

# IDRC ANNUAL REPORT 1986 / 1987



CANADA

The map on the front cover is based on the Peters' Projection rather than the more familiar Mercator Projection.

The Peters' Projection introduces several innovative characteristics: an accurate rendition of the proportion of the land surface area; graphical representation of the entire world surface, including the polar regions; and the Equator placed at the centre of the map. The distortions that do appear are distributed at the Equator and the Poles; the more densely settled earth zones, it is claimed, appear in proper proportion to each other.

The map is printed courtesy of Dr Arno Peters of the University of Bremen.



INTERNATIONAL DEVELOPMENT RESEARCH CENTRE  
CENTRE DE RECHERCHES POUR LE DEVELOPPEMENT INTERNATIONAL

Chairman of the Board  
Président du Conseil

July 14, 1987

The Rt. Hon. Joe Clark, 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, 1987 which includes the financial statements of the Centre and the Auditor General's report thereon.

As you requested, the report this year contains the conflict of interest compliance measures approved by Centre Management.

Yours sincerely,

Janet M. Wardlaw

**Head Office**

IDRC, P.O. Box 8500, Ottawa, Ontario, Canada K1G 3H9

**Regional Office for Latin America and the Caribbean**

CIID, Apartado Aéreo 53016, Bogotá, D.E., Colombia

**Regional Office for Middle East and North Africa**

IDRC/CRDI, P.O. Box 14 Orman, Giza, Cairo, Egypt

**Regional Office for South Asia**

IDRC, 11 Jor Bagh, New Delhi 110003, India

**Regional Office for Eastern and Southern Africa**

IDRC, P.O. Box 62084, Nairobi, Kenya

**Regional Office for West and Central Africa**

CRDI, B.P. 11007, CD Annexe, Dakar, Sénégal

**Regional Office for Southeast and East Asia**

IDRC, Tanglin P.O. Box 101, Singapore 9124, Republic of Singapore

Please direct requests for information about IDRC and its activities to the IDRC office in your region.

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# Annual Report 1986–1987

## International Development Research Centre

The International Development Research Centre (IDRC) is a public corporation created by the Parliament of Canada in 1970 to stimulate and support scientific and technical research by developing countries for their own benefit.

The fields of investigation to which IDRC gives its financial and professional support include: farming; food storage, processing, and distribution; forestry; fisheries; animal sciences; energy; tropical diseases; water supplies; health services; education; population studies; economics; communications; urban policies; science and technology policy; and information systems.

Although IDRC is funded by the Canadian Parliament, its operations are guided by an international 21-member Board of Governors. Under the IDRC Act, the chairman, the vice-chairman, and nine other governors must be Canadian citizens; in practice, 6 of the remaining 10 governors are from developing countries.

The programs that the Centre supports help developing countries build the scientific competence of their institutions and their researchers so that these countries can work to solve their own problems. Research projects supported by the Centre are, therefore, identified, designed, conducted, and managed by developing-country researchers in their own countries, to meet their own priorities.

IDRC helps to create and supports international research networks through which developing countries can learn from each other, share common experiences, and conduct similarly designed studies in areas of mutual concern. The Centre also promotes cooperation between researchers in developing countries and their counterparts in Canada.

IDRC has its headquarters in Ottawa, with regional offices in

- Bogotá, Colombia (Latin America and the Caribbean);
- Cairo, Egypt (Middle East and North Africa);
- New Delhi, India (South Asia);
- Nairobi, Kenya (Eastern and Southern Africa);
- Dakar, Sénégal (West and Central Africa); and
- Singapore (Southeast Asia, East Asia, and the Pacific).

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## Introduction

When the Parliament of Canada created the International Development Research Centre (IDRC) in 1970, it envisioned an organization dedicated to helping the Third World reap the benefits of science and technology.

Two major events in 1987 demonstrate that the parliamentarians' expectations of the Centre were well founded. Each in its own way highlights how developing countries achieve control over technologies central to the daily lives of their people.

On 28 January, during a visit to Zimbabwe, Canadian Prime Minister Brian Mulroney signed an agreement for the installation of 40 grain mills built around a dehuller (a device for removing grain husks) designed for cereals grown in tropical countries. A few days before that, on 22 January, the President of the Philippines, Corazon Aquino, inaugurated the first of a series of water pumps to be installed in her country. Both events marked the practical application of the results of IDRC-supported research and training programs.

A number of shared characteristics make these two events exceptional. To begin with, both devices are improving the lot of the most underprivileged people of the Third World, particularly rural women. The dehuller helps to liberate them from the exhausting work of pounding grain; the handpump relieves them of much of the drudgery of fetching water from far distant places. In the past, many a head of state has handed out such equipment with great fanfare. It is, however, another shared characteristic — a novel one — that has won for these particular technologies the support of Canada's and the Philippines' most senior politicians: the design, manufacture, and maintenance of the equipment are now entirely in the hands of developing countries. Indeed, in both Zimbabwe and the Philippines, the endorsement of the two political leaders formalized the Third World's control of tropical cereal dehulling technology and handpump technology for potable water. Such progress is possible only if local skills are developed — a policy to which IDRC gives priority.

IDRC's many contacts with the brightest minds in the Third World and with the best specialists in international development enable it to respond to certain urgent requests. Last year, when Ugandan President Yoweri Museveni needed objective advice on the various economic options open to his country, he turned to IDRC. The Centre rapidly pulled together a group of respected economists — Ugandans included — who put before him all the possible choices and their likely consequences. The two-volume report later served as the basis for Uganda's negotiations with the International Monetary Fund and the World Bank. The talks concluded satisfactorily for Uganda, whose faith in its future is beginning to be restored.

The Ugandan study was an "emergency operation." But even in the normal course of its work, IDRC systematically informs decision-makers of the

results of Centre-supported research. This is especially true of the highly interesting results obtained in numerous macroeconomic studies that have been undertaken, mainly in Latin America.

From macroeconomic strategies, to water pumps, to dehullers, the products of IDRC's activities are just as interesting to presidents as to the poor.

If IDRC has been able to support successful initiatives — ones that have led to new economic strategies and technological "takeovers" by developing countries — it is because the parliamentarians who founded and supported the Centre gave it a large measure of independence from political authority. In this respect, IDRC is an entirely original Canadian contribution to international development. Its employees are not civil servants and its guiding authority is a Board of Governors whose members are recruited worldwide. In 1970, the Canadian Parliament clearly and unequivocally granted the new organization all the freedom necessary to identify the most pressing needs of the people of the Third World, as well as the time and means to encourage the discovery of long-term solutions.

It is not by chance that the technologies officially launched in Zimbabwe by Prime Minister Mulroney and in the Philippines by President Aquino were adapted, modified, and manufactured in Africa and Asia.

For several years now and in several countries, financial support from IDRC and the advice of its experts have enabled a host of Third World engineers and technicians to acquire new expertise and to adopt technologies to become their own. At the same time, a whole new way of integrating technologies into communities has emerged. Today, not only do the design and manufacturing capabilities exist locally, but the installation and maintenance of the equipment are completely in the hands of the local population. Thus, through the programs it supports, IDRC is finally helping to create a new technological dynamic, originating with the peoples of the Third World and serving them.

In other areas, too, IDRC has succeeded with long-term research projects because it continues to believe that the real answers to development problems will come from those directly affected and that, in any case, the only solutions that can be successfully applied are those developed by the people themselves. IDRC has played a leading role in developing mechanisms to ensure that the voice of people of the Third World is heard. The Centre's strength lies in the dynamism of its six regional offices and in the competence and enthusiasm of its specialists, most of whom are constantly out in the field in direct contact with the innovators and decision-makers of the developing countries. The projects cover the broadest spectrum of innovative activities conceived and executed by the beneficiaries themselves. This approach not only contributes to the training of local specialists but also greatly helps to win acceptance of research results and to promote their application. The importance that IDRC attaches to transmitting results to users also leads it to collaborate with other agencies such as the Canadian International Development Agency, which, among others, was its partner in the study conducted for the Ugandan government and will finance the distribution and absorption of dehuller technology in Zimbabwe.

Over the years, IDRC has come to understand that it must pay more attention to communities as whole entities. For this reason, its specialists are



cooperating ever more closely and systematically among themselves. Given the growing body of research results, a new concern with the application of results is taking the form of increased efforts to involve the potential users from the beginning of the process to its conclusion. Interdisciplinary cooperation and the participation of the intended beneficiaries considerably increase the load on the Centre's scientific and administrative personnel, but that is the price of supporting research resolutely oriented to development. IDRC intends to bolster its interdisciplinary efforts, to include the intended beneficiaries of research in the actual research process, and to disseminate research results to users. It has no intention, however, of changing its essential character, which is, above all, to be responsive to the needs and initiatives of the most underprivileged peoples of the world. The Centre accepts that its successes, past and future, depend entirely on actions undertaken by the developing countries themselves.

IDRC is an original instrument offered by Canada to the most enterprising minds of the Third World. In its 17 years of operation, a great many people have learned how to benefit from it. With the growth of Third World scientific and technical skill, and at a time when problems have reached unprecedented levels of complexity, IDRC is more than ever an indispensable tool for solving the problems of the developing world — difficulties that affect all the inhabitants of our planet.

## Divisional summaries

### Agriculture, Food and Nutrition Sciences Division 97 projects, \$23.0 million

Despite current surpluses of food in many developed and even some developing countries, hundreds of millions of people remain malnourished. Modern agricultural technologies, especially input-responsive plant varieties grown with the necessary fertilizers and pesticides, have resulted in dramatic increases in food production in many countries. However, a large number of small-scale farmers do not have access to these technologies; they simply cannot afford the inputs. Many millions more are either landless or have meagre land holdings and cannot produce enough for their families' needs.

The research activities supported by the Agriculture, Food and Nutrition Sciences Division (AFNS) are targeted on the central issue of rural poverty, of which the important task of increasing food production on small farms is but one aspect. Enhancing opportunities for rural employment, developing productive activities for the landless, growing cash crops, and promoting equity (between the sexes, for example) are being given increased prominence by the Division's five programs: agricultural economics, crops and animal production systems, fisheries, forestry, and postproduction systems.

During 1986–1987, the major achievement of the *agricultural economics* program has been the integration of the social sciences into several research activities that generate technology. During the year, 52 social scientists started new multidisciplinary research work on technology generation with biological and physical scientists. The program also took on responsibility for administering two regional research networks, each including three other IDRC divisions as well as other donors. Covering 22 countries, these networks foster multidisciplinary research within each country and provide a forum for reporting and commenting on the results. Over 30 natural scientists, members of the networks, were given short courses in economics and realized the contribution that economics can make in their work.

In addition, the agricultural economics program supported 15 social scientists to start projects that should lead to joint projects with natural scientists. Five projects designed to introduce new technologies, plus four projects focusing on marketing, were started. During the year, it has become evident that marketing will be the key element in technology introduction. To this end, agricultural economics staff are collaborating more closely with their colleagues in other IDRC programs and in recipient institutions. Also, a number of the projects approved by the agricultural economics program included both technology generation and technology introduction to encourage researchers to take a more global approach.

Farming systems research projects in West Africa provide a good illustration of how the *crops and animal production systems* program is

making sure research is focused on the real needs of the rural population. In Mali, a project that has been running since 1979 was renewed in 1986–1987 for a further 3 years. The early years saw success in the identification of certain practices — such as the use of manure or fertilizers — that can result in dramatic production increases. To adopt the new technology, however, farmers needed access to credit to purchase the necessary inputs. Thus, it appears that an effective strategy for increasing crop production, and hence small-farm incomes, might be to provide credit for fertilizer purchases. The new phase of the project will test this hypothesis, as well as other innovations, over a wider cross section of villages in Mali.

In another farming systems project in West Africa, social scientists and biologists at the International Institute of Tropical Agriculture (IITA) in Nigeria have been working with farmers in villages that represent three major agroecological zones: savanna, forest-savanna, and forest. One example of the technologies being tested is alley-cropping, in which crops are grown between rows of leguminous shrubs. The shrubs are pruned regularly and the cuttings are either fed to animals or used as a mulch that can maintain reasonable soil fertility under continuous cropping without any additional input of costly chemical nitrogen fertilizers. The project, which was renewed in 1986–1987 for a second phase, now involves farmers to see whether the results are replicable under their conditions and meet their needs. The second phase will also put greater emphasis on training junior African scientists. Farming systems research projects similar to those in Mali and Nigeria are supported by national governments, IDRC, and other donor agencies in many West African countries. In an attempt to link and coordinate these various efforts, a group of scientists and donors got together and established the West African Farming Systems Research Network (WAFSRN).

Both projects described above, as well as WAFSRN, represent cooperative efforts within IDRC; they have all received joint support from the agricultural economics program and the crops and animal production systems program.

One project of particular significance for very small-scale farmers and the landless concerns research on bees in Malaysia. This highly successful project was renewed for a second phase in 1986–1987. At least 400 people took up beekeeping either full- or part-time, and the Universiti Pertanian Malaysia, the recipient of the IDRC grant, has received more than 5000 requests for its beekeeping bulletins produced as a result of the project.

Other new projects supported in 1986–1987 that are significant for the rural landless or farmers with very small land holdings include research on the nutrition and management of ducks in Indonesia and of sheep and goats in India.

A new initiative in 1986–1987 — one likely to be followed by similar projects elsewhere over the next few years — is the support of research on fish culture in rice paddies in Thailand. Raising fish in this way is an age-old practice, and one that appears to be on the increase in many areas. Not only does producing fish in rice fields help to provide an extra source of protein and income, but there is evidence that rice yields can also be improved. This and similar projects in the planning stages are being jointly supported by the fisheries program and the crops and animal production systems program of AFNS.

In 1986–1987, two projects on the biological control of pests were renewed: one in eastern Africa on the biological control of cassava pests and the other in India on the control of locusts and grasshoppers using an infectious protozoan, *Nosema* sp. Both projects aim to reduce the need for chemical insecticides. A new project was also started in China on the control of aphids using a predatory gall midge.

The role of legumes in reducing the need for nitrogen fertilizers is well known. Several grain legume projects were renewed during 1986–1987, including ones in Burundi, China, Kenya, and Sri Lanka. A new initiative on soybeans in Pakistan was also supported. This crop not only has the advantage of being a legume but also has great potential in helping to alleviate the severe shortage of vegetable oil in the country. A cooperative project between the International Center for Agricultural Research in the Dry Areas (ICARDA) and the University of Manitoba was renewed for a second phase to continue research on improving the production, distribution, and application of nitrogen-fixing bacteria for use by small-scale chickpea producers in West Asia and North Africa. Another initiative on nitrogen fixation is a collaborative project between the International Livestock Centre for Africa (ILCA) and the University of British Columbia on the identification and production of effective bacterial strains for inoculating fodder legumes. This project aims to produce inocula for testing on clover species in the highlands of Ethiopia.

Although nitrogen deficiencies can be alleviated in some farming systems through greater use of legumes, a different approach is needed in the case of phosphorus, another important element widely deficient in tropical and subtropical soils. Phosphorus is of particular significance in dryer regions, where it is frequently the major limiting nutrient. Research supported by IDRC has concentrated mainly on the use of local rock phosphate sources that, if effectively utilized, could help to reduce the cost of phosphate to farmers, stimulate local phosphate industries, and reduce foreign-exchange expenditures on imported fertilizers. Research supported by the program is concentrated in two regions: West Africa and Latin America. In West Africa, the grant to the International Fertilizer Development Center (IFDC) was renewed in 1986–1987 for continued support of the fertilizer network.

In 1986–1987, the *fisheries* program continued to be broadly divided into two subprograms: aquaculture and mariculture, and artisanal fisheries. Most new projects approved were in the aquaculture subprogram as this is a high-growth sector of great interest to many institutions in developing countries. Most new projects are part of IDRC-funded networks that are conducting research on topics previously defined by regional scientists as regional priorities.

In Latin America, a regional aquaculture network with a coordinator based at the Fondo Colombiano de Investigaciones Científicas y Proyectos Especiales Francisco José de Caldas (COLCIENCIAS) in Bogotá, Colombia, was recently established to link the series of aquaculture projects now funded by IDRC. One of the network projects approved deals with Amazonian species of the genus *Colossoma*. Earlier work has generated life-cycle information and has helped to establish methods of induced spawning, feeding, and pond culture of this fish. These baseline data are crucial to the development of an

aquaculture technology that will now be further refined and field-tested with selected farmers in a second phase. Another interesting aspect of this project is its close association with a related institutional development project funded by the Canadian International Development Agency (CIDA), in Pirassununga, near São Paulo, Brazil.

In Africa, the fisheries program approved an aquaculture research project in Côte d'Ivoire to investigate a traditional fish-attraction system called *acadjas* or "brush parks." Piles of branches are tied together and placed in the shallow lagoons typical of this coastal area of West Africa. A variety of fish food organisms grow there or are themselves attracted to these shelters. The objectives of the project are to understand and optimize this process. As this is an age-old practice of the local fishermen, new improvements are expected to be adopted rapidly.

Under the aquaculture subprogram, three projects at the National Inland Fisheries Institute (NIFI) in Thailand will focus on nutrition, genetics, and diseases of the principal freshwater and brackish-water species cultured in Thailand and neighbouring countries. Earlier, IDRC-funded workshops associated with Asian fisheries networks had highlighted these three aspects of aquaculture as the principal constraints to increased production on fish farms.

The forestry program continued to support social forestry designed to meet the needs of village communities and small landowners. Research into improving the supply of firewood in the countryside and the cities and integrating trees into crop and livestock systems remains a priority. The purpose is to find simple methods that rural communities can easily apply themselves.

Afforestation research is necessarily long term, but the program's long-term support is beginning to produce tangible benefits. In many projects in Africa, Asia, and Latin America, the identification of suitable tree species and techniques to grow them has reached the pilot-scale demonstration stage. The program goes even further with projects to develop efficient small-scale energy systems and wood gasification units suitable for village use.

The integration of trees into crop and pastoral systems remains one of the forestry program's top priorities. More and more, the emphasis is on working with small-scale farmers at an early stage in the research. A newly approved project will investigate incorporating fruit trees into farming systems in the Amazon basin: fruit trees can represent a new and early income to the small-scale farmers in the region. The development of systems for introducing multipurpose trees into pastoral systems has also received considerable support over the years. The results are now being applied in West Africa where management "modules" are being applied and tested by the pastoral community.

As a support to these activities, the forest management subprogram continues to fund research into the genetic improvement of trees. New techniques in tissue culture are helping to accelerate work in this field. The development of microbiological techniques to improve tree growth on infertile sites and to avoid the use of costly fertilizers is also being supported. Two regional seed centres, established with IDRC funding in southern and western Africa, are now fully operational. They provide the countries of both regions with a valuable service by supplying tree seed of a wide range of species. They also serve as training bases for workers in this field. Research into

bamboo and rattan has also been further extended into a 15-project network, which includes the first such IDRC-supported project in Africa.

The fourth forestry subprogram relates to the use of forest products. In this area, a notable breakthrough has been achieved by a project in Chile, where techniques developed for the production of tannins (substances used in tanning leather) from residue pine bark are being adopted by local small-scale industries. In Latin America, small sawmills are still faced with a problem of cost and energy supply for drying timber. In an interesting new project, research into developing a small, low-cost solar timber dryer is being funded. The probability of application of the results is high because the research responds to the expressed needs of the potential beneficiaries.

The *postproduction* systems program focused on achieving individual access to more and better food by low-income rural and urban consumers. The program is broadly divided into three subprograms: food processing, utilization, and nutrition; food handling, storage, and drying; and equipment design, adaptation, and testing. These involve, respectively: transformation and preparation of basic food commodities into more acceptable, usable, and nutritious forms; primary stabilization, preservation, and distribution of food commodities over space and time; and appropriate hardware and its application to specific problems related to the first two categories.

Dehulling technology has been an important activity of the postproduction systems program from its inception. The objective is to relieve millions of African and Asian women and children from the time-consuming task of pounding crops such as sorghum by hand. The focus of this activity is now shifting to utilization and application of results from earlier experiences. A highlight has been the approval in 1987 by CIDA of a \$3.9 million project in Zimbabwe that will establish 40 mills in rural communal and periurban areas as well as create local manufacturing and servicing capability. This project evolved from IDRC-supported research in Zimbabwe in which dehulling technology was tested and adapted to local requirements. Other projects initiated involve dehuller introduction and testing in Zambia and the use of dehullers in small-scale rural food enterprises to be run by women in India.

Adequate nutrition is closely related to the availability and distribution of high-quality food as well as to adequate income for food purchases. Perishable crops such as fruits, vegetables, and root crops are important in rural areas for both local consumption and for sale. Improved handling, to maintain quality and reduce losses, is one aspect of projects on rural fruit and vegetable processing initiated in Colombia and Sri Lanka. In the Philippines, a project on root crop utilization and, in Nigeria, a similar one on processing and utilization of soybeans have begun. In India, a study has been approved to examine the role that street foods play in the nutritional status of very poor people and in their overall access to food.

In many developing countries, edible oils are in short supply even where production of oilseed crops is common. One of the bottlenecks is the lack of efficient small- to medium-scale oil-extraction equipment and methods. Projects in India and Pakistan have started delving into this problem to develop and test technologies appropriate for relatively small-scale rural enterprises. Eventually, the results should be applicable in parts of Africa as well.

## Social Sciences

### 90 projects, \$11.2 million

The Social Sciences Division supports many Third World scientists involved in economics, education, population, science and technology policies, energy policies, and urban policy issues. The Division makes special efforts to break the isolation of individual scientists in developing countries by promoting contacts and exchanges through networks.

In 1986–1987, the *economics and rural development* program has continued its efforts to link researchers with common interests through international networks. Researchers in East Africa are looking at short-term economic management and at the use of innovative institutional arrangements, such as contract farming, to provide small-scale farmers with services and markets. A Latin American network of researchers is looking at the problems that small-scale farmers experience in marketing potatoes, a project that complements work on potato production supported by the Agriculture, Food and Nutrition Sciences Division. Individual projects have also made important contributions, for example, by studying the effects of changes in exchange rate on inflation in Peru or the role of handicrafts as a source of employment and income in Kenya and Malawi.

The *education* program activities in eastern and southern Africa aimed particularly at enhancing the research capacity of institutions and researchers: for example, efforts in Kenya, Tanzania, and Uganda enabled closer collaboration between junior and senior researchers, and facilitated networking among eight countries in the region. In West Africa, a few large studies in education strengthened institutions with potential to become national or regional research centres, as well as encouraging research in the new area of implementing educational reforms.

In South, Southeast, and East Asia, social equity, educational quality, and popular participation were emphasized. Three informal networks exploring social equity issues began or were consolidated. Projects were initiated that examined problems of teacher training and the relation between skills acquired in school and the demands of the workplace. In India and the Philippines, research will focus on popular participation in education decision-making.

In Latin America, clusters of activities on preschool education, education for indigenous populations, education and work, and the relationship between education systems and society were supported: at the same time, attempts continued to encourage informal networks of researchers and practitioners.

During last fiscal year, the *population* program explored a number of new themes including the social science aspects of drought and its impact on population movement. Several researchers in East and West Africa received support to prepare papers on the state of research in this area and to identify gaps and potential researchers who are interested. Drought displaces people to neighbouring countries as well as internally in their home countries. In Asia and Africa, the Division conducted several workshops on the issue of refugee resettlement from which two closely related regional research networks are expected to develop.

Considerable assistance was provided to China, where population concerns are considered the country's foremost priority. Last year, the preliminary results of an in-depth survey of fertility were released with IDRC's

role in this important study receiving widespread attention. Also, the results of two research networks on the impact of development projects on demographic behaviour, especially on fertility and mortality, were finalized for publication by the Centre. Consisting of studies from Africa, Asia, and Latin America, this book promises to have widespread readership. It marks, at least for the foreseeable future, the culmination of the Centre's efforts on this subject.

Throughout its East and West African networks, the *science and technology policy* program continued to focus on the strengthening of local research capacity in Africa. The impact of the East African network, now in its second phase, can be seen not only in the number of studies it has supported, but also in their growing contribution to the development of national policies. The West African network, although at a more preliminary phase, shows similar promise.

A number of important projects in Latin America were completed, and international research dissemination seminars were held, with government decision-makers participating actively in the ensuing policy debate. In Peru and Uruguay, these seminars represented important inputs of social science research to national policies. Also, a series of projects concerned with research on harnessing science and technology resources to promote the diversification of natural resource-based production, the reduction of production costs, and the downstream processing of raw materials was developed in the region.

Finally, jointly with the earth sciences program of the Cooperative Programs Division, the Division has developed a network of projects to evaluate the scientific, technological, and organizational capabilities required for volcanic hazard management in the countries in the Andean region.

The *energy policy* program continued to support research in the possibilities of promoting energy security through fuel substitution, use of indigenous energy sources, and the more efficient use of existing energy. Support was also given to assessing the distributional effects of energy investments, prices, and subsidies. Energy technology assessment, including comparative evaluation, technology choice, and diffusion, also continued to be a major focus.

An important project investigating the range of energy problems and priorities for developing countries was completed last year. The work of the Energy Research Group, a group of experts from developing countries, was supported jointly with the United Nations University. The final report has been widely distributed and is receiving due attention and favourable reaction. The recommendations from this research are being taken into account in the program of work in energy policy. The most important follow-up activity to emerge is a research training network on critical energy issues in eastern Africa, to be supported jointly with the Swedish Agency for Research Cooperation with Developing Countries.

Lastly, the *urban policy* program has continued to support policy-oriented urban research related to informal sector enterprises, management of urban growth and urban services, and access to basic needs by the poor. One of the projects supported included an assessment of government policies and programs to encourage the growth of rural towns in China, involving a collaborative network of eight leading Chinese research institutions. In Latin America, the Division funded a network of projects involving the participation



of researchers from all parts of Latin America: the network should generate a consolidated set of policy proposals on how governments and international agencies can address the problems of urbanization more effectively within current resource constraints. In India, researchers will examine how city governments can improve their ability to generate increased revenue and improve the administration and management of financial resources for service delivery.

Two important international workshops were held, one on the mobilization of savings in the informal sector of developing countries and the other on the integration of migrants into the urban economy in West and Central Africa.

## **Health Sciences**

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

The Health Sciences Division supports research leading to the development of community-based health-care systems that help to improve the well-being of the rural and periurban poor. The activities of the Division are grouped into five program areas: health-services research, maternal and child health, tropical and infectious diseases, water supply and sanitation, and occupational health and environmental toxicology.

As well as supporting many research projects during 1986–1987, the Division made special efforts to strengthen applied research methods, identify researchable health problems, and train researchers in conducting investigations. Particular attention was paid to developing projects at the community level and with the active participation of the population. Recognizing that technological change alone does not guarantee improvements in health, the Division incorporated health education in many projects to study how behavioural changes could be affected.

The *health-services research* program increased in importance during 1986–1987. The development of methodologies for evaluating various systems of health delivery, research on health-services delivery, and human-resource development were of particular concern. The Division contributed to research on the establishment of a national health-services program in Sri Lanka and on health-research capability in Ethiopia. In Pakistan, it approved a contribution to an evaluation of health status and health services in a rural area.

Evaluation of existing methods of delivering health services is an important aspect of the program. In Malaysia, the development and evaluation of a system for primary health-care delivery for remote areas received support and, in Mexico, a project was funded to develop and test methodologies for the monitoring and evaluation of various primary health-care delivery systems. A new initiative has been an evaluation of a training program for primary health-care workers that will enable them to assess psychosocial problems.

The *maternal and child health* program provided continuing as well as new support for community-based research on the risk factors, etiology, and treatment of acute diarrheal diseases in China, Indonesia, Nigeria, and Sri Lanka. Projects in the Philippines and Thailand are part of a wider strategy to combat childhood diarrhea and improve nutrition by identifying the most effective methods of promoting breastfeeding and, in Sri Lanka, by finding

ways to improve weaning practices. The Division also responded positively to a Kenyan request for training in applied nutrition research and to a Colombian proposal to survey the nutritional status of preschool children with a view to establishing a nutritional surveillance system.

As part of its continued support for contraceptive research, the program funded a project on user satisfaction to ensure the successful introduction of the hormonal implant (NORPLANT®) into family-planning programs. IDRC has been involved in much of the earlier work on the development of the contraceptive and this represents the last stage in the implementation and dissemination of the research results.

