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GLOBAL AND INTERREGIONAL PROGRAMMES, 1987-1991

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## INTRODUCTION

1. The global and interregional programmes of the United Nations Development Programme (UNDP) hold a unique place within the overall activities of the Organization. The global programme, in accordance with the intention of the Governing Council, is designed primarily to support research activities relevant to a wide range of developing countries so as to increase their access to world scientific knowledge. The objectives of the interregional programme are to disseminate and apply research results and to help countries address development problems of common interest which can be dealt with more effectively through multiregional technical co-operation than through national or regional efforts alone. While separate indicative planning figures (IPFs) have been established by the Governing Council for global and interregional activities, the Division for Global and Interregional Projects (DGIP) seeks to programme these two sources of funds in a coherent and complementary manner, linked to the fullest extent possible with other sources of funding from UNDP and other donors.

2. The global and interregional IPFs are modest in comparison with global development needs. To maximize the impact of the programmes, the available resources are therefore concentrated on only a few development issues of critical importance to developing countries. Successful efforts have also been made to attract collateral funding from multilateral and bilateral donors. Through its global and interregional programmes, UNDP is now a partner and, in most programmes, participates in the joint management of significant world-wide research and development activities, involving multilateral, bilateral and non-governmental organizations, as well as thousands of scientists and other development workers. In addition, the programmes are linked as closely as possible to regional and country projects supported by UNDP, especially with the evolution from basic research to field-testing and the practical application of results at the national level. Numerous networks, some recognized as innovative in concept and methodology, have been established to facilitate collaboration by developing country institutions in the programmes, link them to national development activities, and enable them to co-operate with one another. All activities include major training and institution-strengthening components.

3. Research and development activities by nature require a long-term commitment by all concerned. There are, therefore, broad similarities in the overall priority areas which were intensively reviewed by the Governing Council at the beginning of the third cycle. Within sectors, however, there is a continuous process of sharpening focus, introducing new areas of concentration and building institutional self-support. This document reviews major trends in the programmes during the third cycle (1982-1986) and outlines the principal programme areas and activities envisaged for support during the fourth cycle (1987-1991). The interregional and global resources available for the fourth cycle are, respectively, \$46 million (excluding borrowing during the third cycle of \$2 million) and \$81 million (including an allocation of \$20 million from the operational reserve, in accordance with Governing Council decision 85/16, and excluding borrowing during the third cycle of \$13.5 million). It should be noted that global projects approved by the Governing Council in earlier years constitute over 20 per cent of the fourth cycle global resources (\$17.5 million).

## I. REVIEW OF THE 1982-1986 GLOBAL AND INTERREGIONAL PROGRAMMES

4. The third cycle global and interregional programmes were implemented essentially as approved by the Governing Council at its twenty-eighth session, with adjustments necessitated by subsequent resource constraints. Research and development activities were concentrated in the following areas: (a) agriculture and fisheries; (b) health, water and sanitation; (c) energy assessments and planning; (d) trade and economic co-operation among developing countries; (e) management development; and (f) training and employment generation.

A. Global activities

5. The third cycle IPF for the global programme was \$78.26 million. Because of resource constraints, the global IPF, originally set at \$114.8 million, was reduced to \$63 million, representing 55 per cent of the original figure. To meet commitments entered into before the reduction came into force, the sum of \$13.5 million was borrowed against the fourth cycle IPF. With the addition of unutilized funds from the second cycle of \$1.575 million, the total global IPF for the third cycle came to \$78.26 million. The Governing Council approved global projects for research, technology transfer and training in the fields of agriculture, health and integrated resource recovery. Actual expenditures on global activities for the third cycle are estimated at more than \$78 million.

6. Expenditures on research in agriculture, including animal health, fisheries and food systems, amounted to \$58.0 million (74 per cent of the global IPF), spread over 15 projects. Major emphasis during the third cycle continued to be placed on research, training and outreach activities aimed at improving food crops, with high priority being given to dry-land crops suitable for semi-arid areas of Africa and Asia.

7. Four projects were concerned wholly or in part with biological nitrogen fixation, representing a considerable expansion of work in this field as compared with earlier cycles. Research and Training in Fertilizer Technology and Use (GLO/82/005), initiated in 1979, was also continued. Research and Training in Animal Trypanosomiasis (GLO/82/003) and the Development of Long Range Means of Control of Crop and Livestock Pests and Diseases (GLO/81/004) also received support.

8. The main objectives of a new programme initiated during the cycle, Research on Food Systems and Policies (GLO/82/006) are to identify food systems and policies which limit food production and distribution and to strengthen the capacity of national institutions to conduct this type of research. It has resulted in a six-volume report on policy research in this field.

9. During the third cycle there were two projects for support to health research: Special Programme for Research and Training in Tropical Diseases (TDR), Phase II (GLO/80/005); and Diarrhoeal Diseases Control (CDD) Programme Research in Vaccine and Drug Development, Phase II (GLO/81/011); and one project for Research and Development in Integrated Resource Recovery (GLO/80/004, Phase I; GLO/84/007, Phase II). These projects amounted to \$15.9 million for the first two and

\$1.2 million for the third, for a total of \$17.1 million (21 per cent of the global IPF). Health research concentrated on major tropical and diarrhoeal diseases. Achievements included the development and testing of new or improved vaccines against malaria, leprosy, cholera, typhoid and rotavirus; improved drugs against malaria, river blindness and sleeping sickness; and improved diagnostic and vector control methods, as well as research into the development of oral rehydration therapy, for the management of diarrhoeal diseases.

10. Linking health with economics, the integrated resource recovery project focused on waste management and recycling in metropolitan areas and on the economic potential for resource recovery.

11. Both the agricultural and health research activities yielded new or improved products, services and processes; an increase in the application of research results in national programmes; and the strengthening of research capabilities in the developing countries. Additional details regarding the progress of individual activities supported during the third cycle, as well as full details regarding the administration and evaluation of global programmes, are available to members of the Governing Council.

#### B. Interregional activities

12. The actual resources available under the interregional IPF for the cycle amounted to \$41.7 million, as compared with the initially established IPF of \$73.5 million. Actual expenditures for the five-year period are estimated at \$40.2 million, with a breakdown by sector as follows:

<u>Sector</u>	<u>Amount</u> (\$ millions)	<u>Percentage</u>
Water and sanitation	11.9	29.5
Health	1.6	4.2
Energy	2.3	5.7
Trade and economic co-operation	8.6	21.2
Fisheries development	7.1	17.6
Training and employment	5.4	13.6
Other	3.3	8.2

13. In the water and sanitation sector, two programmes continued to receive support: Laboratory and Field Testing and Technological Development of Rural Water Supply Handpumps (INT/81/026); and Development and Implementation of Low-Cost Sanitation Investment projects (INT/81/047). Both these projects are now yielding concrete results justifying large-scale field activities leading to investment programmes. Two new projects were added during the cycle: Information and Training for Low-Cost Water Supply and Sanitation (INT/82/002); and Promotion and

Support for Women's Participation in the International Drinking Water Supply and Sanitation Decade (INT/83/003). These projects provided a better balance among the technological, community and human resources aspects of water and sanitation development. In the field of health, two projects were supported: Expanded Programme on Immunization - Quality Control of Vaccines, and the UNDP/WHO Health Learning Materials Programme in support of health manpower development.

