



THE UNITED NATIONS UNIVERSITY

THE FIFTH YEAR 1979-1980



"In its first five years the UNU has been organized into an operational institution with an extensive, international system of 19 problem-oriented networks of scholars and institutions engaged in research, advanced training and dissemination of knowledge." — *Report of the Council, 1979-1980*

## WH

### WORLD HUNGER PROGRAMME

- Food and nutrition objectives in national planning and development
- Post-harvest conservation
- Protein and energy needs in developing countries
- Iron deficiency anaemia and its prevention

## HSD

### HUMAN AND SOCIAL DEVELOPMENT PROGRAMME

- Goals, processes, and indicators of development
- Socio-cultural development alternatives in a changing world
- Research and development systems in rural settings
- Sharing of traditional technology
- Technology transfer, transformation, and development: the Japanese experience

## NR

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

- Integrated energy projects
- Renewable energy information
- Geothermal energy
- Fuel wood
- Arid lands
- Agro-forestry systems
- Highland-lowland interactive systems
- Water-land interactive systems
- Coastal resource management
- Resource systems theory and methodology

# UN University Chronology

- 1969 — United Nations Secretary-General U Thant proposes the creation of an international university in his Annual Report to the General Assembly (twenty-fourth session).
- 1970 — ECOSOC\* invites the General Conference of UNESCO to submit its opinion on the proposal to the twenty-fifth session of the General Assembly.
- 1971 — UNESCO Feasibility Study report (September) and UN Panel of Experts report (November) outline the basic concept of UN University in its present form.
- 1972 — General Conference of UNESCO adopts resolution recommending to the General Assembly the creation of an international university and the establishment of a Founding Committee.
  - General Assembly approves establishment of UN University (G.A. Res. 2591 [XXVII] 11 December).
- 1973 — Government of Japan pledges US\$100 million to the UNU and offers headquarters facilities in Tokyo (June).
  - The Secretary-General presents the revised text of the Charter of the University to the General Assembly, taking into account the comments and observations of the Executive Board of UNESCO.
  - General Assembly approves UNU Charter (G.A. Res. 3081 [XXVIII] 6 December) and accepts offer of Government of Japan to establish headquarters in Tokyo.
- 1974 — First Council members appointed and Council holds its first session in New York at UN Headquarters (May). Dr. Roger Gaudry is named first Council Chairman.
  - Second and third sessions of Council held at UNESCO Headquarters in Paris.
  - Appointment of Dr. James M. Hester as first Rector (November).
  - University headquarters opens with temporary offices in Imperial Hotel in Tokyo (December).
- 1975 — Council meets for first time in Tokyo (fourth session) and approves the three initial priority areas (January).
  - Rector takes up post, and headquarters office formally opens in Toho Seimei Building in Shibuya, Tokyo (September).
  - Expert Groups meet in Tokyo: World Hunger (September); Human and Social Development (November); Use and Management of Natural Resources (December).
- 1976 — Council approves at its sixth session (Caracas) the three programmes as recommended by Expert Groups (January).
  - Institute of Nutrition of Central America and Panama (INCAP), Guatemala, becomes UNU's first associated institution in World

\* Economic and Social Council of the United Nations.

- Hunger Programme (WH) (May). First WH Fellow begins training at INCAP (August). First meeting of World Hunger Programme Advisory Committee held in Tokyo (September). WH holds its first workshop in Ibadan, Nigeria (December). **Effective beginning of World Hunger Programme.**
  - First in series of Consultative meetings with government and academic leaders held at Royal Academy in London (October).
- 1977 — First meeting of Human and Social Development Programme (HSD) Advisory Committee held in Tokyo (January).
  - Dissemination of Knowledge meeting in Tokyo (January) sets outlines for UNU activities in this area.
  - First meeting of Natural Resources Programme (NR) Advisory Committee held in Tokyo (May).
  - Three initial HSD projects launched: Goals, Processes, and Indicators of Development (Dubrovnik meeting, April); Socio-cultural Alternatives (Tokyo, June); Sharing of Traditional Technology (Tokyo, September). **Effective beginning of Human and Social Development Programme.**
    - Tropical Agricultural Research and Training Centre (CATIE), Costa Rica, becomes first associated institution of NR (November). **Effective beginning of Natural Resources Programme.**
- 1978 — WH and NR hold Joint Task Force meeting in Athens (March). First formal programme interaction.
  - First Joint Advisory Committee meeting held in Tokyo (April).
  - **Food and Nutrition Bulletin** begins publication (October).
  - First bioconversion workshop (joint WH-NR) held in Guatemala (November).
  - First NR Fellow begins training at CATIE (December).
- 1979 — **ASSET** begins publication (January).
  - 14th and final Consultative meeting held in Nairobi (March).
  - WH awards 100th fellowship (December).
- 1980 — University becomes co-publisher of **Development Forum** (March).
  - Soedjatmoko named new Rector (April), effective 1 September 1980.
    - WH meeting held in Bellagio to re-examine conceptual base and direction of the programme (May).
    - Fifth Annual Report of the Council to the General Assembly of the UN and Executive Board of UNESCO reports that the University is now operating 19 networks, 26 associated institutions and over 100 research and training units located in more than 60 countries; has awarded 225 UNU fellowships (including 50 special fellowships), and produced 140 publications, and that, as of 30 June, the Endowment Fund amounts to US\$142 million.

## SOEDJATMOKO—The New Rector



Soedjatmoko became Rector of the United Nations University on 1 September 1980. In accordance with the provisions of the University's Charter, he was appointed by the Secretary-General of the United Nations, after consultation with the Director-General of UNESCO and with his concurrence. He succeeded Dr. James M. Hester who had been the UN University's first Rector since 1975.

A scholar of international development and politics, Soedjatmoko has published numerous articles in scholarly journals and books on the social, economic, cultural, and political aspects of development.

From 1968–1971 he was Indonesian Ambassador to the United States and from 1971 Adviser to the Chairman for Social and Cultural Affairs of the National Development Planning Agency of Indonesia. From 1967–1977 he was Personal Adviser to the Minister of Foreign Affairs of Indonesia.

Soedjatmoko has had a long association with the United Nations: he was a member of the Indonesian delegation to the Security Council in 1947–1950; Alternate Permanent Representative of the Indonesian Mission in 1950–1951; in 1966 he was Vice-Chairman of the Indonesian delegation to the General Assembly. More recently he has been a special consultant to the UN Economic and Social Commission for Asia and the Pacific and, a member of the Programme Advisory Committee (1977–1980) of the Human and Social Development Programme of the UN University.

Soedjatmoko was born in Sawahlunto, Sumatra, in 1922. He received higher education at Medical College in Jakarta, Indonesia, and Harvard

University in the US. He has received honorary degrees from Yale University, Cedar Crest College, and Williams College in the US. He is an International Fellow of the American Academy of Arts and Sciences, an Honorary Member of the Siam Society of Thailand, and a member of the Jakarta Academy. He has been involved with a number of organizations concerned with academic research in the field of international affairs and is on the Boards of Trustees of the Aspen Institute and Ford Foundation, the Advisory Board of the Institute for the Study of World Politics, and the Council of the International Foundation for Development Alternatives.

Soedjatmoko's earlier career was in journalism in Indonesia, as Director of Pembangunan Publishing Company, Editor of the weekly **Siasat** and Associate Editor of the daily newspaper, **Pedoman**. From 1956–1959 he was an elected Member of Indonesia's Constitutional Assembly.

In 1978 Soedjatmoko was the recipient of the Ramon Magsaysay Award for International Understanding (sometimes referred to as the Nobel Prize of Asia). The citation noted: "The lot of the independent thinker amidst the political tumult of developing Asia is precarious. It is a measure of Soedjatmoko's positive commitment that concern for himself has not inhibited forthright expression. Nor has he allowed his membership in numerous leading international forums and organizations to divorce his concern from the realities of Indonesian village life." His writings, the citation stated, have added "to the body of international thinking on what can be done to meet one of the greatest challenges of our time, how to make life more decent and satisfying for the poorest 40 per cent in Southeastern and Southern Asia. In the process he is stimulating others to sharpen their perception and make government and private efforts more relevant."

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"Particularly significant is the research being conducted in the area of nutritional requirements . . . . A network with units in 11 developing countries is obtaining data for a revision of existing FAO/WHO protein-energy recommendations planned for 1981 with UN University participation. The results suggest that the current estimate of a safe protein allowance for adults is inadequate for the long-term maintenance of much of the world's adult population." *From the Report of the Council (see centre pages)*



Human and Social Development Programme . . 13

"The projects within the Sub-programme on Technology and Development are examining and re-evaluating the currently predominant approach to technological development based principally on technology transfer from the industrialized to the developing countries . . . . A methodology [is being developed] for identifying the R & D components of rural community problem-solving through interaction between natural and social scientists and peasants. New insights have been acquired into the socio-economic conditions obstructing the peasants' participation in the choices of technology in their communities." *Report of the Council*



Programme on the Use and Management of Natural Resources . . . . . 21

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



Interprogramme Activities . . . . . 28

"Interaction among the three programmes [included]: 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; 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; 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." *Report of the Council*



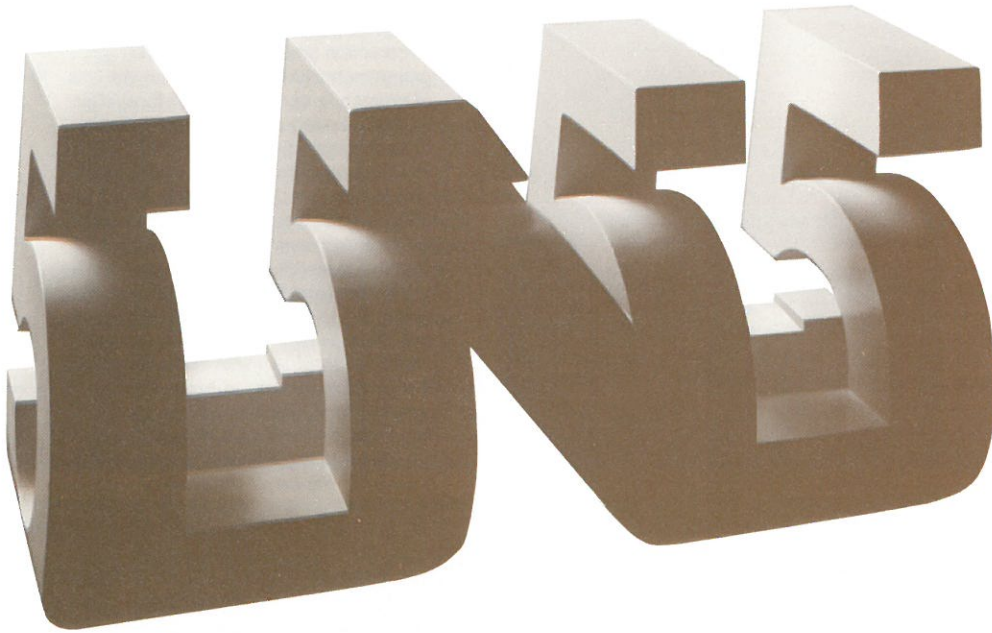
Dissemination of Knowledge . . . . . 30

"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 1979-1980. The University published 116 books, periodicals, and papers . . . ." *Report of the Council*



Fund-raising, Finance and Budget . . . . . 31  
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# INTRODUCTION



"The University is now ending 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." Dr. James M. Hester, first Rector of the UN University, in his final report to the Council (June 1980) from which the following section is adapted.

## THE UNITED NATIONS UNIVERSITY: Networks of Research, Advanced Training, and Dissemination of Knowledge — A Five-year Perspective

The United Nations University was created as an instrument of international scholarship to work on "pressing global problems of human survival, development and welfare"—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.

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 inter-linked 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 UN University.

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

- (1) The necessity for more and better knowledge about the problems and aspirations of the people of the developing countries;
- (2) The need in developing countries for more trained personnel with appreciation of the multidisciplinary complexities of the problems they face; and
- (3) 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.

These needs have shaped the University's response to its Charter directive to engage in research, post-graduate training, and dissemination of knowledge.

### Research

The University's research efforts have been developed through its world-wide networks of institutions and individual scholars which reach into more than 60 countries around the globe. 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.

The principal emphasis of UN University 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 University's research approaches are based on the assumption that without this kind of understanding no amount of outside money or expertise can hope to succeed.

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). Of these research funds some 80 per cent is 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 p. 17) which seek to find lessons that may benefit development planners in other parts of the world.

Research is also an integral component of UNU fellowship training. While the research projects of individual UNU Fellows 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 World Hunger Programme Fellows, for example, has provided valuable information to the network dealing with human nutritional requirements in the tropics. This research on protein-energy needs in developing countries has yielded significant new information on this neglected subject.

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 already emerged. 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.

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. 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—for example, in China. In addition 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.

### Advanced Training/Fellowships

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 which has 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.

To date, 175 UNU fellowships have been awarded, 146 in the World Hunger Programme and 29 in the Natural Resources Programme, where training operations started later. Ninety-two UNU Fellows have now completed their training and returned to their home institutions. 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.

UNU 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 a doctorate.

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 UN 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 an important aspect of the selection process. So, too, is recognition of the Fellow's potential, on return home, for contributing to decisions influencing policy. Most Fellows are "teachers of teachers" who will be training the staffs, and thereby increasing the intellectual resources, of research institutions in their home countries.

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

The effectiveness of UN University fellowships has already been manifested. The first comprehensive evaluation of the experience of the World Hunger Programme Fellows who had completed their fellowships showed that they consider that their capacity to contribute to solving their countries' problems had been significantly upgraded by their training. Two-thirds of the Fellows evaluated were already in positions to influence the food and nutrition policies of the countries.

The University has also awarded fellowships to 50 Special Fellows. These are selected key personnel at high management levels in institutions of developing countries who are unable to be away from their posts for extended periods of time. Special fellowships for short periods of time (generally no more than three or four months) provide them the opportunity to gain new experience, or share their own experience, in specific fields with the scholars of an associated institution.

### Dissemination of Knowledge

This function of the University is defined in the Charter as a responsibility to "increase dynamic interaction in the world-wide community of

learning and research." While this function has, of necessity, awaited the result of research activities, the flow of publications has increased markedly, with 116 new titles published in 1979–1980 alone.

The University's knowledge dissemination efforts are not limited to publications. Much valuable information is also generated and disseminated in the many workshops, symposia, and other meetings which the University organizes throughout the world.

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 Sub-committee on Nutrition of the Administrative Committee on Co-ordination (ACC-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.

**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 their own scientific papers and reports to the **ASSET** office for abstracting, thereby creating a self-generating information network.

Many other technical publications and research reports are now appearing (full lists of publications are given at the end of each programme section of this report). 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.

An important step in the University's knowledge dissemination efforts was taken when it became co-publisher of **Development Forum** (in March 1980), which has been recognized as the single publication of the UN 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.

### Progress and Problems

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.

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

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. Nonetheless, the University's voice is now heard in many parts of the United Nations system. While the University is still very much a newcomer 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.

# HOW THE UNIVERSITY OPERATES

The University's Charter directs that it shall be "an international community of scholars, engaged in research, post-graduate training and dissemination of knowledge." Therefore a central element of the University's world-wide operations is its networks of collaborating scientists and scholars from all parts of the globe.

The networks vary in size and geographical spread. Some encompass the globe, others focus on a particular region. Whatever their range and nature, the networks have a common goal—stimulating collaborative, interdisciplinary approaches in what one of the University's founders has called "an attempt to get the best brains of the world to work as a team towards the resolution of great problems of mankind."<sup>\*</sup>

The University's governing principles and policies are set by its Council whose 24 appointed members serve as individuals not as government representatives. They are appointed jointly by the Secretary-General of the United Nations and the Director-General of UNESCO to represent major academic, scientific, and cultural ideas in the world. Most Council members have taught at universities in their own nations and, at some point in their career, most have also been heads of institutions of higher learning or research institutes. Typically, a Council member's career has been in the academic world and public affairs, both nationally and internationally. The Rector is also a member of the Council. The Secretary-General of the United Nations, the Director-General of UNESCO, and the Executive Director of UNITAR are *ex officio* members of the Council.

It was the Council which set the University's initial priority areas of world hunger, human and social development, and the use and management of natural resources. Specific programme activities within those areas were then developed with the help of the three Programme Advisory Committees comprised of experts in the three priority areas, from all parts of the world, who regularly review the University's activities, make suggestions for adjustments, and help shape new projects. Members of other UN organizations working in the same fields are represented on the Programme Advisory Committees.

The University has several types of relationships with other institutions; these linkages stem from programmatic needs and stress mutually beneficial partnerships and maximum flexibility. Policy guidelines provide for three basic types of relationships:

1) **Incorporated institutions**, which would be established and staffed, managed, and financed by the University itself. Largely because of financial constraints, no incorporated institutions have been established to date;

2) **Associated institutions**, which are all, or parts, of existing institutions (universities, research institutions, regional academic associations) with their own governing authority, associated with the University for specific research and training tasks for a designated period of time; and

3) **Contractual and other arrangements** with institutions (such as research or training units) or individuals for specific programme purposes.