Several innovative projects on health promotion were supported by the Division. They included information packages on school children's health practices and attitudes in Kenya and health education programs for preschool children as well as radio minidramas on child health issues in Indonesia.

The *tropical and infectious diseases* program gives priority to the development of effective mechanisms to prevent and control tropical and infectious diseases, particularly those affecting the most vulnerable members of poor communities. Support also continues for research on diseases of the newborn and on sexually transmitted diseases. Leishmaniasis, one of the least studied of the classical tropical diseases, is now receiving particular attention — in Colombia, Kenya, Mexico, and Peru.

Projects on malaria in Tanzania, schistosomiasis in Sierra Leone, and trypanosomiasis in Zambia, with increasing emphasis on the active participation of the community to improve the control of these diseases, are also under way.

In the Philippines, a trial of a Hepatitis B vaccine will compare the cost-effectiveness of immunization programs using a new inexpensive recombinant vaccine with that of programs using the standard plasma-derived vaccine.

Sexually transmitted diseases (STDs) remain a major public-health problem. A second-phase project was approved in Chile to study a country-wide system for the prevention, surveillance, and control of STDs, with particular emphasis on health education and contact tracing. The Division funded its first AIDS project, a 4-year cooperative study in Kenya with the University of Manitoba to determine the importance of perinatal transmission of AIDS and to follow a cohort of children born to infected mothers.

Another second-phase project, on dengue fever in Cuba, was approved, as well as a project in Mexico to study the determinants of dengue transmission. More than 40 dengue researchers had the opportunity to meet during an international workshop on dengue fever in February 1987.

The *water supply and sanitation* program focuses more on social acceptance, economics, hygiene education, and improved management techniques than on the purely technological aspects of water supply and waste reclamation systems.

Because of the success of the handpump projects in Asia, the program is now contributing to the dissemination of the UNIMADE polyvinylchloride (PVC) handpump to other countries: Cameroon, China, Costa Rica, India, and Mali.

Early in 1987, President Corazon Aquino of the Philippines formally inaugurated the Tubigan Program at one of the pump sites of the IDRC-sponsored village handpumps project. The handover ceremony of the IDRC handpumps to the villagers received wide coverage by the local press and television.

A network of projects is also developing inexpensive, relatively simple, and effective bacteriological water-quality tests and a classification scheme for categorizing drinking-water sources according to risk. In many developing countries, where groundwater is inaccessible or seriously contaminated, rainwater can be an important source of drinking water. The program, therefore, sponsored a number of participants to attend the Third International Conference on Rainwater Cistern Systems in Thailand.

Research aimed at understanding and solving the problems of environmental pollution and unsafe working environments, especially for the rural and periurban poor, is the concern of the *occupational health and environmental toxicology* program.

Because pesticide poisoning has been a growing problem for both agricultural workers and workers in the pesticide-manufacturing industry in developing countries, the program funded several projects on this topic in Egypt, Kenya, and the Philippines.

A study of the extent of pesticide poisoning of agricultural workers by organophosphates and carbamates in three geographic regions of Bolivia received support, as did a project in China to study the prevalence of acute pyrethroid poisoning in cotton farmers.

In many developing countries, legislation to ensure a safe working environment is lacking. For control measures to be implemented or for legislation to be enacted, however, the extent of the occupational problem in various industries must be understood. Two studies were funded by the program: one in Egypt to assess the occupational health of workers and existing occupational hazards in small- and medium-sized industries; and one in Kenya to assess the extent of respiratory diseases in workers exposed to coffee dust in coffee-roasting and -grinding factories.

## **Information Sciences**

### **47 projects, \$8.0 million**

The activities supported by the Information Sciences Division during 1986–1987 were consistent with the Division's three principal objectives: to improve systems, services, and tools for managing and using information relevant to development research and change; to build indigenous capacity within developing countries for the effective management and application of information for development; and to foster cooperation and coordination in development research through information-sharing.

In addition, the Division maintained its trend toward supporting applied projects that address specific information problems or needs. These include projects designed to assist developing countries to acquire, manage, adapt, develop, and test appropriate information-handling tools using a variety of technologies and methods. In some cases, the technologies or their use for a specific application are relatively new; in others, it is their adaptation in a

developing-country context to local needs that provides the essential research elements.

One set of recent technological developments in information-storage media has the potential for radically altering the way information is exchanged and delivered. These developments involve the use of optical-disk technologies to store bibliographic references, pictures, and full text in a computer-accessible format. Two projects are being supported involving the analysis of the impact of these technologies on the information-sciences field in general and, in particular, on possible applications within developing countries. One involves the testing and evaluation of CD-ROM (Compact Disk-Read-Only Memory) technology for the delivery of bibliographic references within six IDRC-supported information projects and at the Centre's Library in Ottawa. In the other, a comparative analysis is being carried out of the technological feasibility and market acceptability of using optical-disk technology versus micrographics technology for storing and delivering the information contained in the publications of the Consultative Group on International Agricultural Research.

Another relatively new technology involves computer-based geographic information systems (GIS) that permit the integration of a variety of spatially related data into a database and provide tools for the analysis, manipulation, and display of these data. In a project at a national research centre in Colombia, a microcomputer-based GIS is being used to demonstrate the feasibility and usefulness of this approach to handle data for the Colombian coastal zone. The technology is emerging as an important tool for national and regional planning.

A new approach involving relatively well known data organization techniques and existing microcomputer technology is illustrated by a project designed to bring about the sharing of population data in the Philippines. Data that have been collected in the past by one organization have frequently been inaccessible to other organizations, both for proprietary reasons and because of practical difficulties in distribution. Four institutions are collaborating in adapting existing technology to archive, standardize, and make available on computer tapes and diskettes at least 10 important population-related data sets. Training is being provided to assist in their dissemination, both in the Philippines and throughout the region. This project is sponsored jointly with the Social Sciences and Communications divisions. In fact, several of the information projects approved during 1986-1987 have benefited from substantial cooperation with the Centre's other divisions, sometimes involving joint funding and management. Two other joint projects with the Social Sciences Division, for example, are providing information and research support to the Council for the Development of Economic and Social Research in Africa (CODESRIA) in Dakar, Sénégal, and to a group in Egypt undertaking demographic and labour research.

In the context of adaptation of information technology by a developing country, a small project is enabling a Tunisian institution to develop and test a bilingual (French/Arabic) electronic messaging system. This system is being designed in accordance with international standards on the interconnection of messaging systems and will be accessible by all types of telecommunication systems to facilitate communications within the Tunisian research community.

In some cases, relatively sophisticated techniques can provide information useful for making informed development decisions. However, it may be difficult for smaller developing countries to acquire and even begin to experiment with these technologies. Through the Cooperative Programs Division, support is being provided to researchers in the Dominican Republic to study the land-use changes that occurred in 1973–1985 by using LANDSAT satellite images. By examining changes in development policies and socioeconomic factors over this period, researchers expect to be able to define the trends and the impacts of social policies in relation to physical environmental changes. In this case, remote-sensing technology can provide quantitative data that can be linked to other socioeconomic variables to present a clear picture of the situation.

This project illustrates another trend that has been consolidated during 1986–1987: the exploration of opportunities for supporting nonbibliographic information activities. Included in this broad category were projects to establish a factual data base on arid plants with the Arab Center for the Studies of Arid Zones and Dry Lands in Damascus; to explore audiovisual techniques for disseminating technological information at the rural level with the Botswana Technology Centre; to establish an information system on industrial standards with the African Regional Organization for Standardization; to design a data base on labour markets in Egypt; and to develop a handbook on building legislation in Southeast Asia. Support was also provided for a regional networking application in the Caribbean of the Debt Recording and Management System, a software package that was developed with the Division's support by the Commonwealth Fund for Technical Cooperation.

Finally, in addition to supporting specific information projects, the Division helped continue the expansion of the user community of MINISIS, a powerful software package developed earlier by the Division. Over the year, the number of MINISIS users grew to over 200 with more than 120 of these in developing countries. This represents an increase of 31% in the number of users since the previous year. As a means of assisting with the identification of strategies and options for the future development, dissemination, and support of MINISIS, a major review and analysis of the program was undertaken during the year.

## **Cooperative Programs**

### **21 projects, \$5.6 million<sup>1</sup>**

The Cooperative Programs Division, directly or indirectly, is responsible for a substantial share of IDRC's research grants. For 1986–1987, the Division was allocated \$14.1 million of which about half was shared among IDRC's other divisions and half was applied to fund research projects that were the sole responsibility of the Cooperative Programs Division. Projects run by other divisions are described in the sections on the divisions concerned. This chapter is restricted to a summary of the 21 projects for which Cooperative Programs alone was responsible.

Every cooperative project, regardless of the division responsible for it, must be executed jointly by at least one institution from the Third World and

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<sup>1</sup> An additional 28 projects, with value totaling \$6.7 million are funded through the Cooperative Programs Division but administered by other IDRC divisions.

Canada. It thus falls within IDRC's general mandate — to contribute to the development of Third World science and technology potential — but also encourages Canadian scientists to take a practical interest in the problems of the developing countries.

The Cooperative Programs Division finances a broad range of projects. Many of them, however, are grouped into two important programs: earth sciences and technology for local enterprises. The latter program expanded substantially in 1986–1987 and a third program — building industry, materials, and technologies — was approved by IDRC's Board of Governors.

The creation of the *technology for local enterprises* program responded to a chief concern of IDRC's Governors: the need to maintain employment and create jobs in the developing countries. The purpose of the program is to support research that will contribute to increasing income. Where incomes are too low, the poor cannot take advantage of progress made in other areas such as agriculture.

In 1986–1987, the Division approved funding for, among others, a joint project between the Pakistan Council for Scientific and Industrial Research and the University of Sherbrooke in Canada. If the project is successful, engineers from these participating institutions will make cheaper dyes manufactured from local raw materials available to small-scale Pakistani textile industries. This project is closely related to another project in Pakistan on the modernization of power looms used by hundreds of thousands of cottage industries.

Two further projects are in response to requests from Latin American countries that hope to develop new industries based on local resources. Researchers in the Chemistry Department of the Pontificia Universidad Católica in Santiago, Chile, are working with their colleagues in the Metallurgy Department at Queen's University in Kingston, Ontario, to develop a new method for the production of cuprous oxide, a pigment used in antifouling paints (used on ships' hulls to prevent the growth of algae), in fungicides, and in ceramics. In Ecuador, the Universidad de Cuenca will benefit from the contributions of two Canadian institutions: the Saskatchewan Research Council, and Independent Porcelain, a company in Medicine Hat, Alberta. They will seek to develop the best possible ways of manufacturing porcelain insulators using local raw materials.

Many developing countries have abundant raw materials, but they too have their problems with industrial waste. A group of cooperative projects is concerned with recycling artificial materials. Waste from some industries can be used as raw material by others. In the Philippines, a study of industrial waste will be conducted to find markets for the material. In Jordan, experts from McGill University in Montreal will join their colleagues from the Royal Scientific Society to make polyethylene film used for plastic mulch. The manufacturing method they are planning will also provide for recycling used film — a major pollution problem.

An interesting spinoff from a previous cooperative research project in Jamaica is the subject of a new joint project by the Jamaican Bauxite Institute and the University of Toronto. In the earlier project, materials scientists from the University of the West Indies and McGill University in Canada investigated the properties of red mud, an abundant by-product of bauxite processing, to find a



more ecologically sound method of disposal. Their work led them to the conclusion that the mud, properly dried, could be used as a building material. In the new project, the Jamaicans and Canadians will jointly develop a process for making bricks of red mud. There will be no need to kiln-dry the bricks because drying them in the sun makes them sufficiently hard. This last project demonstrates the Division's commitment to its new *building industry, materials, and technologies* program and IDRC's willingness to promote shelter for millions in the developing countries. This new program will be developed in close collaboration with other IDRC divisions.

From the start, the Division has also made Canada's extensive experience in the *earth sciences* available to developing countries. The numerous projects approved under this program during the past year include an ambitious project for streamlining gold mining in Burundi. Currently, thousands of people seek gold by thoroughly inefficient methods. Much of it is wasted and it is easy for it to find its way onto the black market. In collaboration with a private firm, Métaux précieux (RTC) of St Jerome in Canada, the Ministry of Public Works, Energy and Mines in Burundi will attempt to develop better mining methods and establish a service to support the use of gold by artisans.

IDRC approved another request from the same ministry to develop an artisanal method for making use of local phosphates. If the ore is finely ground and composted with organic waste matter, it can provide an inexpensive source of fertilizer of which there is a serious lack in Burundi and neighbouring countries. Further south, in Malawi, researchers from the universities of Saskatchewan and Malawi hope to find another inexpensive source of the essential fertilizer in the phosphorus-laden sediment of Lake Malawi.

A number of projects in hydrogeology are also supported by the Cooperative Programs Division. One project funded last year will enable scientists from the Université de Dakar in Sénégal and Laval University in Quebec City to develop new schemes to exploit the aquifers that supply the Senegalese capital. Worries that sea water might pollute the aquifers prompted the hydrogeologists to study this question, which is of utmost concern to a country recently affected by drought.

Lastly, the Division has agreed to finance a study of the serious erosion problems in China's Guangdong Province. The Chinese authorities have put in place significant measures to combat erosion, yet that problem continues to worsen. Experts from the Geographical Institute of Canton and the University of Toronto are going to try to find out why.

## **Fellowships and Awards**

### **28 projects, \$2.7 million**

The Fellowships and Awards Division (FAD) is an active partner with the Centre's program divisions in the training and upgrading of the administrators of research institutions, research managers, and researchers themselves. Its various programs are designed to respond to the training needs identified by specialists in the program divisions, both in Ottawa and in the regional offices, and most of the fellowships are granted on the recommendation of staff from the program divisions.

The main objective of the Centre's support for training is to increase the research capacity of Third World research institutions. FAD endeavours to meet

this objective 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, indeed the greater part of the Division's funds is spent on individual training awards, and places greater emphasis on professional upgrading than on basic training. For this upgrading, tenure takes place in centres of excellence located, in order of priority, locally, regionally, in Canada, or in another developed country; however, where training takes place outside their 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.

With the start of 1987-1988, FAD's activities will focus on five new programs: *training for project development*, *training for program development*, *training for institutional development*, *specialized programs*, and *training for careers in development*.

This new program framework recognizes a gradual shift in emphasis that places priority on strengthening indigenous Third World institutions. In this regard, two long-term projects worth particular mention are the Division's continued support for the graduate program in agricultural economics at the Centre ivoirien de recherches économiques et sociales in the Côte d'Ivoire and the master's degree program of the Consortium Graduate School that, although based at the University of the West Indies' campus in Jamaica, serves students from Guyana, Surinam, and the West Indies.

This year, for the first time, the Division offered the *John G. Bene fellowship* in Social Forestry, administered by IDRC but funded from an endowment established by the estate of the late John G. Bene, a former governor of IDRC, and by public subscription. This fellowship will be awarded to a postgraduate student in forestry whose research explores the problems and promise of forestry in economic and social development.

Finally, FAD continues to collaborate with the program divisions on projects related to their support for research. This collaboration may be in the form of joint funding of training projects but FAD also provides the design and coordination of training programs funded by other divisions. For example, the Division is working with the Health Sciences Division to organize a training program to improve health-systems research in Sri Lanka. This program will involve a consortium of Canadian medical schools working through the Canadian Association of Tropical Medicine and International Health.

FAD's award categories in 1986-1987 were Pearson fellowships, program-related awards, project-related awards, and young Canadian researchers' awards.

In addition to the individual awards, listed on page 74, the Centre supported the enrollment of 28 young trainees from developing countries at



the Hague Academy of International Law — 21 for a 3-week training course and 7 for doctoral studies.

The *Pearson fellowships* are named after former Canadian Prime Minister Lester B. Pearson who was Chairman of IDRC's Board of Governors from 1970 until his death in December 1972. They are offered to young public servants from developing countries who have had at least 3 years' working experience in the service of their government. Candidates are nominated through Canadian missions abroad and IDRC's regional offices. Pearson fellows spend 9–12 months in Canada where they pursue a nondegree program made up of academic studies and a practical attachment with a government department. For the first time, last year, all Pearson fellows took part in a special program in public administration designed jointly by the School of Public Administration of Carleton University and the Faculty of Administration of the University of Ottawa. The 15 Pearson fellows for 1986–1987 are listed on page 74.

*Program-related awards* are aimed at increasing the human resource base of Third World research institutions. These awards are intended for researchers as well as administrative and financial personnel. Proposed training programs, generally not exceeding 24 months, must be endorsed by the candidates' institutions and vary from practical attachments to academic studies leading to a degree (graduate studies, preferably at the master's level). Studies may take place in a Third World country or Canada or, under special circumstances, in a developed country other than Canada. Candidates were selected jointly by research program staff and officers of FAD in the regions and in Ottawa. Recipients for 1986–1987 are listed starting on page 74.

IDRC's *project-related awards* are intended for researchers who have been or will be associated with IDRC-supported projects. Training programs vary from short-term courses tailored to the needs of the project to academic studies leading to a degree (graduate studies, preferably at the master's level). As with the program-related awards, studies may take place in a Third World country or Canada or, under special circumstances, in another developed country. The duration of tenure generally does not exceed 24 months. Candidates were jointly selected by research program staff and officers of FAD in the region and in Ottawa. A list of recipients starts on page 76.

*Young Canadian researchers' awards* are primarily designed for doctoral students registered in a Canadian university. The aim of this program is to encourage the students' involvement in scientific areas of concern to IDRC and to give them, at the same time, exposure to problems of Third World countries. At the doctoral level, students in the following fields are eligible to apply: agriculture, food and nutrition sciences, communications, information sciences, health sciences, social sciences, and energy and earth sciences. Candidates at the master's level are restricted to the fields of health sciences, communications/media, journalism, and financial and administrative management. Young Canadian professionals in communications/media and financial or administrative management are also eligible to apply. Study, placement, or research programs take place in Third World countries, for a period of up to 12 months. Award holders, who are listed on page 79, were selected jointly by staff of IDRC's program divisions and FAD.

## **Communications**

### **15 projects, \$0.6 million**

The final project approved by the Communications Division in the fiscal year 1986–1987 is an excellent example of the type of activity that the Division will increasingly support in future. This project will allow the Small Industries Development Organization of Dar es Salaam, Tanzania, to produce a booklet in Swahili on the benefits of using a new sorghum dehuller. The dehuller was adapted to Tanzanian conditions in two earlier projects funded by the Agriculture, Food and Nutrition Sciences Division. Now that the technology has been developed and field-tested, this project will support the promotion of the dehuller design in rural and urban regions of Tanzania.

In Asia, the Division financed two projects to disseminate the results obtained in activities supported by the Health Sciences Division. An Indonesian nongovernmental organization (NGO) will produce 26 radio programs on child-health, hygiene, and family planning; in Malaysia, another NGO will prepare and disseminate leaflets on how to improve sanitary conditions in village communities.

The Departamento de Biología Tecnología del Har at the Pontificia Universidad Católica de Chile is already receiving support from the Agriculture, Food and Nutrition Sciences Division for its research into fish and algae; concurrently, the Communications Division is providing support for the experimental use of video tapes as a tool for the dissemination of new fishing techniques to fishermen via local cooperatives.

At Abidjan in the Côte d'Ivoire, the Centre ivoirien de recherches économiques et sociales receives support from four of IDRC's divisions. The Communications Division is supporting the preparation of pamphlets that will be used to convey the results of 16 studies in agricultural economics to political leaders in several West African countries.

Although the major part of the resources of the Division is now focused on the dissemination of the results of IDRC-supported scientific work, the Division has continued to support several projects that aim to improve scientific publishing and the use of the mass media to disseminate the results obtained by Third World scientists.

The Universiti Kebangsaan Malaysia, the National Research Council of Canada, and the University of Toronto will collaborate in a project to undertake an in-depth study of Malaysian university presses. This project will examine a variety of ways of improving the production, translation, and dissemination of scientific and technical publications in Malaysia and organize several professional development workshops. The Centro Regional para el Fomento del Libro en América Latina y el Caribe in Bogotá, Colombia, will attempt to develop strategies to overcome problems faced by Latin American scholarly publishers and to lay the foundation for the establishment of a Latin American association of scholarly publishers.

Although the Communications Division will no longer support projects to develop the capability of the media to communicate information on science and technology, some projects were approved as the final phase of the Division's involvement in these activities. These included the news bulletins on science and health of the Panafrican News Agency, the science news items published by the Agencia Latinoamericana de Servicios Especiales de

Información, and the science feature service, Depthnews Science, of the Press Foundation of Asia. Thanks, in part, to IDRC support, all of these services contribute to the wider dissemination of research results obtained by developing-country scientists.

The Communications Division, as a part of its program activities, contributes to the dissemination of the results of scientific research in the Third World. Within IDRC, the Division produces a wide range of printed documents and audiovisual materials on scientific and technical topics.

### **Publications**

In 1986–1987, the Division published 53 monographs, proceedings, technical studies, and manuscript reports covering numerous areas of research receiving support from IDRC's other program divisions. These are listed on page 80 together with those publications resulting from Centre-funded research — titles are given in the original language of publication. Catalogues of IDRC's publications are available on request.

### **Magazines**

The Division also administers, on behalf of the Centre, a number of development information services for a variety of audiences both abroad and in Canada. The Centre's quarterly magazine, *The IDRC Reports*, is an important element in these services. The magazine contains articles on research funded by the Centre and on subjects related to its work. The total circulation is 28 000 for the English, French (*Le CRDI Explore*), and Spanish (*El CIID Informa*) versions, with about 60% going to the developing countries, more than 23% within Canada, and the remainder to other industrialized countries. *The IDRC Reports* is published in January, April, July, and October. A special annual edition is published in Arabic.

### **Films**

Last year, the Centre produced one documentary, *Trees of Plenty*, that illustrates how researchers are finding ways for foresters, agronomists, and farmers to work together to save the soil from further deterioration and to maintain its fertility for future generations. Leguminous trees, which fix nitrogen, play a key role in this new agroforestry.

As with all IDRC films, *Trees of Plenty* is available as 16-mm prints or on video cassette (in NTSC, PAL, or SECAM signal systems and in U-matic, VHS, or Betamax formats). A catalogue of IDRC's films is available on request.

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## **FINANCIAL COMMENTARY AND HIGHLIGHTS**

In 1986-1987, the Government of Canada announced a reduction in the planned increase in Official Development Assistance (ODA). The International Development Research Centre grant was set at \$95.0 million instead of the earlier confirmed \$101.0 million. The Centre grant was subsequently supplemented by \$5.0 million from the unallocated ODA reserve. The final grant of \$100.0 million represented 3.9% of the 1986-1987 ODA gross commitment. For the 1987-1988 fiscal year, the grant allocated to the Centre has been kept at the same share level of the total ODA (3.9%) or \$105.9 million.

Throughout 1986-1987, the Centre followed the ongoing restraint program of the Government of Canada by taking various cost-reduction initiatives such as:

- a freeze of the staff complement at the 1985-1986 level and a delay in recruitment to fill vacancies. Although the Centre's person-years do not fall under Treasury Board control, this policy was felt to be appropriate during this period of restraint.
- a comprehensive reassessment of internal management practices and administrative procedures with the aim of enhancing efficiency and effectiveness in the operations.
- a relocation of the head office to new premises and the securing of a lease more advantageous than the renewal offer made by the previous landlord.

### **Revenue**

The Parliamentary grant for 1986-1987, set at \$100.0 million, represents an increase of \$14.0 million over the previous year. Total Centre revenues excluding funds for contract research amounted to \$101.5 million, a 14.5% increment over 1985-1986.

The \$1.0 million of investment and other income during 1986-1987 exceeded the budgeted target of \$0.2 million. The budget had been established at that level based on the original concept proposed by the Treasury Board whereby the Centre would have been operating on the basis of a zero bank balance. A different method was finally chosen. Other income includes \$48,000 of MINISIS licencing fees and \$54,000 for publications income. In addition to the \$924,000 in revenue received for contract research, the Centre also received \$498,000 from the Canadian International Development Agency (CIDA) for a development-research project being executed on its behalf.

### **Development research**

Development research reflects the direct costs of all scientific and technical research projects supported by the Centre in developing countries. It is in essence the "raison d'etre" of the Centre. This category includes support for Centre projects and international research networks as well as projects that are identified, developed, and managed by developing-country researchers.

In 1986-1987, expenditures for development-research activities totaled \$59.4 million or 59.4% of the Centre's total expenditures. Expenditures on existing projects that relate for the most part to development research exceeded the 1985-1986 actual expenditures by 15.9%. However, expenditures on new projects increased by a more moderate 3.8% following cutbacks in new program appropriations.

### Research-related activities

Research-related activities include small projects that lead to the development of research projects and activities relating to information dissemination or application of research results. These activities also include a development-research library, which serves the Canadian development community as well as IDRC staff, and small projects that are supportive of the ongoing programs of the Centre.

In 1986-1987, expenditures for research-related activities totaled \$8.4 million and 8.4% of the Centre's total expenditures.

#### EXPENDITURE (\$ million)

	Budget		Actual							
	1988	% of total	1987	% of total	1986	% of total	1985	% of total	1984	% of total
Development research	\$ 62.4	58.6	\$ 59.4	59.4	\$53.5	59.2	\$48.9	58.1	\$41.5	59.2
Research-related activities	8.4	7.9	8.4	8.4	7.0	7.7	7.7	9.2	6.2	8.9
Technical support	13.9	13.1	12.9	12.9	12.0	13.3	10.7	12.7	8.7	12.4
Regional offices	6.1	5.7	5.4	5.4	5.0	5.6	4.5	5.4	3.5	5.0
<b>Total research and research-related</b>	<b>\$ 90.8</b>	<b>85.3</b>	<b>\$ 86.1</b>	<b>86.1</b>	<b>\$77.5</b>	<b>85.8</b>	<b>\$71.8</b>	<b>85.4</b>	<b>\$59.9</b>	<b>85.5</b>
Division management	5.4	5.1	4.5	4.5	4.2	4.6	4.0	4.7	3.3	4.7
General management	10.2	9.6	9.4	9.4	8.7	9.6	8.3	9.9	6.9	9.8
<b>Total</b>	<b>\$106.4</b>	<b>100.0</b>	<b>\$100.0</b>	<b>100.0</b>	<b>\$90.4</b>	<b>100.0</b>	<b>\$84.1</b>	<b>100.0</b>	<b>\$70.1</b>	<b>100.0</b>

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



## **Technical support**

\* This category of expenditures includes the cost of program personnel, whose role is to develop new projects, monitor ongoing research projects, and provide technical assistance to recipients. Expenditures for technical support in 1986-1987 were \$12.9 million or 12.9% of total Centre expenditures. The decrease in the share of these expenditures from the previous year's 13.3% is the result of a higher than usual proportionate share of project expenditures. The percentage share of technical-support expenditures to total expenditures is expected to drop to 13.1% in 1987-1988, the same level experienced in 1985-1986.

## **Regional offices**

Six regional offices play an important role in facilitating contacts with grant recipients and in enhancing the Centre's ability to respond to Third World issues. These offices are located in Colombia, Egypt, India, Kenya, Sénégal, and Singapore. The total expenditures incurred in 1986-1987 to operate these offices amounted to \$5.4 million, an increment of 9.1% over 1985-1986. This category represents 5.4% of total Centre expenditures for 1986-1987.

For 1987-1988, regional offices expenditures are expected to increase to \$6.1 million, an increase of 13.1% from the previous year. This category's share of total Centre expenditures is set to increase slightly from 5.4% to 5.7% in 1987-1988.

## **Division management**

Division management expenditures totaled \$4.5 million in 1986-1987, a 7.5% increase over 1985-1986. These expenditures amounted to 4.5% of the total Centre expenditures for 1986-1987.

Expenditures for division management are expected to increase by 18.9% in 1987-1988 to approximately \$5.4 million. Most of this increase is due to higher accommodation costs at head office. This category's share of total Centre expenditures will increase to 5.1% from 4.5% the previous year.

## **General management**

To support its overall operations, the Centre requires policy, executive, administrative, and service functions. Within the context of IDRC, such functions are represented by the Board of Governors, the offices of the Executive, Secretary and General Counsel, Comptroller General and Treasurer, and Human Resources.

