

# IDRC ANNUAL REPORT 1982/1983



The International Development Research Centre is a public corporation created by the Parliament of Canada in 1970 to support research designed to adapt science and technology to the needs of developing countries. The Centre's activity is concentrated in five sectors: agriculture, food and nutrition sciences; health sciences; information sciences; social sciences; and communications. IDRC is financed solely by the Parliament of Canada; its policies, however, are set by an international Board of Governors. The Centre's headquarters are in Ottawa, Canada. Regional offices are located in Africa, Asia, Latin America, and the Middle East.

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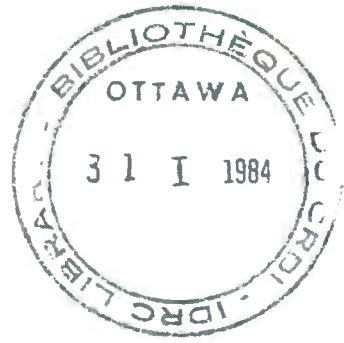
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# Annual Report 1982–1983

## International Development Research Centre

### Contents

Letter of transmittal from Chairman	2
Introduction	3
Board of Governors	14
Officers of the Centre and Regional Directors	15
Projects for which funds were approved during the fiscal year 1982–1983	
Agriculture, Food and Nutrition Sciences	16
Cooperative Programs	20
Health Sciences	22
Information Sciences	24
Office of Planning and Evaluation	26
Secretary's Office	26
Social Sciences	26
Special Governing Board Activities	33
Division activity projects	34
Financial commentary and highlights	35
Auditor's report	43
Fellowship Program	54
Communications	62



INTERNATIONAL DEVELOPMENT RESEARCH CENTRE  
CENTRE DE RECHERCHES POUR LE DEVELOPPEMENT INTERNATIONAL

Chairman of the Board  
Président du Conseil  
Donald S. Macdonald

June 1, 1983

The Hon. A. J. MacEachen, P.C., M.P.  
Secretary of State for External Affairs  
Lester B. Pearson Building  
Ottawa, Ontario

Dear Minister:

In accordance with Section 22 of the International Development Research Centre Act, I have the honour to transmit herewith the Annual Report of the International Development Research Centre for the fiscal year ending March 31, 1983, which includes the financial statements of the Centre and the Auditor General's report thereon.

Yours sincerely,

The Hon. D. S. Macdonald, P.C.  
Chairman of the Board

BOX/C.P. 8500, OTTAWA, CANADA, K1G 3H9 CABLE: RECENTRE

## Introduction

The nations of the world, whether they be in the early stages of industrialization or experiencing the first blush of the so-called postindustrial stage, cannot escape the economic burden of military buildup in which all too many of them are now engaged. *Common Security*, the report of the Independent Commission on Disarmament and Security Issues chaired by Olof Palme, has established beyond doubt that the weapons race strains even the wealthiest of economies irrespective of ideology or system of government.

We are becoming intensely aware of the implications of military expenditures, of the application of military solutions to problems that are essentially economic or social. Underlying the increasingly widespread concern about these phenomena is a powerful sentiment of hope — too often unstated — that there is another way, another path, that humanity can follow: cooperation.

It is in the realization that the destinies of all human beings are interlinked that the International Development Research Centre finds its *raison d'être*. Given the enormity of the world's problems, the Centre's contribution is modest. But it is made in good faith, in the belief that an equitable and rational application of scientific and technological advances is possible and can help humanity achieve well-being and possibly ensure its survival. As IDRC President Ivan L. Head stated recently to the Jamaican Society of Scientists and Technologists: "The history of humankind is a narrative of scientific and technological accomplishment. . . . Properly employed and wisely administered, science and technology have laid the foundations that permitted societies to pursue cultural richness and human dignity."

The members of the Brandt Commission, meeting at IDRC headquarters in December 1982, expressed a similar sentiment. The Commission's Report, *Common Crisis*, paints a gloomy picture of increasing anarchy in many parts of the world, the ever-present appeal of violent solutions to political conflict, creeping protectionism and other self-centred measures, and a dangerously strained system of international economic relations with the looming threat of a grave financial crisis. As the members of the Brandt Commission were brutally frank in depicting the international situation, so were they unequivocal in defining the solution: a commitment to a restructuring of the world's complex web of financial, monetary, and trading institutions to ensure the equitable development of all nations.

A commitment to development, then, is immeasurably rational; it is a moral and ethical vision of the human condition. But it is more: it is an essential precondition to the economic and political well-being of all countries, North and South. There must, however, be safeguards in the helping and sharing process, principles that will ensure that the helpers respond to what is needed and not merely project a self-serving ethnocentric interpretation from the comfort of their privileged position.

Since its creation in 1970, the International Development Research Centre has been careful to pay heed to this principle, and the funding of more than 1600 projects totaling \$278 522 281 has led to the accumulation of a unique body of knowledge in the development field. It is a body of research findings carefully crafted to meet the scientific and technological needs of the developing nations so they may better address the un-

derlying human issues they face. This knowledge applies to a wide range of activities and accomplishments, from the use of crop residues to maintenance-free water pumps; from baseline economic studies to computerized global-information systems.

In recent years, the North-South dialogue has led to a sharper perception of key development issues, and IDRC has continued its tradition of responding innovatively and effectively. The Centre's involvement in energy research includes a recently created Energy Research Group, now active and selecting eminent experts from developing nations to serve as members. The Group will be an independent source of information, assisting developing nations and donor agencies to make critical decisions involving their energy options.

Cooperative Programs, launched in 1980 to promote collaboration between researchers in developing countries and their Canadian counterparts, has funded to date 40 projects totaling \$5.9 million.

To give greater emphasis within the Centre to the important processes of planning and evaluation, a separate unit was established in 1979. The Office of Planning and Evaluation (OPE) calls upon the experience and resources of the Centre's five regional offices in Bogota, Cairo, Dakar, Nairobi, and Singapore as it examines the scientific environment and the research needs of the developing countries. Reports from the regions now constitute an important element in the materials examined by the Centre's Board of Governors and by the scientific staff.

The Latin America and Caribbean Regional Office (LARO) services a region made up of 32 countries with a population of some 300 million people. In its most recent report, LARO states that the most pressing research needs are being found in the food and energy sectors. Since 1970, IDRC has supported 527 research projects in this region, totaling more than \$70 million. The projects undertaken by the Agriculture, Food and Nutrition Sciences Division (AFNS) have concentrated on two program areas within the region: animal sciences and crops and cropping systems. The latter has contributed to changing traditional agricultural research that has predominated in the region and has tended to limit the appreciation of the farmers' environment and reality. The cropping systems approach favoured by IDRC substantially increases the possibility of addressing the farmers' problems more directly.

IDRC Social Sciences projects in the region have also concentrated on two program areas: population and science and technology. The second is an area in which Latin American social-science researchers have taken a particular interest in the last decade.

Health Sciences projects in the region show a substantial concentration in three program areas: rural health-care delivery systems, fertility control, and tropical diseases.

Information Sciences projects in Latin America and the Caribbean have concentrated on three topics: agricultural information, information on population problems, and information for policymakers and for decision-making related to development issues.

The Middle East Regional Office (MERO) serves 22 countries with a population of 240 million people. In the past year, in consultation with IDRC's Social Sciences Division, MERO initiated an in-depth study aimed at identifying and assessing the region's research needs and priorities in the social sciences.

The study, conducted by Professor S. Ibrahim, identified a set of complex and closely interrelated economic problems that have followed the oil-price escalation of the 1970s: lack of capital, trade deficits, low personnel productivity, and sectoral labour imbalances. The study also mentioned lingering high rates of illiteracy; large-scale, cross-state migration; and lack of applied technology in such areas as housing and energy as critical problems in the social-science matrix.

The Middle East faces a mounting food-import bill. The region now imports more than half of the food it consumes — only 20 years ago, it was a net food exporter. Major agricultural problems are related to desertification, the need to find an appropriate

level of farm mechanization, and changes in crop patterns that have brought hardship to small farmers. Agricultural problems are compounded by urbanization, which has meant a greater demand for commercial animal production and an additional burden on already limited animal-feed resources. Losses of crops because of poor storage and processing contribute to the shortage. The present IDRC forestry program in the region is addressing the need for shelterbelts on desert lands and the restoration of tree species. AFNS annually reviews its research and training programs in the region.

Since 1970, IDRC has funded 119 projects in the region, totaling nearly \$21 million.

The Eastern and Southern Africa Regional Office (EARO), responsible for an area consisting of 19 countries with a total population of 135 million, identified the major socioeconomic problems in the region as low per-person income, high population growth, inadequate education, and the widely fluctuating price of export commodities.

To date, IDRC has supported some 154 projects in 14 countries of the region. The projects represent expenditures in excess of \$24 million, mainly in agriculture and in the social and health sciences. Most of IDRC's AFNS programs have focused on the agricultural problems of the region's semi-arid and arid areas.

The West Africa Regional Office (WARO), which serves 24 countries with a total population of 200 million, identified the most critical problems of the region as being agricultural and socioeconomic. Desertification and inadequately mechanized modes of food production seriously impede progress toward the goal of food self-sufficiency. These, along with a high rate of population growth (2.5% annually), make the demographic-food equilibrium in the region probably the world's most precarious.

Other priorities of the region are the development of village woodlots and high-yield, rapid-growth species of trees to palliate the shortage of firewood.

In the social sciences, three priorities have been identified: research into the consequences of large-scale migration from rural to urban areas, research into the economic viability and modernization of small farms, and research to identify the types of education that are best suited to the development needs of each society.

Since 1970, IDRC has funded 186 projects in the region, totaling some \$27 million.

The report from the Asia Regional Office (ASRO) focused on inadequate research capacity and facilities in many of the 22 Asian countries, with 2.3 billion people. Throughout much of Asia, it is difficult for researchers and for their national governments to identify and define the socioeconomic, health, and other issues to which they should give priority.

This deficiency appeared to be particularly marked in the area of health and social sciences and in information gathering and dissemination. In the health sciences, there is a need for research into basic-health services in rural and urban-slum areas, new types of health personnel, and effective health education. High priority must also be given to the improvement of water-supply systems and sanitation in squatter settlements and rural areas. In the countries undergoing rapid industrialization (e.g., Hong Kong, South Korea, and Singapore), studies on occupational health and safety have become critical.

According to the report, one of the weakest research structures in Asia is in the field of information gathering and dissemination, particularly at the national and subnational levels. Major libraries are attached to transnational institutions where financial support has resulted in the introduction of resources in terms of labour, expertise, and equipment to set up new methods of operation and new technologies, but the information services seldom reach the grass roots. The need is to develop information infrastructures on an individual-country basis.

At present, ASRO administers more than 150 active research projects. However, because of weaker research structures in the Pacific Region, there are only two active projects there. One in Papua New Guinea addresses the evaluation of community in-

volvement in the development of effective health services; another in Fiji examines the identification and quantification of the pattern of energy supply and consumption.

Since 1970, IDRC has funded 577 projects in the region, totaling \$77 million.

OPE draws on information from these reports and other sources as it conducts planning studies to improve the Centre's effectiveness. These studies focus on such activities as those that influence the decisions taken by developing countries on resource allocation among and within research areas. OPE also monitors the activities of other donor agencies and endeavours to identify both promising and neglected areas.

To date, a total of 17 such planning studies have been undertaken. For example, an exhaustive study was carried out in Costa Rica by IDRC and the Consejo Nacional de Investigaciones Científicas y Tecnológicas (CONICIT), and a preliminary report was published detailing the size and characteristics of the country's scientific community and its overall research orientation. More than 60 research institutions were involved in this study, which identified nine major areas of research and four sectoral programs as well as priority levels for each.

Another key OPE function is evaluation, the assessment of the value of past and ongoing research activities. In Colombia, a study has been initiated to evaluate the impact of IDRC-funded work carried out by the Centro de Investigaciones Multi-disciplinarias en Desarrollo Rural (CIMDER). The IDRC-funded project was unusual in that it involved one, long (5-year) phase, and it attempted to apply and evaluate a strategy for rural development. The strategy involved implementing a system of primary health-care delivery to provide an infrastructure for carrying out rural-development activities in other sectors such as agriculture, education, and sanitation.

OPE is about to supervise a review of an Asian network, created in 1972, of institutions involved in the development of small and medium-sized industries in Southeast Asia — TECHNONET. A voluntary association for the promotion of its members, TECHNONET has evolved from its original status as an IDRC project to a nonstock, nonprofit, and nonpolitical service institution to which members pledge funds.

It is now time for the Centre to examine its own role in the evolution of the organization, the achievement of the objectives, and the impacts and effects on small and medium industries in this area.

As time passes, more IDRC-funded research activities are reaching maturity. The Centre has not shied away from supporting further research phases with strong marketing or pilot components. The question arises, however, as to the final utilization of research results, and the Centre is sensitive and alert to this important policy issue. A discussion paper, "Using Knowledge for Development," prepared by OPE addresses this issue and calls on the Centre to explore actively with its partners in developing countries the best ways to communicate and utilize the knowledge generated by research.

During the 1982–1983 fiscal year, the Centre approved 284 grants representing expenditures of \$44.4 million, an increase of nearly \$8 million over the previous year. A complete listing of the projects begins on page 16, but a look at the highlights of each division's program of activities is worthwhile.

## **Agriculture, Food and Nutrition Sciences**

### **75 projects, \$17.7 million**

The largest research component in the AFNS program continues to be *crops and cropping systems*. In the Dominican Republic, where most agricultural research has been conducted in experimental stations, a project will study the relation between cropping systems and the biological and socioeconomic environment of small farmers; generate technological alternatives for specific cropping systems adapted to local conditions; and



conduct on-farm trials of the most promising intercropping systems for a variety of crops such as pigeon peas, maize, soybeans, and cassava.

The present and potential value of underutilized foods in the world food supply has been recognized for some time. In the Philippines, a project will complete the identification, collation, and analysis of data gathered in an earlier survey of various wild and semicultivated tropical plants, insects, molluscs, fowl, game, and fish frequently consumed by rural households.

During periods of drought when cereals are not available, root crops are a critical source of carbohydrates in many regions of the world. In Rwanda, where subsistence agriculture is the primary economic activity, research is being conducted into the genetic improvement of cassava and sweet potato, two key staple crops, to increase resistance to disease and to improve ability to withstand climatic changes.

The AFNS program cooperates with and provides support to several international agricultural research centres. For instance, a project will support the International Center for Agricultural Research in the Dry Areas (ICARDA) in developing a methodology to help stabilize and improve farming systems in the Middle East, particularly crop and livestock husbandry.

Like fish ponds, reservoirs can be managed as a productive fishing enterprise, and aquaculture remains a major component of research in the *fisheries* program. In Turkey, researchers will continue feasibility testing of cage culture, primarily for carp, and will design and construct a fish hatchery to supply the Keban Reservoir in the eastern region of the country. In Chile, small-scale fishermen have not benefited from the many improvements that followed technical and marketing changes in the country's commercial fishery industry. A project will promote a small-scale fish-processing industry in fishing villages to encourage higher catches and better utilization of fish. Researchers will develop appropriate processing procedures and identify acceptable products for the school-meal and other institutional markets and thus ensure a low-cost source of protein as well as a stable market for the villagers' catch. A number of projects related to fish-disease control are also being supported. In Malaysia, for example, a project will focus on the immune response of bighead carp (*Aristichthys nobilis*) infested by *Lernaea piscinae* and identify and examine the incidence and life cycles of other fish parasites, particularly *Monogenea*.

As a result of increased population and increased demand, animal production is growing in developing countries. *Animal sciences* research thus takes on added importance. A research project in the Philippines will evaluate ways in which banana stems, leaves, and suckers can be supplemented with other crop by-products so that the country's relatively isolated hillside farmers can satisfy the feed requirements of backyard cattle or water buffalo. Goat production in Peru is associated with low-income farmers for whom the animal is a source of food and cash. A project will be undertaken to develop improved goat-production systems suited to the ecological and socioeconomic conditions in the northern coastal areas of the country.

As a result of the overcutting of natural *forests*, many developing countries are now experiencing a severe shortage of wood to meet the basic human needs of cooking, heating, and shelter. In the Andean region of Colombia, a project will establish tree plantations on high-altitude lands unable to sustain crops or animals. Other serious consequences of deforestation are desertification and soil erosion. In Upper Volta, where a "Village Woodlot Operation" began in 1979, one difficulty has been to prevent animals from grazing in tree nurseries. Imported metal fences are too expensive for villagers. A project will identify the best species of local shrub to plant as "live" fences. The dense hedges create a favourable microclimate for crops, and prunings provide extra firewood. In Tanzania, tree plantations have become essential not only to provide fuelwood and small timber, but also to protect people, animals, and crops against desiccating winds

and sandstorms. Research continues on the selection of the most suitable tree species and the development of simple planting techniques.

*Postproduction systems* research (storage and processing techniques for food crops) has implications for both large and small farmers. In India, a project on postproduction systems that reduce losses and improve processing, distribution, quality, and availability of cereal grains, food legumes, and oilseeds has had considerable success and will continue. For Indonesia, Malaysia, the Philippines, Singapore, and Thailand, the Southeast Asian Cooperative Postharvest Research and Development Program will pursue efforts to reduce losses in national postharvest grains industries. Increased emphasis will be placed on the postproduction problems of maize and groundnuts, although rice will remain the first priority.

## **Cooperative Programs**

### **21 projects, \$3.6 million**

The Cooperative Programs Unit was established in 1980 to provide funding for projects that involve direct collaboration between research institutions in the developing countries and their counterparts in Canada. The program budget supports two kinds of projects: those that fall within the scope and expertise of the various divisions within the Centre and those relating to other fields of research, which are managed by Cooperative Programs staff.

In 1980, vast deposits of peat were discovered in Senegal. As 60% of the country's energy comes from wood, the use of peat could significantly reduce dangerously high rates of desertification and soil erosion. Researchers will take an inventory of the peat deposits and will assess the quality and potential use of this fossil fuel in electricity production, and agriculture and industry, before any major investments are made.

The Government of Tanzania believes that local and regional cooperatives are an important means of improving the well-being of its rural people. However, questions arise about the ability of cooperatives to remain responsive to grass-roots participation and control when they evolve into national systems. A team of Canadian and Tanzanian researchers will study the strengths and weaknesses of the cooperative systems of the two countries and see what strategies each uses to act effectively at the national or central level, while promoting genuine development and cooperation at the local level.

In Brazil, the development of an efficient freight-transportation system is seen as pivotal to the country's economic recovery and development. A cooperative project between the University of Montreal, Canada, and the Pontificia Universidade Católica, Rio de Janeiro, will develop strategic planning tools for the evaluation of freight-transportation policies, mainly from the point of view of their implications for technological change.

Trypanosomiasis (African sleeping sickness) is one of several tropical diseases that severely limit economic development in much of Africa. The University of Victoria, Canada, in collaboration with the Kenya Trypanosomiasis Research Institute, will develop a simple field test, using immunological techniques, for the early diagnosis of the disease.

The life cycle of several important aquaculture species is now routinely under the control of fish farmers. While this provides opportunities for genetic improvements, it also presents serious risks of genetic damage by inbreeding and deterioration of desired characteristics. The Research Institute for Inland Fisheries, Indonesia, along with Dalhousie University, Canada, will conduct research to improve aquaculture stocks of Indonesian fish farmers by developing methods for brood-stock selection and control of inbreeding.

Jamaica ranks third in world bauxite production. However, the processing of bauxite for extraction of alumina results in a waste product known as "red mud," which is highly

caustic and hazardous to human, animal, and plant life. The waste is stored in valleys or in artificially constructed lakes. This places constraints on the supply of productive land and threatens contamination of groundwater supplies. The University of the West Indies and McGill University, Canada, will collaborate on research on the uses of local starches, such as cassava and yam, to remove water from the waste and eliminate the threat of groundwater contamination.

The marine environment is of great concern to Canada and to many other countries. Canada has been conducting controlled ecosystem pollution experiments (CEPEX) at the Institute of Ocean Sciences, British Columbia. A joint project between Canada and China is being considered; it would strengthen marine-pollution research in China and would focus on the pathways and fate of toxic chemicals in the marine environment by conducting marine ecosystem enclosed experiments (MEEE).

## **Health Sciences**

### **32 projects, \$5.7 million**

In most developing countries, acute diarrheal diseases continue to be a leading cause of death in infants and young children. As part of the Health Sciences Division's *communicable and noninfectious diseases* program, research support will continue for the World Health Organization's global program for disease control, with emphasis being placed on the national level and the development of new drugs, vaccines, and diagnostic tools.

In Colombia, a project will examine the relationship between clinical forms of leishmaniasis, a parasitic disease common to the tropics and subtropics, and response to therapy. Another project will look at the factors that may have contributed to a recent epidemic of dengue hemorrhagic fever, an acute and sometimes fatal disease transmitted by the mosquito *Aedes aegypti*, in Cuba. A related divisional project, under the Centre's cooperative-program mandate, will test an integrated mosquito-control program, including health education, to reduce the mosquito population on the island of Tuvalu in the South Pacific, in a bid to interrupt the transmission of dengue fever.

Schistosomiasis, a parasitic disease transmitted through contaminated water with snails as the intermediate host, is one of the leading causes of illness and death in the developing world. A project in rural Kenya will evaluate the effectiveness of an innovative, community-based approach to fighting schistosomiasis. Villagers will be invited to participate fully in the planning, organization, and implementation of intervention strategies such as health education and improvements in water supply, sanitation systems, and sanitary practices. In Egypt, where schistosomiasis — also known as bilharzia — is a very important public-health problem, early studies have indicated that the wild herb, *damsissa*, is a natural molluscicide and could be used to kill the snails that transmit the disease. Experimental and control areas will be chosen, baseline data on bilharzia prevalence will be collected, and *damsissa* will be grown in a nursery for a study on the feasibility of its cultivation by local farmers in the Nile Delta region of Egypt.

The Division continued to expand its research support for *fertility regulation*. It is now well established that, among some American and British women, heavy smokers, for instance, the long-term use of oral contraceptives is associated with a high risk of developing cardiovascular diseases. In Mexico, a project will determine to what extent health officials and users of oral contraceptives are aware of factors that increase the risk of cardiovascular diseases. In South Korea, where vasectomy is a major component of the national family-planning program, a project will estimate the relative risk of arteriosclerotic disease in vasectomized men. In India, IDRC-sponsored research has identified two possible antipregnancy vaccines. In the current phase of the project, researchers will study and select vaccine formulations to undergo closely monitored

clinical-pharmacology trials (phase I) and will develop quality-control procedures as well as continuing toxicity tests.

A project within the Division's *water supply and sanitation program* will enable researchers from a nongovernmental organization (NGO) in Indonesia to transfer the knowledge and experience gained on water-development projects to other NGOs through an intensive training program emphasizing practical field work.

Since 1976, IDRC has been supporting research on the development of more effective pumping systems for rural-water supply. These projects demonstrated that simple plastic (PVC) components can be used in hand-pump manufacture, making it possible to manufacture, maintain, and repair hand pumps at the village level with local resources. A new project at the Universiti Malaya in Kuala Lumpur, Malaysia, will investigate the feasibility of mass-producing these pumps through injection moulding of plastic. The project will also provide technical input to a new network of PVC hand-pump projects designed to investigate schemes for management, financing, maintenance, and community acceptance.

Improving basic sanitation and personal hygiene, particularly in the rural areas of developing countries, can prevent many common diseases. Research support in this area is increasingly important to the Division. A project among the villagers of NGoundiane in Senegal will focus on the hazards associated with poor sanitation and provide appropriate guidance in the construction and maintenance of wells, latrines, and solid-waste disposal facilities. In Kenya, a project will enable the Ministry of Health to evaluate latrine models to identify some that are suitable for areas with high water tables. In the Tikonko chiefdom of the southern province of Sierra Leone, a demonstration project based on community involvement will be undertaken. Its chief components will be the provision of basic-health education to village leaders, the construction of improved pit latrines and protected wells, and the demonstration of the proper use and maintenance of the improved water-supply and sanitation facilities.

Another project has supported the production by IDRC of a film that seeks to explain the oral-fecal route of transmission of diarrheal diseases and how to interrupt the cycle through sanitation interventions. Animation sequences have been used to illustrate routes of transmission.

The development of appropriate health technologies is a key element in the *delivery of basic health-care services*. The Program for Applied Technology in Health (PATH) has had considerable success in developing new and improved health technologies and in introducing them into developing countries. The Division will support PATH's efforts in moving the technologies from the current stage of laboratory research through field trials and into actual use. The technologies are: a polio-vaccine marker, a baby scale, improved oral-rehydration solutions, and a sterilization indicator for medical instruments. Other new technologies will also be identified.

Concern over *occupational diseases* and accidents is relatively new in most developing countries, but the Division is supporting a growing number of projects in this area. One such project will carry out a study in Hong Kong, South Korea, the Philippines, and Singapore to evaluate working conditions and occupational-health services in selected small-scale industries dealing with metal working, lead, and lead compounds. In the Sudan, a high incidence of respiratory diseases and hypersensitivity to flour dust has been reported among workers in the flour-milling industry. Researchers will monitor environmental conditions such as dust concentration, particle size, temperature, and humidity and will establish an allergy profile for the workers, particularly as regards flour dust allergen. In Tunisia, a preliminary probe has noted an unusually high level of respiratory diseases among the 19 000 workers in the phosphate mines in the Gafsa area. A project will measure dust levels in the mine environment, try to correlate the incidence and severity of disease with dust exposure, and propose preventive measures.

