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THE GLOBAL AND INTERREGIONAL PROGRAMME

1982-1986

SUMMARY

The document summarizes global programme activities in 1977-1981, reviews global research needs and priorities for 1982-1986, and proposes for that period a continuing emphasis on agricultural and health research, and the progressive addition of other new research activities. Activities supported by the interregional programme in 1977-1981 are summarized; a continuing emphasis in 1982-1986 is proposed for interregional activities in trade and economic co-operation and fisheries development, together with activities in such fields as energy, health, employment, transport and communications. The global and interregional programme for the third cycle, 1982-1986, is submitted for consideration and approval by the the Council.

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PART ONE : THE GLOBAL PROGRAMME

INTRODUCTION

1. The Governing Council at its ninth session in January 1969 approved the first global project, and at its tenth session reaffirmed this authorization in adopting the Consensus. A global indicative planning figure (IPF) of \$15.5 million was subsequently established for the period 1972-1976, and in June 1976 a global IPF of \$50.2 million (subsequently adjusted to \$52.9 million) was approved for the second programming cycle, 1977-1981. In presenting the global and interregional programme for 1977-1981 at the twenty-third session (DP/216), the Administrator noted that it had been the intention of the Governing Council in establishing the global IPF that project activities should be essentially research-oriented; and that they address important development issues and problems that are acknowledged to be a matter of high priority and could be expected to yield results beneficial to a wide spectrum of developing countries, thus having a global impact. One important consideration was the central and active role attributed to the UNDP, with its partner agencies within and outside the United Nations system, in the search for new solutions to the many complex problems constraining the economic and social progress of the developing world. A second consideration was the need to correct the disproportionate concentration of research capacity and resources in and for developed countries, by mobilizing scientific and technical talents and resources in support of research efforts in areas of vital concern to the developing world.

2. An illustrative global IPF of \$114.8 million was established by the Governing Council for the third programming cycle, 1982-1986. Preparation of the present programme began in 1980 when the views of Governments, Specialized Agencies, the regional commissions, the United Nations University (UNU), and others were solicited on development issues and problems which the global programme should address. Further exchanges took place within UNDP and with the Agencies; the resulting proposals were reviewed in January 1981 by the Administrator's advisory panel on the global programme.

I. REVIEW OF THE 1977-1981 PROGRAMME

A) Activities 1977-1981

Agriculture

3. The global programme for the second cycle placed high priority on the development of agricultural research and training as essential elements in any strategy for increasing agricultural productivity. Attention was to be directed not only to basic research aimed at developing higher-yield crop varieties, but also at strengthening economic research, at a deeper knowledge of farming systems, farmers' economic problems, storage and marketing systems, as well as pre- and post-harvest technologies. Two-thirds of the IPF resources were devoted to this sector; project activities were planned and executed within the framework of the Consultative Group on International Agricultural Research (CGIAR) of which UNDP is a co-sponsor with FAO and the World Bank. Operational activities in agriculture in 1977-1981 may be grouped under six main thematic headings: maize, rice, sorghum and millet, other food crops, nitrogen fixation, fertilizer, and livestock, it being noted that in some cases the research covered more than one of these thematic elements.

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4. The maize research programme continued the original UNDP global research initiative, begun in 1970, into third and fourth phases within the CGIAR framework at the International Maize and Wheat Improvement Centre (CIMMYT), Mexico. The GLO/75/007 project, which ended in March 1980, intensified research on raising the quantity and quality of protein in maize in combination with high yields, and agronomists were trained to conduct national programmes of nutritive maize production. The research work was extended from Latin America to Asia and Africa. Several new experimental varieties were obtained and tested around the world in facilities developed under the programme, with test feeding showing nutritional quality almost equal to cow's milk. In the current project, GLO/78/009, the testing and demonstration activities are being expanded worldwide, to stimulate the large-scale production of the new varieties. In addition, the project is designed to strengthen and expand specific research efforts in breeding, agronomy, physiology, disease and pest control, nutrition and chemical testing, including research support to co-operating countries, agro-economic research at the farm level, and training. A related but smaller project, GLO/74/009, was directed at strengthening agro-economic research on maize improvement in East Africa; follow-up continues under the GLO/78/009 project.

5. The rice programme began in 1975 with the GLO/74/006 project at the International Rice Research Institute (IRRI), with the objective of enabling developing country rice scientists to participate in the systematic evaluation and development of the many diverse strains of rice adapted to different agro-ecological conditions by means of an expanded international testing effort and by training in genetic evaluation and utilization. The project results were impressive: high-performance varieties were identified in tests and trials in over forty countries, under widely varying conditions; training and scientific collaboration have developed rapidly. Yield increases were substantial at the farm level, and varieties adapted to limited rainfall and adverse soil conditions promise benefits to many farmers. Also at IRRI, in conjunction with the Boyce Thompson Institute for Plant Research and Cornell University, a second project, GLO/75/008, was directed at nitrogen fixation by free-living bacteria in association with lowland rice. Early results quantified the amount of nitrogen fixed by free-living bacteria, and opened the way to determining efficient rice/bacteria associations which will enhance nitrogen fixation. The current objectives involve the co-ordination of an expanded network of international rice nurseries; germ plasm collection; co-operative research networks on innovative techniques for rice improvement and on biological nitrogen fixation; research support; and training. The five-year project will continue through 1984.

6. The third major food staple global research effort, on sorghums and millets, began in 1973 with the inception of the International Crop Research Institute for the Semi-Arid Tropics (ICRISAT), under CGIAR auspices. A second-phase project, GLO/77/005, was designed to improve, through genetic and breeding research supported by bio-chemical and related studies, the yields and nutritive quality of sorghums and millets. More than 15,000 strains of sorghum and 5,000 of millet were collected for international co-operative trials around the world for adaptation to environmental stresses, diseases and pests. More than 150 scientists from 22 developing countries received ICRISAT training. The second phase of an associated project, GLO/77/002, was directed at strengthening and expanding sorghum and millet research in semi-arid Africa. Considerable progress was made in developing scientific capacity and facilities, in the co-operative trials on varietal testing, and on farming systems research in association with other crops under different management practices. This project has paved the way for a major bilateral programme in the same region.

7. Research activities on other food crops concerned roots and tubers (GLO/79/013) and an expanded programme of biological nitrogen fixation on cowpeas and soybeans in the humid tropics (GLO/79/013). The first project is intended to strengthen research and extension capabilities, at the national level, for cassava, sweet potatoes and potatoes, and to effect the transfer of the relevant technology emerging from the International Centre for Tropical Agriculture (CIAT), the International Potato Centre (CIP), and the International Institute of Tropical Agriculture (IITA). The cowpea and soybean project forms part of the overall programme on biological nitrogen fixation (reviewed below) and is conducted at IITA. The objective is to enhance the rate of nitrogen fixation by these two high protein crops, and thus to achieve improved yields.

8. Biological nitrogen fixation research emerged as a major theme in the 1977-1981 global programme, reflecting growing concern with the problem of sustaining agricultural production in the face of rapidly rising costs for inorganic nitrogen fertilizer. Several research projects already referred to (lowland rice at IIRI, sorghum and millets at ICKISAT, cowpeas and soybeans at IITA) have had nitrogen fixation as the principal research focus; a fourth project (GLO/78/003) is currently being undertaken at the International Centre for Agricultural Research in Dry Areas (ICARDA) on soil nitrogen, soil moisture, nitrogen-fixing bacteria and crop rotations with legumes. The objective is to improve crop production under rainfed conditions by enhancing soil nitrogen and ensuring effective utilization of limited available water. The research is being carried out as an integral part of ICARDA's programme on soil/water/plant relationships, farming systems, crop improvement, agro-economic surveys and livestock research. A concurrent project (GLO/79/005) is conducting research and training on fertilizer technology and utilization, under the auspices of the International Fertilizer Development Centre. The research component involves studies on the efficiency of nitrogen and phosphatic fertilizers under different soil conditions in developing countries, in order to increase food production. The training component for developing country personnel is devoted to the production, distribution, marketing and utilization of fertilizers.

9. The livestock disease project (GLO/77/008) is currently expanding and intensifying research on animal trypanosomiasis at the International Laboratory for research on Animal Diseases (ILKAD). The objective is development of vaccines suitable for immunization of animals of economic importance and which, indirectly, might speed the development of a vaccine against the corresponding human disease. Activities include in vitro propagation of trypanosome; definition and characterization of the surface antigens and membrane of trypanosomes to determine their possible utilization in serologic and potential immunologic approaches to control; and training programmes on research and control. Several aspects of the ICIPE programme (GLO/76/004), described below, are devoted to insect pests affecting livestock and crops.