Administrative expenses amounted to \$9.4 million in 1986-1987, an increase of 7.3% over the previous fiscal year. Most of the increase results from higher accommodation costs. This category's share of total Centre expenditures has decreased from 9.6% to 9.4% in 1986-1987.

It is anticipated that administrative costs will increase by 9.0% in 1987-1988. Most of the increase will result from the larger and more adequate new accommodation. The Centre will continue to maintain its staffing levels for general management at its 1984-1985 level of approximately 155 person-years.



### **Contract research**

IDRC administers 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 disbursement occurs. Donor funds in excess of recorded expenditures are reported as a liability on the Centre's balance sheet. For the 1986-1987 fiscal year, contract-research expenditures totaled \$0.9 million.

### **Equity of Canada**

The equity level as at March 31, 1987 increased to \$2.6 million from \$1.1 million in the previous year. Total revenue for 1986-1987 was \$101.5 million compared to the expected \$101.2 million. The higher investment income was offset by a reduction of \$1.0 million in the Centre's grant. However, total expenditures were \$100.0 million compared to the \$97.2 million budgeted for 1986-1987 mainly as a result of higher than expected expenditures on existing projects.

For 1987-1988, the year-end equity is estimated to reach \$3.6 million, the minimum level approved by the Centre's Board of Governors.

### **Person-years**

For 1986-1987, the Centre's person-years totaled 443.25 compared with the budget of 466.75. Vacancies were incurred primarily in the technical-support area and resulted from delays in filling positions. No increase in the number of person-years at head office is expected in 1987-1988.

### **Centre and Cooperative Programs appropriations**

Total Centre appropriations for 1986-1987 were \$111.5 million compared to \$102.2 million in 1985-1986 and represent a 9.1% increase. The Cooperative Programs' share of total Centre appropriation was 17.8%.

For 1987-1988, total project appropriations are estimated to reach \$84.6 million. The Cooperative Programs' share of total Centre appropriations will be approximately 16.5%.

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

	<b>Budget 1987</b>	<b>Actual 1987</b>	<b>% variance from budget</b>	<b>Actual 1986</b>	<b>1986 vs 1987 (% change)</b>
<b>FINANCIAL ACTIVITY</b>					
<b>Revenue</b>	<b>\$101,200</b>	<b>\$101,476</b>	<b>0.3</b>	<b>\$ 88,610</b>	<b>14.5</b>
Grant from Parliament of Canada	101,000	100,000	(1.0)	86,000	16.3
Investment and other income	200	978	389.0	1,881	(48.0)
Contribution from CIDA	—	498	—	729	(31.7)
<b>Expenditure</b>	<b>\$ 97,200</b>	<b>\$100,044</b>	<b>(2.9)</b>	<b>\$ 90,433</b>	<b>10.6</b>
Existing projects	44,630	48,039	(7.6)	41,432	15.9
New projects	20,600	19,838	3.7	19,103	3.8
Regional and liaison offices	5,380	5,395	(0.3)	4,947	9.1
Technical support	13,050	12,876	1.3	12,012	7.2
Division management	4,390	4,542	(3.5)	4,224	7.5
General management	9,150	9,354	(2.2)	8,715	7.3
<b>Excess of revenue over expenditure (expenditure over revenue)</b>	<b>\$ 4,000</b>	<b>\$ 1,432</b>	<b>64.2</b>	<b>\$ (1,823)</b>	<b>178.6</b>
<b>PROGRAM ACTIVITY</b>					
<b>Appropriations</b>	<b>\$118,270</b>	<b>\$111,517</b>	<b>5.7</b>	<b>\$102,199</b>	<b>9.1</b>
New projects	86,300	79,350	8.1	72,301	9.7
Regional and liaison offices	5,380	5,395	(0.3)	4,947	9.1
Technical support	13,050	12,876	1.3	12,012	7.2
Division management	4,390	4,542	(3.5)	4,224	7.5
General management	9,150	9,354	(2.2)	8,715	7.3
<b>Commitments</b>	<b>\$110,200</b>	<b>\$105,099</b>	<b>4.6</b>	<b>\$95,383</b>	<b>10.2</b>
Projects	78,230	72,932	6.8	65,485	11.4
Regional and liaison offices	5,380	5,395	(0.3)	4,947	9.1
Technical support	13,050	12,876	1.3	12,012	7.2
Division management	4,390	4,542	(3.5)	4,224	7.5
General management	9,150	9,354	(2.2)	8,715	7.3

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

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

	<b>Budget 1988</b>	<b>Actual 1987</b>	<b>Actual 1986</b>	<b>Actual 1985</b>	<b>Actual 1984</b>
<b>RESULTS OF OPERATIONS</b>					
<b>Revenue</b>	<b>\$107,600</b>	<b>\$101,476</b>	<b>\$ 88,610</b>	<b>\$ 84,164</b>	<b>\$70,039</b>
Grant from Parliament of Canada	105,900	100,000	86,000	81,000	67,400
Investment and other income	700	978	1,881	3,164	2,639
Contribution from CIDA	1,000	498	729	—	—
<b>Expenditure</b>	<b>\$106,200</b>	<b>\$100,044</b>	<b>\$ 90,433</b>	<b>\$ 84,508</b>	<b>\$70,174</b>
Development research	62,200	59,457	53,532	49,345	41,499
Research-related activities	8,400	8,420	7,003	7,731	6,175
Research operational support	25,400	22,813	21,183	19,129	15,559
General management	10,200	9,354	8,715	8,303	6,941
<b>Excess of revenue over expenditure (expenditure over revenue)</b>	<b>\$ 1,400</b>	<b>\$ 1,432</b>	<b>\$ (1,823)</b>	<b>\$ (344)</b>	<b>\$ (135)</b>
<b>PROGRAM ACTIVITY</b>					
<b>Appropriations</b>	<b>\$120,200</b>	<b>\$111,517</b>	<b>\$102,199</b>	<b>\$102,778</b>	<b>\$93,498</b>
New projects	84,600	79,350	72,301	75,346	70,998
Regional and liaison offices	6,100	5,395	4,947	4,456	3,478
Technical support	13,900	12,876	12,012	10,676	8,704
Division management	5,400	4,542	4,224	3,997	3,377
General management	10,200	9,354	8,715	8,303	6,941
<b>Commitments</b>	<b>\$113,800</b>	<b>\$105,099</b>	<b>\$ 95,383</b>	<b>\$105,495</b>	<b>\$88,011</b>
Projects	78,200	72,932	65,485	78,063	65,511
Regional and liaison offices	6,100	5,395	4,947	4,456	3,478
Technical support	13,900	12,876	12,012	10,676	8,704
Division management	5,400	4,542	4,224	3,997	3,377
General management	10,200	9,354	8,715	8,303	6,941
<b>Outstanding commitments</b>	<b>\$112,300</b>	<b>\$ 88,343</b>	<b>\$ 88,900</b>	<b>\$ 82,317</b>	<b>\$64,000</b>

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

## PERSON-YEAR LEVELS AND APPROPRIATIONS

	1987-1988		1986-1987		1985-1986	
	Budget	Actual	Budget	Actual	Budget	Actual
<b>Program Divisions</b>	<b>305.50</b>	<b>288.75</b>	<b>308.50</b>	<b>288.75</b>	<b>309.50</b>	<b>284.25</b>
Agriculture, Food and Nutrition Sciences	50.50	50.75	52.00	50.75	52.50	49.50
Health Sciences	35.00	30.75	35.00	30.75	34.00	30.00
Social Sciences	48.00	47.00	49.50	47.00	49.00	46.25
Information Sciences	39.50	36.00	40.00	36.00	38.00	35.00
Project-related staff	39.50	36.75	39.00	36.75	42.00	38.00
Cooperative Programs	18.00	17.50	18.00	17.50	18.00	16.75
Office of Planning and Evaluation	11.00	10.25	11.00	10.25	10.00	9.50
Regional and liaison offices	8.00	8.00	8.00	8.00	10.00	7.50
Fellowships and Awards	12.00	11.25	12.00	11.25	11.00	10.00
Communications	44.00	40.50	44.00	40.50	45.00	41.75
<b>General Management</b>	<b>155.50</b>	<b>151.00</b>	<b>154.75</b>	<b>151.00</b>	<b>154.25</b>	<b>152.00</b>
Executive Office	19.00	19.75	19.00	19.75	19.00	20.00
Office of the Secretary and General Counsel	15.00	17.50	18.75	17.50	19.75	18.25
Office of the Comptroller General and Treasurer	97.00	92.00	93.50	92.00	93.50	92.75
Human Resources	19.50	17.00	18.50	17.00	17.00	16.75
Internal Audit	5.00	4.75	5.00	4.75	5.00	4.25
<b>Secondments</b>	<b>2.00</b>	<b>2.00</b>	<b>2.00</b>	<b>2.00</b>	<b>2.00</b>	<b>2.00</b>
<b>Sabbatical/study leave provision</b>	<b>1.00</b>	<b>1.50</b>	<b>1.50</b>	<b>1.50</b>	<b>1.00</b>	<b>1.00</b>
<b>Total</b>	<b>464</b>	<b>443.25</b>	<b>466.75</b>	<b>443.25</b>	<b>466.75</b>	<b>439.25</b>

## **Responsibility for financial statements**

The financial statements have been prepared by management in accordance with generally accepted accounting principles appropriate in the circumstances. Management also assumes responsibility for all other information in the annual report, which is consistent, where applicable, with that contained in the financial statements. In support of its responsibility, management maintains financial and management control systems and practices to provide reasonable assurance as to the reliability of financial information, and that the assets are safeguarded and the operations are carried out effectively. The Centre has an internal audit department whose functions include reviewing internal controls and their application on an ongoing basis.

The Board of Governors is responsible for ensuring that management fulfills its responsibilities for financial reporting and internal control. The Board exercises its responsibilities through the Finance and Audit Committee whose members are not employees of the Centre. The Committee meets with management, the internal auditors, and the external auditors on a regular basis.

The Auditor General of Canada conducts an independent examination in accordance with generally accepted auditing standards and expresses his opinion on the financial statements. His examination includes a review and evaluation of the Centre's system of internal control and appropriate tests and procedures to enable him to report whether the financial statements are presented fairly. The external auditors have full and free access to the Finance and Audit Committee of the Board.



AUDITOR GENERAL OF CANADA

VÉRIFICATEUR GÉNÉRAL DU CANADA

AUDITOR'S REPORT

To the International Development Research Centre  
and the  
Secretary of State for External Affairs

I have examined the balance sheet of the International Development Research Centre as at March 31, 1987 and the statements of operations, equity of Canada 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, 1987 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.

Kenneth M. Dye, F.C.A.  
Auditor General of Canada

Ottawa, Canada  
June 11, 1987

# INTERNATIONAL DEVELOPMENT RESEARCH CENTRE

## BALANCE SHEET as at March 31, 1987

	1987	1986
<b>ASSETS</b>		
<b>Current</b>		
Cash and short-term deposits (Note 3)	\$ 9,181,248	\$11,925,534
Accounts receivable	555,699	461,015
Prepaid expenses	700,665	745,523
	<u>10,437,612</u>	<u>13,132,072</u>
Recoverable deposits	444,754	455,909
Property and equipment (Note 4)	3,310,258	3,108,716
John Bene Endowment Fund (Note 5)	138,465	—
	<u><u>\$14,331,089</u></u>	<u><u>\$16,696,697</u></u>
<b>LIABILITIES</b>		
<b>Current</b>		
Accounts payable and accrued liabilities (Note 6)	\$ 7,974,540	\$ 8,446,521
Due to Government of Canada (Note 7)	—	4,000,000
Funds provided for contract research	691,597	450,027
Deferred revenue (Note 8)	224,092	241,110
	<u>8,890,229</u>	<u>13,137,658</u>
<b>Long-term</b>		
Accrued employee separation benefits	2,477,240	2,436,272
Deferred rent - Head Office (Note 9)	270,229	—
	<u>2,747,469</u>	<u>2,436,272</u>
	<u>11,637,698</u>	<u>15,573,930</u>
John Bene Endowment Fund (Note 5)	138,465	—
	<u>11,776,163</u>	<u>15,573,930</u>
<b>EQUITY</b>		
<b>Equity of Canada</b>	2,554,926	1,122,767
	<u><u>\$14,331,089</u></u>	<u><u>\$16,696,697</u></u>

Approved:

  
Vice-President, Resources

  
President

**INTERNATIONAL DEVELOPMENT RESEARCH CENTRE**

**STATEMENT OF OPERATIONS  
for the year ended March 31, 1987**

	1987	1986
<b>EXPENDITURE</b>		
<b>Development research</b>		
Project grants	\$52,498,074	\$47,057,173
Centre projects	6,959,083	6,474,598
	<u>59,457,157</u>	<u>53,531,771</u>
<b>Research-related activities</b>		
Project development and support	4,893,498	3,794,838
Information dissemination	2,131,104	1,925,219
Development-research library	1,396,237	1,283,138
	<u>8,420,839</u>	<u>7,003,195</u>
<b>Research operational support</b>		
Technical support	12,876,019	12,012,502
Regional and liaison offices	5,394,586	4,946,549
Division management	4,541,789	4,223,966
	<u>22,812,394</u>	<u>21,183,017</u>
<b>Contract research</b>	<u>924,410</u>	<u>1,053,126</u>
<b>Total research and support expenditure (Schedule 1)</b>	<u>91,614,800</u>	<u>82,771,109</u>
<b>General management expenditure (Schedule 2)</b>	<u>9,353,755</u>	<u>8,714,899</u>
	<u>100,968,555</u>	<u>91,486,008</u>
<b>REVENUE</b>		
Grant from Parliament of Canada	100,000,000	86,000,000
Investment and other income	977,911	1,880,968
Contract research	924,410	1,053,126
CIDA contribution (Note 8)	498,393	728,890
	<u>102,400,714</u>	<u>89,662,984</u>
<b>EXCESS OF REVENUE OVER EXPENDITURE (EXPENDITURE OVER REVENUE)</b>	<u>\$ 1,432,159</u>	<u>\$(1,823,024)</u>



INTERNATIONAL DEVELOPMENT RESEARCH CENTRE

STATEMENT OF EQUITY OF CANADA  
for the year ended March 31, 1987

	1987	1986
BALANCE AT THE BEGINNING OF THE YEAR	\$1,122,767	\$10,945,791
Reimbursement of equity to Government of Canada (Note 7)	—	(8,000,000)
Excess of revenue over expenditure (expenditure over revenue)	1,432,159	(1,823,024)
BALANCE AT THE END OF THE YEAR	<u>\$2,554,926</u>	<u>\$1,122,767</u>

**INTERNATIONAL DEVELOPMENT RESEARCH CENTRE**

**STATEMENT OF CHANGES IN FINANCIAL POSITION  
for the year ended March 31, 1987**

	1987	1986
<b>OPERATING ACTIVITIES</b>		
Cash provided by (used for) operations		
Excess of revenue over expenditure (expenditure over revenue)	\$ 1,432,159	\$(1,823,024)
Items not affecting funds		
Depreciation and amortization	1,095,018	1,035,657
Provision for employee separation benefits	357,568	500,722
Loss (gain) on disposal of property and equipment	11,502	(4,042)
	<u>2,896,247</u>	<u>(290,687)</u>
Accounts receivable	(94,684)	(16,429)
Prepaid expenses	44,858	82,296
Recoverable deposits	11,155	(20,580)
Accounts payable and accrued liabilities	(471,981)	1,910,443
Deferred revenue	(17,018)	241,110
Payment of employee separation benefits	(316,600)	(264,234)
Contract research	241,570	181,927
Deferred rent	270,229	—
	<u>2,563,776</u>	<u>1,823,846</u>
<b>FINANCING ACTIVITIES</b>		
Reduction of equity	—	(8,000,000)
Due to Government of Canada	(4,000,000)	4,000,000
Reduction of obligation under capital lease	—	(345,234)
	<u>(4,000,000)</u>	<u>(4,345,234)</u>
<b>INVESTING ACTIVITIES</b>		
Additions to property and equipment	(1,354,825)	(835,100)
Proceeds on disposal of property and equipment	46,763	45,380
	<u>(1,308,062)</u>	<u>(789,720)</u>
<b>DECREASE IN FUNDS</b>	<u>(2,744,286)</u>	<u>(3,311,108)</u>
<b>CASH AND SHORT-TERM DEPOSITS, BEGINNING OF YEAR</b>	<b>11,925,534</b>	<b>15,236,642</b>
<b>CASH AND SHORT-TERM DEPOSITS, END OF YEAR</b>	<u><u>\$ 9,181,248</u></u>	<u><u>\$11,925,534</u></u>

## INTERNATIONAL DEVELOPMENT RESEARCH CENTRE

### NOTES TO FINANCIAL STATEMENTS as at March 31, 1987

#### 1. Authority and objective

The International Development Research Centre, 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 60 and 70 for the years ended March 31, 1987 and 1986 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 recorded at cost and depreciated over their estimated useful lives. Leasehold improvements are amortized over the terms of the respective leases. The methods and rates used to provide for the depreciation and amortization of property and equipment are:

	Method	Rate (%)
Computer hardware	Straight line	20
Leasehold improvements	Straight line	9 — 50
Office furniture and equipment	Diminishing balance	20
Vehicles	Diminishing balance	30
Telephone system	Straight line	20

##### Expenditure

Expenditure is recorded on an accrual basis except for contract research expenditure, which is charged to operations when disbursed.

##### Recognition of revenue

Revenue in respect of contract research and of the contribution from the Canadian International Development Agency (CIDA) is recognized at the time that the related project expenditure is incurred. Contract research and CIDA contribution funds received in excess of expenditure are included 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. Nonmonetary 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 year.

### 3. Cash and short-term deposits

	1987	1986
Cash (bank overdraft)	\$ (2,062)	\$ 462,316
Short-term deposits		
Canadian chartered banks	6,904,367	3,065,992
Governments and governmental enterprises	1,288,643	1,279,354
Commercial enterprises	990,300	1,688,132
Trust and mortgage companies	—	5,429,740
	<u>9,183,310</u>	<u>11,463,218</u>
	<u>\$9,181,248</u>	<u>\$11,925,534</u>

### 4. Property and equipment

	1987		1986	
	Cost	Accumulated depreciation and amortization	Net	Net
Computer hardware	\$2,695,035	\$1,171,571	\$1,523,464	\$1,204,720
Leasehold improvements	327,587	180,585	147,002	466,947
Office furniture and equipment	1,841,814	989,016	852,798	742,075
Vehicles	936,657	434,572	502,085	385,848
Telephone system	565,308	280,399	284,909	309,126
	<u>\$6,366,401</u>	<u>\$3,056,143</u>	<u>\$3,310,258</u>	<u>\$3,108,716</u>

Depreciation and amortization for the year ended March 31, 1987 amounted to \$1,095,018 (\$1,035,657 for 1986).

### 5. John Bene Endowment Fund

The estate of the late John Bene has established an endowment fund to be administered by the Centre, that provides a postgraduate fellowship in the field of social forestry.

Initial amount	\$ 50,000
Other donations received	81,059
	<hr/>
Amount invested in short-term deposits	131,059
Cash and accrued interest income	7,406
	<hr/>
Balance at the end of the year	<b>\$138,465</b>
	<hr/>

#### 6. Accounts payable and accrued liabilities

	1987	1986
Accrued liabilities - projects	\$4,198,635	\$4,765,749
Accrued annual and other leave benefits	1,235,921	1,302,879
Other	2,539,984	2,377,893
	<hr/>	<hr/>
	<b>\$7,974,540</b>	<b>\$8,446,521</b>
	<hr/>	<hr/>

#### 7. Due to Government of Canada

The Budget Papers tabled in the House of Commons by the Minister of Finance on May 23, 1985 provided for the recovery of \$15,000,000 from the Centre in 1985-1986. The Centre negotiated the remittance of \$8,000,000: \$4,000,000 in fiscal year 1985-1986 and \$4,000,000 in April 1986.

#### 8. Contribution from the Canadian International Development Agency

On March 29, 1985, the Centre executed an agreement in respect of a contribution of up to \$4,764,690 to be provided by CIDA for a development-research project.

	1987	1986
Contribution received during the year	\$521,375	\$1,000,000
Project expenditure	498,393	728,890
Administration charge by the Centre	40,000	30,000
	<hr/>	<hr/>
	538,393	758,890
	<hr/>	<hr/>
Excess of funds received over expenditure and administration charge (expenditure and administration charge over funds received)	(17,018)	241,110
Funds available at the beginning of the year	241,110	—
	<hr/>	<hr/>
Funds available at the end of the year	<b>\$224,092</b>	<b>\$ 241,110</b>
	<hr/>	<hr/>

#### 9. Deferred rent - Head Office

The Centre signed a new lease for 10 years and 10 months starting in January 1987. The terms call for an annual rent of about \$2,740,000 starting

with a rent-free period of 13 months. This rent-free period is being amortized over the life of the lease. The amount of \$270,229 reflects the deferred rent as at March 31, 1987.

#### **10. 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 annual payments under such lease arrangements will be:

Year ending March 31	
1988	\$ 4,929,382
1989	4,162,882
1990	3,518,215
1991	3,487,803
1992	3,558,053
	<u>\$19,656,335</u>

#### **11. Contractual commitments - project grants and project development**

The Centre is committed to make payments totalling up to \$85,005,643 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 totalling \$24,918,569 and is awaiting acceptance of these offers.

The Centre is further committed to make payments of up to \$3,337,617 during the next 3 years, subject to funds being provided by CIDA and subject to compliance by the recipient with the terms of the project agreement.

#### **12. Contingencies**

The Centre is a defendant in two actions for damages and costs allegedly sustained by the plaintiffs. Management and counsel are of the opinion that the Centre has defences against these claims and accordingly no provision has been made in the financial statements in respect of them. The claims are not significant to the operations of the Centre.

#### **13. Comparative figures**

The 1986 comparative figures have been reclassified to conform to the statement presentation adopted in 1987.

INTERNATIONAL DEVELOPMENT RESEARCH CENTRE  
SCHEDULE OF RESEARCH AND SUPPORT EXPENDITURE  
for the year ended March 31, 1987

	1987			1986		
	Development research	Research related activities	Research operational support	Contract research	Total	Total
<b>Programs</b>						
Agriculture, Food and Nutrition Sciences	\$20,746,162	\$ 618,517	\$ 4,421,442	\$391,660	\$26,177,781	\$23,401,904
Social Sciences	9,715,694	811,741	3,587,405	322,628	14,437,468	14,445,061
Information Sciences	8,150,814	558,948	2,545,517	94,828	11,350,107	9,613,195
Health Sciences	7,924,226	504,581	2,477,872	8,485	10,915,164	10,026,917
Fellowships and Awards	5,744,774	208,484	826,118	-	6,779,376	5,855,067
Cooperative Programs	4,479,874	710,964	1,258,320	-	6,449,158	5,459,872
<b>Program-related activities</b>						
Regional and liaison offices and Coordination unit	-	847,746	5,394,586	-	6,242,332	5,632,185
Information dissemination	467,406	2,131,104	1,643,801	9,500	4,251,811	4,005,802
Special Program Activities	2,227,477	352,953	-	97,309	2,677,739	2,244,707
Development-research library	-	1,396,237	-	-	1,396,237	1,283,138
External liaison and relations	730	279,564	657,333	-	937,627	803,261
	<b>\$59,457,157</b>	<b>\$8,420,839</b>	<b>\$22,812,394</b>	<b>\$924,410</b>	<b>\$91,614,800</b>	<b>\$82,771,109</b>

INTERNATIONAL DEVELOPMENT RESEARCH CENTRE  
 SCHEDULE OF GENERAL MANAGEMENT EXPENDITURE  
 for the year ended March 31, 1987

	1987	1986
Salaries and benefits	\$6,065,602	\$6,067,589
Rent and accommodation	1,004,136	619,479
Office and sundry	638,654	500,317
Depreciation and amortization	535,439	389,500
Travel and relocation	488,402	457,798
Governors' meetings	238,885	277,872
Professional and special services	185,141	198,001
Telecommunications	164,208	159,676
Insurance	33,288	14,515
Interest	—	30,152
	<u>\$9,353,755</u>	<u>\$8,714,899</u>



## Conflict of interest guidelines

In the course of fiscal year 1986–1987, Centre Management approved a number of compliance measures as a complement to its policy respecting conflict of interest. These measures — comprising avoidance, confidential reporting of assets, and divestment — are in line with those adopted by the Government for the Public Service in the Conflict of Interest and Post-Employment Code. The provision outlining the compliance measures appears in Section 4.38.1 of the Centre's Management Policy Manual and is reproduced here.

### 4.38.1 Compliance measures

#### (a) Methods of compliance

Compliance with Sections 4.37 and 4.38 shall be achieved through avoidance, a confidential report, or divestment. These terms are defined in paragraph (j) hereunder.

#### (b) Selection of method

Where there is doubt as to which method of compliance is appropriate, the President, after consultation with the employee involved, shall determine the method, taking into account:

- 1) the specific responsibilities of the employee;
- 2) the value and type of assets involved; and
- 3) the actual costs involved in divestment as

opposed to the potential that the assets and interests represent for a conflict of interest.

#### (c) Confidential report on outside activities

Employees shall make a confidential report to the President of any outside activity in which they are involved that, directly or indirectly, relates to their work. The President may require that such activity be curtailed, modified, or stopped when such activity creates a real or apparent conflict of interest.

#### (d) Confidential report on assets and interests

Within 60 days of assuming their position, and every January thereafter, and when a change in assets or liabilities occurs, Vice-Presidents, Directors, Regional Directors, and Deputy Directors shall make a confidential report to the President listing nonexempt assets and all direct and contingent liabilities, where such assets and liabilities might give rise to a conflict of interest in respect of the employee's official duties and responsibilities. Nonexempt assets are defined at the end of this section.

#### (e) Divestment of assets

Where the President determines that an employee's assets constitute a real or potential conflict of interest, the employee shall divest such assets through a nonarm's length transaction or the creation of an appropriate trust. Such divestment shall occur within 60 days of the confidential report disclosing the existence of the asset.

#### (f) Nonpermissible sales or transfers

Employees shall not sell or transfer assets to other persons for the purpose of circumventing the provisions of this section.

#### (g) Grievance

Where an employee and the President disagree on the appropriate arrangements to achieve compliance with this section, the disagreement shall be resolved through the grievance procedure set out in this Manual.

#### (h) Employee noncompliance

Employees who do not comply with this section are subject to such disciplinary measures as the President may see fit, including termination of employment.

#### (i) Confidentiality of information

The President shall ensure that all information provided to him pursuant to this section is held in confidence and security.

#### (j) Definitions

*Avoidance* — The avoidance of, or withdrawal from participation in, activities or situations that place Centre employees in a real, potential, or apparent conflict of interest relative to their work.

*Confidential report* — A written statement by a Centre employee to the President setting out ownership of an asset; receipt of a gift, hospitality, or other benefit; or participation in any outside employment or activity.

*Divestment* — The sale at arm's length, or the placement in trust, of assets, where continued ownership by a Centre employee would constitute a real or potential conflict of interest with the employee's official duties and responsibilities.

*Nonexempt assets* — These include but are not limited to:

- 1) publicly traded securities of corporations and

foreign governments and self-administered registered retirement savings plans composed of such securities;

2) interest in partnerships, proprietorships, joint ventures, private companies, and family businesses, in particular those that own or control shares of public companies or that do business with the Government;

3) farms under commercial operation;

4) real property that is not an exempt asset as described in Section 4.38.1(d);

5) commodities, futures, and foreign currencies held or traded for speculative purposes;

6) assets that are beneficially owned, that are not exempted by this section and that are administered at arm's length;

7) secured or unsecured loans granted to persons other than to members of the employee's immediate family;

8) any other assets or liabilities that could give rise to a real or potential conflict of interest due to the particular nature of the employee's duties and responsibilities; and

9) direct and contingent liabilities in respect of any of the assets described in this section.

They do not include:

1) residences, recreational property, and farms used or intended for use by employees or their families;

2) household goods and personal effects;

3) works of art, antiques, and collectibles;

4) automobiles and other personal means of transportation;

5) cash and deposits;

6) Canada Savings Bonds and other similar investments in securities of fixed value issued or guaranteed by any level of government in Canada or agencies of those governments;

7) registered retirement savings plans that are not self-administered;

8) registered home ownership savings plans;

9) investments in open-ended mutual funds;

10) guaranteed investment certificates and similar financial instruments;

11) annuities and life insurance policies;

12) pension rights;

13) money owed by a previous employer, client, or partnership; and

14) personal loans receivable from the members of the employee's immediate family and small personal loans receivable from other persons where the employee has loaned the moneys receivable.

