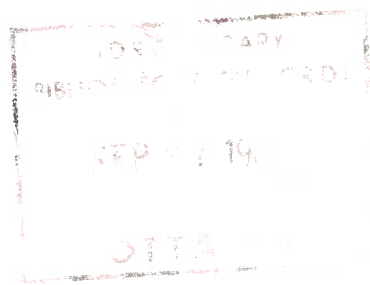
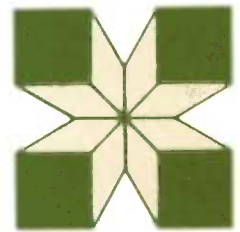


Annual report

1988

1989



IDRC

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



INTERNATIONAL DEVELOPMENT RESEARCH CENTRE
CENTRE DE RECHERCHES POUR LE DEVELOPPEMENT INTERNATIONAL

Chairman of the Board
Président du Conseil

July 15, 1989

The Rt. Hon. Joe Clark, P.C., M.P.
Secretary of State for External Affairs
Lester B. Pearson Building
125 Sussex Drive
Ottawa, Ontario
K1A 0G2

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, 1989 which includes the financial statements of the Centre and the Auditor General's report thereon.

Yours sincerely,

Janet M. Wardlaw

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PO Box 8500, Ottawa, Ontario, Canada K1G 3H9

IDRC, Ottawa CA

IDRC-003/89e,f

IDRC annual report 1988–1989. Ottawa, Ont., IDRC, 1989. 80 p.: ill.

/Annual report/, /IDRC/ — /development research/, /research projects/.

UDC: 338.001

ISBN: 0-88936-544-X

ISSN: 0704-7584

A microfiche edition is available.

Mention of a proprietary name does not constitute endorsement of the product and is given only for information.

Annual Report 1988–1989

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; nutrition; forestry; fisheries; animal sciences; environment; energy; tropical diseases; water supplies; health services; education; population studies; economics; communications; urban policies; issues relating to women in development; earth and engineering sciences; and information sciences.

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, vice-chairman, and 9 other governors must be Canadian citizens; in practice, 7 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 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 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, Senegal (West and Central Africa); and
- Singapore (Southeast Asia, East Asia, and the Pacific).

Contents

Introduction	5
Divisional summaries	
Agriculture, Food and Nutrition Sciences	7
Communications	11
Earth and Engineering Sciences	12
Fellowships and Awards	14
Health Sciences	15
Information Sciences	17
Social Sciences	19
Board of Governors	22
Officers of the Centre and Regional Directors	23
Financial commentary and highlights	24
Auditor's report	32
Projects for which funds were approved during the fiscal year 1988–1989	
Agriculture, Food and Nutrition Sciences	42
Communications	47
Earth and Engineering Sciences	48
Executive Office	50
Fellowships and Awards	50
Health Sciences	51
Information Sciences	55
Social Sciences	58
Division activity projects	63
Fellowships	64
Publications	68

Introduction

The terms “East–West” and “North–South” entered the vocabulary several decades ago. They encapsulated in simple, vivid fashion the complex international relationships of the period after World War II. Not surprisingly, they have done more: the two terms have shaped attitudes to such an extent that they now threaten the very understanding they were intended to encourage. What began as simplification has become simplistic.

World systems and world processes are now evolving with blinding speed. “East–West” and “North–South” threaten to lock us into mind-sets that are not just dated, but are dangerous. The East–West axis reflects increasingly fresh ideas and bold acts, yet sound management of the relationship is threatened by attitudes conditioned in an earlier, different era — words memorized 40 years ago shape today’s images.

The North–South axis illustrates even more graphically such dated, dangerous impressions. The earlier concepts of developing countries in the South being dependent for their well-being on the industrialized states of the North continue to be held firmly by too many governments and publics at a time when the reverse may be more accurate. A combination of population pressures, deteriorating ecosystems, financial transfers, and political instability in the South has placed the North at risk. No longer can events in the South be regarded as marginal to the fate of the North. Tragically, however, that is exactly how they are all-too-often viewed.

The interests and the future of Canadians are now being determined by people in distant countries. Canada’s ability to mold events unfolding there is not limitless, but neither is it incidental. Our willingness to act, however, depends on our awareness of what is actually happening, not on the arrogant assumptions encapsulated in the term “North–South.”

It is from the South that much of the threat to the wholesomeness of our atmosphere comes. As we in the North poison our air with increasingly large emissions of toxic fumes, we have depended on the tropical rain forests of the South as purifiers, as manufacturers of the oxygen we require. We have also assumed that the countries of the South would not act in the same irresponsible way that we have; that they would be selfless enough not to increase the numbers of smoke-stack industries. Not surprisingly, both of those assumptions are unsustainable. Burgeoning populations in the South

are encroaching increasingly on forested lands, destroying the trees in a desperate endeavour to grow needed food. Governments beset by impoverished populations endeavour to provide employment through low-cost initiatives, many of which depend on the oxidation of readily available fuels that are serious polluters.

It is from the South that much of the cash flow on which our financial institutions rely comes; it is to the South that Canada exports large quantities of value-added manufactured goods. The developing countries, in aggregate, import more Canadian goods than do either Japan or all the members of the European Economic Community combined. Should economic circumstances in the developing countries continue to decline, our economy is placed increasingly at risk. The North South Institute has calculated that Canada lost \$24 billion of exports and 130 000 jobs in the past 7 years because of the downturn in the South. The assumption that debt servicing from South to North can continue under present circumstances is simply naive. In 1988, the developing countries, worldwide, transferred to the North US\$43 billion more than they received — a perverse, unsustainable transfer of wealth from the poorest to the richest that has contributed to civil strife and political instability in many developing countries.

It is in the South that desperate economic circumstances breed social instability. Despair is the fodder of religious fundamentalism, of populist political parties, and of criminal activity. Desperately poor people pursue any opportunity for survival — illegal entry into countries (such as Canada) that promise hope, narcotics cultivation to earn cash income, and degrading or criminal conduct of any kind that offers some economic return. In these circumstances, governments seek to retain power and the semblance of order through often-draconian means — human rights are denied, the seeds of terrorism are sown, and regional conflicts flare as governments divert attention from domestic failures.

The planet Earth and its inhabitants cannot sustain indefinitely patterns of conduct that have led to a world population of 5.2 billion (a figure twice what it was only 40 years ago), conduct that has placed 1 billion persons in circumstances where their diet is inadequate to permit them to work, is destroying arable land at the rate of 1 hectare every 14 seconds, has led to economies that are reducing the standard of living of persons in most developing countries, has encouraged arms transfers to

governments ill-able to afford them, and has doomed future generations of hundreds of millions of young persons to lives without education, without hope, and without societal or family discipline.

That South is not able indefinitely to pay its debts, to buy our goods, to protect our environment, to respect our values, and to refrain from destabilizing our world. That South is now changing our world with a momentum and magnitude more powerful than any social movement since the 17th century. Yet the North pretends not to notice or, if noticing, fails to act adequately. We continue to invest heavily in a perceived East–West axis that is changing dramatically. We continue to ignore a North–South axis even as it diminishes our welfare and threatens our security.

Human resources, properly trained, and effective technologies, properly deployed, have combined over time to give the countries of the North the highest standards of living in the history of humanity. The same formula, thoughtfully designed and sensitively applied, can provide the peoples of the South with the means to design their own future and contribute to their own well-being. In the North, there is no more demonstrable cause and effect relationship than the level of scientific research on the one hand and the standard of living on the other. The same is true in the South, as is evident in the near miraculous achievements of some Asian economies.

Almost two decades ago, Canada took a world-wide initiative (since followed by several other governments) to assist the developing countries to enhance their own scientific competence and to identify and solve their own development problems. That initiative was called the International Development Research Centre (IDRC). In the past 19 years, its international Board has used the Centre's parliamentary grant to make science work in increased food production, better health, higher quality education, improved sanitary housing, more workable social policies, and more sustainable economic planning and adjustment.

The amounts involved have been modest — less than 4% of Canada's annual budget for overseas development assistance — but the results have been extraordinary and the contribution to Canada's reputation invaluable. Success stories can be chosen from many of the 100 countries where Centre-supported projects have led to the solution of local problems; where continued efforts, over time, are making significant contributions to human

dignity, social well-being, and economic advancement as has been the case in the North.

Sigma Xi, the international society to encourage scientific research, was so impressed with this form of development assistance that it selected IDRC last year as the first recipient of its 21st Century Award as the organization anywhere in the world that was "best preparing society for the next century." And such is IDRC's reputation that it was selected to participate in a study conducted by Canada's Auditor General on the attributes of well-performing organizations. This "well-performing" rating by the Auditor General amounts to receiving a good-management Oscar from the most demanding of judges.

Within the limits of the funds available to it, IDRC will continue to pursue its mission to use science to promote the indigenously determined social and economic advancement of the developing regions of the world, with particular focus on the poorest people of those regions. It does so from a Canadian perspective, aware that Canadians depend on export markets, depend on a wholesome environment, and depend on peace. Aware too, that as a decent society, our sense of self respect depends on human dignity elsewhere.

Divisional summaries

Agriculture, Food and Nutrition Sciences

116 projects, \$29.8 million

The goal of the Agriculture, Food and Nutrition Sciences Division (AFNS) is to increase the individual's access to food and other basic necessities. Such an objective involves strategies that go far beyond simple increases in food production. These strategies aim at an equitable distribution of the benefits of agricultural activities and at securing the purchasing power of the rural and urban poor. Increasingly, the need is to create jobs within the system of producing and using renewable natural resources.