14. Major interregional programme activities in the energy sector were carried out under the UNDP/World Bank Energy Sector Assessment Programme and under a companion programme, initiated in mid-cycle, the UNDP/World Bank Energy Sector Management Assistance Programme (ESMAP). Some 70 country assessments were completed under the first activity and ESMAP has been assisting countries to implement the policies and strategies identified during the course of the assessments. By the end of 1986, over 40 countries were receiving assistance from ESMAP and potential energy investments amounting to approximately \$600 million had been identified, with funding secured for a large number of them. The IPF contribution to the Assessment Programme and to ESMAP of \$1.1 million during the third cycle was matched by some \$23 million in collateral support, of which approximately \$19 million was made available by the international donor community, with the balance of \$4 million coming from national IPFs.

15. Activities in the areas of trade and Economic Co-operation among Developing Countries (ECDC) were major components of the interregional programme during the early years of the cycle. These activities declined somewhat in the later years since projects which had been initiated during earlier cycles were completed and resources to undertake new activities were limited.

16. In the fisheries sector, emphasis shifted progressively away from ocean resource surveys and major intercountry development programmes towards the management of known resources in extended economic zones and aquaculture development. Interregional assistance to the Development of Fisheries in the Eastern Central Atlantic (CECAF) (INT/81/014) progressed from support through UNDP to growing support from its member countries.

17. Support was continued during the cycle for the Special Labour Intensive Public Works Programme, with funds drawn from both the interregional IPF and the Special Measures Fund for Least Developed Countries. This programme continued to generate large-scale collateral support and investment (see para. 93 for details).

18. After more than 10 years of co-ordinated support by the Unit for Europe and the Regional Bureaux for Africa, Latin America and Arab States, DGIP completed its institutional support to the International Centre for Public Enterprises in Ljubljana, Yugoslavia. The Centre has now developed the capacity to offer its own programmes and technical assistance to a large number of developing countries.

19. The network training programme CODEVTEL (Course Development in the Field of Telecommunications) was completed during the cycle and is now institutionalized within the International Telecommunication Union (ITU), with support from over 90 participating countries. A similar programme, TRAINMAR (Training Development in the Field of Maritime Transport), continued to receive support, and is expected

to be established within the United Nations Conference on Trade and Development (UNCTAD) during the fourth cycle. Support was also provided, jointly with UNDP Regional Bureaux and the Unit for Europe, for the World Maritime University.

### C. Programme constraints

20. The reduction of both the global and interregional IPFs from their original projections resulted in the deferment of some activities which had been envisaged for the global and interregional programmes in the third cycle. More important, however, these constraints prevented more intensive support to ongoing activities of the programmes. Furthermore, exploratory work aimed at identifying possible new areas for support by the global and interregional programmes could not be initiated (in this regard see document DP/524, paras. 42-48 and 68-87).

21. It proved possible, however, for UNDP to mitigate the effects of these resource constraints in some ways. For example, a considerable amount of research and development work in the area of new and renewable energy sources was taken up by the UNDP Energy Account. Moreover, the financial constraints experienced by the global and interregional programmes encouraged the expansion of a trend which had actually been initiated in earlier cycles, namely, an increased focus upon a series of subprogrammes on a sectoral basis. This was particularly true in the case of the interregional programme, where a traditional project-by-project approach gave way to a near total concentration of resources upon sectoral programmes linked to high-priority subprogrammes for the developing countries. These activities have demonstrated their intrinsic worth in a number of ways. First, subprogrammes in agriculture, energy, health, water and sanitation, fisheries, manpower development and employment have succeeded in attracting collateral funding from most members of the international donor community at a time of lower annual growth rates in the UNDP resource base as a whole. Indeed, the third cycle witnessed significant increases in donor support to a number of interregional subprogrammes (a total of over \$122 million), especially those in the fields of energy, special public works and water supply and sanitation.

22. In addition, various core activities, organized along sectoral lines, gave rise to a vast number of country-specific projects financed from different sources, including UNDP country programmes, other organizations directly associated with UNDP such as the United Nations Sudano-Sahelian Office (UNSO) and the United Nations Capital Development Fund (UNCDF), as well as programmes of bilateral donor agencies. The projects so identified and funded include activities of a pre-investment nature, especially in the fields of sanitation and energy, which are in turn giving rise to investments from international financial institutions and, to a lesser extent, from the private sector. Consequently, through the various multi-bilateral programmes in which the global and interregional programmes are involved, the linkages between the programmes and country-level development activities have assumed increasing importance. This is also indicated in many country programmes presented to the Council for approval which suggest the use of country IPFs to enhance national participation, predominantly in interregional programmes.

23. During the course of the third cycle, an intensive process of internal or external reviews and evaluations for virtually every major global and interregional programme was carried out or initiated. In general, these reviews and evaluations have been highly supportive of global and interregional programmes and have been useful in some cases to reorient objectives or to give individual projects a sharper focus and definition. Information concerning these reviews and evaluations is available upon request for members of the Governing Council.

24. The economic trends characterizing national economies during the 1982-1986 period have had effects of interregional programmes in particular. Regions where debt has mounted and public expenditures have been curtailed have resulted in fewer counterpart personnel. Economic conditions have also affected the ability of countries to meet foreign-exchange requirements. Commodity price fluctuations have called for reassessments of economic assumptions, especially in the energy and trade sectors. While it is difficult to determine with precision the correlation between these trends and every interregional programme, they have called for mid-course adjustments and corrections. In addition, because interregional forums or counterpart organizations often do not exist and must frequently be created, a time-consuming process results. This is an issue which often constrains both national and regional activities and is felt even more at the interregional level.

#### D. Major trends

25. Apart from the trend towards sectoral subprogrammes, there have been a number of other important trends in the global and interregional programmes during the third cycle, which can be summarized as follows:

(a) The expansion of training, outreach and institution-strengthening activities, and the application of research results at the national level;

(b) Growing participation in project implementation by institutions, non-governmental agencies and the private sector in developing countries;

(c) Increased success in bringing selected interregional initiatives to a self-reliant state, based on the systematic introduction of support from users and United Nations agencies;

(d) Utilization of recent scientific and technological developments to accelerate the achievement of concrete results of direct relevance to the developing countries;

(e) Closer linkages between the global and interregional programmes and activities supported through UNDP regional and country programmes, as well as with UNDP-administered funds;

(f) Growing collateral support from multilateral, bilateral and non-governmental agencies in programme funding and implementation; and

(g) More systematic monitoring and evaluation in order to ensure the continuing relevance of the programmes.



## II. THE GLOBAL AND INTERREGIONAL PROGRAMME FOR THE FOURTH CYCLE (1987-1991)

### A. Background information on the programming process

26. The proposals which follow are based on evaluations of third cycle interregional and global activities and a widespread formal and informal consultative process, which has comprised formal contacts with all developing countries through UNDP resident representatives, with industrialized countries, internally within UNDP and with organizations of the United Nations system, including participating and executing agencies, to obtain an appreciation of the impact of ongoing programmes and their views of new areas where global and interregional approaches would represent a comparative advantage for the use of UNDP resources. In addition, the decisions and recommendations of intergovernmental forums, non-governmental organizations, foundations and individual development practitioners have been given particular attention.

27. This process has resulted in proposals that global and interregional resources continue to be concentrated primarily in sectoral areas which were endorsed by the Governing Council for third cycle programmes, but with shifts in emphasis to reflect changing requirements within these sectors. Scientific advisors and a wide variety of representatives from Governments, international agencies and foundations participate in the governing mechanisms for many global and interregional activities, such as those of the Consultative Group on International Agricultural Research (CGIAR), the Joint Co-ordinating Board of the UNDP/World Bank/World Health Organization (WHO) Special Programme for Research and Training in Tropical Diseases (TDR), the Meeting of Interested Parties of the Programme for Control of Diarrhoeal Diseases, the UNDP/International Labour Organisation (ILO) Annual Joint Meeting for Support to Special Public Works Programmes, the International Drinking Water Supply and Sanitation Decade (IDWSSD) Inter-Agency Steering Committee for Co-operative Action, and the Consultative Meeting on the UNDP/World Bank Energy Programmes. These bodies and consultative mechanisms, in which UNDP plays a managerial role, have provided the impetus for many of the shifts in emphasis.