## Information Sciences 30 projects, \$5 million

As the pace of social and technological change quickens around the world, so the need for efficient information gathering and dissemination intensifies in the developing countries. The Information Sciences Division assists the nations of the Third World in meeting this ever-pressing need by encouraging the sharing of information and cooperation to make the best use of scarce and critical information resources. The mechanism still most favoured for bringing this about is the design and implementation of international cooperative information systems often coordinated by an international agency on behalf of its member countries. The Division has paid particular attention to AGRIS, the global information system for the agricultural sciences and technology, operated by the Food and Agriculture Organization of the UN, and to DEVSIS, a growing set of interacting regional systems handling the socioeconomic information needed by development planners.

The key component of the international cooperative information system is the national information centre, which collects and organizes the documents produced domestically in a particular sector or subject and, through the system, makes them available to other member countries. The global and regional coordinating centres for these systems have been effective in establishing bibliographic standards and methodologies, in introducing information-handling techniques, and in providing training. The limiting factor is ultimately the strength or weakness of individual national centres, which continue, therefore, to receive much attention and support from IDRC.

In Jordan, the role of agriculture in the economy is critical. Yet, there is no organization or management of agricultural information at the national level. A project will enable the faculty of agriculture, University of Jordan, in conjunction with the Ministry of Agriculture, to organize national agricultural information and to capture and control national agricultural literature. Pakistan began its contribution to AGRIS in 1978 but because of limited resources was able to input only a few documents on agricultural research in the country. A project will enable the Pakistan Agricultural Research Council to strengthen its participation in AGRIS. The situation has been somewhat similar in Bangladesh. Beginning in 1980, responsibility for AGRIS input was transferred to the Bangladesh Agricultural Research Council (BARC), which proposed the establishment of a National Agricultural Library and Documentation Centre (NALDOC) to coordinate agricultural-information activities in the country. A project will provide BARC with the necessary resources to activate the work program originally envisaged under the NALDOC proposal. Support is also being provided to national agricultural services in Guatemala, Nepal, and Argentina.

The Division continues to encourage and to support major international agricultural research centres. A project will enable the International Center for Agricultural Research in the Dry Areas (ICARDA) to build an information-services capacity in Arabic. Support is being provided to the Centro Internacional de Agricultura Tropical (CIAT), in Colombia, for its specialized information-analysis centres on cassava, field beans, and tropical pastures, by upgrading and supplementing several staff positions. With the Division's support, the Organisation de recherche pour l'alimentation et la nutrition en Afrique, in Senegal, will establish a documentation centre to collect and disseminate information throughout Francophone Africa on food and nutrition. A project will enable the International Council for Research in Agroforestry (ICRAF) to develop further the Multiperiod Budgeting and Economic Assessment of Perennial Crop Intercropping System (MULBUD), an interactive microcomputer software tool, to obtain basic economic data on the intercropping of perennial tree crops.



In South America, camelids (llama, alpaca, guanaco, and vicuna) live on some 5 million hectares in the High Andes of Peru, Argentina, Bolivia, Chile, and Ecuador. Their growth and survival are threatened by diseases and the lack of knowledge about them. A project will enable the Instituto de Fomento Lanero (INFOL), in La Paz, Bolivia, and the Instituto de Investigaciones Tropicales y de Altura (IVITA) in Lima, Peru, to create a specialized information service on South American camelids.

Underlying research for the provision of software and computerized information services is a concern for a range of human and social issues. In Colombia, the Division is supporting the creation of a documentation centre on children's literature and the development of methods for teaching children reading skills and habits. In Caracas, Venezuela, IDRC is providing funds for the Centro Latinoamericano de Administración para el Desarrollo (CLAD) to strengthen its documentation centre and establish an information network on public administration for Latin America and the Caribbean. Also, in the same region, a Division project will allow the Asociación Dominicana Pro-Bienestar de la Familia, Inc. (PROFAMILIA) to become a participating centre in the Sistema de Documentación sobre Población en América Latina (DOCPAL) and establish a special population information unit in the Dominican Republic.

The Division also manages the Centre Library, which serves not only IDRC staff but also the Canadian development community at large. The Library's data base is maintained through MINISIS, as are two expanding data bases — one on socioeconomic planning information (Devindex) and the other on low-cost, rural health-care delivery services (Salus). These data bases, together with several others operated by international organizations, can now be interrogated from computer terminals across Canada.

## **Social Sciences**

### **113 projects, \$10.8 million**

The social and economic progress of many developing countries hinges to a large extent on how they choose and apply development policies and strategies in the area of *scientific and technological change*. The decisions taken and courses followed will determine the impact of science and technology on critical socioeconomic parameters. The Social Sciences Division pays particular attention to this complex, an important facet of development in the different regions of the world. In Africa, where economic and social welfare depends on agricultural prosperity, the agricultural sector has not kept pace with population growth. A project in Nigeria will examine the contribution of technology to food self-sufficiency. Specifically, the project will attempt to devise a method to evaluate the costs and benefits of food self-sufficiency by examining the supply and demand for technology for two key crops, maize and cassava. In Ghana, IDRC will support an investigation of the extent to which indigenous technological capability affects the performance of nationalized enterprises. This will be of interest to many developing countries. In Latin America, a project will organize a network of centres currently conducting research on issues of peasant production and technology. Another project in Latin America will concentrate on long-range planning in the energy sector. The project will seek ways to improve the formulation of government policy, the management of energy demands, the development of alternative-energy sources and technologies, and the design of decentralized energy-supply systems, particularly in rural areas.

The Division believes that *education research* is vital to the long-term development of the Third World and, among other things, is supporting studies of large-scale literacy campaigns. In Ethiopia, a project will evaluate the country's national literacy campaign and explore ways to improve the information required at the district level to assess the campaign. A similar project will be undertaken in Ecuador where an unusual literacy campaign began in 1980. The Ecuadorian program uses the psychosocial method of

Paulo Freire, which bases its teaching strategy on themes linked to the illiterate person's experience of social and economic oppression.

The *population and development* component of the Division's research program is supporting two large-scale demographic surveys. Zaire has never had a population census, and available data are either fragmentary or of poor quality. A project will support field studies of population dynamics and in so doing strengthen the research capacity of the Department of Demography, University of Kinshasa. In Argentina, economic recession and related policy changes have had a dramatic effect on living conditions since 1976. A project will examine the subsequent population changes and will develop a methodology for assessing the implications of current population trends for social and economic planning at the national and provincial level. In the Middle East, significant investments are being made by national governments and international agencies to cope with the needs generated by intense urbanization. A project will provide support to the Middle East Awards Program so that it can establish a regional evaluation of the impact of urban projects on child mortality.

Programs in the Division support a number of projects on the role of women in developing nations. In the Dominican Republic, for example, a project will seek a better understanding of the situation of rural women and the impact of their work on key aspects of their family and social lives. In Brazil, another project will examine the political participation of women who have migrated from rural areas to the poor districts of cities. The project will focus on the impact of the urban experience on the political and social consciousness of the women, with particular attention to their social condition and their roles in social change. In Kenya, researchers will study the factors that influence the educational and occupational development of women through an investigation of the perception and attitude of women themselves.

The Division's *economics and rural development* program is supporting a study in Zaire that will target the socioeconomic structure and the means of agricultural production in the Bandundu region, one of the principal food-producing areas of the country. In Chile, a project will analyze data gathered in an earlier study on the economic and social adjustments made by small farmers to the open-market policies introduced in 1974. In Zimbabwe, IDRC support will enable the Dairy Marketing Board to conduct research on planning and implementing milk-marketing systems in both traditional and resettlement farming areas. The provision of a milk-marketing infrastructure could improve the incomes of some 800 000 families on agriculturally marginal lands.

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## Projects for which funds were approved during the fiscal year 1982–1983<sup>1</sup>

### Agriculture, Food and Nutrition Sciences

#### **81-0033 BEEKEEPING (MALAYSIA)**

For the Universiti Pertanian Malaysia, Selangor, to develop improved honeybee management techniques suitable for a subsistence industry for smallholders of oil-palm and rubber plantations. \$146 800 — 48 months.

#### **81-0115 PASTURE DEVELOPMENT (CHILE) — PHASE II**

For the Pontificia Universidad Católica de Chile, Santiago, to improve animal-feeding systems — thereby increasing milk and meat production — by testing new germ plasm that can be grown as forage. \$325 000 — 24 months.

#### **81-0118 PROCESS IMPROVEMENT BAKERIES (CHILE)**

For the Instituto de Investigaciones Tecnológicas, Santiago, to improve operations in small-scale neighbourhood bakeries and to increase their productivity, profit, and product quality. \$68 700 — 15 months.

#### **81-0127 ALTERNATE FOODS (PHILIPPINES)**

For the University of the Philippines, Quezon City, to complete the preparation and analysis of data on wild and semicultivated plants, insects, molluscs, fowl, game, and fish and to survey the use of such under-utilized foods in parts of the Mindanao region. \$34 000 — 24 months.

#### **81-0141 FARMING SYSTEMS (MALI) — PHASE II**

For the Ministère des affaires étrangères et de la coopération internationale, Bamako, to design and conduct research aimed at increasing food and cash-crop production and improving management of farmland, water, and animal herds. \$369 300 — 24 months.

#### **81-0177 AFRICANIZED BEES (COLOMBIA)**

For the Universidad Nacional de Colombia, Medellín, to identify beekeeping techniques suitable for the management of Africanized bees on small farms in Colombia. \$225 000 — 36 months.

#### **81-0182 RATTAN (PHILIPPINES)**

For the Philippine Council for Agriculture and Resources Research, Los Baños, to increase the supply of rattan, which is widely used in the furniture industry in the country, by establishing plantations of the most valuable known species and by finding uses for unexploited species. \$158 190 — 36 months.

#### **81-0183 RICE RESEARCH (WARDA) — PHASE III**

For the West Africa Rice Development Association, Monrovia, Liberia, to continue efforts to improve rice varieties and production techniques for the Senegal River Valley and similar agroclimatic regions in West Africa. \$372 300 — 24 months.

#### **81-0218 CAGECULTURE (DOMINICAN REPUBLIC) — PHASE II**

For the Asociación para el Desarrollo to further develop cage-culture techniques for increased production of low-cost fish protein. \$272 300 — 36 months.

#### **82-0002 FISH PROCESSING (CHILE)**

For the Instituto de Fomento Pesquero, Santiago, to develop small-scale, fish-processing techniques for Chilean fishing villages to encourage higher landings and better use of fish. \$146 200 — 24 months.

#### **82-0011 SORGHUM MILLING (ZIMBABWE)**

For Silveira House, Harare, to increase the use and production of sorghum by establishing, operating, and evaluating a sorghum-service mill operating a dehuller developed by the Rural Industries Innovation Centre (RIIC), Botswana, in collaboration with the Prairie Regional Laboratory, Canada. \$93 400 — 24 months.

#### **82-0012 VEGETABLE SEED (THAILAND)**

For Chiang Mai University to increase vegetable-seed production and improve associated management techniques among poor farmers. \$234 100 — 36 months.

#### **82-0013 INTERCROPPING (SWAZILAND) — PHASE II**

For the University College of Swaziland to continue efforts to improve intercropping patterns through a program of selection of high-yielding and adapted crop mixtures. \$164 800 — 24 months.

<sup>1</sup>Asterisks indicate that the contract between IDRC and the recipient may not yet have been signed.

**82-0014 GROUNDNUT IMPROVEMENT (THAILAND)**

For Kasetsart University, Bangkok, and Khon Kaen University, Khon Kaen, to develop improved groundnut varieties for different regional cropping systems and to improve production practices, including those for seed. \$356 900 — 36 months.

**82-0015 ERYTHRINA (CATIE)**

For the Centro Agronómico Tropical de Investigación y Enseñanza, Turrialba, Costa Rica, to develop improved silvicultural and management techniques for the cultivation of *Erythrina* trees in association with crops on small farms. \$389 900 — 36 months.

**82-0016 INTERNATIONAL COUNCIL FOR RESEARCH IN AGROFORESTRY (ICRAF) — PHASE VI**

For ICRAF, Nairobi, Kenya, to continue sponsoring and channeling resources in agroforestry research and to promote the adaptation and use of research results among developing countries. \$150 000 — 12 months.

**82-0019 OPTIMIZATION OF DEHULLER PRODUCTION (BOTSWANA)**

For Rural Industries Promotions, Gaborone, to redesign the Rural Industries Innovation Centre (RIIC) dehuller system, produce a full set of revised engineering drawings, and improve manufacturing procedures and quality-control standards for the machine. \$16 200 — 12 months.

**82-0022 OYSTERCULTURE (JAMAICA) — PHASE II**

For the Jamaican Ministry of Agriculture, Kingston, to develop a self-sustaining local oysterculture industry using local skills and locally available materials. \$199 000 — 36 months.

**82-0047 POSTHARVEST TECHNOLOGY (INDIA) — PHASE II\***

For the Indian Council of Agricultural Research, New Delhi, to develop and evaluate postharvest systems for several cereal, legume, and oilseed crops grown on small farms. \$285 899 — 33 months.

**82-0059 MUSTARD (INDIA) — PHASE II\***

For the Indian Council of Agricultural Research, New Delhi, to continue to breed types of mustard that are suitable for areas of low rainfall and limited irrigation and that can be intercropped with wheat, barley, or food legumes. \$125 100 — 26 months.

**82-0060 RAPESEED (INDIA) — PHASE II\***

For the Indian Council of Agricultural Research, New Delhi, to continue breeding varieties of fast-maturing, high-yielding rapeseed that are disease resistant, pest tolerant, and widely adaptable. \$153 600 — 26 months.

**82-0061 SAFFLOWER (INDIA) — PHASE II\***

For the Indian Council of Agricultural Research, New Delhi, to continue developing high-yielding and disease-resistant varieties of safflower and to improve, by hybridization and selection, the best variety available. \$145 800 — 26 months.

**82-0062 SESAME (INDIA) — PHASE II\***

For the Indian Council of Agricultural Research, New Delhi, to continue developing higher-yielding varieties of sesame that are pest and disease resistant and to test them among farmers. \$149 800 — 24 months.

**82-0069 TREE SEED IMPROVEMENT (ECUADOR)**

For the Programa Nacional Forestal of the Ministerio de Agricultura y Ganadería, Quito, to improve the physical quality and genetic suitability of the seed of major forest plantation species and to ensure the efficient collection, storage, and distribution of such seed. \$174 900 — 36 months.

**82-0073 ROOT CROPS (CONGO-BRAZZAVILLE) — PHASE II\***

For the Direction générale de la recherche scientifique de la République populaire du Congo to increase cassava production on small farms by continuing the breeding and selection program begun in phase I and to screen the improved material to determine its acceptability to farmers and its industrial usefulness. \$139 000 — 36 months.

**82-0081 ISABELA POSTHARVEST SYSTEMS (PHILIPPINES) — PHASE II\***

For the Isabela State University to evaluate the economic, social, and technical suitability of a variety of existing crop threshers and dryers for the postharvest system of Isabela Province. \$156 500 — 24 months.

**82-0082 LEGUME PROCESSING (THAILAND) — PHASE III**

For Khon Kaen University to test cowpea processing techniques developed in earlier research phases and to determine the feasibility of promoting cowpea milling to extend the market for the legume in northeast Thailand. \$141 900 — 36 months.

**82-0084 PLANTAIN/BANANA IMPROVEMENT (JAMAICA)**

For the Banana Company of Jamaica Ltd, Kingston, to enable the Jamaica Banana Breeding Scheme to maintain its germ-plasm collection, carry out a modest breeding program, and begin developing a facility for plantain and banana meristem culture that will allow material to be imported and exported without risk of disease transmission. \$93 500 — 24 months.

**82-0085 DAIRY FEEDING SYSTEMS (TANZANIA)**

For the University of Dar es Salaam, Morogoro, to develop improved systems of smallholder dairy farming in the Moshi-Arusha area of northern Tanzania. \$218 800 — 42 months.

**82-0086 FARMING SYSTEMS RESEARCH (ICARDA)**

For the International Center for Agricultural Research in the Dry Areas, Aleppo, Syria, to test and refine a farming-systems research methodology that can be used to increase agricultural productivity and incomes of smallholder mixed-farming enterprises. \$501 600 — 36 months.

**82-0087 GOATS (PHILIPPINES)**

For the Bureau of Animal Industry of the Ministry of Agriculture, Manila, to evaluate the use of ipil-ipil (*Leucaena leucocephala*) leaves in rations for goats. \$75 000 — 24 months.

**82-0088 TROPICAL PASTURE EVALUATION (ECUADOR)**

For the Instituto Interamericano de Ciencias Agrícolas, Quito, to introduce and evaluate cattle-forage grasses and legumes suitable for production in the infertile soils and particular pest conditions of the low-altitude Amazon Region. \$184 000 — 36 months.

**82-0089 CROPPING SYSTEMS OUTREACH (IRRI) — PHASE II**

For the International Rice Research Institute, Los Baños, to encourage continued interaction between cropping-systems projects throughout Asia. \$737 200 — 36 months.

**82-0091 ANDEAN CROPS (PERU) — PHASE II**

For the Instituto Interamericano de Ciencias Agrícolas, Lima, to improve living conditions in the highlands of Peru through crop, animal, and forestry research and through socioeconomic studies. \$657 010 — 36 months.

**82-0092 DROUGHT-RESISTANT CROPS (CATIE) — PHASE II**

For the Centro Agronómico Tropical de Investigación y Enseñanza, Turrialba, Costa Rica, to continue research on farming systems appropriate to the semi-arid areas of Central America. \$291 000 — 36 months.

**82-0093 GROUNDNUT IMPROVEMENT (MOZAMBIQUE) — PHASE II**

For the Universidade Eduardo Mondlane, Maputo, to undertake research on groundnut varieties and agronomic practices appropriate for small farmers. \$522 500 — 36 months.

**82-0094 STRIGA (SUDAN) — PHASE II**

For the Ministry of Agriculture, Food and Natural Resources, Wad Medani, to conduct breeding work aimed at developing striga-tolerant varieties of sorghum and millets, and to put more emphasis on agronomic practices that could help in the control of the striga weed. \$211 600 — 24 months.

**82-0095 MULTIPLE CROPPING (COLOMBIA) — PHASE II**

For the Instituto Colombiano Agropecuario, Bogotá, to evaluate intercropping patterns suitable for small-holder farms in five ecological regions of Colombia. \$336 300 — 36 months.

**82-0096 LOWLAND OIL CROPS IMPROVEMENT (ETHIOPIA)**

For the Institute of Agricultural Research, Addis Ababa, to increase the production of vegetable oil among small farmers, cooperatives, and state farms in lowland areas by developing high-yielding, stable cultivars of sesame, groundnut, safflower, and castor and by improving agronomic practices. \$347 600 — 36 months.

**82-0097 WHEAT (SRI LANKA)\***

For the Department of Agriculture, Peradeniya, to tap the wheat-growing potential of Sri Lanka by developing suitable wheat varieties, especially ones that can be grown in cropping sequence with rice. \$185 300 — 36 months.

**82-0098 CASSAVA AND SWEET POTATO (RWANDA)**

For the Ministry of Agriculture, Kigali, Rwanda, and the International Institute of Tropical Agriculture, Ibadan, Nigeria, to produce high-yielding and more stable varieties of cassava and sweet potato adapted to the agroecological conditions of Rwanda. \$415 200 — 24 months.

**82-0100 FARM FORESTRY (NEPAL)**

For Tribhuvan University, Kathmandu, to undertake forestry research to develop among small farmers the practice of planting trees on their own land for fuel-wood, fodder, green manure, and small timber. \$269 900 — 36 months.

**82-0121 PAULOWNIA (CHINA)**

For the Chinese Academy of Forestry, Beijing, to conduct research to improve the quality of usable timber and increase agricultural production by planting and intercropping paulownia trees with various crops. \$356 000 — 36 months.

**82-0124 SORGHUM MILLING (TANZANIA) — PHASE II**

For the Small Industries Development Organization, Dar es Salaam, to test the technical, economic, and social acceptability of small-scale sorghum-milling systems under rural management. \$156 200 — 24 months.

**82-0134 ANIMAL PRODUCTION SYSTEMS (ZIMBABWE)\***

For the Department of Research and Specialist Services, Ministry of Agriculture, Harare, Zimbabwe, and the International Livestock Centre for Africa, Addis Ababa, Ethiopia, to develop a farming systems research methodology and capability in the department to permit knowledge and research experience to be applied for the benefit of smallholders in the communities of Zimbabwe. \$598 900 — 24 months.

**82-0135 LIVESTOCK FEEDING SYSTEMS (PHILIPPINES)\***

For the Visayas State College of Agriculture, Baybay, to develop a crop-production and animal-feeding system that uses banana stems, leaves, and suckers, supplemented with other crop by-products, to fatten the cattle and water buffalo of hillside farmers in high-rainfall regions. \$137 000 — 48 months.

**82-0136 TIMBER ENGINEERING (PARAGUAY)\***

For the Instituto Nacional de Tecnología y Normalización, Asunción, to establish the strength characteristics of lesser known Paraguayan timber species and to promote the use of such trees for construction, particularly in low-income housing. \$161 600 — 36 months.

**82-0137 LIGNOCELLULOLYTIC FUNGI (THAILAND) — PHASE II**

To enable Mahidol University, Bangkok, to evaluate the feasibility of using selected lignocellulolytic fungi to convert rice straw and other agricultural wastes to animal feed. \$99 800 — 36 months.

**82-0139 PIGEON PEAS (KENYA) — PHASE III**

For the University of Nairobi to provide growers with improved, higher-yielding, and more drought-resistant varieties of pigeon pea. \$230 000 — 36 months.

**82-0140 MINIMUM TILLAGE (KENYA)**

For the University of Nairobi to develop tillage systems suited to the principal annual food crops and consistent with small farmers' resource limitations. \$173 500 — 36 months.

**82-0141 COWPEA STORAGE (UPPER VOLTA) — PHASE II\***

For the Institut voltaïque de recherche agronomique et zootechnique of the Ministère d'enseignement supérieur et de la recherche, Ouagadougou, to test and introduce improved cowpea storage systems to cut postharvest losses caused by insects and other pests. \$200 700 — 36 months.

**82-0144 RAPESEED (CHINA)\***

For the Ministry of Agriculture, Beijing, to breed new varieties of rapeseed that have maturity lengths appropriate to each cropping system, give good yields of high-quality edible oil, and provide good-quality residual cake for animal feed. \$176 500 — 36 months.

**82-0171 UPLAND AFFORESTATION (COLOMBIA)\***

For the Corporación Nacional de Investigación y Fomento Forestal, Bogotá, to identify tree species that will grow in areas of the Andean Highlands unable to sustain crops or animals and to develop techniques for establishing forest plantations in such sites. \$208 600 — 36 months.

**82-0173 PROSOPIS (SUDAN) — PHASE II\***

For the Ministry of Agriculture, Food and Natural Resources, Wad Medani, to continue its efforts to introduce species and varieties of *Prosopis* and develop techniques to manage and evaluate the potential of this tree for improving the environment of the Sahel and raising the standard of living of the livestock-owning population. \$229 000 — 36 months.

**82-0174 GROUNDNUT SHELLERS—STRIPPERS (THAILAND) — PHASE II**

For Khon Kaen University to undertake the second phase of research in the development of groundnut shellers and strippers for use by Thai farmers. \$179 100 — 36 months.

**82-0176 POSTHARVEST SYSTEMS RESEARCH AND DEVELOPMENT (SOUTHEAST ASIA) — PHASE III\***

For the IDRC regional office for Asia, Singapore, to recommend solutions to the postharvest problems identified in phase II and to continue to identify opportunities and constraints affecting the region's

postharvest systems, with emphasis on rice, maize, and groundnut crops. \$378 600 — 36 months.

**82-0178 GOAT-PRODUCTION SYSTEMS (PERU)\***

For the Instituto Nacional de Investigación y Promoción Agraria, Lima, to develop improved goat-production systems suited to the ecological and socio-economic conditions in the northern coastal areas of Peru. \$237 200 — 36 months.

**82-0179 TROPICAL PASTURE EVALUATION (COLOMBIA)\***

For the Instituto Colombiano Agropecuario, Bogotá, to select pasture germ plasm adaptable to the three main livestock-production ecosystems of Colombia. \$127 000 — 36 months.

**82-0180 TROPICAL PASTURE EVALUATION (PANAMA)**

For the Instituto de Investigación Agropecuaria de Panamá (IDIAP), Panamá, to evaluate new germ plasm and to allow IDIAP's pastures-research group to interact closely with groups from other Latin American countries participating in the tropical pastures network. \$78 600 — 36 months.

**82-0184 CROPPING SYSTEMS (DOMINICAN REPUBLIC)**

For the Centro Sur de Desarrollo Agropecuario to undertake research on the cropping systems of small farmers in the southern and northern regions of the Dominican Republic with a view to developing technological alternatives that will improve their productivity. \$316 000 — 36 months.