The University's three main functions are research, advanced training, and the dissemination of knowledge. The research is conducted through its 19 world-wide networks of institutions on a specific problem. Advanced training is provided to UNU Fellows, who are mainly professionals from developing countries, at the University's 26 associated institutions as well as at other training units. Knowledge generated by University-sponsored research is disseminated through workshops, seminars, a range of publications, and other methods.

Planning, co-ordination, and administration of the many elements of the University's world-wide operations is handled by a small headquarters staff in Tokyo and a number of regional co-ordinators.

The fact that the University has no students, faculty, or traditional campus arrangement is often commented on. It was planned that way deliberately by leading international experts who saw the need for a new kind of academic institution—a university where science and scholarship could cross national and cultural boundaries more easily and focus on pressing problems of global dimensions. This goal has shaped the various elements of the University's world-wide operations.

The University's income is derived primarily from an Endowment Fund, made up of voluntary contributions from Member States of the United Nations, which ensures the objectivity of its research and protects it from many pressures that might accompany other forms of funding.

<sup>\*</sup> Dr. Roger Gaudry, first Chairman of the University Council (1974-1975) and a member of the Founding Committee that drafted the Charter; December 1979 **UNU Newsletter** interview.

# PROGRAMME NETWORKS

## ■ WORLD HUNGER PROGRAMME

Food and Nutrition Policy and Programme Planning

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

Post-harvest Conservation of Food

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

Human Nutritional Requirements and Their Fulfilment through Local Diets

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

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

## ● HUMAN AND SOCIAL DEVELOPMENT PROGRAMME

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, Japan, Malaysia, Mexico, Norway, Papua New Guinea, Poland, Romania, Senegal, Sri Lanka, Sweden, Switzerland, Trinidad, the UK, and the US

**Socio-cultural development alternatives in a changing world:** co-ordinated by an institution in France with links to institutions in Algeria, Bangladesh, Canada, 2 in Egypt, Fiji, France, 2 in India, Japan, Lebanon, Mexico, Nigeria, Spain, Syria, Thailand, Trinidad and Tobago, Tunisia, the UK, the US, Venezuela, and Yugoslavia

Technology and Development

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

**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

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

## ▲ PROGRAMME ON THE USE AND MANAGEMENT OF NATURAL RESOURCES

The Ecological Basis for Rural Development

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

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

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

**Coastal resource management:** research and training units in Indonesia and Fiji, and projected links to an institution in Noumea

Assessment of the Application of Knowledge to Arid Lands Problems

**Arid lands:** associated institutions in Australia and the Sudan with links to institutions in India, Pakistan, and the UK and co-operation with institutions in the Federal Republic of Germany, Mexico, the Middle East, and Peru

Energy Systems for Rural Communities

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

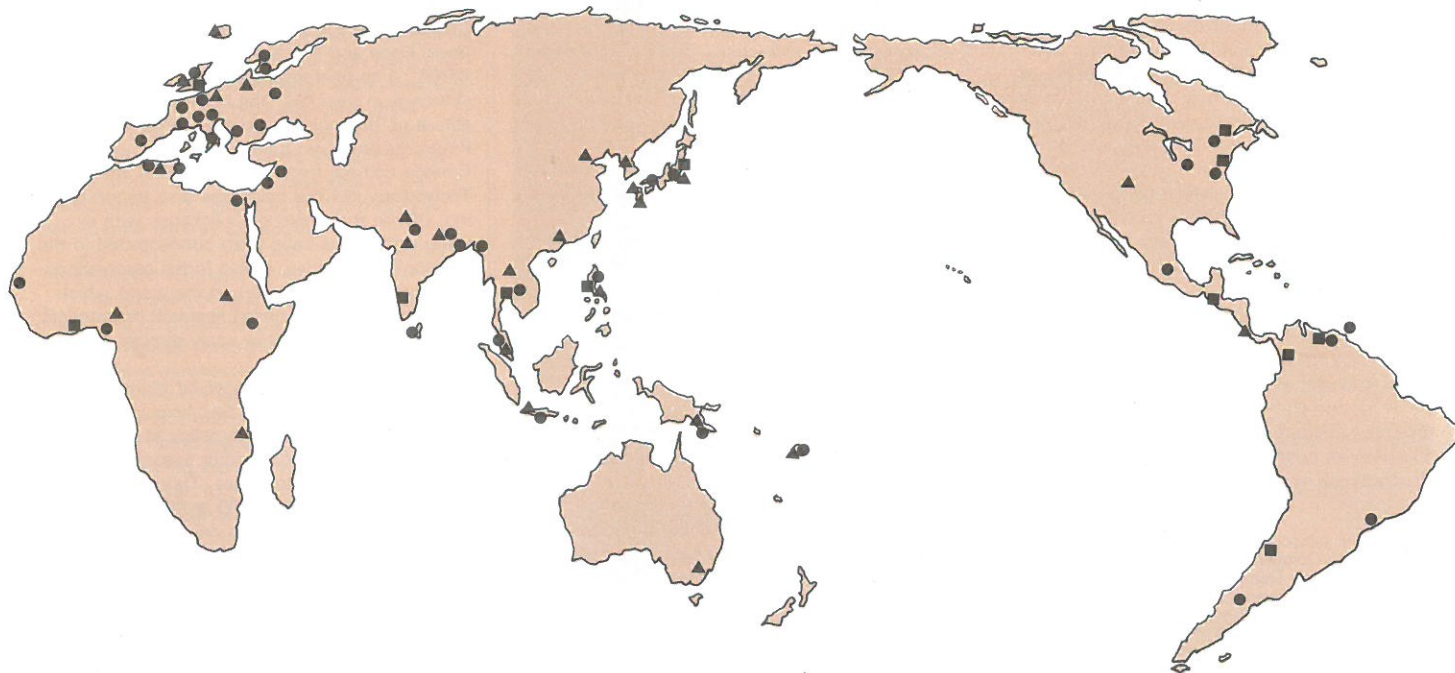
**Renewable energy information: ASSET, UNU headquarters, Japan**

**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

Resource Systems Theory and Methodology

An advanced training and research network which links work being done in the Natural Resources sub-programmes. Activities in the Netherlands and Republic of Korea, and projected activities in the People's Republic of China and the US



# WORLD HUNGER PROGRAMME

## The Year in Review

- Sixty-five new UNU Fellows were appointed, bringing to 146 the total fellowships now awarded by the programme. Thirty-three Fellows completed their training during the year; 78 Fellows have now finished training. As of June 1980, there were 68 UNU Fellows either in training or waiting to take up awards. Another 200 fellowship applications were under consideration. Thirty-seven Special Fellows have now been appointed, 23 of whom have completed their fellowships.
- Agreements of association were signed with two new institutions—Universidad del Valle, Cali, Colombia, and the Institute of Nutrition, Mahidol University, Bangkok, Thailand. The WH now has 11 associated institutions, and a further association with the University of the West Indies, with campuses in Jamaica, Trinidad, and Barbados was approved by the Council (June 1980).
- The WH's training unit in Japan accepted its first Fellows. Seven co-operating institutions in the UK (3), USA (2) and Thailand and the Philippines (1 each) are also participating in UNU Fellow training.
- Four networks were in operation: food and nutrition objectives in national planning and development (in 8 countries); post-harvest conservation of food (9 countries); protein and energy needs in developing countries (15 countries); and iron deficiency anaemia and its prevention (3 countries).
- Twenty-one research projects were supported.
- Twenty-seven workshops and meetings were held, including a programme-wide meeting to review the programme's conceptual basis.
- The quarterly journal **Food and Nutrition Bulletin** entered in its second year. The **Bulletin** published three supplements as individual publications.

The 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.

A meeting in Bellagio, Italy, in spring 1980 reviewed the programme's conceptual basis, and agreed that hunger must be viewed as not only a biological and technical problem, but also a social, cultural, economic, and political one.

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. Understanding the complex reasons for this maldistribution calls for a broad grounding of 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 an important concern of the World Hunger Programme's research and training efforts.

## Perspectives and Activities of the Sub-programmes

There are three sub-programmes\* whose work is closely interlinked. The sub-programme on Food and Nutrition Policy and Programme Planning incorporates the research and training experiences developed in the other two sub-programmes—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.

## Food and Nutrition Policy and Programme Planning

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 purchasing power is increased (by better jobs, minimum wages, reduced taxes, etc.). For some families, increased home production can help close the gap.

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, whose implications must be carefully balanced, that are open to those responsible for determining food and nutrition policy and development policy.

This sub-programme is concerned with understanding the processes responsible for hunger and malnutrition in order to identify appropriate policy choices to help eliminate them. In seeking to increase understanding of the interplay of the many factors involved in alleviating hunger and malnutrition, a wide range of disciplines are involved—economics, political science, anthropology, sociology, and systems analysis, along with the various nutritional, agricultural, and health sciences.

Five specific food and nutrition policy issues have been identified that require urgent attention:

(1) Economic, nutritional, and other implications of large-scale national food subsidy projects compared to more tightly targeted projects (for example, those aimed at only certain age groups).

(2) Policy, financial, and other implications of building community organizations for achiev-

ing food and nutrition objectives. Comparative studies of country experiences are required.

(3) Comparative analysis of the effectiveness of health and/or nutrition intervention programmes in selected countries, in particular, evaluating methodologies relevant to field conditions and analysing factors which have determined "success" or "failure."

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

(5) 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.

The initial centres for training in this sub-programme were at three associated institutions: the Institute of Nutrition of Central America and Panama (INCAP) in Guatemala; the Nutrition Center of the Philippines (NCP); and the International Food and Nutrition Policy Programme (IFNP), a co-operative undertaking of two institutions in the USA, the Massachusetts Institute of Technology and the Harvard School of Public Health. Two others, Laval University in Canada and the Institute of Nutrition and Food Technology in Chile have now also begun training. (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.)

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, Colombia.

An association with the University of the West Indies in Jamaica, Trinidad and Barbados will take effect in 1981. This institution will provide training in the socio-economic and technical aspects of the interfaces between agriculture,

\* The three sub-programmes have been renamed with effect from October 1980: Food and Nutrition Policy and Programme Planning renamed **Hunger and Society**; Post-harvest Conservation of Food renamed **Hunger and Technology**; and Human Nutritional Requirements and Their Fulfilment through Local Diets renamed **Hunger and Health**.



food science, and human nutrition and, at the same time, will explore the importance of these interfaces for national and regional food and nutrition policy planning. The association will be helpful for the training of Fellows from English-speaking African countries as well as from the Caribbean region.

During the past year, there were six research projects in this sub-programme. 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 fifth project in Venezuela is concerned with prevention in several South American countries of iron deficiency through iron fortification of a diet staple. The sixth project 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 UNRISD.

The sub-programme held four workshops during the year, two in Cambridge, Massachusetts, USA, one in Washington DC, USA and one in Paris, France (see list on p. 12).

One difficulty faced in pursuing the objectives of this sub-programme is that there are few appropriate training centres in developing countries. With added associated institutions in Colombia and the West Indies, and the commencement of training at the associated institution in Ghana, the sub-programme is expanding in lesser developed countries.

Another problem is the paucity of research proposals in the priority areas which have been received from developing countries. 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.

#### Post-harvest Conservation of Food

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.

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. Factors



One of the chief causes of hunger in today's world is **maldistribution** of food—a major concern of the World Hunger Programme. The programme seeks to improve understanding of the many forces that interact—economically, socially, politically and otherwise—to affect the flow of food from the field through the market-place to the home.

causing losses include spoilage, poor handling, insects, rodents, and moulds.

This sub-programme seeks to contribute to the quantitative and qualitative conservation of food 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; animal and fish products also are included in conservation efforts.

The sub-programme covers all stages from production to the moment of consumption—including handling, storage, processing, packaging, transporting, distribution, marketing, and ultimate use at home.

In particular, it stresses the need to identify and understand the many existing traditional technologies employed to conserve food; and to improve and transform them into more effective operational techniques. It is realized that technologies which are effective in the developed countries may be useless, unacceptable, and even counter-productive in the developing world. The focus is on simple, easily usable and available technologies. The work emphasizes food conservation problems at the home and village level, and 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 sub-programme. 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. Support was given in an effort to assist that institution to develop its capacity in anticipation of its association with the University.

Support is also given to UNU Fellows who need help to implement the results of their training on return to their home institution. 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 UNU Special Fellow at Mysore, India, in 1977.

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 in this sub-programme. 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, UK; and the National Food Research Institute in Tsukuba, Japan.

Collaboration continued between Laval University and the Institute of Food Technology (ITA) in Dakar, Senegal, through joint research projects and fellowship training of ITA personnel in Quebec. When ITA's training capacity is suffi-



Improved understanding of nutritionally sound diet practices starts at the village level—but also requires inputs, from the laboratory and other levels, from a wide range of academic disciplines. The World Hunger Programme brings the viewpoints of economists, political scientists, and anthropologists, along with those of nutritionists and agricultural scientists, to the examination of the many factors involved in alleviating hunger and malnutrition.

ciently developed, it will be considered for association.

The sub-programme sponsored three workshops during the year, in Mysore, India; Yaounde, Cameroon; and Bogor, Indonesia. They dealt with such topics as management research and development institutions in the area of food science and technology, tropical foods preservation, and the uses of fermentation in conserving food in developing countries (see list on p. 12).

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

#### Human Nutritional Requirements and Their Fulfilment through Local Diets

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.

This sub-programme has a twofold objective: (1) to help developing countries obtain information on the nutritional requirements of their own populations; and (2) to compile the infor-

mation necessary to establish internationally recognized estimates of nutritional requirements and safe dietary allowances that are appropriate to developing country populations.

The first analytical results from this sub-programme, published by the University in July 1979, provided important guidelines for future research on this question, and agreed on the methodology 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.

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 meeting in Caracas in April 1980.

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, Republic of Korea, Mexico, the Philippines, Thailand, and Venezuela. There



UNU Fellows in the World Hunger Programme are selected for their potential to strengthen their own country's scientific capabilities following a period of research and advanced training at one of the University's associated institutions. Most return home to policy-making positions. Above, Dr. Benny Soegianto of Indonesia examining a third-degree malnourished Filipino child during his UNU fellowship at the Nutrition Center of the Philippines. Fellows complement their laboratory and seminar work with on-site training in practical application of their research activities.

are also units in Japan, Taiwan, the UK and the USA (one in Berkeley, California, one in Cambridge, Massachusetts) that form part of the network but do not receive financial support from the University.

Research is the principal operational method of this sub-programme, and thus fellowship training is on a smaller scale than that in the other two sub-programmes. However, the Institute of Nutrition and Food Technology in Chile commenced training, and two new associated institutions, the Institute of Nutrition, Mahidol University, Thailand, and the Universidad del Valle will also be providing training during the second half of 1980.

The focus of the training in this sub-programme is on research design and methodology and data analysis. By implementing research programmes on their return home, the Fellows thus expanded the network of institutions suitable for research in this sub-programme.

Research findings from this network contributed important input to three workshops held by this sub-programme over the course of the year, one in September and two in May. All three were held at IFNP in Cambridge, Massachusetts, USA. The first two were organized by committees of the International Union of Nutritional Sciences; the last was held jointly with the sub-programme on Food and Nutrition Policy and Programme Planning. Economists and planners participated in this meeting which sought to formulate guidelines for policy implementation. The proceedings from all three workshops will be published and 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.

#### Co-operation with Other UN Agencies

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.

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 UNU Fellows from those countries to make the best use of this support. Or, in the area of human nutritional requirements, the University's 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 planning, the University is the one UN agency offering advanced multidisciplinary training programmes at the post-masters and post-doctoral levels.

In addition to co-operating with FAO and WHO, the World Hunger Programme also has close links with UNESCO. It participates actively in the work of the ACC-SCN. During the year, the programme organized several missions to Africa, on behalf of the ACC-SCN, 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.

The **Food and Nutrition Bulletin** is used to disseminate the reports of several ACC working groups. Two members of the Advisory Group on Nutrition to the ACC-SCN 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.

#### Publications

**Food and Nutrition Bulletin** is now in its second volume. Three supplements to the **Bulletin** were published during the year and two more are planned for the latter half of 1980. A complete list of World Hunger Programme publications appearing during the year under review follows:

"Interfaces between Agriculture, Nutrition and Food Science: Proceedings of a Workshop held in Manila, 28 February-3 March 1977" (co-published by the UN University and the International Rice Research Institute, Los Baños, Philippines)

"Protein-Energy Requirements under Conditions Prevailing in Developing Countries: Current Knowledge and Research Needs" (**Food and Nutrition Bulletin Supplement** [FNBS] No. 1)

"Bioconversion of Organic Residues for Rural Communities" (published jointly with the Programme on the Use and Management of Natural Resources — FNBS No. 2)

"Food Price Policies and Nutrition in Latin America," edited by Giorgio Soliamano and Lance Taylor (FNBS No. 3)

#### **Food and Nutrition Bulletin** Volume 1, Number 4, August 1979

Contents include:

- Food Consumption and Nutrition Targets
- Beyond the Green Revolution: Some 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 Consumption
- Vitamin A Deficiency
- Guideline for Production of Edible, Heat-Processed Soy Grits and Flours
- Review of Memorial Issue of **Lactation Review**, Honouring Margaret Mead

**Volume 2, Number 2, 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 Twentieth 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
- Inter-Disciplinary 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 1. 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

**Associated Institutions**

**Actual**

- 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
- 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, USA
- Nutrition Center of the Philippines, Makati, Philippines
- Tropical Products Institute, London, UK



Food losses after the harvest are caused in a number of ways—spoilage, poor handling, insects, rodents, and moulds. These losses have serious consequences at many stages of the food chain—including transportation, storage, and market distribution. The World Hunger Programme stresses the need to identify and understand the many existing traditional technologies used to conserve food, and to improve and transform them into more effective techniques.