28. Plans for the fourth cycle also call for preliminary attention to new areas identified through this process as sectors of importance and which are particularly amenable to a global or multi-regional approach, offering opportunities for UNDP contributions through global and interregional programmes. An amount of \$12.6 million and \$7.7 million has been left unprogrammed from the respective global and interregional IFPs to provide flexibility for the global and interregional programmes to embark on new sectors or different activities within existing sectors to be identified during the fourth cycle. During the course of the fourth cycle, those new sectors where UNDP global and interregional programmes appear to have a particular advantage will be brought to the attention of the Governing Council, as well as any sectors which should receive relatively decreasing emphasis. In particular, a careful review of the rather substantial and long-standing proportion of resources devoted to global agricultural research will be carried out by UNDP, and the Governing Council will be consulted in June 1988, following this review, as to whether these programmes should continue to receive the same relative priority as in the past, or whether there should be a shift to other areas of priority concern to developing countries.

## B. Agricultural research and technology transfer

29. Since 1970, when the first global project was approved by the Governing Council, the global programme has placed primary emphasis on agricultural research for the improvement of food crops vital to the diets of developing country populations. The research, training and related activities so supported have formed an integral part of the world-wide research programme sponsored by CGIAR. As a co-sponsor of CGIAR, UNDP has a major role in its overall management, quite apart from the DGIP management exercises for those specifically targeted projects formulated by individual research centres and DGIP for approval by the Governing Council. The projects have been implemented mainly by selected CGIAR-affiliated international agricultural research centres, although some are implemented by non-CGIAR international centres. Eleven of the 13 CGIAR centres are located in developing countries.

30. The global agricultural projects at the various international centres which also receive substantial financial support from other donors have made solid progress over the past several years. During the period 1982-1986, the UNDP contribution of approximately \$58 million has attracted collateral support amounting to nearly \$370 million from other donors. In 1985, an independent study confirmed the effectiveness of this international research network, concluding that it had a highly positive impact on agricultural production and national research capacity in developing countries.

31. The objectives of the agricultural component of the global programme are: (a) increased food production in the food deficit areas of the world, particularly in the semi-arid regions, through crop improvement aimed at raising yields and improving crop resistance to drought, disease and pests; (b) enhancement of soil fertility through research on biological nitrogen fixation, linked with assistance to Governments in fertilizer technology and utilization; and (c) improvement of livestock production and crop production through pest control. The strengthening of national agricultural research and production programmes and a strong emphasis on the training of developing country scientists and technicians have played a significant role in the above-mentioned objectives. A full breakdown on a country-by-country basis of participants and trainees in UNDP-financed global projects is available on request.

### Increased food crops production (Global programme)

32. Although complacency is unwarranted, progress has been made during the past decade towards increasing food production throughout large areas of the developing world. While a number of countries, notably in Asia and Latin America, have achieved food self-sufficiency, many countries in Africa, as well as in other regions, find their population growth out-stripping increases in food production. In this regard, agricultural development was a principal element of the United Nations Programme of Action for African Economic Recovery and Development 1986-1990, adopted by the General Assembly at its thirteenth special session.

33. Particularly significant achievements are being sustained in the improvement of food crops, assisted in large measure by support to international agricultural

research. Substantial gains have been achieved with respect to rice and wheat in the last 15 to 20 years and considerable progress has been made through basic and applied research on important food crops such as:

(a) Maize, which has led to the planting of approximately 6 million hectares in Latin America, Asia and Africa, with high-yielding and hardier varieties;

(b) Field beans, an important source of protein in Latin America, where 20 countries have benefited from high-yielding, disease-resistant varieties developed by the International Centre for Tropical Agriculture (CIAT). In 1985, the Centre won the King Baudoin award for its development of a bean variety unusually immune to mosaic virus disease;

(c) Cassava, a food crop increasingly in demand in Africa, where 63 improved varieties have been developed and distributed by the Nigeria-based International Institute of Tropical Agriculture (IITA) working in collaboration with CIAT and national programmes;

(d) Cowpea, of which more than 20 higher-yielding varieties have been released by IITA in Burkina Faso, Cameroon, Nicaragua, Nigeria, the United Republic of Tanzania, Venezuela and Zimbabwe;

(e) Potato, several disease-resistant strains of which have now been harvested widely in 22 countries;

(f) Sorghum, of which 15 varieties, adapted to semi-arid conditions, have been distributed through the work of the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) in Burkina Faso, Burma and Ethiopia. Other strains of sorghum are being used in crossing local varieties in Guatemala, Kenya, Malawi and Mexico. National programmes have been considerably strengthened by ICRISAT-based research and testing, as in the Sudan, where a locally developed hybrid sorghum, tested under rainfed conditions, has produced yields of 810 kilograms per hectare - three times that of the local variety. With this development, sorghum, a staple crop in many drought-affected countries, holds new promise as a food source in Africa. In 1985, ICRISAT supplied the hybrid variety for planting nearly 1 million hectares in the Sudan.

34. In view of the high priority attached to research on food crop production, it is proposed that the following new or rephased projects be supported during the fourth cycle:

(a) Research and Training in Sorghum and Millets (current project ends in 1987);

(b) West African Sorghum and Millet Improvement Programme (current project ends in 1988);

(c) Technology Transfer on Root and Tuber Crops (current project ends in 1987);

(d) Research on Tropical Wheat Improvement (current project ends in 1987);

(e) International Rice Testing and Improvement Programme (current project ends in 1988); and

(f) International Maize Testing Programme and Selected Maize Training Activities (current project ends in 1989).

35. The first and second projects above are designed to increase the production of sorghum and pearl millet, the principal staple foods of an estimated 750 million people living in the semi-arid tropics, an area which includes some 50 countries in Africa, Asia and Latin America. The third project is focused on increasing production of cassava, potatoes and sweet potatoes, also basic components of the diets of large populations throughout the developing world.

36. The fourth project, Research on Tropical Wheat Improvement (GLO/82/007), was initiated at the beginning of the third cycle and is exploring the possibility of developing genotypes and cultural practices that will enable a substantial extension of wheat production in the humid tropics during the drier and cooler seasons of the year. The work is being done at the International Maize and Wheat Improvement Centre (CIMMYT) in Mexico and is aimed at decreasing dependence in much of the tropics on imported wheat as a relatively low-cost, nutritious and easily managed source of food. Wheat presently grown in those countries gives low yields and is highly susceptible to damage from insects and disease. Expanded production of improved wheat varieties in tropical countries could accordingly save significant amounts of foreign exchange while increasing domestic food supply. The scientific and technical challenges presented by this programme are however, formidable.

37. The last two projects mentioned above aim at the maintenance and further extension of the gains in rice and maize production achieved through earlier research carried out by the International Rice Research Institute (IRRI) in the Philippines and CIMMYT in Mexico. The impact of this research on rice production and increased food self-sufficiency, particularly in Asia, is well known. The principal research and development requirements with respect to rice now are (a) to preserve the gains already achieved by dealing with new diseases and other problems as they arise; and (b) to disseminate new varieties and their adaptation to local agro-ecological conditions. The International Rice Testing and Improvement Programme, co-ordinated by IRRI and supported by UNDP since 1976, has become the leading vehicle for achieving these objectives, and more than 75 developing countries now benefit from participation in the network through the exchange of new rice varieties, the transfer of knowledge and experience among national programmes, and co-operation among rice scientists around the world.