IDRC has recently reassessed its nutrition strategy and is increasing its support in this area. A Centre-wide Nutrition Unit was created in January 1989 within AFNS to coordinate and integrate the nutrition-related work of all divisions through an interdivisional advisory committee on nutrition.

The Division's concern with the ecological impact of agriculture production systems and the need for promoting sustainable practices has also led it to increased programing in this vital area.

The structure of AFNS was altered somewhat this year with the splitting of the Crop and Animal Production Systems Program into two — Crop Production Systems and Animal Production Systems.

Nutrition unit

The overall mission of the new Nutrition Unit is to contribute to the improvement of community nutrition and, in particular, the nutritional status of the poor. In pursuit of this mission, the Unit supports research that seeks to promote:

- The development and implementation of methodologies for assessing the broad causes of community nutrition problems;
- The formulation of national policies and action programs for nutritional improvement; and
- Integrated projects in nutrition, innovative methodologies, and the dissemination of new and relevant information from related disciplines.

Initially, the Unit has focused on South Asia and Africa, in view of the extreme nutritional

problems in these regions, but activities in Latin America and Southeast Asia are rapidly evolving.

Activities that have been initiated in South Asia include the formation of an advisory group of regional nutrition experts; research to determine the implications of different farming systems for nutritional status; research and development to improve food utilization and generate income in semi-arid regions in India; studies to promote nutritional improvement in young women and infants; and community research to test and refine methodologies for identifying nutritional problems and causes. The latter activity has resulted in an IDRC publication that will serve as a guideline for the rapid assessment of nutritional problems and the design of interventions by community nutrition researchers.

The severe and extensive nutritional problems in the African region demand urgent attention. Sustained nutritional improvement in the region will depend on developing the agricultural base and decelerating environmental degradation.

Currently, intersectoral projects in community nutrition are under development in Bénin and Nigeria. It is expected that a network of integrated nutrition projects for West Africa will result from these activities. In conjunction with the World Health Organization, IDRC is conducting a series of workshops to identify problems for nutrition researchers in West and East Africa. There is increasing dialogue with the United Nations Children's Fund on nutrition issues in Africa, particularly in relation to child survival and appropriate rural and development policies.

Animal production systems

The objective of the Animal Production Systems Program is to help the poor in developing countries by increasing the supply and availability of animal products. This is accomplished through support of research aimed at increasing animal production and productivity on small-scale farms in three subprogram areas: production systems, feeding systems, and systems components. Through improvements in these areas, income and access to food may be increased.

In developing countries, consumption of protein, especially of high-quality protein, is very low. Most of the protein consumed is of plant origin. The production of high-quality animal protein (including milk, eggs, meat, and offal) is limited by various factors that result in prices that

are usually beyond the means of the general populace.

Milk and milk products are important components of the diet, particularly for children. Most tropical countries do not produce enough and, to meet the demand, considerable quantities are imported. In Latin America alone, it is estimated that the annual expenditures on milk and milk products imports exceed US\$500 million.

The Centre supports many projects that aim to improve domestic production of this key commodity. Milk production systems projects were renewed in Chile and Guyana and a project on livestock production systems in Burundi was also renewed. Promising technologies in pasture production are being developed in these projects, with the potential to greatly increase milk production and the productivity of small-scale farms.

Although progress has been made with the feeding, management, and health of livestock, some scientists would like to see an improvement of the breeds themselves. A new project in Venezuela aims at developing methodology for on-farm evaluation and genetic improvement of dual-purpose cattle. This is a new direction for the Division and, once developed, the methodology will be applied in other projects in Latin America, as well as in Africa and Asia.

Small ruminant production continues to be an important subject of Centre support. The ability of sheep and goats to produce in harsh environments around the world, and their characteristic prolificacy, make them highly suitable for small-scale farmers. A new project in Malaysia, which integrates the breeding of sheep and goats within oil palm plantations, is being funded. Another project addressing the improvement of goat production by small-scale farmers has been renewed. These farmers, largely neglected by research and development institutions in the region, are among the poorest in the rural sector.

Animal feeding systems continues to be an area of major program priority. In Latin America, a large proportion of the peasant population inhabit the highlands of the Andes. They practice farming systems where animal production is based on native grasslands of low productivity. Considerable improvements can be made by introducing better pastures and more efficient techniques for managing rangelands. Toward this end, a regional network, based in Chile, was approved. Further afield, pasture projects in several countries in Africa and in Ecuador were renewed. The

beneficial effect of improved pastures on animals and seed production shown by these projects may mean an expansion of these kinds of activities to other regions.

Crop production systems

The goal of the Crop Production Systems Program is to achieve stable and sustainable agricultural productivity while maintaining or enhancing environmental quality. Component and systems research, often in collaboration with other IDRC programs and divisions, underlies the strategy of the Crop Production Systems Program staff. Emphasis is placed on applied, multi-disciplinary, on-farm participatory research activities; however, more-basic research endeavours (in biotechnology, for example) are receiving increasing attention. The need to establish and maintain strong linkages among national programs, international and regional centres, and other relevant research and development institutions (e.g., nongovernmental organizations) is recognized and promoted.

A major undertaking of the Program is support for the Oilcrops Network in Asia and Africa. The Network's research activities have helped to develop higher yielding, disease-resistant oilcrops. Also, nations with weaker national programs are being helped by the more advanced ones through training courses, visits, and the exchange of information. Recently, China has developed a keen interest in the Oilcrops Network and Chinese delegates at several meetings have offered to exchange knowledge and advanced germ plasm on a reciprocal basis.

Support is also being provided for the Alley Farming Network in Africa. This network will contribute to the development of sustainable production systems (involving crop and animal production improvements) for the humid and semi-humid tropics. This project involves the collaborative efforts of the Forestry and Crop Production Systems programs, something that is on the increase, and is jointly funded by the Canadian International Development Agency and IDRC.

Sustainability issues, receiving greater emphasis in Southeast Asia, are highlighted by two projects. The first, at the University of the Philippines, aims to create a farmer-scientist partnership to collect, maintain, exchange, screen, and breed suitable local rice cultivars. The other is the *Sustainable Agriculture Newsletter* (Malaysia), an ongoing publication that addresses the increasing number of individuals and organizations interested in this topic. This newsletter,

cosponsored by IDRC and CUSO (formerly Canadian University Service Overseas), has now published four issues.

A subprogram involves research on annual crops, perennial crops, cropping systems, and integrated pest management. New initiatives funded during the past year in annual crops included one on vegetable seed production in Thailand. It recognizes the nutritional importance of vegetables, as well as their large potential for generating income and employment on small-scale farms. Budgetary allocations for vegetable research are likely to be increased in the future. In Africa, an exciting attempt is being made to use new technological tools to help breeders control viral diseases of major food crops. This research into monoclonal antibodies is in collaboration with the International Institute of Tropical Agriculture in Nigeria and Agriculture Canada.

Research into perennial crops has concentrated on plantains and bananas. A project to assist the Ugandan government to establish a national banana research program has been funded in collaboration with the Rockefeller Foundation.

In pest management, a collaborative research project was undertaken to control lepidopteran pests through use of *Bacillus thuringiensis*: a promising research avenue that will continue to be explored.

Forestry

The objective of the Forestry Program is to increase the supply and availability of forest products for the benefit of the poor in developing countries. This objective is being accomplished by support for applied research aimed at promoting community or social forestry programs, developing systems in which trees and woody plants contribute to environmentally sound and sustainable food production, and enhancing incomes derived from forest products.

These priorities have been defined in the context of the Division's stated goal of improving access to food. Clearly, the Forestry Program can seldom provide food directly; however, its support of research into integrated production systems and provision of energy does contribute to this overall divisional objective. Equally, in its support for other areas of research, for example, on bamboo and rattan, the program is promoting increased income generation or purchasing power.

Some initiatives developed during the year deserve special mention. Conserving and evaluating natural genetic resources have received increased

emphasis with support for projects in all regions. These include Congo and Mali (native species), Malaysia and Papua New Guinea (rattan), Argentina, Costa Rica, and Peru (*Prosopis* and *Inga* species). In addition, second-phase support has been provided for the successful Zimbabwean Regional Seed Centre.

Support for agroforestry has continued to be the priority area, with just over 50% of the Program's allocation being devoted to this field. Again, support has been provided for research in all regions. Notable examples include a silvipasture project in India that aims at improving the productivity and sustainability of the central wastelands by introducing forage and nitrogen-fixing trees. A collaborative project in Kenya links local researchers with the University of Toronto; its objective is to develop soil-conservation techniques that account for traditional land-use practices and socioeconomic factors.

Finally, the Program's increased activity in the Middle East, which had previously received considerably less support than other regions, should be mentioned. During the year, major projects have been supported on tree culture in Egypt and shelterbelts in Tunisia. It is planned that the program in the region will be further strengthened in the coming year.

Fisheries

The Fisheries Program's two main objectives are to increase the aquatic-based food supply for local populations and to improve the livelihood of rural and coastal communities involved in artisanal fisheries. The Program is organized into two subprograms: aquaculture (marine and freshwater) and artisanal fisheries. Aquaculture promotes research on the scientific and technical requirements of production systems; its major thrust is in Asia and, to a smaller extent, in Africa. Artisanal fisheries promotes the integrated development of coastal communities and its major thrust is in Latin America.