## Projects for which funds were approved during the fiscal year 1986–1987<sup>1</sup>

### Agriculture, Food and Nutrition Sciences

#### 85-1049 Vortex wind machine (IRRI–Canada)

For the International Rice Research Institute (IRRI), the Philippines, and the University of Moncton, New Brunswick, to undertake a wind engineering evaluation of the vortex wind machine and define the functional relationships between its performance characteristics, fluctuating wind velocities, and immediate physical surroundings. \$265 100 — 24 months.

#### 86-0001 Bamboo (Thailand) — Phase II

For Kasetsart University and the Royal Forest Department, Bangkok, to develop practical methods to increase the economic production and utilization of bamboo in Thailand through the introduction of new species and improved silvicultural management and harvesting of natural bamboo stands and established plantations. \$279 000 — 36 months.

#### 86-0012 Cassava mites (eastern Africa CIBC) — Phase V

For the Commonwealth Institute of Biological Control (CIBC), U.K., to contribute to the development of national capabilities, throughout eastern and southern Africa, to carry out sustained biological control of cassava green mite and cassava mealybug. \$309 500 — 18 months.

#### 86-0014 Farming systems (Zimbabwe) — Phase II

For the Ministry of Agriculture, Harare, to enable its Department of Research and Specialist Services to test on farms various technologies for improved crop-livestock production in communal areas. \$451 400 — 36 months.

#### 86-0021 Afforestation (Colombia) — Phase II

For the Corporación Nacional de Investigación y Fomento Forestal, Bogotá, to identify species and techniques for establishing economically viable tree plantations in the Andean highlands of Colombia. \$347 400 — 48 months.

#### 86-0022 Technology adoption (Philippines)

For the Philippine Council for Agriculture and Resources Research and Development, Los Baños, to

enable its Socio-Economic Research Division to assess the socioeconomic impact of specific agricultural technologies for selected commodities and evaluate the process for their dissemination. \$142 100 — 24 months.

#### 86-0027 Fish diseases (Thailand)

For the Ministry of Agriculture and Cooperatives, Bangkok, to enable the National Inland Fisheries Institute to increase national research capability to prevent, diagnose, control, and treat fish diseases and to develop recommendations for legislation governing the importation of live fish to halt the spread of exotic fish diseases. \$352 000 — 36 months.

#### 86-0030 Fish genetics (Thailand) — Phase II

For the Ministry of Agriculture and Cooperatives, Bangkok, to enable the National Inland Fisheries Institute to strengthen its fish genetics unit and to carry out genetic improvement of fish stocks for aquaculture and inland water stocking programs. \$375 300 — 36 months.

#### 86-0031 Aflatoxin contamination (Thailand)

For Kasetsart University, Bangkok, to determine the extent and economic cost of aflatoxin contamination in maize and groundnuts and identify cost-effective measures to reduce aflatoxin levels. \$241 300 — 24 months.

#### 86-0035 Food enterprises (India)

For Andhra Pradesh Agricultural University, Hyderabad, to develop feasible systems for establishing small enterprises in Andhra Pradesh based on mechanical processing of sorghum, millets, and legumes. \$285 200 — 36 months.

#### 86-0036 Fruit and vegetable processing (Sri Lanka)

For the Ceylon Institute of Scientific and Industrial Research, Colombo, to develop appropriate systems for improved handling and loss reduction of fruits and vegetables, and to test these as a basis for small rural agroindustries. \$215 900 — 36 months.

#### 86-0038 Fish nutrition (Thailand)

For the Ministry of Agriculture and Cooperatives, Bangkok, to enable the National Inland Fisheries Institute to develop a practical, economical feed for seabass that can be made by fish farmers to enable the rapid expansion of seabass culture in both

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

freshwater and seawater areas of Thailand.  
\$130 500 — 36 months.

**86-0046 Solar timber dryer (Brazil)**

For the Instituto Nacional de Pesquisas da Amazonia, Manaus, to enable the Centro de Pesquisa de Produtos Florestais to develop a solar timber dryer for use by small sawmills in the Manaus region of the Brazilian Amazon. \$56 500 — 24 months.

**86-0070 Economics of fuelwood production (Thailand)**

For the Royal Forest Department, Bangkok, to determine the economic feasibility of alternative methods of fuelwood production and marketing for the lime and ceramic industries in Thailand.  
\$67 000 — 18 months.

**86-0089 Grain improvement (Sri Lanka) — Phase III\***

For the Department of Agriculture, Peradeniya, to develop improved varieties and cultivation practices for grain legumes and coarse grains that will increase farm income in rainfed areas and areas with limited irrigation. \$213 700 — 36 months.

**86-0092 Oil-crops for reclaimed lands (Egypt) — Phase III**

For the Ministry of Agriculture, Giza, to enable the Field Crops Research Institute to introduce and expand the production of sunflower and rapeseed in the newly reclaimed land of western Nubaria in Egypt.  
\$328 100 — 36 months.

**86-0093 Dry forest management (Zambia)\***

For the Ministry of Lands and Natural Resources, Lusaka, to enable its Forest Research Division to develop methods for the management and regeneration of the Zambezi teak forests in southern Africa. \$179 700 — 36 months.

**86-0097 Bamboo house improvement (Bangladesh)\***

For the Housing and Building Research Institute, Dhaka, to enable it, in conjunction with the Forest Research Institute in Chittagong, to develop simple, low-cost techniques to extend the life of traditional bamboo houses in rural areas. \$171 600 — 36 months.

**86-0098 Wood utilization (China)**

For the Chinese Academy of Forestry, Beijing, to enable the Research Institute of Wood Industry to adapt and develop appropriate technology for utilizing wasted forest residues (plantation thinnings) for the manufacture of scarce wood-based construction material, and transfer the technology to small rural industries. \$185 800 — 36 months.

**86-0099 Soybeans (Pakistan)**

For the Pakistan Agricultural Research Council, Islamabad, to strengthen a coordinated soybean-improvement program and develop varieties and practices suitable for varied agroecological situations in Pakistan where soybean has potential.  
\$316 000 — 36 months.

**86-0100 Rural food processing (Colombia) — Phase II**

For the Fundación para la Aplicación y Enseñanza de las Ciencias, Cali, to investigate the means and feasibility of establishing community food-processing plants to process commodities grown on small farms in the North Cauca Region of Colombia.  
\$145 500 — 36 months.

**86-0101 Hedges (Burkina Faso) — Phase II**

For the ministère de l'Environnement et du Tourisme, Ouagadougou, to enable the Direction de la production to master the large-scale use of hedges as a method of protecting vegetable crops, orchards, and plantings against animals; of combatting erosion; of stabilizing earthworks; and of marking out the borders of production lots. \$118 500 — 36 months.

**86-0102 Agricultural research and training (Bénin)**

For the Université nationale du Bénin, Cotonou, to enhance capabilities and improve the quality of research and instruction in its Faculté supérieure d'agronomie and contribute to the preparation of packages for popularization and for peasant organizations. \$155 500 — 36 months.

**86-0105 Bananas and plantains somaclonal mutations (CATIE)**

For the Centro Agronómico Tropical de Investigación y Enseñanza (CATIE), Costa Rica, to design and adapt in vitro culture techniques as a complementary method for the improvement of plantains and bananas. \$175 500 — 24 months.

**86-0112 Amazonian production systems (Peru) — Phase III**

For the Instituto Veterinario de Investigaciones Tropicales y de Altura, Lima, to develop improved agricultural production systems appropriate to the ecological and socioeconomic conditions of Pucallpa.  
\$348 000 — 36 months.

**86-0113 Aflatoxins in maize (Philippines)**

For the National Food Authority, Quezon City, to enable the National Post-Harvest Institute for Research and Extension to develop appropriate systems for control of aflatoxin contamination in maize on the farm, at maize assembly points of traders, and with government procurement agencies. \$150 300 — 24 months.

**86-0114 Root crop network (eastern and southern Africa-IITA)**

For the International Institute of Tropical Agriculture (IITA), Ibadan, to improve research capabilities in tropical root crops in the eastern and southern Africa region, through collaboration in research and exchange of germ plasm, information, and methods.  
\$395 700 — 24 months.

**86-0115 Tropical pasture evaluation (Mexico)**

For the Instituto Nacional de Investigaciones Forestales y Agropecuarias, Mexico City, to enable its Campo Agrícola Experimental to improve cattle production systems in two areas of southern Mexico through the introduction of better pasture germ plasm.  
\$176 200 — 36 months.

**86-0116 Fisheries development (Chile)**

For the Pontificia Universidad Católica de Chile and the Fundación para Capacitación del Pescador Artesanal (FUNCAP), Santiago, to enable the Departamento Biotecnología del Mar of the Universidad Católica de Talcahuano and FUNCAP to establish an integrated multidisciplinary program in Chile to improve the organization, efficiency, and productivity of small-scale fisheries that will serve as a training unit for other countries in the region. \$329 300 — 36 months.

**86-0118 Soybean utilization (Nigeria)**

For the International Institute of Tropical Agriculture, Ibadan, to develop and introduce improved soybean utilization technology for use in households and in small-scale processing enterprises in rural Nigeria. \$227 700 — 36 months.

**86-0123 Rural economics (francophone Africa)**

For the Université nationale de la Côte d'Ivoire, Abidjan, to enable the Centre ivoirien de recherches économiques et sociales to promote and improve rural economics research in francophone Africa by creating a better environment for scientists, more conducive to dialogue between researchers and decision-makers. \$411 200 — 36 months.

**86-0124 Andean crops-livestock systems (Peru) — Phase III\***

For the Universidad Nacional de San Agustín, Arequipa, the Universidad Nacional San Cristóbal, Ayacucho, and the Instituto Nacional de Investigación y Promoción Agropecuaria, Arequipa, to improve agricultural production for small farmers in the High Andes of southern Peru and increase the capability of Peruvian institutions to conduct research and development activities in this environment. \$178 500 — 36 months.

**86-0137 Nile perch (Uganda)**

For the Ministry of Regional Cooperation, Kampala, to enable the Uganda Freshwater Fisheries Research Organization, Jinja, to develop management systems for Uganda's lake fishery resources that will ensure maximum long-term productivity. \$233 500 — 36 months.

**86-0144 Regional aquaculture network (Colombia)**

For the Fondo Colombiano de Investigaciones Científicas y Proyectos Especiales, Bogotá, to contribute to aquaculture development in Latin America through the establishment of a regional aquaculture network and the provision of a network coordinator to provide liaison, coordination, and exchange among existing Centre-supported projects. \$84 100 — 24 months.

**86-0148 Acacia root symbiosis (Tunisia)**

For the Institut national des recherches forestières, Ariana, to determine the respective roles of mycorrhizae and rhizobia in the adaptation of *Acacia cyanophylla* to different types of soil for wood and forage production. \$81 500 — 12 months.

**86-0152 Deep-well solar pumps (Sénégal)**

For the Centre d'études et de recherches sur les énergies renouvelables, Dakar, to develop methodologies for installing and managing deep-well solar pumping systems. \$98 500 — 36 months.

**86-0155 Duck feeding systems (Indonesia)\***

For the University of Brawijaya, Malang, to enable its Faculty of Animal Science to determine the values and utilization of indigenous feedstuffs for duck production in Indonesia. \$75 500 — 24 months.

**86-0156 Sheep production systems (Philippines)**

For the Philippine Council for Agriculture and Resources Research and Development, Los Baños, to characterize the sheep genetic resources and document all aspects of sheep production systems in the Philippines. \$36 100 — 12 months.

**86-0159 Cassava-maize production (Ecuador)**

For the Instituto Nacional de Investigaciones Agropecuarias, Quito, to integrate a multiinstitutional research team to work with groups of small farmers of the Central Manabí region to develop appropriate maize-cassava production and utilization technology. \$99 900 — 36 months.

**86-0160 Technology adoption evaluation (Chile)**

For the Centro de Estudio del Desarrollo, Santiago, to contribute to the generation and dissemination of appropriate technology for small farmers and identify critical factors that influence the success of extension activities. \$85 400 — 24 months.

**86-0164 *Paulownia* (China) — Phase II**

For the Chinese Academy of Forestry, Beijing, to enable the Forest Research Institute to increase the quality of usable timber and agricultural production by planting and intercropping *Paulownia* trees with various crops in the 23 provinces, autonomous regions, and municipalities in which *Paulownia* is native. \$370 000 — 36 months.

**86-0166 Acacia trials (Zambia)**

For the Ministry of Lands and Natural Resources, Lusaka, to enable its Forest Research Division, Kitwe, to test and broaden the range of acacia species available for use in farming systems under African conditions. \$106 700 — 48 months.

**86-0170 Beekeeping (Malaysia) — Phase II**

For the Universiti Pertanian Malaysia, Selangor, to promote modern beekeeping with indigenous bees in coconut-, rubber-, and fruit-growing areas for the benefit of small farmers and the landless. \$232 000 — 48 months.

**86-0179 Oilseed processing (Pakistan)**

For the Pakistan Council of Scientific and Industrial Research, Lahore, to improve village-level oilseed processing by developing and testing improved oil-extraction equipment and processing systems. \$224 000 — 36 months.

**86-0180 Alternative production systems (Colombia) — Phase III**

For the Fundación para la Aplicación y Enseñanza de las Ciencias (FUNDAEC), Cali, to complete the

evaluation of selected cropping systems, emphasizing management and improvement of soil fertility, and to start a process of sharing FUNDAEC's experience and research methodology with other institutions. \$418 400 — 36 months.

**86-0181 Native fruit trees (Peru)**

For the Instituto Nacional de Investigación y Promoción Agropecuaria, Lima, to promote the incorporation of selected native fruit trees into small-farm cropping systems in the Peruvian Amazon Basin. \$249 700 — 36 months.

**86-0186 Dairy-beef production systems (Malawi)**

For the University of Malawi and the Ministry of Agriculture, Lilongwe, to develop institutional capability for multidisciplinary and farmer-oriented research and training in animal production systems. \$331 300 — 36 months.

**86-0188 Communal cattle management (Zimbabwe)**

For the University of Zimbabwe, Harare, to enable the Centre for Applied Social Sciences to provide a set of relevant criteria to be used in developing communal pasture-management programs. \$111 500 — 36 months.

**86-0189 Root crops (Indonesia)**

For the Malang Research Institute for Food Crops, Malang, to improve the production of roots and tubers by small-scale farmers in Indonesia. \$291 400 — 36 months.

**86-0190 Grain dehulling (Zambia)**

For the Small Industries Development Organization, Lusaka, to test whether the introduction of dehuller technology is feasible and will result in a sustainable improvement to the quality of life of rural people in the dry grain-growing areas of Zambia. \$171 800 — 36 months.

**86-0191 *Trifolium rhizobia* (ILCA-Canada)**

For the International Livestock Centre for Africa (ILCA), Ethiopia, and the University of British Columbia, Vancouver, to develop appropriate *Rhizobium* inoculants for perennial African *Trifolium* species and to train technicians in inoculant technology. \$156 800 — 24 months.

**86-0195 Fish processing (Mauritania)**

For the Centre national de recherches océanographiques et des pêches, Nouadhibou, to enable the Service de technologie du poisson et contrôle sanitaire to improve the small-scale processing of fermented/dried fish *guedj* to increase the income of the processors and the quality of the product. \$127 000 — 36 months.

**86-0199 Enabling grant (WARDA)**

For the West Africa Rice Development Association (WARDA), Liberia, to progress rapidly in the implementation of its new management and governing structures. \$300 000 — 12 months.

**86-0200 Bananas (Philippines) — Phase II**

For the Philippine Council for Agriculture and

Resources Research and Development, Los Baños, to improve banana production techniques for small-scale growers in the Philippines that, through links with the International Network for the Improvement of Banana and Plantain (INIBAP), will be applicable elsewhere in the developing world. \$312 800 — 36 months.

**86-0203 Aquaculture (Brazil) — Phase II**

For the Superintendencia de Desenvolvimento de Pesca, Brasília, to enable the Centro de Pesquisa e Treinamento em Aquicultura to develop a technology for cultivating indigenous freshwater fish species, particularly *Colossoma* subspecies, that are acceptable to small-scale producers in rural Brazil and other Latin American countries. \$261 000 — 36 months.

**86-0210 Minidehullers (Zimbabwe) — Phase II**

For Environment, Development, Activities—Zimbabwe, Harare, to continue dehuller testing and construction activities in preparation for a smooth transition to the country-wide program of dehuller dissemination. \$69 400 — 3 months.

**86-0211 Mariculture-acadjas (Côte d'Ivoire)**

For the ministère de l'Éducation nationale et de la Recherche scientifique, Abidjan, to enable the Centre de recherches océanographiques to develop an efficient system of acadja pen fish breeding. \$163 600 — 36 months.

**86-0212 Maize and peas (Burundi) — Phase IV**

For the ministère de l'Agriculture, de l'Élevage et du Développement rural, Bujumbura, to enable the Institut des sciences agronomiques du Burundi to increase the productivity of maize and peas through improved cultivars and cultural practices and thereby improve the living standards of small farmers in Burundi who are dependent on these crops. \$581 500 — 36 months.

**86-0220 Impact of technical change (Colombia)**

For the Centro de Estudios de la Realidad Colombiana (CEREC), Bogotá, to enable CEREC to provide national research and development institutions with an evaluation of the impact of alternative technologies on small farms of the Caqueza region. \$53 700 — 18 months.

**86-0224 Pigeon peas (Kenya) — Phase IV**

For the University of Nairobi to increase pigeon-pea productivity through improved cultivars and appropriate crop management and to ensure that these reach the small-scale farmers in semi-arid regions of Kenya. \$305 000 — 36 months.

**86-0233 Biological pest management (India) — Phase II**

For Nagpur University, Maharashtra, to establish a tissue-culture technique for in vitro production of microbial pesticides, to make use of this biological pesticide for management of grasshoppers and locusts, and to develop pest-management practices for farmers that will be effective and acceptable both ecologically and economically. \$186 000 — 36 months.

**86-0234 Farm forestry (Nepal) — Phase II**

For Tribvuhun University, Kathmandu, to enable the institutes of Forestry and of Agriculture and Animal

Sciences to encourage the practice of planting trees to satisfy farmers' needs for fuelwood, fodder, green manure, and small timber. \$262 000 — 36 months.

**86-0235 Bamboo (India)**

For the Kerala Forest Research Institute, Peechi, to develop means of increasing the production of bamboo and reed in Kerala State to satisfy the needs of homesteads, cottage industries, and pulp and paper production plants. \$137 000 — 36 months.

**86-0236 Rattan (India)**

For the Kerala Forest Research Institute, Peechi, to determine ways of enhancing the production and improving the utilization of rattan in southern India for generating rural income. \$163 000 — 36 months.

**86-0239 Natural gums and resins (Uganda)**

For the Ministry of Agriculture and Forestry, Entebbe, to enable the Forestry Department to further the development of natural gum and resin resources in Uganda. \$98 000 — 30 months.

**86-0241 PRACIPA network (CIP) — Phase II**

For the International Potato Centre (CIP), Peru, to improve potato cultivation methods in the Andean countries by strengthening potato research capability in those countries and training technical staff and farmers through support for the Andean Cooperative Program for Potato Research (PRACIPA). \$517 000 — 36 months.

**86-0244 Bamboo (Kenya)**

For the Ministry of Environment and Natural Resources, Nairobi, to enable its Forestry Research Institute to evaluate and establish fast-growing, adaptable species of bamboo to meet local demand for the country's expanding village crafts industries. \$90 800 — 36 months.

**86-0246 Wood gasification (China)**

For the Chinese Academy of Forestry, Beijing, to enable the Research Institute of Chemical Processing and Utilization of Forest Products to develop a small-scale energy system that will facilitate the efficient use of low-quality forest and mill residues to provide thermal and electric energy for rural applications. \$248 800 — 36 months.

**86-0249 Striga (Sudan) — Phase III**

For the Ministry of Agriculture and Irrigation, Khartoum, to test promising technologies for striga control in two major production areas using on-farm trials. \$310 400 — 36 months.

**86-0262 Oilseed processing network (India)**

For the Indian Council of Agricultural Research, New Delhi, to develop and test village-level edible-oil processing equipment and treatments with potential to increase employment and oil availability in rural India. \$463 700 — 36 months.

**86-0264 Oysterculture (Jamaica) — Phase III**

For the Ministry of Agriculture, Kingston, to create a feasible smallholder-based oysterculture industry in Jamaica, building on the successful technological and socioeconomic developments of the project's previous phases. \$318 100 — 36 months.

**86-0265 Goat and sheep feeding (India)**

For the Andhra Pradesh Agricultural University, Hyderabad, to enable the Colleges of Veterinary Science located at Hyderabad and Tirupati to develop and disseminate economic feeding systems for goats and sheep. \$243 400 — 36 months.

**86-0266 Cropping systems (Dominican Republic) — Phase II**

For the Secretaría de Estado de Agricultura, Santo Domingo, to improve the production and productivity of crops and cropping systems used by small farmers in the southern and northern regions. \$382 000 — 36 months.

**86-0267 Rice-fish (Thailand)**

For the Ministry of Agriculture and Cooperatives, Bangkok, to enable the Farming Systems Research Institute of the Department of Agriculture to refine and promote rice-fish culture to improve the nutrition and income of the rural poor in northeast Thailand. \$199 700 — 36 months.

**86-0268 Farming systems (Mali) — Phase IV**

For the ministère de l'Agriculture, Bamako, to improve food and cash crops as well as animal production in the south of Mali by a rational use of available resources and to refine an appropriate research methodology on production systems. \$358 400 — 24 months.

**86-0269 Fertilizer network (IFDC-West Africa) — Phase II**

For the International Fertilizer Development Center (IFDC), USA, to develop and evaluate more effective techniques of integrated fertilizer use, utilizing cost-effective fertilizer sources tailored to the diverse West African environments and their cropping systems. \$470 100 — 24 months.

**86-0270 Farming systems research (IITA) — Phase II**

For the International Institute of Tropical Agriculture (IITA), Nigeria, to strengthen farming systems research capability in national and regional research institutions in West and Central Africa; to create effective communication between agricultural scientists, extension agents, and farmers; and to focus research and technologies on the needs of the rural poor. \$537 000 — 36 months.

**86-0272 West African Farming Systems Research Network (WAFSRN)**

For the Semi-Arid Food Grain Research and Development Project, Burkina Faso, to enable the West African Farming Systems Research Network (WAFSRN) to establish a network to coordinate research on farming systems in West Africa and to strengthen and support national programs through training, promoting dialogue between researchers, and improving access to information. \$495 900 — 24 months.

**86-0274 Pastoral forestry management (Sénégal)**

For the Institut sénégalais de recherches agricoles, Dakar, to develop the management scheme of the pastoral zone of northern Sénégal to permit rational

exploitation by the local people of available resources (water, land, pastures, and groves of gum trees), taking into account the socioeconomic characteristics of the various ethnic groups. \$274 900 — 36 months.

**86-0275 Groundnut shellers (Malawi)**

For the Ministry of Agriculture, Lilongwe, to enable the Ministry's Department of Agricultural Research to develop, test, and disseminate an inexpensive hand-operated groundnut sheller to smallholder Malawian farmers. \$27 400 — 24 months.

**86-0284 Sorghum improvement (Somalia) — Phase III**

For the Ministry of Agriculture, Mogadishu, to enable the Agricultural Research Institute to develop technology to improve sorghum production and utilization that will prove acceptable to farmers in the principal rainfed growing areas of Somalia. \$369 300 — 36 months.

**86-0293 Economics of cropping systems (Jamaica)**

For the Interamerican Institute for Cooperation on Agriculture, Kingston, to strengthen the applied economics components of the *Cropping Systems Project* (84-0021). \$43 300 — 12 months.

**86-0298 Agribusiness market research (Philippines)**

For the Southeast Asian Regional Center for Graduate Study and Research in Agriculture, Laguna, to develop market research procedures that are relatively inexpensive yet are efficient for providing agribusinesses and agricultural research institutions with market information. \$34 000 — 18 months.

**86-0333 Economics of cropping systems (Honduras)**

For the Secretaría de Recursos Naturales, Tegucigalpa, to strengthen the economic component of the Cropping Systems Project, including an evaluation of the utilization of its research results by target groups and the effects at the farm level of specific agricultural policy changes. \$71 000 — 24 months.

**86-0334 Maize technology adoption evaluation (Costa Rica)**

For the Ministerio de Agricultura y Ganadería, San José, to assess the adoption of maize technology by small- and medium-scale farmers, identify factors affecting adoption, and suggest ways to improve technology generation and transfer. \$48 100 — 18 months.

**86-0340 International grain quality economics (Asia)**

For the International Rice Research Institute, the Philippines, to identify the nature (supply and demand) and relative values of Asian rice grain quality characteristics in international markets. \$47 100 — 18 months.

**86-1001 Fish deboner (Thailand-Canada) — Phase II**

For the Department of Fisheries, Bangkok, and the Technical University of Nova Scotia, Halifax, to

enable the Fishery Technological Development Division of the Department and the Canadian Institute of Fisheries Technology of the University to evaluate the technical and economic feasibility of the Halifax deboner for the manufacture of minced products from fish by-catch in Thailand, and modify the deboner to process larger fish. \$88 600 — 9 months.

**86-1016 Rhizobial carrier systems (ICARDA-Canada) — Phase II**

For the International Center for Agricultural Research in the Dry Areas (ICARDA), Syria, and the University of Manitoba, Winnipeg, to increase biological nitrogen fixation in chickpea in the Middle East. \$335 200 — 30 months.

**86-1020 Yellow dwarf virus (ICARDA-Chile-Canada)**

For the International Center for Agricultural Research in the Dry Areas (ICARDA), Syria; the Instituto de Investigaciones Agropecuarias, Santiago; and Laval University, Quebec; to improve the crop protection measures available to cereal farmers in developing countries, in particular, through the breeding of locally adapted varieties resistant to or tolerant of Barley Yellow Dwarf Virus. \$335 000 — 36 months.

**86-1022 Farming systems research (CARDI-Canada)**

For the Caribbean Agricultural Research and Development Institute (CARDI), St Lucia, and the University of Guelph, Ontario, to improve the effectiveness of CARDI's Eastern Caribbean Farming Systems Research and Development Program, in general, and its agricultural economics component in particular. \$235 900 — 36 months.

**86-1023 Flying fish (UWI-Canada)**

For the University of the West Indies (UWI), Barbados, and McGill University, Quebec, to determine the potential for increased flying fish catches and to establish a basis for sound management of the fishery. \$201 500 — 24 months.

**86-1031 Endomycorrhizae (Zaire-Canada)**

For the Université de Kinshasa and Laval University, Quebec, to facilitate the transfer of technology for large-scale production of endomycorrhizal inocula to Zaire and other African countries, and the training of researchers in utilizing mycorrhizae in agriculture and forestry. \$187 600 — 24 months.

**86-1033 Bean utilization (Chile-INCAP-Canada) — Phase II\***

For the Pontificia Universidad Católica de Chile, Santiago; the Instituto de Nutrición para Centro América y Panamá (INCAP), Guatemala; the University of Guelph, Ontario, and the University of Manitoba, Winnipeg; to improve the utilization of stored beans by processors and consumers through control of hardening during storage and processing. \$670 700 — 36 months.

**86-1043 Lathyrus improvement (India-Canada)\***

For Jawaharlal Nehru Krishi Vishwa Vidhyala Agriculture University, Jabalpur; the University of Manitoba, Winnipeg; and Agriculture Canada,



Manitoba; to develop varieties of *Lathyrus sativus* possessing very low or zero levels of neurotoxin. \$454 800 — 60 months.

**86-1046 Rapeseed (China-Canada) — Phase II\***

For the Ministry of Agriculture, Animal Husbandry and Fisheries, Beijing; and Agriculture Canada, Saskatchewan; to breed improved varieties of the three principal rapeseed varieties having appropriate maturities and resistances and that yield well in terms both of high-quality oil and residual cake. \$554 300 — 36 months.