38. Research on maize supported during the first two cycles focused on enhancing the protein content and nutritional quality of this important crop on which many millions of people depend in Africa, Latin America and other regions. The research has contributed to the development of several high-lysine varieties which have been tested successfully in 38 different locations around the world. Many developing country scientists have also received training in all aspects of protein-rich maize production and testing. During the fourth cycle, the focus of UNDP assistance in this area will continue (a) the progressive shift from basic research towards

international testing of promising varieties both on farmers' fields and at experimental stations; (b) the expansion of training activities in crop management techniques (which now account for some two thirds of the programme budget); and (c) the study of the nutritional effects of high-quality maize, particularly on children. It is proposed that this emphasis be maintained during the fourth cycle.

#### Enhanced soil fertility (Global programme)

39. Along with the improvement of crop varieties, a major objective is the enhancement of soil fertility through natural processes of biological nitrogen fixation. The discovery that certain bacteria, blue-green algae and azolla (a water fern) convert atmospheric nitrogen into compounds that can be readily absorbed by the root system of plants has opened up new sources of supply of this essential agricultural input, now supplied mainly through expensive chemical fertilizers. Research on biological nitrogen fixation will continue to be supported in relation to several basic food crops, notably: flooded rice at IRRI in the Philippines; sorghum and millet at ICRISAT in India; cowpeas and soybeans at IITA in Nigeria; and pasture and forage legumes at the International Centre for Agricultural Research in the Dry Areas (ICARDA) in Syria. Work is also being done on food and pasture legumes at CIAT in Colombia. The ultimate objective of the research is genetic modification of these crops to enhance their abilities to work symbiotically with improved strains of soil bacteria to extract nitrogen from the air and convert it to a natural plant fertilizer in mineral form. Important new scientific knowledge has been gained through the research carried out thus far, but further work is needed to transfer these results into national programmes for practical application. There is also the need to train adequate numbers of personnel from developing countries in these technologies. Current UNDP support in this field is implemented by IITA and CIAT through a project which extends through 1987. A new programme is expected to be presented to the Governing Council later in the fourth cycle to continue this work.

40. Although biological nitrogen fixation holds considerable promise in the long run for reducing farmers' dependence on petrochemical fertilizers, the use of chemical fertilizers increased by two and one half times during the 1970s, and an estimated additional 15 per cent between 1980 and 1986. Indigenous production of fertilizers in developing countries has been expanding, and available data indicates that the rising demand may be met substantially from local production in the near future, shifting the challenge to distribution, delivery services, extension work, provision of credit, and farming incentives. To help developing countries achieve greater capacity in these areas, the global programme is supporting Research and Training in Fertilizer Technology and Utilization (GLO/82/005), in collaboration with the International Fertilizer Development Centre (IFDC). Initiated in 1979, the project has focused predominantly on training, with approximately 2900 participants attending various courses up to 1986. IFDC has established links with five regional and national institutions in developing countries for the development of in-country training programmes based on IFDC courses suitably adapted to local conditions. Continued co-operation arrangements during the fourth cycle are proposed as a high priority, in collaboration with UNDP regional activities in Africa.

Pest control (Global programme)

41. The third objective of the agricultural research programme, the improvement of livestock through control of animal diseases, is being addressed through:

(a) Research and training on animal trypanosomiasis at ILRAD, Nairobi, Kenya; and

(b) Development of long-range means of control of crop and livestock pests and diseases, at the International Centre of Insect Physiology and Ecology (ICIPE), also located in Nairobi, Kenya.

42. Livestock production is a major component of the agricultural economy of many developing countries and a principal means of livelihood for millions of farmers and herdsmen throughout the developing world. Animal trypanosomiasis, commonly transmitted by the tsetse fly, takes a severe toll of livestock, resulting in heavy economic losses in more than 50 countries of Africa, Asia, the Arab world and Latin America. The main objectives of the UNDP-financed research are to develop a vaccine suitable for mass immunization against trypanosomiasis, promote the breeding and multiplication of domestic livestock resistant to trypanosomiasis, and improve the use of available drugs and integrate programmes of vector control. The disciplines of parasitology, cell biology, biochemistry, molecular biology, immunology, pathology and entomology have been involved in studying host/parasite/vector relationships which may prove susceptible to immunological control. The current work being carried out at ILRAD (which also collaborates with the Special TDR Programme on human trypanosomiasis) has been approved by the Governing Council through 1987 and a project to extend this research will be presented to the Governing Council later in the fourth cycle.

43. Research on insect physiology and ecology at ICIPE is developing effective and environmentally sound biological control of pests which are vectors of numerous diseases damaging crop, animal and human health. ICIPE, in Kenya, is ideally located and has developed the scientific strength to address such pest problems. Similarly, ICIPE continues to play a leading role in generating economically feasible, sociologically acceptable and ecologically effective pest management strategies for resource-limited African farmers who grow staple food crops such as sorghum, maize and cowpeas.

44. As a result of UNDP-sustained support, ICIPE has made substantial progress since 1970 in the understanding of the biology and ecology of major insect pests in tropical Africa. It is now recognized as a respected international scientific institution, staffed predominantly by African scientists. Information generated by ICIPE scientists has been utilized for the establishment of a network in several African countries where field trials are being conducted in collaboration with national scientists. In addition, ICIPE collaborates on international agricultural research activities with CGIAR centres. Continued financial assistance from UNDP, approved by the Governing Council in June 1986, will support ICIPE in the further development and dissemination of information gained on pest biology and ecology for better pest management. The follow-up UNDP support will focus primarily on the application of research results for the benefit of small farmers. A project to

disseminate and apply ICIPE research efforts to subsistence farmers is under consideration by the Regional Bureau for Africa.

45. Recent advances in biotechnology, including genetic engineering, cell and tissue culture, and immunology hold great potential for advances in agriculture and animal health. Commercial applications of these techniques have the possibilities of developing vaccines to control animal and human diseases. Genetic engineering also has the promise of creating new crops combining higher yield and nutritional quality and at the same time such characteristics as improved resistance to diseases, pests, drought and adaptation to stressful environments. While resource constraints make it impossible to launch a separate major programme in the field of agricultural biotechnology, promising areas of biotechnology are fully incorporated within the scope of current global programmes at the international agricultural research centres.

### C. Health, water and sanitation

#### 1. Health research and technology

##### Vaccinology (Interregional programme)

46. The final years of the twentieth century will mark a new era in vaccine research and development, stemming primarily from important advances in biotechnology, in particular recombinant DNA and cell fusion techniques. It offers hope of producing vaccines for many of the diseases that are yet uncontrolled and also of developing vaccines that are more effective, safer, and more cost-effective than those in current use. In this context, scientific questions related to the safety of vaccines produced by new methods need to be resolved so that developing countries can safely accept this technology and begin to produce new or improved vaccines. Furthermore, safe and standardized starting materials (virus and cells) are required for the production of vaccines.

47. In recent years, the interregional programme has supported quality control of vaccines for the Expanded Programme of Immunization, which presently covers the six major childhood diseases: diphtheria, pertussis (whooping cough), tetanus, poliomyelitis, measles and tuberculosis. With existing, new and improved vaccines increasingly being produced in developing countries and becoming available for immunization, it is proposed that support for vaccine quality control be adopted during the fourth cycle. Such support would include examining vaccine samples and building up the national capacity for vaccine control in developing countries. In addition, support would be given to applied vaccinology to enhance the effectiveness and efficiency of immunization programmes.