During the year, the Fisheries Program continued to emphasize an integrated approach to fish production by coastal and rural populations, with a special focus on fish as a source of food for local consumption. The need for this approach is emphasized by the case of Latin America, where fish consumption remains low, averaging 5 kg/person per year, even though fish production in the region contributes over 15% of global production. A major challenge to the Program is to promote increased domestic use of the fish

produced; thereby improving the nutritional level of the local population.

During 1988–1989, the Fisheries Program developed seven projects in artisanal fisheries that aim at increasing fish production primarily for local consumption. *Artisanal Fisheries Network (Chile)*, *Artisanal Fisheries (Colombia)*, and *Artisanal Fisheries Development (Peru)* are three integrated projects in which applied research on resources availability, mariculture, transport of the catch, processing technology, and the improvement of socioeconomic conditions of coastal communities are supported through a multidisciplinary approach involving other IDRC divisions and programs.

Three other projects — in Brazil on tuna, Chile on marine farms, and Uganda on lake productivity — aim at increasing the output of fish products for local consumption. A further project in Latin America, jointly funded with the Communications Division, will test and evaluate the use of audiovisual material in the transfer of fish processing and mariculture technology to coastal communities.

In Asia, the development of aquaculture technology, particularly aspects of fish nutrition, health, and genetics, continues as the main thrust.

Post-production systems

The broad objectives of the Post-Production Systems Program are to make more and better-quality food available to the rural and urban poor, and to increase employment and income opportunities through small-scale enterprises that process and market agricultural commodities. To achieve these objectives, the Program supports research on many aspects of the postproduction systems for important food commodities. It covers and integrates a wide range of disciplines that include marketing and economics, engineering, entomology, food science and technology, biochemistry, and nutrition.

The Program comprises three subprograms: food processing, utilization, and nutrition; food handling, storage, and drying; and equipment design, adaptation, and testing. Activities in the third subprogram focus on technical requirements for effective and efficient operation of the first two. Studies to define problems and research are encouraged before support is launched into larger projects for technology development. These studies are usually interdisciplinary and are frequently funded in cooperation with other programs.

One such project in West Africa (jointly funded with the Agricultural Economics Program)

analyzes the socioeconomic benefits of new technology in the region. By accounting for the potential socioeconomic impact, appropriate technological choices can be made. Based at the African Regional Centre for Technology in Senegal, it also encourages young social science and technology researchers to develop this capability in their own institutions.

Two projects dealing with Andean foods and food processing are worthy of note. They involve three regional universities in southern Peru and the University of Alberta in Canada. The focus is on improving food quantity and nutrition, and increasing income in rural communities and is linked to earlier work on Andean crop production systems.

In Africa, a major initiative with the Agricultural Economics Program was the development and support of a series of in-depth studies on the production and processing system for edible vegetable oil in Kenya. Carried out by Egerton College in Kenya, this study has identified several potentially important research topics on technology, economics, and policy that are to be further developed.

Agricultural economics

The Agricultural Economics Program seeks to improve the ways in which economic issues are considered when designing and introducing new technology. By judging the potential socioeconomic effects, a sounder decision can be made as to what constitutes the appropriate technology for a given region. In particular, the Program has directed its research support to increasing the efficiency of production, distribution, and processing of food. In collaboration with other programs, there has been an attempt to focus research on the foods used by poorer groups. Furthermore, the production systems that potentially have the greatest income and employment benefits have been emphasized.

Improving the incorporation of economic considerations into technology research and development can be achieved through several means — directed research, education, strategic placement of economists, and collaborative projects with other programs and divisions.

In the first category, several methodological procedures in farming systems research are being tested in Chile. Researchers hope to increase farm income through the design and testing of improved technologies geared to cope with the conditions faced by peasant farmers.

The education approach is well illustrated by a project that brings together researchers affiliated

with the Asian Fisheries–Social Sciences Research Network with faculty from the Institute of Fisheries Analysis at Simon Fraser University in Canada. The objective is to develop a strong core of Asian fisheries economists. High-level expertise in this field is scarce world wide and is greatly needed in Southeast Asia where serious problems in capture fisheries affect or threaten the livelihood of millions of people.

Support for a forestry economics advisor, working through a Centre-supported forestry research network in South and Southeast Asia, is one example of the placement strategy.

Lastly, in terms of collaborative efforts, the innovative methodology for the study of the vegetable oil–protein system in Kenya (previously mentioned in the Post-Production Systems section) involves a high level of interaction between various universities, ministries, and private organizations. It has proven very successful. The overall objective is to satisfy the increasing need for oil for human consumption and protein for animal feed — all in a way that is economically and technically feasible for Kenya.

Communications 9 projects, \$1.3 million

During the fiscal year 1988–1989, the Communications Division approved an unprecedented number of projects. Most of them supported the dissemination of the ever-increasing quantity of useful research results originating from maturing IDRC projects. This major thrust in developing countries was happening while the Division maintained its traditional activities in translation, dissemination, and production of print and audiovisual materials for its Canadian and international audiences.

A national survey of Canadians conducted for the Communications Division confirmed that Canadians believe that information on the realities of the developing world is important. Canadians want to know where research is contributing to development, and where long-term solutions to major issues may lie. This study has contributed to a modification of the Public Affairs Program in the Division, particularly those aspects to improve the Centre's capacity in sharing its rich resources of experience and knowledge. The new public affairs strategy will be aimed at better informing several key audiences of the achievements made possible in the Third World through IDRC funding.

With the projects it supports in developing countries, the Communications Division seeks both

short- and long-term goals. In the first, the objective is to disseminate and promote the use of specific research results; in the long term, it hopes to contribute to the body of knowledge necessary for the successful adoption of new policies and technologies. To pursue these goals, the Division adopted, last year, a three-pronged approach. The first set of activities is collecting and disseminating all concrete research results. The second component is to study ways that communities can become involved in research activities from the design phase of the projects to the analysis and implementation of the results. Research on communication systems and technologies is covered in the third component.

A large number of IDRC-funded research projects have now reached a stage where there is a need to disseminate their results. Thus, particularly in Asia, the Communications Division is very active when the challenge becomes a marketing one. A case in point is a project at the National University of Singapore that supports the production and testing of manuals, posters, flyers, and videos to promote a new instrumentation package run by microcomputers. This package, which can be programmed for a variety of uses, will be marketed to professors, researchers, and private sector engineers and technicians. The system has been introduced by the staff of the National University of Singapore in cooperation with Scada Ltd of Toronto.

For centuries and even millennia, bamboo has been an extremely useful and versatile commodity in China. Several IDRC-supported projects aim at increasing the present annual production of 3 million tonnes of stems to 11 million by the end of the century. The Division approved a project that will assist the Subtropical Forestry Research Institute in Fuyang to design a communications strategy for the newly developed bamboo varieties and production technologies. It will be one of the first times that a survey of existing practices and beliefs about bamboo cultivation is carried out before a technological package is implemented.

In the Philippines, the Capiz Development Foundation's efforts to disseminate a ferrocement reservoir technology, needed to catch and store rainwater, will be supported by IDRC's Communications and Health Sciences divisions and the Canadian International Development Agency. This particular reservoir, which can be built in village communities using local resources, was developed through a previous IDRC project.

The Division also partners three projects with the Agriculture, Food and Nutrition Sciences

Division. The first, at the request of scientists at the Universidad Católica de Chile, will videotape demonstrations of improved fishing techniques so they can be taught in coastal communities. The second involves five IDRC divisions that have teamed up to make Visayas State College of Agriculture in the Philippines the leading research institution on root crops (sweet potato, cassava, and yam) in Southeast Asia. Long neglected, root crops are vital to many poor farmers. The third project, which is also supported by IDRC's Office of Planning and Evaluation, is an analysis of nine previously funded projects to determine how the new varieties of seeds they have produced have been marketed. This study is expected to indicate the basic elements of a successful seed marketing strategy needed to transmit these improved varieties to farmers.

Because the Centre's objective is to fund the kind of research that is truly connected to the problems of underprivileged communities, it is of the utmost importance that their needs be clearly identified. Toward this end, the Communications and Information Sciences divisions have responded to a request from the International Institute for Rural Reconstruction, in the Philippines, to evaluate different strategies designed to involve rural communities in identifying and eventually solving their problems. These same divisions are also supporting a joint project of the Caribbean Industrial Research Institute in Trinidad and Tobago and the Centre de recherche industrielle du Québec, which aims at implementing a comprehensive program to provide small- and medium-sized Caribbean industries with the technological and marketing information they need.

Publications

In 1988-1989, the Communications Division published 66 monographs, proceedings, technical studies, and manuscript reports covering numerous areas of research that receive support from IDRC's other divisions. These are listed on page 68 together with other publications resulting from Centre-funded research. A catalogue of IDRC's publications is 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 print run is 28 000 for the English, French (*Le CRDI Explore*), and Spanish (*El CIID Informa*) versions, with 64% going to the developing countries, about 20% within Canada, and the remainder to other industrialized nations. *The IDRC Reports* is published in January, April, July, and October.

Audiovisual media

Last year, two videos were produced. "Forestry in Botswana" is a 15-minute documentary that details the efforts of the Forestry Association of Botswana in replanting trees throughout the country. "The Dobby Mechanism" is a 15-minute video about a device created by Pakistani inventor, Wasey Omar, that can be attached to power looms. This device can be produced locally and installed easily and will significantly increase the speed and efficiency of looms in the cloth-making industry.