**86-1048 Fusarium resistance (CIMMYT-Canada)**

For the Centro Internacional de Mejoramiento de Maiz y Trigo (CIMMYT), Mexico, and Agriculture Canada, Ottawa, to develop new and more precise methods for screening wheat for resistance to head blight and reduced toxin production. \$110 200 — 24 months.

**86-1049 Aphid biocontrol (China-Canada)**

For the Chinese Academy of Agricultural Sciences, Beijing, and Applied Bio-Nomics Ltd, British Columbia, to improve control of aphids on vegetable crops in China through the use of the predatory midge *Aphidoletes*. \$41 700 — 36 months.

## Social Sciences

**85-0277 Technology policy studies (East Africa) — Phase II**

For the Social Sciences Division, IDRC, to support the East Africa Technology Policy Studies network for a further period of 3 years. \$515 200 — 36 months.

**86-0020 Rethinking the Latin American city**

For the International Institute for Environment and Development, U.K., to present a consolidated set of policy proposals on how governments and international agencies can more effectively address the problems of urbanization in Latin America, within current resource constraints. \$211 600 — 24 months.

**86-0024 Education, society, and marginal groups (Chile) — Phase II**

For the Centro de Investigación y Desarrollo de la Educación, Santiago, to continue to strengthen its activities in three areas of interest: education and work among lower-class youth, popular education, and cultural transmission in the education system. \$230 000 — 30 months.

**86-0025 Exchange rate policy and determinants of personal savings (Peru) — Phase II**

For the Grupo de Análisis para el Desarrollo, Lima, to conduct further research into the relationship between inflation and devaluation, to continue analysis of the saving and investment process, to commence the development of short-term indicators of economic activity, and to strengthen communication between senior policymakers and economists. \$97 500 — 18 months.

**86-0026 Contract farming and outgrower schemes (eastern and southern Africa)**

For the University of Nairobi, Kenya; the University of Dar es Salaam, Tanzania; the University of Zambia, Lusaka; the University of Malawi, Zomba; the University of Zimbabwe, Harare; the University of Swaziland, Kwaluseni; and the National University of Lesotho, Roma; to assess the experience of contract farming and outgrower schemes in selected countries of eastern and southern Africa, particularly with respect to smallholder welfare and agricultural development policy. \$326 700 — 24 months.

**86-0032 Preschool education survey (West Bank)**

For the Arab Studies Society, East Jerusalem, to enable the Early Childhood Resource Centre to collect detailed data on the numbers and types of preschool education programs currently operating in the West Bank and the resources available to them. \$29 500 — 12 months.

**86-0033 Social science networks in Africa (CODESRIA) — Phase IV**

To support the Conseil pour le développement de la recherche économique et sociale en Afrique (CODESRIA), Sénégal, in its work program for 1986-1988, providing research, training, and publication and documentation services to the African social science community, and strengthening its Centre de documentation et information. \$452 735 — 24 months.

**86-0037 Economic and demographic interactions 1953-1986 (China)**

For the Beijing Institute of Information and Control, China, and the Centre for Contemporary Asian Studies, Chinese University of Hong Kong, to attempt to understand the interactions between economic and demographic policies and outcomes during the past 3 decades. \$219 000 — 36 months.

**86-0043 Female participation in postprimary education (Bangladesh)**

For the Foundation for Research on Educational Planning and Development, Dhaka, to investigate the problem of female participation in postprimary education in Bangladesh. \$65 900 — 24 months.

**86-0045 Utilization of firewood stoves in rural areas (Sierra Leone)**

For the University of Sierra Leone, Freetown, to enable the Research and Development Services Bureau to investigate the various parameters that affect the use of fuelwood in cooking and the factors that govern the acceptability of improved stoves in selected rural areas. \$84 490 — 30 months.

**86-0053 Secondary school examinations (Malawi)**

For the Malawi Certificate and Testing Board, Zomba, to examine the relationship between achievement in the Malawi Certificate of Education examinations and a number of variables related to the pupils' background and the schools. \$59 430 — 24 months.

**86-0058 Macroeconomic research (Brazil) — Phase III**

For the Pontificia Universidade Católica, Rio de Janeiro, to enable its Department of Economics to study the implications of different macroeconomic policies and growth strategies for output, investment, income, imports and exports, and employment. \$98 000 — 18 months.

**86-0061 Handicrafts (Bolivia)**

For the Centro de Estudios para el Desarrollo Laboral y Agrario, La Paz, to examine the characteristics, problems, and prospects of the handicraft sector in Bolivia. \$20 500 — 12 months.

**86-0062 Handicraft development (Kenya)**

For the University of Nairobi to enable its Economics Department and the Institute of African Studies to study the contribution of crafts to the Kenyan economy, and the constraints to growth within this industry. \$78 700 — 15 months.

**86-0063 Handicrafts development (Malawi)**

For the University of Malawi, Blantyre, to enable the Business Studies Department to study the contribution of crafts to the national economy of Malawi, and the constraints to growth within this industry. \$34 600 — 15 months.

**86-0064 Industrial policy (Ecuador)**

For the Centro de Planificación y Estudios Sociales, Quito, to assess the effects of industrial policy between 1972 and 1985 in terms of efficiency and income distribution. \$67 950 — 15 months.

**86-0075 Innovations and development in higher education (Chile and Argentina)**

For the Facultad Latinoamericana de Ciencias Sociales, Santiago, to examine the patterns of innovation and change that have taken place in higher education systems in Argentina and Chile and their relationship with the process of sociopolitical and economic development in these societies. \$60 500 — 18 months.

**86-0077 Educational reform (Zaire)**

To enable the Laboratoire d'analyses sociales de Kinshasa to reach an understanding of the structure and operations of primary schools in Zaire based on the various stimuli administered through reforms. \$24 400 — 18 months.

**86-0085 Macroeconomic research bridging grant (Brazil)**

To enable the Pontificia Universidade Católica, Rio de Janeiro, to maintain its macroeconomic research program until its request for a third phase of research can be considered by the Centre's Board of Governors. \$24 000 — 3 months.

**86-0090 Urban agriculture (Tanzania)**

For Sokoine University of Agriculture, Morogoro, to obtain a detailed overview of existing urban food-producing activities in six Tanzanian cities and to suggest, where appropriate, ways to enhance their contribution to employment and urban food supply. \$90 500 — 24 months.

**86-0103 Self-employed workers and education (Argentina)**

To enable the Centro de Estudios de Población, Buenos Aires, to diagnose and analyze the socioeconomic, occupational, and educational characteristics of self-employed workers and their mechanisms for integration into the labour market. \$92 500 — 24 months.

**86-0104 Supply and demand for energy (Indonesia)**

For Gadjah Mada University, Yogyakarta, to enable its Faculty of Economics to formulate energy policy options that satisfy domestic needs in an equitable manner while maximizing foreign exchange through exports of energy. \$60 200 — 18 months.

**86-0111 Economic policy analysis (Chile)**

For the Corporación de Investigaciones Económicas para Latinoamérica, Santiago, to conduct an analysis of different adjustment policies with particular reference to investment, monetary policy, exports, and employment. \$265 220 — 12 months.

**86-0126 Financial markets (Argentina) — Phase III**

For the Centro de Estudios de Estado y Sociedad, Buenos Aires, to conduct research bearing primarily on the longer-term restructuring of the Argentine financial system, and to study the changing behaviour of major financial actors and to draw conclusions concerning appropriate policies regarding savings, investment, and finance. \$98 500 — 18 months.

**86-0127 Research and training program: Cairo Demographic Centre (Egypt) — Phase IV**

To assist the Cairo Demographic Centre in providing the 4th year of a research and training program for 10 African students enrolled in the General Diploma, Special Diploma, and Master's Degree programs in Demography. \$153 870 — 12 months.

**86-0128 ME Awards (Egypt) — Phase IV**

For the Population Council, USA, to promote and reinforce continued development of knowledge and research capacity on population and development issues in the Middle East and North Africa through a series of research awards and associated technical support under the Middle East Research Awards (ME Awards) Program. \$263 780 — 24 months.

**86-0135 Energy use and policy planning (Mauritius)**

For the University of Mauritius, Réduit, to enable the School of Industrial Technology to develop a policy-planning tool that will allow Mauritius to explore the implications of new energy strategies and to formulate energy conservation and demand management options. \$55 150 — 30 months.

**86-0138 Technological perspectives (Latin America) — Phase II**

For the United Nations University, Japan, to analyze the current crisis facing the Latin American regions in terms of social, economic, environmental, distributional, and other issues, and to propose a workable developmental model and strategies for the

application of science and technology. \$230 500 — 18 months.

**86-0141 Educational software development for rural schools (Colombia)**

For the Instituto SER de Investigación, Bogotá, to develop, test, and evaluate the process of introducing microcomputers in schools in Nemocon and to assess the impact of a set of computer programs designed to satisfy the needs of rural primary school children. \$32 700 — 12 months.

**86-0146 Indian peasant games and preschool curricula in the Andean region (Colombia)**

For the Centro de Investigación y Desarrollo Infantil, Bogotá, to develop and test a nonformal education strategy for preschool children in the Andean countries, based on traditional children's activities and games. \$32 600 — 11 months.

**86-0167 Journal support for social science research (Uganda) — Phase II**

For the Social Sciences Division, IDRC, to enable Makerere University, Kampala, to improve the social science research environment in Uganda through publishing the social sciences journal *Mawazo*. \$79 440 — 24 months.

**86-0173 Social services for agricultural seasonal workers (Costa Rica)**

For the Confederación Universitaria Centroamericana, San José, to diagnose legal, social, and institutional factors that prevent the access of seasonal agricultural workers to services provided by selected social programs. \$53 800 — 14 months.

**86-0174 Instructional improvement in primary schools (Nepal) — Phase II**

For Tribhuvan University, Kathmandu, to enable the Research Centre for Educational Innovation and Development to develop strategies for the enrichment of learning in the early grades with special emphasis on the development of reading and language skills. \$165 000 — 36 months.

**86-0178 Educational research awards (Kenya, Uganda, and Tanzania)**

For Kenyatta University, Nairobi; Makerere University, Kampala; and the University of Dar es Salaam, to fund a program of research awards for junior researchers in Kenya, Uganda, and Tanzania. \$367 000 — 36 months.

**86-0183 Infant mortality (Kenya)**

For the University of Nairobi to examine the effects of sociocultural and environmental factors on infant and child mortality and health in two different geographical settings in Kenya. \$94 600 — 24 months.

**86-0184 Migrations in Togo — Phase II**

For the Université du Bénin, Lomé, to enable the Unité de recherche démographique to undertake a detailed analysis of migrations based on the 1970 and 1981 censuses and various specific surveys. \$75 500 — 24 months.

**86-0185 Evaluation of education with production in agricultural schools (Paraguay)**

For the Centro Paraguayo de Estudios Sociológicos, Asunción, to examine and describe the functioning of private and public technical-vocational agricultural schools that combine education with production as part of their regular formal programs. \$54 600 — 18 months.

**86-0192 Participatory research in community education (Philippines)**

For the Philippine Partnership for the Development of Human Resources in the Rural Areas, Manila, to assist communities to solve their development problems more efficiently through the use of a participatory research and planning system. \$156 000 — 30 months.

**86-0193 Management and resettlement of Indo-Chinese refugees (Thailand)**

For the Public Affairs Foundation, Bangkok, to develop realistic policy and management alternatives concerning basic assistance to and resettlement of residual Indo-Chinese refugees and displaced persons in Thailand, taking into consideration the impact of these groups on local communities. \$166 870 — 24 months.

**86-0194 Town development (China)**

For the Beijing College of Economics, the Chinese Academy of Sciences, the Chinese Academy of Social Sciences, the East China Normal University, Fudan University, Nankai University, the People's University of China, and the State Planning Commission to analyze the recent growth trends and patterns of small towns in China, and to assess the potential for their sustained growth. \$277 930 — 21 months.

**86-0196 Philippines data archive**

For the Demographic Research and Development Foundation, Manila, to enable planning, governmental, and research institutions to obtain valuable population and related data sets in a useful form and to refine a methodology for archiving development information as it is collected. \$190 000 — 12 months.

**86-0204 Social factors influencing technology diffusion (Chile)**

For the Grupo de Investigaciones Agrarias, Santiago, to analyze social factors influencing specific processes of technology diffusion within peasant communities, with a view to helping to remove the constraints on successful and widespread technology diffusion. \$70 180 — 15 months.

**86-0206 Energy pricing (Argentina)**

For the Instituto de Estudios sobre la Realidad Argentina y Latinoamericana, Buenos Aires, to examine energy prices and investments in Argentina and, on the basis of an econometric model for the energy sector, identify fuel-price structures and energy-investment patterns that are consistent with both efficient allocation of resources and given distributive goals. \$81 100 — 18 months.

**86-0207 Informal sector enterprises with export potential (Costa Rica)**

For Alternativas de Desarrollo, San José, to identify the constraints that informal sector enterprises in selected economic activities face in trying to develop their export potential and to recommend policies and programs designed to assist them in raising their export levels. \$92 200 — 12 months.

**86-0208 School transportation in Abidjan (Côte d'Ivoire)**

For the Université Nationale de la Côte d'Ivoire, Abidjan, to enable the Centre de recherches architecturales et urbaines to analyze the present school transport system in Abidjan and to recommend improvements to make it more equitable and rational. \$70 700 — 12 months.

**86-0209 School, family, and gender education (Argentina)**

For the Centro de Estudios de la Mujer, Buenos Aires, to identify, describe, and analyze the types of gender values and the ways in which these are transmitted to public primary school studies through the program of professional counseling in the province of Buenos Aires. \$68 400 — 18 months.

**86-0213 Infant mortality methodology (Argentina, Chile, and Dominican Republic)**

For the Fundación Cruzada Patagonica, Neuquen; the Centro Latinoamericano de Demografía, Santiago; and the Consejo Nacional de Población y Familia, Santo Domingo; to further develop and refine a low-cost and rapid method for obtaining data on infant mortality rates within a population so that the impact of health and other interventions can be easily and inexpensively monitored. \$182 890 — 26 months.

**86-0214 Infant and child mortality (Southeast Asia) — Phase II**

For the Population Council, USA, to continue to support multidisciplinary research on the determinants of infant mortality in Asia giving priority to proposals with a demonstrable impact on health-care policies and programs. \$417 000 — 36 months.

**86-0215 Drought and resettlement (Ethiopia)**

For the Office of the National Commission for Central Planning, Addis Ababa, to determine the size and direction of resettlement flows, socioeconomic characteristics, fertility and mortality levels, and the rate of population growth, and to attempt to measure the magnitude of the demographic consequences of drought and famine since 1984. \$160 000 — 18 months.

**86-0218 Alternative education for high-school graduates (Dominican Republic)**

For the Colegio Dominicano de Estudios Profesionales, Santo Domingo, to study the socioeconomic and sociodemographic characteristics of a sample of secondary-school graduates who have received traditional academic education. \$57 850 — 10 months.

**86-0223 Radio rural education (Peru)**

For the Centro Peruano de Estudios Sociales, Lima, to diagnose and examine the current problems of rural primary education in Peru so as to develop alternative solutions to these problems with the participation of teachers, community leaders, and families. \$56 390 — 18 months.

**86-0231 Technology policies and institutional decision-making (Paraguay) — Phase III**

For the Centro Paraguayo de Estudios Sociológicos, Asunción, to analyze the role of technology policies and institutional objectives in determining the technology options available to peasant farmers so as to contribute to improved decision-making about raising productivity. \$175 200 — 21 months.

**86-0232 Hazard assessment and response: volcanic activity in Latin America**

For the Centro Regional de Sismología para América del Sur, Peru, to investigate the complex range of factors that led to the disaster of El Ruiz in Colombia and to extract policy lessons for the mitigation of such disasters in the future in specific zones of volcanic hazard in Chile, Colombia, Ecuador, Nicaragua, and Peru. \$183 050 — 15 months.

**86-0251 Local technologies and farmers' needs (Tanzania)**

For Sokoine University of Agriculture, Morogoro, to study the arrangements by which local sources supply technologies to the agricultural sector and to assess the extent to which those arrangements have succeeded in meeting the sector's demand. \$37 060 — 18 months.

**86-0259 Population research programs (Bolivia)**

For the Consejo Nacional de Población, La Paz, to strengthen and upgrade its institutional capacity to promote and conduct research and to assist in processing and retrieving information useful to such activities. \$332 100 — 24 months.

**86-0260 Microcomputers in secondary education (Kenya)**

For the Aga Khan Foundation, Nairobi, to systematically examine and record the extent and changes associated with the introduction of microcomputers into the teaching-learning process and the management of six Kenyan schools. \$95 000 — 28 months.

**86-0261 Financial management of urban services: water and sanitation (India) — Phase II**

For the National Institute of Urban Affairs, New Delhi, to improve the administration and management of resources that are available to urban authorities for the delivery of water and sanitation services to low-income communities. \$75 840 — 18 months.

**86-0273 PRACIPA potato marketing network (Latin America)**

For the International Potato Centre, Peru, to enable the Instituto Boliviano de Tecnología Agropecuaria; the Instituto Colombiano Agropecuario; the Instituto Nacional de Investigaciones Agropecuarias, Ecuador; the Instituto Nacional de Investigación y Promoción

Agropecuaria, Peru; and the Fondo Nacional de Investigaciones Agropecuarias, Venezuela; to contribute to knowledge of potato marketing systems in Bolivia, Colombia, Ecuador, Peru, and Venezuela through support for the Andean Cooperative Program for Potato Research (PRACIPA). \$213 500 — 24 months.

**86-0276 Technology and international investments by small- and medium-sized firms (Latin America) — Phase II**

For the Centro de Estudios de Desarrollo y Relaciones Económicas Internacionales, Argentina, to analyze empirically the experience, performance, and impact of the transfer of technology to developing countries by smaller companies from industrialized countries. \$191 950 — 18 months.

**86-0279 Responses to the mining crisis (Bolivia)**

For the Centro de Estudios sobre la Minería y el Desarrollo, Bolivia, to analyze the international, national, and firm-level factors that have accounted for past inefficiencies of COMIBOL, the Bolivian state mining company, and to define the technological and organizational changes and policy decisions required to transform it into an efficient company within the current socioeconomic and political context. \$266 350 — 28 months.

**86-0289 Household energy utilization in Nigeria: interfuel substitution and the role of natural gas\***

For the University of Ife, Ile-Ife, to examine Nigeria's household sector, with particular attention to opportunities for using natural gas, and to suggest suitable policies and institutional mechanisms to strengthen the role of natural gas in the country's household energy system. \$49 200 — 18 months.

**86-0290 Social effects of community education in Indian populations (Ecuador)**

For the Corporación Educativa MACAC, Quito, to contribute to the development of a postprimary education program for Indian communities in Ecuador through study of the cultural characteristics to allow its successful implementation as well as the analysis of its social and cultural effects on Indian society. \$56 760 — 15 months.

**86-0292 Macroeconomic Analysis Programme for Eastern and Southern Africa — Phase III**

For the Social Sciences Division, IDRC, to support essential research and related activities of the Macroeconomic Analysis Programme for Eastern and Southern Africa until the start of Phase IV. \$87 750 — 8 months.

**86-0294 Public enterprises (Pakistan)**

For the Investment Advisory Centre of Pakistan, Karachi, to provide a reflective review of the role of the public sector in the economic development of Pakistan over the past 15 years or so, and to make recommendations regarding the role, scope, and productivity of publicly owned firms. \$56 300 — 18 months.

**86-0296 Rural credit (Peru)**

For the Centro Regional de Estudios

Socioeconómicos, Lima, to propose an integrated program of rural credit for six peasant communities in two microregions of Huanavelica and Puno provinces. \$74 500 — 15 months.

**86-0297 Science and technology challenges in mining development (Peru)**

For the Grupo de Análisis para el Desarrollo, Lima, to analyze the long-term prospects of the Peruvian mining sector to determine how existing mineral reserves can be exploited more profitably in the context of depressed metal markets and reduced credit. \$83 950 — 18 months.

**86-0299 Funding technological innovation within the Andean Pact (Latin America)**

For the Junta del Acuerdo de Cartagena, Peru, to formulate concrete recommendations for improving mechanisms for the delivery of technological development loans by national and regional financial institutions in the Andean countries. \$45 540 — 18 months.

**86-0300 Transfer and development of copper mining technology (Chile)**

For the Centro de Estudios del Cobre y la Minería, Santiago, to analyze the sources of dynamism in Chile's copper industry and the principal technological and organizational changes undertaken by the state mining company (CODELCO), with respect to integrating imported and local technology to improve the long-term efficiency of copper production in Chile. \$47 900 — 15 months.

**86-0307 Energy and family in Paraguay**

For BASE-Investigaciones Sociales, Educación y Comunicaciones, Asunción, to analyze energy consumption in relation to the organization of domestic work, particularly of women, and food consumption patterns among the marginal urban poor of Asunción. \$80 240 — 20 months.

**86-0310 Extraschool instruction, social equity, and educational quality (Singapore)**

For the National University of Singapore to enable its Department of Sociology to study the magnitude, causes, and consequences of private tuition in contemporary Singapore. \$16 000 — 12 months.

**86-0311 Extraschool instruction, social equity, and educational quality (Malaysia)**

For the Universiti Malaya, Kuala Lumpur, to enable its Faculty of Education to study the magnitude, causes, and consequences of private tuition in contemporary Malaysia. \$74 300 — 24 months.

**86-0313 Education and cultural policies (Chile)**

For the Centro de Indagación y Expresión Cultural y Artística, Santiago, to describe, diagnose, and analyze the organization, role, and operations of the cultural industry in Chile (radio, the press, television, and the production of audiovisual and educational materials) and to assess its potential capacity for influencing the redemocratization of Chilean society. \$93 000 — 18 months.

**86-0314 Child-rearing practices (Thailand)**

For the Chulalongkorn University, Bangkok, to investigate traditional Thai child-rearing practices as a guide to the development of education programs for early childhood. \$52 200 — 20 months.

**86-0317 Public policy and higher education (Egypt)**

For Cairo University to study and analyze the linkages and patterns of interaction between public policy in Egypt and the country's higher education system. \$83 800 — 24 months.

**86-0318 Extraschool instruction, social equity, and educational quality (Sri Lanka)**

For the University of Colombo, to enable its Faculty of Education to study the magnitude, characteristics, causes, and consequences of private tuition in contemporary Sri Lanka. \$28 800 — 24 months.

**86-0319 Performance review of institutions for science and technology policy in Africa**

For the Economic Commission for Africa, Ethiopia, to study, systematically, the past and present performance of institutions for science and technology policy in Africa with a view to suggesting improvements. \$64 900 — 24 months.

**86-0325 Adolescent fertility (Bénin)**

For the ministère du Plan et de la Statistique, Cotonou, to enable the Bureau central du recensement of the Institut national de la statistique et de l'analyse économique to reduce the number of school dropouts, especially of girls; to reduce the mortality rate among children, young people, and mothers; and to promote responsible behaviour among young people by providing them with a better understanding of fertility. \$75 000 — 24 months.

**86-0326 Adolescent fertility (West Africa)**

For the Direction de la statistique, Sénégal, to provide education, health, family planning, and other authorities with useful statistical information and to facilitate comparison of results with those of other countries that participated in the Senegalese "Enquiry into Fertility" and are members of the network established by IDRC for the in-depth study of data on adolescent fertility. \$34 000 — 12 months.

**86-0327 Adolescent fertility: tradition and legislation (Sénégal)**

For the Institut Cheikh Anta Diop/Institut fondamental d'Afrique noire, Dakar, to study sexuality and fertility among unmarried adolescent women by examining the problem at the institutional, sociological, family, and individual levels. \$90 000 — 24 months.

**86-0330 Vocational training in the service sector (China)**

For the Beijing Normal University to enable the Institute of Educational Research to evaluate the current status of vocational training at the secondary school level in the hotel and secretarial service fields, giving particular attention to the knowledge, skills, and attitudes required by vocational school teachers in

these fields and the best means of providing them. \$72 830 — 24 months.

**86-0331 Handicrafts in the urban areas of Kara and the Savannah (Togo)**

For the Direction de la statistique, Lomé, to establish structures to facilitate handicrafts development and improve inquiry methodology. \$94 800 — 24 months.

**86-0332 General education, specialized education, and occupation (Colombia)**

For the Fundación para la Educación Superior y el Desarrollo, Bogotá, to compare general education and specialized education to determine their advantages and disadvantages in different occupational contexts in relation to an individual's work performance. \$49 830 — 12 months.

**86-0335 Youth fertility and education (Congo)**

For the Direction générale de la Recherche scientifique et technique, Brazzaville, to study those who drop out of school as a result of early fertility with a view to proposing solutions for the economic and social advancement of Congolese women. \$92 700 — 24 months.

**86-1005 Teaching and learning mathematics (Dominican Republic-Canada) — Phase II**

For the Universidad Católica Madre y Maestra, Santiago, and the University of British Columbia, Vancouver, to develop and evaluate an innovative research and development program that includes the in-service training of teachers in essential mathematical content and teaching techniques and the development and production of high-quality, low-cost curriculum materials for use by students and teachers. \$150 630 — 16 months.

**86-1006 Displaced populations in Lebanon (Lebanon-Canada)**

For the Université Saint-Joseph, Beirut, and Laval University, Quebec, to examine and analyze the phenomenon of forced internal migration and to determine the problems, needs, and living standards of persons displaced. \$269 500 — 36 months.

**86-1013 Rural nonagricultural employment in Jiangsu (China-Canada)**

For the Jiangsu Provincial Academy of Social Science, Nanjing, and the University of British Columbia, Vancouver, to explain the growth and the structure of rural nonagricultural activities in Jiangsu Province. \$62 100 — 36 months.

**86-1024 Economic strategy (Tunisia-Canada) — Phase III**

For the ministère du Plan, Tunis, and the University of Montreal, Quebec, to enable the Institut d'économie quantitative of the Ministry and the Centre de recherche en développement économique of the University to consolidate and apply the economic simulation models developed during the first two phases of the project. \$198 600 — 24 months.

**86-1025 Schooling, cognition, and work: outcomes of primary education in Kenya (Kenya—Canada) — Phase II\***

For the Kenyatta University College, Nairobi, and McGill University, Quebec, to examine some of the practical outcomes of Kenyan primary-school education. \$81 070 — 12 months.

**86-1032 Land resources and urban finances (Sénégal—Canada)**

For the ministère du Plan et de la Coopération, Dakar, and the University of Montreal, Quebec, to study the institutional, political, administrative, and financial context of the mobilization and management of urban resources in Sénégal and, particularly, public interventions in the land sector. \$144 760 — 18 months.

**86-1036 Policy implementation in adult education (Tanzania—Mexico—Canada)**

For the University of Dar es Salaam; the Centro de Estudios Educativos, Mexico City; and the University of Alberta, Edmonton; to examine, from a collaborative and comparative perspective, the formulation and implementation of adult education policies in Tanzania, Mexico, and Alberta. \$235 100 — 24 months.

## Health Sciences

**86-0002 Childhood diarrhea (Sri Lanka)**

For the University of Ruhuna, Galle, to discover some of the behavioural factors that contribute to childhood diarrhea in Galle Municipality and to formulate strategies to reduce its prevalence. \$9625 — 12 months.

**86-0003 Training in health management (Global—Canada)**

For the University of Toronto, Ontario, to provide fellowship support for four trainees to participate in its course in evaluative management skills for physicians and health administrators. \$70 000 — 12 months.

**86-0004 Traditional birth attendants (Zimbabwe)**

For the Ministry of Health, Harare, to collect information with which to improve its traditional birth-attendant training program. \$72 620 — 15 months.

**86-0008 Primary health care in Sabah Province (Malaysia)**

For the University of Malaya, Kuala Lumpur, to enable its Department of Social and Preventive Medicine to develop a model for primary health-care delivery that is appropriate for rural Sabah Province. \$105 020 — 24 months.

**86-0009 Evaluation of DAFF latrines (Guatemala)**

For the Centro de Estudios Mesoamericano sobre Tecnología Apropriada, Guatemala City, to evaluate the technical performance and the social acceptability of dry alkaline fertilizer family latrines (DAFF) and to assess the nutrient quality and safety of handling and

using the organic matter produced as fertilizer. \$53 000 — 12 months.