##### Tropical diseases (Global programme)

48. An estimated one billion people are afflicted by tropical diseases. A multi-front attack on six of these diseases was launched in 1974 within the framework of the Special TDR Programme under the co-sponsorship of UNDP, WHO and the World Bank and supported by 30 bilateral and non-governmental organizations. This

programme has two interdependent objectives: (a) research and development to obtain new and improved tools for the control of major tropical diseases; and (b) the strengthening of research capabilities of the tropical countries. The six diseases selected for attack are malaria, schistosomiasis (bilharzia or snail fever), filariasis (including onchocerciasis/river blindness), trypanosomiasis (both African sleeping sickness and the American form, called Chagas' disease), leishmaniasis and leprosy. Recent annual expenditures through the TDR programme have averaged approximately \$25 million and UNDP support from the global IPF averaged \$1.75 million per year during the third cycle.

49. During the third cycle, TDR produced accelerated results in the form of vaccines, drugs, diagnostic methods and new vector control techniques. The programme has produced some 50 products, such as potential vaccines against malaria and leprosy; new drugs against malaria, river blindness, and sleeping sickness; improved and faster diagnostic tests for malaria, leprosy, sleeping sickness, and schistosomiasis; tests to measure the sensitivity of parasites, e.g. malaria, to drugs; and new methods for vector control. The programme also supports research on social and economic factors in disease control programmes.

50. By the early 1990s, it is expected that the programme will have reached the stage of: (a) additional large-scale trials of malaria and leprosy vaccines; (b) the field application and/or advance clinical trials of improved or new drugs for some of the six diseases; (c) trials of new, simple diagnostic tests; (d) trials of new biological methods for control of disease vectors; and (e) the establishment of the epidemiological, social and economic bases for the development of more effective national strategies for the control of the six diseases. The programme will have assisted in building a network of self-reliant national research and training centres and will have trained some 200-300 scientists, who can in turn train other scientists in developing countries. A proposal to provide continuing support to this programme is before the Governing Council at its current session.

#### Diarrhoeal diseases (Global programme)

51. Diarrhoeal diseases continue to kill 4 million children and account for one billion episodes in children below age five, in addition to contributing to malnutrition. National programmes to control diarrhoeal diseases are active today in more than 100 developing countries, whose use of oral rehydration therapy has sharply reduced child mortality and morbidity. This approach is now actively being promoted by UNICEF and an increasing number of other agencies.

52. Research with core support from UNDP has resulted to date in achievements such as: (a) the firm knowledge that most diarrhoeal episodes in all developing countries are caused by only six agents; (b) promising oral vaccines against rotavirus, typhoid and cholera, which are now undergoing field testing; (c) development of new and improved diagnostic tests; (d) a more stable oral rehydration salt formulation; and (e) the best evidence available to date that active feeding during diarrhoea can lessen the nutritional consequences of illness. The programme has also provided training in research to investigators from 30 developing countries.



53. The programme will build upon the results achieved and the expertise acquired and assist in incorporating promising new vaccines into national immunization programmes. Concurrently, additional simple tests to diagnose important diarrhoea pathogens will be developed. The programme will also support the development of new rehydration solutions, the identification of appropriate diets for use during diarrhoea, and new antisecretory drugs. Finally, it will evaluate the effectiveness, cost and optimal means of the implementation of specific nutritional and environmental health interventions in reducing diarrhoea morbidity and mortality. To achieve these objectives, the programme will support 250-300 projects in 75 countries and provide additional research strengthening support to 20 institutes. The International Centre for Diarrhoeal Diseases Control in Bangladesh is expected to play an important role within the framework of this global effort. The programme, which is co-sponsored by UNDP and WHO, is currently supported by 20 other multilateral, bilateral and non-governmental agencies with a current annual budget of approximately \$7.5 million, of which \$1.4 million is provided from the UNDP global IPF. A proposal seeking Governing Council approval of continued support to this programme is before the Council.

Other communicable diseases (Interregional programme)

54. In addition to the tropical and diarrhoeal diseases, there are other communicable diseases which continue to contribute greatly to the unacceptably high levels of morbidity, mortality and disability, particularly in children under five years of age. Each year, well over a million new cases of tuberculosis are reported. Over two million deaths from acute respiratory diseases occur annually throughout the world. It is estimated that 1,500 million people live in areas with recent dengue activity. In every major city in the developing world, thousands of cases of childhood meningitis are treated every year. Infectious hepatitis A has a particularly high prevalence among the young in developing countries. Poliomyelitis remains uncontrolled in many countries. Future improvements in environmental and nutritional standards may reduce the incidence and severity of some of these diseases. New drugs and antibiotics for prophylaxis and therapy will, of course, continue to be developed, but many will lose their efficacy as the infecting organisms become resistant. By contrast, vaccination against viral and bacterial agents has wide applicability and is generally a safe procedure.

55. In view of the prevalence and severity of these diseases, as well as the great promise of biotechnology for vaccine development, WHO launched a vaccine research programme in 1983 which is expected to lead to the following results within the next five years: (a) prototype vaccines for dengue, hepatitis A and improved poliomyelitis vaccines; (b) identified immunogenic components of the respiratory viruses and encapsulated bacteria; (c) rapid, simple diagnosis for tuberculosis and poliomyelitis. A new interregional programme is proposed to contribute to the acceleration and expansion of specific vaccine research activities of direct relevance to developing countries, including biomedical and applied research on EPI diseases.

## 2. Water supply and sanitation

56. In the late 1970s, UNDP and its partner agencies decided to launch an unprecedented programme of testing and demonstrating decentralized rural drinking water supply and sanitation facilities, using technology affordable and maintainable by the local population. This approach became a leading theme of IDWSSD, which was launched in 1980.

57. During the past seven years, UNDP has acted as head of the steering committee of the Decade and has supported the development of cost-effective, socially viable methods of providing clean drinking water and adequate sanitation. In particular, UNDP supports four components: rural water supply; on-site sanitation; integrated resource recovery; and information and training. In 1985, these programmes were conducting activities in 38 countries, covering all regions, with financial support provided by UNDP, the World Bank and seven bilateral agencies, as well as host Governments. Other UNDP-supported programmes in this field (also assisted by bilateral agencies) are Promotion and Support for Women's Participation in IDWSSD (INT/83/003) and Support to IDWSSD Implementation and Co-operation (INT/81/048). Recognizing that appropriate technology is only part of the answer, UNDP and its partner agencies are placing increasing emphasis on software components in water and sanitation programmes, including human resources development, institution-building, community involvement and the participation of women. As a result of the research and development efforts sponsored in recent years, UNDP regional programmes are considering sponsorship of projects in a number of country programmes to apply the technology and approaches that have been recommended through projects in this subsector.

### Rural water supply (Interregional programme)

58. Through laboratory and field-testing of a wide variety of handpumps in 18 countries, this project has identified those that are most efficient, reliable, cost-effective and can be manufactured locally. At the country level, central and regional authorities are increasingly accepting as a key to success the decentralization of rural water supplies which can be afforded and maintained by the local population. Equally important, national teams supported by the project are now playing a leading role in field operations, on-site maintenance involving women and the local development and manufacturing of handpumps. Already, manufacturers in both developed and developing countries are incorporating design specifications developed by the project in the production of handpumps. This programme has attracted over \$2 million in collateral funding.