**82-0185 CROPPING SYSTEMS (SRI LANKA) — PHASE III\***

For the Sri Lankan Department of Agriculture to extend the benefits of research in earlier phases to a greater number of farmers by developing technology for cropping patterns in new locations. \$298 700 — 36 months.

**82-0186 FOOD LEGUMES (INDONESIA)\***

For the Lembaga Pusat Penelitian Pertanian (Central Research Institute for Food Crops), Bogor, to develop improved varieties of soybean and mung bean suitable for intercropping with lowland rice and for acidic upland soils. \$234 500 — 36 months.

**82-0187 MILLETS (INDIA) — PHASE II\***

For the Indian Council of Agricultural Research, New Delhi, to increase grain production in the rainfed areas of India by developing disease- and pest-resistant varieties of millets for hilly regions. \$423 430 — 24 months.

**82-0189 AQUACULTURE (TURKEY) — PHASE II\***

For the General Directorate of State Hydraulic Works, Ankara, to continue feasibility testing of fish cage culture, primarily for carp, and design and construct a suitable hatchery for stocking the Keban Reservoir. \$205 400 — 36 months.

**82-0190 FISH PARASITES (MALAYSIA) — PHASE II\***

For the Universiti Pertanian Malaysia, Selangor, to continue a quantitative examination of the parasitic diseases of cultured fish in West Malaysia. \$170 500 — 36 months.

**82-0191 INLAND FISHERIES (NEPAL)\***

For the Ministry of Food and Agriculture, Kathmandu, to develop a program for the development and exploitation of the fisheries of Kulekhani Reservoir. \$251 600 — 36 months.

**82-0192 MANGROVE (MALAYSIA)\***

For the Universiti Sains Malaysia, Penang, to assess the degree of dependence of fisheries on mangroves and to determine what proportion of the mangroves can be put to other uses without adversely affecting the adjacent coastal fisheries. \$137 000 — 36 months.

**82-0193 QUICKSET HEDGES (UPPER VOLTA)\***

For the Ministère du plan, du développement rural, de l'environnement et du tourisme, Ouagadougou, to conduct research on species of local shrubs that can be grown as hedges to prevent animals from grazing in tree nurseries and to shelter the young plants from the wind. \$90 100 — 36 months.

**82-0194 LAND RECLAMATION (SUDAN) — PHASE II\***

For the Ministry of Agriculture, Food and Natural Resources, Wad Medani, to study how agricultural production has been affected by the tree shelterbelts that were established during phase I to protect land and crops from hot dry winds and blowing desert sand. \$226 000 — 36 months.

**82-0195 TIMBER GRADING (ZIMBABWE)\***

For the University of Zimbabwe, Harare, to encourage the use of locally produced structural timber in low-cost housing programs by the development of design codes. \$117 900 — 18 months.

**82-0196 MECHANICAL GRAIN DRYERS (PHILIPPINES)**

For the National Postharvest Institute for Research and Extension, Manila, to identify principal constraints to the adoption of mechanical rice-drying technology and to recommend technical research and economic incentives to overcome such problems. \$27 900 — 24 months.

**82-0198 FISH PARASITES (INDONESIA) — PHASE II\***

For the Central Research Institute for Fisheries, Jakarta, to continue research on major parasitic diseases that afflict fish cultivated for food and to evaluate suggested control measures. \$341 250 — 36 months.

**82-0205 AFFORESTATION (TANZANIA) — PHASE II**

For the Ministry of Natural Resources and Tourism, Dar es Salaam, to continue research on tree species that can be grown on plantations to supply fuelwood

and small timber and protect the environment from wind and sandstorms. \$165 000 — 36 months.

**82-0214 MOLLUSC CULTURE (INDONESIA)\***

For the Central Research Institute for Fisheries, Jakarta, to establish a molluscan mariculture unit to develop and test culture technology for oysters and mussels in the coastal waters of Indonesia. \$202 600 — 36 months.

**82-0215 MOLLUSC CULTURE (SRI LANKA)\***

For the National Aquatic Resources Agency, Colombo, to test the feasibility of introducing mollusc culture into Sri Lanka by studying the applicability of rack, raft, and stake culture for local mussels and oysters. \$175 800 — 36 months.

## Cooperative Programs

**82-1001 FABA BEAN PATHOLOGY (MANITOBA) — PHASE II**

For the University of Manitoba, Winnipeg (in support of the Middle East legume-breeding program of the International Center for Agricultural Research in the Dry Areas, Aleppo, Syria), to evaluate the resistance of faba beans to *Ascochyta* blight, rust, and bean yellow mosaic virus and to conduct genetic research for the development of lines and cultivars with multiple resistance to these pathogens. \$177 100 — 24 months.

**82-1002 RHIZOBIAL CARRIER SYSTEMS (MANITOBA)**

For the University of Manitoba, Winnipeg (in support of the winter chick-pea program of the International Center for Agricultural Research in the Dry Areas, Aleppo, Syria), to develop rhizobia carrier systems that can be produced and used by smallholder farmers in the Middle East for the cultivation of winter-sown chick-peas. \$170 300 — 36 months.

**82-1003 GEOPHYSICAL RESEARCH ON PRECAMBRIAN AREA IN NIGERIA\***

For the Ahmadou Bello University, Zaria, in cooperation with the University of Manitoba, Winnipeg, Canada, to study aeromagnetic information previously gathered in geophysical surveys of Nigeria's Precambrian area and to develop computer software to help interpret the data. \$140 520 — 18 months.

**82-1004 FERTILITY AND FAMILY PLANNING (TUNISIA)**

For the Office national du planning familial et de la population, Tunis, and the University of Western Ontario, London, Canada, to review fertility patterns over the past 20 years in Tunisia, with emphasis on urban-rural differences, the role of women, and the acceptance of contraceptives. \$71 900 — 18 months.

**82-1005 FISH-GAMETE PRESERVATION (VICTORIA)**

For the University of Victoria, Canada (in support of the fish-breeding program of the Southeast Asian Fisheries Development Center, Iloilo, Philippines), to

develop simple, practical methods for the preservation of gametes (spermatozoa and ova) of warm water fish species of interest to tropical aquaculturists. \$79 700 — 14 months.

**82-1007 CANADIAN AREA-SPECIFIC  
LEARNED SOCIETIES — 1983-1984  
(CAAS) — PHASE V**

For the Canadian Association of African Studies (CAAS), Ottawa, Canada, to provide travel support for visiting African scholars and researchers, to permit attendance of African graduate students at annual meetings of CAAS in Canada, and to provide assistance for the Association's newsletter and journal. \$104 800 — 24 months.

**82-1008 BIO-CONTROL OF MOSQUITOES  
(SOUTH PACIFIC) — PHASE II**

For the South Pacific Commission, Noumea, New Caledonia, and Memorial University, St. John's, Canada, to conduct an integrated mosquito-control program on the island of Funafuti to stop transmission of dengue and dengue hemorrhagic fever. \$38 400 — 12 months.

**82-1009 EVALUATION OF POTENTIAL PEAT  
SITES IN SENEGAL**

For the Compagnie des tourbières du Sénégal, Dakar, in cooperation with the Société d'Ingénierie Cartier Ltée, Montreal, Canada, to carry out an evaluation of the peat deposits in the Casamance and Sine-Saloum regions of Senegal and to assess the quality and potential use of this fossil fuel for domestic purposes and in electricity production, agriculture, and industry. \$563 900 — 18 months.

**82-1010 COOPERATIVE MANAGEMENT: A  
CASE STUDY INVOLVING TANZANIA  
AND CANADA**

For the Co-operative College, Moshi, Tanzania, and York University, Downsview, Canada, to study the cooperative movements in the two countries and to design strategies that will allow cooperatives to act effectively at the national level while continuing to promote development at the local level. \$324 450 — 20 months.

**82-1011 STRENGTHENING DATA  
PROCESSING AND STATISTICAL-  
BIOMETRICAL SERVICES AT CIMMYT**

For the Centro Internacional de Mejoramiento de Maíz y Trigo, Mexico City, to cooperate with Agriculture Canada, Ottawa, in statistical analysis and biometrics research in order to strengthen the statistical support available to CIMMYT's biological research program. \$243 520 — 24 months.

**82-1012 STRATEGIC PLANNING OF FREIGHT  
TRANSPORTATION IN BRAZIL:  
QUANTIFICATION OF MAJOR IMPACTS\***

For the Pontificia Universidade Católica, Rio de Janeiro, and the Université de Montréal, Canada, to develop strategic planning tools for the evaluation of freight-transportation policies for Brazil. \$389 400 — 36 months.

**82-1013 IMMUNODIAGNOSIS OF  
AFRICAN SLEEPING SICKNESS (KENYA)**

For the University of Victoria, Canada, in cooperation with the Kenya Trypanosomiasis Research Institute, Nairobi, to develop a simple field test, using immunological techniques, for the early diagnosis of active African trypanosomiasis in humans and animals. \$280 680 — 36 months.

**82-1014 TELEOST LH-RH (VICTORIA)**

For the University of Victoria, Canada (in support of the fish-breeding program of the Southeast Asian Fisheries Development Center, Iloilo, Philippines), to investigate luteinizing hormone-releasing hormone (LH-RH) in milkfish and other teleosts in the context of its potential application to the induced spawning of milkfish. \$16 800 — 5 months.

**82-1015 CARP GENETICS (DALHOUSIE-  
INDONESIA) — PHASE II\***

For the Research Institute for Inland Fisheries, Bogor, Indonesia, in cooperation with Dalhousie University, Halifax, Canada, to improve the aquaculture stocks of Indonesian fish farmers by developing methods for selecting brood stock and controlling inbreeding. \$250 800 — 36 months.

**82-1016 A STUDY OF JAMAICAN BAUXITE  
WASTE**

For the University of the West Indies, Mona, Jamaica, and McGill University, Montreal, Canada, to develop techniques for safe disposal of red mud, a by-product of bauxite processing, to eliminate groundwater contamination. \$344 070 — 36 months.

**82-1017 WRITTEN LANGUAGES OF  
INDIA\***

For the Office of the Registrar General and Census Commissioner for India, New Delhi, in cooperation with le Centre international de recherche sur le bilinguisme, Université Laval, Quebec, Canada, to gather sociolinguistic data to assist the Indian government in its language planning for areas such as literacy and education. \$112 700 — 30 months.

**82-1018 CANADIAN AREA-SPECIFIC  
LEARNED SOCIETIES — 1983-1984 (CASA) —  
PHASE V**

For the Canadian Asian Studies Association (CASA), Ottawa, Canada, to provide travel support for visiting Asian scholars and researchers, to permit attendance of Asian graduate students in Canada at annual meetings of CASA, and to provide assistance in the distribution of a newsletter and research papers. \$71 800 — 24 months.

**82-1019 CANADIAN AREA-SPECIFIC  
LEARNED SOCIETIES — 1983-1984  
(CALACS) — PHASE V\***

For the Canadian Association for Latin American and Caribbean Studies (CALACS), Ottawa, Canada, to provide support for visiting scholars and graduate exchange students and to provide assistance to the CALACS journal and newsletter. \$76 000 — 24 months.



**82-1020 ISSUES IN CHINESE EDUCATION (CHINA AND CANADA)\***

For the East China Normal University (ECNU), Shanghai, China, and the University of Victoria, Canada, to design and implement research projects in the fields of curriculum development, evaluation, cognitive development, educational administration, adult education, and computer-assisted instruction. \$96 800 — 24 months.

**82-1021 INTERNATIONAL DEVELOPMENT OFFICE**

For the International Development Office, Ottawa, Canada, to continue its information and liaison work with Canadian universities interested in international development. \$56 007 — 12 months.

**82-1022 MARINE ECOSYSTEM ENCLOSED EXPERIMENT (MEE) — PHASE I\***

For the National Bureau of Oceanography, Beijing, China, and the Institute of Ocean Studies, Sydney, Canada, in collaboration with the Department of Oceanography of the University of British Columbia, Vancouver, Canada, to strengthen marine-pollution research in China, with particular attention paid to the problem of toxic chemicals in the marine environment. \$56 080 — 7 months.

## Health Sciences

**81-0204 ADVANCED INTRAUTERINE DEVICES (GLOBAL)**

For the Population Council, USA, to introduce the TCu 380A and TCu 380Ag intrauterine birth-control devices into family-planning programs around the world and to promote their use by negotiating licensing agreements and supporting informational, educational, and distribution efforts. \$317 000 — 18 months.

**82-0006 EXPANDED IMPLANT TRIAL (INDONESIA)**

For the Yayasan Kusuma Buana, Jakarta, to evaluate the Norplant silastic contraceptive implant among Indonesian women with regard to its acceptability, effectiveness, and side effects and to train physicians, nurses, and midwives in insertion and removal techniques. \$95 100 — 24 months.

**82-0008 INITIATION OF SPERM MOTILITY (THAILAND) — PHASE II**

For Mahidol University, Bangkok, as part of the effort to develop a contraceptive suitable for use by men, to search for a quiescent factor in rat epididymal fluid. \$66 600 — 24 months

**82-0020 ACUTE RESPIRATORY INFECTIONS (CARIBBEAN)**

For the Pan American Health Organization, Washington, USA, to support research by Caribbean scientists into the etiology, frequency, clinical characteristics, and predisposing factors of acute respiratory-tract infections in hospitalized children under age 5. \$84 200 — 36 months

**82-0021 ICOMP-IDAP (LATIN AMERICA)**

For the International Committee on the Management of Population Programmes, Selangor, Malaysia, to canvass the resources of management institutes in Brazil, Colombia, and Ecuador, and make funds available to the health authorities for research aimed at improving delivery of mother-and-child-health services as well as family-planning services. \$295 000 — 24 months.

**82-0035 SEXUALLY TRANSMITTED DISEASES (THAILAND)**

For the Ministry of Public Health, Bangkok, to develop a gonorrhea-control module, suitable for rural Thailand, whose functions will include the screening, diagnosis, and management of gonorrhea and the tracing of contacts. \$85 600 — 24 months.

**82-0039 SOIL-TRANSMITTED HELMINTHS (INDONESIA)**

For the Gadjah Mada University, Yogyakarta, to determine whether a health-education program and improved water-supply and latrine facilities have reduced soil-transmitted helminthic infections or reinfection rates in rural areas of Indonesia. \$47 600 — 24 months.

**82-0041 BIOLOGICAL WATER QUALITY (INDONESIA)\***

For the National Institute of Health Research and Development, Jakarta, to investigate sources of biological contamination of rural drinking water and to recommend preventive measures. \$50 000 — 8 months.

**82-0048 LUNG CANCER (HONG KONG)**

For the University of Hong Kong to investigate some of the causal factors of primary lung cancer in nonsmoking Chinese women in Hong Kong. \$43 340 — 24 months.

**82-0053 SANITARY EDUCATION (SENEGAL)**

For the Ministère de l'hydraulique, Dakar, to support the development of a village health-education program and to evaluate the acceptability, utilization, and environmental effects of latrines, improved water sources, and proper facilities for solid-waste disposal. \$60 350 — 12 months.

**82-0054 RURAL SANITATION (SIERRA LEONE)**

For the Community Development Council, Bo, to carry out a three-village water and sanitation program that will include basic-health education of community leaders, construction and demonstration of improved pit latrines and wells, and evaluation of related changes in villagers' behaviour. \$61 450 — 18 months.

**82-0058 WATER AND SANITATION FILM (ASIA)**

For IDRC's Health Sciences Division and Communications Division to produce a film on water supply and sanitation, illustrating the link between improper sanitation and diarrheal diseases and depicting how the cycle can be broken. \$78 449 — 9 months.



**82-0071 ORAL REHYDRATION (TRINIDAD) — PHASE II**

For the University of the West Indies, Port-of-Spain, in cooperation with the Ministry of Health, Trinidad and Tobago, to expand and evaluate oral-rehydration services and related health education for the reduction of morbidity and mortality caused by diarrheal diseases in young children. \$98 700 — 18 months.

**82-0078 ACUTE RESPIRATORY INFECTIONS (INDIA)\***

For the Christian Medical College and Hospital, Tamil Nadu, to provide a composite profile of the etiology, clinical manifestations, and epidemiologic patterns of acute respiratory-tract infections in Indian hospital patients. \$175 000 — 36 months.

**82-0080 MATURATION OF SPERMATOOZA (KENYA)**

For the University of Nairobi, as part of the research effort to develop a safe contraceptive for men, to produce evidence through experiments on male goats that the delayed passage of spermatozoa through the epididymis, caused by surgical interference with sympathetic nerve tone, will result in loss of fertility. \$78 200 — 15 months.

**82-0090 LEISHMANIASIS (COLOMBIA)**

For the Fundación para la Educación Superior, Cali, to support research on leishmaniasis and its clinical and immunological response to therapy. \$328 900 — 36 months.

**82-0107 DENGUE HEMORRHAGIC FEVER (CUBA)**

For the Instituto de Medicina Tropical "Pedro Kouri," Havana, to study the etiological, clinical, and epidemiological aspects of dengue hemorrhagic fever as well as mechanisms related to the pathogenesis of the disease in Cuba. \$163 100 — 36 months.

**82-0111 FERTILITY REGULATION IN NURSING WOMEN (CHILE)**

For the Centro Nacional de la Familia, Santiago, to improve the progesterone contraceptive implant, to develop alternative delivery systems for continuous progesterone administration, and to assess the effectiveness of progesterone pellets during prolonged lactation. \$254 600 — 30 months.

**82-0113 ORAL CONTRACEPTIVE RISK FACTORS (MEXICO)**

For the Desarrollo de la Investigación en Planificación Familiar, Mexico City, to support research aimed at determining the extent to which personnel in family-planning programs are aware of, and screen for, high-risk factors among oral-contraceptives users. \$128 500 — 36 months.

**82-0138 FLOUR-DUST HYPERSENSITIVITY (SUDAN)**

For the Ministry of Health, Khartoum, to determine the nature, incidence, and severity of respiratory diseases caused by hypersensitivity to flour dust and to recommend remedial measures. \$72 160 — 24 months.

**82-0150 SCHISTOSOMIASIS (KENYA)**

For the Kenya Medical Research Institute, Nairobi, to reduce the transmission of schistosomiasis in a rural community by mobilizing individuals to change their habits regarding the use of water and the disposal of feces. \$183 900 — 36 months.

**82-0155 ANTICONCEPTIVE TECHNOLOGY — ICCR (INDIA) — PHASE III\***

For the India Institute of Medical Sciences, New Delhi, India, and the Population Council, New York, USA, to continue biomedical research on a vaccine against pregnancy. \$711 320 — 36 months.

**82-0159 DIARRHEAL DISEASES PROGRAM (GLOBAL) — PHASE II**

For the World Health Organization, Geneva, Switzerland, to continue its global program for the control of diarrheal diseases, including the development of new drugs, vaccines, diagnostic tools, and service components. \$450 000 — 24 months.

**82-0160 RURAL SANITATION RESEARCH (KENYA)\***

For the Ministry of Health, Nairobi, to evaluate new sanitation technologies to be introduced through a program of health education and community participation in a Kenyan village. \$91 070 — 24 months.

**82-0162 WATER-PUMPING TECHNOLOGY (MALAYSIA) — PHASE II\***

For the Universiti Malaya, Kuala Lumpur, to develop a small-scale fabrication unit to produce plastic hand pumps for rural-water supplies and to evaluate the technical and economic feasibility of mass production of the hand pumps in Malaysia. \$297 500 — 36 months.

**82-0163 PNEUMOCONIOSIS (TUNISIA)\***

For the Centre national de la prévention des accidents du travail et des maladies professionnelles, Tunis, and McGill University, Montreal, Canada, to identify the nature of the risk of pneumoconiosis in a representative sample of mine workers exposed to phosphate dust. \$145 400 — 24 months.

**82-0216 VASECTOMY/CARDIOVASCULAR DISEASE (KOREA)\***

For the Korea Institute for Population and Health, Seoul, to estimate the risk of arteriosclerotic disease in vasectomized versus nonvasectomized men. \$140 320 — 24 months.

**82-0217 PRIMARY HEALTH CARE (MALAYSIA)\***

For the Universiti Malaya, Kuala Lumpur, to improve the delivery of health-care services to the people of the Lio Matu area of Sarawak. \$29 570 — 18 months.

**82-0221 OCCUPATIONAL HEALTH IN SMALL-SCALE INDUSTRIES (SOUTHEAST ASIA)\***

For the Asian Association of Occupational Health Research Committee, Singapore, to evaluate working conditions, occupational health problems, workers' health status, and occupational-health services in

selected small-scale industries in Hong Kong, South Korea, the Philippines, and Singapore. \$215 190 — 18 months.

**82-0223 BILHARZIA (EGYPT) — PHASE III\***

For the University of Alexandria to demonstrate that the wild herb damissa, when introduced into water channels in the Nile Delta, could reduce the prevalence of schistosomiasis. \$231 050 — 24 months.

**82-0225 YELLOW FEVER (LATIN AMERICA)\***

For the Instituto Nacional de Salud, Bogota, Colombia, and the Fundacao Oswaldo Cruz, Rio de Janeiro, Brazil, to modernize and improve facilities for the production of yellow-fever vaccine in Colombia and Brazil. \$138 000 — 24 months.

**82-0226 PRIMARY HEALTH-CARE TECHNOLOGY (GLOBAL)**

For the Program for Appropriate Technology in Health, Seattle, USA, to identify, develop, field-test, and introduce technological innovations in health care. \$340 450 — 24 months.

## Information Sciences

**82-0005 INFORMATION FOR EXPORT PROMOTION (COSTA RICA)**

For the Centro de Telecomunicaciones para el Tercer Mundo, San Jose, to implement an information program to support decision-making in the export trade of Costa Rica. \$79 000 — 4 months.

**82-0026 FOOD AND NUTRITION DOCUMENTATION CENTRE AT ORANA**

For the Organisation de coordination et de coopération pour la lutte contre les grandes endémies, Bobo-Dioulasso, Upper Volta, to enable the Organisation de recherche pour l'alimentation et la nutrition en Afrique (ORANA), Dakar, Senegal, to establish a food and nutrition documentation centre. \$105 507 — 24 months.

**82-0028 CHILDREN'S LITERATURE (COLOMBIA)\***

For the Ministerio de Educación Nacional, Bogota, and the Empresa Colombiana de Producción y Distribución de Bienes Culturales, Bogota, to establish a documentation centre on children's literature, to develop and test strategies for conducting research on the teaching of reading skills, and to produce printed and audiovisual materials to assist teachers and librarians. \$196 680 — 36 months.

**82-0029 BARBADOS LIBRARY, ARCHIVE AND INFORMATION CENTRE NETWORK (BLAIN)**

For the Ministry of Information, St. Michael, Barbados, to assist in the establishment of the Central Directorate of the Barbados Library, Archive and Information Centre Network (BLAIN). \$296 400 — 24 months.

**82-0030 PUBLIC ADMINISTRATION INFORMATION (LATIN AMERICA AND THE CARIBBEAN)\***

For the Centro Latinoamericano de Administración

para el Desarrollo, Caracas, Venezuela, to strengthen its documentation centre and establish an information network on public administration for Latin America and the Caribbean. \$105 200 — 24 months.

**82-0033 MULTIPERIOD BUDGETING — PERENNIAL CROPS (MULBUD) — PHASE I**

For the International Council for Research in Agroforestry, Nairobi, Kenya, in collaboration with staff of the Australian National University, Canberra, to further develop MULBUD microcomputer software as a suitable tool for obtaining basic economic data on intercropping of perennial tree crops. \$93 814 — 12 months.

**82-0037 MANAGEMENT OF INFORMATION CENTRES — CHINA\***

For the Institute of Scientific and Technical Information of China, Beijing, to strengthen China's capacity to provide improved information services by instructing senior personnel in practical information-management methods. \$72 610 — 12 months.

**82-0072 ENVIRONMENTAL SANITATION INFORMATION CENTER (ENSIC) — PHASE II**

For the Asian Institute of Technology, Bangkok, Thailand, to continue its support for the Environmental Sanitation Information Center, especially with regard to publishing, computerized bibliographic operations, and cooperation with other institutions. \$98 730 — 36 months.

**82-0083 WORLD HONEY SOURCES DIRECTORY**

For the International Bee Research Association, Gerrards Cross, England, to compile, publish, and distribute a directory of the world's most important honey sources. \$49 385 — 18 months.

**82-0108 JORDANIAN AGRICULTURAL DOCUMENTATION CENTER (JORDOC)**

For the University of Jordan, Amman, in conjunction with the Ministry of Agriculture, to organize national agricultural information, to capture and control national agricultural literature, and to participate in the global agricultural information system, AGRIS. \$166 583 — 36 months.

**82-0109 ANIMAL PRODUCTION DOCUMENTATION TEAM (ILCA) — PHASE II**

For the International Livestock Centre for Africa, Addis Ababa, Ethiopia, to continue to collect and microfilm nonconventional literature related to animal production, as well as to prepare and distribute bibliographic catalogues of the material. \$314 186 — 24 months.

**82-0110 RESEARCH RESULTS DISSEMINATION (NAIROBI)\***

For IDRC's Communications Division to help plan and implement publication programs at three East African research institutions to further the dissemination of their research results. \$390 060 — 36 months.