Both videos are available in U-matic, VHS, and Betamax formats; and on NTSC, PAL, and SECAM signal systems. A catalogue of IDRC's films and videos is available on request.

Earth and Engineering Sciences 36 projects, \$9.4 million

This is the 2nd year that the Earth and Engineering Sciences Division has had this name: formerly it was the Cooperative Programs Division. The Division has three main objectives: to develop the scientific and technical research capacity of participating Third World institutions, to create lines of communication and exchange between Canadian scientists and those in developing countries, and to encourage Canadian research groups to take an interest in the increasingly numerous and diverse problems that impede development in the Third World.

Earth sciences

The Division's first program of specialization, established in 1983, is Earth Sciences. It comprises three subprograms: hydrogeology and hydrology, geotechnics, and a small sector on mining that includes agrogeology. The first two subprograms use engineering principles to deal with environmental problems of a geological nature: earthquakes and volcanos, soil erosion and slope instability, and water supply and potability. The third subprogram funds research that looks at developing more efficient ways of extracting and processing local natural resources.

Technology for local enterprises

The Technology for Local Enterprises Program is now in its 4th year of operation and focuses, at present, on three activities: metal and light engineering, textiles and leather, and industrial chemicals. The Program's primary goal is to promote the use of locally available raw materials and resources, as well as upgrading traditional production techniques that are labour intensive.

Building industry, materials, and technologies

The Building Industry, Materials, and Technologies Program was launched in 1987 and deals with the complex problem of shelter for the homeless. The Program concentrates on ways of creating acceptable and affordable shelter for the poor in developing countries, while stressing community participation and self-help construction. In particular, the research focuses on the development of small- and medium-scale industries to produce local building materials and to use them to construct low-cost houses.

Program directions

In 1988-1989, the Division funded several projects that reflect its new thrust.

One project, under the hydrogeology and hydrology subprogram, is a regional network on urban hydrogeology that was started in Latin America. The network aims to maximize the impact of research results by an increased sharing of information. Members include institutions in Argentina, Bolivia, Brazil, Mexico, Nicaragua, and Uruguay. The network's four new projects in La Plata (Argentina), Cochabamba (Bolivia), São Paulo (Brazil), and Managua (Nicaragua) focus on securing the water supply of these cities. Several institutions are involved in the network including the Universidade de São Paulo in Brazil, the Instituto de Geofísica of the Universidad Nacional Autónoma de México, and the University of Waterloo in Canada.

In Africa, hydrogeology projects show a great degree of diversity. The Université nationale de Côte d'Ivoire aims at a better evaluation of underground water resources in the Marahoué Basin. This geological and hydrogeological study will benefit from remote-sensing data and from a space referential information system developed by the University of Sherbrooke in Canada. Two other projects, directed by the Université de Dakar in Senegal, are looking at the silting of wells and soil erosion. In Mali, a project carried out by the École

nationale d'ingénieurs, in collaboration with the Institut national de la recherche scientifique du Québec, seeks a better understanding of underground water contamination in the capital, Bamako.

In a very different kind of environment, promising and in many respects fruitful research is being done by a major study of the melting behaviour of snow and ice in the northern mountains of Pakistan. This project, started in 1983, has laid the groundwork for an important second phase that will spread over 5 years and cost more than \$4 million. It will be entirely financed by the Canadian International Development Agency and involve a partnership between British Columbia Hydro International Ltd and Pakistan's Water and Development Authority. Upon completion, Pakistan will be able to rely on sophisticated modern equipment and a team of highly qualified personnel to make use of the waters in the great reservoirs of the Indus River hydrographic basin.

Under the geotechnics subprogram, research activities include the production of an overall master plan for Conakry, the capital of Guinea in West Africa. It will use the results from a geotechnical survey done in collaboration with Laval University in Canada. In China, projects are underway to study stability criteria for dams and to define appropriate standards for constructing safe buildings in seismically active regions. The Canadian partners in these endeavours are the University of Alberta, the University of British Columbia, and the National Research Council of Canada.

Agrogeology, a young science that marries agronomy and geology, is the common denominator in three research activities in Colombia and Ethiopia. Scientists in Colombia are looking for simple, efficient ways to transform natural phosphatic rocks into phosphate fertilizer. This agrogeological project is an initiative of Fosfacol, a small private sector company that specializes in extracting and processing phosphates. In Ethiopia, one group of scientists is trying to produce fertilizer starting with igneous phosphates, and another group is evaluating how rock mulch can increase crop yields. Both these initiatives are benefiting from collaboration with Guelph University in Canada and are expected to create job opportunities in the host nation.

Miners, employed in small-scale operations, will benefit from the approval of a grant to support research on prospecting for precious and semiprecious gems in Sri Lanka. Researchers at Laurentian University in Sudbury, Canada, and the

Institute of Fundamental Studies in Kandy, Sri Lanka, hope to develop more scientific, simpler, and efficient methods for finding new gem deposits.

The Technology for Local Enterprises Program has funded two networks in Latin America in the past year. The first one will ensure that six current projects dealing with foundry technology are better coordinated. The other network will perform similar functions in the field of chemical technology. In the foundry industry, a project undertaken by the Small Industry Development Organization in Turkey will establish a Capacity Utilization and Technology Unit. This Unit will provide technical advice to improve the quality of the finished product, to guarantee its quality to clients, and to ensure its self-financing in the process. In Peru, a method will be developed by researchers, in collaboration with Simon Fraser University in Canada, to extract the tannins from the fruit of tara trees. This activity should create numerous jobs in the chemical industry as well as provide a stable source of income for the peasants. In Sri Lanka, researchers from the Computer and Information Technology Council, in collaboration with the National University of Singapore and Scada, a Canadian company, are working on a computer-based system that will facilitate the drying of tea leaves at a reasonable cost; thus increasing the returns to small-scale tea growers.

Finally, an example of the Building Industry, Materials, and Technologies Program is the joint undertaking of the Department of Geological Survey and Mines in Uganda and the University of Toronto in Canada to use locally available pozzolans, a cement substitute, in the design and construction of low-cost houses.

Fellowships and Awards 26 projects, \$4.1 million

The Fellowships and Awards Division is an active partner with the Centre's other divisions in training and upgrading the qualifications of administrators of research institutions, research managers, and researchers themselves. The Division's various programs are designed to respond to the training needs identified by specialists in the other divisions, both in Ottawa and in the regional offices.

The main objective of the Centre's support for training is to increase the research capacity of research institutions in the Third World. The Division tries 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, with the greater part of the Division's budget spent on individual training awards, which emphasize professional upgrading rather than basic training. Training takes place in centres of excellence located, in order of priority, locally, regionally, in Canada, or in another developed country; where training takes place outside the country of origin, the Division's awards are subject to stringent conditions, meaning that the IDRC-award holder is expected to return home at the end of tenure.

The Division's activities focus on five programs: Training for Project Development; Training for Program Development; Training for Institutional Development; Specialized Training; and Training for Careers in Development — Canada.

Training for project, program, and institutional development

The first three elements of the Division's program framework recognize a gradual shift in emphasis that places priority on strengthening indigenous Third World institutions. In this way, the Division has provided significant support for postgraduate education in eastern and southern Africa. It continues to provide support and encourages attempts at strengthening graduate education, as is the case with the University of the West Indies in the Caribbean, the Pontificia Universidad Javeriana in Bogotá, and the Human Resource Network in Latin America, which focuses on in-depth reviews of graduate-degree training in the region.

There is continuous collaboration with other divisions; especially on projects that are more research oriented. This collaboration occurs in various ways — through joint funding of training projects or by designing and coordinating training programs funded by other divisions. Such is the case with a project in the Philippines. The Integrated Research Crop Program in Visayas State is a massive undertaking that involves five of IDRC's divisions as well as the Regional Office for Southeast and East Asia. The Program's work in developing new varieties of crops and crop products will be expanded to include the whole range of activities from growing to processing to distribution. The Division's contribution will be to develop an ongoing training program at the Philippines Root Crop Research and Training Centre. If successful, this Centre may become the most important root-crop institution in Southeast Asia.

In addition to the individual awards, listed on page 64, the Centre supported the enrollment of 12 young trainees from developing countries at the Hague Academy of International Law — nine for a 3-week training course and three for doctoral studies.

Specialized training

Under the Specialized Training Program, the Division continues to support the Pearson Fellowships. Named after the former Canadian Prime Minister, Lester B. Pearson, who was Chairman of IDRC's Board of Governors from 1970 until his death in December 1972, the Fellowships 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 attachment to a government department. All Pearson fellows take part in a special program in public administration designed jointly by the School of Public Administration at Carleton University and the Faculty of Administration at the University of Ottawa. The 17 Pearson fellows for 1988–1989 are listed on page 64.

The Centre authorized the creation of an internship program aimed at providing learning opportunities, through hands-on experience, to individuals from institutions all over the world that receive support from the Centre. Fifteen internships are provided on a yearly basis to be tenured in Ottawa or in one of the Centre's regional offices. The interns are attached to the various programs and their work is supervised by the associate directors in the divisions.

Training for careers in development — Canada

Under the Training for Careers in Development — Canada Program, the Young Canadian Researchers' Awards are 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, engineering and earth sciences, information sciences, health sciences, and social sciences.

