

Annual Report of the Administrator for 1983

1. Project Results: By Region

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P R O J E C T R E S U L T S: B Y R E G I O N

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PROJECT RESULTS: BY REGION

1. During 1983 UNDP again requested its field offices to supply examples of programme and project results attained during the year. A variety of results were sought. Some concerned previously reported projects which produced significant new results in 1983. Some were newly reported projects, and some were results being registered after UNDP support had terminated. This section of the 1983 Annual Report sets forth the most significant of these results generated from UNDP-supported projects in Africa, Asia and the Pacific, Latin America, among the Arab States and in parts of Europe in 1983. The results cut across almost every development sector, but, as the following narrative by region indicates, many were also concentrated in areas of special concern or need to the regions involved. Outputs and accomplishments generated by UNDP-supported global and interregional programmes and under UNDP-administered special funds and activities are detailed in Part II of this section of the Annual Report of the Administrator for 1983. Few project attainments are problem-free, of course, and for a review of typical project difficulties overcome in 1983, see Add. 2 to this report.

A. Africa

2. The focus of concern in Africa in 1983 continued to be the devastating drought plaguing 24 Eastern, Western and Southern African countries. Most of these were already counted among the world's most economically beleaguered nations. Now the severe effects of drought have brought emergency conditions to much of the continent. Red Cross estimates put the number of drought-related deaths at 100,000 in Mozambique alone. According to the Food and Agriculture Organization of the United Nations (FAO) the spectre of hunger and starvation was hanging over the heads of some 150 million men, women and children living in the most seriously affected countries.

3. The international community and relevant United Nations organizations have mobilized under the Secretary-General's initiative to address the emergency situation, and African Governments are striving to implement a number of medium and longer-term rural development programmes designed to counteract drought conditions and move the continent towards self-sufficiency in food production once again. These integrated rural development programmes stem from important strategies, such as the Lagos Plan of Action, adopted by Member States of the Organization for African Unity in 1980 -- strategies based upon two basic premises: that there are no easy and dramatic solutions and that possible solutions are closely and irrevocably intertwined, requiring the co-ordinated and synchronized efforts of many sectors. Thus areas for integrated action by UNDP prominently include improved water supply and further measures to halt the process of desertification, which are at the heart of the current emergency.

4. UNDP is central to these self-help efforts by African Governments. Long-term programmes to improve water supplies for both human and animal consumption, for example, take the form of deepening existing wells and

digging new ones as well as improving drinking water systems. One case in point is a UNDP-supported well-digging project in Mali, completed in 1982, which is now providing numerous villages with water for household use, livestock and market gardens. Under the project's auspices, over 548 boreholes were drilled, providing pure, clean water for some 135,000 people, and several drilling teams were trained, each capable of drilling 80 new wells a year. A follow-up phase is now engaged in more hydro-geologic studies and test drilling in preparation for the next stage of well-digging.

5. Similarly, under another UNDP-supported project, Water Resource Development in Cape Verde, over two hundred new wells have been drilled, providing this drought-prone country with an additional 20,000 cubic metres of water per day.

6. Equally important to longer-term development plans on a broader scale are those UNDP-supported projects for multi-purpose development of some of Africa's key river basins and lakes. Since few countries have sufficient resources to feed their people, food self-sufficiency, together with the improvement of health conditions and transport facilities, must be developed through improved joint use of such potentially rich rivers and lakes. Resources are harnessed by constructing dams at key points, building ports and providing hydroelectric power, irrigation and other infrastructures. In addition, there are programmes to protect the environment and to improve human health by fighting against water-borne diseases. A good example is the Development of the Senegal River Basin. The Senegal River, one of Africa's largest rivers, originates in the Fouta Djallon Mountains of northern Guinea and flows through Mali and Senegal. It is one of the principal water resources in this drought-prone region.

7. This programme, co-ordinated by the Senegal River Development Organization, and set up with UNDP support by Mali, Mauritania and Senegal, is an ambitious long-term attempt to increase the incomes of the 2.5 million people who live in the Senegal River Basin and to speed the economic development of the three countries in the region. It aims also to strike an equilibrium between the needs of the human population and the environment of the region, making the people of its Member States less vulnerable to climatic conditions and external factors, and more reliant on their own productive powers. Under the programme, some 400,000 hectares of land are being opened up for irrigated agriculture and improved, year-round transport facilities are being created for boats of medium-sized tonnage. With the construction of two dams -- one in Senegal and one in Mali -- the programme is also designed to bolster hydroelectric energy potential and ensure a regular supply of safe drinking water to those living along the river, and in Senegal's capital city of Dakar. The availability of these facilities is further expected to spur the development of a host of small industrial plants and service businesses.

8. Results to date have seen some \$822 million out of the overall development cost of \$2,000 million for this programme mobilized from Saudi Arabia, Abu Dhabi, Islamic Republic of Iran, Iraq and Kuwait. Other donors include Belgium, Canada, Federal Republic of Germany, France, Italy, the United States, the African Development Bank, the European Development Fund and the Islamic Development Bank. The overall cost to UNDP of initiating and developing the Senegal River programme is \$10 million, while Member States are contributing \$64 million for the intergovernmental co-ordinating body.

9. The critical struggle for food self-sufficiency is also being carried forward at the country level. Through a programme for Improvement in Rice Cultivation and Extension in Food Crops Cultivation in the United Republic of Tanzania, for example, UNDP/FAO assistance has identified and prepared development projects calling for investment of over \$43 million on the islands of Zanzibar and Pemba. Even though rice is the third most important staple crop in Zanzibar and Pemba, the two Tanzanian islands have increasingly had to import this food in order to meet the demands of their 400,000 people. This has constituted a heavy drain on the country's foreign exchange, particularly in the face of declining prices for clove exports. Furthermore, due to inadequate rainfall and poor cultivation methods, yields from traditionally cultivated areas have tended to decrease. The Tanzanian Government requested UNDP/FAO's assistance to help overcome these constraints and increase production in 1975, with encouraging results attained since. For instance, thanks to hydrological surveys, field trials with thousands of different rice varieties, soil tests and land utilization plans, it is now possible to double rice yields under a rain-fed farming system.

10. In Pemba, UNDP is also supporting research into intensive irrigation schemes which will eventually make it possible for 4,000 families to obtain increased rice production of 5,500 tons a year. Additional support has also come from the World Food Programme (WFP) which supplied a \$1.3 million food-for-work grant for labour intensive operations, and the Australian Government which is providing \$1 million worth of equipment and materials.

11. Other project results include the training of 120 field assistants and the breeding of very early-disease and drought-resistant varieties that will make it possible to grow crops on dry land in other parts of Africa. Cost to UNDP (1975-1984): \$3.5 million, with a Government contribution of \$196,548.

12. Particularly crucial during periods of severe drought are measures to ensure the protection of precious food crops through grain storage schemes and regional bird or insect control programmes. It has been estimated that the food lost each year in Africa through insects, rodents, birds or fungi could feed up to 55 million people. This situation can therefore be changed significantly by a programme to protect and conserve existing harvests. The Kenyan Government, among others, has turned to UNDP assistance in developing such crop protection services. The first phase of this FAO-executed project upgraded the Ministry of Agriculture's Bird Control Unit, through training of additional staff and the establishment of a continuous monitoring system for bird pests.