- Universidad del Valle, Cali, Colombia
  - Venezuelan Institute of Scientific Research, Caracas, Venezuela
- Projected**
- University of the West Indies, Jamaica, Trinidad, and Barbados

#### Training Unit

- National Food Research Institute, Tsukuba, Japan

#### Training Activities at Co-operating Institutions

Through International Food and Nutrition Policy Program, MIT/Harvard:

- Department of Nutrition, Cornell University, Ithaca, New York, USA
- Department of Nutrition, University of Connecticut, Storrs, Connecticut, USA

Through Tropical Products Institute, London:

- Dunn Laboratories, Cambridge, UK
- London School of Hygiene and Tropical Medicine, UK
- Department of Food Science, University of Reading, Reading, UK

Through Institute of Nutrition, Mahidol University, Bangkok:

- Ministry of Health, Bangkok, Thailand

Through Nutrition Center of the Philippines, Manila:

- University of the Philippines at Los Baños, Los Baños, Philippines

#### Meetings and Workshops

- \* Management of Research and Development Institutions in the Area of Food Science and Technology workshop, Mysore, India, July 1979
- \* Post-harvest Conservation of Food, second task force meeting, Vienna, Austria, August 1979
- \* Sixth Steering Committee meeting, Vienna, Austria, August 1979
- \* Evaluation of Protein Quality workshop, Cambridge, Massachusetts, USA, September 1979
- \* World Hunger-Human and Social Development programmes joint workshop on The Role of Women in Post-harvest Food Conservation, Tokyo, Japan, September 1979
- \* Interface Problems between Nutrition Policy and Its Implementation workshop, Cambridge, Massachusetts, USA, November 1979
- \* Tropical Foods Preservation workshop, Yaounde, Cameroon, November 1979
- \* World Hunger-Natural Resources programmes international symposium on the Potential of Single-Cell Protein, Tokyo, Japan, December 1979
- \* Practical Aspects of Using Fermentation as a Means of Food Conservation in Developing Countries workshop, Bogor, Indonesia, December 1979
- \* Human Nutritional Requirements and Their Fulfilment through Local Diets, second task force meeting, Cambridge, Massachusetts, USA, December 1979
- \* World Hunger-Natural Resources programmes joint workshop on Bioconversion of Lignocellulosic and Carbohydrate Residues in Rural Communities, Bali, Indonesia, December 1979
- \* Programme Co-ordinators meeting, Tokyo, Japan, January 1980
- \* Seventh Steering Committee meeting, Tokyo, Japan, January 1980
- \* Human Nutritional Requirements and Their Fulfilment through Local Diets, third task force meeting, Tokyo, Japan, January 1980
- \* Food and Nutrition Policy and Programme Planning, third task force meeting, Tokyo, Japan, January 1980
- \* Post-harvest Conservation of Food, third task force meeting, Tokyo, Japan, January 1980
- \* Fourth Programme Advisory Committee meeting, Tokyo, Japan, January 1980
- \* Prevention of Iron Deficiency Anaemia in Latin America by Iron Fortification workshop, Caracas, Venezuela, April 1980
- \* Evaluation of Programme's Conceptual Basis and Direction meeting, Bellagio, Italy, April 1980
- \* Nutritional Status of Rural Populations in the Sahel workshop, Paris, France, April 1980
- \* Protein-Energy Requirements: Significance of Recent Findings workshop, Cambridge, Massachusetts, USA, May 1980
- \* Human Nutritional Requirements and Their Fulfilment through Local Diets, fourth task force meeting, Cambridge, Massachusetts, USA, May 1980
- \* Joint workshop on Use of Estimates of Nutrient Requirements for Economic Planning and Agricultural Policy, Cambridge, Massachusetts, USA, May 1980
- \* Food and Nutrition Policy and Programme Planning, fourth task force meeting, Cambridge, Massachusetts, USA, June 1980
- \* Eighth Steering Committee meeting, Cambridge, Massachusetts, USA, June 1980
- \* International Union of Nutritional Sciences (IUNS) meeting on Economic Policy and Human Nutrition, Washington DC, USA, July 1980
- \* Post-harvest Conservation of Food, fourth task force meeting, Mysore, India, June 1980

Photo credits: United Nations/Y. Lehman; United Nations/Ray Wittin.

# HUMAN AND SOCIAL DEVELOPMENT PROGRAMME

## The Year in Review

- The pilot phase of the five initial projects completed. An assessment of the pilot phase was conducted by the Programme Advisory Committee.
- HSD initiated plans to begin an experimental exchange of UNU Fellows—firstly within and then between its initial project networks.
- The programme now has five associated institutions and 91 research units.
- Five networks are in operation: goals, processes, and indicators of development (in 20 countries); socio-cultural development alternatives in a changing world (20 countries); sharing of traditional technology (7 countries); research and development systems in rural settings (4 countries); and technology transfer, transformation, and development in the light of the Japanese experience (in 36 institutions throughout Japan).
- Twenty-eight workshops and meetings were held, including a series of meetings to plan possible future projects on: education for development; human rights in the context of development; peace and development; and regional perspectives of the New International Economic Order.
- Seventy-six research papers were published in order to elicit comment and stimulate dialogue in the world-wide scholarly community.

The premise underlying the work of the Human and Social Development 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 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.

The programme takes as its starting point the disappointing results of development strategies of the recent past which 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, these villagers have realized few benefits from national economic growth. And the “global village” fashioned by the advances of modern communications has both heightened their aspirations and, at the same time, made them all the more keenly aware of the inequity of their own lot.

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.

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

### Sub-programme on Problems of Development

- Goals, Processes, and Indicators of Development
- Socio-cultural Development Alternatives in a Changing World

### Sub-programme on Technology and Development

- Research and Development Systems in Rural Settings
- Sharing of Traditional Technology
- Technology Transfer, Transformation, and Development: The Japanese

## Experience

The initial projects of the programme are designed to be complementary and mutually reinforcing. They have grown increasingly interactive. An example of interaction is the workshop on technology development held in Addis Ababa, Ethiopia in May 1980 which brought together researchers from the three projects concerned with technological dimensions of development: (1) Japanese researchers who are studying their own country's modernization experience for lessons it might offer to development planners elsewhere; (2) researchers from other Asian nations who are examining the role of traditional technologies, and their potential for transformation; and (3) 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.

During the first six months of the year under review, the pilot phase of the 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.

The pilot phase produced preliminary results to 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.

Until now, the emphasis of the programme has been on research and, unlike the World Hunger and Natural Resources programmes, there have been no UNU Fellows. Now that the pilot phase has been completed, however, an experimental exchange of UNU Fellows will begin—firstly within individual project networks and then between the networks.

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 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 participate as dialogue partners rather than as foreign experts from whom to learn or foreign trainees to be taught.

UNU exchange researchers will visit other units of the same project for a period of three to six months. Details for implementing the exchange will be discussed by the Programme Advisory Committee at a meeting in early 1981. As a start, however, a limited number of exchange fellowships 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.

## PROBLEMS OF DEVELOPMENT

### Goals, Processes, and Indicators of Development

This project seeks to contribute to the on-going 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.

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 threefold task of innovation:

(1) **Conceptual**—in the theory and method of networking;

(2) **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;

(3) **Methodological**—through the use of multidimensional, interparadigmatic dialogue as a research method—which also relates to organizational innovation.

The project has three components:

(1) Research carried out by each of the twenty-one units in the network (9 in industrialized countries, 9 in developing countries, and 3 in international organizations). This research has already produced a number of papers, 27 of which were published during the last year.

(2) Sub-project 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 sub-project meetings were held during the course of the year.

(3) 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.

The basic "working tools" of the project 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*
- "Development Theories in the Social Looking-glass: Some Reflections from Theories to 'Development'", *Gilbert Rist*
- "Needs — Their Perception and Expression: The Sri Lanka Experience", *E.L. Wijemanne and Earl Wanigasekera*
- "The African Personality", *Bennie A. Khoapa*
- "Basic Human Needs: Methodology and Mobilization", *Patrick Healey*
- "Dominant and Alternative Life Styles in Poland: An Outline", *Andrzej Sicinski*
- "Towards a Model of Human Growth", *Telma Nudler*
- "The Nature and Future of Development in New Zealand", *David C. Pitt*
- "Global Social Democracy and the New International Economic Order", *Fawzy Mansour*

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.

The project is co-ordinated through the Institute of Development Studies in Geneva.

#### **Socio-cultural Development Alternatives in a Changing World**

This five-year project, which was launched in April 1978, is exploring development alternatives which might evolve from various civilizations and cultures and not rely, as in the past, on one Western-oriented model. Strategies based on one "centre" model have, in the view of many development thinkers, put too much stress on development as a growth process, while ignoring the many other cultural strands



The Human and Social Development Programme takes as its starting point the disappointing results of development strategies of the recent past which tended to equate economic growth with improvement in the over-all quality of human life. These strategies, more often than not, have failed—leaving gross inequities in their wake. The poor in the third world have realized few benefits from national economic growth, and signs of that growth in their midst only make them all the more keenly aware of the injustice in their own lives.

that can enrich the human existence.

The project is specifically concerned with probing different concepts and aims of social evolution and human and social development—as expressed in various civilizations and geo-cultural and national entities. This leads to study of the world's various socio-economic systems and political ideologies, with stress on their historical roots. The project takes the view that history should be the mould for future development alternatives.

There are two sub-projects, the first fulfilling the function of a global intellectual forum, the second, a world-wide research effort investigating aspects of a new international order:

(1) The sub-project on "Endogenous Intellectual Creativity" aims to bring together seminal thinkers from alternative schools of thought and action. It seeks to mobilize the potential for intellectual creativity in hitherto marginalized sectors of society. It has thus far organized three regional symposia: in Kyoto, Japan, November 1978, for Asian scholars; Mexico City, April 1979, for the Latin American perspectives; and one for the Arab world, to be held in Kuwait.

(2) The sub-project, "The Transformation of the World," emphasizes the historical processes which are literally transforming today's



Research teams from the Human and Social Development Programme are conducting in-depth studies of traditional technologies used in 23 rural villages in seven Asian nations. The research is focused on five basic areas of life: food, energy, housing, fishing, and health. The goal is to identify those technologies which, with the input of modern science, might be transformed to make them serve village needs more efficiently and effectively.

#### Associated Institutions

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

#### Research and Training Units

##### Project on Goals, Processes, and Indicators of Development

- Institute of Development Studies, Geneva, Switzerland (co-ordinating institution)
- Bariloche Foundation, San Carlos de Bariloche, Argentina
- Centre for Policy Research, University of Science Malaysia, Penang, Malaysia
- Centre for the Study of Developing Societies, New Delhi, India
- Committee "Poland Year 2000," Polish Academy of Science, Warsaw, Poland
- Council for the Development of Economic and Social Research in Africa, Dakar, Senegal
- Division of Systems Studies, University of Bucharest, Bucharest, Romania
- El Colegio de Mexico, Mexico City, Mexico
- GAMMA, University of Montreal, Montreal, Canada
- Institute of International Relations, University of the West Indies, St. Augustine, Trinidad
- Institute for Peace Science, Hiroshima University, Hiroshima, Japan

- Marga Institute, Colombo, Sri Lanka
- Max Planck Institute, Starnberg, Federal Republic of Germany
- Mershon Center, Ohio State University, Columbus, Ohio, USA
- Peace Research Institute, Sweden, Göteborg, Sweden
- Science Policy Research Unit, University of Sussex, Brighton, UK
- Union of International Associations, Brussels, Belgium
- United Nations Institute for Training and Research (UNITAR), Geneva, Switzerland
- University of Oslo, Chair in Conflict and Peace Research, Oslo, Norway
- University of Papua New Guinea, Port Moresby, Papua New Guinea
- World Future Studies Federation, Rome, Italy

##### Project on Socio-cultural Development Alternatives in a Changing World

- National Centre of Scientific Research, Paris, France (co-ordinating institution)
- Algerian Association for Demographic, Economic and Social Research, Algiers, Algeria
- Caribbean Development and Co-operation Committee, CEPAL Office for the Caribbean, Port of Spain, Trinidad and Tobago
- Centre for Arab Unity Studies, Beirut, Lebanon
- Centre of Development Studies, University of Venezuela, Caracas, Venezuela
- Centre for East Asian Studies, McGill Univer-

- sity, Montreal, Canada
- Centre for Economic and Social Research and Studies, University of Tunis, Tunisia
- Centre of Higher Research, National Institute of Anthropology and History, Mexico City, Mexico
- Centre for Political Studies, School of Social Sciences, Jawaharlal Nehru University, New Delhi, India
- Centre for the Study of the Practices and Representations of Socio-Economic Changes, University of Grenoble, Grenoble, France
- Centre for Studies in Social Sciences, Calcutta, India
- Department of Bengali, University of Chittagong, Chittagong, Bangladesh
- Department of Political and Social Sciences, Complutensian University of Madrid, Madrid, Spain
- Department of Sociology, University of Ibadan, Ibadan, Nigeria
- East Asian History of Science Library, Cambridge University, Cambridge, UK
- Fernand Braudel Center for the Study of Economies, Historical Systems and Civilizations, State University of New York at Binghamton, Binghamton, USA
- Institute of Arab Research and Studies, Cairo, Egypt
- Institute for the History of Arabic Science, University of Aleppo, Aleppo, Syria
- Institute of International Relations for Advanced Studies on Peace and Development in Asia, Sophia University, Tokyo,



world. It is being implemented through a series of international seminars on different aspects of the processes under study—Science and Technology, Economy and Society, Culture and Thought, Philosophy and Religion, History and International Relations, and Civilization Prospectives. The first seminar in the series, on science and technology, was held at the University of Belgrade in October 1979, and the second, on economy and society, in Madrid in September 1980.

The project now has 23 research units in countries in Africa, the Arab world, Asia, Europe, North and South America, the Caribbean, and Oceania. It is co-ordinated from the National Centre of Scientific Research, Paris, France.

Research grants are allocated by the project both for detailed investigation of specific scientific areas as well as to aid forward planning of the project. It publishes a yearly institutional research report, and has also commissioned a number of individual research reports. Three types of publications are now in planning:

a) **Books:** Two volumes will be published for each of the two major international yearly meetings, one a general overview of the meeting, the second, a detailed scientific account;

b) **Booklets:** A series of printed booklets is being developed which will present all institutional and individual research reports in a 100–200 page format. Four are in the publication process;

c) **Research Papers:** All position papers of the major symposia plus a select number of occasional papers will appear in a pre-publication research paper series. Some 24 have already been published, and another 30 are in process.

#### TECHNOLOGY AND DEVELOPMENT Research and Development Systems in Rural Settings

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 R & D systems in the third-world countries, staffed by Western-oriented elites, to evolve independently of the real needs of the masses in rural areas.

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

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

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.

The Manila meeting took up five considerations: a) technological "space"—or the limitations set by the local situation on 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 R & D systems.