Candidates at the master's level are restricted to the fields of communications/media and journalism, financial and administrative management, health sciences, and information sciences. Young Canadian professionals in communications/media and in financial or administrative management are also eligible to apply. Study, placement, or research programs take place in Third World countries for up to 12 months. Award holders, who are listed on page 66, were selected jointly by staff of IDRC's program divisions and Fellowships and Awards.

The Division offers the John G. Bene Fellowship in Social Forestry, which is 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 is awarded to a postgraduate student in forestry whose research explores the problems and promise of forestry in economic and social development.

Health Sciences 81 projects, \$15.1 million

The research programs of the Health Sciences Division are organized on the basis of a holistic model of the ecology of health. This model embraces the many elements that influence the health of a community and its people. The Division recognizes three groups of such elements that together create the health and illness of communities. These groups are the basis of the Division's three research programs: Health and Community, Health Systems, and Health and Environment.

The programs focus explicitly upon people and their communities. They are interdependent and interactive and form a continuum from research on health and health-related problems as perceived by community members to research on health problems identified by health experts.

An integral part of all three divisional research programs is the Integrated Support for Research Institutions (ISRI). Health Sciences will, by 1993, allocate up to 30% of its funds for divisional and interdivisional ISRI activities. The objective of ISRI is to improve the indigenous research capacity of Third World health-care institutions so that they may evolve a more cost effective, equitable, and sustainable community-based health system.

A primary example of ISRI activities is the *Health development project at Pahou* in Bénin. Based in the Faculty of Health Sciences at the Université de Bénin, the project will create a centre for research and training in public health that will

take a multidisciplinary approach in exploring all aspects of community health.

The centre will carry out research on all aspects of community-based primary health care — including financing, preventive health care, and health promotion, maintenance, and education. Also, it will train health-care workers for Bénin and other African countries, as well as providing community-centred health systems and services to the Ouidah district of Bénin and consulting services for the Ministry of Health. If successful, this project will serve as a model, and a catalyst, for other African nations.

ISRI will give financial stability to the Pahou team, help in training personnel, and facilitate the expansion of research activities.

Health and the community

The Health and Community Program will identify and develop action-oriented, community-based research initiatives. Priority will be given to projects that examine how socioeconomic conditions and human behaviour affect health. These will be complemented by projects examining strategies to improve the health of individuals, families, and communities by involving them in possible solutions.

The program will support research on the social, cultural, and economic factors that influence a community's acceptance or rejection of information about behavioural traits that improve, maintain, or impair the health of its members. It will stress ways of effectively conveying information and of introducing technologies that influence community health, as well as ways of stimulating communities to apply information correctly and consistently and to use and maintain the new technologies properly. Great importance will also be given to examining the types of community organizations that should be involved — what methods can be used to allow these organizations to identify the health needs and priorities of communities and the style of public action to address these needs.

Over the next 4 years, the Health and Community Program will continue to develop several themes in collaboration with other Health Sciences programs, IDRC divisions, and outside agencies. They include health education; strategies to improve nutritional status; community participation in interventions to improve health; methodologies to promote participatory research; introduction, dissemination, and use of technologies; and study of the contextual and

behavioural aspects of the transmission of communicable diseases. The strengthening of research networks and the elaboration and promotion of innovative methodologies will also be emphasized.

A wide range of research projects has been supported this fiscal year. Among them are interdisciplinary projects, such as *Slum improvement (Indonesia)* and *Self-medication among the urban poor (Peru)*, that emphasize community involvement in improving health status. Studying methods of improving the nutritional status of family members, in particular women and children, is the basis of two projects: *Iron supplementation delivery schemes (Thailand)* and *Maternal nutrition in subsistence farmers (Malawi)*. *Sexual practices and risk factors for AIDS (Senegal)* and *Condom acceptability and use (Nigeria)* were two projects that investigated the social and behavioural aspects in the spread of sexually transmitted diseases. Lastly, commitment to health-education research continues to be a priority. The development and testing of socially and culturally relevant health-education materials is the focus of two projects: *Nutrition training and education (the Philippines)* and *Message for improving rural hygiene (Nepal)*.

Health systems

The Health Systems Program links the community and its health needs to the health-care systems and available or required services. These systems extend from ministries of health and tertiary-care facilities to dispensaries and traditional health services in the village. The program includes research on appropriate health-care providers, the curricula necessary to train them, and the infrastructure needed to give them sustained support and to manage the systems of care delivery. The program has four major themes: management and delivery of health services, health services planning, health policy, and strengthening the research capacity of indigenous institutions.

A project that includes all these themes is *Research in health-management and administration (West Africa)*. This project, in collaboration with the University of Montreal, will provide significant institutional support to the African Centre for Management and Administrative Studies to assist in developing a health management and administration program for the francophone countries of West Africa.

In several projects, there is an attempt to link university health sciences with health ministries and local communities that are involved in

developing primary health-care policy and services. Notable are the primary health care initiative of the Université du Bénin and the project based at Suez Canal University — *Community participation in health promotion at the district level (Egypt)*.

Development of measures to determine health status and surveillance systems for health-care needs, assessment, and monitoring is the subject of two projects, *Sentinel site surveillance to measure health impact (Mexico)* and *Integrated district diagnosis and health planning (Kenya)*.

It is expected that projects specifically designed to evaluate various means of funding health services and their effectiveness and efficiency will form an increasing proportion of this Program's plan of action.

Health and the environment

The Health and Environment Program includes research on the physical and biological elements in the environment that affect the health of the poor. It is purposefully moving toward an integrated approach to health research. To this end, attempts are made to develop multidisciplinary projects that account for many interlocking themes and factors. Health needs and priorities, identified by communities, are being covered, as are research activities to develop appropriate technologies to maintain and improve the health of the underprivileged.

To promote a better understanding of health-related environmental factors, the Health and Environment Program continues to encourage discussion and research on water and water use, with particular emphasis on accessibility to potable-water supplies and water quality.

The Program is committed to the ongoing development and refinement of technologies that were, in the past, an important health sciences contribution to development in the Third World. However, as stated earlier, several projects now emphasize sustainability and community-based disease control. A number of such projects on solid-waste disposal and the use of botanical pesticides to control insects have been supported in Colombia, Nepal, and Peru. A similar activity is supported for schistosomiasis control in Zimbabwe.

Development and dissemination of hard technology have been a mainstay of the Program: a project to develop an efficient and usable hydraulic ram pump has been instituted at the Universiti Malaya, which has been responsible for the development of the handpump network of projects. Furthermore, the Program has encouraged the

development of simple, efficient, and cheap diagnostic technologies for such diverse conditions as AIDS (acquired immune deficiency syndrome) and dengue. These will, it is hoped, facilitate a quick community-level diagnosis of such diseases.

A joint project with the Social Sciences Division has been developed and funded on the occupational health of agricultural workers using pesticides. The Program has maintained its interest in joint funding of projects whenever it was likely to benefit recipient institutions. A good example is a three-country project investigating pesticide poisoning in East Africa, cofunded with the Institute of Occupational Health of Finland, which will provide most of the training.

Information Sciences 57 projects, \$10.8 million

The Information Sciences Division continued to pursue three main objectives: building indigenous capacity within developing countries to manage and apply information effectively; improving systems, services, and tools to manage and use information relevant to development research and change; and fostering cooperation and coordination in development research by sharing information. The Division pursues its goals by supporting projects that deal with the specific informational needs of developing countries. It also attempts to strengthen existing information networks by encouraging regional cooperation and by helping to train personnel.

Africa strategy

During 1988–1989, the Division's concerted effort was directed toward improving information management in Africa. A strategy has been formulated to provide a framework for selecting and evaluating information projects that are consistent with sub-Saharan Africa's own priorities.

About half of the Division's program funds were appropriated to support activities in Africa. A major project was launched to establish a school of information studies for Africa at Addis Ababa University in Ethiopia. This postgraduate program has been developed in response to the growing demand for specialists who can manage the information resources needed to support the development process in Africa. Graduates from the program will serve as professional planners and managers of information systems and as trainers and educators in the field.

Several sectoral information systems were

supported in Africa. The development of the Industrial Information System in Kenya will attempt to build a comprehensive data bank of Kenya's industrial sector. This is in line with the Division's strategy of increasing the ability of East African countries to expand their capacity to handle industrial information and thus contribute to national development.

A pilot project on records management in Uganda will draw upon the expertise of senior archivists from Kenya, Tanzania, Uganda, and Zambia. By encouraging regional cooperation and the exchange of experience among the countries, it is hoped that the effective management of official records will improve the governments' decision- and policy-making abilities.

Support was also given to the Centre régional africain de technologie to establish a regional information network on food technologies that will serve as a mechanism for information exchange and dissemination in Africa.

Sub-Saharan Africa suffers from a poor infrastructure for telecommunications, lack of personnel, and a paucity of institutions involved in telematics research. The Division has supported projects to stimulate research and to develop expertise in this topic. Posting of a telematics specialist to the Centre's regional office in Nairobi is one way in which the Division has improved its ability to respond to local needs.

Networking

Many networking projects have been supported to promote information sharing and information technology within developing countries.

A third phase of the Sahelian Scientific and Technical Information and Documentation Network (RESADOC) has been implemented. It will enable the network to support participating centres in countries with the weakest information infrastructures. Its information products and services will be diversified to meet the particular needs of researchers and extension workers, and the research results will be disseminated more widely than to just the scientific community.

A second phase of the Indonesian Fisheries Information System will link 23 local centres for fisheries information, thereby reaching out further to the end-users of the information.