10. Other global projects related to agriculture in 1977-1981 involved cotton, desertification, and strengthening national agricultural research systems. The cotton project (GLO/76/001) was designed to expand international cotton research and development, both agricultural and industrial, and to integrate these activities with promotion, within a new organization: Cotton Development International (CDI). Three intergovernmental meetings to elaborate the proposal were convened in 1979-1980, with the World Bank and the Rockefeller Foundation as

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co-sponsors. The establishment of CDI could occur in 1981-1982, dependent upon the outcome of the UNCTAD cotton commodity discussions. An allocation towards the international plan to combat desertification, under UNEP auspices, was made as project GLO/78/008. An analysis of the final results of the GLO/71/002 project on the economic and social implications of new food grain varieties was published by Oxford University Press; project activities had been completed in the first cycle by the United Nations Research Institute for Social Development. Finally, a small input was made (GLO/79/001) to the preparatory work for the establishment of the International Service for National Agricultural Research, within the CGIAR framework.

Fisheries

11. The Southern Ocean fisheries survey project (GLO/75/006), completed in 1977, had as its objectives the collection of information about the living resources of the Southern Ocean, and the establishment of a programme for improving this knowledge. Technical reports and recommendations for action were issued by FAO, the Executing Agency, in 1978-1979. A second major project in this sector is the current survey and training activity (GLO/79/011) directed at the assessment and development of world renewable marine resources. The eighteen-month survey, executed by FAO in collaboration with Norway, involves acoustic techniques of biomass estimation; developing assessment techniques for lagoons, atolls, reefs and other marine environments; and training for developing country personnel. Earlier survey work of this type, carried out within the Indian Ocean Programme, discovered millions of tons of potentially valuable meso-pelagic fish.

Integrated Pest Management

12. Basic and applied research at the International Centre for Insect Physiology and Ecology (ICIPE) (GLO/76/004) has significant relevance for agriculture in terms of crop and animal pests and diseases, and for human health. The current second phase project has as its objective the development of environmentally sound and effective biological pest control systems as an alternative to toxic chemical pesticides, and covers the tsetse fly, African armyworm, mosquitoes, ticks, foraging termites, sorghum shoot-fly, cereal stem-borers and grain legume pod-borers. Several important discoveries have been made relative to reproductive physiology, isolation mechanisms, sensory physiology, genetic variability and ecological influences on the behaviour of insects. Training of developing country scientists is an integral component of the project.

Health

13. The launching of two large global health research projects as well as other health-related projects in 1978-79 was the most important new initiative taken in the global programme for 1977-1981, adding a second major priority area. On the basis of preparatory activities undertaken in the first programming cycle, 1972-1976 (GLO/74/010, Co-ordinator for tropical diseases programme; GLO/75/011, Research and training in tropical diseases; GLO/74/001, Water supply and sanitation), UNDP joined with the World Bank and WHO in research aimed at the control of six major tropical diseases and at the development of preventive vaccines and drugs for the treatment of diarrhoeal diseases. The GLO/77/007 project on tropical diseases is part of the special programme for research and training sponsored by WHO, UNDP, and the World Bank, and financed by a donor

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consortium. A network of research activities is currently mounting a broadly based attack on malaria, schistosomiasis, filariasis (including onchocerciasis), trypanosomiasis (both African and American), leishmaniasis, and leprosy, which affect hundreds of millions of persons in the developing world. Research on vaccine and drug development for diarrhoeal disease control (GLO/78/005) forms a separate but integral part of an overall WHO programme. The project includes support for the International Centre for Diarrhoeal Diseases Research in Bangladesh, and elsewhere will strengthen developing country facilities for clinical trials of new drugs and vaccines. A small ancillary project, GLO/79/009, ensures liaison with global research activities in the health and agricultural fields.

14. Two global projects are currently operational in the health-related field of water supply and sanitation. The first concerns the development, in more than a dozen countries, of demonstration and pilot projects on low-cost water supply and sanitation techniques (GLO/78/006). The objective is to assist Governments in incorporating low-cost capital-saving technologies into their water and sanitation programmes. The project is executed by the World Bank and involves not only system design but also training in the operation and maintenance of community systems. The project has a strong pre-investment element, and has already generated domestic and external investment estimated at \$44 million, with more in the pipeline. The second project forms part of international efforts to develop dependable, low-cost hand-pumps (GLO/79/010), and is also executed by the World Bank. The aim is to establish a standard methodology for testing and evaluating hand-pumps, to develop selection criteria, and to promote testing facilities in developing countries. A subsequent large-scale field testing phase will be pursued in 1982-1986 by UNDP and other contributors, with assistance from the interregional programme.

Energy

15. Diversification of the global programme was also a feature of a survey conducted in 1979-1980, under project GLO/79/006, of the activities of the United Nations and other relevant organizations with respect to non-conventional energy, as well as a review of the state-of-the-art of existing technologies in this field. The aims of the review involved the selection of technologies for development and application, the determination of priorities for assistance, the identification of research and information facilities in developing countries, and recommendations for UNDP assistance. The results of the study are incorporated in the 1982-1986 programme proposals below. A major testing and demonstration project (GLO/78/004) on small-scale, solar-powered pumping systems was launched in 1979 and is executed by the World Bank. The objective is to develop pumping systems for irrigation and drinking water supply which use solar power, meet the cost and operational requirements for small farm use and which can be manufactured in or assembled in developing countries. Tests on ten units are in progress in Mali, the Philippines and the Sudan, and will be followed by assessment of the prospects for extending activities to a larger number of countries.

16. It should be emphasized that the initiatives in biological nitrogen fixation research outlined above also constitute an extremely important involvement in the field of energy. The concerned research activities are designed to find means to provide biologically fixed nitrogen for crop production instead of artificially produced chemical nitrogen fertilizers which are highly expensive both in energy and cost, which are somewhat inefficiently utilized by crops, and which pose the possibility of polluting surface and groundwaters. /...

Other activities

17. Five small projects in the science and technology field were completed in 1977-1981: an international colloquium on "Science, technology and society: needs, challenges and limitations" (GLO/79/008); an intergovernmental meeting on governmental regulatory functions in the transfer of technology (GLO/77/012); research on the development of a rice bran stabilization unit (GLO/77/009); and a mission to assess the potential application of Cuba's technological capability in the utilization of sugar by-products (GLO/79/004). These and the following two projects were of an exploratory character, approved under the authority delegated to the Administrator by the Governing Council. Two other activities, both completed, make up the total of 39 projects operational during 1977-1981. In 1977, a desk-study was made of the role of self-help groups in rural development projects (GLO/77/004). With the aim of increasing the effectiveness of major rural development programmes, research was directed at developing recommendations to strengthen the participation of self-help groups. The study was executed by ILO, which has made arrangements to publish the report. The second activity was a preparatory input in 1979 for the implementation of the National Household Survey Capability Programme (NHSCP) sponsored by the United Nations, UNDP, the World Bank, UNFPA, and UNICEF. The NHSCP was launched at an intergovernmental meeting in June 1979; further UNDP assistance to the NHSCP is being provided from the interregional IPF.

B. Evaluation

18. A comprehensive evaluation report on the global programme, prepared by Dr. Alexander King, Chairman of the Board of the International Federation of Institutes of Advanced Study, was submitted to the Governing Council at its twenty-seventh session.^{1/} The report found that the global programme in 1977-1981 conformed faithfully to the priorities established by the Governing Council. The high priority given to agricultural development was wise in view of the fact that rapid population increase in many of the developing countries makes the provision of sufficient food an overwhelming imperative. Global projects on health topics helped bring about a more balanced programme and promise to provide new institutional structures of the greatest importance for future development. It had not proved possible to initiate activities in some of the new areas regarded as strong candidates for preparatory work in the 1977-1981 programme document; e.g., the interactions between food, nutrition, agriculture and public health; pre- and post-harvest wastage of foods, the development of micro-biological processes; or the improvements needed and possible in the fields of education (formal and informal) and training. In part, this reflected the greater priority accorded to agriculture, health and energy; the exploratory activities referred to in paragraph 17 did not lead to the identification of new global projects.

19. The agricultural part of the global programme has been conspicuously successful in attracting donor support through the CGIAR mechanism which is currently mobilizing some \$120 million per year. Comparable success has been achieved with respect to the Programme for Research and Training in Tropical Diseases, for which more than \$70 million has been contributed. For ICIPE the case is similar, with contributions coming from many countries, although UNDP provides a large proportion of the budget. Most of the other individual projects are less appropriate for consortium-building than the comprehensive examples above, although in most cases there is joint financing with such organizations as WHO and the World Bank.

^{1/} DP/456, Evaluation of the Global Programme, 29 March 1980.

20. The time required for scientific research to be practically applied is particularly long in the biological fields. It is therefore too early to have convincing evidence of the practical successes of the majority of the projects in the global programme. Nevertheless, there has been immediate, essential and important success in building up the CGIAR network of research institutions. The water and sanitation project, though still at a very early stage, has already helped to persuade several countries to include some of its non-traditional, low-cost sanitation technologies in their development programmes. In the case of ICIPE, UNDP global support has helped to build in a developing country a research institute of first-class quality and practical relevance for entomology and pest control.

