

Dr. Moisés Béhar, Chief, Nutrition Unit, World Health Organization, Geneva, Switzerland;

Mr. Sol H. Chafkin, Division of National Affairs and Social Development, The Ford Foundation, New York, United States of America;

Dr. Freda Chale, Nutrition Officer (Field Programme), Food Policy and Nutrition Division, Food and Agriculture Organization of the United Nations, Rome, Italy;

Dr. Wenche Barth Eide, Institute for Nutrition Research, School of Medicine, University of Oslo, Oslo, Norway;

Dr. Yujiro Hayami, Faculty of Economics, Tokyo Metropolitan University, Tokyo, Japan;

Dr. Hou Hsiang-Chuan, Institute Professor and Adviser, Department of Nutrition, Institute of Nutrition and Public Health, Shanghai, People's Republic of China;

Dr. Morgens Jul, Professor of Food Preservation, Royal Veterinary and Agricultural University, Copenhagen, Denmark;

Dr. Paul Lunven, Chief, Food and Nutrition Assessment Service, Food Policy and Nutrition Division, Food and Agriculture Organization of the United Nations, Rome, Italy;

Dr. H. A. B. Parpia, Senior Adviser, United Nations Conference on Sciences and Technology for Development, Research Development Centre, Agriculture Department, Food and Agriculture Organization of the United Nations, Rome, Italy;

Dr. D. Picou, East Caribbean Medical Scheme, University of the West Indies General Hospital, Trinidad, West Indies;

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\* Ex officio member

\*Dr. Fred T. Sai, Interregional Co-ordinator for Africa, Middle East and Europe;

Prof. Tasho A. Tashev, Institute of Nutrition, Sofia, Bulgaria;

Dr. Roger G. Whitehead, Director, Dunn Nutritional Laboratory, University of Cambridge and Medical Research Council, Cambridge, United Kingdom.

(b) Co-ordinators

Dr. Guillermo Arroyave, UNU Resident Co-ordinator, UNU-WHP Interregional Co-ordinator for Western Hemisphere, Institute of Nutrition of Central America and Panama, Guatemala City, Guatemala;

Dr. J. C. Dillon, UNU Resident Co-ordinator, Centre for Research in Nutrition, Laval University, Quebec, Canada;

Dr. Luis Fajardo, UNU Resident Co-ordinator, Universidad del Valle, Cali, Colombia;

Dr. Rodolfo Florentino, UNU Resident Co-ordinator, Nutrition Center of the Philippines, Makati, Philippines;

Dr. Miguel Layrisse, UNU Resident Co-ordinator, Venezuelan Institute of Scientific Research, Caracas, Venezuela;

Dr. Shinji Matsuura, UNU Resident Co-ordinator, National Food Research Institute, Tsukuba, Japan;

Dr. C. P. Natarajan, UNU Resident Co-ordinator, Central Food Technological Research Institute, Mysore, India;

Dr. R. Orraca-Tetteh, UNU Resident Co-ordinator, Department of Nutrition and Food Science, University of Ghana, Legon, Ghana;

Dr. Fred T. Sai, United Nations University-World Health Programme Interregional Co-ordinator for Africa, Middle East and Europe, Institute of Statistical, Social and Economic Research, University of Ghana, Legon, Ghana;

Dr. E. M. Thain, UNU Resident Co-ordinator, Tropical Products Institute, London, United Kingdom;

Dr. Ricardo Uauy, UNU Resident Co-ordinator, Institute of Nutrition and Food Technology, University of Chile, Santiago, Chile;

Dr. Barbara Underwood, UNU Resident Co-ordinator, the International Food and Nutrition Policy Programme, Massachusetts Institute of Technology and the Harvard School of Public Health, Cambridge, Massachusetts, United States of America;

Dr. Aree Valyasevi, UNU Resident Co-ordinator, Institute of Nutrition, Mahidol University, Bangkok, Thailand.