A grant to the International Board of Soil Research and Management, headquartered in Thailand, will help establish an information service unit. This unit will reinforce the activities of the

Soil Management Network and the National Agricultural Research Services by supplying relevant information and improving capacity to handle information.

Bringing Information to the users

The Division's shift in emphasis from support of global information systems to a more focused response was intensified in 1988-1989. By creating specific information systems geared to the needs of decision-makers, researchers, practitioners, and local communities, development problems have a greater chance of being solved. Often this involves collaboration with nongovernmental organizations, such as the Consumer Information Resource Centre in India. This Centre will provide information services to over 200 urban and rural consumer groups seeking to protect the rights, and to raise the quality of life, of India's disadvantaged populations.

A similar project at the Institut africain pour le développement économique et social in Côte d'Ivoire helps rural people to use new technology to improve their daily life. With the Division's assistance, the Institute will intensify production of documentation to reach out more to populations that are socially, geographically, and educationally disadvantaged and will improve the competence of trainers in the effective use of audiovisual materials.

New Information technology

The use of appropriate new information technology has been tried in various pilot projects.

Experience with the Geographic Information System for the Dongting Lake Region of China, designed for flood control and land management, will be shared with other countries. In India, a project will test the use of computer-assisted cartography to represent complex sets of data for planning at the subnational level. The resulting information system will assist planners in evaluating economic development and social change in Bihar State.

A workshop on remote sensing was organized in Lagos, Nigeria, in October 1988, where experts from Bénin, Cameroon, Ghana, Nigeria, and Zimbabwe discussed methodological aspects of resource mapping in Africa. The outcome of these discussions will be incorporated into future program planning.

The Division also financed a workshop on expert systems in agriculture held in the Philippines in June 1988. Nine possible applications of expert systems in agriculture or rural development were

presented at the workshop; these were mostly designed to make research results more accessible at the grass-roots level to farmers and extension workers.

Another project, *Public enterprise evaluation by expert systems (Peru)*, is expected to have a positive effect on the performance of public enterprises, which constitute an important sector of the Peruvian economy. If this technique proves effective, it will be used to help strengthen local capacity to evaluate performance. Various other applications of expert systems are being considered in different sectors as means of bringing research results to decision-makers and practitioners in usable formats.

MINISIS software

MINISIS (Interactive Minicomputer System for Information Retrieval and Library Management) is a powerful software package developed by the Division for library and other applications. Decentralization of the dissemination, support, and technical development activities of MINISIS has progressed steadily, increasing the self-sufficiency of MINISIS-user communities in developing countries.

Two new MINISIS Resource Centres were initiated during 1988–1989: one, at the Shreemati Nathibai Damodar Thackersey Women's University in India, is national in scope and the other, at the African Intellectual Property Organization in Yaoundé, Cameroon, is for the francophone countries of West Africa. Trained staff will, in turn, provide user-support services, local training, and develop local applications.

Together with the ScienTech Information Centre in China and the Arab League Documentation and Information Centre in Tunis, there are now four MINISIS Resource Centres. Support for local MINISIS resource persons in Colombia and Mexico, initiation of a MINISIS internship program, and posting of two MINISIS outreach officers to India and Cameroon, all help to strengthen the Division's new direction in decentralizing support capabilities for MINISIS. Meanwhile, a major effort to enhance the software by introducing new features that will make MINISIS more "user friendly" and improve its capabilities is progressing well.

Centre library

During 1988–1989, the library was reorganized to strengthen services to users and the library's advisory and training role. This included

strengthening the service capacity and self-sufficiency of the small libraries in each of the Centre's regional offices. The Centre Library is recognized as having a major collection in development research. Of particular note, the archives of the World Commission on Environment and Development (the Brundtland Commission) were transferred to the IDRC Library. The material has since been microfilmed and indexed in the library data base.

Social Sciences 92 projects, \$15.3 million

In 1988–1989, the Social Sciences Division implemented the recommendations of an in-depth divisional review completed in March 1988.

The Division's work is organized under three programs: Economic Policy; Population, Education, and Society; and Regional Development. Also, two Units — Environment and Women in Development — serve the whole Centre. The Division pioneered the establishment of such units, which for administrative purposes are housed in one division but whose activities apply to several divisions. The units have specific mandates to support interdisciplinary and intersectoral research and to focus attention on particular issues that cut across "traditional" areas of research support. In addition, the Division will continue to support, for another 2 years, an experimental research program — Public Policy and Participation.

Economic policy

The Economic Policy Program continues to link researchers from different countries who are working on similar topics. Of particular note in 1988–1989 was a new eight-country network in francophone Africa dealing with industrial policy. Administered by the Council for Development of Economic and Social Research in Africa in Senegal with technical support from the Centre de recherche et développement en économie in Montreal, the project links researchers and policymakers and is coordinated with the activities of several other donors.

A smaller network on industrial policy in Latin America continues, with a project in Uruguay recently receiving renewed support. With the United Nations Development Programme, the Program cofinanced a 2-year grant to the United Nations Conference on Trade and Development. This will help the agency organize technical support services for 24 developing countries that will be dealing with international monetary issues.

Population, education, and society

The Population, Education, and Society Program was formed in 1988 by amalgamating the former Population and Development Research Program and the Education Program. It focuses on four research areas: population dynamics, education systems and processes, human survival and development, and indigenous knowledge and culture.

In sub-Saharan Africa, a series of projects was supported to gain new knowledge relevant to development processes and to enhance individual and institutional research capacity. Many of the activities explored the problems of maternal and infant mortality. Other studies concentrated on the role of national languages in schools and the overall efficiency and effect of basic education.

In Latin America, several collaborative projects were supported between the Program and the Health Sciences Division, and plans were laid for more cooperation in the area of health education. Studies were also done on how to use population research results for both policy planning and programing by nongovernmental organizations and on how to strengthen qualitative research methodologies.

A special effort was made in Asia to assess the major research issues and institutions in the area of community-based nonformal education. Plans were also made to support research on child development and family planning in South Asia and on the interaction of population, health, and development issues in Southeast Asia. Similar issues will probably become the focus of work in the Middle East.

The Program also placed particular emphasis on evaluating past research and on disseminating research reports. A large number of books from such research were published by the Centre or by local research institutions and publishers (see pages 68–80).

Regional development

In 1988–1989, the Regional Development Program supported policy-oriented research related to shelter and service delivery, urban management, rural development, and regional planning.

Two large projects in Asia were supported. One was on the development of remote areas in Nepal and the other on regional industrialization in Malaysia. In Africa, the program supported projects on unregulated housing in Kenya, urban management in Nigeria, land policy in Uganda, and

rural food security in Zimbabwe, among others. In Latin America, support included projects on urban land in Ecuador, intermediate cities and regional development in Mexico, small-scale enterprises and low-income housing in Peru, and natural disasters in Central America. Two collaborative projects were approved: one on low-cost transport modes in China involving the University of Calgary and another on food production in the Dominican Republic involving the University of Sherbrooke in Quebec.

Two important international workshops were supported: on local government in South Africa and Zimbabwe and on urban management in Africa.

Environment

This year, the Social Sciences Division established a new group with Centre-wide commitment — the Environment Unit. It was set up both to support research on environment and sustainable development and to serve in an advisory capacity to the many Centre projects and programs that have an environmental dimension. The Unit is committed to support of projects with a strong policy focus but will also identify areas of scientific analysis, such as habitat protection, that are not currently covered by other Centre programs.

During its 1st year, the Unit has supported eight new projects — either alone or in collaboration with other programs and divisions. Among these are an energy use–air pollution network in Southeast Asian cities and a review of use of common-property land in Zimbabwe. In collaboration with the Fellowships and Awards Division, the Unit has also set up an environment awards program to support educational efforts and provide research. As well, funds have been provided to ensure that environmental studies can be recognized as eligible for IDRC's young Canadian researcher awards at the master's degree level.

The Unit is responding to the enormous worldwide interest in global environmental problems. Through a variety of mechanisms, support is offered to researchers in developing countries so that their interests and experience can be brought into the international arena in which scientific results and policy options are discussed.

Women in development

The Women in Development Unit was established as a Centre-wide activity in 1987 to support research on the integration of women into development and to act as a resource for gender-specific and gender-related research. During

1988–1989, the Unit continued to build up a portfolio of projects and training activities in different regions of the world. Projects focused on the participation of women in industrial development, agricultural production, informal sector activities, and various aspects of social and political development. Of particular interest was a major network project, based in Africa, that focuses on the role of women in natural resource management. The Unit continued to work closely with the other divisions of IDRC and with regional offices in an effort to incorporate a gender perspective, where appropriate, into all projects supported by the Centre.

In 1988–1989, the Unit began an in-house training activity, by organizing a 1-day workshop on gender analysis in research design. This was conducted for the staff of the Agriculture, Food and Nutrition Sciences Division. The Unit continued to support the Summer Institute in Gender and Development at St Mary's and Dalhousie universities in Halifax as well as regional training initiatives in Brazil and Tanzania. The Unit's internship program allowed researchers from Argentina, Brazil, India, the Philippines, and Thailand to spend up to 6 months working with various divisions at the Centre's headquarters in Ottawa.

Public policy and participation

Public policy and participation is an experimental program. Its goal is to study how political and bureaucratic considerations affect public policy, especially when that policy concerns the most disadvantaged groups in a developing country.