21. The general conclusion of the evaluation report on the 1977-1981 programme was that "the global programme has proved to be exceedingly effective, has shown much imagination and initiative and has provided UNDP with a flexible and innovative mechanism, important for the future development not only of the programme itself, but of UNDP activities as a whole."^{2/}

C) Lessons and directions for 1982-1986

22. The principal lesson, confirmed in the 1977-1981 cycle, is that UNDP global projects are a successful means of solving significant scientific and technological problems facing the developing world. At the same time, the majority of problems tackled to date evidently require a sustained effort before scientific research can produce solutions, and before those solutions can be translated through regional and national institutions into growth and development at the farm and village levels. Scientific research is costly and the establishment of international co-operative financing mechanisms to permit cost-sharing has to be considered. If research and application in certain fields are to be successful, it is necessary to maintain an effort above a certain critical threshold. The comprehensive global project permits the creation of a strong scientific team with many disciplines represented, much critical discussion of the issues involved, intimate contact with many advanced scientific centres throughout the world and, hence, access to new knowledge that arises. The existence of such a central focus provides an important degree of scientific sophistication which individual developing countries would otherwise find it difficult to contemplate. A fully effective research and development system, however, requires the articulation of national and regional efforts in conjunction with the global involving not only the creation of linkages between UNDP's regional and country programmes for the application of research results, but also the strengthening of regional and national institutions generally. This was recognized in the 1977-1981 programme document, and the need for a concerted effort by those responsible for global, regional and national activities is re-emphasized by the subsequent experience. A related conclusion is that the global programme is likely to take the form of a relatively small number of large projects.

23. The promotional and catalytic role of the global programme has proved to be a key justification for its existence. A second and equally important aspect has been that of institution building. Global research is a new concept and practice in applied fields; there is still very little experience as to how best it may be

^{2/} Ibid., para. 54

conducted. The lesson provided by the evolution of the CGIAR has been positive; but much remains to be done, since widely different models may be required in other research fields.

24. During 1977-1981 some experience was obtained in the use of small preparatory studies to explore and define larger research questions. This will become more necessary in 1982-1986 when fields other than agriculture and health will warrant an increased effort. On the other hand, small project activities which are not related to new fields or testing new methods should not be taken up in the global programme where their place seems marginal. The criteria adopted for the selection of projects in DP/216 have served well, but require some sharpening. Revised criteria are presented in paragraph 34 below.

25. As noted above, the development of global research centres, backed by the CGIAR, has been an outstandingly successful mechanism for the conduct of research in the agricultural field. The Tropical Disease Programme, in contrast, has been developed using a network approach, which combines research capacities and activities in a large number of countries. New modalities for the conduct of global research programmes will be necessary in the future, and are unlikely to be stereotyped on either of the two models mentioned.

26. A further conclusion is that, as the scope of the global programme broadens, there will be new problems with respect to the scanning of priority fields, the identification of project areas, the selection and design of implementation arrangements and monitoring of implementation, the dissemination and application of projects results, and the conduct of project and programme evaluation. While it is true that UNDP, with limited staff resources, has in the past decade resolved these problems successfully, the next decade will require new and more systematic approaches, for which the CGIAR and health consortia and programmes may not be entirely appropriate models. One conclusion from this analysis, that there should be an advisory panel of leading scientists to advise the Administrator on the global programme, was endorsed by the Governing Council in June 1980.^{3/} At its first meeting in January 1981, the panel agreed that global research problems called for a systematic and interdisciplinary approach, in which due attention must be given to socio-cultural and behavioural factors. Close links should be built with such institutions as the UNU and the United Nations Interim Fund for Science and Technology. The panel endorsed the main thrusts of the 1982-1986 global programme, and suggested a number of new areas for exploration, which are noted below.

II. GLOBAL RESEARCH, 1982-1986

A. Needs and priorities

27. The need for research on problems of important concern to developing countries continues to be vast and wide-ranging. The previous decade saw an unprecedented series of global conferences under United Nations auspices, which brought world

^{3/} Decision 80/22, III

attention to environmental problems, population, food production, the role of women in development, human settlements, industrialization, trade and development, employment, the Law of the Sea, the international economic order, water supply and sanitation, agrarian reform and rural development, technical co-operation among developing countries, desertification, and science and technology for development. In the immediate future the difficulties faced by the least developed countries and the situation with respect to new and renewable energy resources will be added to this list. Each of these conferences has identified or will identify problems and issues requiring basic or applied research; together they constitute the international agenda within which the role and activities of the UNDP and its global programme must find their place.

28. Given this context, the definition of UNDP's global programme necessarily involves a constant scanning of development issues, to identify those crucial problems which are likely to yield to the attack of concerted research. The list of needs is long, and grows longer, but resources of money, manpower and institutions hardly keep pace. Research and development projects rarely produce results in the short run, and a balance must therefore be found between the maintenance of on-going programmes and the initiation of new ones. The capacity of the global programme to achieve a broader scope and to undertake new initiatives must in some degree depend upon its success in harnessing other resources, from other donors, to sustain projects and programmes from which UNDP can eventually withdraw or scale down its participation once they are fully launched.

29. The substantial progress made in agricultural research and development in the previous decade and the successful adaptation of research results to food production in many countries have not diminished the priority which the international community attributes to accelerated agricultural development and increased food production. Hunger and malnutrition continue to afflict millions, while others maintain a precarious balance never far from the shadow of starvation. Population growth, mounting energy costs, and catastrophic natural conditions will not permit any easing of the pressure upon world food supplies. The need for higher-yielding varieties of staple food crops remains constant, as does the need for farming systems research to integrate new technologies into the economic and social fabric of farm production. The relationships of weather and climate to agricultural development require closer examination. To these elements must be added the need for a broadly based programme on the biological fixation of nitrogen to offset the rising cost of chemical fertilizers and their effects upon the environment.

30. A second continuing priority area, and equally a basic need, is that of health. The reduction of sickness, disease and premature death is essential to development and a fundamental objective of the development effort. A concerted international attack on the major tropical diseases may produce new low-cost methods for mass programmes of prevention and treatment, compatible with basic health delivery systems. A further dimension is the need for safe rural drinking water and sanitation, which many consider the most effective single disease prevention measure in developing countries, along with the complementary attack on diarrhoeal diseases.

31. A third priority area, and the most recent on the global agenda, is that of energy. The dependence of the vast majority of developing countries upon imported petroleum became a critical problem in the past decade, a problem which threatens

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their economic future. Diversification of energy supplies, and the development of both conventional and non-conventional domestic resources of energy, represent a third set of needs for the decade ahead. Unlike agriculture and health, energy sector development imposes upon most developing countries not only research needs but also the creation of policy, planning and analytical structures to administer national programmes. Within the non-conventional energy field are several research areas which offer the promise of alleviating the difficulties of the developing countries.

32. Governments, Specialized Agencies, the regional commissions, the UNU and others were asked during 1980 to suggest priority areas of emphasis for the 1982-1986 global programme. It was possible to identify, among the more than one hundred responses received, several dominant or recurrent themes. There was clear support for the three priority areas already identified: health, agriculture, and energy. Among suggestions for new activities were proposals for research on nutrition, viral and zoonotic diseases, agro-based industry, and various applied and socio-economic research activities on energy. There was also support from several respondents for a number of new topics, including trade and development, science and technology, industrial development, transfer of technology and natural resource development, including marine resources. The kinds of activity envisaged (e.g., advisory services, training courses) were in many cases more appropriate to the interregional programme, and are therefore considered in the second half of this document.

33. In contrast to the 1977-1981 global programme proposals, which included a wide range of potential areas for programme development and which, in the outcome, did not for the most part result in significant new fields of activity, the proposed 1982-1986 programme has a somewhat narrower and perhaps more realistic focus. Priority in the allocation of global IPF resources will be given to the areas of agriculture, health and energy; when account is taken of on-going projects in agriculture and health, and the prospective growth of activities in the energy sector, a commitment to these three is likely to absorb 80 to 90 per cent of the IPF resources available. The scope for activity in new areas will clearly be limited, and it is proposed to concentrate the balance of resources on topics offering opportunities for full-scale development in future cycles. In the selection process, careful consideration will be given to the suggestions made by Governments and Agencies in 1980, and to the recommendations of the Administrator's Advisory Panel on the Global Programme.

B. Criteria for the selection of activities

34. The criteria for the selection and formulation of global research projects were reviewed and amplified in the evaluation of the 1977-1981 programme. The revised criteria to be applied for the 1982-1986 programme are as follows:

- Activities should be concerned with key issues of importance to a wide spectrum of developing countries;
- They should be inherently appropriate to global attack;
- They should be conceived in terms of the whole perspective of the United Nations and national research systems;

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- They should make full use of existing research institutes in the developing countries and of the best scientific skills, wherever these may be;
- They should be of such a nature as to give promise of results in a reasonable time but must be well-sustained;
- They should be likely to attract collateral donor support; and
- They should be designed so as to contribute to the building up of national capabilities for science and technology, both by the association of existing national institutions in the work and by the insertion in each project of important training elements.