**86-0010 Dengue hemorrhagic fever (Cuba) — Phase II**

For the Instituto de Medicina Tropical "Pedro Kouri," Havana, to study clinical, pathological, virological, and epidemiological aspects related to the pathogenesis of dengue hemorrhagic fever—dengue shock syndrome. \$114 290 — 36 months.

**86-0016 Leishmaniasis (Mexico)**

For the Universidad Autónoma de Yucatan to enable the Centro de Investigaciones Regionales to assess the nature and extent of the problem of cutaneous leishmaniasis in the Campeche State of the Yucatan peninsula. \$64 955 — 24 months.

**86-0018 Handpump technology (Costa Rica)**

For the Centro de Capacitación para el Desarrollo, San José, to enable the Programa de Salud Rural of the Ministerio de Salud to investigate the appropriateness and technical performance of the polyvinylchloride (PVC) UNIMADE handpump (the Malaysian pump) and strategies for its maintenance. \$313 380 — 24 months.

**86-0028 Containers for primary health care (Kenya)**

For the University of Nairobi and the Program for Appropriate Technology in Health, USA, to complete the development of an appropriate, portable container system for primary health care to be used for the transport of medical supplies and equipment by primary health-care workers. \$133 820 — 21 months.

**86-0039 Evaluation of information exchange with children (Kenya)**

For the Mazingira Institute, Nairobi, to evaluate the impact of the Mazingira health learning package on children's health practices and attitudes. \$134 310 — 18 months.

**86-0040 Prevention of pregnancy-induced hypertension (Argentina)**

For the Centro Rosarino de Estudios Perinatales, Rosario, to determine whether calcium supplementation during pregnancy has any effect on pregnancy-induced hypertension. \$299 209 — 28 months.

**86-0065 Nutritional surveillance (Colombia)**

For the Universidad de Antioquia, Medellín, to enable its School of Nutrition to provide health authorities in Medellín with a nutritional surveillance system for children under 5 years of age who attend city health institutions. \$31 010 — 36 months.

**86-0067 Weaning practices (Sri Lanka)**

For the University of Colombo to enable the Department of Pediatrics of the Faculty of Medicine to develop appropriate strategies to improve the nutritional status of weaning-age children in rural Sri Lanka. \$35 600 — 24 months.

**86-0073 Applied nutrition research (East Africa)**

For the University of Nairobi, Kenya, to enable the College of Agriculture and Veterinary Sciences to train

East African nutritionists in applied research methodology and thereby strengthen their ability to carry out their duties in nutrition planning and research. \$85 060 — 24 months.

**86-0081 Occupational health profiles (Egypt)**

For the University of Alexandria to enable the Niosh-Hiph Occupational Health Research Centre to establish profiles for occupational diseases and accidents for the small- and medium-scale industries in the region of Alexandria as a model for conditions prevailing in Egypt. \$126 380 — 24 months.

**86-0082 Pesticide intoxication (Egypt)**

For Cairo University to enable the Kasr El Aini Faculty of Medicine, Cairo, to develop schemes to reduce the occupational health hazards posed by the pesticide-manufacturing and -formulating industries in Egypt. \$164 070 — 24 months.

**86-0083 Pyrethroid poisoning (China)**

For the Chinese Academy of Preventive Medicine, Beijing, to enable the Institute of Occupational Medicine to eliminate the risk associated with the use of pyrethroids by agricultural workers in China. \$104 680 — 24 months.

**86-0088 Preschool health education (Indonesia)**

For the International Federation for Family Health, Java, to promote favourable health attitudes and practices among preschool age children in selected kindergartens of West Java Province. \$96 335 — 24 months.

**86-0117 Health services applied research methods (Swaziland)**

For the Ministry of Health, Mbabane, to enable the Health Services Training Institute to familiarize junior researchers, potential researchers, and policy advisors with the basic skills and the importance of applied research methods in the health sciences. \$87 385 — 6 months.

**86-0119 PVC handpumps (Cameroon)**

For CARE Cameroon to investigate the social, economic, and technical feasibility of adapting the polyvinylchloride (PVC) UNIMADE handpump (the Malaysian pump) to local environmental conditions with the intent of establishing a local manufacturing capability. \$206 560 — 24 months.

**86-0121 Epidemiology of diarrhea in Hefei (China)**

For the Anhui University of Medical Sciences, Hefei, to investigate the epidemiology of diarrhea in rural Anhui Province. \$107 740 — 24 months.

**86-0122 Health services research in Thatta district (Pakistan)**

For the Aga Khan University, Karachi, to evaluate the health services and health and demographic status of the Thatta district in rural Pakistan. \$270 300 — 24 months.

**86-0125 National program for health services/ systems research (Sri Lanka)**

For the Ministry of Health, Kalutara, to enable the National Institute of Health Sciences to improve the

health of the Sri Lankan population through better access to high-quality health services that address the needs and demands of the people. \$782 730 — 36 months.

**86-0129 Schistosomiasis (Sierra Leone)**

For the University of Sierra Leone, Freetown, to enable its Department of Community Health to provide information on the prevalence, intensity of infection, and contribution of human behaviour to the transmission of schistosomiasis in a rural district of Sierra Leone. \$113 190 — 24 months.

**86-0130 Malaria (Tanzania)**

For the National Institute for Medical Research, Dar es Salaam, to enable the Amani Medical Research Centre to evaluate alternative drug regimens for the treatment of chloroquine-resistant *Plasmodium falciparum* malaria in Tanzania. \$149 000 — 24 months.

**86-0131 Determinants of dengue (Mexico)**

For the Secretaría de Salud, Mexico City, to enable its Dirección General de Epidemiología to describe the determinants of dengue transmission and pathogenicity within a circumscribed population by an analysis of risk factors and computer modeling. \$143 900 — 24 months.

**86-0132 Windpump and composting latrine technology (Panama)**

For the Universidad de Panamá to enable the Centro de Investigaciones de la Facultad de Arquitectura to evaluate the technical performance and social acceptability of a locally designed windpump system for potable water and two models of compost-producing latrines. \$135 100 — 24 months.

**86-0133 Deep-well pumps (India)\***

For the Department of Science and Technology, Jaipur, to evaluate the overall technical performance of 1½- and 2-inch polyvinylchloride (PVC) handpumps under semidesert conditions and to investigate the feasibility of manufacturing and maintaining them locally. \$160 000 — 30 months.

**86-0136 Environmental slum improvement (Thailand)**

For Prince of Songkla University, Haad-Yai, to enable its Department of Community Medicine to develop a community-based strategy for improving environmental health in the slums of Hat Yai Municipality. \$23 360 — 12 months.

**86-0145 Cervical cancer prevention (Argentina)**

For the Centro de Estudios de Estado y Sociedad, Buenos Aires, to assess selected existing programs for early detection and treatment of cervical cancer in metropolitan Buenos Aires and to make recommendations concerning their improvement. \$71 810 — 20 months.

**86-0151 Community mental health (Philippines)**

For the University of the Philippines, Manila, to enable its College of Medicine to develop a primary health care (PHC) psychosocial assessment tool and to evaluate how this tool influences the attitudes of



PHC workers toward psychosocial problems.  
\$80 980 — 30 months.

**86-0157 Infant feeding practices (Thailand)**

For Prince of Songkla University, Haad-Yai, to enable its Faculty of Nursing to develop and evaluate an appropriate health promotion package aimed at improving breastfeeding and weaning practices among rural primigravida women. \$47 300 — 24 months.

**86-0158 Childhood diarrhea in Ondo State (Nigeria)**

For the University of Ife, Ile-Ife, to enable its Faculty of Health Sciences to develop and evaluate educational and community strategies for the prevention and treatment of diarrheal disease in children under 5 years of age. \$63 645 — 27 months.

**86-0176 Sexually transmitted diseases (Chile) — Phase II**

For the Ministerio de Salud de Chile, Santiago, to determine the prevalence of penicillin-resistant strains of gonococci in four cities outside Santiago as well as to develop and test a health-education program in two of those cities. \$283 114 — 30 months.

**86-0177 Pediatric AIDS (Kenya)**

For the University of Nairobi to enable its Department of Medical Microbiology to define the epidemiology and consequences of congenital, perinatal, and postnatal transmission of the human immunodeficiency virus, focusing on determining how and when the virus is transmitted to the fetus or newborn by infected mothers. \$441 045 — 48 months.

**86-0197 Technologies for community health care in the developing world**

For the Program for Appropriate Technology in Health, USA, to continue the research and development activities leading to the production, introduction, and dissemination of affordable technologies for effective delivery of primary health care in developing countries. \$308 700 — 24 months.

**86-0198 Dissemination of PVC handpumps in rural areas (Mali)**

For the Association malienne de recherche-action pour le développement, Bamako, to evaluate the acceptability and technical performance of the polyvinylchloride (PVC) UNIMADE handpump (the Malaysian pump) in Malian villages, and to train villagers to install, repair, supervise, and maintain the pump themselves. \$266 950 — 24 months.

**86-0202 Hepatitis B immunization (Philippines)**

For the University of the Philippines College of Medicine, Manila, to enable its Clinical Epidemiology Unit to compare the efficacy of one-dose Hepatitis B immunization to a three-dose regimen in preventing the Hepatitis B carrier state among Filipino children. \$267 686 — 36 months.

**86-0205 Nosocomial infections (Thailand)**

For Chiang Mai University to enable the School of Nursing to detect and record nosocomial infections in

a university and provincial hospital, to identify problem areas, and to institute an effective and practical control procedure. \$83 040 — 24 months.

**86-0219 Pesticide poisoning of workers (Bolivia)**

For the Instituto Nacional de Salud Ocupacional, La Paz, to determine the importance, characteristics, and prevalence of health problems due to the use of organophosphate and carbamate pesticides by agricultural workers. \$110 830 — 22 months.

**86-0225 Children as change agents (Honduras)**

For the Universidad Nacional Autónoma de Honduras, Tegucigalpa, to enable its Dirección de Extensión Universitaria to demonstrate that children can be more effective in changing their family's hygiene behaviour than the conventional health promoters. \$128 350 — 30 months.

**86-0226 Water quality survey (Zimbabwe)**

For the Ministry of Health, Harare, to enable the Government Analyst's Laboratory to investigate the prevalence of fluorides and nitrates in drinking water in two districts of Zimbabwe, and to examine the relationships between the fluorides and dental fluorosis, and the nitrates and the distribution and concentration of on-site sanitation (latrines). \$87 300 — 18 months.

**86-0227 NORPLANT® user satisfaction (Global)**

For the Population Council, USA, to obtain information on attitudes, perceptions, and experiences of NORPLANT® users; counselors' efficacy in communicating relevant information; and the adequacy of existing service and delivery systems. \$515 376 — 36 months.

**86-0228 Research in human reproduction: WHO (Global)**

For the World Health Organization (WHO), Switzerland, to continue to support the Special Programme of Research, Development and Research Training in Human Reproduction. \$400 000 — 24 months.

**86-0240 Paragonimiasis (China)**

For the Tropical Medicine Research Institute, Beijing, to design, implement, and evaluate an experimental program for intervention in health education to control paragonimiasis in China. \$109 760 — 36 months.

**86-0247 Evaluation methodology in primary health care (Mexico)**

For the Secretaría de Salud, Mexico City, to enable the Subsecretaría de Planeación to improve primary health care in rural areas by developing methods for monitoring and evaluating the present mixture of delivery systems so that it can be adapted to increase effectiveness and quality. \$163 675 — 24 months.

**86-0248 Arboviral encephalitis (China)**

For the Shanghai Medical University to enable its Department of Epidemiology to determine the relationship between California encephalitis serogroup infection and viral encephalitis in China. \$53 130 — 30 months.

**86-0250 Trypanosomiasis control (Zambia)**

For the Tropical Diseases Research Centre, Ndola, to develop a feasible strategy for control of tsetse fly for trypanosomiasis control in the Luangwa valley. \$170 942 — 36 months.

**86-0256 Diarrheal Diseases Control Programme (Global) — Phase IV**

For the World Health Organization, Switzerland, to enable its Diarrheal Diseases Control Programme to reduce the mortality caused by acute diarrheal diseases in infants and young children, decrease the morbidity caused by diarrheal diseases, and promote national self-reliance in delivering health and social services for the control of diarrheal diseases. \$300 000 — 24 months.

**86-0278 Independent International Commission on Health Research for Developing Countries (Global)**

For the Harvard School of Public Health, USA, to review health-care systems in developing countries and to promote action to meet critical needs. \$271 000 — 30 months.

**86-0281 Pesticide exposure (Philippines)**

For the Fertilizer and Pesticide Authority for the Philippines, Manila, to develop an appropriate methodology (based on existing World Health Organization protocols) to determine the degree of exposure associated with the use of a liquid insecticide such as methylparathion using hand-pumped knapsack sprayers. \$16 500 — 4 months.

**86-0282 International health communications in Canada**

For the Association of Universities and Colleges of Canada, Ontario, to help cover the costs of publishing, for its initial 3 years, a Canadian newsletter devoted to international health issues. \$165 000 — 36 months.

**86-0283 Community health research (Ethiopia)**

For McGill University, Montreal, to enable the Jimma Institute of Health Sciences and the Ministry of Health, Addis Ababa, to strengthen community health research capacity in Ethiopia by providing a strong research component in the master's degree program in community health and thereby training a relatively large number of well qualified researchers each year. \$490 610 — 24 months.

**86-0285 Typhoid carriers (Indonesia)**

For Airlangga University, Surabaya, to enable its School of Medicine to develop a control and follow-up program to decrease the prevalence of typhoid fever in Surabaya City. \$49 725 — 30 months.

**86-0288 Maternal health in periurban Tegucigalpa (Honduras)**

For the Centro de Estudios y Promoción del Desarrollo, Tegucigalpa, to assess the health status and health-seeking behaviour of women of reproductive age (15–49 years) in the marginal areas of Tegucigalpa. \$97 191 — 15 months.

**86-0295 Pesticide handling (Kenya)**

For the University of Nairobi to assess people's perceptions of hazards posed by the mishandling of agrochemicals, specifically pesticides, at the community level. \$46 820 — 24 months.

**86-0304 Occupational airways disease among coffee-dust workers (Uganda)**

For the Ministry of Labour, Kampala, to enable its Occupational Health and Hygiene Department to assess the occurrence, determinants, and associations of occupational diseases of the airways (asthma or chronic bronchitis, or both) among workers exposed to coffee dust in Uganda. \$96 500 — 15 months.

**86-0308 Leishmaniasis epidemiology (Tunisia)**

For the Université de Tunis to enable its Faculté de médecine to determine the role of the various vectors and animal reservoirs in the transmission of the different forms of human leishmaniasis. \$81 280 — 30 months.

**86-0309 Training in health management (Canada) — Phase II**

For the University of Toronto to enable its Faculty of Medicine to provide fellowship support for seven trainees to participate in its course in health-care evaluation and management skills. \$94 500 — 12 months.

**86-0322 Water disinfection (Bolivia)**

For the Universidad Mayor de San Simon, Cochabamba, to determine the appropriateness of using chlorine for water disinfection and to develop, test, and evaluate low-cost, easily maintained, hydraulically driven hypochlorinators for rural water supplies. \$94 780 — 24 months.

**86-0336 Pediatric AIDS (Uganda)**

For Makerere University, Kampala, to define the modes of transmission and possible risk factors involved in the transmission of the AIDS virus (HIV) from HIV-infected mothers to their infants. \$74 200 — 18 months.

**86-0337 Ophthalmia neonatorum (Colombia)**

For the Universidad Nacional, Bogotá, to enable its faculty of nursing to determine the antibacterial effect of 10% Hexarginum, 4% sulfamethoxazole drops, or 0.5% erythromycin ointment when used as prophylaxes against chlamydial and gonococcal ophthalmia. \$57 750 — 24 months.

**86-0338 Schistosomiasis (Uganda)**

For the Ministry of Health, Kampala, to relate the seasonal patterns in population size and infection rates of snails to prevalence and incidence of schistosomiasis in humans with a view to formulating control measures; and to determine the prevalence and transmission of *Schistosoma mansoni* in relation to human behavioural factors, with a view to planning interventions in the area. \$76 860 — 36 months.

**86-0339 Chagas' disease in the newborn (Bolivia)**

For the Centro Nacional de Enfermedades Tropicales, Santa Cruz, to establish a scheme for the efficient diagnosis of congenital Chagas' disease in newborns. \$74 690 — 24 months.

**86-0343 Iron-deficiency anemia (Argentina) — Phase II**

For the Centro de Estudios sobre Nutrición Infantil, Buenos Aires, to identify the underlying causes of observed anemia as well as the population groups most affected. \$22 970 — 12 months.

**86-0345 Quality of health care (Chile)**

For the Corporación de Promoción Universitaria, Santiago, to evaluate health conditions and quality of medical care in Chile. \$86 665 — 18 months.

**86-0346 Breastfeeding manuals (Philippines) — Phase II**

For Notre Dame University, Cotabato City, to encourage the promotion of breastfeeding among women in the Philippines by health-service providers. \$75 810 — 24 months.

**86-0347 International health research and training network (Canada)**

For the Canadian Society for Tropical Medicine and International Health, Ottawa, to determine the feasibility of establishing a network of Canadian institutions collaborating in international health research and training. \$47 685 — 12 months.

**86-1002 Coal-based sorbents (India-Canada)**

For the Indian Institute of Technology, Kanpur, and the University of Ottawa, Ontario, to develop low-cost domestic-water filters for use in rural and suburban communities in India and to evaluate their capacity for removing enteric virus. \$220 990 — 36 months.

**86-1018 Sperm inhibition (Chile-Canada) — Phase IV**

For the Pontificia Universidad Católica de Chile, Santiago, and Queen's University, Ontario, a bridging grant to finalize particular technical aspects of the previous phases, prepare publications, and arrange alternate sources of funding. \$130 137 — 12 months.

**86-1035 Nutrition (Chad-Canada)**

For the ministère de la Santé publique, Ndjamena, and the University of Montreal, Quebec, to strengthen the capacities of the Centre de nutrition et de technologie alimentaire (CNTA) and to develop a methodology for the CNTA and the Bureau interministériel d'études et de programmation to follow up nutritional effects of projects and to determine ways of improving the nutritional status of families living in the agricultural zones (the ouaddis) of South Kanem. \$185 985 — 12 months.

**86-1051 Water quality data management (Malaysia-Canada)**

For the Universiti Malaya, Kuala Lumpur, and the National Water Research Institute, Ontario, to develop and test a user-friendly computer software package for the management and analysis of data related to drinking-water quality, incorporating a classification system for categorizing rural water supply sources according to "relative risk" to the consumer. \$98 980 — 18 months.

## Information Sciences

**86-0006 Agricultural information (Sénégal) — Phase II**

For the ministère du Développement rural, Dakar, to enable its Centre du documentation to strengthen the documentation structures of the Ministry through a better organized and more functional agricultural information system, and to develop the organizational and managerial capacity of agricultural documentation in Sénégal while applying the information to rural development planning. \$189 850 — 24 months.

**86-0015 National Information System and Documentation Centre (Dominica)**

For the Ministry of Education and Sports, Roseau, to enable the Documentation Centre to fulfill its functions as a multidisciplinary development information service and coordinating focal point for the National Information System. \$159 800 — 36 months.

**86-0017 Technological information: CRAT (Africa)**

For the Centre régional africain de technologie (CRAT), Sénégal, to enable its Centre d'information to respond to the needs and demands of African countries for scientific and technical information in the fields of agriculture, nutrition, and energy. \$357 842 — 24 months.

**86-0023 Regional postgraduate program in information studies (Latin America)**

To assist the Universidad Simón Bolívar, Venezuela, in offering a graduate program in information studies oriented to the training of high-level technical personnel and professionals in the management of information services. \$56 633 — 24 months.

**86-0034 Animal production information (Africa) — Phase III**

For the International Livestock Centre for Africa, Ethiopia, to consolidate and expand the information services provided to national researchers within sub-Saharan Africa and to assess to what extent the services have been fully utilized and properly channeled to the target groups. \$377 957 — 36 months.

**86-0047 Root-crops information (sub-Saharan Africa)**

For the Centro Internacional de Agricultura Tropical, Colombia, to improve access to the documentation and agroclimatic and statistical data relating to cassava and other root crops from research stations, ministries of agriculture, universities, libraries, and information centres in 22 African countries. \$51 430 — 6 months.

**86-0052 Marine resources information (Sri Lanka)**

For the National Aquatic Resources Agency, Colombo, to establish MAARIS (Marine Affairs and Aquatic Resources Information Service) with links to national and international organizations and systems. \$132 070 — 36 months.

**86-0056 Manual for investors in Tanzania**

For the Tanzania Industrial Studies and Consulting

Organization, Dar es Salaam, to collect and publish, in the form of a manual, information and data relevant to industrial investors and to ensure a wide distribution to potential investors. \$8310 — 12 months.

**86-0057 Arab database for arid plants (ADAP)**

For the Arab Center for the Studies of Arid Zones and Dry Lands, Syria, to establish an information system to meet the needs of researchers and others in the Arab countries concerned with the use of arid plants and to offer information services in five specific areas — range management and improvement, sand-dune fixation, watershed protection, plant identification, and stopping desertification. \$303 270 — 42 months.

**86-0059 CD-ROM evaluation (Global)**

To enable the Information Sciences Division, IDRC, to coordinate the testing and evaluation of CD-ROM (compact disk-read-only memory) technology for the delivery of bibliographic references within five IDRC-supported projects and the Centre Library. \$47 000 — 12 months.

**86-0060 CGIAR publications preservation and dissemination (Global)**

For the International Bank for Reconstruction and Development, USA, to enable the Consultative Group on International Agricultural Research (CGIAR) to preserve its publications, to publicize their existence, and to improve their availability, especially in developing countries. \$95 000 — 16 months.

**86-0066 Semi-Arid Tropical Crops Information Service (Global)**

For the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), India, to expand the services of the Sorghum and Millets Information Center to establish the Semi-Arid Tropical Crops Information Service (SATCRIS) concentrating on all five crops mandated to ICRISAT (millet, sorghum, chickpea, pigeon pea, and groundnut). \$210 000 — 36 months.

**86-0069 Computer selection manual (India)**

For the Centre for Development of Instructional Technology, New Delhi, to produce and disseminate a manual offering unbiased, practical information to potential buyers of hardware and software for mini- and micro-computers, based on market conditions in India. \$25 250 — 12 months.

**86-0078 Sahel Renewable Energies Information System (SIERS)**

For the Centre régional d'énergie solaire, Mali, to equip its Documentation Centre with the means necessary to its coordinating function, and to enable the national focal points to participate effectively in the system using a reliable information transfer method to set up a Sahel Renewable Energies Information System (SIERS). \$149 450 — 36 months.

**86-0079 SATIS information system users' survey (Global)**

For the Socially Appropriate Technology International Information Services (SATIS), The Netherlands, to review and evaluate the current SATIS

information management system, to identify the users' needs, and to formulate proposals for the future development of the system. \$85 695 — 6 months.

**86-0080 Caribbean Energy Information System (CEIS)**

For the Ministry of Agriculture, Jamaica, to enable the Scientific Research Council to establish and maintain an energy information system to facilitate the sharing of information on new and renewable sources of energy in the Caribbean. \$447 450 — 36 months.

**86-0087 Information for research and planning (Guinea-Bissau)**

For the Instituto Nacional de Estudos e Pesquisa (INEP), Bissau, and the Centro de Informação e Documentação Amílcar Cabral, Portugal, to provide the scientific, technical, and socioeconomic information for which the Centre for Socioeconomic Studies and the Technological Documentation Centre of INEP are responsible. \$192 000 — 24 months.

**86-0091 Faba Beans Information Services (FABIS) — Phase II**

For the International Center for Agricultural Research in the Dry Areas, Syria, to foster the exchange of experience among all scientists working on faba beans, irrespective of their particular disciplines. \$268 500 — 36 months.

**86-0094 OECS INFONET (Caribbean)**

For the Organization of Eastern Caribbean States (OECS), St Lucia, to establish an operating information network (INFONET) within OECS, with the coordinating role provided by the Secretariat of OECS. \$520 000 — 36 months.

**86-0106 APPROTECH ASIA information system on water and sanitation**

For the Asian Alliance of Appropriate Technology Practitioners (APPROTECH ASIA), The Philippines, to collect, process, and disseminate information on water and sanitation that is of relevance to nongovernmental organizations in Asia and to ensure coordination of water and sanitation information activities among them. \$109 000 — 24 months.

**86-0108 WASSDOC (Sri Lanka)**

For the National Water Supply and Drainage Board, Ratmalana, to establish a national Water Supply and Sanitation Documentation Centre (WASSDOC) to serve a network of users throughout Sri Lanka engaged in the provision of water and sanitation facilities. \$142 550 — 36 months.

**86-0109 African water and sanitation information system**

For the Comité interafricain d'études hydrauliques, Burkina Faso, to enhance the capabilities of its Centre de documentation to collect, process, and disseminate serviceable information to its users, to put in place a subregional water and sanitation information system for western and central Africa, and to serve as the coordination centre for a future system. \$137 350 — 24 months.

**86-0120 Consumer issues: teaching materials (Malaysia)**

For the Consumers Association of Penang to produce 14 pamphlets on consumer, food, nutrition, and environmental health issues for use in teachers' training colleges of Malaysia. \$93 970 — 24 months.

**86-0140 Women's studies information centre (India)**

For the Institute of Social Studies Trust, New Delhi, to enhance its capacity to provide an information service on women's studies with special reference to women at work. \$56 700 — 36 months.

**86-0142 Information network on women in development (Costa Rica)**

For the Fundación Acción Ya, San José, to establish an information service on women in development. \$75 600 — 18 months.

**86-0150 Health Research and Development Information Network (Philippines)**

For the Philippine Council for Health Research and Development, Manila, to improve the dissemination of health-related information through the establishment of the Health Research Development Information Network. \$283 000 — 36 months.

**86-0154 AFRIMAIL (Tunisia)**

For the Centre national de l'informatique, Tunis, to develop and test a bilingual (French/Arabic) message system (AFRIMAIL), accessible by telex, telephone, and packet-switch communication for the use of the Tunisian research community. \$71 500 — 18 months.

**86-0161 Technology information dissemination (Botswana)**

For the Botswana Technology Centre, Gabarone, to enable the Botswana Technical Information Service (BTIS) to develop an active technological information dissemination program for the rural communities, and to reinforce the existing technical information activities of BTIS and to determine the most effective methods of doing so. \$209 480 — 36 months.

**86-0162 Enhancing user services at CNDIST (Lao People's Democratic Republic)**

For the Information Sciences Division, IDRC, to enable the State Council of Science and Technology of the Ministry of Foreign Affairs, Vientiane, to improve the capability of the Centre national de documentation et d'information scientifique et technologique (CNDIST) and to make it more relevant to the national needs. \$98 450 — 24 months.

**86-0163 Agricultural documentation at CENRADERU (Madagascar)**

For the ministère de la Recherche scientifique et technologique pour le développement, Antananarivo, to enable the Centre national de la recherche appliquée au développement rural (CENRADERU) to strengthen the activities of the Documentation Centre so as to make available on a permanent basis the scientific and technical information necessary to

support various research programs of FOFIFA. \$217 835 — 36 months.

**86-0165 Agricultural documentation (Guinea)**

For the ministère du Développement rural, Conakry, to enable the Centre national de documentation et d'information pour le développement rural to expand its activities and provide better service to users involved in agriculture and rural development in Guinea. \$90 645 — 36 months.

**86-0168 African standards documentation network**

For the African Regional Organization for Standardization (ARSO), Kenya, to make operational the ARSO Network of Documentation and Information Systems (ARSO-DISNET) on standards and technical regulations. \$296 000 — 24 months.

**86-0171 Building legislation handbook (ASEAN)**

For the Asian Institute of Technology, Bangkok, to produce a handbook on building legislation in the countries of the Association of South East Asian Nations (ASEAN). \$112 755 — 24 months.

**86-0175 PADIS-DEVSIS (Africa) — Phase III**

For the United Nations Economic Commission for Africa, Ethiopia, to enable the Pan-African Documentation and Information System (PADIS) to continue developing standard tools and methodologies for the PADIS network, and to strengthen its training capacity with a view to assisting member states in organizing their own development information resources. \$340 000 — 24 months.