13. The second phase of the project established a properly planned headquarters for the Crop Protection Branch and bird-monitoring services for all the Kenyan provinces. A radio network was also installed, linking the branch headquarters and project vehicles in the field. UNDP's contribution (1978-1985) amounts to \$957,342, with another \$325,766 provided by the Government. Similar bird-control projects, also supported by UNDP, are achieving encouraging results in Ethiopia and United Republic of Tanzania.

14. The needs of women are receiving particular attention in Mali's Western Sahel Livestock Development Project, which aims to improve the socio-economic conditions of the local population by opening up 1.5 million hectares of new rangeland for nomadic and semi-nomadic herds through the drilling and equipping of boreholes, veterinary and forestry investment, public health and rural credit. With FAO as executing agency, technical assistance for the programme covers 300 villages with a total population of 200,000. Activities to ensure women's participation and an improvement in their living conditions have included the installation of improved cooking stoves in pilot villages, the introduction of carts for transporting water, food supplies and hay for cattle; assistance in kitchen gardening and smallstock raising, and the training of women motivators.

15. In Rwanda, where 40 per cent of the children under five years of age suffer protein-calorie deficiencies, nutritional standards have been raised through assistance to a country-wide network of nutrition centres, carried out by FAO. There are now some 140 such centres, staffed by trained personnel, serving around 56,000 children a month. They instruct women on good nutrition, preventive health care and cultivation of nutritional foods -- education aimed at improving the well-being of the entire family. A Nutrition Training Centre has trained nearly 300 "monitrices" to work with mothers and children, as well as more than 60 professional nutritionists.

16. A sound food production policy must also provide a reliable supply route to rural areas for agricultural tools and fertilizers, as well as new outlets for agricultural products. Kenya's Assistance to the Rural Access Roads Programme financed by UNDP and executed by the International Labour Organisation (ILO), was designed to expand farmers' markets by connecting 23 high potential agricultural districts to the country's existing road networks with access and feeder roads. The programme calls for the construction of 14,000 kilometres of all-weather roads by the end of 1984, at an estimated cost of \$80 million. The new roads have already had an important economic impact on the rural areas by contributing to increased agricultural output, lessened post-harvest losses, improved milk and meat sales, lowered transport costs and travel time and increased farmers' mobility. They have also provided supplementary income to thousands of Kenyan men and women recruited from families whose farms border the roads. It has been estimated that a total of 90,000 person-years of employment will be generated over the programme period -- jobs for 9,000 people for 10 years.

17. In thus emphasizing the economic viability of large, labour-intensive construction schemes, this project is also serving as a model for other

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developing countries. The Sudanese Government intends to finance a similar programme, and the Finnish International Development Agency plans to carry out a feasibility study for similar labour-intensive road building in Zambia.

18. Strategies to help African countries resolve water supply problems are not limited to drought-related activities. They also aim to control, and if possible, eradicate water-associated diseases such as bilharzia (schistosomiasis), Guinea-worm infection, river blindness (onchocerciasis), as well as malaria-transmitting mosquitoes. With UNDP assistance, seven West African countries are participating in a programme to control river blindness over an area of 764,000 square kilometres populated by 15 million people, one million of whom have been blinded or had their sight seriously impaired by the disease. The programme, which began in 1974 and is supported by the World Bank, the World Health Organization (WHO) and a number of other donors, as well as UNDP, has already registered outstanding progress in the control of the black fly that carries the parasite causing river blindness. Transmission of the disease has been interrupted over 80 per cent of the project area, and according to WHO, between 800,000 and 1 million children have already been saved from contracting the disease.

19. Another high-impact project is Ghana's Volta Lake Research and Development programme which was set up to control adverse effects on human health created by the new dam at Akosombo. Although the dam provided Ghana with much-needed electrical power, by 1974 it had caused a 74 per cent increase in the incidence of bilharzia, locally known as "snail fever" from the snails through which it is contracted. By the time UNDP support concluded in 1980, the prevalence of the disease in 26 villages with a total population of 3,800 had dropped to 34 per cent of 1973-1974 levels. Moreover, the intensity of infection among those still affected has since been greatly reduced and the project continues to show positive results.

20. In these and other ways, multiplying results from UNDP-supported activities in Africa provide a timely reminder that well-planned and long-term development programmes can play an important mitigating role even amid severe natural calamities, while continuing to build that basis for self-sufficiency and self-reliance which is the ultimate object of all UNDP assistance.

B. Asia and the Pacific

21. In Asia and the Pacific, results from a selection of UNDP-supported projects reflect the broad spectrum of development sectors benefiting from UNDP technical co-operation. Achievements range from improved agricultural productivity to community-backed reafforestation schemes, from vocational training in such simple crafts as carpentry to training in diesel engine maintenance to high-tech skills; from initial surveys to determine causes of environmental degradation to programmes to improve the quality of life in rural areas. Through complementary multilateral and bilateral technical assistance, and international and bilateral loans and credits, as well as domestic public and private sector investments, UNDP technical co-operation

activities in 1983 also continued to generate substantial capital needed for the economic and social development efforts of the region's more than two billion people.

22. In Pakistan, where agriculture employs more than 60 per cent of the country's labour force, the Government has launched a long-term programme to reverse the decline in agricultural productivity due to waterlogging and salinity in the Indus River Basin. From 1975 to 1980, UNDP with the World Bank provided technical assistance in updating a 15-year Action Programme for the planning, preparation and implementation of irrigation, surface storage and related hydropower generation, drainage, reclamation and flood protection schemes, covering about 30 million acres of irrigated land in the Indus Basin. This region produces virtually all of Pakistan's paddy rice, sugar cane and most of its wheat and cotton, and contains nearly 90 per cent of the country's 88 million people.

23. A post-project look at results show that since 1980 the Government of Pakistan has approved all the recommendations of the revised Action Programme for the Indus River Basin and has begun implementing them. The Programme, including its Left Bank Outfall Drain, requires very substantial investments. For example, the "spinal drain" which will take saline water from the Indus Basin region to the ocean, is estimated to cost \$600 million alone. The Provincial Governments of Sind and Punjab have also initiated major follow-up activities, including a crash programme for improving water courses and extension work in selected areas. By 1982, the Government of Punjab had spent more than \$19.2 million for improving 12,000 water courses. Meanwhile, the Asian Development Bank (AsDB) is assisting in implementing water management projects in Thal and Peharpur districts, while the World Bank and UNDP are assisting in the preparation of several investment projects dealing with water, agriculture and energy sectors.

24. Irrigation is also the key to improved agricultural productivity in the hill zone of Nepal, where population density per cultivable acre is among the world's highest, with the average family farm size less than 0.5 hectare. By 1982, 45 out of 55 hill districts were dependent on substantial food imports from the southern plains.

25. Agricultural yields in the hill areas have been on the decline due to several factors, including lack of adequate irrigation facilities. Only about 2 per cent of the cultivable land in the hills is under irrigation, primarily because irrigation schemes are prohibitively costly. Simultaneously, some 2.3 million people in Nepal's hill districts suffer from severe underemployment. With technical support from UNDP and ILO, the Government since 1974 has been investigating and implementing labour-intensive small-scale irrigation works in the hill areas, to improve agricultural productivity and at the same time alleviate the problem of underemployment.