#### Japan

- Institute of National Planning, Cairo, Egypt
- Institute of Pacific Studies, University of the South Pacific, Suva, Fiji
- Thai Khadi Research Institute, Thammasat University, Bangkok, Thailand
- University of Belgrade, Belgrade, Yugoslavia

#### Project on Research and Development Systems in Rural Settings

- State University of Campinas, Campinas, São Paulo, Brazil (co-ordinating institution)
- Economic Development Foundation, Rizal, Philippines
- Ethiopian Science and Technology Commission, Addis Ababa, Ethiopia
- Institute for Studies of Rural Development "Maya A.C.," Mexico City, Mexico

#### Project on Sharing of Traditional Technology

- Marga Institute, Colombo, Sri Lanka (co-ordinating institution)
- Consumers Association of Penang, Penang, Malaysia
- Development Research and Communication Group, Kathmandu, Nepal
- Institute Dian Desa, Yogyakarta, Indonesia
- Institute of Philippine Culture, Quezon City, Philippines
- Research Institute for Oriental Culture, Gakushuin University, Tokyo, Japan
- Thai Khadi Research Institute, Thammasat University, Bangkok, Thailand

#### Project on Technology Transfer, Transformation, and Development: The Japanese Experience

- Institute of Developing Economies, Tokyo, Japan (co-ordinating institution)
- Bunka College of Fashion, Tokyo
- College of Education, Akita University, Akita
- College of Education, Oita University, Oita
- College of General Education, University of Tokyo, Tokyo
- College of Social Work and Sociology, Meiji Gakuin University, Tokyo
- Department of Agriculture, Saga University, Saga
- Department of Agriculture, University of Tokyo, Tokyo
- Department of Commerce, Doshisha University, Kyoto
- Department of Law and Economics, Aichi University, Toyohashi
- Department of Social Sciences, Tsukuba University, Tsukuba
- Faculty of Arts, Rikkyo University, Tokyo
- Faculty of Commerce and Economics, Chiba University of Commerce, Ichikawa
- Faculty of Commerce and Economics, Senshu University, Kawasaki
- Faculty of Economics, Dokkyo University, Soka
- Faculty of Economics, Keio University, Tokyo
- Faculty of Economics, Kokugakuin University, Tokyo
- Faculty of Economics, Komazawa University, Tokyo

- Faculty of Economics, Tohoku University, Sendai
- Faculty of Engineering, University of Tokyo, Tokyo
- Faculty of Law, Senshu University, Tokyo
- Faculty of Political Science and Economics, Hiroshima University, Hiroshima
- Faculty of Social Sciences and Humanities, Tokyo Metropolitan University, Tokyo
- Faculty of Sociology, Momoyama Gakuin University, Sakai
- Faculty of Sociology, Toyo University, Tokyo
- Hyogo University of Education, Hyogo
- Institute of Economic and Industrial History, Tokyo
- Institute of Economic Research, Hitotsubashi University, Tokyo
- Institute of Social Science, University of Tokyo, Tokyo
- Japan Library Association, Tokyo
- Junior College of Commerce, Niigata University, Niigata
- Land Utilization Section, Department of Farm Management and Land Utilization, National Institute of Agricultural Sciences, Tsukuba
- National Research Institute of Agriculture, Ministry of Agriculture, Forestry and Fishery, Tokyo
- School of Political Science and Economics, Waseda University, Tokyo
- Toita Women's Junior College, Tokyo
- Tokyo University of Foreign Studies, Tokyo

### Sharing of Traditional Technology

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

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

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, must 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.

There are three initial stages to this project: 1) study of traditional technologies in their social settings; 2) assessment of these technologies in their social setting to determine their appropriateness as instruments for development; and 3) the actual process of transformation of these technologies.

The future operational strategy of the work will include: a) dissemination of the information obtained from the analysis of individual village studies to all 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) development of a communications system which can deliver information of direct, practical use at the village level.

This project is being co-ordinated through the Marga Institute in Sri Lanka. In addition to Sri Lanka, villages being studied in the project are located in Malaysia, Nepal, Indonesia, Japan, the Philippines, and Thailand.

### Technology Transfer, Transformation, and Development: The Japanese Experience

This project is unique among UN University projects in that it is centred in 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 of third-world development thinkers in Japan's experience. 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?

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 the data is being gathered and initially evaluated in Japan, by a network of research units in 36 institutions throughout the country, it is also being evaluated, increasingly over the last year, by non-Japanese scholars.

In the year under review, two meetings were held involving both Japanese and developing-world scholars: one in Tokyo, Japan, in February, and one in Addis Ababa, Ethiopia, in May (held jointly with the projects on Sharing of Traditional Technology and R & D Systems in Rural Settings). Attention has been directed at identifying 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.

The first phase of this project has now been completed. The focus thus far has been primarily on aspects of "hard technology" in Japan's development during the late nineteenth and early twentieth centuries (such as the crea-

tion 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.

A total of 25 research papers has been completed to date in Japanese; fourteen of these are now available in English translation. The project is co-ordinated through the Institute of Developing Economies in Tokyo.

### Projects in Planning Stage

The Human and Social Development Programme has two projects now in the planning stage, both of which had meetings in the past year. The two are:

**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 multi-cultural 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.

**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. Four planning groups are already at



"The Japanese planned from the start to take over railway construction and operation themselves as soon as possible. Therefore, they could ill afford to take a detached view of railways as simply representing a form of imported technology. In the case of railways, as in other fields, acquisition and mastery of technology became the top priority." From "Japan's Discovery, Import, and Technical Mastery of Railways," a research paper by Katsumasa Harada for the Japanese Experience project. Above, the first train service between Tokyo and Yokohama, completed in the 1870s.

# Report

## OF THE COUNCIL OF THE UNITED NATIONS UNIVERSITY 1979-1980

The Council reports annually to the General Assembly, the Economic and Social Council and the Executive Board of UNESCO, through the Secretary-General of the United Nations and the Director-General of UNESCO, respectively.

The General Assembly voted in December 1972 to establish the United Nations University and adopted its Charter 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<sup>1</sup> with an overview of the University's first five years.

### The First Five Years

The Council noted the satisfactory progress that had been achieved by the United Nations University in the short period corresponding with the term of the first Rector, Dr. James M. Hester: the University has been organized into an operational institution with an established centre and an extensive international system of 19 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 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 26 associated institutions and some 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"; the University now has 240 Fellows<sup>2</sup>, 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; and the University has engaged in fruitful collaboration with UN Headquarters, UNESCO, UNITAR, WHO, FAO, UNEP, UNDP, UNICEF, and other agencies and institutions of the UN system and with a number of scientific organizations.

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.

At the fifteenth Council session . . . Dr. Hester reviewed the development of the University under his five-year rectorship, enumerating what in his view are the principal accomplishments to date, the unfinished business, the difficulties encountered, and the possibilities for further growth and development. Following his review, the Council unanimously adopted a resolution of appreciation for Dr. Hester's leadership.

### Accomplishments of 1979-1980

In reviewing the "Rector's Report to the Council," the Council once more drew attention to the progress achieved by the University during the past year. Specifically, during 1979-1980:

(a) Three more institutions of higher education<sup>3</sup> became associated institutions of the University, . . . bringing the total number to 26. Of these 18 are in developing countries and 8 in industrialized countries . . . . At its fifteenth session the Council approved the University's association with two

more institutions.

(b) Close to 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 UNU Fellows completed their training during the year, thus bringing the total of UNU-trained Fellows to 110. A recent survey shows that a large majority of them are 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 UNU Fellows were already receiving training and conducting research or waiting 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 bioconversion of organic residues for rural communities jointly organized by the World Hunger Programme and the Natural Resources Programme. During the third Joint Programme Advisory Committee Meeting, 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) One new research and training network was added, bringing the total to nineteen: 4 in the World Hunger Programme, 5 in the Human and Social Development Programme, and 10 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 1979-1980. The University published 116 books, periodicals, and papers: 4 issues of the periodical **Food and Nutrition Bulletin**; 11 issues of the periodical **ASSET (Abstracts of Selected Solar Energy Technology)**; 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.; 93 research reports; and 2 internal programme publications.

### The Three Programmes

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.

#### World Hunger Programme

The World Hunger Programme became operational in 1976. By June

<sup>1</sup> This report covers the period from 1 July 1979 to 30 June 1980.

<sup>2</sup> Including 50 Special Fellows

<sup>3</sup> Includes the Chinese Academy of Sciences, Beijing, People's Republic of China (formal agreements signed July 1980).

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.

There were 65 regular Fellows in training or waiting to start training as of June 1980. The total number of regular Fellows already trained or in training is 146. In addition there were 37 Special Fellows, 23 of whom have already completed their training. Joint fellowships with the Programme on the Use and Management of Natural Resources have been established and others are being discussed with the Human and Social Development Programme.

Research and training activities are 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. Eleven scientific workshops were organized, in which some 500 scholars participated.

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

The World Hunger Programme continues to participate fully in the Sub-Committee on Nutrition of the Administrative Committee on Co-ordination of the United Nations (ACC-SCN). During the year, the programme 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 has been asked to organize similar missions to Senegal, Cameroon, the Ivory Coast, Zaire, Angola, and Mozambique.

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.

Particularly significant is the research being conducted in the area of nutritional requirements, with UNU support, utilizing methodology proposed by a UNU-sponsored working group of the International Union of Nutritional Sciences (IUNS). A network with units in 11 developing countries is obtaining data for a revision of existing FAO/WHO protein-energy recommendations, planned for 1981 with UNU participation. The results suggest that the current estimate of a safe protein allowance for adults is 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 tends to underestimate the need for protein from poor diets. In the case of children, a UNU-supported workshop has assembled original data showing that present protein and energy allowances do not meet the need for catch-up growth after episodes of infection. These important results are being published as monographs.

With support from WHO, the University, and other sources, UNU associated institutions have been in the forefront of research demonstrating that iron deficiency reduces work capacity, lowers cell-mediated immunity to infection, and decreases test performance of schoolchildren. UNU-supported research at the Venezuelan Institute of Scientific Research (IVIC) and the Institute of Nutrition and Food Technology (INTA) is 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—is now in large-scale field testing by the Institute of Nutrition of Central America and Panama (INCAP).

#### **Human and Social Development Programme**

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

Work has continued in its five main projects. Research on goals, processes, and indicators of development is being conducted in 20 countries; on socio-cultural development alternatives in a changing world in 20 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. In 1979-1980 the programme held 28 scientific workshops and seminars organized by the five 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 sixteenth session, 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 is studying the possibility of holding similar regional meetings in Africa and China in the near future.

The programme has 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 Sciences and Their Applications 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 is to be organized jointly by the University and UNESCO in Ulan Bator, People's Republic of Mongolia, from 19 to 23 August 1980.

The projects within the sub-programme on Technology and Development are examining and re-evaluating the currently predominant approach to technological development based principally on technology transfer from the industrialized to the developing countries.

The Research and Development Systems in Rural Settings project is developing a methodology for identifying the R & D components of rural community problem-solving through interaction between natural and social scientists and peasants. New insights have been acquired into the socio-economic conditions obstructing the peasants' participation in the choices of technology in their communities.

The Sharing of Traditional Technology project questions the assumption that modern technologies are the only instruments of development, studies how traditional technologies have become sub-optimal under the impact of modern technologies and cultural influences, and seeks preconditions for the sharing and improvement of traditional technology. It is 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 insensitive to climatic conditions and the cost of building materials.

The scholars in the project on Technology Transfer, Transformation, and Development: The Japanese Experience are considering the way 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 is 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.

The sub-programme on Problems of Development surveys existing theories and proposes new ones leading to alternative strategies for development. Its two projects have already produced some propositions and a series of case studies examining the predominant assumptions underlying present development planning methodology.

The project on Goals, Processes, and Indicators of Development is working on, among other problems, determining the parameters of "needs research" (a new field proposed to meet a growing interest of development planners) and is 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.

The Socio-cultural Development Alternatives in a Changing World project has produced several case studies examining the conditions of growth of endogenous intellectual creativity in non-western countries.

A series of meetings has 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.

#### **Programme on the Use and Management of Natural Resources**

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

It is conducting research and training activities on integrated energy projects in 2 countries, with projected activities in 3 others; on geothermal energy in 2 countries; on fuel wood in 2 countries; on arid lands in 4 countries, with projected activities in 4 more; on agro-forestry systems in 2 countries, with another projected; on highland-lowland interactive systems in 4 countries, with another projected; on water-land interactive systems in 4 countries, with projected activities in 2 others; on coastal resource management in 1 country, with projected activities in 2 more; and on resource systems theory and methodology in 2 countries, with projected activities in 3 more.

The programme has 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 Chinese Academy of Sciences, Beijing, People's Republic of China, was added in July 1980) has become fully operational with some of the research projects nearing the end of their first phase. Of a total of 42 Fellows, 27 completed their training during the year and 15 are in training as of June 1980. Fourteen workshops were held, with 350 scientists and scholars participating.

Eight major publications have been produced, and **ASSET (Abstracts of Selected Solar Energy Technology)** is being distributed to solar energy scientists in developing countries free-of-charge and those in industrialized countries by paid subscription.

The programme has worked in co-operation with UNESCO, FAO, the United Nations Development Programme, the United Nations Environment

Programme (UNEP), the UN Sudano-Sahelian Office (UNSO), and other bodies, including the International Union of Forest 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).

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

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

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

The Energy Systems sub-programme has concentrated its research efforts on rural energy needs and prospects. It has set out to provide the research and technical support for the construction by the Algerian Government of a village which will derive all of its energy from the natural environment (sun, wind, organic waste material, etc.); the aim has been to explore appropriate methodologies for the development and introduction into rural communities of integrated, decentralized, self-sufficient energy systems that are reliable and that can be constructed and operated using locally available materials and skills. Detailed studies analysing the present energy supply and consumption patterns in the humid tropics underline 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.

In the Arid Lands sub-programme, several important assessment studies have been published or are in the process of publication. These demonstrate 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 are probably more important than the sheer knowledge of the conditions and requirements of ecological viability which already exist.

The work on bioconversion, being conducted jointly with the World Hunger Programme, is 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 have been produced, and work is progressing on new findings which can be disseminated and tested in various rural situations. It is anticipated that the linkages between village systems and national systems in the field of policy analysis will be explored and strengthened.

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

### Programme Interaction and Coherence

The Council believes that although progress has been made in the interaction of the three programmes of the University in the last two years, there is much room for improvement. The Council assigns great importance to interrelating the programmes and sub-programmes of the University in order to obtain more comprehensive knowledge and perspectives on the global problems that are the concern of the University as provided in article 1 of its Charter. The Council believes 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 are essential for its effectiveness.

### Finance and Fund-raising

The Council noted that the Endowment Fund and Operating Fund 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 (US\$2.3 million), and 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 and/or Operating Fund in the period under review amounted to US\$326,839. Thus far only 29 Member States of the United Nations have contributed to the financial support of the University.

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 par-

ticipated in extensive consultations on the Interim Fund on Science and Technology for Development to obtain support for an expanded programme of fellowships.

At most of its sessions the Council has 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 a resolution (33/108, dated 18 December 1978) 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 UNESCO, 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, in 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 the Government of India), when they were collecting information for the study they were asked to undertake in response to the General Assembly's resolution.

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 on Fund-raising Efforts for the United Nations University—Note of the Secretary-General" (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 has given full consideration to the Report and the Note of the Secretary-General and, in doing so, was 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"<sup>4</sup>. The Council is grateful to the two consultants who prepared their study analysing the problems confronting the University and its sponsoring organizations, as spelled out in their terms of reference.

In particular, the Council welcomes the statements contained in paragraph 39 of the Secretary-General's "Report on Fund-raising Efforts for the UNU,"<sup>5</sup> and the fund-raising possibilities explored in paragraph 40 of the Report<sup>6</sup> which are generally endorsed by the Secretary-General and the Director-General in paragraph 11 of the Note of the Secretary-General preceding the Report. The suggestions presented under subparagraphs (d), (e), and (f) of paragraph 40 appear 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

<sup>4</sup> (A/34/654, paragraph 4)

<sup>5</sup> "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 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."

<sup>6</sup> 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 UN 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 UN bonds arising from financing costs of Congo operations (the UN 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 UNCTSD.

freedom or autonomy. The Council is inclined to believe that the suggestions contained in paragraph 38 offer the basis for an exchange of views amongst the Member States towards enhancing the Endowment Fund of the University.

However, the Council is 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 believes that it is not the proper time to carry out the suggestions under sub-paragraphs (a) and (b). The Council believes that contributions to the funding of the University should be on a voluntary basis.

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

In its resolution A/RES/34/112, the General Assembly noted that "while gratifying progress has been made during the year in fund-raising, the results have not yet proved sufficient to support the programmes of the United Nations University at an adequate level." This is the fundamental problem with which both the sponsoring organizations and the University are confronted. Most Member States have not yet given their financial support to the University although a majority of them voted for its establishment. The Council deeply appreciates the concern of the General Assembly and the helpful intent of the consultants' study and urges the University's sponsoring organizations to respond positively to the suggestions endorsed by the Council. The Council also hopes that Member States of the United

Nations will 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."

As far as the United Nations University itself is concerned, it should be understood that, aside from its deep concern with fund-raising, the University is 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 has extended its problem-oriented networks and held a number of scientific meetings. It has also greatly intensified its programme publications.

#### Initiation of Medium-term Planning

The Council initiated the process of medium-term planning during the past year. At its fifteenth session, the Council discussed a "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 is to provide 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.

In view of the appointment of the new Rector, 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.