III. THE GLOBAL PROGRAMME 1982-1986

35. During the period 1982-1986 it is proposed (a) to continue work on a number of significant research and development activities begun during the 1972-1981 period; (b) to initiate new activities in fields where preparatory work was carried out in 1977-1981; and (c) to examine a number of other critical development issues and problems, for the purpose of defining new activities for implementation during the latter part of the programme cycle and continuation beyond.

A. Activities to be continued

Agriculture

36. The following agricultural research programmes are proposed for continuation into the 1982-1986 cycle :

- (i) Development of improved varieties of rice, maize, sorghum, millets, cassava, sweet potatoes, and potatoes, combining higher yields with resistance to pests and diseases;
- (ii) Enhancement of the nutritional quality of maize by increasing its protein content;
- (iii) Adaptation of rice strains to agro-ecological conditions, including drought, cold, adverse soil conditions, pests and diseases, as part of a global rice testing network;
- (iv) Enhancement of biological nitrogen fixation by free-living bacteria, azolla and blue-green algae in association with paddy soils, and of fixation in food legumes such as cowpeas and soybeans;
- (v) Improvement of efficiency of soil water use by food crops under arid conditions;

(vi) Intensification of research on the development of pest management techniques through biological methods of control as an alternative to expensive, toxic and environmentally unsafe chemical pesticides;

(vii) Continuation of basic research to develop effective and economically viable measures to control trypanosomiasis and other diseases which seriously limit livestock production;

(viii) Research and training in fertilizer technology and utilization, to study the efficiency of nitrogen and phosphorus fertilizers under different soil conditions and to train developing country personnel in fertilizer production, distribution, marketing and utilization; and

(ix) Intensification of current agro-economic research in East Africa and its extension into Asia through on farm trials and farm surveys to facilitate the adoption of improved technology by farmers.

37. Many of these activities formed the core of the global programme in 1977-1981, and some were initiated in 1972-1976. All of them are of paramount importance in efforts to increase food production and to feed the expanding population of developing countries. While chemical and biological research applied to agriculture is of a long-term character, rapid technological strides are already being made towards substantially increasing food production. For instance, modern plant breeding and genetic manipulation techniques have resulted in higher yielding and pest and disease resistant food crops with improved quality. Research on increasing biological nitrogen fixation, likewise, has a tremendous world-wide potential. It is estimated that about 190 million tons of nitrogen are fixed biologically in agricultural soils as compared to 45 million tons of chemical nitrogen fertilizers; most of the chemical fertilizer is used in industrialized countries. The potential exists for more than doubling biologically fixed nitrogen in soils through micro-organisms. Integrating current efforts, a master programme for the enhancement of biological fixation of nitrogen on a global basis is envisaged, to produce benefits for farmers who cannot afford to purchase expensive, energy-consuming artificially produced chemical nitrogen fertilizers. Research on improvement of the resistance of major food crops to pests and diseases and adverse soil and climatic conditions can help stabilize crop yields, increase the efficient use of inputs and open up areas in developing countries presently closed to the cultivation of food crops. The proper use of agrometeorological information can help optimise agricultural production, and a workshop meeting is envisaged in 1981 to plan further work in connexion with rice. Pest management research, through the combination of technology and biological control methods, can reduce the heavy losses caused by pests.

38. The objectives of the above projects, and justification for their inclusion in the global programme, were described in the individual papers submitted to the Governing Council at the time of their approval, and additional information will be provided when Governing Council approval is sought for project extensions or new phases. While major accomplishments have been achieved by many of the projects, for example those on maize and rice, further work will be necessary before they can begin to yield significant results. In particular, increased attention is envisaged to research on social factors affecting the transfer and adoption of the new agricultural technologies. Some of the more recently approved projects are in

the midst of full-scale development and testing of the initial research results. While almost all the projects are being implemented at selected international centres within the framework of the CGIAR, they have initiated key outreach and extension programmes in several developing countries so as to strengthen national agricultural research programmes financed by UNDP and other donors. Recognizing the urgent need for strengthening the national agricultural research capacities of developing countries, a number of multilateral and bilateral donor agencies are substantially increasing their financial assistance to agricultural programmes. However, the building-up of effective research systems is a complex and long-term task which requires commitment and support from national, international and bilateral sources. It is, therefore, important to continue these programmes (with appropriate social and economic components) during 1982-86 and possibly beyond so as to consolidate progress already achieved and to derive maximum benefits from the investments already made. Nevertheless, it is expected that in the 1982-1986 cycle UNDP will reduce, in relative terms, its support for the basic research lines initiated in 1972-1981, to the extent that collateral support is assured to the programmes and institutions concerned.

Health

39. The second category of on-going activities is health research, where the research and training programme on tropical diseases and the diarrhoeal diseases control programme will both be pursued. The objectives of the tropical diseases programme will continue to include the expansion of research in and by the developing countries, the development of new and improved methods of control, as well as prevention and control strategies. More than 600 project activities were operational in 1980, involving over a thousand scientists from 72 countries. Three-quarters of the overall programme resources were obligated for research and development, and the remainder for strengthening research capabilities. The programme sponsors (UNDP, the World Bank, WHO) and participating Governments have recognised the long-term character of the programme, particularly as regards the sustained co-operative effort needed to strengthen research capability and to apply new and improved technologies. The achievement of programme objectives will constitute an essential element in making health for all a real possibility. Activities to be undertaken in the second phase, 1983-1986, will be in accordance with the strategic plans of the several scientific working groups and the research strengthening group established under the programme. The Administrator intends to submit the UNDP component to the Governing Council for approval at its twenty-eighth session.

40. The diarrhoeal diseases control programme, for which the Governing Council approved UNDP global support in 1979, and which has a cost-sharing contribution from the OPEC Special Fund, should also be extended in a second phase from 1984. Diarrhoeal diseases top the list of killing diseases, taking the lives of millions of children each year in the developing world, retarding physical and mental growth and reducing the quality of life for the survivors by impairing their nutritional status. A major thrust of the overall WHO programme is to strengthen the capabilities of national health services for applying existing knowledge to their own programmes of primary health care. Basic research has already led to the development of a vaccine for the prevention in calves of diarrhoea caused by E. coli; other findings involve the discovery of rota viruses and the weakness of

reliance on safe drinking water alone. Several other basic discoveries have still not emerged from the laboratory stage, but hold promise for future development and application. The Administrator expects to present a second phase programme in 1982-1983, after reviewing and evaluating current activities, with a probable emphasis on continued support for the International Centre for Diarrhoeal Diseases Research, Bangladesh, for further research on vaccines, and for research capability strengthening.

Energy

41. A one-year extension of the testing and demonstration of small-scale solar-powered pumping systems, which began in 1979, will be recommended to the Governing Council in June 1981, as a bridge to a second phase. The Phase II project will be based upon information gained from the earlier tests and will expand activities to additional countries, while surveying the feasibility of manufacturing such pumping systems in developing countries. Project objectives call for the development of pumping systems suited to the needs of scattered rural load centres, sufficiently low in cost to be afforded by village communities and small farmers, having minimal operation and maintenance requirements, and with good prospects for local manufacture and assembly. Provision is also made for the involvement of senior technical personnel in the countries concerned. A third and final phase may be envisaged, if these objectives are achieved, when a mass marketing effort will be undertaken to bring the pumping systems into widespread use.

B. New activities on which preparatory work has been carried out

42. During the second cycle, preparatory work has been carried out on six research and development topics to the point where specific project activities can be envisaged for implementation in the third cycle. These involve additional agricultural and health work, but more notably include a major initiative in the energy sector. Proposed new activities, which will be individually submitted to the Governing Council, will be in the following areas :

- (a) Research on food systems and policies;
- (b) Research on tropical wheat;
- (c) Support for the Health Resources Group programme;
- (d) Testing and demonstration of renewable energy technologies;
- (e) Research and market development for cotton; and
- (f) Research and development in integrated resource recovery.

43. The Administrator, under his delegated authority, approved for 1981 a short preparatory study by the International Food Policy Research Institute and the UN Research Institute for Social Development on food systems and policies (GLO/80/006). The objectives include providing information to policy makers

and planners on the mechanisms and interrelationships governing local, national, and international food systems, as well as identifying internal and external constraints on the achievement of food security and means of removing these constraints. The preparatory phase is expected to result in a proposal for a three-year research project operating through a network of economists in the developing countries; the Governing Council's approval would be sought at its June 1982 session. Another preparatory assistance project will permit CIMMYT to begin in 1981 the screening and testing of tropical wheat germ plasm, towards a five-year programme designed to enable tropical developing countries to meet some or all of their domestic wheat requirements. Particular attention will be given on the one hand to subtropical areas where high temperatures, rather than diseases, are the main constraint, and on the other hand to subtropical and tropical areas where temperature and humidity are both high and crop diseases prevalent. As a follow-up to the international conference on primary health care held at Alma Ata in 1978, the Health Resources Group was established in 1980 as a consultative group under the auspices of WHO to promote the rationalization of all available resources required for primary health care activities in developing countries, and to stimulate the mobilization of resources to achieve the goal of health for all by the year 2000. The Group is composed of representatives of developing countries, donor governments, multilateral agencies and non-governmental organizations. Plans have been made for the establishment of a primary health care initiative fund and for a secretariat. The range of activities proposed for the fund is intended, by catalytic and "seed" action, to strengthen national primary health care systems in developing countries. The Administrator expects to present in due course a proposal for UNDP global support to the Health Resources Group.