**82-0119 DEVELOPMENT-PLANNING NEWSLETTER (ASIA)\***

For the Economic and Social Commission for Asia and the Pacific, Bangkok, Thailand, to establish a development-planning newsletter. \$75 300 — 24 months.

**82-0152 INFORMATION SERVICES IN AGROFORESTRY — PHASE II**

For the International Council for Research in Agroforestry, Nairobi, Kenya, to continue its scientific and technical question-and-answer service for agroforestry research. \$261 500 — 24 months.

**82-0156 MINICOMPUTER SOFTWARE DEVELOPMENT (BRAZIL)\***

For the Ministerio da Agricultura, Brasilia, to assist the Biblioteca Nacional de Agricultura of Brazil in developing an integrated system for managing information on a Brazilian-made minicomputer. \$326 950 — 36 months.

**82-0158 SOUTH PACIFIC INFORMATION CENTRE (PIC)\***

For the University of the South Pacific, Suva, Fiji, to establish a regional information-resource centre and a centralized data base on development-oriented literature relating to the South Pacific region. \$372 000 — 36 months.

**82-0165 SOUTH AMERICAN CAMELIDS INFORMATION SERVICE\***

For the Instituto Veterinario de Investigaciones Tropicales y de Altura, Lima, Peru, and the Instituto de Fomento Lanero, La Paz, Bolivia, to establish a specialized information-analysis service on South American camelids (llama, alpaca, guanaco, vicuna). \$188 130 — 24 months.

**82-0183 PROMOTION AND USER STUDY — AGRINDEX\***

For the Food and Agriculture Organization of the United Nations, Rome, Italy, to permit up to 25 agricultural universities and colleges in developing countries to receive the printed index of international agricultural literature, *Agrindex*, for an evaluation and trial period of 2 years. \$28 000 — 24 months.

**82-0199 NATIONAL AGRIS CENTRE (PAKISTAN)\***

For the Pakistan Agricultural Research Council, Islamabad, to establish four provincial subcentres to identify and report current agricultural literature to the national centre, and ultimately to the International Information System for Agricultural Sciences and Technology (AGRIS), and to provide information services to research workers in the country. \$237 500 — 36 months.

**82-0207 NATIONAL AGRIS CENTRE (BANGLADESH)\***

For the Bangladesh Agricultural Research Council, Dhaka, to implement the work programs of the National Agricultural Library and Documentation Centre, thereby facilitating the collection, storage, and dissemination of national agricultural information. \$185 000 — 36 months.

**82-0210 MULTIPERIOD BUDGETING — PERENNIAL CROPS (MULBUD) — PHASE II**

For the International Council for Research in Agroforestry, Nairobi, Kenya, in conjunction with the Australian National University, Canberra, to consolidate, improve, and extend its application of the interactive computer model, Multiperiod Budgeting and Economic Assessment of Perennial Crop Intercropping Systems. \$63 000 — 18 months.

**82-0220 SAHELIAN INFORMATION NETWORK — INTERMEDIATE PHASE\***

For the Institut du Sahel, Bamako, Mali, to enable the RESADOC information network to support its data collection and documentation programs and to develop a strategy for setting up a computerized data base. \$81 000 — 12 months.

**82-0227 SPECIALIZED INFORMATION CENTRES (CIAT)\***

For the Centro Internacional de Agricultura Tropical, Cali, Colombia, to reinforce and upgrade information centres on field beans, cassava, and tropical pastures. \$762 325 — 48 months.

**82-0234 DOCPALITO DOMINICANO**

For the Asociación Dominicana Pro-Bienestar de la Familia, Santo Domingo, Dominican Republic, to become the country's participating centre in DOCPAL, a regional population-documentation system, by setting up a population-information unit. \$55 685 — 18 months.

**82-0248 INFORMATION ANALYSIS ON AVIAN HAEMATOZOA — PHASE II\***

For Memorial University of Newfoundland, St. John's, Canada, to enable its International Reference Centre for Avian Haematozoa to computerize its data bank and information services, to develop a computerized model for other specialized information-analysis centres, and to continue its information-delivery functions to developing countries. \$85 500 — 36 months.

**82-0249 ICARDA INFORMATION SERVICES — ARABIC DIMENSION\***

For the International Center for Agricultural Research in the Dry Areas, Aleppo, Syria, to build a capability to operate its information services in Arabic. \$93 000 — 36 months.

**82-0250 AGRICULTURAL DOCUMENT DELIVERY (ARGENTINA)\***

For the Universidad de Buenos Aires to enable the library of the faculty of agronomy to increase the capture and control of national agricultural literature and to improve services by implementing a microfiche-distribution system of nonconventional documents to users in Argentina and other Latin American countries. \$42 920 — 12 months.

**82-0260 NEPAL AGRICULTURAL DOCUMENTATION CENTRE (NADC) — PHASE II\***

For the Agricultural Projects Services Centre,

Kathmandu, Nepal, to enable the Nepal Agricultural Documentation Centre to consolidate and strengthen the programs and services initiated in phase I. \$86 300 — 24 months.

**82-0263 NATIONAL AGRINTER CENTRE (GUATEMALA)\***

For the Centro de Documentación e Información Agrícola of the Universidad de San Carlos de Guatemala to provide information services to the agroscientific community of the country and to increase Guatemalan participation in the regional agricultural-information system. AGRINTER. \$95 000 — 24 months.

**82-0265 HANDBOOK ON MARINE SCIENTIFIC AND TECHNOLOGICAL INFORMATION RESOURCES (MASTIR)\***

For the Intergovernmental Oceanographic Commission, Paris, France, to publish and distribute the *Handbook on Marine Scientific and Technical Information Resources*. \$47 900 — 20 months.

## Office of Planning and Evaluation

**82-0145 AGRICULTURAL RESEARCH RESOURCE ALLOCATION (CAMEROON)**

For the Panafican Institute for Development, Douala, to foster the interest of government officials in agricultural research in Cameroon by disseminating information on agricultural-research priorities and needed resources. \$21 228 — 6 months.

## Secretary's Office

**82-0063 FORESTRY RESEARCH COURSE**

For the University of Dar es Salaam, Morogoro, to familiarize trainees with the principles and practice of forestry-research methods, with emphasis on wood production rather than utilization. \$72 250 — 4 months.

**82-0122 EAST CHINA NORMAL UNIVERSITY SHANGHAI/TRAINING PROGRAM**

For the University of Victoria, Canada, to enable the East China Normal University to improve its professional-training program and to develop research projects both in graduate work and in its subordinate schools in the areas of curricula and administration. \$36 815 — 1 month.

**82-0126 DEMOGRAPHIC TRAINING WORKSHOP (CHINA)**

For the East-West Population Institute, Honolulu, USA, to permit four researchers to participate as instructors in a training course on demographic-analysis techniques at Sichuan University. \$15 700 — 2 months.

**82-0161 INTERNATIONAL FOUNDATION FOR SCIENCE**

For the International Foundation for Science (IFS), Stockholm, Sweden, to support 20–30 young Third-World scientists involved in research in their own countries. \$250 000 — 12 months.

**82-0170 LIVESTOCK DEVELOPMENT — GROUP TRAINING WORKSHOP (KASETSART, THAILAND)**

For Kasetsart University, Bangkok, to train social scientists in the formulation, design, execution, and reporting of original research on issues affecting the livestock sector in Asia. \$66 080 — 6 months.

**82-0213 PROCESS-IMPROVEMENT WORKSHOP (VANCOUVER)\***

For IDRC's Fellowship Program to cosponsor a workshop on food-processing problems, aimed at industrial researchers from developing countries who are active in, or interested in, working for small food industries. \$48 559 — 1 month.

**82-0218 BIVALVE TRAINING PROJECT II (DALHOUSIE UNIVERSITY)**

For Dalhousie University, Halifax, Canada, to provide developing-country scientists and technicians with formal instruction and field experience in the farming of oysters and other bivalves using various culture systems. \$102 810 — 6 months.

**82-0242 GROUP TRAINING COURSE ON URBANIZATION IN DEVELOPING COUNTRIES\***

For the Universiti Sains Malaysia, Penang, to train students, researchers, planners, and policymakers in the use of the latest techniques and methods of research and analysis and to introduce them to current ideas and research issues relevant to the formulation of policies on urban development in developing countries. \$48 345 — 1 month.

**82-0244 GROUP TRAINING: QUALITATIVE RESEARCH IN EDUCATION\***

For IDRC's Fellowship Program to support a workshop to train staff of several Centre projects in methods of analyzing and interpreting qualitative ethnographic data. \$43 335 — 1 month.

## Social Sciences

**81-0167 EDUCATION AND WORK IN URBAN AREAS (PERU)**

For the Instituto Nacional de Investigación y Desarrollo de la Educación, Lima, to study the factors, especially education, underlying the incorporation of young people into working life. \$75 000 — 21 months.

**81-0224 AGRICULTURAL ECONOMICS RESEARCH (SRI LANKA)**

For the University of Peradeniya to undertake a research program of field studies in agricultural economics and rural development in Sri Lanka. \$95 400 — 36 months.

**82-0001 MACROECONOMICS AND BALANCE OF PAYMENTS RESEARCH (CHILE) — PHASE II**

For the Corporación de Investigaciones Económicas para Latinoamérica, Santiago, to conduct research on price determination, wage policy and employment.

private-capital flows, and the government's exchange policy. \$595 000 — 27 months.

**82-0003 CHOICE OF TECHNIQUE IN SPINNING AND WEAVING (BANGLADESH)**

For IDRC's Social Sciences Division to examine certain policy issues concerning the choice of technique in spinning and weaving in Bangladesh. \$20 000 — 12 months.

**82-0004 FOOD-TECHNOLOGY POLICY (NIGERIA)**

For the University of Ibadan to outline the methods for evaluating the costs and benefits of food self-sufficiency in Nigeria. \$92 000 — 18 months.

**82-0007 COMPUTER CONFERENCING INFRASTRUCTURE (LATIN AMERICA)**

For the Centro Regional para América Latina y el Caribe, of the Intergovernmental Bureau for Informatics, Mexico City, to explore the current and potential use of computer conferencing in Mexico and Brazil. \$50 000 — 6 months.

**82-0009 SOCIAL ASPECTS OF RURAL TECHNOLOGY (LATIN AMERICA)**

For the Fundación para la Aplicación y Enseñanza de las Ciencias, Cali, Colombia, to form a network of Latin American institutions currently conducting research on peasant agricultural production and technology and to provide support for the coordination of the network. \$295 000 — 24 months.

**82-0010 LITERACY CAMPAIGN (ETHIOPIA)**

For the Ministry of Education, Addis Ababa, to evaluate its current literacy campaign. \$168 000 — 30 months.

**82-0017 DEMOGRAPHIC RESEARCH (ZAIRE) — PHASE I**

For the University of Kinshasa to strengthen its demographic-research capacity by conducting population-dynamics studies in the city of Kinshasa. \$330 000 — 24 months.

**82-0018 SOCIAL DEMOGRAPHIC RESEARCH FOR PLANNING (ARGENTINA)**

For the Centro de Estudios de Población, Buenos Aires, to develop methods for assembling and integrating demographic data for use in social and economic planning at the provincial level in Latin America. \$276 000 — 36 months.

**82-0025 IMPACT OF URBAN PROJECTS ON CHILD MORTALITY: A REGIONAL RESEARCH PROGRAM (MIDDLE EAST)**

For the Population Council, New York, USA, to support the Middle East Awards aimed at encouraging regional research to foster a greater understanding of the impact of urban projects on child mortality. \$125 000 — 24 months.

**82-0027 INFORMAL URBAN EMPLOYMENT IN SERVICES (BOGOTA)**

For the Servicio Nacional de Aprendizaje of the Ministerio de Trabajo y Seguridad Social, Bogota, Colombia, to provide a greater understanding of the

importance of informal services in the employment structure of Bogota. \$92 500 — 15 months.

**82-0031 COMMUNITY PRODUCTIVITY (ZAIRE)**

For the Centre interdisciplinaire pour le développement et l'éducation permanente, Kinshasa, to investigate traditional communal agriculture in various regions of Zaire and to identify elements that could help increase agricultural productivity. \$47 000 — 18 months.

**82-0032 TECHNOLOGY POLICY STUDIES (EAST AFRICA)**

For IDRC's Social Sciences Division to support several small studies of technology policy in Ethiopia, Kenya, Uganda, Tanzania, Zambia, and Zimbabwe and to strengthen these research efforts through a regional network. \$268 000 — 24 months.

**82-0034 RURAL DEVELOPMENT, FAMILY AND DEMOGRAPHIC BEHAVIOUR (MEXICO)**

For the Instituto Mexicano de Estudios Sociales, Mexico City, to investigate how rural-development policies affect the fertility, mortality, and migration of rural Mexican families and to suggest policy improvements. \$93 000 — 16 months.

**82-0036 URBAN INTERHOUSEHOLD TRANSFERS (PAPUA NEW GUINEA)**

For the Papua New Guinea Institute of Applied Social and Economic Research, Boroko, to describe and analyze the nature, magnitude, and consequences of interhousehold transfers of income and goods in selected cities of Papua New Guinea. \$56 700 — 16 months.

**82-0038 RURAL-URBAN MOBILITY AND EMPLOYMENT (SOUTHEAST ASIA)**

For the Universitas Sumatera Utara, Medan, Indonesia, and Xavier University, Cagayan de Oro City, Philippines, to compare and analyze population-movement and employment characteristics in cities of different sizes in the two countries. \$46 400 — 24 months.

**82-0040 DEMOGRAPHIC IMPACT OF AGRICULTURAL MODERNIZATION (ZAMBIA)**

For the University of Zambia, Lusaka, to study the relationship between agricultural modernization and demographic change at the household level in Zambia. \$29 400 — 8 months.

**82-0042 INTERNATIONAL MIGRATION (ST. VINCENT)**

For the Ministry of Education, Kingstown, St. Vincent, to analyze the determinants of migration from St. Vincent to Trinidad and the United States and to assess its social and economic impact at the household level. \$39 000 — 9 months.

**82-0044 RURAL DEVELOPMENT, BANDUNDU (ZAIRE)**

For the Institut de recherche scientifique, Kinshasa, to study the socioeconomic structure and agricultural productivity of the Bandundu region and to find ways

to increase yields and improve the general welfare of the rural people. \$74 000 — 24 months.

**82-0045 FOOD MARKETING (COLOMBIA)**

For the Fundación para el Fomento de la Investigación Científica y Tecnología, Bogotá, to investigate the marketing of specific fruits and vegetables that are produced in two regions to supply the Bogotá market and to determine whether marketing margins can be reduced to increase farmers' incomes or reduce prices for poor urban consumers. \$91 000 — 12 months.

**82-0046 SCHOOL AND COMMUNITY (BOLIVIA) — PHASE II**

For the Centro Boliviano de Investigación y Acción Educativa, La Paz, to undertake the second phase of research, the overall objective of which is to examine the teaching process and its effects on student learning, with emphasis on the problem of pupil failure. \$66 500 — 12 months.

**82-0049 UNIVERSITIES AND THE ROLE OF INTELLECTUALS IN SOCIETY (CHILE)**

For the Facultad Latinoamericana de Ciencias Sociales, Santiago, to identify and study the changes that have taken place in the professional environment of intellectuals in Chilean universities between 1973 and 1981. \$43 500 — 12 months.

**82-0050 EDUCATION AND SOCIAL STRUCTURE: FACTORS AND PROCESSES IN THE EDUCATION SYSTEM — CHILE**

For the Academia de Humanismo Cristiano, Santiago, to contribute to the understanding of educational problems in Chile and to the development of participatory and democratic education. \$94 700 — 12 months.

**82-0051 SOCIOECONOMIC IMPACT OF TOURISM (SENEGAL)**

For the Université de Dakar to assess the socioeconomic impact of tourism in the southwest region of Senegal. \$13 400 — 12 months.

**82-0052 NONTARIFF BARRIERS TO TRADE (ASEAN)**

For the Institute of Southeast Asian Studies, Singapore, to collect qualitative information on nontariff barriers among the member countries of the Association of Southeast Asian Nations (ASEAN). \$26 500 — 18 months.

**82-0055 FINANCIAL MARKETS AND INFLATION (ARGENTINA)**

For the Centro de Estudios de Estado y Sociedad, Buenos Aires, to conduct a detailed analysis of the Argentine financial market since the introduction of financial reforms in 1977. \$49 500 — 18 months.

**82-0056 MACROECONOMIC RESEARCH (BRAZIL)**

For the Pontificia Universidade Católica, Rio de Janeiro, to facilitate analysis of Brazil's economic policy by supporting research on a macroeconomic-policy model and related topics. \$44 000 — 15 months.

**82-0057 EXTERNAL POLICY AND ECONOMIC GROWTH (BRAZIL)**

For the Pontificia Universidade Católica, Rio de Janeiro, to collect and catalogue information on Brazil's economic and diplomatic activities so that the country's external economic policies can be analyzed systematically. \$56 000 — 12 months.

**82-0065 AGRICULTURAL DEVELOPMENT (CHILE) — PHASE II**

For the Pontificia Universidad Católica de Chile, Santiago, to investigate the socioeconomic adjustments made by small farmers following agricultural-policy changes in 1974 by analyzing data collected from 300 small-farm households during phase I. \$74 600 — 18 months.

**82-0066 KNOWLEDGE TRANSMISSION IN PEASANT COMMUNITIES (BRAZIL)**

For the Centro Ecuménico de Documentação e Informação, Rio de Janeiro, to conduct an in-depth ethnographic study of how rural communities maintain and transmit popular knowledge among their members. \$27 000 — 18 months.

**82-0067 TEACHER EFFICACY IN URBAN MARGINAL SCHOOLS (CHILE)**

For the Centro de Investigación y Desarrollo de la Educación, Santiago, to identify the pattern of classroom practices, attitudes, and expectations toward student learning that characterize an effective teacher. \$31 200 — 6 months.

**82-0068 EDUCATIONAL REFORM (ZAIRE)**

For the Institut de recherche scientifique, Kinshasa, to identify and describe the historical causes of Zaire's current crisis of student scholastic failure by examining the colonial influences in schools and the various attempts at educational reform between 1880 and 1980. \$17 000 — 18 months.

**82-0070 POSTGRADUATE STUDIES IN LATIN AMERICA (VENEZUELA)**

For the Centro Regional para la Educación Superior en América Latina y el Caribe, Caracas, to achieve an understanding of postgraduate education in Latin America by studying a selected number of postgraduate programs in Brazil, Colombia, Mexico, and Venezuela. \$93 300 — 20 months.

**82-0074 TEACHING AND LEARNING BIOLOGY (KENYA)**

For the Kenyatta University College, Nairobi, to improve the quality of education in Kenyan schools by involving teachers in a participatory-research effort to improve interaction and communication in biology classes. \$44 000 — 36 months.

**82-0075 THE QUALITY OF TEACHER TRAINING (COLOMBIA)**

For the Centro de Investigaciones de la Universidad Pedagógica, Bogotá, to describe and analyze the processes and characteristics of teacher training in Colombia. \$60 300 — 18 months.

**82-0076 AGRO-BASED SCHOOL PROGRAMME (SAINT LUCIA)**

For the Ministry of Education and Health, Castries, to

evaluate the effectiveness of the pilot phase of its Agro-based School Programme, which attempts to match education with employment needs by training students in the skills needed for small, cooperative agricultural enterprises. \$68 300 — 36 months.  
*(Editor's note: this project was canceled after 31 March 1983.)*

**82-0077 URBAN FOOD MARKETS (MANILA)**

For the University of the Philippines, Quezon City, to analyze the effectiveness of recent government interventions in food marketing and the extent to which the urban poor in Manila are affected. \$65 200 — 18 months.

**82-0079 NONTRADITIONAL EXPORTS (NICARAGUA) — PHASE II**

For the Instituto Centroamericano de Administración de Empresas, Managua, to identify at least five non-traditional agricultural products with export potential and to develop appropriate export strategies based on commodities systems analysis. \$95 000 — 12 months.

**82-0099 METHODOLOGIES FOR ENERGY PLANNING (LATIN AMERICA)**

For the Universidad de Chile, Santiago, to help improve energy-planning methods in Latin America, with emphasis on the management of energy demand, the development of alternative-energy sources and technologies, and the design of decentralized energy-supply systems, particularly in rural areas. \$117 000 — 24 months.

**82-0103 EMPLOYMENT AND FOREIGN EXCHANGE (INDIA)**

For the Indian Council for Research on International Economic Relations, New Delhi, to examine the relationship between foreign-exchange earnings and employment creation and to develop the skills of young Indian economists in conducting research on rural employment and international trade. \$300 000 — 24 months.

**82-0104 FOOD PRICE, SUBSIDY, AND MARKETING ANALYSIS (ANTIGUA, ST. VINCENT)**

For the Pan American Health Organization, Washington, D.C., USA, to enable the Caribbean Food and Nutrition Institute, Kingston, Jamaica, to evaluate the impact of Antigua's and St. Vincent's food subsidies, pricing policies, and trade patterns on the islands' agricultural production, marketing, and distribution. \$137 000 — 24 months.

**82-0105 DAIRY MARKETING (ZIMBABWE)**

For the Dairy Marketing Board, Harare, to undertake research for the planning and implementation of milk-marketing systems in both traditional and resettlement farming areas of Zimbabwe. \$30 000 — 6 months.

**82-0106 COMMUNICATIONS STATE-OF-THE-ART REVIEWS (LATIN AMERICA)**

For IDRC's Social Sciences Division to continue the review of national communications research in Latin America as a basis for identifying priorities for future

research support of social communications in the region. \$35 800 — 12 months.

**82-0112 SMALL RESEARCH GRANTS (EAST AFRICA) — PHASE III\***

For IDRC's Social Sciences Division to provide support for the ninth round of the annual Social Science Research Competition, which aims to establish and maintain in eastern and southern Africa a social-science community with high levels of scholarship by providing research fellowships to young social scientists. \$104 800 — 11 months.

**82-0114 URBAN FOOD, FUEL, AND SHELTER (KENYA)**

For the Mazingira Institute, Nairobi, to explore and document the scope of food and fuel production on urban land, its pattern of consumption, and its role in low-income household budgets. \$305 000 — 24 months.

**82-0115 EDUCATION, SOCIETY, AND MARGINAL GROUPS (CHILE)**

For the Centro de Investigación y Desarrollo de la Educación, Santiago, to develop an integrated program of research, extension, and dissemination to contribute both to the improvement of education for marginal groups in Chile and elsewhere in Latin America and to the continued development of educational research capacity in the region. \$420 000 — 36 months.

**82-0116 INSTITUTIONAL SUPPORT GRANT — FLACSO (CHILE)**

For the Facultad Latinoamericana de Ciencias Sociales, Santiago, to meet its operating and institutional costs for 3 years. \$255 000 — 36 months.

**82-0117 INSTITUTIONAL SUPPORT GRANT — CEUR (ARGENTINA)**

To strengthen the institutional base of the Centro de Estudios Urbanos y Regionales, Buenos Aires, by providing funds for administration, training, and partial salary support for a number of researchers. \$150 000 — 36 months.

**82-0118 INSTITUTIONAL SUPPORT GRANT — CIESU (URUGUAY)**

For the Centro de Informaciones y Estudios del Uruguay, Montevideo, to meet its operating and institutional costs over a 3-year period and to define future research goals more clearly. \$210 000 — 36 months.

**82-0120 DISSEMINATION OF BIOLOGICAL NITROGEN-FIXATION TECHNOLOGY (KENYA)**

For the University of Nairobi to formulate a program for the effective diffusion of biological nitrogen-fixation (BNF) technology to small-scale bean growers throughout Kenya. \$43 500 — 18 months.

**82-0123 DOMESTIC AND UNREMUNERATED LABOUR OF RURAL WOMEN (DOMINICAN REPUBLIC)**

For the Centro de Investigación para la Acción Femenina, Santo Domingo, to gain a better understanding of the situation of rural women and the im-

pact of their work on key aspects of their family and social lives. \$95 400 — 20 months.

**82-0125 TELEVISION CONTENT AND DEVELOPMENT ALTERNATIVES (PERU)**

For the Centro de Estudios y Promoción del Desarrollo, Lima, to develop ways of designing and producing television programs for the socially and economically marginal populations of Peru. \$46 700 — 14 months.

**82-0127 INFORMAL- AND FORMAL-SECTOR EMPLOYMENT (BOGOTA)**

For the Universidad de los Andes, Bogota, Colombia, to provide a greater understanding of the link between informal- and formal-sector employment in Bogota and to make policy recommendations with respect to this aspect of the urban economy. \$93 500 — 18 months.

**82-0128 AGRICULTURAL TRANSFORMATION (PERU)**

For the Universidad Nacional Agraria la Molina, Lima, to investigate the changing patterns of agricultural production in the Mantaro and Cañete valleys of Peru and to assess their impact on resource utilization, income, technology, distribution systems, and overall standards of living. \$68 400 — 18 months.

**82-0129 AGRICULTURAL MARKETING (COSTA RICA)**

For the Centro para la Promoción de la Ciencia y el Desarrollo Socioeconómico, San José, to review and systematize available data on agricultural markets in Costa Rica and to select a representative group of markets and fresh products for further study. \$41 900 — 12 months.