26. Benefiting from its participation in the UNDP-supported interregional project for Planning and Administration of Special Public Works Schemes and

its follow-up programme, and from the regional project, Support to Labour Intensive Public Works Programme, Nepal has prepared a number of medium- and small-scale hill irrigation schemes. A team of ILO experts, funded by a consortium of donors, is providing technical and administrative support. The Government has also asked UNDP for technical assistance under the country IPF for implementing the various multi-bi funded irrigation schemes. So far, UNDP and ILO have been able to mobilize about \$3.5 million in investment follow-up for the construction of three medium and 50 small irrigation schemes. The three medium irrigation schemes, now nearing completion, have a combined command area of more than 1,275 hectares and have generated 934,000 man-days of employment. Sixteen small irrigation schemes have been completed and work is underway on 11 others, generating a total of 530,000 man-days of employment. In areas where irrigation facilities have been constructed, farmers are growing two or three staple crops a year instead of only one as in the past.

27. The Republic of Korea, one of the 10 newly industrialized countries (NICs) considers electronics as an important industry and attaches high priority to the development of local semiconductor technology. It thus regards domestic production of single crystal silicon and gallium arsenide, from which active circuit elements are made, as vital to the strengthening of the national electronic products industry. The Korea Institute of Science and Technology, a semi-autonomous integrated research and development institute, has been given the mandate for developing the necessary expertise in the semi-conductor materials field. Since 1979 UNDP, with UNIDO, has assisted the Institute in the production of two types of semiconductors: silicon, the basic material for transistors and integrated circuits, and gallium arsenide, the raw material for the manufacture of light emitting diodes, laser diodes and microwave devices.

28. Several Korean technicians and scientists have gone abroad on short study tours to study the problems associated with the production of semiconductors. The project has supplied a silicon crystal-growing oven and other essential equipment to the Institute and in mid-1981, the first good quality crystal was produced in the Republic of Korea. Since then, the technology has been further developed to produce large single crystals of silicon of consistent quality, to process the crystals into wafers by grinding, slicing, lapping and chemo-mechanical polishing and to measure their characteristics as necessary for subsequent device manufacture. Most of these processes are now ready to be transferred to the industry.

29. The project has also supplied and installed equipment for the growth of gallium arsenide crystals. Processes for producing the crystals are still in the laboratory stage, owing to a lack of equipment suitable for pilot-scale operations, but expansion of the production of crystals to full pilot-scale is expected in the near future. Engineers from diverse manufacturers are working at the Institute's laboratory, and negotiations are underway to obtain sponsorship from one of the largest electronic industries in the country.

30. In India, which is also moving rapidly into the high-tech area, UNDP, with support from the United Nations Educational, Scientific and Cultural Organization (UNESCO), has assisted in setting up a fully modern laboratory for engineering research and post-graduate work in the fields of turbo-machinery and combustion, with particular reference to thermal power systems (steam and gas turbines and industrial compressors). Turbo-machinery research is essential if India is to acquire know-how for the design of industrial compressors and large power turbines adaptable to Indian conditions, where electrical grids are small and drops in frequency due to load increases often lead to equipment failures. Since the completion of UNDP assistance to the project, field reports show that the laboratory, located in Bangalore, has gained recognition as a centre of modern engineering research and carried out sponsored research investigations in India and abroad. Of its 28 research projects undertaken so far, 17 have been successfully completed. Staffed entirely by Indian personnel, the laboratory provides consultancy services to industry. Both private and public sector industries have made extensive use of the laboratory's research facilities.

31. Along similar lines in China are results stemming from a Government-executed project supported by UNDP and designed to assist in the application and expansion of China's economic data processing capabilities, in part through the establishment of a computer information centre in Beijing. UNDP assistance to the Centre concluded at the end of 1983, but already the project has, among other accomplishments, provided a business management information system for the Beijing Municipal Auto Spare Parts Company which has helped reduce inventories by \$6 million and reduced interest and capital holding requirements by five-fold. Through similar assistance to commodity transport ministries, reductions of 2 to 7 per cent have been accomplished in all China freight costs for rice, petroleum and fertilizer shipments, while some 3,000 national programmers and end-users have already been trained or retrained by the 62 technical professionals who gained instruction abroad under the five-year project.

32. In Sri Lanka, UNDP, with the United Nations Centre for Human Settlements (UNCHS) as executing agency, has strengthened the organizational structure and operational functions of the Urban Development Authority (UDA), which is implementing an ambitious and rapid urban development programme covering 24 major towns. UDA's activities span a wide range of development projects, such as the improvement of slum and shanty areas in Greater Colombo, the planning, design and construction of a new Parliamentary and Administrative Complex in Kotte, the planning and development of industrial areas, the drainage and reclamation of the marsh and lowland areas of Colombo and the planning of Colombo's Free Trade Zone. The project has provided training to UDA's professional staff and has assisted in the preparation of sectoral development plans for health, education, environment and transportation in the Colombo Metropolitan areas.

33. UDA has undertaken 30 schemes for upgrading slums and shanty towns covering about 10,000 families. It has already provided basic services to 3,000 families by constructing sewers or septic tanks, water supply and

electric power facilities. With complementary aid from the Netherlands, UDA is also offering housing loans to slum and shanty dwellers. Soil-testing and materials-testing laboratories have also been set up. In keeping with the Government's policy of locating new industries and relocating existing ones outside Colombo, UDA is developing three industrial areas, including Peliyagoda, a 500-acre tract just north of the Kelani river, which will provide three million square feet of warehousing space, 86 acres for light manufacturing industries and 1,140 low-cost housing units.

34. UNDP is also providing technical support for the development of Samoa's less densely populated island of Savai'i. Since 1978, UNDP has helped in carrying out measures for the electrification of Savai'i, using non-conventional but renewable sources of energy. The United Nations Capital Development Fund (UNCDF) is providing \$2.3 million for the installation of a transmission and power distribution system, together with the necessary equipment, alterations and additions to a sawmill plant, the surplus power of which is designed to provide upwards of 75 per cent of village electricity needs. Additional funds for this \$16 million programme are coming from the Government of Samoa and several other multilateral and bilateral sources, including the World Bank/IDA, FAO, the European Development Fund, Australia, Japan and New Zealand. Currently, the sawmill power plant is supplying electricity to four large villages (4,000 consumers) and a district hospital. Nearly 15.2 kilometres of transmission lines had been installed by the end of 1983, and a village pilot power plant has been operating successfully on coconut oil since late 1983.