44. Preparatory work on the testing and demonstration of renewable energy technologies (GLO/80/003) will be continued during 1981, leading to a major project to be submitted to the Governing Council in June 1982. The project will expand the UNDP global involvement in the energy sector initiated by the non-conventional energy study and the solar pump project. The objective is to establish a systematic programme for evaluating the technical, economic and social merits of the most promising technologies, i.e. those which are most relevant to the needs of the rural and urban poor, and those which appear technically and economically ready for widespread application. The proposed five-year project should significantly strengthen current worldwide efforts by establishing a comprehensive array of state-of-the-art studies, by giving high priority to economic viability and social acceptability, by testing technologies on a comparative basis under a wide variety of conditions, and by ensuring that the results are widely disseminated. First priority will be given to biogas, producer gas, crop dryers, stoves and charcoal kilns; wind power, small hydro plants, solar cookers and other technologies will also be tested.

45. The intensive effort mounted by the UNDP, in collaboration with the World Bank and the Rockefeller Foundation, toward support for an expanded international programme of research and development on cotton, should result in due course in a significant UNDP global project in the 1982-1986 cycle. Wide support has been evinced by cotton-producing and importing countries for an integrated programme combining agricultural research, utilization research, market development, and promotion. Preparatory work should be completed in 1981, including definition of the relationship between these development activities and other measures proposed

for cotton under the UNCTAD integrated programme for commodities; the Administrator would then submit a proposal to the Governing Council in June 1982. A research and development project on integrated resource recovery (GLO/80/004) is being submitted to the June 1981 Governing Council, with a four-year duration and execution by the World Bank. Activities involve case studies on rural and urban waste reuse and disposal systems, as well as the development of demonstration projects. The objectives are the achievement of health, environmental, employment and economic benefits in developing countries through the transfer of resource recovery technologies.

C. New areas requiring investigation and programme development

46. The programmes and projects outlined in the previous paragraphs, will absorb as much as nine-tenths of the IPF resources available in 1982-86. The remainder will be devoted to the investigation and preparatory development of new projects and programmes, some of which are likely to fall outside the agriculture, health, and energy fields. The process of scanning potential research topics will be assisted on the one hand by the suggestions made in 1980 and subsequently by Governments and Agencies, and on the other hand by the Administrator's Advisory Panel on the Global Programme. The Panel at its first meeting made a number of suggestions for new initiatives, including (a) the development of pest and disease management policies and techniques;^{4/} (b) a preliminary study on the possibilities for agriculture in saline conditions; and (c) a comprehensive study of total and sustainable biomass utilization.

47. There is every likelihood that additional energy research programmes will be warranted, both technological and socio-economic in character, involving new and renewable sources, conservation, and information systems. The 1981 United Nations Conference on New and Renewable Energy Sources is expected to identify promising new research and development projects, and to provide guidance on the appropriate institutional and organizational frameworks. Proposals to which further consideration will be given, include major projects on simple solar devices, bio-solar energy conversion, and wind power utilization. Other energy-related activities are described below in the interregional programme, including a programme of energy sector assessments in oil-importing developing countries. Further development of the energy sector will require, for UNDP, collaborative arrangements with the many governmental and agency programmes in this field, as well as co-operation with the UNDP's own Energy Account. A UNDP energy policy group has already been established to provide such an internal mechanism. Close collaboration with the United Nations Interim Fund for Science and Technology for Development will be needed for the identification of, and effective support to global programmes in this field, which includes the transfer of technology and applied industrial research. While training courses and advisory services in such fields as technology policy and planning are usually allotted support from the interregional programme, other elements, such as the application of bio-resource technologies and strategic approaches to industrialization, may well prove appropriate to the global programme. In this connexion, there is an evident need to foster and strengthen the growing network of industrial and technological research institutions in developing countries.

^{4/} In 1980-81, an allocation of \$2.1 million was made for FAO's Action Programme for Improved Plant Protection, which may provide the groundwork for further global and interregional activities.

48. There are several areas worthy of review which require a multi-sectoral and multi-disciplinary approach, including inputs not only from the natural and applied sciences but also from economics and the behavioural sciences. Many of the current global projects exhibit a successful multi-disciplinary approach; many new research areas require a multi-sectoral approach as well. The relationship between natural resources, climate, food supplies, and population is one such area in which a number of United Nations system organizations including the UNU have shown interest in joint research. Another example is presented by the urbanization problem in the majority of developing countries, which demands a systematic research-based attack. A third area concerns the relationships between agriculture, nutrition, health and education, where the problems are socio-political, economic, cultural, as well as medical in character.

PART TWO : THE INTERREGIONAL PROGRAMME

INTRODUCTION

49. Interregional activities assisted by UNDP before 1972 were generally small-scale activities of the conventional type - seminars, short training courses, fellowship allocations, and advisers - spread over many sectors. The establishment of the interregional IPF for the 1972-1976 cycle led to a concentration on higher-impact activities in selected sectors which required broad international collaboration and which could be more closely tied to UNDP-supported activities at the regional and country levels. As a corollary, the number of small-scale activities declined, and sectoral priority was given to the development of ocean fisheries and international trade. Training assumed a growing importance and, in view of the special problems inherent in organizing really effective short international courses, particular attention was given to course design, selection procedures, training techniques, and evaluation.

50. As compared with \$22.4 million in the first cycle, the interregional IPF for the second cycle 1977-1981 was set at \$31.8 million (adjusted), with an additional \$4.6 million for special measures for the least developed countries. For 1982-1986 the illustrative interregional IPF has been set at \$73.5 million.

IV. REVIEW OF THE 1977-1981 PROGRAMME

A. Review of activities 1977-1981

51. Programme activities in the second cycle were planned^{5/} with a continued emphasis on two fields: international trade and fisheries, since both were of important concern to a large number of developing countries in all parts of the world and required joint international action on a broad scale for effective

^{5/} DP/216, para. 50 ff.

planning and development. Increased attention was to be given to industrial and technological development. As regards types of activity, continuing priority was foreseen for training, with emphasis on core supporting activities and central inputs, as well as technical co-operation among developing countries. To the extent that resources permitted, activities in other areas were to be considered, including the strengthening of advanced scientific training, training in transport and communications, support for international immunization programmes, and modest activities in the field of energy and natural resources.

52. Interregional projects approved and implemented in 1977-1981 are listed in Annex II (issued separately). Over the five-year period, 105 projects were operational, some of them in more than one phase. The decline in the total number of projects (130 projects were operational in 1972-1976) reflected the continuing trend towards larger-scale activities. Expenditures for the cycle are estimated at approximately \$32 million against the IPF, and \$4.5 million against the programme of special measures for the least developed countries.

53. The sectoral balance of the projects implemented showed an increased emphasis on ocean fisheries and aquaculture, which absorbed one-third of the resources available, and maintained the share of international trade projects, which accounted for one-quarter. Next in importance were the special public works programme for the least developed countries, training and advisory services in transport and communications, and health projects. The interregional programme in 1977-1981 thus conformed closely to the directions given in the programme plan, although the industrial and technological fields figured less prominently than had been foreseen. The majority of the large-scale projects were the subject of in-depth evaluations by joint UNDP/Agency teams in 1979-1980, utilizing independent consultants in most cases. Significant activities and achievements in each sector are described below.

54. The trade and development sector accounted for \$8.0 million of the IPF resources, comprising projects in three main categories. In the first were projects providing advisory services to developing countries individually, on such topics as trade facilitation, promotion and documentation, importation of food commodities and external sector planning for the least developed countries. In the second were projects designed to assist developing countries (collectively or in groups) to participate in, or to utilize the results of, international negotiations and agreements on trade and commodities. The most notable examples were the project on the Tokyo Round of multilateral trade negotiations (MTN), and the continuing follow-up to the generalized system of preferences. Through the interregional and supporting regional MTN projects, developing countries had at their disposal for the first time a capacity to analyse proposed trade measures and offers throughout the course of the negotiations. Support was also given to the developing countries engaged in the discussion of and negotiations for individual commodities included in UNCTAD's integrated programme, and for international monetary reform. Other projects with similar aims, conducted through the UN Centre on Transnational Corporations, were designed to provide general advisory services and to assist developing country exporters of primary commodities in their negotiations with transnational corporations. The third category had training as the principal aim. The expansion of trade between developing countries and the socialist countries of Eastern Europe was the subject of a continuing training and

advisory activity begun in the first cycle. Several smaller-scale activities executed by the UNCTAD/GATT International Trade Centre were related to export promotion and training. One significant new activity was support for an UNCTAD programme on high-level research and training in trade and development, a project which attracted collateral inputs from the OPEC Fund, and the Governments of Saudi Arabia and India. A second new activity was launched on economic co-operation among developing countries, with the employment of a senior adviser charged with developing a programme of work in this field.