**82-0130 SOCIAL RESEARCH FOR MALARIA CONTROL (KENYA)**

For the University of Nairobi to enable its Institute of Development Studies to investigate the knowledge, attitudes, and practices of the people with regard to malaria in eastern Africa. \$18 500 — 18 months.

**82-0131 MASS MEDIA, PARTICIPATION, AND DEVELOPMENT (PERU)**

For the Asociación Peruana de Investigaciones de la Comunicación, Lima, to describe and assess the Peruvian media and their contribution to the development of democracy in Peru, by examining their operating and legal structure, distribution, ownership, ideology, and openness to public participation. \$16 100 — 10 months.

**82-0132 INTERNATIONAL MIGRATION (TRINIDAD AND GRENADA)\***

For the University of the West Indies, Trinidad, to study international migration from Grenada to Trinidad and the United States, particularly with respect to its impact on the sending society. \$98 370 — 12 months.

**82-0133 EXPERIMENTAL IN-SERVICE TEACHER TRAINING (CHILE) — PHASE II**

For the Academia de Humanismo Cristiano, Santiago, to test further a method of training teachers

and to determine the possibilities for its wider use. \$61 000 — 9 months.

**82-0142 RURAL IMPACT OF MIGRATION (SIERRA LEONE)\***

For the University of Sierra Leone, Freetown, to provide a quantitative assessment of the volume and economic impact of rural-urban migration and associated flows of remittances and savings in Sierra Leone. \$76 200 — 24 months.

**82-0143 TRADE AND DEVELOPMENT (THAILAND)**

For the Social Sciences Association of Thailand, Bangkok, to conduct a comprehensive analysis of the impact on the Thai economy of the country's trade policy. \$89 000 — 24 months.

**82-0146 INTEGRATED FAMILY PLANNING (BANGLADESH)**

For the Jahangirnagar University, Dhaka, to analyze the demographic and socioeconomic impact of various types of integrated family-planning programs in Bangladesh and to compare their effectiveness. \$53 800 — 18 months.

**82-0148 INFORMAL-SECTOR ENTERPRISES (LIMA)**

For the Centro de Estudios para el Desarrollo y la Participación, Lima, to analyze the characteristics of informal-sector enterprises in Lima and to make policy recommendations with respect to this important segment of the urban economy. \$180 000 — 18 months.

**82-0149 AGRICULTURAL COOPERATIVES DEVELOPMENT (ZIMBABWE)**

For the Association for Appropriate Technology, Harare, to analyze the different forms of agricultural cooperation in Zimbabwe and to determine those most effective in increasing agricultural production and improving living standards among peasant farmers. \$50 000 — 15 months.

**82-0151 AGRICULTURAL DEVELOPMENT RESEARCH PROGRAM (NEPAL)**

For the Agricultural Development Council, New York, USA, to enable the Agricultural Projects Services Centre, Kathmandu, Nepal, to identify and define key rural- and agricultural-development issues for Nepal. \$50 000 — 9 months.

**82-0153 REGIONAL DEMAND FOR YAMS (NIGERIA)**

For the University of Nigeria, Nsukka, to investigate the role of a major staple food, the yam, in the production and consumption patterns of eastern Nigerian households. \$188 000 — 26 months.

**82-0157 TECHNOLOGICAL CAPABILITY IN OIL REFINING (SIERRA LEONE)**

For the University of Sierra Leone, Freetown, to investigate the extent to which local staff at the Sierra Leone Oil Refinery have gained technical skills and know-how. \$47 000 — 18 months.



**82-0164 FISHERIES SOCIAL SCIENCE NETWORK (SOUTHEAST ASIA) — PHASE I**

For the International Center for Living Aquatic Resources Management, Manila, Philippines, to build research capacity in a network of Southeast Asian institutions so that key social-science research issues can be addressed for the fishing and aquaculture industries. \$268 000 — 24 months.

**82-0166 MOBILITY WITHIN THE INFORMAL SECTOR (ECUADOR)**

For the Pontificia Universidad Católica del Ecuador, Quito, to enable the Instituto de Investigaciones Económicas y Políticas, Guayaquil, to investigate occupational and spatial mobility within the informal sector in the cities of Quito and Guayaquil. \$57 500 — 18 months.

**82-0167 EVALUATION OF A TEACHER-TRAINING INSTITUTE (LIBERIA)**

For the University of Liberia, Monrovia, to assess the activities of the Zorzor Rural Teacher Training Institute and to make recommendations to the Ministry of Education on the further development of teacher training in Liberia. \$29 500 — 18 months.

**82-0168 OSSREA SUPPORT (EAST AFRICA)**

For the Organization for Social Sciences Research in Eastern Africa, Addis Ababa, Ethiopia, to establish itself as a credible organization promoting and organizing social-science research in eastern Africa. \$47 200 — 12 months.

**82-0169 THE AGED IN THE PHILIPPINES**

For the University of the Philippines at Los Baños to investigate the status of the aged in modern Philippine society and to assess the adequacy of public policies and programs designed to address their needs. \$45 400 — 24 months.

**82-0172 SPACE SCIENCE INFRASTRUCTURE REVIEW (MEXICO)**

To enable the Instituto de Investigaciones en Matemáticas Aplicadas y Sistemas of the Universidad Nacional Autónoma de México to review and assess the present status of the space sciences in Mexico. \$37 700 — 12 months.

**82-0175 URBAN SANITATION SERVICES (TANZANIA)**

To enable the Institute of Development Management, Mzumbe, to improve management and delivery of sanitation services to the urban poor in Arusha. \$25 000 — 12 months.

**82-0177 COMMUNICATION INSTITUTIONS AND POLICIES (CHILE)**

To enable the Centro de Indagación y Expresión Cultural y Artística, Santiago, to describe and analyze the institutions, financial and legal structures, and operations of the mass media in Chile. \$31 600 — 12 months.

**82-0181 QUALITATIVE RESEARCH IN EDUCATION (LATIN AMERICA)\***

For IDRC's Social Sciences Division to enhance the qualitative research being conducted in Latin America

on primary education and teacher training by establishing a collaborative network of researchers working in this field. \$96 200 — 24 months.

**82-0182 COPPER POLICY (PERU)**

For the Centro de Estudios y Promoción del Desarrollo, Lima, to analyze how the copper sector in Peru has contributed to national development. \$69 000 — 15 months.

**82-0197 RURAL-TECHNOLOGY ASSESSMENT (CHILE)**

To enable the Grupo de Investigaciones Agrarias, Academia de Humanismo Cristiano, Santiago, to review and assess a number of technical experiments with small farmers in order to build a framework for their evaluation. \$75 800 — 12 months.

**82-0201 PILOT COURSE ON TELEVISION (CHILE)**

To enable the Centro de Indagación y Expresión Cultural y Artística, Santiago, to design and implement a pilot course about television to be used in the formal-education system. \$11 000 — 9 months.

**82-0202 TECHNOLOGICAL CAPACITY AND NATIONALIZATION (GHANA)**

To enable the Ghana Investment Centre, Accra, to explore the relationship between the level of indigenous technological capability and the performance of selected nationalized industries. \$41 300 — 12 months.

**82-0203 AGRICULTURAL IRRIGATION SYSTEM DEVELOPMENT (NIGER)\***

For the University of Niamey to survey farmers in three agroclimatic zones near the Niger River Valley and compare the farm income, human-resources requirements, and soil productivity of each. \$75 000 — 36 months.

**82-0204 PAMPA AGRICULTURE: TECHNICAL CHANGE AND POLICY (ARGENTINA)**

To enable the Centro de Investigaciones Sociales sobre el Estado y la Administración, Buenos Aires, to analyze alternative policies for the agricultural sector in Argentina's pampa region with reference to the role of technology. \$10 500 — 4 months.

**82-0208 RESETTLEMENT PROGRAMS/LAND TENURE (CARIBBEAN)**

To enable the University of the West Indies, Bridgetown, Barbados, to describe and evaluate the resettlement-land-tenure schemes of Antigua and Montserrat. \$57 500 — 18 months.

**82-0209 EVALUATION OF LITERACY PROGRAM (ECUADOR)**

To enable the Instituto de Investigaciones Socio-económicas y Tecnológicas, Quito, to carry out an evaluation of the process and outcomes of the literacy campaign in Ecuador. \$51 100 — 12 months.

**82-0211 THE IMPACT OF URBANIZATION ON PARTICIPATION BY LOW-INCOME WOMEN (BRAZIL)\***

For the Pontificia Universidade Católica, Rio de Janeiro, to enable the Nucleo de Estudos sobre a

Mulher to produce a broad and comprehensive picture of the political, social, and economic transformation of rural women as they adapt to urban life. \$63 800 — 12 months.

**82-0212 AGROINDUSTRY: TECHNOLOGY POLICY (COSTA RICA)**

For the Consejo Nacional de Investigaciones Científicas y Tecnológicas, San José, to undertake a preliminary review of the agroindustrial sector in Costa Rica to prepare for a second phase examining technological infrastructure and policy. \$40 000 — 12 months.

**82-0219 REGIONAL DISTRIBUTION OF FINANCIAL RESOURCES FOR EDUCATION (PERU)\***

For the Ministry of Education, Lima, to enable its statistics office to undertake a study of the nature and distribution of financial resources within the educational sector. \$73 400 — 18 months.

**82-0224 TECHNICAL CHANGE IN THE DAIRY SECTOR (URUGUAY) — PHASE II\***

For the Centro de Investigaciones Económicas, Montevideo, to examine recent government policy and its influence on promoting technical change in the dairy sector. \$192 000 — 24 months.

**82-0228 AGRICULTURE AND POPULATION INTERRELATIONS (KENYA)\***

For the University of Nairobi to analyze the inter-relationships between agricultural development and population variables and undertake an overall assessment of population trends in Kenya, particularly as these trends relate to agricultural change, income levels, and the availability of social services. \$240 000 — 24 months.

**82-0229 TRAINING PROGRAM FOR INTERMEDIATE-LEVEL SCHOLARS (THAILAND) — PHASE II\***

To enable the Thai University Research Association, Bangkok, to undertake the second phase of research and training activity designed to improve the competence of intermediate-level scholars in Thailand in carrying out policy-relevant studies on population and development issues. \$260 000 — 28 months.

**82-0230 COARSE FOOD-GRAINS DEMAND (WEST AFRICA)**

For the International Food Policy Research Institute, Washington, D.C., USA, to undertake a research program on coarse food-grains demand in the semi-arid tropics of West Africa. \$325 000 — 36 months.

**82-0231 INSTITUTIONAL GRANT — INSTITUTE OF DEVELOPMENT STUDIES (GUYANA)\***

For the University of Guyana, Georgetown, to provide funds and equipment to the Institute of Development Studies so that it can continue research and maintain its research capacity. \$63 000 — 18 months.

**82-0232 INFANT MORTALITY (MEXICO)\***

For the Instituto de Investigaciones Sociales of the

Universidad Nacional Autónoma de México, Coyoacan, to develop knowledge and research methods concerning socioeconomic, nutritional, cultural, and health-sanitation program-delivery factors that influence infant mortality. \$79 300 — 18 months.

**82-0233 URBAN SERVICES MANAGEMENT (INDIA)**

For the Indian Council for Research on International Economic Relations, New Delhi, to enable the National Institute of Urban Affairs to improve the management and delivery of urban services. \$96 500 — 18 months.

**82-0235 ARTISANAL FISHERIES (NORTH-EAST SOMALIA)\***

For the Somali Academy of Sciences and Arts, Mogadishu, to collect and analyze data on coastal-fishing communities of northeast Somalia to provide a basis for possible artisanal-fisheries development in the region. \$73 800 — 24 months.

**82-0236 INFORMAL SECTOR TECHNOLOGICAL CAPABILITY (SIERRA LEONE)\***

For the University of Sierra Leone, Freetown, to enable the Institute of African Studies to investigate the potential of informal metal-working and auto-repair activities. \$27 300 — 12 months.

**82-0237 REVIEW OF KOREAN NATIONAL STANDARDS SYSTEMS (SOUTH KOREA)\***

For Incheon University to examine the organization and activities of the national-standards system and compare them with the structure and role of such systems in other selected countries. \$85 000 — 18 months.

**82-0238 WOMEN'S ATTITUDES TO EDUCATION AND CAREERS (KENYA)\***

For the Kenyatta University College, Nairobi, to develop a more comprehensive understanding of factors influencing the educational and occupational development of women. \$15 750 — 24 months.

**82-0239 SELF-HELP HOUSING AT LUBUMBASHI (ZAIRE)\***

For the Département des travaux publics et de l'aménagement territoire, Kinshasa, to study the urban phenomenon of unplanned housing. \$65 700 — 12 months.

**82-0240 STUDENT ACHIEVEMENT IN MATHEMATICS (DOMINICAN REPUBLIC) — PHASE II\***

For the Universidad Católica Madre y Maestra, Santiago de los Caballeros, to enable its Centro de Investigaciones to continue to assess the teaching and learning of mathematics at the high-school level. \$67 700 — 12 months.

**82-0241 ACTION-RESEARCH PROGRAM IN RURAL COOPERATIVES (UPPER VOLTA)\***

To enable 12 social scientists to receive training in research methodology on different aspects of the cooperative movement, at the International Cooperative University, Paris, France. \$73 200 — 12 months.

**82-0243 A STUDY OF THE NEEDS FOR SCIENTIFIC AND TECHNICAL MANPOWER (THAILAND)\***

For the Ministry of Science, Technology and Energy, Bangkok, to enable its Office of the Undersecretary of State to undertake a study of the demands for skilled personnel. \$84 000 — 36 months.

**82-0245 POVERTY ERADICATION PROGRAMS (KUALA LUMPUR)\***

For the University of Malaya, Kuala Lumpur, to enable its Faculty of Economics and Administration to examine the programs designed to improve the living conditions in squatter settlements in the Kuala Lumpur metropolitan area. \$71 800 — 18 months.

**82-0246 FERTILITY IN URBAN SLUMS (PARAGUAY)\***

For the Instituto de Investigaciones en Ciencias de la Salud, Asunción, to investigate the socioeconomic conditions associated with higher fertility among the poor in Asunción and to reinforce the capacity of local researchers to carry out policy-relevant diagnostic-survey studies. \$74 000 — 18 months.

**82-0247 FOOD SUPPLY IN YAOUNDE (CAMEROON)\***

For the Université de Yaoundé to investigate the origin of diverse food products, distribution channels, wholesale operations, transport, prices, profit margin, and food wastage. \$23 300 — 24 months.

**82-0252 INVESTMENT CODES (SENEGAL)\***

For the Université de Dakar to study the statutes in Senegal that stimulate corporate investment and to conduct a cost-benefit analysis of these incentives. \$22 500 — 18 months.

**82-0253 TRADE AND DEVELOPMENT (MALAYSIA)\***

For the Universiti Sains Malaysia, Penang, to conduct a comprehensive analysis of the impact on the Malaysian economy of the country's commercial and industrial policies. \$78 000 — 24 months.

**82-0255 DEVELOPING AN INTEGRATED NEEDS-ASSESSMENT STRATEGY**

For the SVITA Foundation, Bangkok, Thailand, to provide government policymakers with a case example of an alternative approach to data gathering for needs assessment. \$47 300 — 22 months.

**82-0257 AGRARIAN STRUCTURE (ECUADOR)\***

For the Pontificia Universidad Católica del Ecuador,

Quito, to enable the Instituto de Investigaciones Económicas to describe the changes in the structure of the agrarian economy of Manabi province since 1960. \$64 600 — 15 months

**82-0258 ARTISANAL FISHERIES (COLOMBIA)\***

For the Fundación para la Educación Superior, Cali, to define and analyze the socioeconomic conditions in the artisanal-fisheries sector in selected coastal areas. \$28 450 — 12 months.

**82-0259 MASS COMMUNICATION AND THE DEVELOPMENT OF CULTURES (ARGENTINA)\***

For the Programa de Estudios de Historia Económica y Social Americana, Buenos Aires, to analyze a set of messages and expressions used by the urban working class in Buenos Aires. \$33 800 — 12 months.

**82-0261 TRADE AND DEVELOPMENT (PHILIPPINES)\***

For the UPECOUN Foundation Inc., University of the Philippines, Quezon City, to analyze the economic impact of nontariff barriers on industry. \$80 000 — 24 months.

## Special Governing Board Activities

**82-0024 FUELWOOD PRODUCTION AND CONSERVATION (HAITI)**

For the Département de l'agriculture, des ressources naturelles et du développement rural and the Ministère des mines et des ressources énergétiques, Port au Prince, Haiti, to select fast-growing, fuelwood species and techniques for their management at the peasant level and to develop efficient firewood and charcoal stoves. \$234 000 — 48 months.

**82-0043 LAW AND BIOTECHNOLOGY**

For the International Center for Law in Development, New York, USA, to identify legal mechanisms that will enhance the benefits that developing countries derive from biotechnologies. \$158 700 — 24 months.

**82-0102 MANAGEMENT IMPROVEMENT IN THE SAHELIAN RESEARCH INSTITUTES (AGIR)\***

For IDRC's Office of the Comptroller General and Treasurer to undertake research to improve management practices and operations in the research institutes in the African Sahel. \$216 000 — 30 months.

## Division activity projects

In addition to the projects listed on the preceding pages, the Centre funds numerous relatively small projects that are in one way or another supportive of the ongoing activities of the program divisions. For instance, some are to support workshops or seminars to identify priority-research areas in a particular region or field of activity. Others are to enable developing-country researchers to attend international meetings of experts in other parts of the world. Still others are to provide funds for a specialist from one country to visit and assist a project team in another.

The great majority of such projects are, in fact, to cover the cost of meetings and consultancies directly or indirectly related to Centre-supported research projects in developing countries. During the past fiscal year, 462 division activity projects were approved at a total cost of \$2 625 000. Project grants ranged from a few hundred dollars to twenty thousand or more. This program funded activities such as:

- Transportation and related expenses for African and Canadian geoscientists to meet in Nairobi and formulate a collaborative-research project aimed at reviewing knowledge of geology and mineral resources in selected regions and strengthening the infrastructure of participating African institutions.
- Attendance of African scholars at the 1982 Conference of the International Association for Research in Income and Wealth in Yaounde, Cameroon.
- A seminar in Brazil bringing together researchers from Latin America and Malaysia for a panel on urban services in their respective countries.
- A visit from a scientist from the People's Republic of China to several Canadian academic, governmental, and other institutions concerned with the management of science and technology in the development field.
- Translation from Creole to French for the final editing and dubbing of a film based on interviews with Haitian peasants and an agronomist discussing their culture, climate, local economic conditions, traditions, etc.
- Participation of four scientists from developing-country research institutions at the Fifth International Congress of Parasitology in Toronto, Canada.
- A consultancy for a senior scientist in Colombia to provide guidance to the Ministry of Education to establish a pilot documentation centre on children's literature.
- A seminar at the Université Mohammed V in Rabat, Morocco, about the people of the Maghreb and their culture, centring on the child and the principal agents of socialization.
- A consultancy to examine how the technology contained in expired patents can most effectively be brought to the attention of developing countries.

## Financial commentary and highlights

In 1982–1983, the International Development Research Centre's financial resources continued the growth path begun in 1981–1982 and at an accelerated rate. These additional resources enabled the Centre not only to approve a significantly higher amount for new projects but to begin the development of an even larger number of proposals that will reach the approval stage in 1983–1984. The Centre committed some of its resources to an improved computerized management-information system, a word-processing capability, and a revised employee-classification system. The first two of these innovations will eventually enable the Centre's regional offices to have instant access to all the information stored at head office, placing them in a better position to respond to Third-World requests for support in research endeavours. In addition, the Centre has continued its process of decentralization and increased delegation of authority in the field.

The Office of the Auditor General completed its comprehensive audit in 1982 and presented its report to IDRC's Finance and Audit Committee in October 1982. The report states: "IDRC operates with highly qualified, experienced and dedicated professional staff, many of whom are internationally renowned in their fields." It goes on to say that many of the project recipients interviewed considered the IDRC approach superior to that of other international-aid agencies.

The increases in the Centre's Parliamentary grant demonstrate overall confidence in IDRC. It is for this reason that the Centre will continue to be innovative and strive to expand its horizons in the directions needed by developing countries.

### Revenues

The Parliamentary grant for 1982–1983, set at \$59.2 million, including \$2.5 million for Cooperative Programs, represented an increment of 25.4% over the previous year. Total Centre revenues, excluding funds for contract research, amounted to \$62.1 million for 1982–1983, a 23% increase over 1981–1982 and 0.2% greater than the budgeted level.

The \$2.9 million of investment and other income during 1982–1983 surpassed the budget target of \$2.8 million. The results are particularly good in view of the steady decline of money-market interest rates during most of the year. The Centre's actual average rate of return on investments was 14.0%, compared with the budgeted return of 15.0%. Although the Centre did not meet its target yield for the year, the higher level of investment purchases made possible by a slower rate of cash disbursements compensated for the shortfall in yield. Other income pertains mostly to MINISIS licencing fees, \$150 000, and approximately \$9000 for publications income.

The total 1983–1984 Parliamentary grant to IDRC, for regular programs, is expected to increase by 10.0% to \$62.4 million, which includes \$2.0 million allotted for energy research, as announced by the Prime Minister of Canada at the United Nations Conference on New and Renewable Sources of Energy in August 1981. In addition, the Cooperative Programs grant is anticipated to be \$5.0 million, twice the amount for the current year. The Centre has estimated that it will earn approximately 11.5% on its investment portfolio. The overall increase in Centre revenues is expected to be 11.8%.

### Development research and related expenditures

One of IDRC's goals is to maximize the proportion of expenditures directed to research and research support. The level of such expenditures, compared with budgetary levels, and their distribution by activity are indicators of how well IDRC has achieved certain financial objectives.

In 1982–1983, expenditures directly related to research projects and to Centre projects — the development research category — increased 14.5% to \$34.7 million; research related activities increased 29.3% to \$5.3 million. Although the expenditures were significantly higher than last year, they were below the level projected in the budget. The major shortfalls occurred in the projected levels of new projects (\$2.5 million) and the level of progress payments on previously approved projects (\$1.5 million).

Appropriations for 1982–1983 reached \$74.4 million, 96.7% of the budget target and a 22.4% increase over the level reached in 1981–1982. Project commitments, at \$67.8 million, represented 92.2% of the budget and a 22.8% increase over the previous year.

The 1983–1984 plan for IDRC allows for total appropriations of \$93.5 million, an increase of 25.7% over 1982–1983. The largest portion of this increase, 82.4%, will again be allotted to the support of new research projects, 13.4% will be assigned to regional office operations and technical support, and the remaining 4.2% to division management and administration.

EXPENDITURES (\$ million)										
	Budget				Actual					
	1984	% of total	1983	% of total	1982	% of total	1981	% of total	1980	% of total
Development research	\$43.0	59.7	\$34.7	58.7	\$30.3	61.1	\$26.8	62.5	\$24.4	62.2
Research related activities	6.5	9.0	5.3	9.0	4.1	8.3	3.0	7.0	2.9	7.4
Technical support and regional office operations	12.8	17.8	10.2	17.2	8.2	16.5	6.9	16.1	6.1	15.6
<b>Total research and research related</b>	<b>\$62.3</b>	<b>86.5</b>	<b>\$50.2</b>	<b>84.9</b>	<b>\$42.6</b>	<b>85.9</b>	<b>\$36.7</b>	<b>85.6</b>	<b>\$33.4</b>	<b>85.2</b>
Division management	3.1	4.3	3.0	5.1	2.3	4.6	2.2	5.1	2.2	5.6
Administration	6.6	9.2	5.9	10.0	4.7	9.5	4.0	9.3	3.6	9.2
<b>Total</b>	<b>\$72.0</b>	<b>100.0</b>	<b>\$59.1</b>	<b>100.0</b>	<b>\$49.6</b>	<b>100.0</b>	<b>\$42.9</b>	<b>100.0</b>	<b>\$39.2</b>	<b>100.0</b>

*Above data do not include amounts related to contract research.*

## Technical support and regional office operations

To respond to Third-World requests and to facilitate contacts with recipients, IDRC maintains overseas regional and liaison offices. Costs are also incurred for program personnel, who provide technical support, monitor project development, and advise on project management. Total expenditures in this category, for 1982–1983, were \$10.2 million, an increment of 24.4% over 1981–1982. As an allocation of total expenditures, this represented an increase to 17.2% from 16.5%.

Centre growth in direct research support, to a large degree, is dependent upon recruitment of professional staff, especially those involved in new project development and the provision of technical services to existing projects funded by the Centre. As a result, this area is expected to increase 25.5% to \$12.8 million in 1983–1984.

Increased decentralization and the need for more specialists in the field are answers both to the needs expressed by grant recipients and to more effective management.

## Division management

The costs of operating the IDRC program divisions and, in particular, the costs involved in program management, development, and control are identified as division management. This category totaled \$3.0 million in 1982–1983, a 30.4% increase over 1981–1982, and represented 5.1% of the total IDRC expenditures in 1982–1983.

Division management expenditures are expected to total \$3.1 million in 1983–1984, a 3.3% increase over 1982–1983. As a proportion of total Centre expenditures, however, this will represent a decrease to 4.3%.