**86-0182 Labour information system (Egypt)**

For the Central Agency for Public Mobilization and Statistics, Nasr City, Cairo, to construct an information system for the storage and analysis of data on Egyptian labour markets and to conduct associated research. \$340 000 — 36 months.

**86-0217 Debt recording and management system (ECCB)**

For the Eastern Caribbean Central Bank (ECCB), St Christopher-Nevis, to establish a subregional debt-recording and management system for the countries of the Eastern Caribbean at ECCB. \$115 000 — 24 months.

**86-0221 Public administration information (Peru)**

For the Instituto Nacional de Administración Pública, Lima, to enable the Escuela Superior de Administración Pública to support the national policy of improving the efficiency and qualifications of civil service personnel in Peru. \$87 200 — 24 months.

**86-0229 Geographic information system on the Caribbean coastal zone (Colombia)**

For the Centro de Investigaciones Oceanográficas y Hidrográficas, Cartagena, to strengthen the capability of an information centre on the Caribbean coastal zone of Colombia by providing a tool to adequately store and package available information for the administration and development of this region to the

greatest benefit of the Colombian people.  
\$65 350 — 12 months.

**86-0237 Pan African Rural Documentation and Information Network**

For the Pan African Institute for Development, Cameroon, to reinforce the documentation centres of its four regional institutes and to provide its own documentation centre with the means to play efficiently the role of network coordinator.  
\$209 000 — 24 months.

**86-0238 Aquatic sciences literature survey (Asia)**

For the Asian Fisheries Society, the Philippines, to determine the literature output and academic characteristics of Asian fisheries scientists and, through analysis of the data collected, to present a quantitative assessment of the status of Asian fisheries science.  
\$36 530 — 12 months.

**86-0242 Latin American computer-based networking: communication for action — Phase II**

For the Instituto Latinoamericano de Estudios Transnacionales, Chile, to test and evaluate more sophisticated communication software packages, within a Latin American trade information network and a North-South telecommunications technology transfer network. \$255 268 — 24 months.

**86-0245 Poison Control Centre (Egypt)**

For Ains Shams University, Cairo, to enable the Poison Control Centre of Cairo to strengthen its poison information services, to provide better information services to health-care professionals and consumers, and to reduce morbidity and mortality due to poisoning. \$192 720 — 24 months.

**86-0254 Strengthening RESADOC's national coordinating centre (Mali)**

For the ministère de l'Agriculture, Bamako, to enable the Institut d'économie rurale to strengthen and consolidate the national structure of the Sahelian Scientific and Technical Information and Documentation Network (RESADOC). \$90 000 — 24 months.

**86-0321 REPIDISCA (Guatemala)**

For the Universidad de San Carlos de Guatemala to enable the Escuela Regional de Ingeniería Sanitaria y Recursos Hidráulicos (ERIS) to establish a national information service on sanitary engineering, environmental sciences, and water management in support of national research and planning and the instructional needs of ERIS within the Pan American Network on Information and Documentation in Sanitary Engineering and Environmental Sciences (REPIDISCA). \$49 415 — 24 months.

**86-0324 Communication among scientists (Colombia)**

For the Universidad Nacional de Colombia, Bogotá, to establish a specialized information service with emphasis on the use of telecommunications and audio and video cassettes to enhance communication between scientists and researchers, and the

communication of research results to user groups.  
\$89 000 — 24 months.

**86-1012 Land-use remote sensing (Dominican Republic-Canada)**

For the Universidad Católica Madre y Maestra, Santiago, and Sherbrooke University, Quebec, to enable the Centro de Estudios Urbanos y Regionales and the Centre d'applications et de recherches en télédétection to define land-use trends in the western sector of the Dominican Republic from an environmental and social point of view. \$86 365 — 10 months.

**86-1017 Lentil news and information service (Global) — Phase II**

For the International Center for Agricultural Research in the Dry Areas, Syria, and the University of Saskatchewan, Saskatoon, to continue to collect information on lentils and disseminate it to international users. \$385 000 — 36 months.

## Cooperative Programs

**85-1040 Black granites (Uruguay-Canada)\***

For the Universidad de la República, Montevideo, and the Institut de recherche en exploration minérale, Quebec, to establish the geological criteria needed to identify on the basis of geology, geophysics, and surface characteristics the locations of commercially exploitable dykes, and so to avoid expensive drilling surveys. \$262 000 — 24 months.

**86-1003 Sebacic acid (India-Canada)**

For the Shriram Institute for Industrial Research, Delhi, and the New Brunswick Research and Productivity Council, Fredericton, to develop a process for producing sebacic acid from castor oil.  
\$126 400 — 24 months.

**86-1008 Cuprous oxide (Chile-Canada)**

To enable the Pontificia Universidad Católica de Chile, Santiago, and Queen's University, Ontario, to develop the technology for the application of anode support systems to the production of cuprous oxide.  
\$98 850 — 24 months.

**86-1010 International Development Office (Global-Canada)**

For the Association of Universities and Colleges of Canada, Ontario, to enable its International Development Office to continue to increase the role of Canadian universities in the area of international development cooperation. \$72 000 — 12 months.

**86-1011 Fluid inclusions (Thailand-Canada)**

For the Department of Mineral Resources, Bangkok, and the Mineral Exploration Research Institute, Quebec, to use fluid-inclusion studies to refine geological models used in granite-related mineral exploration and to develop a fluid-inclusion microthermometric method that can be used directly as a geochemical survey tool in mineral exploration  
\$178 000 — 36 months.



**86-1014 Saltwater intrusion in aquifers  
(Sénégal-Canada)**

For the Université de Dakar and Laval University, Quebec to determine the optimal conditions for the exploitation of quaternary coastal aquifers on the Cape Vert peninsula, so as to supply water to the urban, suburban, and rural population of the Dakar region. \$348 425 — 36 months.

**86-1015 Ceramics raw material  
(Guyana-Canada)**

For the Guyana Geology and Mines Commission, Georgetown, and the Alberta Research Council, Edmonton, to thoroughly characterize the ceramic raw materials, particularly clays and feldspar, of the readily accessible coastal areas of Guyana, a total of about 320 km<sup>2</sup>. \$387 000 — 24 months.

**86-1019 Phosphates (Burundi-Canada)\***

For the ministère des Travaux publics, de l'Énergie et des Mines, Bujumbura; the University of Zambia, Lusaka; and Agriculture Canada (Ottawa), Ontario; to study and develop experimental low-cost methods of extracting, processing, and transforming fertilizers from the phosphatic ores of Matongo in Burundi. \$369 000 — 36 months.

**86-1021 Soil erosion (China-Canada)**

For the Guangdong Academy of Sciences, Guangzhou, and the University of Toronto, Ontario, to evaluate the effectiveness of measures to control soil erosion in the granitic areas of Guangdong Province and to recommend, on the basis of data collected in this project, appropriate land management strategies that will minimize soil erosion but maximize land productivity. \$486 500 — 36 months.

**86-1026 Camanchacas (Chile-Canada)**

For the Universidad de Chile, Santiago; the Pontificia Universidad Católica de Chile, Santiago; the Corporación Nacional Forestal-Secretaría Regional de Planificación y Coordinación IV Region (CONAF-SERPLAC), La Serena; and Environment Canada, Ontario; to provide a better understanding of the behaviour of the stratocumulus along the coastal deserts of western South America and to evaluate the possibilities of practical utilization of these water resources for local communities. \$240 600 — 24 months.

**86-1028 Lake Malawi sediments  
(Malawi-Canada)**

For the University of Malawi, Zomba, and the University of Saskatchewan, Saskatoon, to determine the amount, distribution, form, and origins of phosphate in Lake Malawi sediments, and to assess its potential for use as a low-cost fertilizer. \$123 000 — 36 months.

**86-1030 Gold (Burundi-Canada)**

For the ministère des Travaux publics, de l'Énergie et des Mines, Bujumbura, and Métaux précieux, Quebec, to develop and set up a technical and legal framework for gold exploitation in Burundi. \$384 900 — 24 months.

**86-1037 Turpentine derivatives  
(Honduras-Canada)**

For the Industrias Químicas Conrad, Tegucigalpa, and the University of British Columbia, Vancouver, to develop cost-effective process technology to enable Honduras to produce higher-valued turpentine derivatives from its own raw materials. \$332 150 — 24 months.

**86-1038 Ceramic whiteware (Ecuador-Canada)**

For the Universidad de Cuenca; Saskatchewan Research Council, Saskatoon; and the Independent Porcelain Company Ltd, Alberta; to develop technology for the production of ceramic whiteware to be utilized by small- and medium-scale industry using locally available raw materials. \$380 700 — 36 months.

**86-1039 Bauxite-waste bricks  
(Jamaica-Canada)**

For the Jamaican Bauxite Institute, Kingston, and the University of Toronto, Ontario, to develop a feasible low-energy, cottage-type technology for the production of bricks from red muds and noncommercial bauxites. \$301 350 — 36 months.

**86-1040 Industrial-waste exchange  
(Philippines-Canada)**

For the National Environmental Protection Council, Quezon City, and McGill University, Quebec, to establish an industrial-waste utilization and exchange system with the ultimate aim of reducing environmental impacts and generating economic returns through the promotion of resource recovery from industrial wastes. \$369 695 — 36 months.

**86-1042 Dyestuff production (Pakistan-Canada)**

For the Pakistan Council for Scientific and Industrial Research, Lahore, and the University of Sherbrooke, Quebec, to develop appropriate manufacturing procedures and the technological capacity for the production of disperse, reactive, and acid dyes in Pakistan. \$263 500 — 24 months.

**86-1044 Multilayer polyethylene films  
(Jordan-Canada)**

For the Royal Scientific Society, Amman, and McGill University, Quebec, to develop and produce plastic films incorporating used, recycled, plastic films suitable for long-term use under Jordanian climatological conditions. \$381 800 — 36 months.

**86-1045 Sahelian aerosols (Mali-Canada)**

For the École normale supérieure, Bamako, and the University of Guelph, Ontario, to determine the sources, volumes, and characteristics of the Sahelian aerosols in Mali to define the possibilities and alternatives for reducing the size and environmental effects of the problem. \$292 310 — 36 months.

**86-1047 Biogas plant performance evaluation  
(Tanzania-Canada)**

For Carleton University, Ottawa, to enable the Institute of Development Studies of the University of Dar es Salaam and the Centre for International Research and Training of Carleton University to assess the technical performance of the biogas digesters now

operating in Tanzania and to identify the socioeconomic problems limiting, or affecting, their diffusion. \$93 270 — 12 months.

**86-1050 Institutional support: international division of AUCC (Global)**

For the Association of the Universities and Colleges of Canada (AUCC) to continue its activities to increase the scope and participation of Canadian universities in international cooperation and development. \$76 000 — 12 months.

## Fellowships and Awards

**86-0005 Training: advanced demographic techniques (China)**

For the University of Western Ontario, London, to hold a 6-week summer training program on advanced methods of fertility analysis, for six scientists from the People's Republic of China. \$45 670 — 12 months.

**86-0007 Energy awards (Global) — Phase IV**

For the Fellowships and Awards Division, IDRC, to provide support for individual training awards to increase the capability of researchers and institutions in developing countries to undertake energy-related research. \$90 000 — 18 months.

**86-0013 The Hague Academy of International Law Scholarships (Global)**

For the Hague Academy of International Law, The Netherlands, to provide scholarship support for young legal scholars from developing countries to enable them to attend summer courses or complete doctoral thesis work, or both, at the Hague Academy. \$29 000 — 12 months.

**86-0041 Training project: educational research in China**

For the University of Hong Kong to enable its Department of Education to hold a training program that will provide basic skills in quantitative educational research to three groups from China that are or will be involved in large-scale data collection and analysis projects involving computer processing. \$36 119 — 3 months.

**86-0042 Microeconomic course for agricultural engineers and food scientists (Asia)**

For the Universiti Pertanian Malaysia, Serdang, to design a short-term (1-month) course on the principles of microeconomics and their application to the postharvest and food-handling sectors and to train agricultural engineers and food scientists in the principles of microeconomics as applied to the use of existing and new technologies in these sectors. \$74 290 — 6 months.

**86-0044 Training project: forage plant introduction and evaluation (Africa)**

For the International Livestock Centre for Africa, Ethiopia, to complement and strengthen the research and network activities of the Pasture Network for Eastern and Southern Africa by training 20 technicians

and junior scientists in pasture and forage production and evaluation. \$44 000 — 6 months.

**86-0050 Models for native education in Latin America**

For the Saskatchewan Indian Federated College, Regina, to contribute to the development and strengthening of the human resources base of the participating indigenous institutions and organizations (the World Council of Indigenous Peoples and the South American Indian Council) so that they can design and implement relevant educational and development programs in their countries of origin. \$89 400 — 18 months.

**86-0068 Training course: design and evaluation of agroindustrial projects (Latin America)**

For the Instituto de Fomento Agroindustrial, Costa Rica, to implement a group training course for researchers identified by IDRC, who are working directly with food-production projects, so that they can develop and expand their knowledge of criteria needed to formulate and evaluate agroindustrial projects. \$47 400 — 5 months.

**86-0071 SPSS Training (Congo)**

For the Direction générale de la recherche scientifique et technique, Brazzaville, to organize a group training session on the use of a microcomputer (IBM XT) using SPSS (Statistical Package for Social Sciences) to analyze demographic data. \$57 300 — 12 months.

**86-0072 Postgraduate program: CIRES (West Africa) — Phase II**

For the Centre ivoirien de recherches économiques et sociales (CIRES), Abidjan, to enable six students from the Côte d'Ivoire to enroll in the graduate program in rural economics for the 1986-1987 academic year. \$112 600 — 12 months.

**86-0076 Research fellowship: Annar Cassam**

For the Society of International Development (SID), Italy, to provide a fellowship to Annar Cassam to permit her to take up a position at SID's headquarters in Rome. \$41 700 — 12 months.

**86-0084 Training project: energy research methodologies (Global)**

For the Fellowships and Awards and Social Sciences divisions, IDRC, to provide training in methodologies for rural energy research to members of the Centre-supported Rural Energy Technology Assessment and Innovation Network (RETAIN). \$94 500 — 12 months.

**86-0086 Consortium Graduate School (Caribbean) — Phase II**

For the University of the West Indies, Jamaica, to enable the Consortium Graduate School of Social Studies to provide support for 12 graduate students to initiate the 1st year of their Master's of Philosophy degree. \$88 770 — 12 months.

**86-0143 Training program in library automation (Southeast Asia)**

For the Universiti Sains Malaysia, Penang, to remedy weaknesses in library automation systems in



IDRC-supported institutions in Southeast Asia.  
\$82 800 — 6 months.

**86-0147 International Foundation for Science (Global)**

For the International Foundation for Science, Sweden, to provide small research grants to 28 junior scientists from developing countries involved in research work in their own countries. \$250 000 — 12 months.

**86-0169 Farm forestry training program (China)**

For the Chinese Academy of Forestry, Beijing, to provide practicing foresters with a 4-week course on the propagation and utilization of paulownia and bamboo. \$103 000 — 6 months.

**86-0201 Training project: root crops network (eastern and southern Africa)**

For the International Institute of Tropical Agriculture, Nigeria, to organize and administer a training program that complements and strengthens the Eastern and Southern Africa Root Crops Research Network supported by IDRC's Agriculture, Food and Nutrition Sciences Division. \$164 560 — 24 months.

**86-0222 UPM graduate fisheries specialization program (Southeast Asia) — Phase II**

For the Universiti Pertanian Malaysia (UPM), Serdang, to continue to develop and offer a high quality program for the Master of Science degree in fisheries economics to social scientists in the Southeast Asia region. \$211 000 — 36 months.

**86-0230 Participatory training for women (Uruguay)**

For the Grupo de Estudios sobre la Condición de la Mujer en el Uruguay, Montevideo, to identify, develop, and disseminate participatory training methodologies that could be used effectively to disseminate research results to women's groups in Uruguay and elsewhere in Latin America. \$42 635 — 12 months.

**86-0287 Training needs for adult education practitioners (Caribbean)**

For the University of the West Indies, Barbados, to enable the Caribbean Regional Council for Adult Education to disseminate and incorporate research findings related to the use of participatory training methodologies for adult educators. \$18 802 — 6 months.

**86-0306 International training course on azolla use in Fujian (China)**

For the International Rice Research Institute, the Philippines, to offer a course on the use of azolla as a green manure for rice. \$38 000 — 6 months.

**86-0312 Rural Indian and peasant education (Ecuador)**

For the Centro Andino de Acción Popular, Quito, to train 32 researchers involved in projects related to Indian and peasant education in the Andean region, in basic research skills. \$34 090 — 6 months.

**86-0320 Modalities and techniques for dissemination of research results (east-central and southern Africa)**

For the International Center of Insect Physiology and Ecology, Kenya, to improve the communication of research results and scientific information in the east-central and southern Africa regions to enhance the impact of research. \$49 340 — 6 months.

**86-0323 Health services applied research methods (Latin America)**

For the Universidad de Antioquia, Colombia, to enable the Facultad Nacional de Salud Pública to strengthen the research capacity of a number of institutions in selected countries in Latin America to improve the quality of the proposals submitted to IDRC and other donors for funding over a period of 5 years. \$64 790 — 12 months.

**86-0329 Training: technology transfer and adaptation (Caribbean) — Phase II**

To enable the Caribbean Development Bank, Barbados, to forge linkages between technical institutions and productive enterprises in the food-processing industry in upgrading standards and solving problems related to the canning of food stuffs, and to equip a regional institution to assume the responsibility for training. \$96 390 — 24 months.

**86-0344 Central American conflict and alternatives for peace**

For the Centro de Estudios y Publicaciones ALFORJA, Costa Rica, to synthesize and systematize the results of research on the areas of conflict and solutions for peace in Central America and to produce instructional material to be used in popular education programs. \$11 674 — 12 months.

**86-1004 Health exchange program (Global-Canada) — Phase III**

For the Canadian Society for Tropical Medicine and International Health, Ontario, to assist in the provision of adequate medical personnel resources for international health activities in Canada and in Canadian-sponsored activities, and to introduce a group of Canadian health-care personnel to conditions in developing countries. \$250 000 — 12 months.

**86-1009 Young Canadian researchers (Canada)**

For the Fellowships and Awards Division, IDRC, to facilitate the involvement of young Canadians in research on Third World issues, and to augment the pool of qualified Canadian researchers who have acquired experience in Third World institutions. \$450 000 — 12 months.

**Office of the Secretary and General Counsel**

**86-0051 Family law (Lesotho)**

For the National University of Lesotho, Maseru, to enable the Institute of Southern African Studies, Roma, to produce a comprehensive study on family law in Lesotho. \$12 349 — 12 months.

**86-0110 Human rights compendium (The Americas)**

To enable the Inter-American Institute of Human Rights, Costa Rica, to develop a comprehensive compendium, in Spanish, of the numerous legal instruments in existence at the inter-American level that are designed to promote and define human rights. \$45 128 — 9 months.

**86-0153 Peasant law (Peru)**

For the Andean Commission of Jurists, Lima, to identify appropriate legislative, administrative, and judicial approaches to conflict resolution among the Andean peasantry. \$51 710 — 24 months.

**86-0286 Industrial property laws (southern Africa)**

For the National University of Lesotho, Roma, to study, in some depth, the legal regime including administration of the industrial property systems of the Southern African Preferential Trade Area states. \$35 187 — 18 months.

**86-0305 Legal services training (Caribbean)**

For the Inter-American Legal Services Association, Colombia, to develop experiential and analytical material on development-oriented legal services suitable for a training manual for law clinic staffs in the Caribbean. \$91 276 — 12 months.

**86-0341 Community environment protection (Philippines)**

For the Structural Alternative Legal Assistance for Grassroots, Manila, to study the impact of the direct involvement of the people in the resolution of a community problem with the support of an alternative legal-assistance group. \$11 300 — 12 months.

**86-1007 Economic legislation (China-Canada)**

To enable the Economic Legislation Research Centre, Beijing, and Queen's University, Ontario, to provide the Chinese authorities with draft legislation for adoption concerning corporations and partnerships, securities regulations, secured financing, and product warranties. \$395 000 — 36 months.

## Communications

**86-0048 Famille et développement: content and index (West Africa)**

To enable the Association africaine d'éducation pour le développement, Togo, to improve the content of the magazine *Famille et développement* by increasing the number of African countries covered, and to publish a theme index of the first 10 years' issues. \$55 455 — 30 months.

**86-0049 Science writing (Maghreb)**

For the Université de Tunis, Tunisia, to enable the Institut de presse et des sciences de l'information to hold a 10-day workshop in Tunis in September 1986 on science writing for 20 journalists of the Maghreb press. \$34 200 — 6 months.

**86-0107 Environmental writing (Egypt)**

For the African Journalists' Union, Cairo, to enable the Arab Office of Youth and Environment to hold a

workshop to improve the reporting of environmental issues. \$8430 — 9 months.

**86-0149 Child health radio (Indonesia)**

For the Yayasan Kusuma Buana, Jakarta, to produce 26 radio programs for mothers that will contribute to lower rates of child mortality and fewer health problems among Indonesia's population under 5 years of age. \$36 300 — 18 months.

**86-0252 Scholarly publishing (Latin America)**

For the Centro Regional para el Fomento del Libro en América Latina y el Caribe, Colombia, to commission a regional study to identify ways to improve scholarly publishing in Latin America and to convene three subregional meetings to discuss the follow-up proposed in the study report. \$27 845 — 12 months.

**86-0255 Artisanal fisheries videotapes (Chile) — Phase II**

For the Pontificia Universidad Católica de Chile, Talcahuano, to enable the Departamento de Biología Tecnología del Mar to produce and evaluate three 20-to 30-minute videotapes that will be used to disseminate fisheries information and to train people involved in artisanal fisheries. \$15 600 — 12 months.

**86-0257 Science and technology features service (Latin America) — Phase II**

For the Agencia Latinoamericana de Servicios Especiales de Información, Mexico, to continue the monthly features service on science and technology initiated in Phase I. \$62 300 — 24 months.

**86-0258 Reproductive health care for adolescents: video (Colombia)**

For the Comité Regional de Educación Sexual para Latinoamérica y el Caribe, Bogotá, to facilitate the sexual education process through production of educational videotapes and supporting print materials. \$20 100 — 9 months.

**86-0291 Depthnews science feature service (Asia) — Phase III**

For the Press Foundation of Asia, the Philippines, to increase public understanding and awareness of science and technology. \$42 350 — 36 months.

**86-0301 Popularization of science and technology (Ethiopia)**

For the Ethiopia Science and Technology Commission, Addis Ababa, to initiate a national science and technology popularization program. \$82 910 — 18 months.

**86-0302 PANA science and technology and health bulletins (West Africa)**

For the Panafican News Agency (PANA), Sénégal, to enhance and expand its science-reporting capability. \$33 000 — 36 months.

**86-0303 Rural press (Indonesia)**

For the Kantorberita Nasional Indonesia, Jakarta, to expand and improve its rural press program. \$26 525 — 24 months.

#### **86-0316 Production and evaluation of science radio programs (Swaziland)**

For the Swaziland Broadcasting and Information Services, Mbabane, to train Swazi communicators in the skills necessary for disseminating accurate and relevant information to rural listeners in support of national development. \$22 842 — 12 months.

#### **86-0342 Popularization of sorghum dehulling and milling technology (Tanzania)**

For the Small Industries Development Organization, Dar es Salaam, to produce a pamphlet in Kiswahili entitled *News About a Machine for Dehulling Sorghum and Other Cereals* and evaluate its impact. \$19 305 — 18 months.

#### **86-1034 Scholarly and scientific publishing (Malaysia-Canada)**

For the Universiti Kebangsaan Malaysia, Bangi; the University of Toronto Press, Ontario; and the National Research Council of Canada, Ottawa; to further develop and consolidate the Malaysian scholarly publishers, in general, and the university presses and research institutes, in particular. \$125 180 — 36 months.

### **Office of the Comptroller General and Treasurer**

#### **86-0055 FAMESA: development of project planning monitoring and control manual (Africa)**

To enable the International Centre of Insect Physiology and Ecology, Kenya, to fund the development and adaptation of training materials (management manual) for a course on project planning, monitoring, and control within the FAMESA network (Financial and Administrative Management of Research Institutions in Eastern and Southern Africa). \$62 000 — 12 months.

#### **86-0139 Management improvement in the Sahelian research institutes — Phase II**

For the Permanent Inter-State Committee for Drought Control in the Sahel, Burkina Faso, and the International Service for National Agricultural Research, The Netherlands, to improve the management of research institutes in the Sahel. \$275 000 — 36 months.

### **Division activity projects**

Apart from the activities described in the preceding pages, IDRC supports numerous relatively small-scale projects designed to support, in one way or another,

the activities in progress in the divisions. These are such things as promoting workshops or seminars on the research priorities in a given region or field, enabling researchers from developing countries to participate in meetings of experts in various parts of the world, or making it possible for specialists to visit and assist a project team in another country.

Most division activity projects cover the cost of meetings or of consultations directly or indirectly connected with IDRC-funded research. During the past fiscal year, IDRC approved division activity projects for a total of \$5 871 896. The following are illustrative.

- Seven scientists from the Middle East attended a workshop, held in Amman, Jordan, on the potential contribution of biotechnology to food production in the Arab world.
- A Canadian doctor went to Chile to help researchers draw up a proposal for research on health services.
- Two Malaysian specialists on beekeeping attended a 3-day workshop in Thailand to share their experience with 17 researchers from Thailand and Sri Lanka.
- At Tombouctou in Mali, contributors from nine African countries described the current status of drought research in Africa.
- At a meeting with researchers in Cundinamarca, Colombia, 30 representatives from artisanal fishing communities in Latin America explained their most urgent needs.
- The Caribbean Community Secretariat of Georgetown, Guyana, undertook a feasibility study for an information system on livestock diseases in the West Indies.
- An American expert on small-scale mining organized a discussion of this new research area for IDRC support at the last annual meeting of the Geological Society of America.
- A consultant undertook a mission to the Maghreb countries to design a support program for scholarly publishing in the region.
- Six representatives from the Third World attended a conference in Ottawa on the role of Canadian nongovernmental organizations.
- Fifteen representatives from five Southeast Asian countries met in Bangkok to define the requirements for training and professional development programs in the region.

## Fellowships

### Pearson fellowships

Pearson fellows pursue a nondegree program in public administration at the University of Ottawa and Carleton University with practical attachment with a government department.

**Ben Salah, Farahat** — Tunisia

**Bianco, Jader** — Brazil

**Cao, Jiantie** — China

**Fanega, Shadrach** — Solomon Islands

**Mahama, Amadu** — Ghana

**Mathew, Susan** — India

**Misra, Ramesh C.** — India

**Ndikumana, Thomas** — Burundi

**Prado-Donoso, José** — Chile

**Ranaivoson, Henri Roger** — Madagascar

**Rojanapithayakorn, Wiwat** — Thailand

**Scatena, João** — Brazil

**Sharma, Ram Shalik** — Nepal

**Torres-Corredor, Hernando** — Colombia

**Yang, Baoping** — China

### Program-related awards

**Ajulu, Rok** — Kenya

Doctoral studies in industrial relations; Institute of Development Studies, University of Sussex, Brighton, U.K.

**Amatya, Swoyambhu M.** — Nepal

Doctoral studies in forest economics; Tribhuvan University, Kathmandu, Nepal

**Amr, Abbas H. Hassan** — Egypt

Training and course work in epidemiology; International Epidemiology Program, McMaster University, Hamilton, Ont., Canada

**Baltazar, Ramon G.** — Philippines

Doctoral studies in business administration; University of Western Ontario, London, Ont., Canada

**Basri, Harnida** — Indonesia

Course on netcage culture of marine finfish; Changi Fisheries Complex, Singapore

**Bensam, Pathrose** — India

Course on netcage culture of marine finfish; Changi Fisheries Complex, Singapore

**Cerda Taverne, Ana Maria** — Chile

Master's degree in education; Departamento de Investigaciones Educativas, Instituto Politécnico Nacional, Mexico City, Mexico

**Cornelio, Josefina S.** — Philippines

Research on instructional technology and writing a manual for student teachers; Western Illinois University, Macomb, IL, USA

**Crespo, Carlos Manuel** — Ecuador

Master's degree in education; Universidade Estadual de Campinas, São Paulo, Brazil

**Daluson, Alberto R.** — Philippines

Course in management and policy development option at the Alberta Summer Institute for Petroleum Industry Development; University of Alberta, Edmonton, Alta, Canada

**Danyagre, John S.** — Ghana

Master's degree in criminology; University College, Cardiff, Wales, U.K.