### Council Members

#### Appointed Members

- Dr. (Mrs.) Ines Wesley-Tanaskovic, UNESCO National Commission of Yugoslavia and Professor of Informatics, Medical Academy, Belgrade, Yugoslavia (Chairman of the Council)
- \* Dr. Jacob Festus Ade-Ajayi, Professor of History, University of Ibadan, Ibadan, Nigeria; former Vice-Chancellor, University of Lagos (former Chairman of the Council, 1976-1977)
- 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; and former Vice-President, Philippine Women's University (Vice-Chairman)
- Dr. Pawel Bozyk, Professor of Economics, Central School of Planning and Statistics, Warsaw, Poland
- \* Lord Briggs, Provost, Worcester College, Oxford University, Oxford, UK
- Dr. Carlos Chagas, Director, Institute of Biophysics, Federal University of Rio de Janeiro, Rio de Janeiro, Brazil (Vice-Chairman)
- Dr. Wilbert Kumalija Chagula, Ambassador, Permanent Mission of Tanzania to the United Nations in Geneva; and former Principal, University College, Dar-es-Salaam, Tanzania
- Dr. Jean Coulomb, former President, Academy of Sciences, Paris, France (Vice-Chairman)
- Dr. Shams E. El-Wakil, Ambassador, Permanent Delegate of the Arab Republic of Egypt to UNESCO, Paris, France; former President, Arab University of Beirut (Vice-Chairman)
- \* Dr. Roger Gaudry, President, International Association of Universities, Montreal, Canada; former Rector, University of Montreal (former Chairman of the Council, 1974-1975)
- \* Dr. Hans Löwbeer, Director-General, National Board of Public Building, Stockholm, Sweden; former Chancellor of the Swedish Universities
- Dr. Felipe E. MacGregor, Rector Emeritus and Professor of Ethics, Catholic University, Lima, Peru
- \* Mr. Yoshinori Maeda, former President, Japan Broadcasting Corporation, Tokyo, Japan
- Dr. Abdelsalam Majali, Member, Board of Trustees, University of Jordan; former Professor and President, University of Jordan; and former Minister of Education, of State for Prime Ministry Affairs, of Health, Amman, Jordan (Chairman, Committee on Finance and Budget)
- Prof. Malu wa Kalenga, Commissioner of Nuclear Sciences and Director, Kinshasa Regional Centre for Nuclear Studies, National University of Zaire, Kinshasa, Zaire (Vice-Chairman)
- \* Dr. Antonio E. Marussi, Professor of Geodesy, Institute of Geodesy and Geophysics, University of Trieste, Trieste, Italy
- \* Dr. Majid Rahnema, Resident Representative, United Nations Development Programme, Bamako, Mali (Chairman, Committee on Programme and Institutional Relations)
- \* Dr. Marcel Roche, Investigador Titular; former Director, Venezuelan Institute of Scientific Research, Caracas, Venezuela (former Chairman of the Council, 1978)
- \* Dr. Seydou Madani Sy, Rector, University of Dakar, Dakar, Senegal (Vice-Chairman)
- Dr. Stephan Verosta, Professor of International Law, International Rela-

tions and Jurisprudence, University of Vienna, Vienna, Austria

\* Dr. Edward W. Weidner, Chancellor, University of Wisconsin, Green Bay, Wisconsin, USA

\* Dr. (Miss) Keniz Fatima Yusuf, former Secretary, National Education Council, Ministry of Education, Islamabad, Pakistan

#### Appointed Members (1980-1986)

- Prof. Ungku Abdul Aziz, Vice-Chancellor and Royal Professor of Economics, University of Malaya, Kuala 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, USA
- Dr. Satish Chandra, Chairman, University Grants Commission, New Delhi, India; Professor and former Dean, School of Social Sciences, Jawaharlal Nehru University
- Dr. Vally Charles Diarrassouba, Rector, National University of the Ivory Coast, Abidjan, Ivory Coast
- Dr. Dennis H. Irvine, Vice-Chancellor and Principal, University of Guyana, and Chairman, Guyana National Science Research Council, Georgetown, Guyana
- Prof. André Louis Jaumotte, President of the Council, Free University of Brussels, Brussels, Belgium
- Prof. Dr. Reimut Jochimsen, Minister for Economics and Transportation, State of North Rhine-Westphalia, Düsseldorf; Professor of Economics, University of Kiel; former Minister for Science and Research, Federal Republic of Germany; and former member of the UN University Council (1974-1977) (Chairman, Committee on Programme and Institutional Relations)
- Dr. F.S.C.P. Kalpage, Secretary, Ministry of Higher Education; Chairman, University Grants Commission; and Vice-Chairman, National Science Council, Colombo, Sri Lanka
- Sir John Kendrick, Director-General, European Molecular Biology Laboratory, Heidelberg, Federal Republic of Germany; former Secretary-General, International Council of Scientific Unions
- Dr. Karl Eric Knutsson, Secretary-General, Swedish Agency for Research Co-operation with Developing Countries (SAREC), and Professor, Stockholm University, Stockholm, Sweden
- Mr. Shizuo Saito, Council Member, United Nations Institute for Training and Research (UNITAR); member, National Commission of UNESCO; and President, Foreign Press Center of Japan, Tokyo, Japan
- Prof. Victor L. Urquidi, President, El Colegio de Mexico, Mexico City, Mexico; former member of the UN University Council (1974-1977)

#### Rector

Dr. James M. Hester\*\*

#### Ex officio Members

- Mr. Kurt Waldheim, Secretary-General, United Nations, New York, USA
- Mr. Amadou Mahtar M'Bow, Director-General, United Nations Educational, Scientific and Cultural Organization, Paris, France
- Dr. Davidson Nicol, Executive Director, United Nations Institute for Training and Research, New York, USA

\* Term of office expired on 2 May 1980

\*\* Soedjatmoko as from 1 September 1980



In the view of many development thinkers, past strategies based on one Western-oriented "centre" model have ignored many other cultural strands that can enrich the human existence. A project of the Human and Social Development Programme is probing different concepts of human fulfilment as expressed in various civilizations. It brings together seminal thinkers from alternative schools of thought in an attempt to mobilize the potential for intellectual creativity in hitherto marginalized sectors of society.

work in Asia, Africa, Latin America, and the Arab region.

A task force in the Arab region has drawn up plans for alternative futures in that part of the world. A detailed project proposal will be presented to the UN University Council in December 1980. A regional task force meeting to examine the Latin American approach to the New International Economic Order was held in Havana, Cuba, in May 1980. The programme plans to hold similar regional meetings in Africa and China.

#### Co-operation with Other UN Agencies

The programme has continued to maintain close links with other United Nations organizations. A mechanism was established for consultation between the University and the Social Sciences and Their Applications sector of UNESCO, and the first meeting was held in

Paris, France, in May 1980. A seminar on the role of new theoretical conceptions in the process of development was organized jointly by the University and UNESCO in Ulan Bator, People's Republic of Mongolia, in August 1980.

#### Publications

##### Research Papers\*

##### Project on Goals, Processes, and Indicators of Development

"On the Decline and Fall of Empires: The Roman Empire and Western Imperialism Compared", *Johan Galtung, Tore Heiestad, and Eric Ruge*

"An Issues Paper Contributed by the Food

\* 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.

- Study Group", *Susan George*
- "Development Theories in the Social Looking-glass: Some Reflections from Theories to 'Development'", *Gilbert Rist*
- "Towards a Model of Human Growth", *Telma Nudler*
- "Cultural Identity, Self-Reliance, and Basic Needs", *Roy Preiswerk*
- "Basic Human Needs: Methodology and Mobilization", *Patrick Healey*
- "Global Militarization and Its Remedy", *Hiroharu Seki*
- "Global Social Democracy and the New International Economic Order", *Fawzy Mansour*
- "Notes for an Epistemology of Holism", *Oscar Nudler*
- "Scientific Revolution and Inter-paradigmatic Dialogues", *Kinhide Mushakoji*
- "Aspects of the Iranian Revolution", *M. Taghi Farvar*
- "Preliminaries on a Comparative Analysis of the Various Viewpoints on the Quality of Life", *M.C. Botez, I. Ionescu Sisesti, A.M. Sandi and A. Vasilescu*
- "The Organizational Context of Development: Illuminating Paths for Wider Participation", *Chadwick F. Alger*
- "About Critical Group Size", *Yona Friedman*
- "Needs — Their Perception and Expression: The Sri Lanka Experience", *E.L. Wijemanne and Earl Wanigasekera*
- "Representation, Comprehension and Communication of Sets: The Role of Number", *Anthony J.N. Judge*
- "Economic Indicators and the GPIID: An Attempt to Bring Economics Back into the Church without Losing the Faith", *Kimon Valaskakis and Iris Martin*
- "Approaching the Peculiarity of the Caribbean Plight within the Paradox of the Representative State in the Contemporary World-System", *Herb Addo*
- "The African Personality", *Bennie A. Khoapa*
- "Negative and Positive Sides of Norwegian Life Style: An Empirical Assessment of Overdevelopment", *Dag Poleszynski*
- "Attitudes of the Dutch Population on Alternative Life Styles and Environmental Deterioration", *Peter Ester*
- "Dominant and Alternative Life Styles in Poland: An Outline", *Andrzej Sicinski*
- "Austria in the Year 1979: How Austria Weathered the Economic Storm of the Seventies", *Lore Scheer and Fred Prager*
- "Ways of Life in Finland", *Barbara and J.P. Roos*
- "The Quaternary Sector", *Yona Friedman*
- "The Nature and Future of Development in New Zealand", *David C. Pitt*
- "Dominant Ways of Life in Denmark", *Kai Lemberg*

#### Project on Socio-cultural Development Alternatives in a Changing World

"Intellectual Creativity in Endogenous

Culture", *Takeo Kuwabara*  
 "Endogenous Intellectual Creativity in the Social Sciences", *K.J. Ratnam*  
 "On the Social Transformation of China's Minority Nationalities", *Fei Hsiao-tung*  
 "Endogenous Creativity and the New International Economic Order", *Le Thành Khôi*  
 "Endogenous Intellectual Creativity: The Ethos of the Composite Culture of India", *Rasheeduddin Khan*  
 "The Concept of Specificity: Positions", *Anouar Abdel-Malek*  
 "Folk Religion and Spiritual Belief in Modernizing Japan", *Yoshio Yasumaru*  
 "The Dialectics between Response to Exogenous and Autochthonous Innovation

in India in the 19th and 20th Centuries with Special Reference to Modern Bengal", *Barun De*  
 "Socio-cultural Creativity in the Converging and Restructuring Process of the New Emerging World", *Takdir S. Alisjahbana*  
 "Tradition et Modernité", *Yves Barel, Christiane Arbaret and Jan Dessau*  
 "Pour une Etude de la Transformation des Structures Familiales en Milieu Urbain", *Bruno Ribes*  
 "Social Aspects of Endogenous Intellectual Creativity: The Problem of Obstacles — Guidelines for Research", *Hussein S. Alatas*  
 "Social Aspects of Endogenous Intellectual

Creativity", *Anisuzzaman*  
 "Towards a People-centred Endogenous Intellectual Creativity: Historical Testimony from the Philippines", *Mary Racelis Hollnsteiner*  
 "Endogenous Intellectual Creativity and the Emerging New International Order", *Paul Lin*  
 "Major Asian Intellectual Traditions: Their Philosophy and Creativity", *K. Satchidananda Murty*  
 "Social Aspects of Endogenous Intellectual Activity — Principles of Group Formation in Japan", *Keiichi Sakuta*  
 "The Life and Work of Prince Damrong Rajanubhab (1862—1943) as an Historical Testimony of Endogenous Thai Intellectual Creativity", *Sulak Sivaraksa*  
 "Way of Thinking in Traditional Philosophy — Prospects and Limits", *Keiji Yamada*  
 "The New Universalism — The New Sociability", *Miroslav Pecujlic*  
 "Rationality, Theory, and Experimentation in Ayurvedic Medicine", *Gananath Obeyesekere*  
 "Endogenous Intellectual Creativity: Reflections on Some Etic and Emic Paradigms", *A.N. Pandeya*  
 "Legal Aspects of the Transfer of Technology in Modern Society", *Vesna Besarović*  
 "Nuclear Energy in Latin America: The Brazilian Case", *Luiz Pinguelli Rosa*



"Children, it follows, are greatly valued in African life, for they are the seal of marriage; it does not matter whether one is talking about traditional or so-called 'modern Africa'. Children are believed to prolong the life of their parents and through them the name of the family is perpetuated." From "The African Personality," a research paper by Bennie A. Khoapa for the project on Goals, Processes, and Indicators of Development which seeks to contribute new insights into problem-solving and new images of a future world.

**Project on Technology Transfer, Transformation, and Development: The Japanese Experience**

(available in English and Japanese)  
 "The Modernization of Metal Mining in Japan", *Fumio Yoshiki*  
 "Town Organizations in Prewar Tokyo", *Hachirō Nakamura*  
 "Technology of Traditional Industry and the Role of Craftsmen", *Shōgo Koyano*  
 "Development of Local Culture and the Irrigation System of the Azusa Basin", *Akira Tamaki*  
 "Irrigation Water Rights Disputes in Japan — As Seen in the Azusa River System", *Isao Hatate*  
 "Land Improvement Investment and Agricultural Enterprises in Japan — As Seen in the Azusa River System", *Naraomi Imamura*  
 "Origin and Development of Iron and Steel Technology in Japan", *Ken'ichi Iida*  
 "Japan's Discovery, Import, and Technical Mastery of Railways", *Katsumasa Harada*  
 "Railway Construction as Viewed from Local Society", *Eiichi Aoki*  
 "The Development of the Eyeglass Industry in Japan", *Tatsuzo Ueda*  
 "Technology and Labour in Japanese Coal Mining", *Nisaburo Murakushi*  
 "Historical Background of Technology Transfer, Transformation, and Development



in Japan", *Takeshi Hayashi*  
 "The History and Future of Rice Cultivation in Hokkaido", *Man'emon Takahashi*  
 "Transformation and Development of Technology in the Japanese Cotton Industry", *Takeo Izumi*

(available in Japanese; English translation of titles)

"Industrialization and Transportation in Japan", *Hirofumi Yamamoto*  
 "Development of Road Construction Technology in Japan", *Ichiro Ishii*  
 "Organization of the Irrigation System of the Hata Canal", *Kenzo Horii*  
 "Technology Transfer in the Japanese Cotton Industry", *Kozaburo Kato*  
 "Irrigation and Local Leaders in the Azusagawa Water System", *Isao Hatate*  
 "History of the Glass Industry in the Early Meiji Era", *Shigeo Kikuura*  
 "Development of Hokkaido and Technology Transfer", *Kiyohide Seki, Tatsu Taniuchi, and Man'emon Takahashi*  
 "Changes in Investment for Land Improvement and Structure of Agricultural Enterprises", *Naraomi Imamura*  
 "Traditional Metal Mining Technology in Pre-Meiji Japan", *Junnosuke Sasaki*  
 "Metamorphosis of Economic Accumulation and Social Change", *Takashi Tomosugi*  
 "Development of River Transportation in Japan", *Hiroshi Masuda*

#### Meetings and Workshops

- \* Consultative meeting with Japanese Scholars, Tokyo, Japan, July 1979
- \* Food Study Group, sub-project meeting, Geneva, Switzerland, July 1979
- \* Dialogues, sub-project meeting, Penang, Malaysia, September 1979
- \* Fourth Hiroshima University symposium on Peace Studies, Hiroshima, Japan, October 1979
- \* The Right to Development at the International Level, the Hague, the Netherlands, October 1979
- \* First International Seminar on Science and Technology in the Transformation of the World, Belgrade, Yugoslavia, October 1979
- \* Fourth Programme Advisory Committee meeting, Tokyo, Japan, November 1979
- \* Human Rights, task force meeting, Tokyo, Japan, November 1979
- \* Research and Development Systems in Rural Settings, project meeting, Manila, Philippines, November 1979
- \* Fifth Programme Advisory Committee meeting, Tokyo, Japan, January 1980
- \* Rights, sub-project meeting, Geneva, Switzerland, January 1980
- \* UNU-Institute for Peace Science Study meeting on the Human and Social Development Programme, Tokyo, Japan, January 1980
- \* Processes in the UN System, sub-project meeting, Geneva, Switzerland, January 1980
- \* Alternative Ways of Life, sub-project meeting, Geneva, Switzerland, February 1980
- \* Alternative Strategies and Scenarios, sub-project meeting, Geneva, Switzerland, February 1980
- \* Symposium on Problems of Assimilation of Foreign Technology, Tokyo, Japan, February 1980
- \* Economic Study Group, sub-project meeting, Geneva, Switzerland, February 1980
- \* Technical Interpretations of the Rise of Capitalism in Europe and the Nature of Traditional Chinese Society: A Comparative Historical and Sociological Study, sub-project workshop, Cambridge, UK, March 1980
- \* Sharing of Traditional Technology, network meeting, Penang, Malaysia, March 1980
- \* Socio-Cultural Political and Economic Prerequisites of Cultural Creativity in Southern Europe, sub-project meeting, Madrid, Spain, March 1980
- \* Joint workshop on Alternative Ways of Life, Visions of Desirable Societies, Visions of Desirable Worlds, and Ecology, Alfaz del Pi, Spain, April 1980
- \* Technology and Development, joint project meeting, Addis Ababa, Ethiopia, May 1980
- \* Energy Study Group, sub-project meeting, Crottorfschloss, Federal Republic of Germany, May 1980
- \* Dictionary Group, sub-project meeting, Warsaw, Poland, May 1980
- \* Concepts/Theories of Development, sub-project meeting, Geneva, Switzerland, June 1980
- \* Forms of Presentation, sub-project meeting, Geneva, Switzerland, June 1980
- \* Non-territorial Systems, sub-project meeting, Brussels, Belgium, June 1980
- \* Les Modernites et leurs Espaces spécifiques, sub-project workshop, Grenoble, France, June 1980

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# PROGRAMME ON THE USE AND MANAGEMENT OF NATURAL RESOURCES

## The Year in Review

- General Agreements of Co-operation signed with the Chinese Academy of Sciences, Beijing, China. The programme now has 10 associated institutions, and a further association with the University of Bern, Switzerland, was approved by the Council (June 1980).
- Twenty new UNU Fellows were appointed, bringing to 29 the total fellowships now awarded by the programme. Five Fellows completed their training during the year; 14 Fellows have now finished training. Thirteen special fellowships were awarded.
- Eleven research and training units began work, bringing to 17 the total of such units linked with NR.
- One new network was established, making a total of ten: integrated energy projects (in 3 countries); renewable energy information (through ASSET, published at UN University headquarters, Tokyo, going to scientists in 80 developing countries); geothermal energy (2 countries); fuel wood (2 countries); assessment of the application of knowledge to arid lands problems (9 countries); agro-forestry systems (2 countries); highland-lowland interactive systems (4 countries); water-land interactive systems (5 countries); coastal resource management (2 countries); and resource systems theory and methodology (2 countries with links to work throughout the other networks).
- Fourteen workshops and meetings were held.
- Eleven technical reports were published.