35. Over the years, UNDP has tried to strengthen the emerging subregional groupings and associations in Asia and the Pacific. It has provided technical support to the Association of South-East Asian Nations (ASEAN), the South Pacific Bureau for Economic Co-operation (SPEC) and the South Pacific Commission (SPC). More recently, UNDP also funded basic studies for the South Asian Regional Co-operation (SARC) programme. Intraregional trade support institutions such as the Asian Clearing Union and the Asian Re-insurance Corporation have been created, while efforts have been made to strengthen trade information services and reduce trade barriers within the region. UNDP has been instrumental in creating or strengthening a string of regional research and training institutes, many of which are increasingly meeting their own institutional costs while UNDP continues to provide support for specific time-bound programmes. These include the Asian and Pacific Development Centre, the Southeast Asian Tin Research and Development Centre, Regional Civil Aviation Training Centres in Indonesia, Singapore, Thailand and the Philippines, and the Asian/Pacific Institute for Broadcasting and Development. More recently, the Programme has been actively encouraging the networking of national research and training institutes. Such regional networks now cover, among others, agricultural machinery, aquaculture, maritime training and pesticides.

36. In recent years UNDP has also supported concentrated efforts on the part of some developing countries to mobilize external investments. It has provided, mainly with the World Bank, technical assistance for preparing

investment-oriented projects in Burma, Nepal, China, Sri Lanka, Indonesia and Pakistan. In Burma, \$6.5 million in UNDP technical assistance is expected to result in nearly \$458 million follow-up investments, including:

(a) \$170 million from the World Bank and \$66.4 million from Norway, Federal Republic of Germany and Japan for electric power development;

(b) \$20 million from the World Bank and \$12 million from Australia for road development and highway maintenance;

(c) \$100 million from the Federal Republic of Germany for a urea fertilizer plant;

(d) \$5.5 million from the World Bank for a seed multiplication farm;

(e) \$50 million from Japan and \$21 million from the World Bank for telecommunications.

37. Similarly, in China, a UNDP-supported umbrella project, costing \$1.4 million, has helped prepare investment commitments of \$869 million in World Bank loans, including:

(a) \$200 million for universities improvement;

(b) \$60 million for agricultural development in North China;

(c) \$75.4 million for agricultural education and research;

(d) \$124 million for the development of three ports;

(e) \$70.6 million for industrial credit;

(f) \$262.4 million for research and development of oilfields at Gaotaizi and Zhongynam-Wentin;

(g) \$76 million for land reclamation.

38. Examples of other achievements resulting from UNDP technical co-operation, carried out by FAO, United Nations Industrial Development Organization (UNIDO), United Nations Conference on Trade and Development (UNCTAD), International Telecommunication Union (ITU) and WHO, among other agencies, include:

(a) Expansion of Sri Lanka's non-traditional crops exports (cocoa, coffee, pepper, cashew, spices, etc.) from SL Rs. 45 million in 1972 to SL Rs. 1,105 million in 1981. A well-equipped post-graduate laboratory for research in minor export crops has been set up at Matale;

(b) Establishment in Burma of a co-ordinated cotton research programme, including improvement in post-harvest technologies for ginning and fibre quality evaluation and the setting up of a farm demonstration and training

centre. Since the start of UNDP technical assistance in 1979, Burma's cotton seed production has increased by more than 80 per cent to 93,800 tons. FAO experts under the project are now assisting the Government in implementing its special "high-yield cotton township programme" to promote improved cotton farming techniques;

(c) Testing and adapting of local and improved varieties of rice seeds in the Lao People's Democratic Republic. Linked to three World Bank/IDA credits totalling \$4 million, the FAO-executed project is assisting in setting up the Na Phok Seed Multiplication Farm, and has already produced 9 tons of improved variety seeds and 155 tons of commercial seeds. More than 12,000 farmers and extension workers have participated in workshops and training programmes organized to promote improved rice cultivation techniques;

(d) Setting up of the Telecommunications and Postal Training Centre in East Rangoon, which currently offers 128 training courses covering the full spectrum of telecommunications and postal work. On UNDP financed fellowships, Burmese personnel have received training in TV broadcasting, digital electronic repair and calibration, telecommunication management, microwave radio relay systems and teleprinters;

(e) Establishment of a credit insurance scheme to increase export production in Malaysia, where exports comprise one half of the gross national product. The Malaysia Export Credit Insurance Board (MECIB), established in 1977, has so far issued 98 policies with a total value of around \$183 million;

(f) Upgrading the research and extension service capability of the Institute of Leather Research, Jogjakarta, Indonesia, through the establishment of a fashion and design centre, a footwear and leather goods pilot (training) plant, a pattern cutting and grading facility and a sewing and machine maintenance facility;

(g) Setting up of the Royal Veterinary Diagnostic Institute, including pathology feed analysis laboratories, at Serbithang, Bhutan. Twenty-three Bhutanese have received training abroad in such fields as microbiology, piggery management, farm management, cattle fertility and animal husbandry. The Serbithang Laboratory has helped the Government in developing plans for the control in Bhutan of serious enzootic microbial diseases, including foot and mouth disease;

(h) Upgrading the College of Engineering of the University of Philippines. A National Engineering Centre has been set up within the College. Twenty-two Filipino scientists, after completing post-graduate and doctoral studies in such fields as systems engineering, process metallurgy, biochemical engineering, electronic circuit design, etc., are assisting the Centre in upgrading the capability of engineers serving in industry, in governmental research establishments and in developing capabilities for research and development. In addition to fellowships and the services of UNESCO experts, UNDP funding has supplied laboratory equipment to the College and the Centre;

(i) Supplying potable water to more than 84,000 people in Solomon Islands since 1980. More than a thousand latrines were constructed in 1983 as part of a UNDP-supported/WHO-executed Government programme in support of the International Drinking Water Supply and Sanitation Decade.

C. The Arab States

39. During 1983 the countries of the Arab region were undergoing a major adjustment process. The oil exporting countries took measures to adapt to a lower level of income growth than in the past. Similar trends, coupled with other factors, have continued to affect the non-oil exporting countries of the region. Declines in resource transfers from the oil exporting countries have underscored the need to focus attention less on economic expansion than on consolidation of recent gains and better utilization of existing capacities.

40. These developments emphasize more than ever the need for increased technology transfers at all levels: manufacturing, production, management and marketing. The need for improved management, at both macro and micro levels, has become especially pressing. In addition, with externally-recruited labour now leaving the region in large numbers, the importance of indigenous human resource development in the Arab countries has become increasingly apparent.

41. The improvement of national capacities to plan and implement development, the development of appropriate institutional capacities, the enhancement of management capabilities, the better utilization of productive capacities, the transfer of technology, and human resource development -- these have for long been the essence of technical co-operation. Recent structural adjustments in the Arab region have reinforced the continuing relevance and validity of technical co-operation programmes in the countries of the area.

42. Under the auspices of UNDP's Regional Bureau for Arab States, an intergovernmental meeting was held in Riyadh, Saudi Arabia, in January 1983 to adopt the first regional programme for the Arab States. The programming of intercountry activities supported by UNDP is based broadly on the same general principles set out for the programming of UNDP assistance at the country level. Thus, intercountry programmes are closely related to the development priorities of the countries concerned. Recommendations and decisions emerging from a number of Arab, African and global international meetings were drawn upon in the determination of the programme's content. The selection of specific projects was determined in co-operation with the participating Governments, the Regional Commissions for Western Asia and for Africa, the agencies of the United Nations system, and regional intergovernmental institutions, particularly the subsidiary organs of the League of Arab States. The programme is focused on contributing to the achievement of seven priority goals: food security, human resources development, regional co-operation, energy planning and research, industrialization, social, cultural, environmental and health aspects of development, and scientific and technological skills.