55. Review of these interregional activities in trade and development indicates that they responded to key concerns of developing countries with respect to monetary and financial issues, commodities, multilateral trade negotiations, external sector planning in the least developed countries, trade development, economic co-operation among developing countries, and transnational corporations, all of which bear directly upon the restructuring of international economic relations and stem from the Sixth and Seventh Special Sessions of the General Assembly and the deliberations and resolutions of UNCTAD IV and V. As foreseen in DP/216, training played a substantial role, including specific emphasis on curriculum and course development aimed directly at developing countries' needs. The programme for training on the development of trade with the socialist countries of Eastern Europe is a key example of such an innovative training exercise, which will be the subject of an evaluation in 1981. The provision of advisory and analytical services to developing countries generally was foreseen as a major function, exemplified in the MTN project which was extensively evaluated in 1980. The review suggested that the principal beneficiaries of the project had been the upper-income and newly industrialised developing countries. Additional activities of this type were undertaken on a large scale for the UNCTAD integrated programme on commodities. Only a few of the wide range of advisory services foreseen in DP/216 could be fielded with the resources available, notably in trade documentation, importation of food commodities, and external sector planning for the least developed countries. Among the topics not covered during the cycle were transfer of technology, insurance, the comprehensive strategy for manufactures and semi-manufactures and the problems of land-locked and island countries. However, the new initiatives for the integrated programme for commodities and for economic co-operation among developing countries were both logical choices in the light of limited resources. Finally, the trade projects were in several cases successful in integrating UNDP regional inputs and, on occasion, bilateral support for major activities which were beyond the means of the interregional IPF, particularly in the MTN projects, training for trade development with the socialist countries of Eastern Europe and utilization of the generalized system of preferences.

56. The major focuses of the fisheries development activities at the start of the cycle were four: the Indian Ocean, the Eastern and Western Central Atlantic projects, and aquaculture. The ocean fisheries projects had the objectives of assessing the fishery resources, promoting co-ordinated resource management, formulating national and regional projects for the associated countries, attracting additional investment to the fisheries sector, and training national personnel. In this context the deliberations of the Law of the Sea Conference are inducing important changes in the legal, political, developmental and management regimes for the world's fisheries. All fisheries projects have been executed by FAO, and these efforts have been guided by FAO's Committee on Fisheries, and by the regional fisheries committees which report to it.

57. During the cycle, the Indian Ocean project, begun in 1971, was phased out as a separate activity; changed circumstances in that region called for a more decentralized approach, so future assistance is to be provided at the sub-regional level. The two Atlantic projects were combined into a single project in 1979. A new initiative at the end of the cycle was the project on tuna management in the Indian and Pacific Oceans, which is jointly funded from the interregional and Asian regional IPFs. The objective is to enable developing countries to participate in this lucrative harvest of a highly migratory species, valued at \$1.0 billion per year and now reaped largely by a few developed countries. Aquaculture has continued to be a significant element in the interregional programme, with the objective of developing additional protein supplies. An interregional study tour on aquaculture was held in China.

58. Considerable success was recorded in the Indian Ocean and Eastern Central Atlantic projects. Major stocks of fish were discovered in the Indian Ocean, and off the eastern and western coasts of Africa. Forty-four projects, including five major regional activities, have been initiated as follow-up in the Indian Ocean, including at least \$90 million in investment and more than \$70 million in technical co-operation from bilateral and other sources. Follow-up investment estimated at \$93 million and technical co-operation worth almost \$9.0 million have been generated for the East Central Atlantic. More modest success was achieved in the Western Central Atlantic, where the fisheries are predominantly small-scale and artisanal, and where the opportunities for large-scale investment seem limited at present. Marked success in the promotion of international co-operation in the co-ordinated planning of national and regional fishery development was obtained in the Indian and East Central Atlantic regions, through the resource survey and management planning activities, as well as intercountry training exercises. For the expanded supply of trained manpower, the projects have directly and indirectly contributed to dozens of training courses around the Indian Ocean and in West Africa, with an output of hundreds of trained personnel. The two phases of the aquaculture programme have induced the formulation of 42 pilot and demonstration projects in 10 countries, with half that number operational, involving an investment of more than \$140 million. The aquaculture team has helped establish six regional training and research centres, in Nigeria, Brazil, India, Thailand, the Philippines and China. All of the centres are supported from UNDP regional sources.

59. In the general category of labour, management and employment, pre-eminent was the UNDP/ILO project on planning, organizing and implementing special public works programmes, funded largely from the special measures fund for the least developed countries, and involving 18 developing countries. The objective was the creation of employment and additional incomes in regions of poverty, while strengthening the rural infrastructure. Combining a strong element of technical co-operation among developing countries, the special public works programmes at the national level became an important vehicle for bilateral assistance in meeting basic human needs and objectives. The interregional project stimulated and effectively co-ordinated the creation of 15 national and three regional projects, all targeted to the poorest segments of the populations concerned, and involving an aggregate investment equivalent to \$17 million by the developing countries and more than \$50 million by donors. Both a project on co-operation among management development institutions in developing countries, and another on consultant missions by

expatriate nationals whose expertise is needed in their home countries, had strong TCDC elements. Training was the central focus for projects in industrial engineering and in management of public enterprises in developing countries.

60. In transport and communications, projects executed by UNCTAD and IMCO provided advisory services on shipping and ports and maritime safety administration, respectively. Considerable efforts were made in development of interregional training in maritime transportation (TRAINMAK), and in a second phase of the telecommunications course development programme (CODEVTEL) under ITU auspices. Training in geothermal power development in New Zealand constituted a new initiative in the energy sector.

61. In the industrial sector, a major study conducted by FAO, with interregional and regional inputs, on the pulp and paper industry in developing countries was completed in 1977; the report served to provide a new and clearer perspective on the development of paper manufacturing technology and economics, as well as the investment prospects for the countries concerned. A second project, executed by the Government of Guyana for the non-aligned group of countries, examined the problems and prospects for co-operation among developing countries in the pharmaceutical industry. In the health field the most significant activities were related to the expanded programme on immunization and the quality control of vaccines; assistance was also provided for a WHO project on water supply and sanitation, and for the co-ordination of UNDP's activities in the International Drinking Water Supply and Sanitation Decade. Finally, the interregional programme contributed substantially to the Global Atmospheric Research Programme, and to the National Household Survey Capability Programme. The latter programme has successfully mobilized significant multilateral and bilateral resources for country-level activities; by the end of 1981 projects will be operational in five or more developing countries. Other smaller projects, not mentioned here, are included in the list provided separately.

62. Four features, which began to emerge in interregional training activities in the course of the first cycle, were confirmed clearly in the second cycle. The first reflected a deliberate endeavour to incorporate the training activities financed by the interregional programme into projects or programmes with broader aims. This policy brought improvements in a number of areas: the assessment of actual training needs, which became more objective in terms of both quantity and quality; the suitability of training programmes; the choice of candidates; and the integration of trainees in their professional surroundings. This approach was adopted for interregional projects relating to health care, international trade, employment, the provision of drinking water supplies, the management of public enterprises, and the fishing industry. In the training of engineers and earth scientists in geothermal energy development, endeavours were made to define the curriculum and select candidates by examining geothermal energy development activities and plans in the participating countries.

63. The second feature of training activities confirmed during the second cycle was a closer working association with the UNDP regional programmes. Full co-operation has been achieved in the field of telecommunications training and in the support lent to the International Centre for Public Enterprises, enabling it to implement a

programme for the benefit of public enterprises in developing countries. One advantage of this co-operation was that the interregional programme was able to concentrate on promoting intrinsically interregional activities, such as the development of common methodologies and the co-ordination of experiments in progress through the regions, or to conduct pilot experiments where the risk was thus minimized. A second advantage was in resource mobilization, given that the successful completion of certain activities (in particular, the creation or development of training networks) required resources beyond those available from the interregional IPF. Furthermore, this co-operation meant that the special needs or characteristics of a region could be taken into account, while the regions could simultaneously enjoy the benefits of a general approach. As regards the co-ordination of the interregional programme with country programmes, in all but a very few cases (such as public works) only very modest results have been obtained. The obstacles appeared essentially administrative and procedural. In consequence, a number of clearly useful training programmes could not be organized because the direct costs of participation were not financed by the country programmes.

64. The third feature was the increasing importance ascribed to TCDC activities. This came about through the organization of technical meetings, the exchange of experience and teaching materials, a survey to identify areas in which such co-operation was most appreciated and desired and, in management development, through studies and consultations to develop a system of co-operation. TCDC was a significant element in the initial stages of the public works programme. The course development for telecommunications project (CODEVTEL) and the maritime transport training project (TRAINMAR) were of particular note in connexion with TCDC and should be seen as practical experiments forming part of a major initiative to organize worldwide networks for the development and exchange of teaching materials. In this respect, the two projects constituted the fourth salient feature of interregional training activities. The first experiment (CODEVTEL), begun at the end of 1975, proved that, by adopting a systematic approach to training problems and by applying this approach in a number of institutions, the latter could develop co-operatively the training programmes (contents and methods) and the teaching materials required by each one. Five years after it was launched, 21 institutions were co-operating within the CODEVTEL system; by 1982 it is forecast that 45 training programmes will be available to the international community; and, finally, the institutions associated with CODEVTEL will be able to enlist the services of 160 course developers. The first year of the TRAINMAR project, modeled on CODEVTEL, confirmed that, in addition to the experiment being equally applicable to a different sector, the co-operation process could also be speeded up as a result of the initial work carried out in the CODEVTEL project.