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: 1) the generation of new knowledge and techniques related to renewable resource use; and 2) the dissemination and application of existing knowledge to selected critical problems of resource use, especially in developing countries.

During its third year of operation, the programme continued its rapid expansion, and began to produce the first tangible results.

Operations were extended to eight more countries—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 on its selected areas of concentration. Despite the diversity of the programme's nine major themes, the links between them have become increasingly apparent and dynamic. Bogor Agricultural University, to cite an example from one of the programme's associated institutions, is not only concentrating on water-land interactive systems but also helping with the coastal resource management project. Similarly, agro-forestry research has fuel wood implications and is thus relevant to studies of energy systems, as well as the physical aspects of highland-lowland interactive systems.

## Perspectives and Activities of the Sub-programmes

The programme's activities are organized into three basic sub-programmes: 1) The Ecological Basis for Rural Development; 2) Assessment of the Application of Knowledge to Arid Lands Problems; and 3) Energy Systems for Rural Communities.

### The Ecological Basis for Rural Development

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

There are four project areas: 1) agro-forestry systems; 2) water-land interactive systems; 3) highland-lowland interactive systems; and 4) coastal resource management.

The common methodology of each project approaches problems 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 multidisciplinary co-operation.

The 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 prepared for publication, and a series of case studies was 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. Studies under way also include a resource systems survey of marginal areas, a detailed survey of resource use in fishing households, and the reclamation of upland areas.

Support is also being provided for the establishment and initial work of the Resource Policy Institute at Chung-Ang University, Seoul, Republic of Korea, and for the establishment of an institute in north-east China, with the Chinese Academy of Sciences in Beijing, which will conduct research and training on agro-ecosystems, beginning in late 1980.

### Agro-forestry Systems

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.

One of the most promising methods for sustaining high productivity while minimizing social and environmental damage is agro-forestry systems, 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.

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. UNU Fellows from Indonesia, Tanzania, Thailand, and Venezuela are already in residence or will be shortly. 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.

Research is also being done on different tree/crop combinations at Chiang Mai University in Thailand; several UNU Fellows from Thailand have been sent to CATIE to reinforce this work. Further possibilities for research and training are being investigated in Cameroon and Papua New Guinea. Together with the International Union of Forest Research Organizations and CATIE, a bulletin on agro-forestry has been launched.

There is also close co-operation with the International Council for Research in Agro-forestry and the International Development Research Centre; both organizations have agreed to co-sponsor a workshop on Agro-forestry Systems in Africa in April 1981—the third regional workshop on this topic. The first workshop concentrated on Latin America, and the proceedings have been published in both English and Spanish; the second brought together South-East Asian scientists in November 1979, and the proceedings of this are also being published.

### Highland-lowland Interactive Systems

In much of the tropics, the highlands have a healthier environment than the lowlands and thus 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.

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: 1) the generation of prototype mountain hazards maps which will be useful for land-use planning, the siting of roads, etc.; 2) an understanding of the cause of landslides and other mountain hazards and the development of management techniques to minimize the problems; and 3) the training of a group of Nepali scientists who are capable of continuing the work on their own, through UNU fellowships and field experience, at the University of Colorado, an associated institution in the US. The University of Bern (Switzerland) has also been playing a key role in this project, and will shortly become an associated institution.

The initial work at Chiang 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 also being carefully monitored through socio-economic surveys.

#### **Water-land Interactive Systems**

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. This project 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.

The associated institution in this network is Bogor Agricultural University in Indonesia, where research is being done on brackish-water



The Natural Resources Programme stresses two needs in stimulating provident and ecologically sound use of the earth's finite resources: 1) the generation of new knowledge about renewable resource use; and 2) the dissemination and application of existing knowledge to critical problems of resource use. Above, hill country of northern Thailand where University research is developing new information about land-use practices that is applicable in many other parts of the world.

fish ponds (**tambak**). The danger is that these delicate systems can be destroyed by careless management policies in the catchment area or adjacent coastal zone. It is hoped that by understanding the complex ecological interactions both within the **tambak** and between the **tambak** and agricultural systems in the uplands, improved management policies can be designed which are applicable to other countries in the region.

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

Supporting work on brackish-water and coastal fisheries is also being organized at the International Centre for Living Aquatic Resources Management in the Philippines. The University of Kagoshima in Japan is serving as a training centre for UNU 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 UNU Fellows as the results of its research project emerge.

### Coastal Resource Management

Given the large number of UN agencies concerned with marine resources and the limitations of staff and funds, the implementation of the coastal resource management project was deliberately slowed until the first three projects 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. By repeating each course in a given region for several years, the project is expected 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.

The first such course began in Indonesia in mid-1979, with field training in 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 interactive 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. Efforts are being made to establish similar programmes in the Middle East and Latin America.

In Fiji arrangements are being completed for



Increasing populations and rising demands for food and raw materials press heavily on traditional systems in many developing countries. At Chiang Mai University in Thailand, an associated institution of the Natural Resources Programme, experimental plots are testing agro-forestry combinations, mixing tree and field crops, which could improve production and lessen environmental damage for farmers in the world's humid tropics.

a two-week course on beach systems and their management, and this will be oriented towards decision-makers in the South Pacific region. A monograph on coastal resource management in New Caledonia is planned. A similar study on environmental changes on the coasts of Indonesia is ready for publication.

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

The arid lands of the world (defined to include hyperarid, arid, and semi-arid) cover about one-third of the earth's land 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. The people living in many of these areas 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. Over-grazing 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. The global nature of this problem was highlighted by the United Nations Conference on Desertification in 1977. 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.

The basic assumption of the sub-programme 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.

The sub-programme 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.

Five papers based on these studies have already been published. They deal with a range of arid lands problems. One analyses the development difficulties and successes in the oil-producing Sultanate of Oman and the United Arab Emirates with particular attention to changes in bedouin life-styles. Another reports on a series of studies of how people who are affected perceive desertification, an area which has been little understood. A third examines selected development projects in the Sudan and provides valuable insight into problems of planning and execution of arid lands development projects; it will be the basis for a workshop in early 1981 to be attended by project leaders of the development activities studied.

At the University of Khartoum, the Sudan, the sub-programme's first associated institution,

five studies assessing the problems of applying knowledge are nearly complete. These will be the basis for an evaluation workshop in late 1980 or early 1981. In addition, links with the University of Swansea (UK) and the University of Hamburg (Federal Republic of Germany) are helping to reinforce the activities in the Sudan. A programmatic workshop was held in Hamburg in October 1979 to discuss the evolution of the work of the sub-programme, consider priorities for future research, discuss the structure and operations of an African network, and advise on curricula for training programmes.

The University of New South Wales in Australia is the second associated institution in the network. Its strong links to the Commonwealth Scientific and Industrial Research Organization (CSIRO) are especially valuable; UNU Fellows at the University of New South Wales will be able to visit and work with some of the CSIRO divisions.

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

A workshop was held in Mexico in February 1980 to discuss ongoing work in Latin America relevant to the sub-programme 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 Saltillo, Mexico and Lima, Peru, and a number of potential UNU Fellows were identified. Support is also being provided for bibliographic work at the University of Arizona in the US.

#### Energy Systems for Rural Communities

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. 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 soil and plant resources; 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.

The emphasis in this sub-programme 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 sub-programme, therefore, is 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.

#### Integrated Energy Projects

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

Since different countries and communities



The interlaced water-ways and padi fields to Indonesia are part of one of the most complex and biologically productive of any known resource systems. Efforts to reach a better understanding of the ecology of such an area and help maintain the agricultural productivity are under way in the University's project on water-land interactive systems. Information gained from these studies can help in development of management strategies that can be shared with other parts of the developing world.

have different cultural backgrounds, priorities, and motivational values, as well as different available natural, human, and economic resources, pilot projects will be set up 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. 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.

The first integrated energy project was launched in September 1978 in Algeria, with planning and execution by the National Organization for Scientific Research, an associated institution. An integrated solar village is being planned and constructed at Ain Hanèch in the commune of Ouled-Sidi-Brahim in the Wilaya of M'Sila by the Organization's Research Centre on Architecture and Urban Planning. This project is concerned primarily with architecture, building materials, and energy use, including 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.

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 increase energy demands, particularly for fuel wood, 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.

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.

A sub-programme workshop held in Arusha, Tanzania, in March 1980, was the occasion for exchange of information by participants from more than ten 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 sub-programme network.

Discussions are also under way for the establishment of solar energy training units, with emphasis on rural technologies, in India and

France; fellowship training is expected to begin shortly.

#### Fuel Wood

The single most important energy source in developing countries 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.

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 survey data necessary for effective energy policy formulation and the successful introduction of fuel wood plantations, improved wood stoves and related solar technology. UNU Fellows from countries with similar conditions are working with the project. The Ford Foundation has also been providing support for this project.

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 UNU Fellows with the Ife project.

On a wider scale, a comprehensive study of wood and charcoal use throughout the developing areas of the Eastern Hemisphere is nearing completion, which should clearly indicate the dependence of the rural developing world on wood, and the environmental consequences of this dependence. A similar study in Latin America has now been commissioned through CATIE. The proceedings of the 1978 workshop at the University of Ife was published in early

1980. Another workshop in Bordeaux, France, in May 1980 brought together experts on energy and fuel wood use in rural communities, and these proceedings will also be published.

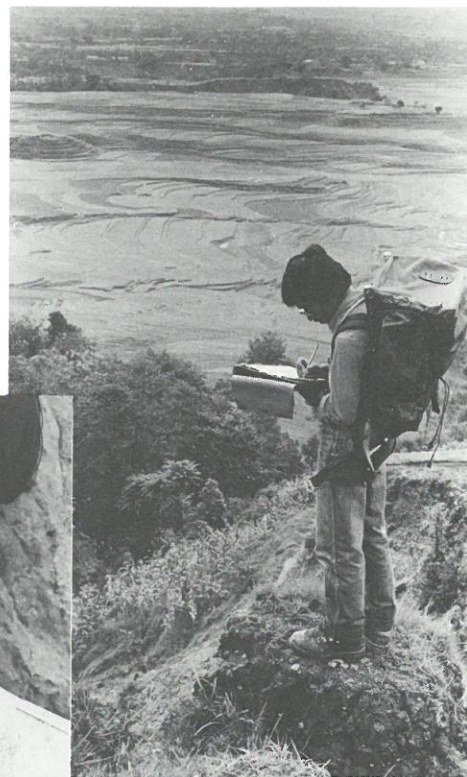
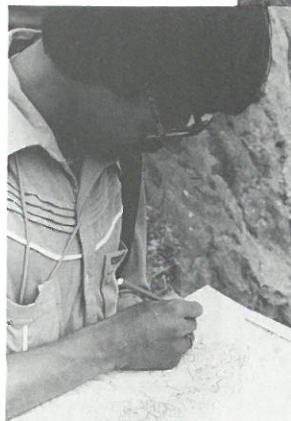
#### Geothermal Energy

With the increased value of energy throughout the world, interest has grown in geothermal energy. But in those developing countries which have a high potential, the expertise necessary for exploitation has generally been lacking. Since 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 in Iceland by the University in co-operation with the National Energy Authority and assisted by the University of Iceland. In 1979 the Government of Iceland contributed about US\$100,000 to the training programme, and a similar contribution is expected in 1980.

This programme consists of a series of eight short courses in geothermics. In the inaugural course in 1979, there were two UNU Fellows from the Philippines and two Special Fellows from China. In the 1980 course, there is a total of six Fellows from China, El Salvador, Honduras, and the Philippines.

The University also sponsors a Standing Advisory Committee on Geothermal Energy

Landslides, avalanches and floods pose serious dangers to the fragile ecosystems of the earth's highlands, such as the "roof of the world" in Nepal. UNU researchers there are developing natural hazards maps, based on American and European techniques, to improve understanding of these natural disasters. UNU Fellow Rabintra Tamrakar, drawing on experience he gained at the University of Colorado, the UNU's associated institution in the American Rocky Mountains, charts information in the Kathmandu Valley of his native Nepal.





The widespread cutting of fuel wood, still the single most important energy source in developing countries, is leading to rapid deforestation and even desertification in many parts of the world. A UNU study in Nigeria is compiling information on patterns of consumption of fuel wood and other energy sources. The survey data will provide guidelines for more effective energy policy formulation and the successful introduction of fuel wood plantations, improved wood stoves and related solar technology. UNU Fellows from countries with similar conditions are working with the project.

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 UN agencies such as UNDP, CNRET, UNESCO, leaders of other UN-sponsored training courses in Italy, Japan, and New Zealand, and managers of geothermal development projects from a number of developing countries.

#### Renewable Energy Information

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 550 scientists and engineers from 80 developing countries are now participating in the **ASSET** information

exchange network which involves, in return for readers receiving **ASSET** free-of-charge, sending in their own scientific contributions for abstracting. 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.

Work is continuing on a series of monographs on renewable energy sources and their utilization. These monographs provide up-to-date information on: 1) the state-of-the-art of these energy technologies and their relevance to developing nations; 2) hitherto neglected tradi-

tional technologies and the principles upon which they operate; and 3) 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.

#### Co-operation with Other UN Agencies

Co-operation with other UN agencies increased 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 UN Sudano-Sahelian Office (UNSO); and the University sponsored, together with UNESCO and the UN, a workshop on coastal zone management in the Caribbean.