59. It is proposed that future project activities supported under the interregional programme will shift emphasis to, inter alia: (a) the promotion of local manufacturing, geared towards village level operation and maintenance (VLOM) pumps for drinking water supply and small-scale irrigation; (b) the application of cost-effective drilling methods; (c) the improvement of borehole design, construction and maintenance; and (d) technical support to large-scale investment projects.

Rural sanitation (Interregional programme)

60. Through applied research, this programme has developed low-cost sanitation technologies and human waste management systems. It has achieved increased acceptance of on-site sanitation options as technical alternatives to costly conventional sewerage. Its activities have assisted Governments in designing and implementing both urban and rural demonstration projects, preparing large-scale feasibility studies, formulating sector policies and programmes, and training sector staff. It is proposed that future activities during the fourth cycle will focus on technical support to large-scale, on-site sanitation investment schemes.

Integrated resource recovery (Global programme)

61. The management of waste products confronts Governments and municipalities throughout the world with difficult logistical and financial problems. Wastes have value, and in many developing countries, there is extensive recovery and recycling through the informal sector. Little attention, however, has been devoted to determining whether larger-scale efforts would be economically beneficial in developing countries and whether Governments could reduce the cost of waste management by generating benefits from their re-use. The concept of integrated resources recovery applies to both solid and liquid wastes, with due attention to ecological implications.

62. During the current phase of this activity, approved by the Governing Council through 1988, this programme has been involved in research on resource recovery practices, waste management and recycling in metropolitan areas, and the economic potential for resource recovery. The most important topics covered were:

(a) solid waste recycling; (b) larger-scale biogas plants; (c) remanufacturing of durable products from discarded parts; (d) health aspects of effluent irrigation; (e) co-composting of domestic and human wastes; and (f) development of waste-fed aquaculture. Depending on the results of the current project, further activities may be recommended to the Governing Council for its consideration later in the fourth cycle.

Training and information on water and sanitation (Interregional programme)

63. This network activity, begun in 1983, has produced a set of information and training materials on the full range of water and sanitation technologies previously tested and demonstrated. The network includes policy-makers, practising engineers, engineering students and educators, project field staff, trainers of community development health, and field-workers. The materials cover not only technical aspects but, equally important, concepts of community participation and health education. It is proposed that modest future support be provided to the network as training and information materials are further refined and adapted to local and regional requirements.

Women's participation in water supply and sanitation (Interregional programme)

64. The Governing Council has emphasized the vital role of women in development and the programme seeks to enhance that role in the planning and implementation of

water and sanitation activities, more so as women have traditionally provided the family domestic water supply, a responsibility which occupies a large part of their day.

65. Initiated in 1983, this project has undertaken pilot and demonstration activities in 10 countries in Africa and Asia, trying out various approaches designed to fit local circumstances. Each country activity presents a different mix, whereby socially-oriented agencies, including non-governmental organizations (NGOs), are contracted to work in conjunction with technically based water supply, sanitation and health programmes. Particular emphasis is placed on working with local institutions and strengthening their capacity to work with women at a grassroots level. Locally appropriate training materials have been developed for use in current and future training activities.

66. During the fourth cycle, it is proposed that the project investigate further the complex issues involved and demonstrate feasibility in a variety of cultures and conditions. Training methods and materials will be further developed and tested and national training capabilities strengthened. The dissemination of project experience and outputs at national and international levels will receive particular attention. Currently funded mainly from bilateral contributions and from UNDP, the project is actively seeking additional co-financing.

#### Decade implementation and co-ordination (Interregional programme)

67. At the Development Assistance Committee (DAC) meeting of the Organisation for Economic Co-operation and Development (OECD) in May 1985 on IDWSSD, the need was emphasized for an intensified and effective process of country-level aid co-ordination in the sector. To be effective, sectoral consultations and co-ordination should be a joint donor-recipient process, analysing and improving sector policies, investment/expenditure programmes and institutional frameworks. The report of the Secretary-General on Progress in the Attainment of the Goals of IDWSSD (A/40/108-E/1985/49) stressed that organizations of the United Nations system, as well as other international, bilateral and non-governmental organizations, should continue to enhance co-ordination of their technical co-operation activities at the global and national level and support the role of the UNDP resident representatives as focal points for the Decade at the country level.

68. During the second half of the Decade, continued support from the interregional IPF is proposed to encourage agencies and Governments to focus their attention and programmes increasingly on the following key areas: human resources development; community participation; health and hygiene education; institutional development; linkages between health, water and sanitation agencies; documentation and information. WHO, the World Bank, the United Nations Children's Fund (UNICEF) and other agencies are already active parties in this process.

3. Intensified district primary health care (Interregional programme)

69. The world-wide economic and financial constraints experienced in recent years have severely limited Government budgets and exacerbated problems of Governments in implementing primary health care. Despite the divergent trends between diminishing resources and advances in health measures and approaches, there are ways to disseminate progress. These include the following proposed interrelated approaches: (a) greater reliance on families and communities in promoting the use of their own ingenuity, and experience; and (b) the improvement by Governments of health infrastructure in co-operation with educational and agricultural services. By placing increasing emphasis on the support of management and co-ordination of primary health care at the district level, development programmes will improve people's health. Specifically, a programme designed to intensify primary health care and intersectoral co-operation at the district level is under active study.

D. Energy development (Interregional programme)

70. The transition, since 1973, from a period of low-cost energy to one of high-cost energy has left many developing countries still struggling to adjust their energy consumption and production patterns to higher prices, particularly of imported oil. These changes include: (a) increasing the efficiency of energy use through rational pricing incentives and various demand management measures; (b) undertaking an expanded and more diversified programme of investments to develop indigenous energy resources; (c) reorienting industrial, agricultural and transport development strategies to take into account the higher costs of energy inputs; and (d) strengthening institutional and management capabilities in the energy sector to design and carry out these tasks effectively. Despite recent declines in international prices for crude oil, which many observers believe will eventually be reversed, access to adequate and reasonably priced energy supplies will remain a critical factor in the development process. This applies particularly to sub-Saharan Africa, where there is very little use of commercial sources of energy at the household level and where the ecological and related problems associated with massive de-forestation are well known.

71. Assistance provided to developing countries under the energy component of the interregional programme is focused on the following objectives: (a) the development of indigenous and affordable sources of energy; (b) the strengthening of the capacities of countries for policy formulation, strategy development and efficient management of the energy sector; (c) the identification and formulation of bankable energy development projects; and (d) manpower development and institution-strengthening of the energy sector.

72. During the fourth cycle, these issues will be addressed primarily through ESMAP. This programme was established jointly by UNDP and the World Bank in 1983, with substantial support from other donors provided through the UNDP Energy Account and other third-party cost-sharing arrangements. Its purpose is to follow-up the national energy assessments that have been carried out in more than 70 countries since 1981 under the UNDP/World Bank Energy Assessment Programme, again with

substantial support from the donor community. These studies have met with widespread acceptance in both recipient and donor countries. They have paved the way for the adoption by countries of more realistic energy-pricing policies, institutional reforms, greater efficiency in the use of existing plants, including transmission and generation facilities, and greater attention to biomass issues, especially fuelwood.

73. ESMAP is now providing assistance through short-term missions designed to assist participating countries on the identification, justification and formulation of projects essentially of an upstream nature. Emphasis has been placed upon pre-investment activities in the field of power system loss reduction and efficiency of energy use in the transport and industry sectors. In the case of the former, ESMAP has focused primarily upon rehabilitation and upgrading of existing generation and transmission facilities, where the investment and recurrent costs are relatively modest and where there are quick pay-back periods.