B. Lessons and directions for 1982-1986

65. The conclusions of the 1972-1976 cycle were borne out in 1977-1981:

(a) Large-scale interregional projects with expert teams are more demonstrably successful in achieving objectives than smaller endeavours, and they also mobilize, more often, bilateral support and follow-up investment;

(b) Interregional projects are in some cases inherently multi-regional in their substance; in other cases they may offer advantages of scale economies; yet others reinforce and co-ordinate regional endeavours; while still others are exploratory ventures which may later be adopted at the regional or country levels.

The selection of projects should be made with reference to these characteristics; activities which are directed at meeting individual country needs should generally be left to the country programmes. Similarly, interregional training projects should concentrate on core activities and inputs, leaving individual fellowships to the country programmes. The wisdom of the latter policy was demonstrated in 1977-1981 in such projects as CODEVTEL, where the impact and multiplier effect of providing training materials and skilled course developers was far greater than the equivalent expenditure on fellowships.

66. Experience during 1977-1981 with the fisheries and public works projects proved that interregional projects can successfully stimulate investment, provided that UNDP and the Agency concerned have established appropriate procedures and allocated responsibilities beforehand, including consultative machinery for the participation of prospective bilateral partners. In the public works and aquaculture projects, the stimulation of bilateral aid helped in some cases to reinforce the attention and priority given by the national Government without affecting national budgets. The effect of the interregional projects in such circumstances is to increase the flow of technical assistance and capital investment for national activities. Another lesson can be drawn from the much greater degree of success achieved during 1977-1981 in meshing regional and interregional projects. Part of the explanation lies in the earlier experience obtained within UNDP and the Agencies, which facilitated consultation and co-ordination, particularly where interregional or regional projects already showed results worthy of replication elsewhere. Examples include aquaculture, multilateral trade negotiations, trade with socialist countries, CODEVTEL, the International Centre for Public Enterprises, employment in public works, and ocean fisheries, all of which had interregional and regional components. In the case of fisheries, however, it is clear that the role of interregional projects, once wider programmes have been stimulated, should be modified progressively, so that national, sub-regional, and regional projects can play their appropriate roles. For instance, regional projects should provide support functions for regional bodies, and interregional resources should help in resource assessment and training, both being preconditions for generating investment. Within UNDP, it became clear that the linking of interregional and regional projects also required effective consultation at the project identification stage, before the approval process began; inter-Bureau machinery has been created to ensure that this is done. A further lesson, drawn from the review of trends and policies in training projects, points to the benefits of consolidating work begun during 1977-1981 on the establishment of training networks to promote the development of common methodologies and teaching materials and their systematic exchange.

67. In conclusion, the criteria for the selection of interregional projects in 1982-1986 can be restated in the light of the foregoing paragraphs. Interregional projects should satisfy most of the following conditions: (i) relevant to the priority fields of this programme; (ii) continuing or representing a logical next step from current activities; (iii) offering significant pre-investment potential; (iv) linked strongly to regional or country programmes; (v) offering potential for attraction of complementary funds; and (vi) promoting or strengthening institutional development and co-operation, including TCDC.

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V. THE INTERREGIONAL PROGRAMME 1982-1986

A. Summary of the orientation and content of the programme

68. The 1982-1986 interregional programme is proposed with continuing priority for the international trade and fisheries sectors; justification for this is provided by the record of the previous two cycles and the successful achievements to date. However, a greater degree of diversification is planned for the next cycle, maintaining a continuing emphasis on training and human resources development, but with the addition of new sectoral themes in energy planning and water and sanitation. Activities will continue, at least for the early years of the cycle, on the national household survey capability programme and the expanded immunization programme. Among the new areas for exploration are research and advisory services in science and technology, hydrology and marine telecommunications. The co-ordination of the interregional programme with the 1982-1986 regional programmes will be of particular concern during the next several months, when it should be possible to identify common priority themes and projects, and to design mutually supportive activities.

B. Substance of the programme

Trade and economic co-operation

69. Trade and development activities, broadly defined, will continue to receive a substantial volume of the programme's resources during the third cycle. The need to expand developing country exports of primary commodities, processed commodities and manufactures remains among the highest of priorities for developing countries. The interregional nature of many trade and development activities and the economies of scale which can result from organizing technical co-operation on an interregional basis, when taken together, provide justification for a continuation of a major interregional programme effort. Moreover, the trade and development sector clearly lends itself to a fusion of interregional, regional and subregional initiatives especially in such important areas as economic co-operation among developing countries (ECDC).

70. During 1982-1986, interregional programme support to the trade and development sector will comprise several basic thrusts. Activities relating to the "North-South" dialogue will be continued. This will involve further support to the efforts of the Group of 24 to develop proposals in the field of international monetary reform. In the area of commodities, emphasis will be given to technical co-operation towards the establishment of new types of commodity agreements which are expected to stress producer-consumer co-operation in the fields of research and development, processing and marketing, as well as compensation for fluctuations in commodities earnings. This may also involve helping developing countries formulate proposals for possible financing by the Second Account of the Common Fund, which is expected to become operational in early 1983. Further assistance with respect to food commodity imports will be provided for the purpose of establishing a fully

institutionalized market information and procurement advisory service. Through a combination of interregional and regional programme support, there will be additional work in connexion with the role of transnational corporations in the export of primary commodities.

71. There are several activities which are expected to be completed during the initial years of the third cycle. These include the comprehensive programme concerned with expanding trade between the developing countries and the socialist countries of Eastern Europe, which will be reviewed in 1981. The same applies to interregional programme support in the Tokyo Round of the multilateral trade negotiations which, even if the outcome could not be said to have been entirely satisfactory to the developing countries, was formally concluded in June 1979. Based upon the recommendations of detailed external evaluation carried out in 1980, efforts are being made to advise developing countries, especially the least developed and middle-income countries, on the implications for their trade policies of adherence or non-adherence to the MTN agreements.

72. Among the new activities expected to be undertaken in 1982-1986 will be one concerned with debt management within the context of external sector planning. The 1970s witnessed a sharp increase in the public and private external debt of the developing countries. The causes of this situation were many but included a deterioration in the terms of trade for a large number of non-oil-exporting developing countries, recessions of varying lengths and intensities in the northern industrialized countries and the continued existence of tariff and non-tariff barriers in developed countries to the exports of the developing countries. Given the adverse effects which such factors are known to have on the development prospects of certain developing countries, it is proposed to initiate an interregional project which will assist those developing countries, upon request, to manage their external debt and, wherever multilateral debt reorganization exercises prove unavoidable, to prepare for participation in such exercises. This assistance will be provided on the understanding that the actual conduct of the negotiations will naturally rest with the developing countries themselves. Moreover, the proposed activities will be formulated in consultation with such international financial institutions as the World Bank and the IMF and, as and when appropriate, with major creditor countries.

73. The centerpiece of the interregional programme in the trade and development sector will comprise those activities undertaken in support of economic co-operation among developing countries (ECDC). The past two decades have witnessed the formation by developing countries of an unprecedented number of economic co-operation and integration groupings, mainly at the regional and subregional levels. The fortunes of some of these groupings have been mixed. Despite this, the quest for a widening and deepening of "South-South" economic linkages has, since the mid-1970s, acquired a new sense of urgency. Prolonged recession and "stagflation" in many northern countries, a stagnation in real terms of financial transfers from the north to the south, and the burgeoning debt service burden of the non-oil-exporting countries are among the causes. In addition, notwithstanding the importance of subregional and regional co-operation, the expansion of South-South interregional ties in trade, payments and finance has tended to expand at a faster rate during the 1970s than did similar forms of trade within regions. Also, new opportunities have emerged for co-operation between the oil-exporting and non-oil-exporting developing countries in the field of payments and investment, again reinforcing the interregional aspects of ECDC.

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74. As a follow-up to the Buenos Aires Conference on Technical Co-operation among Developing Countries, to the adoption by the Group of 77 of the Arusha Programme for Collective Self-Reliance and to UNCTAD resolution 127 (V) a meeting took place in September 1979 at which UNDP (being the lead agency within the UN system on TCDC) and UNCTAD (as the lead agency on ECDC) reached agreement on support for a programme of economic and technical co-operation among developing countries. The programme provides a framework for operational activities in the areas of production and investment, trade and marketing, money and finance. Further definition and refinement of the programme into priority areas occurred in 1980 and early 1981 with the assistance of a senior adviser on ECDC provided by a UNDP/UNCTAD interregional project. The implementation of various ECDC activities will of necessity require close collaboration with the regional commissions, the Specialized Agencies, and such intergovernmental organizations as the regional and subregional integration secretariats.