An important network project on research into community participation in Central America and the Caribbean links research teams in Costa Rica, Cuba, Jamaica, Nicaragua, and Canada. This is being coordinated by the Centre for Research on Latin America and the Caribbean at York University in Toronto.

Division initiatives

The Division Initiatives Fund is designed to support innovative research that does not fall within existing program activities. Of particular note in the past year is an institutional grant to the Council for the Development of Economic and Social Research in Africa to continue its work to strengthen social science research. This grant was made in collaboration with several other divisions in the Centre.

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Financial commentary and highlights

For the fiscal year 1988–1989, the International Development Research Centre received a total grant of \$114.2 million representing 3.9% of the 1988–1989 gross commitment for Official Development Assistance (ODA). For the 1989–1990 fiscal year, the grant allocated to the Centre has been reduced to \$108.5 million.

During 1988–1989, the Centre continued to maintain a freeze on the staff complement at Head Office and implemented a series of recommendations aimed at enhancing the efficiency and effectiveness of its operations.

Revenue

Total Centre revenues amounted to \$121.3 million, a 7.9% increase over 1987–1988. Revenues include the Parliamentary grant of \$114.2 million, investment and other income of \$2.9 million, and income for contract research of \$4.2 million. Figure 1 illustrates the trend in total revenue over the last 5 years.

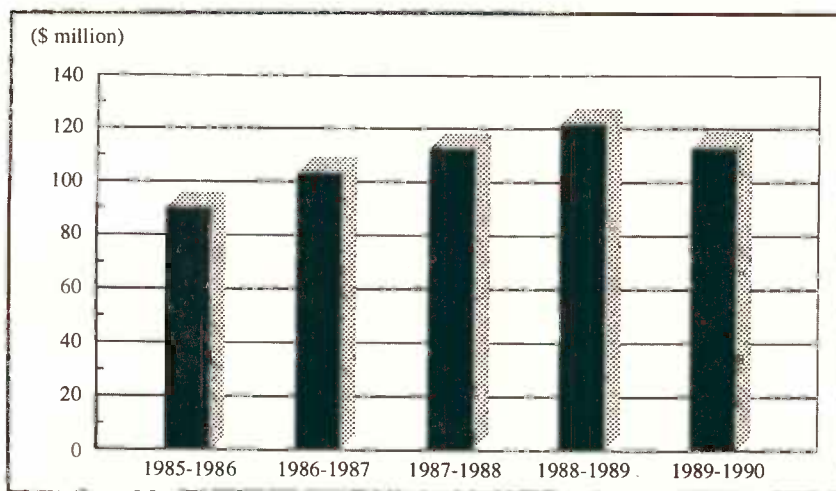


Figure 1. Total revenue for the Centre for 1985–1986 (actual) to 1989–1990 (budget).

The Parliamentary grant of \$114.2 for 1988–1989 represents an increase of \$6.1 million over the 1987–1988 grant or 5.6%. The \$2.9 million of investment and other income in 1988–1989 exceeded the budgeted target of \$2.1 million. Investment income amounted to \$2.6 million compared to the budgeted \$1.8 million. The favourable variance is due to a higher than expected investment portfolio during the whole year, and to higher rates of interest. Other income amounted to \$0.3 million, as budgeted. This figure includes \$0.2 million of MINISIS licence fees and \$0.1 million in other income.

Contract research revenues totaled \$4.2 million in 1988–1989. This value includes \$2.4 million received from the Canadian International Development Agency (CIDA) for research conducted or managed by the Centre on its behalf, and \$1.6 million received from Health and Welfare Canada for the V International Conference on AIDS (acquired immune deficiency syndrome) organized by the Centre.

For 1989–1990, total revenue of \$112.9 million is projected, a decrease of 6.9% over 1988–1989.

Expenditure

In 1988–1989, total Centre expenditures amounted to \$116.0 million. This amount represents an increase of 9.6 million or 9.0% over 1987–1988. Figure 2 outlines the relative share of each category of expenditure for 1988–1989.

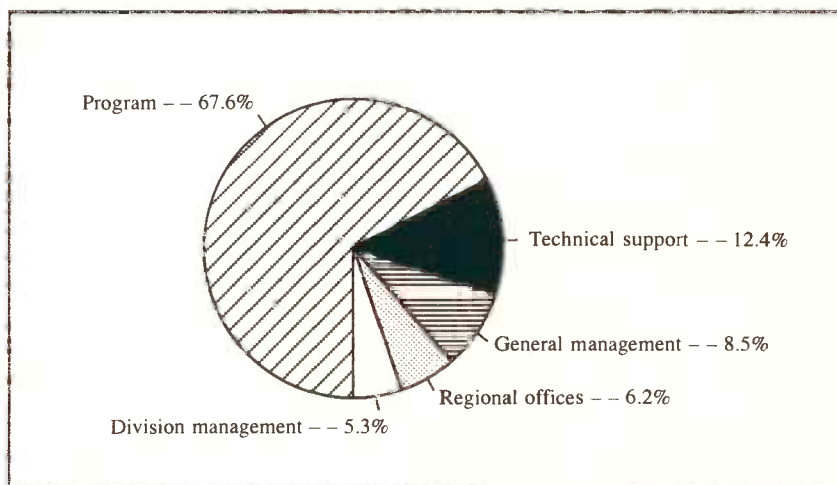


Figure 2. Breakdown of actual expenditures for 1988–1989.

The following table shows the 1989–1990 budget expenditures with actual expenditures reported for 1988–1989 and the previous 3 years (values are in millions of dollars).

	Budget		Actual		Actual		Actual		Actual	
	1989– 1990	% of total	1988– 1989	% of total	1987– 1988	% of total	1986– 1987	% of total	1985– 1986	% of total
Development research	\$ 73.2	59.1	\$ 67.9	58.5	\$ 62.4	58.6	\$ 60.4	59.8	\$54.6	59.7
Technical support	14.2	11.5	14.4	12.4	13.6	12.8	12.9	12.8	12.0	13.1
General management	11.7	9.4	9.9	8.5	10.4	9.8	9.4	9.3	8.7	9.5
Research-related activities	9.8	7.9	10.5	9.1	8.8	8.3	8.4	8.3	7.0	7.7
Regional offices	7.5	6.1	7.2	6.2	5.8	5.5	5.4	5.3	5.0	5.5
Division management	7.5	6.1	6.1	5.3	5.4	5.1	4.5	4.5	4.2	4.6
Total	<u>\$123.9</u>	<u>100.0</u>	<u>\$116.0</u>	<u>100.0</u>	<u>\$106.4</u>	<u>100.0</u>	<u>\$101.0</u>	<u>100.0</u>	<u>\$91.5</u>	<u>100.0</u>

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'être* of the Centre. This category includes support for Centre projects and international research networks; projects that are identified, developed, and managed by developing-country researchers; and contract research projects that are administered on behalf of other donor organizations.

In 1988–1989, expenditures for development-research activities totaled \$67.9 million or 58.5% of the Centre's total expenditures. Expenditures on existing projects that relate for the most part to development research were higher than the 1987–1988 expenditures by 5.6%, whereas expenditures on new projects increased by 19.1% over the previous year.

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 support ongoing programs of the Centre.

In 1988–1989, expenditures for research-related activities totaled \$10.5 million or 9.1% of the Centre's total expenditures.

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 1988–1989 were \$14.4 million. This amount represented 12.4% of total Centre expenditures, a slight decrease over 1987–1988.

For 1989–1990, technical support expenditures are budgeted at \$14.2 million, a decrease of 1.4% due to the cancellation of new person-years and a reduction in all travel budgets. The share of this category of expenditure to total expenditure will be reduced to 11.5%.

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, Senegal, and Singapore. The total expenditure incurred in 1988–1989 to operate these offices amounted to \$7.2 million, an increase of 23.1% over 1987–1988. This category represented 6.2% of total Centre expenditures for 1988–1989.

For 1989–1990, regional office expenditures are budgeted at \$7.5 million, the same level as 1988–1989, because of the cancellation of new person-years and a reduction in travel expenses.

Division management

Division management expenditures totaled \$6.1 million in 1988–1989, a 12.1% increase over 1987–1988, and amounted to 5.3% of the total Centre expenditures for 1988–1989. The increase is mainly due to the higher accommodation costs at the head office.

Expenditures for division management are expected to increase by 23.0% in 1989–1990 to about \$7.5 million. This category's share of total Centre expenditures will increase slightly from 5.3% in 1988–1989 to 6.1% in 1989–1990.

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, Treasurer, and Human Resources; and the Administration, Electronic Data Processing, and Internal Audit departments.

General management expenditures amounted to \$9.9 million in 1988–1989, a decrease of 4.6% over 1987–1988. Most of the decrease resulted from savings in salaries and benefits, and travel expenses. This category's share of total Centre expenditures has decreased from 9.8% in 1987–1988 to 8.5% in 1988–1989.

For 1989–1990, the budgeted expenditures are set at \$11.7 million, an increase of 18.2% from 1988–1989.

Equity of Canada

The equity level as at March 31, 1989 increased to \$13.9 million from the \$8.6 million reported in the previous year. The high level of the year-end equity is due to higher than expected revenues and a lower rate of program expenditures, as already explained. For 1989–1990, the year-end equity is estimated to drop to \$2.9 million.

Person-years

For 1988–1989, the number of person-years hired through the Centre's Head Office totaled 427.4 compared to a budget of 466.5. Vacancies were incurred primarily under technical support and resulted from delays in filling vacant positions. For 1989–1990, the number of person-years hired through the Head Office is budgeted at 459.5 person-years.