43. Results stemming from UNDP-supported projects in 1983 broadly coincided with the characteristic needs of the region as described above, and good performance was also registered in the fields of transport and communication. Among the five least developed countries of the region -- Djibouti, Democratic Yemen, Somalia, the Sudan and Yemen -- special emphasis was placed on assistance for the promotion of investment opportunities in various economic sectors.

44. Government projects in the Sudan receiving UNDP assistance recorded success in several areas related to food and agriculture. For example, the five-year FAO-executed project for Seed Production and Certification has so far generated some \$20.6 million in follow-up investment, while producing 50,000 tons of seed (enough to satisfy 50 per cent of the country's requirement for certified improved seed).

45. The most far-reaching rural and agricultural development project in the Sudan is the Jonglei Canal, scheduled for completion in 1985. It is designed to conserve water for irrigated agriculture in both the Sudan and Egypt, to help open up the Sudan's remote southern region and to improve living conditions for at least 400,000 pastoralists and fishermen along its banks. UNDP is supporting four interrelated projects with contributions totalling \$9.7 million. Major bilateral donors to the Jonglei Canal programme, whose efforts complement and are co-ordinated with UNDP assistance, are the Netherlands, the European Economic Community (EEC) and France. In addition, the FAO Investment Centre has identified two of the projects as having investment potential, namely, the Kongor Integrated Rural Development and the Sudd Fisheries Development. The International Fund for Agricultural Development (IFAD) has also indicated an interest in Sudd fisheries development. In addition to the key role UNDP has played in attracting other donors to the Canal's development and in co-ordinating these varied efforts, the projects are expected to attract further investment in livestock and fisheries, two of the southern region's most important assets, which are crucial to the livelihood of the region's people.

46. Efforts to enhance food security remain a key objective of UNDP assistance in Egypt. In 1979 the Egyptian Government turned to UNDP funding and FAO expertise for assistance in the development and restructuring of the Egyptian beef industry. The project, Beef Industry Development and Related Ruminant Production System, introduced improved feeding systems in existing and new feedlots, designed to make maximum effective use of available agro-industrial by-products as well as homegrown feeds. The first phase of the project, completed in June 1982, made excellent progress in defining appropriate technologies for beef production in Egypt and ways of harmonizing the activities of large-scale feedlots and small farmers. The project demonstrated three feasible approaches: a complete diet system for group feeding on large farms; use of ammonia to improve the feeding quality of crop residues; and development of liquid supplements containing necessary micro-nutrients dissolved in molasses for distribution.

47. In mid-1982, a second phase of the project began to test the technical and economic aspects of the feeding technologies developed, as well as farmers' acceptance. Two distribution centres were established, 250 tons of liquid supplement were distributed to about 150 farmers, and 750 tons of by-products were first treated and then distributed to approximately 50 more. Encouraged by results achieved so far, a high-level task force has been established to work on future application of project findings on a national basis. The project's cost/benefit studies point at major investment opportunities, and the World Bank has already indicated "special interest" in follow-up.

48. In Tunisia, a UNDP-supported programme of research, training and bee colony production has enabled the country to become self-sufficient in honey and beeswax, to improve agricultural production and to increase the earnings of the small-scale farmers involved by some \$600 a year. The FAO-executed project, Assistance to the Development of Apiculture, focused on creation of production centres for the establishment of thousands of new bee colonies; production of selected fertilized queen bees; and distribution of new colonies to secondary and professional schools, agricultural centres and bee-keepers. In just two years these activities enabled Tunisia to double honey production and thus become self-sufficient in the commodity. UNDP assistance to the project is due to end in 1984, but country activities will continue to be aided by a regional project (Algeria, Morocco, Tunisia) now in the final stages of preparation.

49. In Yemen, a UNDP/FAO-supported project for Seed Production on Medium and Small Farms has helped Yemeni farmers significantly increase yields of major food crops through the introduction of improved seeds, nearly quadrupling the harvest of sorghum in one area. The improved seeds were distributed to selected farmers, to Agricultural Co-operatives and Credit Bank agents, and to extension services for both production and demonstration purposes. Simultaneously, a promotion campaign designed to gain the acceptance and use of new seed varieties, was initiated through appropriate media. Thus, in the Ibb-Taiz area, new sorghum varieties yielded up to 4,000 kilograms per hectare, compared with traditional output of about 1,100 kilograms per hectare. The project's success has prompted the EEC to provide approximately \$1.6 million for a follow-up phase, which also began in 1983.

50. Both at the regional and national levels, UNDP-supported training projects continue as an essential underpinning of technical and capital assistance in the Arab world, as the need for skilled manpower at all levels becomes increasingly critical. One such project, executed by the Economic Commission for Western Asia (ECWA), has assisted the Arab Institute for Economic and Social Planning since 1972 in various phases of training and fellowships for a large number of Arab planners in all aspects of economic and social planning. The Gulf Civil Aviation College, for example, was established in 1976 to train technical personnel from Bahrain, Oman, Qatar and the United Arab Emirates in aviation electronics, meteorology and civil aviation traffic to meet the demands of participating states in these fields. The college is being opened to personnel from Arab least developed countries

through joint financing by UNDP and the four participating **States**. Training has also been provided in the fields of livestock production, aquaculture, packaging, fertilizers, fisheries development and telecommunications.

51. Under another project, co-operative training in the formal institutional sense started for the first time in the Sudan in 1976, with assistance from UNDP and ILO. More than 3,000 people have since been trained, including trainers and supervisory staff. The project set up a National Co-operative Development and Training Centre and a network of four regional centres. It also helped to impart planning skills to personnel in the planning sections of national and regional Departments of Co-operation, so that training would be based on sound development plans at these levels.

52. The Hotel and Tourism Training College in Jordan is a unique facility combining secondary education with vocational training to provide personnel for Jordan's growing tourist industry. A hotel attached to the College offers on-the-job training and brings in sizeable revenue. In June 1983, the first class graduated, with some 285 students joining the industry. After termination of assistance to this ILO-executed project in October 1983, the College and its hotel have since been run entirely by the Ministry of Education and Ministry of Tourism.

53. With UNDP assistance through the United Nations Department of Technical Co-operation for Development (UN/DTCD), Saudi Arabia has trained more than 2,000 additional community development workers since 1969, when the Government requested help in upgrading the Deriyah Training Centre to become a Centre for Training and Applied Research in Community Development. The project was later extended into a second phase, lasting through 1982. More than 96 per cent of those trained are now working in community development and related fields. The Centre has undertaken applied research and has also extended its services to other Arab Gulf states. Technical co-operation and advice have been provided to Bahrain and Oman, and 21 trainees from Oman have joined long-term training courses. The third phase of the project began in January 1983. Since then, nine training courses have been conducted: one long-term course in community development and eight short-term courses and seminars. A total of 295 trainees have graduated from the above training courses, 33 of them community leaders, 32 female university students and 230 Government officials.