#### Publications

- "Development Projects in the Sudan: An Analysis of Their Reports with Implications for Research and Training in Arid Lands Management", *Heinz-Ulrich Thimm*
  - "Proceedings of the Khartoum Workshop on Arid Lands Management" *edited by J.A. Mabbutt*
  - "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*
  - "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)
  - "Rural Energy Systems in the Humid Tropics" *edited by W.B. Morgan, R.P. Moss, and G.J.A. Ojo*
  - "Social and Environmental Aspects of Desertification" *edited by J.A. Mabbutt and A.W. Wilson*
  - "Proceedings of Jakarta Workshop on Coastal Resources Management" *edited by C.F. Bird and A. Soegiarto*
  - "Bedouins, Wealth, and Change: A Study of Rural Development in the United Arab Emirates and the Sultanate of Oman", *Rainer Cordes and Fred Scholz*
  - "Séminaire sur l'Énergie Solaire pour les Communautés Rurales"
  - "Spatial Analysis for Regional Development", *Dennis A. Rondinelli*
  - "Perception of Desertification" *edited by R.L. Heathcote*
- ASSET** (Abstracts of Selected Solar Energy Technology), Volume 1, Number 7 (July 1979) through Volume 2, Number 6 (June 1980)

#### Associated Institutions

**Actual**  
— Bogor Agricultural University, Bogor,

Indonesia

- Chiang Mai University, Chiang Mai, Thailand
- Chinese Academy of Sciences, Beijing, People's Republic of China
- National Energy Authority, Reykjavik, Iceland
- National Organization for Scientific Research, Algiers, Algeria
- Tropical Agricultural Research and Training Centre, Turrialba, Costa Rica
- University of Colorado, Boulder, Colorado, USA
- University of Ife, Ile-Ife, Nigeria
- University of Khartoum, Khartoum, Sudan
- University of New South Wales, Sydney, Australia

**Projected**

- University of Bern, Bern, Switzerland

**Research and Training Units**

**Actual**

- Central Arid Zone Research Institute, Jodhpur, India
- Centre of Excellence in Water Resources Engineering, University of Engineering and Technology, Lahore, Pakistan
- Chung-Ang University, Seoul, Republic of Korea
- Institute of Geography, Chinese Academy of Sciences, Guangzhou, People's Republic of China
- International Center for Living Aquatic Resources Management, Manila, Philippines
- International Institute for Aerial Survey and Earth Sciences, Enschede, Netherlands
- Kagoshima University, Kagoshima, Japan
- National Institute of Oceanology of the Indonesian Institute of Sciences, Jakarta, Indonesia
- National Institute of Science and Technology, Manila, Philippines
- National Planning Commission, Kathmandu, Nepal
- Tanzania National Scientific Research Council, Dar-es-Salaam, Tanzania
- University of Hamburg, Hamburg, Federal Republic of Germany
- University of Kyushu, Fukuoka, Japan
- University of Malaya, Kuala Lumpur, Malaysia
- University of Papua New Guinea, Port Moresby, Papua New Guinea
- University of the South Pacific, Suva, Fiji
- University of Swansea, Swansea, UK

**Projected**

- Agricultural University, La Molina, Lima, Peru
- Autonomous Agricultural University "Antonio Narro," Saltillo, Mexico
- East-West Center, Honolulu, Hawaii, USA

**Meetings and Workshops**

- \* Coastal Zone Management meeting, Jakarta, Indonesia, July 1979
- \* Coastal Zone Management workshop, Jakarta, Indonesia, September 1979
- \* Coastal Zone Management, training seminar, Jakarta, Indonesia, September 1979
- \* Coastal Development and Management of the Caribbean Region workshop (sponsored by the Intergovernmental Oceanographic Commission), Mexico City, Mexico, September 1979
- \* Training and Management for Arid Lands workshop, Hamburg, Federal Republic of Germany, October 1979
- \* Data Systems for Resources Development and Management in Developing Countries meeting, Hamburg, Federal Republic of Germany, November 1979
- \* Agro-Forestry for Rural Communities workshop, Chiang Mai, Thailand, November 1979
- \* World Hunger-Natural Resources programmes international symposium on the Potential of Single-Cell Protein, Tokyo, Japan, December 1979
- \* World Hunger-Natural Resources programmes joint workshop on Bioconversion of Lignocellulosic and Carbohydrate Residues in Rural Communities, Bali, Indonesia, December 1979
- \* Joint Advisory Committee meeting, Tokyo, Japan, January 1980
- \* Arid Lands Management workshop, Saltillo, Mexico, February 1980
- \* Energy/Climate Interactions workshop (co-sponsored with the Umweltbundesamt), Münster, Federal Republic of Germany, March 1980
- \* Energy for Rural Communities workshop, Arusha, Tanzania, March 1980
- \* Fuel and Power to Rural Communities in the Third World workshop, Bordeaux, France, May 1980
- \* Arid Lands Management in Francophone Africa, task force meeting, Paris, France, May 1980

Photo credits: United Nations/Ray Wittin; United Nations/Kay Muldoon; United Nations/C. Srinivasan.



## INTERPROGRAMME ACTIVITIES

Interaction among the three programmes has been encouraged from the start as a logical function of a multidisciplinary 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.

An informal multidisciplinary 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.

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 inter-programmatic 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.

Nonetheless, 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 a cross-disciplinary pursuit of knowledge to illuminate global problems and seek solutions to them.

The most recent meeting of this joint group, in January 1980, discussed seven inter-programme areas in which they considered on-going or prospective activities:

1. Bioconversion of Organic Residues for Rural Communities (World Hunger — Natural Resources programmes);
2. Role of Women in Post-harvest Conservation (World Hunger — Human and Social Development programmes);
3. Technology for Rural Development (Natural Resources — Human and Social Development programmes);
4. Education for Development (Human and Social Development — World Hunger — Natural Resources programmes);
5. World Hunger and the New International Economic Order (World Hunger — Human and Social Development programmes);
6. Energy and Eco-development (Natural Resources — Human and Social Development programmes);
7. Solar Food Preservation (World Hunger — Natural Resources programmes).

### Bioconversion of Organic Residues for Rural Communities

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 pro-



Women play a central role in the food systems of all societies—from production through processing to preparation for individual consumption in the home. A joint study by the World Hunger and Human and Social Development programmes is seeking to improve understanding of the relationships between technology and the role of women in food systems.

tection 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.

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.

A second workshop was held in Bali, Indonesia, in December 1979 on the bioconversion of lignocellulosic 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 was jointly sponsored by the University and the Governments of Indonesia and the Netherlands.

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.

### Role of Women in Post-harvest Conservation

A 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 is being 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 five case studies will be published in booklet form.

### Technology for Rural Development

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.

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 in 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.

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 of the process and diffusion of change will be gained at the micro-level.

#### **Education for Development**

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 coordinating role and the other two programmes actively participate. A September 1979 task force meeting at Sussex University (UK) 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 encompass the work of all three programmes.

#### **World Hunger and the New International Economic Order**

Prospects for University work in this area, involving both the World Hunger and Human and Social Development programmes, were discussed during the Joint Programme Advisory Committee meetings in January. The work would focus on a better understanding of the global processes related to food and their consequences on local demand and consumption patterns, self-reliance, and livelihood. The discussion recognized that the University, as a UN academic institution under no direct government control, has a comparative advantage over other UN bodies in examining these issues which are often contradictory and controversial.

Before launching the project, however, it was recommended that the University commission a study to collect information about various work already under way, in particular essential data from all United Nations agencies. On the basis of this information, the University could then define joint research priorities for further work to be undertaken.

#### **Energy and Eco-development**

The concept of eco-development is based on the harmonization of relationships between the community and its environment. The flow of energy through the eco-system is one of the key sub-systems. From the discussion at the Joint Advisory Committee meetings, a number of

studies of potential value were suggested. It was noted that the Natural Resources Programme already has research under way on various resource systems. While social scientists are already incorporated in this research project, it was felt that the inclusion of the perspective of the Human and Social Development Programme would be particularly beneficial. New joint studies could consider, for example, the consequences of environmental change on income levels, mobility, and socio-economic inequalities. Others might focus on the political and economic issues which affect the availability of fuel and energy on a global scale.

It was felt that consideration should be given to establishing small teams to prepare more detailed reports on potential studies, which could then form the basis for discussion at a joint workshop between the two programmes.

#### **Solar Food Preservation**

After hearing a presentation of a proposal for a joint World Hunger-Natural Resources programmes project on solar food preservation, it was recommended that further study was needed to ensure that crop drying is a valid scientific activity for the University to support. If this proved to be the case, the engineering aspects as applied to rural agrarian societies might be a suitable joint project. A survey of institutions now engaged in research on solar crop drying should be conducted so that an appropriate selection might be made of those meriting support.



Bioconversion, the process by which microbe reaction can produce fertilizer, animal feed, or, as above, biogas for cooking fuel, is a common denominator in the concerns of both the World Hunger and Natural Resources programmes—with important implications for increasing food and energy supplies in rural areas of the developing world. Joint project activities in this field include support for a village bioconversion project in India and a study of the bioconversion of cellulosic residues into sugars in Chile. The network of activities will be expanded in 1981, particularly in the field of biogas.

# DISSEMINATION OF KNOWLEDGE

The group of experts who met at UN University headquarters in early 1977 to consider the University's appropriate role in the dissemination of knowledge characterized the problems it faced:

"Surveying the field of scholarship as a whole, we see groups and individuals scattered all over the globe. They usually know little of what each other is doing, outside of their particular country, language and discipline. Their grasp of the range of sources of information is often seriously incomplete. Their access to policy-makers is more or less distant. They tend to write for a few colleagues in a language too esoteric for the general public or even scientists in other disciplines. As the generation of knowledge accelerates . . . it takes longer and longer for new knowledge to be diffused and applied."\*

It is often assumed that once new knowledge is available it naturally flows to useful outlets: in fact, as the experts clearly suggested, the reverse is more frequently true—much of the world's knowledge lies unused behind dams of ignorance, indifference and inefficiency. A particularly crucial problem is the imbalance in the sources and distribution of knowledge, with far too little coming from the third world and reaching other developing as well as industrialized countries.

The University's dissemination of knowledge activities (one of its three major functions along with research and advanced training) have thus far responded to the concerns expressed by the 1977 expert group in several ways:

1. **Networks** The linkages established by the University with associated institutions and individual scholars through its 19 operating networks provide a means of communicating knowledge generated by University projects far more widely and rapidly than the traditional route of publication in scholarly journals. The networks especially provide opportunities for third-world scholars, who might otherwise be isolated, to be in direct touch with colleagues in the same field elsewhere in the world, sharing information as the research progresses.

2. **Workshops and Seminars** The University organizes and sponsors workshops and seminars throughout the world on specific topics of timely importance. Topics such as alternative energy strategies for the future, nutritional policy implications for decision-makers, or appropriate technology transformation for development are representative of workshop themes in each of the three programmes. These meetings bring together scientists, scholars, and policy-makers from many cultures, disciplines, and regions for an open exchange of views in an academic setting. During the past year, the University sponsored some 78 meetings, in 25 countries, with more than 1,370 participating scholars.

3. **Publications** The flow of publications over the past year reflects the considerable quantity of research data now being generated by the networks. Two regular UN University periodicals are being published—the **Food and Nutrition Bulletin** and **ASSET (Abstracts of Selected Solar Energy Technology)**. Both are helping scientists around the world, but particularly in the developing countries, to stay abreast of the work of their colleagues in these fields. The University's series of technical publications—proceedings of workshops, seminars, and symposia or reports of research projects underwritten by the University—further helps to stimulate dialogue in the international academic community.

The co-ordination, production, and distribution of the University's programme publications are the responsibility of the Academic Services division, which, in the year under review, issued some 116 publications. (For complete publication listings, see pp. 9-10, 17-18, and 24.)

The work of Information Services in the dissemination of knowledge is directed to two needs. The first is the general need to increase world-wide awareness and understanding of the University among opinion-formers and policy-makers. The second need flows from the first—the necessity to transform knowledge in order to speak directly and intelligibly to a diverse audience. This audience includes not only those who shape and implement policy, but also scholars across a broad range of disciplines—a point stressed by the expert group on dissemination of knowledge in commenting that scholars "tend to write for a few colleagues in a language too esoteric for the general public or even scientists in other disciplines."



Important components of the University's dissemination of knowledge activities are the workshops and seminars which it organizes and sponsors throughout the world—bringing together scientists from many cultures and disciplines. Above, geographers from Thailand, Kenya, Australia and US discuss land use practices with Chinese colleagues during a UNU workshop visit to a marshland reclamation area in China's northeastern Heilongjiang Province.

Information Services approaches this task in a variety of ways. One important vehicle is the **UNU Newsletter** and its supplement "Work in Progress," published quarterly in English, French, Spanish, and Japanese. Material in the **Newsletter** is selected and edited to provide a general account of UN University policies and activities for a diverse world-wide readership. "Work in Progress," which has been developed over the past year, presents excerpts from publications, reports, working papers, and other University sources and comments on their significance for policy-makers. Already its impact can be measured in the growing number of requests for full reports of material excerpted in its pages.

Another major vehicle for transformation and dissemination of knowledge is **Development Forum** which the University began to co-publish with the Department of Public Information of the UN in March 1980. Information Services is the liaison point with **Development Forum** which has editorial offices in Geneva. It is distributed 10 times a year in English, French, and Spanish.

Through the pages of **Development Forum**, important voices in the development debate are heard—many of them stimulated by their linkages to the UN University's world-wide networks. As is the case with the **Newsletter**, the emphasis is on language that makes knowledge accessible to those who need it most.

In addition to the **Newsletter** and **Development Forum**, Information Services is responsible for a variety of other visual and printed material about the University—including the illustrated annual report and a 16 mm. film, "Networks of Knowledge."

\* From "Report of the Working Meeting on Dissemination," January 1977.

# FUND-RAISING, FINANCE AND BUDGET

During the period July 1979—October 1980, approximately US\$16.4 million was pledged and/or contributed to the University by 23 Governments. New endowment pledges were announced by Mexico and the United Arab Emirates (Mexico also provided an operating contribution). The remaining contributions 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. New contributions to the Operating Fund were also made by Argentina, Ethiopia, Indonesia, Jordan, and Sri Lanka. Pledges to the Endowment and Operating funds from 33 Governments now total US\$143,415,759 of which US\$108,717,799 has been received. A number of other Governments are at present considering pledges and/or contributions to the work of the University.

Contributions in support of specific projects were also received from non-governmental and other sources totalling US\$378,980.

A number of governments, institutions, and others have made indirect contributions in cash and in kind in support of meetings, workshops, and seminars. 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 governments and other sources within their countries.

Two developments bearing on fund-raising efforts that took place in the latter part of 1979 should be mentioned. In furtherance of a resolution adopted at the thirty-third session of the UN General Assembly in September 1978 "to study ways and means to promote awareness and understanding of the programmes and activities of the UN 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 UN 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.

The report of the study sets out very clearly the unique problems in-

## PLEDGES AND CONTRIBUTIONS FROM GOVERNMENTS TO THE ENDOWMENT FUND AS OF OCTOBER 1980\*

	Pledged	Paid
Japan	\$100,000,000 (over 5 years) (September 1973)	\$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)**	4,260,799
Saudi Arabia	5,000,000 (over 5 years) (March 1977)	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)	581,250
Thailand	500,000 (over 5 years) (March 1979)	200,000
Mexico	500,000 (over 2 years) (October 1980)	—
United Arab Emirates	300,000 (October 1980)	300,000
Sweden	231,215 (August 1975)	231,215
Holy See	50,000 (February 1977)	50,000
Jordan	30,000 (September 1980)	30,000
<b>Total:</b>	<b>\$139,999,082</b>	<b>\$105,534,939</b>

\* Some of the pledges are announced in convertible currencies of the respective countries and paid subsequently. The dollar amounts are calculated at the UN exchange rates at the time the pledges are made; however, these dollar amounts are subject to change depending on the UN exchange rate at the time of the actual payments.

\*\* Earmarked for the special section of the Endowment Fund for support of programme activities concerning developing countries.

## PLEDGES AND CONTRIBUTIONS FROM GOVERNMENTS TO THE OPERATING FUND AS OF OCTOBER 1980

	Pledged or Paid
Austria	\$238,800 January 1977
	61,600 October 1977
	72,000 September and November 1978
	65,430 June 1979
	47,040 September 1979
	78,740 June 1980
Sweden	39,370 September 1980
	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
Switzerland*	202,799 January 1980
	191,440 March 1978-June 1980
Netherlands	100,000 July 1976
	100,000 July 1977
	100,000 December 1978
	125,000 Pledged July 1980
	200,000 August 1980
	100,000 July 1977
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
Philippines	25,000 March 1980
	50,000 Pledged June 1978; paid \$30,000
	50,000 Pledged December 1978; paid \$20,000
	20,000 January 1976
Nigeria	20,000 December 1977
	25,000 July 1978
	30,000 June 1979
Greece	35,000 June 1980
	22,087 January 1975
Senegal	24,005 July 1978
	20,000 May 1980
Tanzania	14,750 May 1975
	14,790 November 1975
Ghana	14,790 June 1977
	11,948 September 1980
Mexico	10,000 June 1978
	10,000 March 1979
Malaysia	10,000 Pledged November 1977; paid \$5,183
	10,000 August 1980
Indonesia	10,000 March 1979
	5,000 March 1979
Chile	5,000 Pledged November 1979; paid \$1,000
	5,000 August 1980
Sri Lanka	2,000 July 1979
	1,292 June 1978
<b>Total:</b>	<b>\$3,416,677**</b>

\* Project support

\*\* Actual contributions received amounted to \$3,182,860

volved in building this novel world-wide institution, in establishing its identity, and in communicating this to government and academic leaders the world over, so as to secure financial support for the Endowment Fund. The report makes 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.

Another important development was the University's participation in the United Nations Conference on Science and Technology for Development (UNCSTD) in Vienna in August 1979. 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 UN 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 co-operation with UNDP and the Office of the Director-General for Development and International Economic Co-operations in the UN, 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.

The Planning and Development Division, which is responsible for fund-raising activities, has also intensified discussions with a number of intergovernmental and non-governmental bodies including foundations with a view to obtaining financial support.

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 Division has therefore begun an effort to obtain funds in support of projects from private sources, especially foundations. Missions have already been undertaken to a number of foundations in Europe and the USA, and these will be followed by visits to foundations in other parts of the world.