2. Human and Social Development Programme

(a) Members of the Advisory Committee

\*Dr. Anouar Abdel-Malek, Project Co-ordinator;

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\* Ex officio member

Dr. Samir Amin, Director, African Institute for Economic Development and Planning, Dakar, Senegal;

Dr. Elise Boulding, Professor, Dartmouth College, Hanover, New Hampshire, United States of America;

Dr. Celso Furtado, Professor of Economic Development, University of Paris, Paris, France;

\*Dr. Johan Galtung, Project Co-ordinator;

Dr. Hab. J. W. Golebiowski, Professor and Director, Labour Institute, Warsaw University, Warsaw, Poland;

Dr. Manuel Perez Guerrero, State Minister in Charge of International Economic Affairs, Caracas, Venezuela (until January 1980);

\*Dr. Takeshi Hayashi, Project Co-ordinator;

\*Dr. Amilcar Herrera, Project Co-ordinator;

Dr. J. Ki-Zerbo, former Director of Education, National Ministry of Education, Ouagadougou, Upper Volta;

Dr. Rajni Kothari, President, Indian Council of Social Science Research, New Delhi, India;

Dr. Michio Nagai, Professor of Education, International College, Sophia University, Tokyo, Japan; former Minister of Education, Japan;

Dr. K. Soedjatmoko, Adviser, National Development Planning Agency, Republic of Indonesia, Jakarta, Indonesia;

\*Mr. Chandra Soysa, Project Co-ordinator;

Dr. Rodolfo Stavenhagen, El Colegio de México, Mexico City, Mexico;

Dr. Alain Touraine, Institute of Human Sciences, National Centre of Scientific Research, Paris, France (until November 1979).

(b) Co-ordinators

Dr. Anouar Abdel-Malek, Project Co-ordinator for the Project on Socio-Cultural Development Alternatives in a Changing World, Institute of Human Sciences, National Centre of Scientific Research, Paris, France;

Dr. Johan Galtung, Project Co-ordinator for the Project on Goals, Processes and Indicators of Development, c/o UNITAR Office in Geneva, Geneva, Switzerland;

Dr. Takeshi Hayashi, Project Co-ordinator for the Project on Technology Transfer, Transformation and Development: The Japanese Experience, Research Planning and Co-ordinating Office, Institute of Developing Economies, Tokyo, Japan;

Dr. Amilcar Herrera, Project Co-ordinator for the Project on Research and Development Systems in Rural Settings, State University of Campinas, Campinas, Sao Paulo, Brazil;

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\* Ex officio member

Mr. Chandra Soysa, Project Co-ordinator for the Project on Sharing of Traditional Technology, Marga Institute, Colombo, Sri Lanka.

3. Programme on the Use and Management of Natural Resources

(a) Members of the Advisory Committee

\*Dr. Eric Bird, Project Co-ordinator;

Mrs. Margaret Biswas, International Institute for Applied Systems Analysis, Laxenburg, Austria;

Dr. Gerardo Budowski, Project Co-ordinator;

Dr. James M. Harrison, Adviser and Consultant, former Assistant Deputy Minister, Department of Energy, Mines and Resources, Canada, and former Assistant Director-General, Programme on Science and Technology, UNESCO, Ottawa, Canada;

Dr. Carl-Göran Héden, International Federation of Institutes for Advanced Study, Solna, Sweden;

\*Dr. Jack D. Ives, Project Co-ordinator;

Dr. I. Kobori, Professor, Faculty of Science, University of Tokyo, Tokyo, Japan;

Dr. F. O. Kwami, Dean, Faculty of Engineering, University of Science and Technology, Kumasi, Ghana;

\*Dr. Maurice Lévy, Project Co-ordinator;

\*Dr. Jack A. Mabbutt, Project Co-ordinator;

\*Dr. G. J. Afolabi Ojo, Project Co-ordinator;