75. A number of other areas hold promise for the interregional programme. The problems associated with structural adjustment, including the formulation and implementation of concrete measures to assist developing countries in expanding their share of the world's productive capacity, may be an appropriate field for interregional programme support. The recent agreement in the General Assembly on a code governing restrictive business practices identified a need for training and advisory services. Continued support for the UNDP/UNCTAD project on research and training will depend upon an evaluation scheduled for late 1981. Efforts will be made to increase the involvement of developing country research institutes and universities in project implementation, and to achieve greater rationalization and integration of all UNDP/UNCTAD interregional training activities. Possibilities for establishing an international market news service for a number of product groups, such as horticultural crops and hides and skins, will be examined with the International Trade Centre.

76. Perhaps to a greater degree than is true with other sectors, trade and development activities depend upon the changing fortunes of global economic conditions. The evolution of the north-south dialogue may well affect the emphasis which is given to north-south as opposed, say, to south-south issues. UNDP will therefore seek to preserve maximum flexibility in the programme, to ensure that there is sufficient room to accommodate new initiatives which may be warranted after UNCTAD VI.

World fisheries development

77. This sector will continue to be a priority component of the interregional programme. For many developing countries fish is an indispensable item of the diet: it is estimated that about 60 per cent of inhabitants derive more than 30 per cent of their annual protein from fish. It is essential for the needs of expanding populations that supplies of food from fisheries be increased. This will depend upon enlarging the resource base through the discovery and exploitation of new stocks, including non-traditional species presently unexploited, and the maintenance of levels of catch from existing stocks through improved management of world fisheries. The ocean regime within which these goals will have to be achieved will be very different in the 1980s from the regime that prevailed in the past. As a consequence of the Law of the Sea negotiations, some 90 coastal nations have established Exclusive Economic Zones (EEZs), extending their jurisdiction over

living resources of the sea up to 200 miles. When adopted by all coastal states, this extension of jurisdiction will bring under national control 99 per cent of the marine living resources now exploited commercially. This offers developing countries new opportunities to benefit from their fish resources, and also involves such increased responsibilities as the determination of the total allowable catches in their EEZs. When a country cannot harvest the entire catch, other nations would be given access to the surplus through appropriate agreements, so that the world fishery catch will not fall. Coastal states are also required to co-operate in assessing and allocating stocks that are shared with neighbouring countries or countries fishing adjacent to but beyond the EEZ.

78. These developments call for new forms of international co-operation and assistance to developing countries for expansion of their fishery capacity and management of their resources. Technical assistance will be needed to help countries survey and assess their stocks and develop policies and plans for their exploitation. Many countries will also require advice on legal and institutional matters relating to extended jurisdictions and for the negotiation of joint ventures and other bilateral arrangements. Technical and economic collaboration among developing countries will need to be intensified to promote exchange of information and experience, and for the negotiation of agreements for sharing of common stocks. A large part of the technical assistance required can be provided most effectively on a regional or sub-regional level; with UNDP regional inputs, a global system of sub-regional management modules and technical support units is currently being organized by FAO. To consolidate and complete this system, an interregional component will continue to be required during the next cycle, mainly for the purpose of back-stopping the sub-regional modules with specialized expertise which is not required on a full-time basis in any particular area, and which can therefore be provided more economically through an interregional mobile team. This central team will also assist in investment follow-up. It will be necessary in addition to continue direct support in the Western Central Atlantic and part of the Eastern Central Atlantic area for some time, until alternative sources of support for sub-regional modules in these areas can be found.

79. A second area of activity will be continued work on tuna resources in the Western Pacific and Indian Oceans, with primary emphasis on the collection and interpretation of statistical data on catches and related information. Tuna are a very valuable and highly migratory species whose migrations take them in and out of the EEZs of several countries as well as long distances beyond. Developing countries need access to these data to plan their involvement in harvesting tuna resources, whether through direct participation or through licensing arrangements.

80. A new interregional project activity during 1982-1986 will concern international marketing of fish products, to ensure that developing countries obtain maximum returns. The highly successful regional marketing service developed for the Latin American region with UNDP regional support (INFOPECSA), has served as a model for the development of similar services in Asia and Africa. An interregional component is now needed to link these regional services with one another and with world markets in the most economical way possible. It is anticipated that such services will become self-supporting by 1986.

81. Interregional assistance for the resource surveys being carried out by the vessel "Dr. Fridtjof Nansen" will be continued, with joint support from the Government of Norway. Survey work of this type has already proved highly successful and has resulted in the discovery of major new stocks in several areas, as mentioned above. Emphasis will be placed on survey work in EEZs.

82. There is a need to develop new training approaches and materials in matters related to EEZ management and other aspects of the Law of the Sea, which may require modest interregional inputs. Finally, support for the highly successful aquaculture development and co-ordination programme will be continued, with emphasis on further strengthening the regional centres already established. These centres are expected to assume increasing responsibility for research and training activities in their respective regions, permitting the gradual phasing out of international support.

Energy

83. As noted in the context of the global programme, the energy sector has emerged as a main priority for UNDP. The global research and technology assessment activities planned for 1982-1986 will be complemented at the interregional level by other projects designed to assist developing countries in planning and managing their energy economies. A major interregional project executed by the World Bank is to be launched in 1981 to assist some 60 developing countries to identify and act upon their technical co-operation and investment needs in respect of national energy planning, policy analysis and institution building, including energy project development and the management of energy demand and conservation. Priority will be given during 1981-1984 to lower income countries whose net oil imports represent more than 25 per cent of their commercial energy demand. A second activity will relate to the provision of training in the field of energy planning and policy analysis, where considerable efforts in the development of curricula and training materials are needed in order to expand training capacity to the scale required. Effective work in the energy sector will involve co-ordination among the Governments and organizations concerned, both within and outside the United Nations, necessitating further development of a network of co-operating institutions.

Health, water supply and sanitation

84. Support will continue for WHO's expanded programme on immunization, specifically for the improvement of quality control of vaccines, a basic requirement for the effectiveness of national immunization programmes. Involvement in the International Drinking Water Supply and Sanitation Decade will also be continued and expanded. Activities identified thus far include extension of the current project on low-cost water and sanitation technologies and field-testing of hand-pumps. Other activities under consideration for 1982-86 include: development of training for selected categories of manpower; information exchange; and evaluation.

Labour, management and employment

85. Support for the special public works programme, executed by ILO, will be continued in the 1982-1986 cycle, taking into account the conclusions of evaluation reviews conducted in 1981 at the request of the Governments involved. The strengthening of management development institutions will also merit further activity: particular attention is needed for the development of curricula and training of trainers, and for requirements in such fields as the management of rural development. Additional assistance will be given to the International Centre for Public Enterprises. Several new areas will be explored in the 1982-1986

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cycle. One of these involves ILO's programme for the development of training modules of employable skills (MES), where an interregional element may be warranted to produce training materials on energy, water supply and sanitation, and to meet relevant maintenance and repair needs. Finally, UNDP and ILO intend to examine the networking of regional vocational and industrial training centres, including the Turin Centre. Among the possible objectives for such a networking activity are the systematic exchange of experience and information, support for national institutions which lack access to information on the planning of training programmes, trade testing and certification.

Transport and communications

86. The development of transport and communications among developing countries, and on a North-South basis, is essential to their trade, co-operation and development. In harmony with the priority assigned to this sector in many of the UNDP regional programmes, the interregional programme will devote a substantial share of available resources to this sector. Activities in telecommunications course development (CODEVTEL) and maritime transport training (TRAINMAR) will continue on the understanding that interregional inputs will be complemented by assistance from the regional and country IPFs. While the TRAINMAR project is currently concerned with the training of port planners, port managers, shipping administrators and related personnel, the possibility of applying the TRAINMAR methodology to other areas may be considered. There may also be a potential for initiatives in the field of maritime radiocommunications, given the relevance to other on-going and planned activities. Interregional participation is envisaged in the proposed Development Information Network, which should complement interregional activities in trade information and other ECDC components. Finally, mention should be made of interregional programme support to the Transport and Communications Decade for Africa, decided upon by the Governing Council at its June 1980 session,^{6/} and involving an interregional allocation of \$2.5 million. Although details remain to be worked out, this may be used for maritime training and telecommunications course development.

Other activities

87. Assistance to the national household survey capability programme will be extended. In the field of science and technology, consultations will be held with the Interim Fund on Science and Technology for Development and other interested parties on possible UNDP interregional involvement in policy research and the provision of advisory services to Governments. Consideration will also be given to an interregional component of WMO's hydrological operations multipurpose subsystem (HOMS), linking the various existing national and regional activities and projects. The linkages between formal and non-formal education will be considered for a possible exploratory project with UNESCO, with a view to the integration of formal and non-formal approaches for effective educational reform. An interregional component may be also needed for a combined regional/interregional training programme in informatics.

^{6/} Decision 80/30, paragraph 13.