## Administration expenditures

To support its overall operations, the Centre requires certain policy, executive, as well as administrative and service functions. Within the context of IDRC, such functions are represented by the Board of



Governors, the offices of the President, Secretary and General Counsel, Comptroller General and Treasurer, and Human Resources.

The total operating costs (\$558 000) for the Centre's computerized management-information system (IMIS) have been included in this category of expenditures. It was felt that the total operating costs should be charged to administration until management was satisfied that the new system was fully functional and adequately met users' needs. It is the intention that these costs will be charged out to the respective user divisions for the 1984–1985 fiscal year.

Administration expenditures amounted to \$5.9 million, as budgeted, in 1982–1983, an increase of 25.5% over the previous year. Their proportion of total expenditures remained, however, at 10%.

In 1983–1984, the ratio of administration costs to total expenditures is forecast to decrease to 9.2% for a total of \$6.6 million. This will reflect an increase of 11.9% over 1982–1983.

## **Contract research**

IDRC continues to administer research projects on behalf of other donor organizations. Funds for such projects are provided by the donor and are reported in the Centre's financial records when project disbursements occur. Donor funds in excess of recorded expenditures are reported as a liability on the Centre's balance sheet. For the 1982–1983 fiscal year, contract research expenditures totaled \$0.3 million, the lowest level of activity since 1972–1973 and a \$697 000 decrease from 1981–1982. This area of activity is expected to increase substantially in 1983–1984 and attain a more normal level.

## **Equity of Canada**

The equity account increased by \$3.0 million to a total of \$8.1 million as at March 31, 1983, whereas the estimated level was \$4.1 million. The slow startup of the energy program was responsible for \$1.9 million of this increase; the remainder resulted from shortfalls in project appropriations and difficulties experienced in identifying qualified individuals to fill professional-staff vacancies.

## **Personnel strength**

As at March 31, 1983, IDRC person-years totaled 369.5, which was 8.7% higher than the total (340) reported last year. This also marked the first year that personnel in the technical support area composed the largest category of staff.

The overall person-year levels for 1983–1984 are expected to reach 416, an increase of 12.6% over 1982–1983. It would be impossible to maintain the Centre's high level of quality in both its research program and its administrative functions without an increased number of experts to support the major expansion projected over the next few years.

## **Cooperative programs**

During the 1981–1982 fiscal year, IDRC agreed to accept management responsibility, at the request of the Government of Canada, for cooperative programs between developing-country researchers and Canadians. The goal is to establish links between research needs in developing countries and recognized technical expertise in Canada. The acceptance of this responsibility was given on the understanding that such programs were not to divert the Centre from its own objectives nor to involve financial or personnel resources beyond grant funds specifically received for such programs.

To comply with these conditions, the Centre has adopted a reporting basis that reflects direct expenditures for Cooperative Programs as well as allocations for Centre support and investment income. The amount allocated as investment income is based on actual cash flows related to the operations of Cooperative Programs and the actual rate of return experienced by the Centre in its investments. The amount allocated as part of research operational support, to cover services provided by the IDRC program and administrative divisions participating in Cooperative Programs, has been based on the ratio of Centre program-support costs to direct Centre program research and research related expenditures.

In 1983–1984, Cooperative Programs will receive a Parliamentary grant of \$5.0 million. It is expected that this level will support an appropriation level of \$9.3 million, an increase of 94% over the current year. A

complete financial reporting of Cooperative Programs follows; the net revenue balance is available for future Cooperative Program activities:

	1983	1982
<b>Revenue</b>	<b>\$ 2,617,694</b>	<b>\$ 1,053,667</b>
Grant	2,500,000	1,000,000
Interest	117,694	53,667
<b>Expenditure</b>	<b>2,477,528</b>	<b>1,039,197</b>
Research and support		
Cooperative Programs Unit	1,530,720	620,017
Other divisions	724,243	321,976
Allocated administration expenditure	222,565	97,204
<b>Excess of revenue over expenditure</b>	<b>140,166</b>	<b>14,470</b>
<b>Funds available at the beginning of the year</b>	<b>14,470</b>	<b>—</b>
<b>Funds available at the end of the year</b>	<b>\$ 154,636</b>	<b>\$ 14,470</b>



# COOPERATIVE PROGRAMS — CENTRE SUMMARY

## SUMMARY OF APPROPRIATIONS (\$000) as at March 31, 1983

	Approved budget 1983-1984	Approved budget 1982-1983	Approved appropriations	Balance
<b>Cooperative projects</b>	<b>\$ 6,825</b>	<b>\$ 3,525</b>	<b>\$ 3,490</b>	<b>\$ 35</b>
Agriculture, Food and Nutrition Sciences	1,500	750	695	55
Health Sciences	600	100	319	(219)
Social Sciences	700	600	421	179
Information Sciences	500	300	—	300
Communications	25	25	9	16
Cooperative Programs Unit	3,500	1,750	2,046	(296)
<b>Division activity projects</b>	<b>\$ 755</b>	<b>\$ 400</b>	<b>\$ 369</b>	<b>\$ 31</b>
Agriculture, Food and Nutrition Sciences	70	35	17	18
Health Sciences	30	15	16	(1)
Social Sciences	75	50	40	10
Information Sciences	50	25	2	23
Cooperative Programs Unit	530	275	294	(19)
<b>Technical support</b>	<b>\$ 757</b>	<b>\$ 408</b>	<b>\$ 282</b>	<b>\$ 126</b>
Cooperative Programs Unit	411	229	190	39
Other divisions (imputed)	346	179	92	87
<b>Division management</b>	<b>\$ 474</b>	<b>\$ 286</b>	<b>\$ 275</b>	<b>\$ 11</b>
Cooperative Programs Unit	293	232	244	(12)
Other divisions (imputed)	181	54	31	23
<b>Administration (imputed)</b>	<b>\$ 466</b>	<b>\$ 210</b>	<b>\$ 223</b>	<b>\$ (13)</b>
<b>Total</b>	<b>\$ 9,277</b>	<b>\$ 4,829</b>	<b>\$ 4,639</b>	<b>\$ 190</b>

**CENTRE TOTALS**  
**FINANCIAL HIGHLIGHTS (\$000)**

	<b>Budget 1983</b>	<b>Actual 1983</b>	<b>Budget vs actual (% variance)</b>	<b>Actual 1982</b>	<b>1982 vs 1983 (% change)</b>
<b>FINANCIAL ACTIVITY</b>					
<b>Revenue</b>	<b>\$ 62,000</b>	<b>\$ 62,146</b>	<b>0.2</b>	<b>\$ 50,507</b>	<b>23.0</b>
Grant from Parliament of Canada	56,700	56,700	—	46,200	22.7
Cooperative Programs	2,500	2,500	—	1,000	150.0
Investment and other income	2,800	2,946	5.2	3,307	(10.9)
<b>Expenditure</b>	<b>\$ 63,307</b>	<b>\$ 59,117</b>	<b>(6.6)</b>	<b>\$ 49,612</b>	<b>19.2</b>
Existing projects	26,374	24,919	(5.5)	21,976	13.4
New projects	17,482	15,078	(13.8)	12,434	21.3
Regional and liaison offices	2,875	2,764	(3.9)	2,340	18.1
Technical support	7,881	7,446	(5.5)	5,787	28.7
Division management	2,840	3,045	7.2	2,340	30.1
Administration	5,855	5,865	0.2	4,735	23.9
<b>Excess of revenue over expenditure (expenditure over revenue )</b>	<b>\$ (1,307)</b>	<b>\$ 3,029</b>	<b>331.8</b>	<b>\$ 895</b>	<b>238.4</b>
<b>PROGRAM ACTIVITY</b>					
<b>Appropriations</b>	<b>\$ 77,020</b>	<b>\$ 74,395</b>	<b>(3.4)</b>	<b>\$ 60,784</b>	<b>22.4</b>
New projects	57,569	55,275	(4.0)	45,582	21.3
Regional and liaison offices	2,875	2,764	(3.9)	2,340	18.1
Technical support	7,881	7,446	(5.5)	5,787	28.7
Division management	2,840	3,045	7.2	2,340	30.1
Administration	5,855	5,865	0.2	4,735	23.9
<b>Commitments</b>	<b>\$ 73,543</b>	<b>\$ 67,842</b>	<b>(7.8)</b>	<b>\$ 55,216</b>	<b>22.9</b>
Projects	54,092	48,722	(9.9)	40,014	21.8
Regional and liaison offices	2,875	2,764	(3.9)	2,340	18.1
Technical support	7,881	7,446	(5.5)	5,787	28.7
Division management	2,840	3,045	7.2	2,340	30.1
Administration	5,855	5,865	0.2	4,735	23.9

*Above data do not include amounts related to contract research.*

# 82-83 Annual Report

## CENTRE TOTALS

### FINANCIAL HIGHLIGHTS (\$000)

	Budget 1984	Actual 1983	Actual 1982	Actual 1981	Actual 1980
<b>RESULTS OF OPERATIONS</b>					
<b>Revenue</b>	<b>\$ 69,800</b>	<b>\$ 62,146</b>	<b>\$ 50,507</b>	<b>\$ 44,181</b>	<b>\$ 38,581</b>
Grant from Parliament of Canada	62,400	56,700	46,200	42,000	36,867
Cooperative Programs	5,000	2,500	1,000	—	—
Investment and other income	2,400	2,946	3,307	2,181	1,714
<b>Expenditure</b>	<b>\$ 72,007</b>	<b>\$ 59,117</b>	<b>\$ 49,612</b>	<b>\$ 42,875</b>	<b>\$ 39,217</b>
Development research	42,963	34,662	30,276	26,766	24,422
Research related activities	6,568	5,335	4,134	2,985	2,907
Research operational support	15,837	13,255	10,467	9,134	8,332
Administration	6,639	5,865	4,735	3,990	3,556
<b>Excess of revenue over expenditure (expenditure over revenue )</b>	<b>\$ (2,207)</b>	<b>\$ 3,029</b>	<b>\$ 895</b>	<b>\$ 1,306</b>	<b>\$ (636)</b>
<b>PROGRAM ACTIVITY</b>					
<b>Appropriations</b>	<b>\$ 93,489</b>	<b>\$ 74,395</b>	<b>\$ 60,784</b>	<b>\$ 49,892</b>	<b>\$ 41,783</b>
New projects	71,013	55,275	45,582	36,768	29,895
Regional and liaison offices	3,486	2,764	2,340	2,066	2,032
Technical support	9,273	7,446	5,787	4,888	4,100
Division management	3,078	3,045	2,340	2,180	2,200
Administration	6,639	5,865	4,735	3,990	3,556
<b>Commitments</b>	<b>\$ 84,426</b>	<b>\$ 67,842</b>	<b>\$ 55,216</b>	<b>\$ 48,123</b>	<b>\$ 35,428</b>
Projects	61,950	48,722	40,014	34,999	23,540
Regional and liaison offices	3,486	2,764	2,340	2,066	2,032
Technical support	9,273	7,446	5,787	4,888	4,100
Division management	3,078	3,045	2,340	2,180	2,200
Administration	6,639	5,865	4,735	3,990	3,556
<b>Outstanding commitments</b>	<b>\$ 65,131</b>	<b>\$ 49,100</b>	<b>\$ 41,380</b>	<b>\$ 39,800</b>	<b>\$ 34,500</b>

*Above data do not include amounts related to contract research.*

# INTERNATIONAL DEVELOPMENT RESEARCH CENTRE

## TOTAL PERSONNEL STRENGTH AND PERSON-YEAR LEVELS AND PROJECTIONS

	Actual March 31, 1983		Actual March 31, 1982		Approved 1983-1984	
	Personnel strength	Person- years	Personnel strength	Person- years	Positions	Person- years
<b>Program divisions</b>	<b>241</b>	<b>241</b>	<b>226</b>	<b>222.25</b>	<b>286</b>	<b>277.25</b>
Agriculture, Food and Nutrition Sciences	43	42.25	42	39.5	50	47.75
Health Sciences	21	19.75	17	19	26	25.5
Social Sciences	41	40	38	37	47	45.75
Information Sciences	26	26.75	23	21.25	34	32.25
Project-related staff	42	42	42	44.25	43	43
Special Governing Board Activities	—	—	—	—	2	2
Cooperative Programs Unit	7	7	4	4	13	11.75
Office of Planning and Evaluation	11	10.5	9	8.5	11	11
Regional offices	7	7	7	7	8	7.5
Fellowship Program	8	7	6	6	9	8.5
Communications	35	38.75	38	35.75	43	42.25
<b>General management</b>	<b>124</b>	<b>124.5</b>	<b>119</b>	<b>115</b>	<b>135</b>	<b>134.75</b>
President's Office	8	9.5	10	9.25	9	9
Office of the Secretary and General Counsel	19	17.75	18	17.75	19	18.75
Office of the Comptroller General and Treasurer	83	85	77	76.5	92	92
Human Resources Division	14	12.25	14	11.5	15	15
<b>Secondments</b>	<b>4</b>	<b>4</b>	<b>2</b>	<b>2.75</b>	<b>2</b>	<b>2</b>
<b>Sabbatical/study leave provision</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>2</b>
<b>Total</b>	<b>369</b>	<b>369.5</b>	<b>347</b>	<b>340</b>	<b>423</b>	<b>416</b>

Above data exclude employees hired locally by regional offices and project advisers.



AUDITOR GENERAL OF CANADA

VÉRIFICATEUR GÉNÉRAL DU CANADA

AUDITOR'S REPORT

To the International Development Research Centre  
and  
The Honourable Allan J. MacEachen, P.C., M.P.  
Secretary of State for External Affairs

I have examined the balance sheet of the International Development Research Centre as at March 31, 1983 and the statements of operations, equity and changes in financial position for the year then ended. My examination was made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as I considered necessary in the circumstances.

In my opinion, these financial statements present fairly the financial position of the Centre as at March 31, 1983 and the results of its operations and the changes in its financial position for the year then ended in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

A handwritten signature in dark ink, appearing to read "E.R. Rowe".

E.R. Rowe, C.A.  
Deputy Auditor General  
for the Auditor General of Canada

Ottawa, Ontario  
June 10, 1983

# INTERNATIONAL DEVELOPMENT RESEARCH CENTRE

## BALANCE SHEET As at March 31, 1983

	1983	1982
<b>ASSETS</b>		
<b>Current</b>		
Cash	\$ 339,798	\$ 178,927
Investments (Note 3)	14,667,511	10,707,651
Accounts receivable (Note 4)	889,916	940,311
Prepaid expenses	143,492	212,762
	<u>16,040,717</u>	<u>12,039,651</u>
Recoverable deposits	153,158	110,039
Property and equipment (Note 5)	2,847,736	2,320,529
	<u>\$ 19,041,611</u>	<u>\$ 14,470,219</u>
<b>LIABILITIES AND EQUITY</b>		
<b>Current</b>		
Accounts payable and accrued liabilities (Note 6)	\$ 8,451,515	\$ 7,039,125
Funds provided for contract research	132,673	190,125
	<u>8,584,188</u>	<u>7,229,250</u>
Provision for employee separation benefits	2,402,937	2,215,115
<b>Total liabilities</b>	<u>10,987,125</u>	<u>9,444,365</u>
<b>Equity of Canada</b>	<u>8,054,486</u>	<u>5,025,854</u>
	<u>\$ 19,041,611</u>	<u>\$ 14,470,219</u>
Approved:		
	R.J. Audet	Ivan L. Head
	Comptroller General and Treasurer	President

# INTERNATIONAL DEVELOPMENT RESEARCH CENTRE

## STATEMENT OF OPERATIONS for the year ended March 31, 1983

	1983	1982
<b>EXPENDITURE</b>		
<b>Development research</b>		
Project grants	\$ 29,901,338	\$ 26,186,534
Centre projects	4,760,359	4,090,038
	<u>34,661,697</u>	<u>30,276,572</u>
<b>Research related activities</b>		
Project development and support	2,603,093	1,907,076
Information dissemination	1,708,522	1,377,697
Development research library	1,024,037	848,822
	<u>5,335,652</u>	<u>4,133,595</u>
<b>Research operational support</b>		
Technical support	7,446,150	5,787,408
Division management	3,045,380	2,339,773
Regional and liaison offices	2,763,436	2,339,939
	<u>13,254,966</u>	<u>10,467,120</u>
<b>Contract research</b>		
Project grants	311,401	1,008,424
<b>Total research and support expenditure (Schedule 1)</b>	<b>53,563,716</b>	<b>45,885,711</b>
<b>Administration expenditure (Schedule 2)</b>	<b>5,864,982</b>	<b>4,734,914</b>
	<u>59,428,698</u>	<u>50,620,625</u>
<b>REVENUE</b>		
Grant from Parliament of Canada (Note 7)	59,200,000	47,200,000
Investment and other income	2,945,929	3,306,890
Contract research	311,401	1,008,424
	<u>62,457,330</u>	<u>51,515,314</u>
<b>EXCESS OF REVENUE OVER EXPENDITURE</b>	<b>\$ 3,028,632</b>	<b>\$ 894,689</b>



**INTERNATIONAL DEVELOPMENT RESEARCH CENTRE**

**STATEMENT OF EQUITY  
for the year ended March 31, 1983**

	1983	1982
<b>EQUITY OF CANADA AT BEGINNING OF THE YEAR</b>	<b>\$ 5,025,854</b>	<b>\$ 4,131,165</b>
Excess of revenue over expenditure	<u>3,028,632</u>	<u>894,689</u>
<b>EQUITY OF CANADA AT END OF THE YEAR</b>	<b><u>\$ 8,054,486</u></b>	<b><u>\$ 5,025,854</u></b>

# INTERNATIONAL DEVELOPMENT RESEARCH CENTRE

## STATEMENT OF CHANGES IN FINANCIAL POSITION for the year ended March 31, 1983

	1983	1982
<b>SOURCE OF FUNDS</b>		
Operations		
Excess of revenue over expenditure	\$ 3,028,632	\$ 894,689
Items not affecting funds		
Provision for employee separation benefits	506,511	410,488
Depreciation and amortization	503,391	373,681
Gain on disposal of property and equipment	(9,768)	(53,931)
	<u>4,028,766</u>	<u>1,624,927</u>
Increase in current liabilities	1,354,938	—
Decrease in current assets other than cash and investments	119,665	—
Proceeds on disposal of property and equipment	<u>64,035</u>	<u>175,932</u>
	<b><u>5,567,404</u></b>	<b><u>1,800,859</u></b>
<b>USE OF FUNDS</b>		
Additions to property and equipment	1,084,865	1,222,491
Payment of employee separation benefits	318,689	334,055
Increase in recoverable deposits	43,119	28,649
Decrease in current liabilities	—	474,961
Increase in current assets other than cash and investments	<u>—</u>	<u>385,550</u>
	<b><u>1,446,673</u></b>	<b><u>2,445,706</u></b>
<b>INCREASE (DECREASE) IN FUNDS</b>	<b><u>4,120,731</u></b>	<b><u>(644,847)</u></b>
<b>FUNDS AT BEGINNING OF THE YEAR</b>	<b><u>10,886,578</u></b>	<b><u>11,531,425</u></b>
<b>FUNDS AT END OF THE YEAR</b>	<b><u>\$ 15,007,309</u></b>	<b><u>\$ 10,886,578</u></b>
<b>Represented by:</b>		
Cash	\$ 339,798	\$ 178,927
Investments	<u>14,667,511</u>	<u>10,707,651</u>
	<b><u>\$ 15,007,309</u></b>	<b><u>\$ 10,886,578</u></b>

## INTERNATIONAL DEVELOPMENT RESEARCH CENTRE

### NOTES TO FINANCIAL STATEMENTS for the year ended March 31, 1983

#### 1. Authority and objective

The International Development Research Centre as a Corporation without share capital was established in 1970 by the Parliament of Canada through the International Development Research Centre Act. The annual grant received from the Parliament of Canada is pursuant to External Affairs Votes 45 and 65 for the years ended March 31, 1983 and 1982 respectively.

The objective of the Centre is to initiate, encourage, support, and conduct research into the problems of the developing regions of the world and into the means for applying and adapting scientific, technical, and other knowledge to the economic and social advancement of those regions.

#### 2. Significant accounting policies

The financial statements have been prepared in accordance with Canadian generally accepted accounting principles and reflect the following policies:

##### Property and equipment

Property and equipment are stated at cost and are depreciated over their estimated useful lives. Leasehold improvements are amortized over the terms of the respective leases. The methods and rates employed annually to provide for the depreciation and amortization of property and equipment are as follows:

	Method	Rate
Computer hardware and systems		
software	Straight line	20%
Leasehold improvements	Straight line	6 2/3–20%
Office furniture and equipment	Diminishing balance	20%
Vehicles	Diminishing balance	30%

##### Research expenditure

Certain expenditures for development research, research related activities, and contract research are charged to the accounts at the time of disbursement and as they become due under the terms of contractual agreements. All other research expenditure is recorded on an accrual basis.

##### Contract research

The Centre enters into agreements to undertake contract research on behalf of various donor agencies. The Centre recognizes contract research revenue at the time the related expenditure is incurred. Funds received in excess of contract research expenditures incurred are reflected in current liabilities.

##### Pension costs

Employees of the Centre are covered by the Public Service Superannuation Plan administered by the Government of Canada. Contributions to the Plan are required from the employees and the Centre. These contributions represent the total liability of the Centre and are recognized in the accounts on a current basis.

### Income taxes

The Centre is exempt from any liability for income taxes.

### Foreign currency translation

Monetary assets and liabilities are translated into Canadian dollars at the rate of exchange in effect at year-end. Non-monetary assets are translated at rates prevailing at the respective transaction dates. Foreign currency transactions are translated into Canadian dollars by the use of an average exchange rate that closely approximates the rate in effect at the transaction date. Exchange gains and losses are included in operations for the current period.

## 3. Investments

Investments consist of short-term notes and deposits and treasury bills held with:

	1983	1982
Canadian chartered banks	\$ 9,744,231	\$ 8,281,836
Trust and mortgage companies	2,441,915	—
Commercial enterprises	1,950,582	1,926,210
Foreign bank — exchange certificates	530,783	499,605
	<u>\$ 14,667,511</u>	<u>\$ 10,707,651</u>

## 4. Accounts receivable

	1983	1982
Accrued interest income	\$ 351,057	\$ 313,004
Costs recoverable from other organizations	222,943	235,708
Staff travel advances	125,603	183,019
Operating advances	116,522	127,862
Other	73,791	80,718
	<u>\$ 889,916</u>	<u>\$ 940,311</u>

## 5. Property and equipment

	1983		1982	
	Cost	Accumulated depreciation and amortization	Net	Net
Computer hardware and systems software	\$ 1,872,666	\$ 524,013	\$ 1,348,653	\$ 1,017,002
Leasehold improvements	1,445,786	766,687	679,099	684,520
Office furniture and equipment	1,061,176	536,473	524,703	396,253
Vehicles	486,336	191,055	295,281	222,754
	<u>\$ 4,865,964</u>	<u>\$ 2,018,228</u>	<u>\$ 2,847,736</u>	<u>\$ 2,320,529</u>

## 6. Accounts payable and accrued liabilities

	1983	1982
Accrued liabilities — projects	\$ 5,707,656	\$ 4,465,174
Accrued annual and other leave benefits	1,384,102	1,181,875
Other	1,359,757	1,392,076
	<u>\$ 8,451,515</u>	<u>\$ 7,039,125</u>

## 7. Grant from Parliament of Canada

The grant from the Parliament of Canada includes funds appropriated specifically for the following programs:

### Cooperative Programs

The grant includes \$2,500,000 for Cooperative Programs to support research collaboration between groups in Canada and those in developing countries with the aim of enhancing their indigenous capabilities. This additional grant was accepted on the understanding that the Cooperative Programs do not divert the Centre from its own objectives, nor involve financial or staff resources beyond grant funds specifically received for such programs.

The financial situation of these programs is:

	1983	1982
<b>Revenue</b>		
Grant	\$ 2,500,000	\$ 1,000,000
Interest	117,694	53,667
	<u>2,617,694</u>	<u>1,053,667</u>
<b>Expenditure</b>		
Research and support		
Cooperative Programs Unit	1,530,720	620,017
Other divisions	724,243	321,976
Allocated administration expenditure	222,565	97,204
	<u>2,477,528</u>	<u>1,039,197</u>
<b>Excess of revenue over expenditure</b>	<b>140,166</b>	<b>14,470</b>
<b>Funds available at the beginning of the year</b>	<b>14,470</b>	<b>—</b>
<b>Funds available at the end of the year</b>	<b>\$ 154,636</b>	<b>\$ 14,470</b>

### Energy program

Pursuant to a commitment made by Canada in August 1981 at the United Nations Conference on New and Renewable Sources of Energy, additional funds of \$10,000,000 are being provided to the Centre over the next 4 years to increase energy research in developing countries. During the year ended March 31, 1983, \$2,000,000 was received and included in the grant from the Parliament of Canada to the Centre, of which \$100,000 has been spent during the year. The balance of \$1,900,000 remained unspent, thereby contributing to the increase in the Equity of Canada. These funds will be expended next year on energy-related research projects approved by the Centre.