54. Industrial development is gaining new impetus among some Arab countries as a principal means for strengthening long-term growth. Oman's industrial sector is now growing rapidly. UNDP assistance under the UNIDO-executed Industrial Advisory Services to Ministry of Commerce and Industry was requested by the Government in 1977. The project has since provided major technical, advisory and operational support to the Ministry. As a result, the Ministry has contributed substantially to industrial development by preparing feasibility studies, providing advice to the private sector in its preparation for and evaluation of opportunities, and providing facilities for and various concessions and assistance to industrial units. The project has also played a role in institutionalizing evaluation of industrial licence applications, as

well as applications for the granting of concessions and facilities. Various studies undertaken through the project have generated considerable investments, essentially by the private sector. It is anticipated that total investments in the schemes for which licences were issued in 1983 will reach the equivalent of approximately \$133 million.

55. Throughout the Arab world, UNDP assistance in the field of transport and communications has been put to work in a series of projects for port development, civil aviation, telecommunications, roads and meteorological services. Large investments have also been attracted or facilitated by this technical co-operation. In 1975, Yemen had only 6,000 telephone lines. Urgently needed expansion of telecommunication facilities was thus an important element of the first Five-Year Development Plan, which saw the number of telephone lines increase to 75,000 by 1982. Following an initial phase of UNDP technical assistance through ITU, which began in 1973, Phase II of the project Organization and Administration of Telecommunication, which started in 1978, helped establish the Public Telecommunication Corporation, implement capital investment projects, upgrade the existing telecommunications training school, and prepare manpower and physical requirement plans for the sector. The training school now has the capacity to train 15-20 students a year. Groundwork has also been laid for an expanded Telecommunication Training Institute for which UNDP assistance began in 1984.

56. The project assisted in implementing capital investments totalling \$131.5 million. Credit was provided by Iraq for the construction of the training institute for telecommunication (\$1.9 million). France furnished equipment and expertise for a telephone and television system, and a communication system linking the main cities (\$108.6 million from the Government of France and \$21 million in commercial loans from French banks.) Most of the equipment was installed through the joint effort of national and international project staff, which included seven ITU experts and United Nations Volunteers.

D. Latin America and the Caribbean

57. During 1983 UNDP-supported projects were carried out in the context of a severe, and perhaps unprecedented economic recession in most countries of Latin America and the Caribbean, compounded by a regional foreign debt which by the end of the year exceeded \$300 billion. Two related concerns thus became top development priorities. With a 3 per cent drop in the combined gross national product during the year, a 6 per cent fall in per capita incomes and average inflation of 130 per cent, as reported by the Economic Commission for Latin America (ECLA), a major goal has been economic reactivation. The goal was particularly difficult to attain, however, because of a drop in exports, increased interest rates and a reduction in new credits. These factors combined to make Latin America a net exporter of capital in 1983 -- exporting some \$30 billion. For these reasons, debt management has become the other priority.

58. In Costa Rica, an innovative three-year project executed by UNCTAD, Support to the Stabilization and Reactivation of the Costa Rica Economy, got underway in June 1982 at a cost to UNDP of \$362,000. During the first year of activity, efforts were directed towards supporting the renegotiation of Costa Rica's external debt with Governments and commercial banks. By the end of 1983, the first phase of this complex process had been successfully concluded with a payment schedule plan negotiated with 160 private banks. Bilateral restructuring agreements were also completed with Governments. UNDP-financed consultants in external financing, economic policy and debt monitoring worked with Government teams in obtaining new loans on soft terms, vital to the economic reactivation of the country. With UNDP's help, these were obtained from Canada, the Federal Republic of Germany, France, the United States, the World Bank, and the Inter-American Development Bank (IDB).

59. Guyana also had foreign debt problems which prompted UNDP assistance in 1983. Under a project, Debt Restructuring and Resources Mobilization (UNDP cost \$315,900 and \$219,300 from the Government of the United Kingdom) executed by UN/DTCD, a consultancy firm was subcontracted to help Guyana monitor and manage its debt. The project assembled data on the state of Guyana's economy to support a planned rescheduling exercise and an effort to raise new credits after an International Monetary Fund (IMF) agreement was concluded. Data on debt were compiled, verified and updated to December 1982, and running estimates were kept throughout 1983. Directly as a result of project activities, the Government moved to establish a Debt Recording and Management Unit within the Ministry of Finance and Economic Planning to monitor both public and commercial debt on a continuous basis.

60. In Ecuador, a three-year UNDP project began in late 1981 to help the Government's Planning Office to strengthen the National Planning System. It is geared towards the formulation of the 1985-1989 Development Plan, as well as conducting ongoing planning tasks and building long-term capabilities. Among other things, the project helped: prepare a macro-economic model that will serve as a basis for improving 1984 figures and making financial data compatible; develop a basic methodology for the formulation of an Intermodal Integrated Transport Plan; prepare a diagnosis of national resources and environmental conditions; introduce computerized data processing in the Central Planning Office; provide in-service training and local courses; and systematize conjuncture data covering the last six years for use in formulating the new National Development Plan. Over one hundred technical reports were produced covering all areas assisted by the project, which was executed by UN/DTCD.

61. In Chile, another UN/DTCD-executed project, Analysis, Investment Evaluation and Training at the Regional Level helped set up a data bank on public sector investment projects at the sectoral, regional and national levels, which now covers over 18,000 projects. Since it began in 1979, this project (UNDP cost: \$4.5 million) has also helped prepare 120 public sector investment projects, train 900 public sector employees in planning, and train more than 300 university students through 20 courses and the granting of 19

fellowships. One of the investment projects prepared with UNDP assistance is now being implemented with a \$120 million credit from the IDB.

62. Twenty years ago, primary commodity exports accounted for two thirds of the region's merchandise exports; now the 14 major commodity exports comprise less than half. The region remains a net supplier of natural resources to the world, accounting for 9 per cent of world trade in these resources, while it imports 5 per cent. Due to sharp fluctuations in demand and prices for these commodities on the world market, which have had a particularly adverse effect on the region in recent years, natural resource management has become widely recognized as a development priority.

63. Forests are one of the region's most important natural resources, and forestry management and development is the focus of a number of UNDP-assisted projects in Latin America. The stress on this sector is critical for several reasons. On the one hand, Latin America is now losing around 4 million hectares of forestry resources a year through deforestation, a situation closely linked to the region's heavy reliance on biomass as an energy source. On the other hand, there is a potential of increased intraregional trade in forest products. Of all such natural resources, Latin America is a net importer only of forest products, and forest industries can in many countries open up new employment opportunities for the rural population, usually the lowest income sector.

64. In Panama, forests which covered 70 per cent of the total area in 1947 now cover only 45 per cent. With UNDP's support, a two-year Phase II Forest Development project, completed in early 1984 and executed by FAO, helped the Government formulate and implement a National Plan for Forestry Development. Activities included management of a 3,500 hectare forestry reserve in the San Juan River Basin, establishment of a seed bank and a Timber Technology Centre, preparation of three pre-feasibility studies for forestry development, creation of a breeding site which will produce around 50 thousand plants a year, and the training of a team of woodcutters in the San Juan River Basin.