74. With regard to biomass, ESMAP deals with both supply-side and demand-side issues. On the supply-side, a number of pre-investment projects concerned with establishing peri-urban fuelwood plantations, agro-forestry schemes and the strengthening of national forestry departments are either under way or have been completed in a number of sub-Saharan African countries. On the demand containment side, ESMAP has initiated several innovative projects for the development, production and dissemination of improved woodstoves and charcoal kilns utilizing existing artisans and marketing channels. Work under the project is closely co-ordinated with that of others, notably ILO, UNSO and UNCDF. As recommended by a UNDP/World Bank Consultative Meeting held in January 1986, with the participation of a large number of donor and recipient countries, energy assessment work will be continued beyond 1986 on a case-by-case basis within the framework of ESMAP, since the assessment programme as such terminates at the end of 1986.

75. As is the case with other interregional programmes, the support proposed for ESMAP under the interregional IPF will be used primarily to underwrite its core costs. Funding for country-specific pre-feasibility and feasibility studies, as well as for the investment projects to emerge from these studies, is expected to be provided by other interested donors and by the World Bank itself, according to individual preferences and to recipient Government wishes. Special emphasis will be placed on manpower development in co-operation with ILO and the Economic Development Institute of the World Bank.

#### E. Trade and economic co-operation (Interregional programme)

76. During the third cycle, positive results were achieved through interregional programme support to a number of such activities including, for example, Market News Service (MNS) executed by the International Trade Centre (ITC). This service, supported by other UNDP programmes and by grants totalling over \$1 million from bilateral donors, transmits up-to-the-minute information on certain commodities from the key importing markets, provides technical assistance to developing countries to enable them to upgrade their products to internationally accepted standards, and facilitates direct contacts between exporters and importers. The

service has had a beneficial effect upon the export expansion and diversification plans of many of the participating developing countries. It is proposed for continuation into the fourth cycle, with the support of the interregional programme, the regional programme for Africa, the regional programme for Asia and the Pacific and several bilateral donors. During the fourth cycle, an attempt will be made to place MNS on an increasingly self-financing basis through the introduction of subscription fees, among other measures. Moreover, MNS will establish a North American office which, for the first time, will enable the service to cover the North American markets, particularly for fresh fruits and vegetables. Finally, it is expected that tropical timber information will shortly be added to the service, establishing close links between MNS and the Association of Timber Exporting Countries as the latter organization evolves.

77. Another successful area was co-operation among state trading organizations, where the interregional programme joined forces with the International Centre on Public Enterprises in Ljubljana, Yugoslavia, ITC and UNCTAD to help initiate formation of the Association of State Trading Organizations of Developing Countries (ASTRO). Modest follow-up support has been provided to ASTRO by the interregional IPF to enable it to carry out a number of research, consultancy and training activities on behalf of its members. ASTRO recurrent costs, however, are now being met entirely from membership subscriptions.

78. Assistance is also planned for a new programme which would seek to address in a systematic and integrated way the needs of a number of developing countries for practical advice on steps to be taken to expand exports. This comes at a time of heightened international recognition of the role played by the external sector in the development effort, including increased awareness of the link between export expansion and diversification, economic growth, and the capacity of developing countries to service their external debt better or at least to reduce it to more manageable proportions. This is all the more significant in light of the agreement for a further round of multilateral trade negotiations within the General Agreement on Tariffs and Trade (GATT), which may well create new opportunities for developing country exporters.

79. While export promotion activities represent nothing new to UNDP, the Trade Expansion Programme will constitute departure from previous technical assistance work in the trade field which has been supported by UNDP and/or by bilateral agencies, notably by its emphasis on country-specific work in developing countries which have adopted structural adjustment programmes, with or without external encouragement, wherever such programmes contain a trade liberalization element. Priority will be given under the programme to the rendering of practical, technical advice to countries, at their request, in order to assist them to translate policy into action and to increase their exports of goods and services. It is also expected that the proposed Trade Expansion Programme will, depending upon the situation of a given country, offer a way for UNDP, in collaboration with other agencies, to reach out more effectively to the private sector at the enterprise level, since in many countries that is where actions will ultimately determine the success or failure of any trade liberalization scheme.

F. Fisheries development (Interregional programme)

80. Fisheries remain important to developing countries, both as a source of protein for their own populations and as an export industry. While DGIP direct support for fisheries has been declining in quantitative terms, this component of the programme remains an important one, which is generating substantial collateral support from other donors as well as from UNDP regional and country IPFs. The primary objectives planned for the fourth cycle include: (a) the further expansion of aquaculture production in Asia, Africa and Latin America, with increased emphasis on the development of integrated aquaculture-agriculture systems; (b) the strengthening of the capacities of countries to develop and manage the fisheries resources of their extended economic zones; (c) the increased access of developing countries to high-value tuna fisheries; (d) the promotion of closer international co-operation in the sharing of fishery research vessels and equipment; and (e) the strengthening of the regional fish marketing services established during earlier cycles through extended training in quality control of fish products and the promotion of linkages among the various services.

81. While the growth rate of marine capture fisheries has been steadily declining in recent years, aquaculture production increased by 42 per cent between 1975 and 1980 and is still expanding substantially. UNDP and other donors have been contributing to these production increases through the Aquaculture Development and Co-ordination Programme (ADCP). Interregional resources in support of this programme are allocated primarily for a small core team of specialists who provide assistance to participating Governments and centres in various aspects of aquaculture research and development. Through ADCP, assistance has thus far been provided for the planning and design of numerous aquaculture projects which have attracted some \$260 million in follow-up investment and about \$15 million in technical assistance, mostly during the third cycle.

82. The ADCP network is now well developed and it is anticipated that support for the core team under the interregional IPF can gradually be reduced during the fourth cycle. Emphasis during the next phase of the programme will be placed on the co-ordination of applied research projects, development of aquaculture support services, feed technology, co-ordinated planning and global information services. Close co-operation will be maintained with the global research project on integrated agriculture-aquaculture farming systems referred to earlier.

83. During the third cycle, UNDP continued to provide support under global and interregional programmes in collaboration with the Food and Agriculture Organization of the United Nations (FAO) and the Government of Norway for the survey and test-fishing operations carried out by the fisheries research vessel Dr. Fridtjof Nansen. No new allocation for this programme is proposed during the fourth cycle, but funds previously approved from the global IPF will be rephased to continue the collaboration through 1988.

84. To ensure the continuing access of developing countries to research vessels and scientific equipment, DGIP is examining the feasibility of establishing a Programme for the Co-operative Use of Fishing Vessels, through which underutilized research vessels owned by various countries would be made available temporarily to



developing countries. This system is intended gradually to replace the present UNDP/FAO Fishery Vessel Pool. The Rotational Use of Portable Scientific Equipment for Research Vessels needed for specific surveys is proposed; this programme will assist in the training of management and technical staff responsible for research vessel operations.

85. Present annual catches of tuna and tuna-like species in the Indo-Pacific area amount to 2 million metric tons, valued at about \$1 billion. Throughout the third cycle, UNDP and FAO have built up the Tuna Development and Management Programme, which is establishing an information base for tuna fisheries, facilitating regional arrangements for the establishment and effective use of the fishery information system of the programmes and generally promoting co-operation between Indo-Pacific countries in tuna fisheries. Additional support through 1990 is proposed to benefit coastal and non-coastal countries to assume responsibility for the system. UNDP funding for this transitional period may be shared between the interregional and the African and Asia and Pacific regional programmes.