\*Dr. Kenneth Ruddle, Project Co-ordinator;

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## ANNEX IV

### Programme networks of the United Nations University

(as at 30 June 1980)

#### A. World Hunger Programme

##### 1. Food and Nutrition Policy and Programme Planning

Food and nutrition objectives in national planning and development: associated institutions in Canada, Chile, Ghana, Guatemala, the Philippines, the United States and Colombia, with links to institutions in India and the Philippines

##### 2. Post-Harvest Conservation of Food

Post-harvest conservation: associated institutions in Canada, Colombia, Guatemala, Ghana, India, and the United Kingdom, with links to a training unit in Japan and to institutions in Indonesia and Senegal

##### 3. Nutritional Requirements and Their Fulfilment through Local Diets

Protein and energy needs in developing countries: associated institutions in Chile, Colombia, Guatemala, Thailand, the United States and Venezuela, with links to institutions in Brazil, Egypt, India, Japan, Mexico, the Philippines, Republic of Korea, the United Kingdom, and the United States

Iron deficiency anaemia and its prevention: associated institution links in Chile, Guatemala, and Venezuela

#### B. Human and Social Development Programme

##### 1. Problems of Development

Goals, processes, and indicators of development: co-ordinated by associated institution in Switzerland with links to institutions in Argentina, Belgium, Canada, the Federal Republic of Germany, India, Italy, Jamaica, Japan, Malaysia, Mexico, Norway, Poland, Romania, Senegal, Sri Lanka, Sweden, Switzerland, the United Kingdom and the United States

Socio-cultural development alternatives in a changing world: co-ordinated by an institution in France with links to institutions in Bangladesh, Canada, two in Egypt, Fiji, France, India, Japan, Mexico, Nigeria, Spain, Syria, Thailand, Trinidad and Tobago, Tunisia, the United Kingdom, the United States, Venezuela, and Yugoslavia

##### 2. Technology and Development

Sharing of traditional technology: co-ordinated by associated institution in Sri Lanka with links to institutions in Indonesia, Japan, Malaysia, Nepal, the Philippines, and Thailand

Research and development systems in rural settings: co-ordinated by associated institution in Mexico with links to institutions in Brazil, Ethiopia, Mexico and the Philippines

Technology transfer, transformation, and development: the Japanese experience: co-ordinated by associated institution in Japan with links to 35 other institutions in Japan

### C. Programme on the Use and Management of Natural Resources

#### 1. Energy Systems for Rural Communities

Integrated energy projects: associated institution in Algeria with links to an institution in Tanzania and projected links to institutions in India, People's Republic of China, and Upper Volta

Renewable energy information: ASSET, UNU headquarters, Japan

Geothermal energy: associated institution in Iceland with links to an institution in Japan

Fuel wood: associated institution in Nigeria with links to an institution in Malaysia

#### 2. Assessment of the Application of Knowledge to Arid Lands Problems

Arid lands: links associated institutions in the Sudan and Australia with links to institutions in India and the United Kingdom and projected links to institutions in Federal Republic of Germany, Middle East, Pakistan, and Peru

#### 3. The Ecological Basis for Rural Development in the Humid Tropics

Agro-forestry systems: associated institutions in Costa Rica and Thailand with projected links to an institution in Cameroon

Highland-lowland interactive systems: associated institutions in Thailand and the United States with links to institutions in Nepal, Papua New Guinea, and a projected link to an institution in Switzerland

Water-land interactive systems: associated institution in Indonesia with links to institutions in Japan, Malaysia, and the People's Republic of China and a projected link to institutions in Austria and the Philippines

Coastal resources systems: research and training unit in Jakarta with projected links to Fiji and Noumea

#### 4. Resource Systems Theory and Methodology

An advanced training and research network which links work being done in the Natural Resources subprogrammes. Activities in the Netherlands and the Republic of Korea and projected activities in the People's Republic of China, France, and the United States.

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