## 8. Operating leases

The Centre has entered into various lease arrangements for office premises, equipment, and staff accommodation, in Canada and in various countries. The total liability over the next 5 years under such lease arrangements is:

1984	\$ 2,091,327
1985	1,607,187
1986	1,089,553
1987	970,049
1988	<u>537,120</u>
	<u><u>\$ 6,295,236</u></u>

## 9. Contractual commitments — project grants and project development

The Centre is committed to make payments totaling \$49,100,000 during the next 4 years subject to funds being provided by Parliament and subject to compliance by recipients with the terms of project agreements. The Centre has also submitted formal grant offers to prospective recipients totaling \$7,000,000 and is awaiting acceptance of these offers.

## 10. Contingencies

The Centre is a defendant in actions for damages and costs allegedly sustained by the plaintiffs. Management and counsel are of the opinion that the Centre has defenses against any significant claims, and accordingly no provision has been made in the financial statements in respect of these claims.

**INTERNATIONAL DEVELOPMENT RESEARCH CENTRE**  
**SCHEDULE OF RESEARCH AND SUPPORT EXPENDITURE**  
**for the year ended March 31, 1983**

	1983				1982
	Development research	Research related activities	Research operational support	Contract research	Total
<b>Programs</b>					
Agriculture, Food and Nutrition Sciences	\$ 12,323,462	\$ 337,190	\$ 2,811,837	\$ —	\$ 15,472,489
Social Sciences	9,428,417	453,561	2,573,475	—	12,455,453
Information Sciences	4,261,073	265,155	1,648,159	—	6,174,387
Health Sciences	4,822,995	166,340	1,354,879	—	6,344,214
Fellowship Awards	2,485,048	46,575	—	—	2,531,623
Cooperative Programs Unit	819,678	277,742	433,300	—	1,530,720
<b>Program related activities</b>					
Regional and liaison offices	—	131,668	2,763,436	—	2,895,104
External liaison and relations	371,576	341,444	527,135	—	1,240,155
Information dissemination	—	1,708,522	1,142,745	—	2,851,267
Development research library	—	1,024,037	—	—	1,024,037
Special Governing Board Activities	149,448	583,418	—	—	732,866
<b>Contract research</b>					
	—	—	—	311,401	311,401
	<b>\$ 34,661,697</b>	<b>\$ 5,335,652</b>	<b>\$ 13,254,966</b>	<b>\$ 311,401</b>	<b>\$ 53,563,716</b>
					<b>\$ 45,885,711</b>



## INTERNATIONAL DEVELOPMENT RESEARCH CENTRE

SCHEDULE OF ADMINISTRATION EXPENDITURE  
for the year ended March 31, 1983

	1983	1982
Salaries and benefits	\$ 3,954,254	\$ 3,158,311
Rent and accommodation	461,967	394,535
Office expenses	404,352	244,258
Depreciation and amortization	268,505	163,903
Travel and relocation	224,513	283,699
Professional and special services	180,197	172,901
Governors' meetings	175,778	144,704
Telecommunications	130,289	99,934
Insurance	65,127	72,669
	<u>\$ 5,864,982</u>	<u>\$ 4,734,914</u>

## Fellowship Program

The general purpose of the Fellowship Program is to assist in the training and upgrading of the qualifications of individual researchers, managers, and planners in scientific fields related to the broad mandate of IDRC. The program aims at building their research capabilities and, thus, strengthening research institutions in the Third World.

The Fellowship Program endeavours to meet these objectives by offering various categories of awards, which vary in nature and number, according to changing needs as perceived by the Centre. The program focuses principally on individuals from the least-developed countries and places greater emphasis on professional upgrading than on basic training. Tenure takes place in centres of excellence, located, in order of priority, locally, regionally, in Canada, or in another developed country. IDRC-award holders are expected to return to their home country at the end of tenure.

Although the focus is on training and upgrading scientists and professionals from developing countries in fields that parallel the research interests of IDRC, support for Canadian professionals in development-related activities remains an important element of the program and complements the Centre's commitment to place Canadian expertise at the service of the developing countries through cooperative-research projects.

The award categories in 1982–1983 were:

- Senior fellowship;
- Pearson fellowships;
- Professional development awards (Canada);
- Program-related awards;
- Pre- and post-project awards; and
- Young Canadian researchers.

In addition to the individual awards listed below, the Centre supported the enrollment at the Hague Academy of International Law of 20 young trainees from developing countries, who will benefit both from the training and from the exposure to international law. Also, during the year under review, the Centre provided a grant to the International Foundation for Science that will enable 25 young scientists from developing countries to carry on individual research projects in their own study environment.

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### Senior fellowship

The senior-fellowship award enables a senior researcher from a developing country or Canada to spend a 12-month sabbatical producing a work of mutual concern and benefit to IDRC and the fellow. During the year under review, one award was granted:

Vijay S. Vyas, India

To undertake studies on structural change in South Asian agriculture and the implications for food-grains production. Location: Asian Development Bank, Manila, Philippines

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### Pearson fellowships

The Pearson fellowships are designed for young public servants from developing countries so that they may pursue their professional interest in Canada. The Canadian missions in developing countries are responsible for nominating candidates. The fellowships are concentrated each year in a particular field. During 1982–1983, 10 fellowships were awarded in the field of health:

K. Afuso-Barko, Ghana

To study various aspects of the health-care system and undertake field trips in accordance with these studies.

Location: Division of Community Health Science, Faculty of Medicine, University of Calgary, Calgary, Canada

Abdelaziz Belhadji, Morocco

To study management and public-health policymaking and to undergo several training stages in the field.

Location: Department of Social and Preventive Medicine, Faculty of Medicine, Université de Montréal, Quebec, Canada

Bayi Bengone, Gabon

To study the theory and practice of techniques for surface and groundwater research.

Location: Institut national de la recherche scientifique, Ste-Foy, Canada

Veta F. Brown, Bahamas

To study various aspects of the health-care system and undertake field trips in accordance with these studies.

Location: Division of Community Health Science, Faculty of Medicine, University of Calgary, Calgary, Canada

P.S. Miranda-Carneiro, Brazil

To study health-care planning and epidemiology in the province of Quebec, Canada.

Location: The Kellogg Centre, Montreal General Hospital, Montreal, Canada

J.S. Kang, India

To study various aspects of the health-care system and undertake field trips in accordance with these studies.

Location: Division of Community Health Science, Faculty of Medicine, University of Calgary, Calgary, Canada

Theam Eng Khoo, Malaysia

To study various aspects of the health-care system and undertake field trips in accordance with these studies.

Location: Division of Community Health Science, Faculty of Medicine, University of Calgary, Calgary, Canada

E. Masimba, Zimbabwe

To study various aspects of the health-care system and undertake field trips in accordance with these studies.

Location: Division of Community Health Science, Faculty of Medicine, University of Calgary, Calgary, Canada

E. Mwasha, Tanzania

To study various aspects of the health-care system and undertake field trips in accordance with these studies.

Location: Division of Community Health Science, Faculty of Medicine, University of Calgary, Calgary, Canada

Anussorn Sitdhirasdr, Thailand

To study various aspects of the health-care system and undertake field trips in accordance with these studies.

Location: Division of Community Health Science, Faculty of Medicine, University of Calgary, Calgary, Canada

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### Professional development awards (Canada)

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Professional development awards provide sabbaticals for Canadian professionals at midcareer to undertake training, personal study, or investigation. The aims are:

- To allow professionals already involved in international development to improve or update their skills and knowledge; or
- To permit professionals with no specific exposure in the field of international development to investigate the possibility of adapting their skills to development efforts through study or on-the-job training.

In 1982–1983, eight awards (person-years) were given to Canadian citizens or landed immigrants. The recipients were:

R.E. Boyd-Jeeroburkhan, Quebec

For study visits to development institutes in Sri Lanka, Senegal, and Mexico with a view toward formulating a new perspective on Canadian development publications.

Location: Marga Institute, Colombo; Council for the Development of Economic and Social Research in Africa, Dakar; and Universidad Nacional Autónoma de México, Mexico

- Christopher R. Brookes, Newfoundland  
For a work-study program in the use of popular theatre as a vehicle for educating adults about development (Nicaragua).  
Location: Ministry of Culture, Managua, Nicaragua
- Andrew C. Dymond, British Columbia  
To complete a master of science degree in national development and project planning.  
Location: University of Bradford, Bradford, West Yorkshire, UK
- Ann Good, Quebec, and Annette Isaac, Ontario  
For studies on "development projects for women: how can international agencies help?"  
Location: Africa Centre for Advanced Studies in Youth Work, Lusaka, Zambia, and the Women and Development Unit, University of the West Indies, St. Michael, Barbados
- Michelle Josse, Quebec  
To work in a government program aimed at using media in education.
- Location: Institut national d'étude et d'action pour le développement de l'éducation, Dakar, Senegal
- Lawrence S. Mithen, British Columbia  
For a study on new communications technologies in developing countries: a study of their impact on isolated primitive cultures with respect to modes of delivery and information content.  
Location: University of South Pacific, Suva, Fiji
- Allan D. Steeves, Ontario  
To study the socioeconomic impact of changes in the costs of petrochemical fuels on the development of food systems.  
Location: United Nations Research Institute for Social Development, Geneva, Switzerland
- Andrew M. Szende, Ontario  
To survey the flow of news and development information to and from the Philippines, Singapore, and Malaysia.  
Location: Institute of Southeast Asian Studies, Singapore

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### Program-related awards

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Program-related awards are aimed at increasing the human-resource base of Third-World research institutions. These awards are directed to researchers as well as to administrative and financial personnel. Proposed training programs must be endorsed by the candidates' institutions. They vary from practical attachments to academic studies leading to a degree (graduate studies, preferably at the master's level). Duration of tenure depends upon the required training but generally does not exceed 24 months. The number of awards varies according to the availability of funds and is dictated by the nature and scope, and therefore cost, of individual awards. Each region is allotted a fixed share of the available funds. IDRC's regional staff reviews applications and recommends awards. After consultation with program staff in Ottawa, final approval is given by Fellowship Program officers, in the region or in Ottawa, as appropriate. During 1982-1983, 35 award holders took up tenure.

- Mohamed Ahmed Ahmed, Mauritania  
For professional development training in physical and chemical analyses of soils and of laboratory management.  
Location: Université Laval, Quebec, Canada
- Beatriz Cespedes de Rocha, Colombia  
To participate in the intensive course on quantitative research techniques.  
Location: Programa Interdisciplinario de Investigaciones en Educación, Santiago, Chile
- Zhong-Wen Chen, People's Republic of China  
For studies in educational statistics and educational administration and planning in the advanced training program of the International Institute for Educational Planning.  
Location: International Institute for Educational Planning, Paris, France
- Philip Chilomo, Zambia  
To pursue studies toward a master's degree.  
Location: Faculty of Environmental Studies, York University, Downsview, Canada
- Momar Coumba Diop, Senegal  
To take sociology courses and undergo training in applied-research methods.

- Location: Université de Montréal and Centre de Sondage, Montreal, Canada
- Silvio Echeverri Echeverro, Colombia  
To visit research and agricultural-extension institutions in Canada with the purpose of observing aspects relating to research administration, transfer of technology, and extension work.  
Location: Agriculture Canada, Central Experimental Farm, Ottawa, Canada
- Hamidul Huq, Bangladesh  
To attend the international leadership training course at the International Institute of Rural Reconstruction.  
Location: International Institute of Rural Reconstruction, Ermita, Philippines
- A. Buluda Itandala, Tanzania  
To complete a doctoral thesis entitled "A history of the Babinza of Usukuma, Tanzania, to 1917."  
Location: Department of History, Dalhousie University, Halifax, Canada
- H. Jaramillo, Colombia  
For a graduate course on the economics of energy and energy policy.  
Location: Universidad de los Andes, Bogota, Colombia
- A.M. Jayasekera, Sri Lanka  
To undertake studies leading to a master of science degree.  
Location: Southeast Asian Fisheries Development Center, Manila, Philippines
- Calestous Juma, Kenya  
For studies toward a master's degree in science, technology, and industrialization.  
Location: University of Sussex, Sussex, UK
- Yester Karahagopian, Lebanon  
To undertake a short course in water supply and sanitation and carry out discussions about solar disinfection.  
Location: University of Ottawa, Ottawa, and Brace Research Institute, Montreal, Canada
- Fabio Zapata Llano, Colombia  
To visit research and agricultural-extension institutions in Canada with the purpose of observing aspects relating to research administration, transfer of technology, and extension work.  
Location: Agriculture Canada, Central Experimental Farm, Ottawa, Canada
- Nellie Lloyd-Evans, the Gambia  
To undertake studies toward a master of science degree in microbiology.  
Location: University of Ottawa, Ottawa, Canada
- Lagoya Lumery, Senegal  
For studies toward a master's degree in library science and specialized information.  
Location: Universidade Federal de Minas Gerais, Belo Horizonte, Brazil
- R.A. Mahmood, Bangladesh  
To collect data for a doctoral dissertation entitled "Implications of International Mobility of Labour for Trade and Development with Particular Reference to Bangladesh."  
Location: Liverpool and Birmingham, UK, and Riyadh, Saudi Arabia
- S. Barrera de Martinez, Colombia  
For studies toward a master of education degree with specialization in investigation.  
Location: Universidad de Santo Tomás Aquino, Bogota, Colombia
- J.B. Maroko, Kenya  
For training in pesticide-residue and formulation analysis.  
Location: Food Production and Inspection Branch, Agriculture Canada, Ottawa, Canada
- M. McDonnough, Jamaica  
To upgrade skills of indexing and abstracting utilizing the methods recommended for socioeconomic-information systems.  
Location: International Development Research Centre, Ottawa, Canada
- R.A. Moreno, Costa Rica  
To write a book describing the methodology used in Centro Agronómico Tropical de Investigación y Enseñanza to develop technology for small farmers.  
Location: Centro Agronómico Tropical de Investigación y Enseñanza, Turrialba, Costa Rica
- V.O. Musewe, Kenya  
For studies in research management.  
Location: Southeast Asian Regional Center for Graduate Study and Research in Agriculture and Philippine Council for Agriculture and Resources Research, Manila, Philippines
- U.K. Nanayakkara, Sri Lanka  
To attend a course on international management.  
Location: Centre for International Business Studies, University of Western Ontario, London, Canada

- S.G. Premakanthan, Sri Lanka  
For a travel grant to take up a 2-year, temporary assignment with Correctional Service Canada.  
Location: Correctional Service Canada, Ottawa, Canada
- Zeina Raffoul, Lebanon  
To undertake a short course on water supply and sanitation and carry out discussions about solar disinfection.  
Location: University of Ottawa, Ottawa, and Brace Research Institute, Montreal, Canada
- C. Ramanujam, India  
To study demography-sociology in the population-studies program of the East-West Center.  
Location: East-West Center, Population Institute, Honolulu, Hawaii, USA
- L.M. Ravuvu, Fiji  
For studies in library science, which will include the regional Philippine government science information course and practical training.  
Location: Institute of Library Science, University of the Philippines, Manila, and the Agricultural Information Bank for Asia, Southeast Asian Regional Center for Graduate Study and Research in Agriculture, Los Baños, Philippines
- Alfonso Valdivieso Sarmiento, Colombia  
To undertake studies on urban and regional aspects of development of metropolitan areas and intermediate cities.  
Location: Department of Geography, University of Toronto, Toronto, Canada
- Yoro Sarr, Senegal  
To undertake courses and practical training in science journalism.  
Location: Université Laval, Quebec, Canada
- A.B. Sesay, Sierra Leone  
To undertake inservice training for agricultural-information services.  
Location: Food and Agriculture Organization of the United Nations, Rome, Italy, and West Africa Rice Development Association, Monrovia, Liberia
- M. Shahabuddin, Bangladesh, and V. Sathasivam, Sri Lanka  
To study general management, managerial and cost accounting, financial management, management-information systems, and EDP (Executive Development Program) fundamentals-applications.  
Location: SGV Development Centre, Makati, Metro Manila, Philippines
- T.P. Singh, India  
To conduct research in fractionation and assay of gonadotropin in major carp and catfish.  
Location: West Vancouver Laboratory, Fisheries Research Branch, Vancouver, Canada
- Jaime Londono Soto, Colombia  
To participate in the intensive course on quantitative research techniques.  
Location: Programa Interdisciplinario de Investigaciones en Educación, Santiago, Chile
- Ram P. Yadav, Nepal  
For studies on agricultural-research resource allocation in Nepal.  
Location: International Food Policy Research Institute, Washington, D.C., USA
- N.U. Yapa, Sri Lanka  
To complete studies toward a master's degree in library science.  
Location: University of Western Ontario, London, Canada

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## Pre- and post-project awards

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The IDRC program for pre- and post-project awards is intended to provide training for developing-country personnel who either are slated to participate in an IDRC-supported project or have already been associated with one. Nominations and selections for this award are made by the program divisions in cooperation with the Fellowship Program. The number of grants awarded annually varies, as does the amount of each grant. The nature and location of training are dependent upon the individuals selected. For 1982-1983, 15 individuals received pre-project awards and 22, post-project awards:

### **Pre-project awards**

N.N. Das and Md.M. Hossain, Singapore

For studies leading to a master of science degree.

Location: University of British Columbia, Vancouver, Canada

R. Davalos-Sotelo, Mexico

For studies as a qualifying student for a doctoral program in civil engineering.

Location: University of British Columbia, Vancouver, Canada

Sandra George, St. Vincent

To undertake undergraduate library studies.

Location: University of the West Indies, Kingston, Jamaica

P.A. Kowa, Tanzania

To pursue studies toward a master's degree.

Location: Faculty of Environmental Studies, York University, Downsview, Canada

K. Kumar, India

To complete a study on the educational media, entitled "Symbols of Development."

Location: Ontario Institute for Studies in Education, Toronto, Canada

M.P. Mainali, Nepal

For doctorate-degree studies in education.

Location: University of Alberta, Edmonton, Canada

E.S. Mfangayo, Tanzania

To pursue studies toward a master's degree.

Location: Faculty of Environmental Studies, York University, Downsview, Canada

Wilson M. Mkwizu, Tanzania

For studies toward a master's degree.

Location: Faculty of Environmental Studies, York University, Downsview, Canada

P.A.I. Obanya, Nigeria

To undertake an evaluation of selected bilingual education projects in Canada.

Location: Université Laval, Quebec, Canada

N.S. Sandhu, India

To study the suitability and effectiveness of the strategies used by agricultural-extension agencies and departments in Canada to transfer farm technology to farmers.

Location: University of Alberta, Edmonton, Canada

P. Shanmugam, India

For studies toward a master's degree in public health.

Location: Institute of Public Health, University of the Philippines, Manila, Philippines

Liang-Fang Shi and Qui-Ping Cao, People's Republic of China

To pursue studies toward a master's degree in education.

Location: University of Victoria, Victoria, Canada

Komol Sivaborvorn, Thailand

For specialized studies on development of a water-quality test designed for rapid determination of bacteriological contamination.

Location: Department of Microbiology, University of Arizona, Tucson, USA

### **Post-project awards**

Juan Calva, Mexico

To undertake a master of science degree in design, measurement, and evaluation of health-care programs.

Location: Department of Clinical Epidemiology and Biostatistics, McMaster University, Hamilton, Canada

Penporn Janekarnkij and Ratana Sungsitthisawad, Thailand; Evanor D. Paca, Philippines; and Mudiantono, Indonesia

To pursue a summer course in economics and studies toward a master of science degree.

Location: University of the Philippines, Los Baños, Philippines, and Universiti Pertanian Malaysia, Selangor, Malaysia

José Bernardo Toro Arango, Colombia

To examine problems related to theoretical-methodological issues of research in education and enhance knowledge of use and dissemination of results.

Location: Ontario Institute for Studies in Education, Toronto, Canada

M.A.I. Baroudi, Sudan

For practical training in epidemiology, statistics, and data processing and analysis.

Location: High Institute of Public Health, Alexandria University, Alexandria, Egypt

Brian Denis Egan, Canada

For studies toward a master's degree in zoology.

Location: University of British Columbia,



- Vancouver, and Pacific Biological Station, Nanaimo, Canada
- M. Gumedzoe, Togo  
To undertake courses leading to a doctorate in plant biology.  
Location: Faculty of agriculture, Université Laval, Quebec, Canada
- Barkat-E-Khuda, Bangladesh  
For advanced analysis of data collected in the research project carried out in Bangladesh on household demographic behaviour.  
Location: Department of Demography, Australian National University, Canberra, Australia
- Hassan M. Malawa, Tanzania  
To complete studies for a doctorate degree.  
Location: University of Sussex, Sussex, UK
- P. Morales, Chile  
For training in the use and techniques that have been developed for assessing human sperm function.  
Location: Department of Obstetrics and Gynecology, University of California, Davis, USA
- Ishak H.J. Omar, Malaysia  
To conduct research, collect bibliographic material, and gain exposure through field visits to aquaculture projects.  
Location: International Center for Living Aquatic Resources Management, Southeast Asian Fisheries Development Center, and CLSU, Philippines, and National Chung Hsing University, Taiwan
- J. Oryokot, Uganda  
To complete studies leading to a master of science degree in agronomy.  
Location: Faculty of Agriculture, University of Nairobi, Nairobi, Kenya
- Dennis Phillip, Trinidad and Tobago  
To undertake a year's study to qualify for entrance into the doctorate-degree program in economics.  
Location: McGill University, Montreal, Canada
- P. Pozner, Argentina  
To pursue studies toward a master's degree in education.  
Location: Universidad Iberoamericana, Mexico City, Mexico
- Chung-Won Rhee, South Korea  
For research in the field of continuing education, including visits to government departments, colleges, and universities of the province of British Columbia.  
Location: Vancouver, Canada
- Veronica Edwards Risopatron, Chile  
To pursue studies toward a master's degree in education.  
Location: Centro de Investigación de Estudios Avanzados, Instituto Politécnico Nacional, Mexico City, Mexico
- W.M. Sirisena, Sri Lanka  
To undertake work in data analysis under the direction of B.M. Morrison.  
Location: University of British Columbia, Vancouver, Canada
- Ningsanond Suwayd, Thailand  
To carry out studies and a research program in a qualifying year for a degree program in food technology.  
Location: Department of Food Science, University of Alberta, Edmonton, Canada
- F. Vio-Grossi, Chile  
For studies in participatory research and popular education.  
Location: International Council for Adult Education, Toronto, Canada
- Horacio Walker, Chile  
For coursework necessary for admission to a doctorate-degree program.  
Location: Ontario Institute for Studies in Education, Toronto, Canada

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## Young Canadian researchers

Young Canadian researchers are doctoral students registered in a Canadian university (students at the master's degree level may be considered in the fields of health sciences and communications). The aim of this program is to encourage the involvement of young Canadian researchers in scientific areas of concern to IDRC and to give them, at the same time, exposure to problems of Third-World countries. Consequently, the study, placement, and research programs

take place in Third-World countries. The Centre will consider applicants proposing study in agriculture, food, nutrition, health, information, sociology, education, communications, energy, geology, finance, administration, and any closely related fields. Candidates must be Canadian citizens. The recipients are selected by staff of the Fellowship Program. Tenure is up to 12 months.

Margaret Anderson, University of Manitoba

To complete master's degree research and thesis on trypsin inhibitors of faba beans.

Location: University of Manitoba, Winnipeg, Canada

Dean A. Befus, McMaster University

To study cellular and humoral factors in breast milk that are responsible for providing infants with resistance to disease.

Location: Medical Research Council laboratories, Fajara, the Gambia

Isabelle Arsenault, Louise Desroches, Pierrette Girard, and José Lefebvre, Université de Montréal

To undergo intensive training in tropical medicine.

Location: Centre féminin de Bohicon and l'Hôpital Sainte Camille de Dogbo, Benin

F.E. Brusberg, McGill University

For an anthropological and economic study of north-central Niger as a basis for a doctoral dissertation.

Location: Institut de recherches en sciences humaines, Niger, and Université de Paris, Paris, France

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## Group training

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In addition to the different individual awards, the Fellowship Program sponsored eight group-training programs designed to improve technical, research, and administrative skills of individuals through intensive practical training courses tailored to the needs of the field. During 1982–1983, the program sponsored:

- Course for 20 African forestry officers in the principles and the practice of forest-research methods, with emphasis on wood production, held at the University of Dar es Salaam, Tanzania — \$72 250.
- Training workshop in educational theory, practice, and research for 12 Chinese scholars from the East China Normal University held at the University of Victoria, Canada — \$36 815.
- Course on demographic analysis for 28 university and research-institute staff held at the University of Sichuan, People's Republic of China — \$15 700.
- Course on research methods in livestock development for 26 researchers from seven countries in South and Southeast Asia held at the University of Kasetsart, Thailand — \$66 080.
- Course for 12 industrial researchers from Latin America, the Caribbean, Middle East, and Asia in research methodologies on problem solving in small food industries, held at the International Development Research Centre and British Columbia Research — \$48 559.
- Formal and practical course in mollusc culture for 10 trainees from Asia, Latin America, and the Caribbean held at Dalhousie University, Halifax, Canada — \$102 810.
- Course for 15 researchers in research techniques related to urbanization in the Third World, held at Universiti Sains Malaysia — \$45 000.
- Training in qualitative research analysis for staff of several IDRC-sponsored projects, held at the Centro de Investigaciones de la Universidad Pedagógica, Colombia — \$43 335.