65. Neighbouring Costa Rica has had similar problems: timberland which once covered 60 per cent of the land, now covers only 30 per cent. A UNDP/FAO-assisted project -- co-financed by the World Bank, IDB and Government of Costa Rica -- operated from 1980-1983 and strengthened the forestry sector in a number of ways. Specialized training abroad was provided to 34 forestry service employees: two courses in saw maintenance were sponsored for sawmill operators; the Forestry Board has been assisted in the preparation of new forestry laws, including incentives for reforestation and the identification of the main forest areas; and priority forestry programmes have been formulated. UNDP costs were \$1.1 million, nearly matched by a Government cost-sharing contribution of \$1,015,000. The project also played a co-ordinating role with respect to forestry sector assistance from other external sources.

66. In Guyana, forests still occupy 80 per cent of the land area and include several hundred species. The problem is finding suitable ways to exploit the relatively untapped resource, which now contributes just 1 per cent a year to the gross domestic product. Here an FAO-executed project for Logging and Mechanical Forest Industries Demonstration and Training ran from 1975 until 1982 at cost to UNDP of \$1,916,512. It succeeded in introducing modern technologies to the forest industry, promoted an increased use of soft-wood species, achieved savings in logging operations, provided training in almost all facets of the industry, established a seasoning and preservation plant, and prepared a variety of forestry manuals and technical reports.

67. Technical assistance in natural resource management has been provided in other fields as well. In Suriname, Assistance in Gold Mining, a one-year project carried out in 1983, provided a full-time expert to monitor the work of a contractor in preparing a feasibility study on a gold deposit in the Janapaw area. The project was designed to ensure that the technical quality of the work meets international standards needed to finance the mineral's exploitation. Through project activities, almost 1,000 samples were collected for gold analysis by foreign laboratories, national counterparts were trained, field operations were monitored, soil samples collected, and a large-scale project has now been prepared for gold and base metals development.

68. In Guatemala, where important new petroleum discoveries have been made, a project for Research and Exploration for Petroleum helped the Government to establish laws and regulations to govern the rapid expansion of the oil industry. The Government has also benefited from the technical assistance offered by the project in the negotiation of contracts and oil concessions, and in the supervision of petroleum exploration, production and processing. A subsequent phase (begun in late 1981 and to be completed in the early months of 1984) assisted the Government in strengthening the institutional and technical capabilities of the General Secretariat of Mining, Hydrocarbons and Nuclear Energy, which in October 1983 was given the status of Ministry of Energy and Mines. The project helped prepare a new petroleum law, which has now been passed, to regulate foreign capital engaged in petroleum exploration. It also provided four computer software packages covering economic analysis of petroleum exploration and production projects, compilation of monthly statistics and annual energy balances (one of the most advanced systems in Latin America), petroleum corporation accounting, and supervisory and management capabilities of the Ministry for cost and production control of oilwell performance.

69. The project has also produced a pre-investment study for the construction of a pipeline from Santo Tomás to Guatemala City to transport petroleum products to supply the latter, while another pre-investment study carried out by the project is helping Guatemala to improve its distribution of natural gas by expanding the terminal at Santo Tomás.

70. In the agricultural sector, a regional UNDP project in Central America and Panama, Preparation of Agricultural and Rural Development Projects (RUTA) began in 1979 at a cost to UNDP of \$1,375,062. It has helped the six

countries involved prepare 19 projects whose total investment requirement is \$452.7 million. By the end of 1983, some \$182.9 million had been mobilized for five of these projects from the World Bank, IDB, the Central American Bank for Economic Integration (CABEI), IFAD, and the Government of Costa Rica. The project is being executed by the World Bank, with cost-sharing of \$600,000 from IFAD.

71. A UNDP/FAO-assisted Integrated Rural Development project in Ecuador has focused on the identification, formulation, and implementation of agricultural sector projects which emphasized involvement of the target rural population at all stages -- pre-investment, implementation and operation. The eventual goal is for local rural organizations to run the projects. In one area populated by small and medium producers, the Government has now formulated six integrated rural development projects, three more than originally planned. Two of these are already in operation -- one with \$5 million from USAID, the other with \$20 million from the World Bank.

72. In the Dominican Republic, a seven-year project for export promotion, which aimed at promoting non-traditional exports from the agricultural sector, completed its assistance in July 1983. It successfully carried out experiments and research for the introduction of fresh vegetables with export potential, including onions, garlic, cauliflower, cucumbers, tomatoes, cabbages, peppers and melons. Production of off-season crops was introduced at experimental fields set up by the project, which also determined the export potential of the products of some 450 Dominican agro-industries. Several commercial and semi-commercial studies for the production and export of fresh vegetables were formulated at the pre-investment level.

73. As a result of some of these project studies, a joint Mexican/Dominican firm, "ABC Dominicana, C. por A." invested \$4 million in a plant for the production of melons and cucumbers mainly for export to United States markets in 1983. This firm is preparing another 500 hectares for melon and cucumber crops, and it will also cultivate corn and sorghum, products currently imported, in the non-exporting season. So far, some 600 new jobs have been created for agricultural workers by this project, executed by UNCTAD.

74. UNDP projects in Latin America have not just supported export diversification efforts within the agricultural sector, but have helped these countries boost their manufactured exports as well. The stress placed on the latter in recent years is reflected in the data: primary commodity exports saw a 10 per cent growth between 1960 and 1980, other exports -- primarily manufactures -- had a 22 per cent growth rate.

75. One UNDP-supported institution which has substantially boosted the output of the manufacturing sector is the Caribbean Industrial Research Institute (CARIRI), based in Trinidad and Tobago. Through two UNIDO-executed projects, UNDP helped establish CARIRI and assisted it over a period of 12 years, with total inputs of \$1,306,247. CARIRI was developed into an autonomous

institution capable of carrying on a broad scope of activities, including industrial project design and engineering, testing and industrial advisory services, and innovations and adaptations of technologies to fit local needs.

76. Since December 1981, when UNDP assistance terminated, the field office reports that CARIRI has continued its operations with support by the Government of Trinidad and Tobago, with these further results: in 1983, the Government increased contributions to the Institute by 6 per cent over 1982, and CARIRI increased its own earnings for its services to industries by 38 per cent. Both the Institute's facilities and services have continued to expand since 1981. CARIRI now executes the Small Business Development Programme, together with the Industrial Development Corporation (IDC) of Trinidad and Tobago. A Technology Development Unit was established in 1981 to promote the commercialization of industrial research results, including assistance in licensing arrangements. CARIRI also supplies technological advisory services to the CARICOM region for the Caribbean Development Bank.

77. Small industries are the focus of UNDP assistance to the industrial sector in Argentina. Small and Medium Industries in the Province of Santa Fe, begun in 1974, and executed by UNIDO, has generated results which include new technical assistance to over 2,000 enterprises in the Province in such diverse areas as laboratory control, studies and research on materials, agricultural machinery, information and management. A key achievement, in addition to improved quality control, has been the development of new prototypes of agricultural machinery, adapted to the particular soils of Santa Fe, some of which have already been produced by private firms in the region. Total investments made by firms in improvements resulting from the project total about \$5 million. Productivity savings have been estimated at some \$44,000 per month for firms in the foundry sector and \$40,000 for firms in the metal-mechanic sector.