86. Over the past several cycles, UNDP, FAO and bilateral donors have co-operated in establishing a number of regional fish marketing information networks, namely, INFOFISH, INFOPECA, INFOPECHE and INFOSAMAK, which, respectively, cover Asia and the Pacific, Latin America, Africa and the Arab States. In the next stage of development, Governments and industry representatives have requested that information on fishing technology, aquaculture and advisory services also be included in the data base. To meet this need, plans during the fourth cycle call for the establishment of advisory clearing houses linked to the regional marketing networks, as field units for receiving requests for assistance. Follow-up activities will be country-based and country-financed. To complement these advisory services, DGIP intends to provide support for training in quality assurance of fish and fishery products from developing countries, which now account for 40 per cent of world exports of these products. This training will cover senior and intermediate level control and inspection staff as well as management personnel from the industry.

#### G. Management development and training (Interregional programme)

87. The development of enhanced management capabilities must be dealt with primarily through national action because of the very large numbers and diverse categories of personnel required. Training elements in global and interregional agricultural, health, energy, water, sanitation and fisheries programmes will continue to be a crucial element for achieving impact at the country level. There is, however, a need for selective types of catalytic support at the intercountry and multiregional levels to supplement national efforts. These include the training of the heads, teaching and consultancy staff of management development and training institutions, an activity which can be done more cost effectively through intercountry programmes or at international institutions; collaboration in the development of training programmes curricula and teaching materials of interest to a wide range of countries; and the transfer of training technology and experience among countries through the networking of training institutes.

88. Three such programmes initiated in the third cycle which meet these criteria are proposed for support under the interregional IPF during the fourth cycle. They are: Co-operation Among Management Development Institutions (INTERMAN); Training Development in the Field of Maritime Transport (TRAINMAR); and for the World Maritime University (WMU) for which a modest level of support is proposed.

89. Management development for both the public and private sectors is a critical need in many developing countries, and UNDP, since its establishment, has provided support under its country programmes for the development of management training institutes in numerous developing countries around the world. To help these institutions keep abreast of changing circumstances and exchange programmes and experience, DGIP has been co-operating with ILO since 1980 in building up the INTERMAN network, which now has links with over 500 management institutions in developing countries. This network is currently in the process of being transformed into a semi-autonomous international professional association in close association with ILO. It is anticipated that the combined contributions from ILO and the members of the Association will enable UNDP to phase out institutional support for the network during the fourth cycle.

90. Experience gained through CODEVIEL, which is now operating without UNDP support, has demonstrated the effectiveness of the decentralized production of training materials utilizing common methodologies and standards. The same methodology is now applied to TRAINMAR, which was initiated in 1980 and made significant progress during the third cycle. By mid-1986, 20 co-operating centres with activities financed by UNDP regional and country IPFs, Governments, private shipping companies and other sources in 17 developing countries had provided training to more than 3,500 managers.

91. The objectives of TRAINMAR during the fourth cycle include: (a) the development of additional new training courses and materials, (b) the progressive establishment of self-supporting regional networks of co-operating institutions during 1987 and 1988, and (c) increased technical support by UNCTAD and absorption of the central support team within the agency.

92. On the basis of a positive joint review in 1985, the interregional programme will continue to join the UNDP Regional Bureaux and the Unit for Europe as well as other donors in providing support to WMU, which began operation in 1983. Fellowships are provided by a number of bilateral donors, Governments and private enterprises. Over 300 students from 80 countries have completed or are carrying out studies leading to a Master of Science degree.

#### H. Other programmes (Interregional programme)

93. The Special Labour Intensive Public Works Programme will continue to be a major element in the human resources sector. The programme is based on the premise that the provision of opportunities for employment of the rural poor through labour-intensive public works (forestry/agro-forestry, rural roads, minor irrigation works, drinking water facilities, health clinics, etc.) can help rural communities achieve self-sustained development through the utilization of local

human resources. This programme has provided assistance principally to least developed countries (LDCs), in the planning, design, implementation and evaluation of public works projects and has done much to demonstrate to Governments and donors the economic feasibility and social value of labour-intensive construction methods. Total resources generated amount to \$104.2 million in technical and capital assistance, comprised of: \$12.4 million from the UNDP interregional programme and the Special Measures Fund for the Least Developed Countries (SMF); \$16.2 million from UNDP regional and country programmes; \$65.4 million from other multilateral and bilateral donors; and \$10.2 million from beneficiary Governments. Collaboration with the World Food Programme (WFP) is active in Sierra Leone, Uganda and Benin and other opportunities are being actively pursued.

94. During the fourth cycle, one or two additional countries will be brought into the programme each year. Efforts will be made to place greater emphasis on achieving better integration of the technical and financial assistance provided by donors, and closer linkage of national projects with World Bank lending activities. There will be closer co-ordination at the national level between these construction programmes and other activities in a particular sector. In view of its emphasis on capacity-building and grassroots development in LDCs, SMF has been the primary source of DGIP support for this programme.

95. It is also proposed that modest core support will also continue to be provided for the National Household Survey Capability Programme (NHSCP), which helps developing countries develop a permanent capability to generate reliable data on which policy and planning decisions must be based. The programme has direct relevance to strengthening health services, developing drinking water and sanitation facilities, and planning employment and income-generating programmes. A total of \$18 million has been mobilized for the support of this programme and developing countries meet approximately 75 per cent of its operational costs. An additional objective during the fourth cycle will be the institutionalization of support for the programme within the United Nations Statistical Office, and the gradual phasing out of interregional support during the latter years of the fourth cycle.

#### I. New initiatives

96. As indicated earlier, changing requirements within sectors already part of the interregional and global programmes in the third cycle are proposed as a major focus of attention during the fourth cycle. Nevertheless, within the availability of planned resources, approximately 15 per cent of which have not been programmed, there is scope to address new priorities not previously supported by the programmes, at least on a preliminary basis.

97. Areas where preliminary consideration is being given for possible support from the interregional and global programmes include the forestry sector, where modest support is being provided from the global programme to the World Resources Institute to associate NGOs with the International Task Force on Tropical Forestry, with which UNDP and other international organizations are collaborating. In the area of urban development, preliminary research conducted jointly with the World

Bank and the United Nations Centre for Human Settlements (Habitat) was initiated in 1986 to determine whether the problems of cities, representing half of the population and half of the gross national product (GNP) of developing countries, might benefit from an interregional approach. Other areas being considered for support stemming from the consultative process noted earlier, include approaches to assist developing countries in dealing with debt-related issues, assistance in helping to reduce possible negative distributional aspects of structural adjustment programmes, environmental and natural resource management, and industrial development. Given the relatively small amount of unprogrammed IPF resources, progress in these areas will depend on the availability of collateral financing.

Financial summary

I. GLOBAL PROGRAMME	<u>\$</u>	<u>\$</u>
A. <u>Total IPF resources available</u>		81 000 000
B. <u>Proposed utilization of resources</u>		
Projects already approved:		
Agricultural research	17 300 000	
Health/water/sanitation	200 000	
Subtotal	<u>17 500 000</u>	
Projects proposed:		
Agricultural research	30 200 000	
Health/water/sanitation	20 700 000	
Unprogrammed	<u>12 600 000</u>	
Subtotal	<u>63 500 000</u>	
 TOTAL UTILIZATION OF IPF RESOURCES		 <u><u>81 000 000</u></u>
 II. INTERREGIONAL PROGRAMME		
A. <u>Total IPF resources available</u>		46 000 000
B. <u>Proposed projects</u>		
Health/water/sanitation	17 100 000	
Energy development	3 100 000	
Trade and economic co-operation	3 900 000	
Fisheries development	5 700 000	
Management development and training	2 000 000	
Other programmes	6 500 000	
Unprogrammed	7 700 000	
 TOTAL UTILIZATION OF IPF RESOURCES		 <u><u>46 000 000</u></u>

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