## Communications

One of the most important responsibilities for any organization involved in research is to ensure the prompt dissemination of the results of that research. IDRC recognized this early and created a separate division to maintain a publishing program and to advise and assist grant recipients who have dissemination problems.

This is the primary mandate of the Communications Division, and the main vehicle for carrying it out is scientific and technical publications. In 1982–1983, the Division published 64 books, covering a wide range of research areas supported by IDRC's program divisions. The Division also operates an information program for the Centre to inform special audiences in Canada and abroad about the role of research in development. One of the key components of this program is *The IDRC Reports/Le CRDI Explore/El CIID Informa*, a quarterly magazine published in three separate-language editions. It reports on the work of the Centre and provides a forum for discussion of vital development issues. It is supplemented by technical as well as wide-interest films produced within the Division and, recently, along with three of the Centre's films, won major awards, in Canada and overseas, for production and excellence of content.

The Division also produces two feature-article services: a highly successful one for print media in developing countries (*Feature/Reportage*) and a more modest, experimental one aimed at Canadian community newspapers (*Other Worlds*). Both of these initiatives help to inform the general public on advances in research relevant to developing countries.

The Centre especially encourages Third-World media to increase coverage of information on scientific and technological research for development. In this respect, the Communications Division has sponsored regional courses and workshops and seminars for science writers from the popular media in developing countries. The African workshops (held in Dakar, Senegal, and Nairobi, Kenya) resulted in the formation of two regional associations of science writers devoted to the exchange of articles and other information on scientific and technological development among many African countries. In 1982, a workshop for Southeast Asian science writers was held in the Philippines and resulted in a regional project to develop and publish a science-writers' manual.

As part of its information program in Canada, the Communications Division has organized a series of regional seminars to bring together large numbers of researchers interested in international-development issues. The seminars allow IDRC to present information on the Centre's experiences in supporting Third-World research and also engage in information sharing on the research capability in the various regions of Canada for potential collaboration between Canadian scientists and their counterparts in Third-World institutions.

A list of publications and films resulting from Centre-supported research follows. Catalogues of all those issued by the Centre are available on request.

### Centre Publications Publications du Centre

*IDRC annual report 1981–1982/Rapport annuel CRDI 1981–1982*, Ottawa, Ont., IDRC/CRDI, 1982. 120 p. IDRC-003/82e,f

*L'adieu au pilon : un nouveau système de mouture mécanique en Afrique*, Eastman, P., Ottawa, Ont., CRDI, 1982. 68 p. : ill. IDRC-152f.

*Plantes-racines tropicales — stratégies de recherches pour les années 1980 : compte rendu du premier symposium triennal sur les plantes-racines de la Société internationale pour les plantes-racines tropicales — Direction Afrique, du 8 au 12 septembre 1980, Ibadan, Nigéria*. Terry, E.R., Oduro, K.A. et Caveness, F., rédacteurs, Ottawa, Ont., CRDI, 1982. 294 p. IDRC-163f.

*Approvisionnement en eau dans les régions*

**rurales des pays en voie de développement : compte rendu du colloque tenu à Zomba (Malawi) du 5 au 12 août 1980.** Ottawa, Ont., CRDI, 1983. 137 p.: ill. IDRC-167f.

**Les problèmes d'assainissement dans les pays en voie de développement : compte rendu du colloque sur la formation tenu à Lobatsi (Botswana) du 14 au 20 août 1980.** Ottawa, Ont., CRDI, 1983. 166 p.: ill. IDRC-168f.

**Década de aprendizaje: Centro Internacional de Investigaciones para el Desarrollo, División de Ciencias Agrícolas, Alimentos y Nutrición: los primeros diez años,** Ottawa, Ont., CIID, 1982. 192 p.: ill. IDRC-170s.

**Absorption and diffusion of imported technology: proceedings of a workshop held in Singapore, 26-30 January 1981,** Ottawa, Ont., IDRC, 1983. 112 p.: ill. IDRC-171e.

**Remote sensing and development: report on IDRC-supported projects in the Sudan, Bolivia, Tanzania, Bangladesh, and Mali,** LeBlond, R., Ottawa, Ont., IDRC, 1982. 24 p.: ill. IDRC-174e.

**Télédétection et développement : rapport sur les projets appuyés par le CRDI au Soudan, en Bolivie, en Tanzanie, au Bangla Desh et au Mali,** LeBlond, R., Ottawa, Ont., CRDI, 1982. 24 p.: ill. IDRC-174f.

**Multiple cropping in the humid tropics of Asia,** Gomez, A.A., and Gomez, K.A., Ottawa, Ont., IDRC, 1983. 249 p.: ill. IDRC-176e.

**Root crops in eastern Africa: proceedings of a workshop held in Kigali, Rwanda, 23-27 November 1980,** Ottawa, Ont., IDRC, 1982. 128 p.: ill. IDRC-177e.

**Renewable resources in the Pacific: proceedings of the 12th Pacific Trade and Development Conference, held in Vancouver, Canada, 7-11 September 1981,** English, H.E., and Scott, A., editors, Ottawa, Ont., IDRC, 1982. 293 p.: ill. IDRC-181e.

**Asignación de recursos para la investigación agrícola : actividades del taller efectuado en Singapur, del 8 al 10 de junio de 1981,** Daniels, D., y Nestel, B., Ottawa, Ont., CIID, 1982. 171 p.: ill. IDRC-182s.

**Low-cost transport in Asia: a comparative report on five cities,** Ocampo, R.B., Ottawa, Ont., IDRC, 1982. 77 p.: ill. IDRC-183e.

**Nutritional factors involved in the goitrogenic action of cassava,** Delange, F., Iteke, F.B., and

Ermans, A.M., editors, Ottawa, Ont., IDRC, 1982. 100 p.: ill. IDRC-184e.

**Intercropping: proceedings of the second symposium on intercropping in semi-arid areas, held at Morogoro, Tanzania, 4-7 August 1980,** Keswani, C.L., and Ndunguru, B.J., editors, Ottawa, Ont., IDRC, 1982. 168 p.: ill. IDRC-186e.

**SALUS: low-cost rural health care and health manpower training: an annotated bibliography with special emphasis on developing countries, Volume 9,** Bechtel, R.M., Ottawa, Ont., IDRC, 1982. 149 p.: ill. IDRC-187e.

**Eight years of their lives: through schooling to the labour market in Chile,** Schiefelbein, E., and Farrell, J.P., Ottawa, Ont., IDRC, 1982. 207 p.: ill. IDRC-191e.

**Devindex 1980: index to literature on economic and social development/index de la littérature sur le développement économique et social produite en 1980,** Ottawa, Ont., IDRC/CRDI, 1982. 172 p. IDRC-194e.f.

**Food drying: proceedings of a workshop held at Edmonton, Alberta, 6-9 July 1981,** Yaciuk, G., editor, Ottawa, Ont., IDRC, 1982. 104 p.: ill. IDRC-195e.

**Tourism in the Caribbean: the economic impact,** Seward, S.B., and Spinrad, B.K., editors, Ottawa, Ont., IDRC, 1982. 163 p.: ill. IDRC-196e.

**Asian cropping systems research: microeconomic evaluation procedures,** Banta, G.R., Ottawa, Ont., IDRC, 1982. 56 p.: ill. IDRC-197e.

**Fish by-catch...bonus from the sea: report of a technical consultation on shrimp by-catch utilization held in Georgetown, Guyana 27-30 October 1981,** Ottawa, Ont., IDRC, 1982. 163 p.: ill. IDRC-198e.

**Bivalve culture in Asia and the Pacific: proceedings of a workshop held in Singapore, 16-19 February 1982,** Davy, F.B., and Graham, M., editors, Ottawa, Ont., IDRC, 1982. 90 p.: ill. IDRC-200e.

**Agricultural policy in India: growth with equity,** Sarma, J.S., Ottawa, Ont., IDRC, 1982. 94 p. IDRC-201e.

**Livestock in Asia: issues and policies,** Fine, J.C., and Lattimore, R.G., editors, Ottawa, Ont., IDRC, 1982. 192 p. IDRC-202e.

**Devindex 1981: index to selected literature on economic and social development/index d'ouvrages sur le développement économique et social**, Ottawa, Ont., IDRC/CRDI, 1982. 185 p. IDRC-203e,f.

**Village handpump technology: research and evaluation in Asia**, Sharp, D., and Graham, M., editors, Ottawa, Ont., IDRC, 1982. 72 p. ill. IDRC-204e.

**Financing educational development: proceedings of an international seminar held in Mont Sainte Marie, Canada, Ottawa, Ont., IDRC, 1982. 142 p. IDRC-205e.**

**By-product utilization for animal production: proceedings of a workshop on applied research held in Nairobi, Kenya, 26-30 September 1982**, Kiflewahid, B., Potts, G.R., and Drysdale, R.M., editors, Ottawa, Ont., IDRC, 1983. 158 p.: ill. IDRC-206e.

**Cassava toxicity and thyroid: research and public health issues: proceedings of a workshop held in Ottawa, Canada, 31 May-2 June 1982**, Delange, F., and Ahluwalia, R., editors, Ottawa, Ont., IDRC, 1983. 148 p. IDRC-207e.

**Searching: review of IDRC activities 1982**, Ottawa, Ont., IDRC, 1982. 40 p. IDRC-212e.

**Quête d'avenirs : rapport d'activité du CRDI en 1982**, Ottawa, Ont., CRDI, 1982. 40 p. IDRC-212f.

**Búsqueda: informe anual de actividades del CIID 1982**, Ottawa, Ont., CIID, 1982. 40 p. IDRC-212s.

**Éducation, travail et emploi : revue sommaire**, Woodhall, M., Ottawa, Ont., CRDI, 1982. 40 p. IDRC-TS30f.

**Educación, trabajo y empleo: reseña sumaria**, Woodhall, M., Ottawa, Ont., CIID, 1982. 40 p. IDRC-TS30s.

**Educational networks in Latin America: their role in the production, diffusion, and use of educational knowledge**, Schiefelbein, E., Ottawa, Ont., IDRC, 1982. 44 p. IDRC-TS39e.

**Réseaux d'éducation en Amérique Latine : leur rôle dans la production, la diffusion et l'utilisation de la science éducationnelle**, Schiefelbein, E., Ottawa, Ont., CRDI, 1982. 40 p. IDRC-TS39f.

**Redes de investigación educativa en América Latina: su función en la producción, difusión y uso del conocimiento pedagógico**, Schiefelbein, E., Ottawa, Ont., CIID,

1982. 48 p. IDRC-TS39s.

**Recommended methods for development-information systems, Volume I. Manual for the preparation of records in development-information systems**, Morin-Labatut, G., and Sly, M., Ottawa, Ont., IDRC, 1982. 272 p. IDRC-TS40e.

**Low-income urban shelter projects: an annotated bibliography of research funded by IDRC-IBRD**, Ottawa, Ont., IDRC, 1982. 61 p. IDRC-TS41e.

**International socioeconomic information systems: an evaluative study of DEVSIS-type programs**, Aiyepoku, W.O., Ottawa, Ont., IDRC, 1983. 100 p. IDRC-TS43e.

**Argentina's machine tool sector: STPI background paper no. 2**, Amadeo, P., Fernandez, F., and Morales, F., Ottawa, Ont., IDRC, 1982. 98 p. IDRC-MR35e.

**Los instrumentos de política científica y tecnológica en Argentina: una síntesis de proyecto STPI: STPI background paper no. 3**, Amadeo, E.P., Ottawa, Ont., IDRC, 1982. 30 p. IDRC-MR36s.

**The Brazilian machine tool industry: patterns of technological transfer and the role of the government**, Rabelo Versiani, F., and Lomônaco Bastos, V., Ottawa, Ont., IDRC, 1982. 36 p. IDRC-MR37e.

**The IDRC milkfish project 1975-1978**, Vanstone, W.E., and Ricker, W.E., Ottawa, Ont., IDRC, 1982. 269 p. IDRC-MR53e.

**Agricultural research in Uganda: a program for rehabilitation**, Ottawa, Ont., IDRC, 1982. 74 p. IDRC-MR60e.

**Factors affecting the innovation process for contraceptive products**, Ottawa, Ont., IDRC, 1982. 47 p. IDRC-MR61e.

**Informe del II taller de trabajo sobre sistemas de producción animal tropical, Pucallpa, Peru, 21-25 enero 1982**, Pun, H., y Zandstra, H., Bogota, CIID, 1982. 123 p. IDRC-MR62s.

**Financial and administrative problems as perceived by IDRC-assisted research projects in Asia**, Ottawa, Ont., IDRC, 1982. 56 p. IDRC-MR63e (also available in French and Spanish).

**Financial and administrative management of research projects in Eastern Africa (FAMEA)**, Ottawa, Ont., IDRC, 1982. 46 p. IDRC-MR64e.

***A current awareness bibliography for IDRC-supported fisheries projects, vol. 6, no. 2,*** Szpakowska, Z., compiler, Ottawa, Ont., IDRC, 1982. 29 p. IDRC-MR65e.

***Problemática lógico-lingüística de la comunicación social con el pueblo Aymara,*** Guzman de Rojas, I., Ottawa, Ont., IDRC, 1982. 158 p. IDRC-MR66s.

***A current awareness bibliography for IDRC-supported fisheries projects, vol. 6, no. 3,*** Szpakowska, Z., compiler, Ottawa, Ont., IDRC, 1982. 37 p. IDRC-MR67e.

***A national library and information service system in Barbados,*** Keren, C., Ottawa, Ont., IDRC, 1982. 42 p. IDRC-MR68e.

***A current awareness bibliography for IDRC-supported fisheries projects, vol. 6, no. 4,*** Szpakowska, Z., compiler, Ottawa, Ont., IDRC, 1982. 42 p. IDRC-MR69e.

***Report of a seminar on energy conservation in food processing industries,*** McNaughton, A., compiler, Ottawa, Ont., IDRC, 1983. 84 p. IDRC-MR70e.

***El contexto social de cambio de la fecundidad en América Latina rural,*** Simmons, A.B., Conning, A.M., y Villa, M., Ottawa, Ont., IDRC, 1983. 525 p. IDRC-MR71s.

***Attitudes of primary school children in Ghana,*** Ntumi, R.A., Ottawa, Ont., IDRC, 1983. 97 p. IDRC-MR72e.

***Technical assistance delivery to developing cooperatives,*** Sprudz, A., Ottawa, Ont., IDRC, 1983. 309 p. IDRC-MR74e.

***Research management for food industries,*** Ottawa, Ont., IDRC, 1983. 137 p. IDRC-MR75e.

***Cumulative index to vol 3. (1979) of the current awareness bibliography for IDRC-supported fisheries projects,*** Szpakowska, Z., compiler, Ottawa, Ont., IDRC, 1983. 46 p. IDRC-MR76e,f,s.

***A current awareness bibliography for IDRC-supported fisheries projects,*** Szpakowska, Z., compiler, Ottawa, Ont., IDRC, 1983. 30 p. IDRC-MR77e,f,s.

***Forestación en los Andes Altos,*** Ottawa, Ont., IDRC, 1983. 161 p. IDRC-MR78s.

### ***The IDRC Reports/Le CRDI Explore/El CIID Informa***

Published in three separate-language edi-

tions, *IDRC Reports* is a quarterly magazine of report and comment on the work supported by IDRC and on related activities in the field of international development. Total circulation of the English, French, and Spanish editions is about 19 500 per issue, of which slightly more than 50% is to developing countries, 30% within Canada, and the remainder to other industrialized countries. The magazine is published in January, April, July, and October.

Le *CRDI Explore* est une revue trimestrielle consacrée aux recherches financées par le Centre de recherches pour le développement international et aux activités connexes dans le domaine du développement international. Son tirage est de 19 500 exemplaires — éditions anglaise, française et espagnole — dont à peu près 50 p. 100 sont distribués dans les pays en développement, 30 p. 100 au Canada et le reste dans des pays industrialisés. Cette revue paraît en janvier, avril, juillet et octobre.

### ***IDRC Feature/Reportage CRDI***

A monthly news-feature service on scientific, technical, and educational subjects related to development is provided free of charge to newspapers and magazines in the developing world. During the past year, 38 articles, written by IDRC staff and other selected contributors, were distributed in English and French to some 600 publications in 92 countries. Although it has not been possible to obtain a complete record of the number of articles from this service actually published, it is known that the series is widely used and appreciated, with clippings and comments being received from a host of countries.

Un bulletin mensuel d'information sur l'actualité scientifique, technique et éducative relative au développement est distribué gratuitement aux principaux journaux et revues publiés dans le monde en voie de développement. Au cours de l'année écoulée, 38 articles, écrits en français et en anglais par des employés du Centre et des correspondants choisis, ont été distribués à environ 600 publications dans 92 pays. Bien qu'il soit impossible de connaître le nombre exact d'articles reproduits à l'étranger, nous pouvons affirmer qu'ils sont largement utilisés et lus avec intérêt, si on en juge par l'abondant courrier qui nous arrive d'un grand nombre de pays.

### ***Other Worlds***

*Other Worlds* is a mininews service on science, technology, and developing countries



provided to community newspapers in Canada. Every month, five or six brief stories are provided to the Community Newspapers Association of Ontario to be typeset and mailed out in a ready-to-use format for the close to 1000 newspapers serving smaller communities in Canada.

*Other Worlds* est un « mini-service » de presse sur la science, la technologie et les pays moins avancés, offert aux journaux communautaires du Canada. Tous les mois, cinq ou six nouvelles brèves sont envoyées à l'Association des journaux communautaires de l'Ontario qui les compose et les expédie « prêtes-à-publier » aux quelque 1000 journaux distribués dans les petites collectivités canadiennes.

### **Echo**

Published 10 times a year in English and French, *Echo* is IDRC's staff newsletter. As a publication of the Communications Division, it aims to inform staff, both at head office and in the regional offices, of issues and events of interest to them.

Publié 10 fois l'an en français et en anglais, l'*Echo* est le bulletin du personnel du CRDI. En tant que publication de la Division des communications, elle a pour but d'informer les employés du Centre, au siège social et aux bureaux régionaux, des questions et des événements qui pourraient les intéresser.

## **Films**

(Produced by/Réalisé par Neill McKee)

***The mysterious milkfish: increasing yield through research***, 16 mm, 27½ min., documents how scientists at the Southeast Asian Fisheries Development Center (SEAFDEC) in the Philippines have succeeded in breeding milkfish in captivity and explains how their gradually increasing knowledge of the species may lead to greater productivity in the milkfish industry.

***Les chanidés en captivité : la recherche au service des rendements***, 16 mm, 27½ min., montre comment les spécialistes du Centre de développement des pêches du Sud-Est asiatique (SEAFDEC) ont réalisé la reproduction du chanidé en captivité. Il illustre comment les chercheurs ont graduellement maîtrisé chaque phase du cycle pour augmenter les rendements de cette industrie.

## **Publications and texts by Centre staff**

### **Publications et textes rédigés par les cadres du Centre**

IDRC staff are frequently called upon to participate in workshops and seminars, to speak at conferences, and to contribute to scientific journals. In addition, many of the research projects supported by IDRC generate their own publications — reports, texts, and newsletters — that, although not produced or distributed by the Centre, form an important part of the effort to disseminate research results as widely as possible. The following sections list as many of these documents as were available at the time of publication of this report. Anyone interested in obtaining copies of the documents should contact the normal sources (authors, institutions, libraries, bookstores), although IDRC will try to supply copies of items not available elsewhere. In case of short supply, preference will be given to researchers in developing countries.

Il est souvent fait appel au personnel du CRDI pour participer à des ateliers et séminaires, pour prendre la parole à des conférences et pour collaborer à des revues scientifiques. De plus, un grand nombre de projets de recherche subventionnés par le CRDI débouchent sur la publication de documents, rapports ou bulletins qui, bien que non publiés et distribués par le Centre, constituent une part importante des efforts déployés pour diffuser aussi largement que possible les résultats obtenus par les chercheurs. Les sections suivantes donnent la liste de toutes les publications parues au moment de la rédaction du présent rapport. Toute personne désireuse de se procurer des exemplaires de ces documents est priée de s'adresser à la source (auteurs, institutions, bibliothèques, librairies) bien que le CRDI s'efforcera de fournir ces documents lorsqu'ils ne seront pas disponibles ailleurs. Les documents en voie d'épuisement seront adressés de préférence aux chercheurs des pays en développement.

Adams, Pat, and Barnett, Andrew. 1982. Report of the informal meeting of energy research donors, Ottawa, Canada, 20–21 April 1982. Ottawa, Canada, Agriculture, Food and Nutrition Sciences Division, IDRC. 29 p. (unpublished typescript).

Archer, R.G. 1983. AGRIS utilizes microfiche to disseminate agricultural information. IMC



- Journal, 19(1), First quarter, 31–32.
- Barnett, Andrew, Bell, Martin, and Hoffman, Kurt. 1982. Rural energy and the Third World: a review of social science research and technology policy problems, Oxford, England, Pergamon Press. 214 p.
- Bélisle, F.J. 1982a. Os preços crescentes da energia, urbanização e serviços urbanos na América Latina. Paper presented at International Geographical Union Working Group on Urbanization in Developing Countries, João Pessoa, Brazil, 8–14 August. (unpublished typescript).
- 1982b. El turismo y la producción de alimentos en Jamaica. Paper presented at Conference of Latin Americanist Geographers, Santo Domingo, Dominican Republic, 10–12 October. (unpublished typescript).
- Bernard, Anne, and Gayfer, Margaret. 1983. Women hold up more than half the sky: Third World perspective on women and non-formal education for development. Report of a project and workshop of the International Council for Adult Education. Toronto, Canada, International Council for Adult Education, April. 78 p.
- Fox, Elizabeth. 1982. Comunicación y sociedad civil. Una temática incipiente. Crítica y Utopía, 7, julio.
- 1983a. Communication and civil society. Comunicação y Política, 1 (1), marzo/maio, 35–41.
- 1983b. Perplejidades compartidas sobre la comunicación democrática. Críticas y Utopía, 9.
- Fox de Cardona, Elizabeth, and Beltran, Luis Ramiro. 1982. Comunicação dominada. Os Estados Unidos e os meios de comunicação da América Latina, Paz e Terra, Rio de Janeiro, Brazil.
- Fox, Elizabeth, et al. 1982. Comunicación y democracia en América Latina. Lima, Peru, Consejo Latinoamericano de Ciencias Sociales.
- Head, I.L. 1982a. Allocution prononcée au colloque sur la recherche pour le développement du tiers-monde, l'Université du Québec à Trois-Rivières, 29 avril. 13 p. (texte inédit).
- 1982b. Address to the Engineering Institute of Canada, 96th Annual Congress, Vancouver, B.C., 14 June. 12 p. (unpublished typescript).
- 1982c. Address to "Energex '82," Regina, Saskatchewan, 24 August. 17 p. (unpublished typescript).
- 1982d. Address to the National Defence College of Canada, Kingston, Ontario, 9 September. 37 p. (unpublished typescript).
- 1982e. Allocution prononcée à l'Académie du Royaume du Maroc, Marrakech, 25 novembre. 16 p. (texte inédit).
1983. Address to the Jamaican Society of Scientists and Technologists, Kingston, Jamaica, 22 March. 15 p. (unpublished typescript).
- Hulse, Joseph H. 1982a. Food science, for richer or for poorer, for sickness or for health. Paper presented at Institute of Food Science and Technology (IFOST) summer symposium, York, England, 1 September.
- 1982b. Food science and nutrition: the gulf between rich and poor. Science, 216, 18, June, 1291–1294.
- Langdon, Steven. 1982a. Industrial restructuring in Hungary. Paper presented at Canadian Hungarian Economics Roundtable, Budapest, April (unpublished typescript).
- 1982b. Technological capacity in Kenyan industry: case study of textiles and wood. Paper presented at Workshop on Indigenous Technological Capacity, Centre for African Studies, University of Edinburgh, Edinburgh, Scotland, May (unpublished typescript).
- Leatherdale, D. 1982a. AGROVOC and multilingual forestry terminology. In Pacific Southwest Forest and Range Experiment Station, Forestry Information Systems and Terminology. Berkeley, California, USA, Pacific Southwest Forest and Range Experiment Station, 56–62. (Paper presented at the IUFRO World Congress, 17th, Kyoto, Japan, 6–17 September 1981.)
- 1982b. AGROVOC: a multilingual thesaurus of agricultural terminology: trilingual index: Spanish — ENGLISH — French / AGROVOC: thesaurus multilingue de terminologie agricole: index trilingue: anglais — FRANCAIS — espagnol / AGROVOC: tesouro multilingue de terminologia agrícola: indice trilingue: francês — ESPANOL — inglês. Rome, Italy, Apimondia. 311 p.
- 1982c. AGROVOC: Ein mehrsprachiger Thesaurus für landwirtschaftliche Terminologie: Dreisprachiger Index: Englisch —

- DEUTSCH — Italienisch / AGROVOC: a multilingual thesaurus of agricultural terminology: trilingual index: Italian — ENGLISH — German / AGROVOC: thesaurus multilingue di terminologia agricola: indice trilingue: Tedesco — ITALIANO — Inglese. Rome, Italy, Apimondia. 311 p.
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