**Diop, Papa El Hassane** — Sénégal

Master's degree in clinical veterinary science; Faculty of Veterinary Science, University of Montreal, Ste Hyacinthe, P.Q., Canada

**Doumbia, Dramane** — Mali

Integrated management program for foreign personnel; National School for Public Administration, University of Quebec, Ste Foy, P.Q., Canada

**Échenique-Manrique, Ramón** — Mexico

Textbook in Spanish on the principles of wood science and technology; Department of Forestry, University of British Columbia, Vancouver, B.C., Canada

**Eisa, Hamid** — Egypt

Study on research methods for alfalfa pathology; Department of Crop Sciences, University of Guelph, Guelph, Ont., Canada

**Espiritu Santo, Juvenal P.** — Sao Tome and Principe

Regional intensive course on demography; Centro Latinoamericano de Demografía, San José, Costa Rica

**Fathy, Hesham A.** — Egypt

Studies in international clinical epidemiology; Department of Clinical Epidemiology and

Biostatistics, McMaster University, Hamilton, Ont., Canada

**Foo, Siow K.** — Malaysia

Master's studies in resource economics; Universiti Pertanian Malaysia, Serdang, Selangor, Malaysia

**Harawa, Francis H.** — Zimbabwe

Master's degree in journalism; Carleton University, Ottawa, Ont., Canada

**Hatibu, Nuhu** — United Republic of Tanzania

Doctoral studies in agricultural engineering; Agricultural Engineering Department, University of Newcastle-upon-Tyne, Newcastle-upon-Tyne, U.K.

**Hernández, Irma** — Costa Rica

Master's degree in cropping systems and technology development; Centro Agronómico Tropical de Investigación y Enseñanza, Universidad de Costa Rica, Turrialba, Costa Rica

**Ikingura, Justinian R.** — United Republic of Tanzania

Field work in Tanzania for doctoral degree in geology; Department of Geology, Carleton University, Ottawa, Ont., Canada

**Karangwa, Joseph** — Rwanda

Doctoral field research in macroeconomics; Laval University, Ste Foy, P.Q., Canada

**Kargbo, Samuel J.** — Sierra Leone

In-service training in library management; West Africa Rice Development Association, Monrovia, Liberia

**Katunzi, Naomi B.** — United Republic of Tanzania

Doctoral studies in curriculum; University of Calgary, Calgary, Alta, Canada

**Kiondo, Andrew S.** — United Republic of Tanzania

Doctoral studies in political economy; Department of Political Economy, University of Toronto, Toronto, Ont., Canada

**Kiondo, Elizabeth** — United Republic of Tanzania

Studies for master's degree in library science; Department of Library Science, University of Toronto, Toronto, Ont., Canada

**Kishor, Nand** — Mali

Doctoral studies in education; Faculty of Education, University of British Columbia, Vancouver, B.C., Canada

**Kone, Assétou** — Mali

Education and training for women in Mali — from exclusion from school to social integration; Étude Sciences Sociales et Psychologiques, Université de Bordeaux II, Bordeaux, France

**Koroma, Momodu R.** — Sierra Leone

Guided reading in connection with work on the Centre-supported oil-refining project; Science Policy Research Unit, University of Sussex, Brighton, U.K.

**Kulindwa, Kassim Athuman** — United Republic of Tanzania

Master's degree in economics; Department of

Economics, University of British Columbia, Vancouver, B.C., Canada

**Kurizemba, António J.** — Angola

Regional intensive course on demography; Centro Latinoamericano de Demografía, San José, Costa Rica

**Lee, Guo-Rong** — China

Course on netcage culture of marine finfish; Changi Fisheries Complex, Singapore

**Liu, Shih-Yue** — China

Course on netcage culture of marine finfish; Changi Fisheries Complex, Singapore

**Ma, Yuliang** — China

In-service training in the preparation of information for computerized processing; Ottawa, Toronto, and Guelph, Ont., Canada

**Mahenge, Satoki T.** — United Republic of Tanzania

Master's degree in education; University of Alberta, Edmonton, Alta, Canada

**Maiga, Lalla M.** — Mali

Doctoral degree in sociology; Université René-Descartes, Paris, France

**Mapace, Armindo E.** — Mozambique

Regional intensive course on demography; Centro Latinoamericano de Demografía, San José, Costa Rica

**Mayorga, Roger** — Costa Rica

Master's degree in mathematics specializing in computer science; University of Waterloo, Waterloo, Ont., Canada

**Mbarga, Gervais** — Cameroon

Master's degree in sociology; Laval University, Ste Foy, P.Q., Canada

**Mengu, Moses D.** — Ghana

International research and development management; Secretariat, World Association of Industrial and Technological Research Organizations, Stockholm, Sweden

**Mhina, Charles S.** — United Republic of Tanzania

Diploma training in graphic reproduction; London College of Printing, London, U.K.

**Mohammed, Rukiya A.** — Kenya

Research training in beekeeping; Tabora Beekeeping Training Institute, United Republic of Tanzania

**Mumba, Elizabeth C.** — Zambia

Field research on nonformal education and integrated rural development; University of Zambia, Lusaka, Zambia

**Muñoz de Tigreros, Sonia** — Colombia

Master's degree in communication; Universidad del Valle, Cali, Colombia

**Nammalwar, P.** — India

Course on netcage culture of marine finfish; Changi Fisheries Complex, Singapore



**Ochieng-Mbuye, Geoffrey** — Uganda

Master's degree studies in crop production and management; University of the Philippines, Los Baños, Philippines

**Pezo, Danilo A.** — Peru

Doctoral studies in animal sciences and forages with minors in statistics and crops; North Carolina State University, Raleigh, NC, USA

**Pires, Regina** — Brazil

Doctoral studies based on research into technology policy aspects of petroleum substitution; École des Hautes Études en Science Sociales, Centre International de Recherche sur l'Environnement et le Développement, Paris, France

**Qian, Luqing** — China

Studies and research at the graduate level in international law; Faculty of Law, Queen's University, Kingston, Ont., Canada

**Rutatora, D.F.** — United Republic of Tanzania

Master's training in extension education; University of Guelph, Guelph, Ont., Canada

**Samart, Marthana** — Thailand

Training course in farming systems socioeconomic research; International Rice Research Institute, Manila, Philippines

**Seck, Oumar** — Guinea

Bachelor's studies in rural economics; Laval University, Ste Foy, P.Q., Canada

**Sesay, Kpandenam Jusu** — Sierra Leone

Practical attachment for energy studies; Technische Hogeschool Eindhoven, Eindhoven, The Netherlands

**Shao, Ibrahim F.** — United Republic of Tanzania

Doctoral studies in political science with thesis research on rural financial institutions; Department of Political Economy, University of Toronto, Toronto, Ont., Canada

**Sharma, Rama Nath** — Nepal

Master's studies in zoology specializing in fish parasitology; Department of Zoology, University of Guelph, Guelph, Ont., Canada

**Silva, Angélica M.** — Chile

Master's degree in biology specializing in aquaculture and bivalve physiology; Dalhousie University, Halifax, N.S., Canada

**Sougoufara, Amadou** — Sénégal

Planning and research evaluation course; Regional Office for West and Central Africa, IDRC, Dakar, Sénégal

**Telfort, Agousse** — Haiti

Master's degree in library science; Faculty of Library Science, University of Montreal, Montreal, P.Q., Canada

**Terefe, Hirut** — Ethiopia

Master's degree in demography; London School of Economics and Political Science, University of London, London, U.K.

**Thomas, Desmond** — Guyana

Doctoral studies in economics; McGill University, Montreal, P.Q., Canada

**Tiao, Luc-Adolphe** — Burkina Faso

Master's degree in communication science; University of Montreal, Montreal, P.Q., Canada

**Torres, James** — Philippines

Doctoral studies in fish disease; Faculty of Fisheries and Marine Sciences, Universiti Pertanian Malaysia, Serdang, Selangor, Malaysia

**Valenzuela, Carlos R.** — Bolivia

Doctoral studies in remote sensing and geographic information systems; Laboratory for Applications of Remote Sensing, Purdue University, Lafayette, IN, USA

**Villamater, Eladio V.** — Philippines

Course on netcage culture of marine finfish; Changi Fisheries Complex, Singapore

**Wang, Jie-Siu** — China

Studies at the respiratory clinic to learn of the recent advances in the field of tuberculosis; Department of Medicine, University of British Columbia, Vancouver, B.C., Canada

**Wannachart, Narong** — Thailand

Course in management and policy development option at the Alberta Summer Institute for Petroleum Industry Development; University of Alberta, Edmonton, Alta, Canada

**Xu, Bingde** — China

In-service training in the preparation of information for computerized processing; Ottawa, Toronto, and Guelph, Ont., Canada

**Yambi, Olyvia** — United Republic of Tanzania

Doctoral studies in nutrition; Division of Nutritional Sciences, Cornell University, Ithaca, NY, USA

**Zheng, Yegang** — China

In-service training in the preparation of information for computerized processing; Ottawa, Toronto, and Guelph, Ont., Canada

## Project-related awards

**Akoton, Falonwau S.** — Togo

Professional development course for laboratory technicians; Institut Sénégalais de Recherches Agricoles, Dakar, Sénégal

**Alexander, Lawrence B.S.** — Jamaica

Master's studies in biology; Department of Biology, Dalhousie University, Halifax, N.S., Canada

**Ali, Ghazanfar A.** — Pakistan

Master's studies in geography with specialization in glacier hydrology; Wilfrid Laurier University, Waterloo, Ont., Canada

**Blaud, G. Célestin** — Côte d'Ivoire

Master's studies in sociology; University of Montreal, Montreal, P.Q., Canada

**Cadavid, Maria Amparo** — Colombia

Master's studies in communications; Department of Communications, Simon Fraser University, Burnaby, B.C., Canada

**Caliboso, Filipinas M.** — Philippines

Master's degree in entomology; College of Agriculture, University of the Philippines, Los Baños, Philippines

**Cereceda, Pilar** — Chile

Training on instrumental measurement techniques; Atmospheric Environmental Services, Downsview, Ont., Canada

**Chambo, Suleman A.** — United Republic of Tanzania

Master's degree in management of cooperatives; York University, Downsview, Ont., Canada

**Cissoko, Foussenu** — Sénégal

Training course on scientific journalism; Service Hebdo-Science, Montreal, P.Q., Canada

**Conteh, Henry M.** — Sierra Leone

Master's degree in agricultural engineering; Cranfield Institute of Technology, Silsoe College, Silsoe, Bedford, U.K.

**Diarra, Modibo M.** — Mali

Training course on community health management; University of Montreal, Montreal, P.Q., Canada

**Diyamett, Mathew L.N.** — United Republic of Tanzania

Master's degree in management of cooperatives; York University, Downsview, Ont., Canada

**Ehikhamenor, Fabian A.** — Nigeria

Doctoral studies in library and information sciences; Drexel University, Philadelphia, PA, USA

**Fang, Guo-Xiang** — China

Training in laboratory and field techniques for instrumental measurement and simulation of erosion; University of Toronto, Toronto, Ont., Canada

**Feng, Datong** — China

Research of international economic and foreign trade law; Faculty of Law, Queen's University, Kingston, Ont., Canada

**Ferjani, Ahmed** — Tunisia

Professional development course for laboratory technicians; Institut Sénégalais de Recherches Agricoles, Dakar, Sénégal

**Girma, Beshah** — Ethiopia

Master's of education with specialization on secondary education in the area of cognitive studies and educational evaluation; McGill University, Montreal, P.Q., Canada

**Gomes, Luiz A.** — Brazil

Master's degree in aquaculture; University of the Philippines, Iloilo City, Philippines

**Gong, Peng** — China

Doctoral studies in geography; University of British Columbia, Vancouver, B.C., Canada

**Gonzáles, Clemen** — Philippines

Doctoral studies in agricultural economics with specialization on resource economics; Pennsylvania State University, University Park, PA, USA

**Hohlberg, Andrés I.** — Chile

Master's degree in food sciences; Department of Food Sciences, University of Guelph, Guelph, Ont., Canada

**Innocenti, Ennio G.** — Chile

Master's degree in animal and poultry science; Animal and Poultry Sciences Department, University of Guelph, Guelph, Ont., Canada

**Kabore, Pato Daniel** — Burkina Faso

Doctoral studies in economics; Faculté des Sciences Économiques, Université d'Abidjan, Abidjan, Côte d'Ivoire

**Kachaka, Sudi Y.** — Zaire

Professional development course for laboratory technicians; Institut Sénégalais de Recherches Agricoles, Dakar, Sénégal

**Khan, Mohammad I.** — Pakistan

Master's degree in geography; Wilfrid Laurier University, Waterloo, Ont., Canada

**Kyaw, Htway** — Burma

On-the-job training in laboratory techniques and procedures including aspects related to general hematology and clotting tests; Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

**Liu, Quanshun** — China

Master's studies in oceanography; Department of Biology, University of Victoria, Victoria, B.C., Canada

**López, Gabriela** — Chile

Doctoral studies in education; Department of Educational Administration, Ontario Institute for Studies in Education, Toronto, Ont., Canada

**Mgogolo, Adamu M.H.** — United Republic of Tanzania

Master's of science degree relating to urban studies; McGill University, Montreal, P.Q., Canada

**Mokitimi, None Leonard** — Lesotho

Master's studies in agricultural economics; Department of Economics, University of Saskatchewan, Saskatoon, Sask., Canada

**Mwau, Geoffrey N.** — Kenya

Doctoral studies in macroeconomics; McGill University, Montreal, P.Q., Canada

**Mwendandu, Richard** — Kenya

Diploma course in forestry resource management; Faculty of Forestry; University of Toronto, Toronto, Ont., Canada

**Nguluma, Alexander T.** — United Republic of Tanzania

Doctoral research on the role of law in technological development; University of Warwick, Warwick, U.K.

**Nungisa, M. Ya Bilongo** — Zaire

Master's degree in demography; Department of

- Demography**, University of Montreal, Montreal, P.Q., Canada
- Nyakalo, Simeon J.K.** — United Republic of Tanzania  
Master's degree in agriculture; University of Nairobi, Nairobi, Kenya
- Oguto-Ohwayo, Richard** — Uganda  
Freshwater project development research; Freshwater Biological Association Laboratory, Ambleside, U.K.
- Panlasigui, Leonora N.** — Philippines  
Doctoral studies in community nutrition and dietetics; Department of Nutritional Sciences, University of Toronto, Toronto, Ont., Canada
- Qi, Hongxing** — China  
Doctoral studies in language arts; University of Victoria, Victoria, B.C., Canada
- Qiu, Xi-Jun** — China  
Training in laboratory and field techniques for instrumental measurement and simulation of erosion; University of Toronto, Toronto, Ont., Canada
- Quitco, Racquel T.** — Philippines  
Master's degree in plant pathology; College of Agriculture, University of the Philippines, Los Baños, Philippines
- Rios, Brenda L.** — Guatemala  
Master's degree in food and nutrition; Department of Food and Nutrition, University of Manitoba, Winnipeg, Man., Canada
- Rocca Calienes, Leopoldo A.** — Peru  
Master's studies in forestry; Universidad Nacional Agraria La Molina, Lima, Peru
- Sadia, Daniel** — Philippines  
Training course on postharvest prevention of rice paddy loss; Asian Productivity Organization, Manila, Philippines
- Sambiani, Damtoti A.** — Togo  
Professional development course for laboratory technicians; Institut Sénégalais de Recherches Agricoles, Dakar, Sénégal
- Semiono, J.P.** — United Republic of Tanzania  
Master's degree in management of cooperatives; York University, Downsview, Ont., Canada
- Shiembo, Mde Patrick** — Cameroon  
Master's studies in forest resources management; University of Ibadan, Ibadan, Nigeria
- Si, Fumin** — China  
Master's studies in education; Social and Natural Sciences Department, University of Victoria, Victoria, B.C., Canada
- Siriwardena, P.P.G.S.N.** — Sri Lanka  
Studies for a master's of science degree and postgraduate diploma in aquaculture and fishery management; University of Stirling, Stirling, Scotland, U.K.
- Strasdine, Susan A.** — Canada  
Master's studies in resource management; University of British Columbia, Vancouver, B.C., Canada
- Tadesse, Taye** — Ethiopia  
Doctoral studies in library science; University of Pittsburgh, Pittsburgh, PA, USA
- Taha, Amr M.** — Egypt  
Master's studies in library sciences; Catholic University of America, Washington, DC, USA
- Tambashe, Oleko** — Zaire  
Training program in microcomputer applications for demographic analysis; Bureau of the Census, Washington, DC, USA
- Tin, Nu Swe** — Burma  
Practical training in clinical research methodologies with special emphasis on diseases related to clinical toxicology; Division of Clinical Cell Biology, Clinical Research Centre, Harrow, U.K.
- Toro, Jorge E.** — Chile  
Master's studies in biology; Dalhousie University, Halifax, N.S., Canada
- Vaccaro Carrizo, Maria Liliana** — Chile  
Doctoral studies in education; Programa Interdisciplinario de Investigaciones en Educación, Santiago, Chile, and University College of Cardiff, Cardiff, Wales, U.K.
- Vásquez Arana, Mauricio A.** — Colombia  
Master's studies in biostatistics; Department of Epidemiology and Biostatistics, McGill University, Montreal, P.Q., Canada
- Vilasco, Gilles** — Côte d'Ivoire  
Familiarization course on procedures in scientific publishing in Canada and Quebec, especially at the workshop for editors of Canadian scientific journals; Communication Conseil Edition, Saint Nicolas Est, P.Q., Canada
- Wang, Fang-ju** — China  
Master's studies in regional planning and resource development; Department of Geography, University of Waterloo, Waterloo, Ont., Canada
- Wang, Jinfei** — China  
Master's studies in geography specializing in remote sensing; Department of Geography, University of Waterloo, Waterloo, Ont., Canada
- Wu, Ke-Gang** — China  
Training in laboratory and field techniques for instrumental measurement and simulation of erosion; University of Toronto, Toronto, Ont., Canada
- Yemane, Getaneh** — Ethiopia  
Master's studies in science, technology, and industrialization; Science Policy Research Unit, University of Sussex, Brighton, U.K.
- Yin, Kedong** — China  
Master's studies in biological oceanography; University of British Columbia, Vancouver, B.C., Canada
- Zhang, Shao-Xian** — China  
Training in laboratory and field techniques for instrumental measurement and simulation of erosion; University of Toronto, Toronto, Ont., Canada



## Young Canadian researchers' awards

**Basok, Tatyana** — York University

Research on the survival of durable solutions projects for Salvadorean refugees; Instituto de Estudios Sociales in Población, Universidad Nacional, Heredia, Costa Rica

**Beaudoin, Alain** — University of Quebec

Doctoral thesis studies for a descriptive and comparative study of the educational behaviour of Haitian parents living in Quebec and in Haiti; University of Quebec, Montreal, P.Q., Canada

**Boychuk, Richard** — McGill University

Research on environmental problems; Gemini News Service, London, U.K.

**Carty, Linda E.** — Ontario Institute for Studies in Education

Research on the political economy of gender inequality in Caribbean postsecondary education; University of the West Indies, Barbados, Jamaica, and Trinidad

**de Scally, Fes** — University of Waterloo

Research on the hydrological effect of snow avalanches in the Great Himalaya Range of Pakistan; Great Himalaya Range, Kaghan Valley, Pakistan

**Grégoire, Serge** — University of Quebec

Master's level research on the perceptions of a group of women agriculturalists; Université de Yaoundé, Yaoundé, Cameroon

**Loevinsohn, Benjamin** — McMaster University

Studies for a master of public health degree; Harvard School of Public Health, Boston, MA, USA

**Lynn, Brian** — McMaster University

Pilot study on gammaglobulin for treatment of children with measles; Department of Pediatrics, University of Nairobi, Nairobi, Kenya

**MacLean, Richard** — McGill University

Research on costs and benefits of traditional and experimental systems of intercropping; International Rice Research Institute, Manila, Philippines

**Reid, Donald** — University of Alberta

Research on fire, habitat, and man in Papua New Guinea with emphasis on land use and management strategies in the highlands; University of Papua New Guinea, Port Moresby, Papua New Guinea

**Saunders, Richard G.** — Carleton University

Research on communications and cultural development in Africa: the case of Zimbabwe; Zimbabwe Institute of Mass Communication, Harare, Zimbabwe

## Publications

### IDRC publications

*IDRC annual report 1985–1986/Rapport annuel CRDI 1985–1986.* IDRC/CRDI, Ottawa, Ont. IDRC-003/86e,f, 90 + 84 pp.

*Metodología de investigación en sistemas de cultivo en finca.* Zandstra, H.G., Price, E.C., Litsinger, J.A., Morris, R.A. CIID, Ottawa, Ont. IDRC-215s, 156 pp.

*Foresterie imiguée en pays arides et semi-arides : une synthèse.* Armitage, F.B. CRDI, Ottawa, Ont. IDRC-234f, 192 pp.

*Problemas de la mujer en lo que respecta al suministro de agua y saneamiento: intentos para resolver un viejo problema.* CIID, Ottawa, Ont. IDRC-236s, 104 pp.

*Recherche sur l'amélioration des pâtures en Afrique orientale et australe : compte rendu d'un atelier tenu à Harare, Zimbabwe, du 17 au 21 septembre 1984.* Kategile, J.A., réd. CRDI, Ottawa, Ont. IDRC-237f, 546 pp.

*Community participation in delivering urban services in Asia.* Yeung, Y.M., McGee, T.G., ed. IDRC, Ottawa, Ont. IDRC-238e, 279 pp.

*Téléconférence informatisée internationale sur la biotechnologie : une étude de cas.* Balson, D.A., réd. CRDI, Ottawa, Ont. IDRC-241f, 118 pp.

*Le sucre : menace ou défi — évaluation de l'incidence du développement technologique dans les industries des produits surochimiques et du sirop de glucose à haute teneur en fructose.* Thomas, C.Y. CRDI, Ottawa, Ont. IDRC-244f, 148 pp.

*With our own hands: research for Third World development: Canada's contribution through the International Development Research Centre, 1970–1985.* IDRC, Ottawa, Ont. IDRC-246e, 206 pp.

*Selon nos idées : la recherche au service du Tiers-Monde : le Centre de recherches pour le développement international et la contribution du Canada, 1970–1985.* CRDI, Ottawa, Ont. IDRC-246f, 242 pp.

*Con nuestras propias manos: investigación para el desarrollo del Tercer Mundo: la contribución de Canadá mediante el Centro Internacional de Investigaciones para el Desarrollo, 1970–1985.* CIID, Ottawa, Ont. IDRC-246s, 206 pp.

*International Development Research Centre Projects 1981–1985: supplement to projects*

*1970–1981.* IDRC, Ottawa, Ont. IDRC-247e, 464 pp.

*Centre de recherches pour le développement international projets 1981–1985 : supplément de projets 1970–1981.* CRDI, Ottawa, Ont. IDRC-247f, 485 pp.

*Evaluating health impact: water supply, sanitation, and hygiene education.* Briscoe, J., Feachem, R.G., Rahaman, M.M. IDRC, Ottawa, Ont. IDRC-248e, 80 pp.

*Energy research: directions and issues for developing countries.* Energy Research Group. IDRC, Ottawa, Ont. IDRC-250e, 194 pp.

*La recherche énergétique : orientations et enjeux pour les pays en développement.* Groupe de recherche sur l'énergie. CRDI, Ottawa, Ont. IDRC-250f, 216 pp.

*Low-cost primary education: implementing an innovation in six nations.* Cummings, W.K. IDRC, Ottawa, Ont. IDRC-252e, 136 pp.

*Teaching children of the poor: an ethnographic study in Latin America.* Avalos, B., ed. IDRC, Ottawa, Ont. IDRC-253e, 175 pp.

*Evaluation in national agricultural research: proceedings of a workshop held in Singapore, 7–9 July 1986.* Daniels, D., ed. IDRC, Ottawa, Ont. IDRC-254e, 170 pp.

*Small ruminant production systems in South and Southeast Asia: proceedings of a workshop held in Bogor, Indonesia, 6–10 October 1986.* Devendra, C., ed. IDRC, Ottawa, Ont. IDRC-256e, 426 pp.

*Searching — partners in innovation.* IDRC, Ottawa, Ont. IDRC-257e, 44 pp.

*Quête d'avenir — partenaires des innovateurs.* CRDI, Ottawa, Ont. IDRC-257f, 48 pp.

*Essais en laboratoire et sur le terrain des pompes à main.* Goh, S.Y. CRDI, Ottawa, Ont. IDRC-TS51f, 152 pp.

*Programme régional d'études de 2<sup>e</sup> et 3<sup>e</sup> cycle en sciences de l'information en Afrique anglophone : choix d'un emplacement approprié.* Roberts, K.H., réd. CRDI, Ottawa, Ont. IDRC-TS53f, 66 pp.

*Relations universitaires du Canada avec la République populaire de Chine depuis 1970 — Volume 1 : conclusions et recommandations.* Singer, M. CRDI, Ottawa, Ont. IDRC-TS54f, 118 pp.

*Production et recherche sur la banane en Afrique de l'est et en Afrique central : actes du colloque régional tenu à Bujumbura, Burundi, du 14 au 17 décembre 1983.* Kirkby, R.A., Damien, N., réd. CRDI, Ottawa, Ont. IDRC-MR114f, 156 pp.

*Informe de la IV reunión de trabajo sobre sistemas de producción animal, Chiclayo, Perú, 24-28 de octubre, 1983.* Quijandria, B., Li Pun, H.H., Borel, R., ed. CIID, Ottawa, Ont. IDRC-MR115s, 212 pp.

*La télévision pour le développement : l'expérience africaine.* McLellan, I. CRDI, Ottawa, Ont. IDRC-MR121f, 230 pp.

*Control of reproduction in fish: a round-table discussion.* Lam, T.J., ed. IDRC, Ottawa, Ont. IDRC-MR123e, 168 pp.

*Reclamation of nutrients, water and energy from wastes: a review of selected IDRC-supported research.* Zandstra, I., compiler. IDRC, Ottawa, Ont. IDRC-MR124e, 152 pp.

*Les actes du séminaire sur le plan d'analyse des enquêtes EMIS tenu à Bamako, Mali, du 20 au 25 août 1984.* CRDI, Ottawa, Ont. IDRC-MR125f, 212 pp.

*MINISIS Users' Group meeting 1985: proceedings of the seventh annual meeting of the MINISIS Users' Group, Washington, DC, USA, 28 October-1 November 1985.* IDRC, Ottawa, Ont. IDRC-MR126e, 260 pp.

*Rainwater catchment: status and research priorities in the southeast Asian region: proceedings of the regional seminar and workshop held in Khon Kaen, Thailand, 29 November to 3 December 1983.* IDRC, Ottawa, Ont. IDRC-MR127e, 248 pp.

*Development strategies for flying fish fisheries of the eastern Caribbean: proceedings of an IDRC-sponsored workshop at the University of the West Indies, Cave Hill, Barbados, 22-23 October 1985.* Mahon, R., Oxenbush, H., Hunte, W., ed. IDRC, Ottawa, Ont. IDRC-MR128e, 154 pp.

*Multilateral research institutions in the Third World: a directory of multilateral research and research-complementing institutions based in the Third World — 1985.* IDRC, Ottawa, Ont. IDRC-MR129e, 260 pp.

*Issues in information science: an assessment of services in Canada and China.* Huang, J. IDRC, Ottawa, Ont. IDRC-MR130e, 52 pp.

*Informe de la V reunión de trabajo sobre sistemas de producción animal, Turrialba, Costa Rica, 26-29 de septiembre, 1984.* Li Pun, H.H., Mares Martins, V.M., ed. CIID, Ottawa, Ont. IDRC-MR131s, 220 pp.

*Distribución y características de investigación en salud en Colombia: informe final.* González Agudelo, B.E. CIID, Ottawa, Ont. IDRC-MR132s, 274 pp.

*Energy research in Sierra Leone.* Davidson, O. IDRC, Ottawa, Ont. IDRC-MR133e, 48 pp.

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