78. Another institution built up with UNDP support is helping to develop and diversify the industrial sector in Guyana. The UNDP-supported Institute of Applied Science and Technology (IAST), begun with UNESCO as executing agency and now being carried out by the Government with UNIDO assistance, focuses on three main areas of applied research: mineral technology, ceramics and natural products utilization, with a view to the establishment of local industries based on indigenous plant resources. Some main results to date include:

(a) Applied research on the use of kaolin to produce chalk. This led to the establishment of a commercial chalk producing firm (GUYMINE), which now employs 20 persons;

(b) Successful applied research on laterite pigment for paint production, which paved the way for a commercial contract;

(c) Testing for clays and production prototypes for ceramic tableware and the initiation of a training programme for tableware factory workers, which enabled the establishment of a joint-stock company for tableware production, financed through an IDB loan.

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79. The project also successfully developed electrical/porcelain insulators from indigenous raw materials and an indigenous kiln for craft potters. The Institute's analytic division was considerably strengthened through the provision of modern equipment and trained personnel, including eight fellowships in mineral technology, rotary kiln construction, food technology, heavy equipment fabrication, and technical and scientific co-operation. As a result, IAST has now won commercial contracts both for the analysis of veterinary blood serums and for oil monitoring for users of industrial diesel engines.

80. In Guatemala, where almost 50 per cent of the population 15 years and older is illiterate, a UNESCO-executed project assists the Government's National Education Plan. It seeks to improve the outreach and quality of the national education system, especially in rural and marginal urban areas, with stress on innovative and non-conventional methods in both formal and non-formal education. From February 1980 to December 1983 this project ran courses lasting between 2 and 30 days for 1,890 teachers, covering such subjects as educational administration, supervision, educational planning, formulation of non-conventional educational projects, literacy programmes, out-of-school education, and environmental education. Feasibility and pre-investment studies were drawn up for primary education in rural and urban areas and for non-formal education projects. These projects, costing about \$70 million, have been approved for funding by the World Bank and the IDB. Within the framework of this project, Guatemala also received technical co-operation from Mexican education experts, the Brazilian Literacy Movement (MOBAL), Costa Rican education experts, and UNICEF. (Cost to UNDP: \$1,035,000; to Guatemala: \$300,000; World Bank cost-sharing: \$160,000.)

81. Cuba is the site of a highly successful project in the health sector, Strengthening the Centre for the Production of Biologicals, whose third phase began in 1982. To date, this project has helped carry Cuba to self-sufficiency in producing tetanus toxoid, typhoid and antirabies vaccines. Diphtheria toxoid and pertussis vaccines have also been developed on a laboratory scale, work is progressing on polio and smallpox vaccines, and development of rubella and mumps vaccines is to begin shortly. The project has also helped create conditions for possible larger scale investments in the rapidly expanding field of Cuban health services, and further assistance is contemplated from both multilateral and bilateral sources to this end.

E. Europe

82. In this region, substantial gains were made within projects designed to maximize the use of indigenous raw materials, human resources and agricultural potential.

83. In Yugoslavia, for example, non-metallic minerals such as kaolins, quartz sand and feldspar are a part of the resource base, even though these materials have traditionally been imported. Following an earlier project through which

UNDP helped the Government review and document all important deposits of non-metallic minerals, a UNIDO-executed project which began in 1978 has concentrated on the beneficiation and utilization of kaolins, feldspars, clays and quartz sand through laboratory and pilot plant testing. Based on a number of technical reports, feasibility studies which identified feasible technological processes, laboratory and pilot-plant tests, the Government has decided to invest in:

(a) A dressing and washing plant for kaolin with an annual production of 30,000 tons per year;

(b) A dressing and washing plant for kaolinized pyrophyllite with annual production of 80,000 tons per year;

(c) A plant for the production of 3,500 tons of utility ware per year;

(d) A kaolin washing plant with the annual production of 100,000 tons per year which will be used to produce fire-bricks. This plant will also produce 100,000 tons of feldspar per year as both minerals are found at the site where it is located.

84. Already under construction are a mine for the extraction of feldspar, quartz sand, mica and kaolin, and a dressing plant for quartz sand, to produce 460,000 tons per year.

85. In Turkey, 1983 marked the completion of seven years of the Transfer of Knowledge Through Expatriate Nationals (TOKTEN) programme -- the innovative scheme through which the skills and talents of professionals of Turkish origin permanently settled abroad are mobilized for the benefit of their homeland during short-term consultancies. This concept, now being utilized by 15 developing countries, has proved an especially effective means of transferring skills and knowledge, since language and cultural barriers too often impair communication between external specialists and their indigenous counterparts. Costs are kept low because expatriate consultants are generally willing to waive their normal \$200 to \$400 a day fees out of consideration to their home countries. They receive a per diem allowance at in-country rates, in some cases an honorarium from the host institution, and an economy-class return air ticket.

86. During 1983, 38 consultants of Turkish origin, from 15 different countries of residence, carried out consultancies in Turkey, serving 84 recipient institutions. This brought the total number of TOKTEN consultancies to 268. Emphasis has been on high-tech fields such as computer sciences and mining technology, though other areas of equal importance to national development goals continue to use the programme's flexible modality and approach.

87. Communication between the consultant and the recipient institution has often continued beyond the in-country consultancy. With return visits of Turkish staff to the consultant's place of work, for example, institutional

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linkages between host organizations and consultant employing organizations have been maintained, together with donations of equipment and supplies. In one case a computer expert has presented a microcomputer to the host organization.

88. The region also provides examples of projects which evidence continued long-term benefits following the conclusion of UNDP assistance. After 16 years, UNDP assistance to Cyprus' Paphos Irrigation Project ended in March 1983, leaving a fully operational scheme able to provide, on demand, sprinkler irrigation to about 5,000 hectares. The largest and most important project of its kind ever undertaken by the Government of Cyprus, this irrigation network consists of a 12-kilometre long concrete-lined canal, a 25-kilometre long main pipeline, 14 pumping stations with a combined capacity of 7,370 horsepower and 17 separate distribution networks with 539 kilometres of buried pipelines. Since 1966 UNDP has provided \$1.9 million for this project, while the Government of Cyprus contributed \$65.5 million, of which \$14 million was in the form of a loan from the World Bank. FAO served as executing agency. By the end of 1983, the project had achieved the following:

(a) Reduction of the area where low-value legumes, cereals and fodders were cultivated from 4,020 to 2,167 hectares;

(b) Increase of the area where high-value fruit and vegetable crops were cultivated from 940 to 2,676 hectares;

(c) An increase in the yield of main crops from a pre-project 77 tons to a post-project 133 tons per hectare;

(d) An estimated doubling in revenue from the main crops, from \$31,120 per hectare before the project began to \$62,240 per hectare after its completion;

(e) Higher income and living standards for 3,500 farm families and employment opportunities for 945 landless families.

89. By 1987, when the project reaches full development, it is estimated that the gross value of annual production (1982 prices) will increase from the present \$19.4 million to \$35.8 million, and that the foreign exchange earnings from the exportable crops will increase from \$7.3 million to \$13.5 million.

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