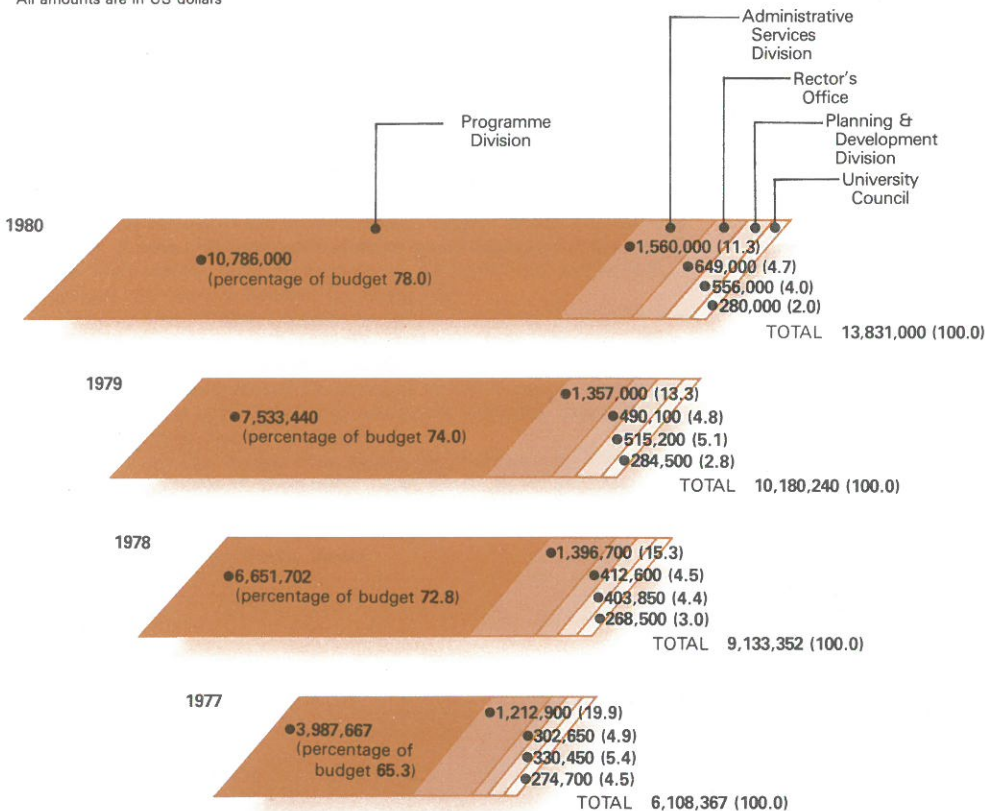
Unlike most United Nations organizations, the University is not financed by annual subventions from the General Assembly or Member States. Income is derived mainly from the Endowment Fund—a funding concept which provides stability for the planning and execution of programme activities, ensures the objectivity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

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.

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.

#### EXPENDITURES

All amounts are in US dollars



# THE PEOPLE OF THE UN UNIVERSITY: PROGRAMME ADVISORY COMMITTEE MEMBERS AND SUB-PROGRAMME AND PROJECT CO-ORDINATORS

## WORLD HUNGER PROGRAMME

### 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, Chairman, Working Group on Nutrition, The Ford Foundation, New York, USA
- Dr. Freda U. Chale, Nutrition Officer (Field Programme), Food Policy and Nutrition Division, Food and Agriculture Organization, 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 Xiang-Chuan, Professor of Nutrition and Adviser, Institute of Military Hygiene, Tienjin, People's Republic of China
- Dr. Mogens Jul, Professor of Food Preservation, Royal Veterinary and Agricultural University, Copenhagen, Denmark
- Dr. Paul Lunven, Deputy Director, Food Policy and Nutrition Division, Food and Agriculture Organization, Rome, Italy
- Dr. H.A.B. Parpia, Principal Adviser, Science and Technology, Agriculture Department, Food and Agriculture Organization, Rome, Italy
- Dr. D. Picou, Chairman, Mount Hope Medical Complex Task Force, Port-of-Spain, Trinidad, West Indies
- \* Dr. Fred T. Sai, Interregional Co-ordinator for Africa, Middle East and Europe
- Prof. Tasho A. Tashev, Director, Institute of Nutrition, Sofia, Bulgaria
- Dr. Roger G. Whitehead, Director, Dunn Nutritional Laboratory, University of Cambridge and Medical Research Council, Cambridge, UK

### Co-ordinators

- Dr. Guillermo Arroyave, UNU Resident Co-ordinator, UNU-WH Interregional Co-ordinator for Western Hemisphere, Institute of Nutrition of Central America and Panama, Guatemala City, Guatemala
- Dr. Josef Brozek, UNU Resident Co-ordinator, the International Food and Nutrition Policy Program, Massachusetts Institute of Technology and the Harvard School of Public Health, Cambridge, Massachusetts, USA
- 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, UNU-WH 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, UK
- Dr. Ricardo Uauy, UNU Resident Co-ordinator, Institute of Nutrition and Food Technology, University of Chile, Santiago, Chile
- Dr. Aree Valyasevi, UNU Resident Co-ordinator, Institute of Nutrition, Mahidol University, Bangkok, Thailand

\* Ex officio member

## HUMAN AND SOCIAL DEVELOPMENT PROGRAMME

### Members of the Advisory Committee

- \* Dr. Anouar Abdel-Malek, Project Co-ordinator
- Dr. Samir Amin, Director, African Institute for Economic Development and Planning, Dakar, Senegal
- 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. 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 of Japan
- \* Mr. Chandra Soysa, Project Co-ordinator
- Dr. Rodolfo Stavenhagen, Assistant Secretary-General for the Social Sciences and Their Applications, UNESCO, Paris, France

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

## UNIVERSITY STAFF

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

#### 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  
Dr. Sanga Sabhasri, Secretary-General, National Research Council of Thailand, Bangkok, Thailand  
Dr. Didin S. Sastrapradja, Deputy Chairman for Natural Resources, Indonesian Institute of Sciences, Jakarta, Indonesia  
Dr. Gilbert F. White, former Director, Institute of Behavioral Science, University of Colorado, Boulder, Colorado, USA  
Dr. Michael J. Wise, Professor, London School of Economics and Political Sciences, London, UK

#### Co-ordinators

- Dr. Eric Bird, Project Co-ordinator for the Project on Coastal Resource Management, Department of Geography, University of Melbourne, Parkville, Victoria, Australia
- Dr. Gerardo Budowski, Project Co-ordinator for the Project on Agroforestry Systems, Head, Natural Renewable Resources Programme, Tropical Agricultural Research and Training Centre, Turrialba, Costa Rica
- Dr. Jack D. Ives, Project Co-ordinator for the Project on Highland-lowland Interactive Systems, Director, Institute for Arctic and Alpine Research, University of Colorado, Boulder, Colorado, USA
- Dr. Maurice Lévy, Project Co-ordinator for the Project on Energy for Rural Communities, Laboratory of Theoretical and High Energy Physics, Pierre and Marie Curie University, Paris, France
- Dr. Jack A. Mabbutt, Project Co-ordinator for the Project on Assessment of the Application of Knowledge to Arid Lands Problems, University of New South Wales, Sydney, Australia
- Dr. G.J. Afolabi Ojo, Project Co-ordinator for the Project on Rural Energy Systems, Department of Geography, University of Ife, Ile-Ife, Nigeria
- Dr. Kenneth Ruddle, Project Co-ordinator for the Project on Water-land Interactive Systems and Consultant, Research Associate, National Museum of Ethnology, Osaka, Japan

#### Office of the Rector

- Dr. James M. Hester, Rector (to 31 August 1980)
- Soedjatmoko, Rector (from 1 September 1980)
- Dr. Michio Nagai, Senior Adviser to the Rector
- Dr. Jose V. Abueva, Secretary of the University

#### Planning and Development

- Dr. Alexander A. Kwapong, Vice-Rector
- Mr. S. Chidambaranathan, Senior Governmental and Institutional Relations Officer
- Mr. Vagn Kjellberg, Governmental and Institutional Relations Officer

#### World Hunger Programme

- Dr. Nevin S. Scrimshaw, Senior Adviser to the Rector
- Dr. Maria A. Tagle, Senior Programme Officer
- Dr. Urban Jonsson, Programme Officer
- Mrs. Rozanne Chorlton, Assistant Programme Officer

#### Human and Social Development Programme

- Dr. Kinhide Mushakoji, Vice-Rector
- Dr. Ponna Wignaraja, Senior Programme Officer
- Dr. Pedro Henriquez, Programme Officer
- Dr. Hossam Issa, Programme Officer

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

- Dr. Walther Manshard, Vice-Rector
- Dr. Anton C.J. Burgers, Senior Programme Officer
- Dr. Richard S. Odingo, Senior Programme Officer
- Dr. Walter C. Shearer, Programme Officer
- Mr. Lee H. MacDonald, Programme Officer

#### Academic Services

- Mr. Shigeo Minowa, Chief

#### Information Services

- Mr. R.A. Fleming, Director
- Mr. John M. Fenton, Writer/Research Officer

#### Administrative Services Division

- Mr. Douglas T. Manson, Director of Administration
- Mr. Rabinder N. Malik, Chief, Conference and General Services
- Mr. Leslie Schenk, Chief, Personnel Services

#### New York Liaison Office

- Mr. Hironobu Shibuya, Chief, Liaison Office, United Nations Headquarters

#### Information Office for Europe

- Mr. C.T. Isolani, Representative, c/o United Nations Information Centre, London

## ASSOCIATED INSTITUTIONS

### WH WORLD HUNGER PROGRAMME

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  
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, USA  
Nutrition Center of the Philippines, Makati, Philippines  
Tropical Products Institute, London, UK  
Universidad del Valle, Cali, Colombia  
Venezuelan Institute of Scientific Research, Caracas, Venezuela  
*Projected*  
University of the West Indies, Jamaica, Trinidad, and Barbados

### HSD HUMAN AND SOCIAL DEVELOPMENT PROGRAMME

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

### NR PROGRAMME ON THE USE AND MANAGEMENT OF NATURAL RESOURCES

Bogor Agricultural University, Bogor, Indonesia  
Chiang Mai University, Chiang Mai, Thailand  
Chinese Academy of Sciences, Beijing, People's Republic of China  
National Energy Authority, Reykjavik, Iceland  
National Organization for Scientific Research, Algiers, Algeria  
Tropical Agricultural Research and Training Centre, Turrialba, Costa Rica  
University of Colorado, Boulder, Colorado, USA  
University of Ife, Ile-Ife, Nigeria  
University of Khartoum, Khartoum, Sudan  
University of New South Wales, Sydney, Australia  
*Projected*  
University of Bern, Bern, Switzerland

## RESEARCH AND TRAINING UNITS

Research and training units of the University are based at the following institutions:

### WH WORLD HUNGER PROGRAMME

National Food Research Institute, Tsukuba, Japan

### HSD HUMAN AND SOCIAL DEVELOPMENT PROGRAMME

*Project on Goals, Processes, and Indicators of Development*

Institute of Development Studies, Geneva, Switzerland (co-ordinating institution)  
Bariloche Foundation, San Carlos de Bariloche, Argentina  
Centre for Policy Research, University of Science Malaysia, Penang, Malaysia  
Centre for the Study of Developing Societies, New Delhi, India  
Committee "Poland Year 2000," Polish Academy of Science, Warsaw, Poland  
Council for the Development of Economic and Social Research in Africa, Dakar, Senegal  
Division of Systems Studies, University of Bucharest, Bucharest, Romania  
El Colegio de Mexico, Mexico City, Mexico  
GAMMA, University of Montreal, Montreal, Canada  
Institute of International Relations, University of the West Indies, St. Augustine, Trinidad  
Institute for Peace Science, Hiroshima University, Hiroshima, Japan  
Marga Institute, Colombo, Sri Lanka  
Max Planck Institute, Starnberg, Federal Republic of Germany  
Mershon Center, Ohio State University, Columbus, Ohio, USA  
Peace Research Institute, Sweden, Göteborg, Sweden  
Science Policy Research Unit, University of Sussex, Brighton, UK  
Union of International Associations, Brussels, Belgium  
United Nations Institute for Training and Research (UNITAR), Geneva, Switzerland  
University of Oslo, Chair in Conflict and Peace Research, Oslo, Norway  
University of Papua New Guinea, Port Moresby, Papua New Guinea  
World Future Studies Federation, Rome, Italy  
*Project on Socio-cultural Development Alternatives in a Changing World*  
National Centre of Scientific Research, Paris, France (co-ordinating institution)  
Algerian Association for Demographic, Economic and Social Research, Algiers, Algeria  
Caribbean Development and Co-operation Committee, CEPAL Office for the Caribbean, Port of Spain, Trinidad and Tobago  
Centre for Arab Unity Studies, Beirut, Lebanon  
Centre of Development Studies, University of Venezuela, Caracas, Venezuela  
Centre for East Asian Studies, McGill University, Montreal, Canada  
Centre for Economic and Social Research and Studies, University of Tunis, Tunisia  
Centre of Higher Research, National Institute of Anthropology and History, Mexico City, Mexico  
Centre for Political Studies, School of Social Sciences, Jawaharlal Nehru University, New Delhi, India

Centre for the Study of the Practices and Representations of Socio-Economic Changes, University of Grenoble, Grenoble, France  
Centre for Studies in Social Sciences, Calcutta, India  
Department of Bengali, University of Chittagong, Chittagong, Bangladesh  
Department of Political and Social Sciences, Complutensian University of Madrid, Madrid, Spain  
Department of Sociology, University of Ibadan, Ibadan, Nigeria  
East Asian History of Science Library, Cambridge University, Cambridge, UK  
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Institute for the History of Arabic Science, University of Aleppo, Aleppo, Syria  
Institute of International Relations for Advanced Studies on Peace and Development in Asia, Sophia University, Tokyo, Japan  
Institute of National Planning, Cairo, Egypt  
Institute of Pacific Studies, University of the South Pacific, Suva, Fiji  
Thai Khadi Research Institute, Thammasat University, Bangkok, Thailand  
University of Belgrade, Belgrade, Yugoslavia  
*Project on Research and Development Systems in Rural Settings*  
State University of Campinas, Campinas, São Paulo, Brazil (co-ordinating institution)  
Economic Development Foundation, Rizal, Philippines  
Ethiopian Science and Technology Commission, Addis Ababa, Ethiopia  
Institute for Studies of Rural Development "Maya A.C.," Mexico City, Mexico

*Project on Sharing of Traditional Technology*

Marga Institute, Colombo, Sri Lanka (co-ordinating institution)  
Consumers Association of Penang, Penang, Malaysia  
Development Research and Communication Group, Kathmandu, Nepal  
Institute Dian Desa, Yogyakarta, Indonesia  
Institute of Philippine Culture, Quezon City, Philippines  
Research Institute for Oriental Culture, Gakushuin University, Tokyo, Japan  
Thai Khadi Research Institute, Thammasat University, Bangkok, Thailand  
*Project on Technology Transfer, Transformation, and Development: The Japanese Experience*  
Institute of Developing Economies, Tokyo, Japan (co-ordinating institution)  
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College of Education, Akita University, Akita  
College of Education, Oita University, Oita  
College of General Education, University of Tokyo, Tokyo  
College of Social Work and Sociology, Meiji Gakuin University, Tokyo  
Department of Agriculture, Saga University, Saga  
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Department of Commerce, Doshisha University, Kyoto  
Department of Law and Economics, Aichi University, Toyohashi  
Department of Social Sciences, Tsukuba University, Tsukuba  
Faculty of Arts, Rikkyo University, Tokyo  
Faculty of Commerce and Economics, Chiba University of Commerce, Ichikawa  
Faculty of Commerce and Economics, Senshu University, Kawasaki  
Faculty of Economics, Dokkyo University, Soka

Faculty of Economics, Keio University, Tokyo  
Faculty of Economics, Kokugakuin University, Tokyo  
Faculty of Economics, Komazawa University, Tokyo  
Faculty of Economics, Tohoku University, Sendai  
Faculty of Engineering, University of Tokyo, Tokyo  
Faculty of Law, Senshu University, Tokyo  
Faculty of Political Science and Economics, Hiroshima University, Hiroshima  
Faculty of Social Sciences and Humanities, Tokyo Metropolitan University, Tokyo  
Faculty of Sociology, Momoyama Gakuin University, Sakai  
Faculty of Sociology, Toyo University, Tokyo  
Hyogo University of Education, Hyogo  
Institute of Economic and Industrial History, Tokyo  
Institute of Economic Research, Hitotsubashi University, Tokyo  
Institute of Social Science, University of Tokyo, Tokyo  
Japan Library Association, Tokyo  
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### NR PROGRAMME ON THE USE AND MANAGEMENT OF NATURAL RESOURCES

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Centre of Excellence in Water Resources Engineering, University of Engineering and Technology, Lahore, Pakistan  
Chung-Ang University, Seoul, Republic of Korea  
Institute of Geography, Chinese Academy of Sciences, Guangzhou, People's Republic of China  
International Center for Living Aquatic Resources Management, Manila, Philippines  
International Institute for Aerial Survey and Earth Sciences, Enschede, Netherlands  
Kagoshima University, Kagoshima, Japan  
National Institute of Oceanology of the Indonesian Institute of Sciences, Jakarta, Indonesia  
National Institute of Science and Technology, Manila, Philippines  
National Planning Commission, Kathmandu, Nepal  
Tanzania National Scientific Research Council, Dar-es-Salaam, Tanzania  
University of Hamburg, Hamburg, Federal Republic of Germany  
University of Kyushu, Fukuoka, Japan  
University of Malaya, Kuala Lumpur, Malaysia  
University of Papua New Guinea, Port Moresby, Papua New Guinea  
University of the South Pacific, Suva, Fiji  
University of Swansea, Swansea, UK  
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