Appropriations

Total Centre appropriations for 1988–1989 were \$141.3 million compared to \$124.9 in 1987–1988 and represent a 13.1% increase over the previous year. Included in this amount are new projects for \$103.7 million representing 73.4% of the total amount appropriated during the fiscal year. Figure 3 shows the allocation of program appropriations by geographic region.

For 1989–1990, total appropriations are estimated to reach \$115.9 million with the program appropriations sharing \$75.0 million or 64.7% of the total.

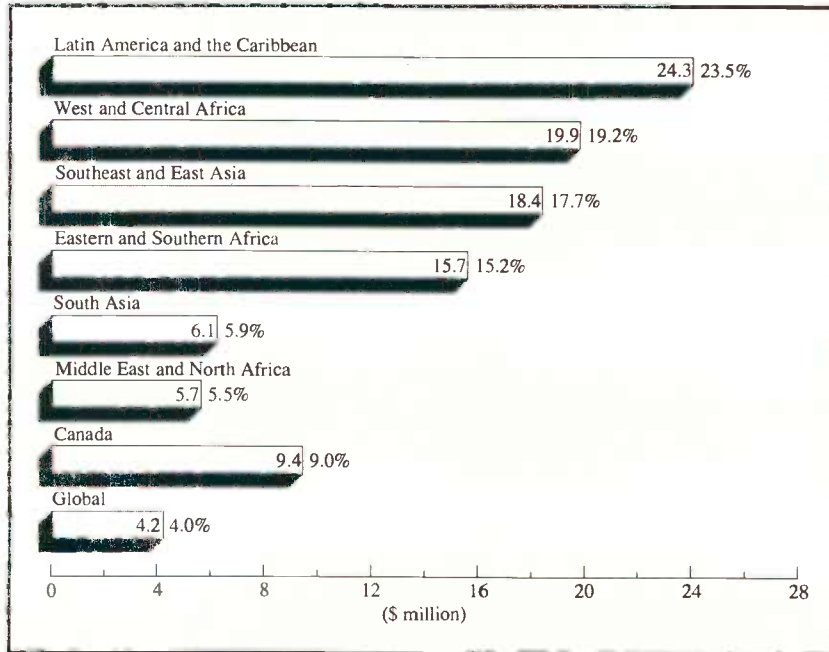


Figure 3. Actual appropriations for 1988–1989 by region.

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.

Financial highlights (\$ 000)

	Budget 1988-1989	Actual 1988-1989	% variance from budget	Actual 1987-1988	1987-1988 vs 1988-1989 (% change)
FINANCIAL ACTIVITY					
Revenue	<u>\$119,500</u>	<u>\$121,293</u>	<u>1.5</u>	<u>\$112,417</u>	<u>7.9</u>
Grant from Parliament of Canada	114,200	114,200	0.0	108,100	5.6
Contract research	3,200	4,199	31.2	2,107	99.3
Investment and other income	2,100	2,894	37.8	2,210	31.0
Expenditure	<u>\$121,100</u>	<u>\$115,975</u>	<u>4.4</u>	<u>\$106,401</u>	<u>9.0</u>
Existing projects*	53,440	50,309	5.9	47,630	5.6
New projects*	29,100	28,060	3.6	23,552	19.1
Technical support	15,180	14,471	4.7	13,613	6.3
General management	9,870	9,887	(0.2)	10,363	(4.6)
Regional offices	7,450	7,177	3.7	5,828	23.1
Division management	6,060	6,071	(0.2)	5,415	12.1
Excess of revenue over expenditure (expenditure over revenue)	<u>(\$1,600)</u>	<u>\$5,318</u>	<u>432.4</u>	<u>\$6,016</u>	<u>11.6</u>
PROGRAM ACTIVITY					
Appropriations	<u>\$142,590</u>	<u>\$141,265</u>	<u>0.9</u>	<u>\$124,904</u>	<u>13.1</u>
New projects	104,030	103,659	0.4	89,685	15.6
Technical support	15,180	14,471	4.7	13,613	6.3
General management	9,870	9,887	(0.2)	10,363	(4.6)
Regional offices	7,450	7,177	3.7	5,828	23.1
Division management	6,060	6,071	(0.2)	5,415	12.1
Commitments	<u>\$133,420</u>	<u>\$126,834</u>	<u>4.9</u>	<u>\$120,154</u>	<u>5.6</u>
Projects	94,860	89,228	5.9	84,935	5.1
Technical support	15,180	14,471	4.7	13,613	6.3
General management	9,870	9,887	(0.2)	10,363	(4.6)
Regional offices	7,450	7,177	3.7	5,828	23.1
Division management	6,060	6,071	(0.2)	5,415	12.1

* Includes contract research and division activity projects.

Five-year financial review (\$ 000)

	Budget 1989-1990	Actual 1988-1989	Actual 1987-1988	Actual 1986-1987	Actual 1985-1986
RESULTS OF OPERATIONS					
Revenue	<u>\$112,900</u>	<u>\$121,293</u>	<u>\$112,417</u>	<u>\$102,401</u>	<u>\$89,663</u>
Grant from Parliament of Canada	108,500	114,200	108,100	100,000	86,000
Investment and other income	2,200	2,894	2,210	978	1,881
Contract research	2,200	4,199	2,107	1,423	1,782
Expenditure	<u>\$123,900</u>	<u>\$115,975</u>	<u>\$106,401</u>	<u>\$100,969</u>	<u>\$91,486</u>
Development research*	73,213	67,875	62,362	60,382	54,585
Research related activities	24,008	10,495	8,820	8,421	7,003
Research operational support	14,983	27,718	24,856	22,812	21,183
General management	11,696	9,887	10,363	9,354	8,715
Excess of revenue over expenditure (expenditure over revenue)	<u>(\$11,000)</u>	<u>\$5,318</u>	<u>\$6,016</u>	<u>\$1,432</u>	<u>(\$1,823)</u>
PROGRAM ACTIVITY					
Appropriations	<u>\$115,852</u>	<u>\$141,265</u>	<u>\$124,904</u>	<u>\$111,517</u>	<u>\$102,199</u>
New projects**	75,000	103,659	89,685	79,351	72,301
Technical support	14,173	14,471	13,613	12,876	12,012
General management	11,696	9,887	10,363	9,354	8,715
Regional offices	7,514	7,177	5,828	5,394	4,947
Division management	7,469	6,071	5,415	4,542	4,224
Commitments	<u>\$135,160</u>	<u>\$126,834</u>	<u>\$120,154</u>	<u>\$105,099</u>	<u>\$95,383</u>
Projects***	94,308	89,228	84,935	72,933	65,485
Technical support	14,173	14,471	13,613	12,876	12,012
General management	11,696	9,887	10,363	9,354	8,715
Regional offices	7,514	7,177	5,828	5,394	4,947
Division management	7,469	6,071	5,415	4,542	4,224
Outstanding commitments	<u>\$113,300</u>	<u>\$104,400</u>	<u>\$96,000</u>	<u>\$88,343</u>	<u>\$88,900</u>

* Includes contract research.

** Includes division activity projects.

*** Excludes contract research (special projects).

Person-year levels

	1989-1990	1988-1989		1987-1988	
	Budget	Budget	Actual	Budget	Actual
PROGRAM DIVISIONS	<u>298.00</u>	<u>300.00</u>	<u>271.20</u>	<u>297.50</u>	<u>285.50</u>
Agriculture, Food and Nutrition Sciences	48.50	50.00	44.80	50.50	50.00
Social Sciences	48.00	48.50	43.30	48.00	45.75
Information Sciences	42.50	41.50	37.70	39.50	37.75
Project-related staff	36.50	37.50	33.50	39.50	36.75
Health Sciences	36.00	36.00	31.50	35.00	35.00
Communications	26.00	25.50	22.50	26.00	22.25
Project-related staff	19.00	19.00	17.40	18.00	19.75
Earth and Engineering Sciences	18.00	19.00	17.50	18.00	15.50
Office of Planning and Evaluation	12.00	11.00	11.40	11.00	11.00
Fellowships and Awards	11.50	12.00	11.60	12.00	11.75
GENERAL MANAGEMENT	<u>158.50</u>	<u>161.50</u>	<u>156.20</u>	<u>163.50</u>	<u>161.25</u>
Office of the Treasurer	39.00	39.00	37.70	97.00	92.00
Administration department*	35.00	37.00	35.60		
Electronic Data Processing*	14.00	14.00	13.40		
Office for Human Resources	19.50	19.50	21.70	19.50	21.50
Office of the Secretary and General Counsel	17.00	15.00	16.40	15.00	16.25
Executive Office	15.00	18.00	14.30	19.00	19.00
Regional Offices Administration	14.00	14.00	13.70	8.00	8.00
Internal Audit	5.00	5.00	3.40	5.00	4.50
SECONDMENTS/SABBATICAL/ STUDY LEAVE	<u>3.00</u>	<u>5.00</u>	<u>0.00</u>	<u>3.00</u>	<u>3.00</u>
TOTAL: HEAD OFFICE-HIRED STAFF	<u>459.50</u>	<u>466.50</u>	<u>427.40</u>	<u>464.00</u>	<u>449.75</u>

* Included under the Office of the Treasurer in 1987-1988.



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, 1989 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 in Canada, conforming with International Auditing Guidelines, 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, 1989 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 in Canada, conforming with International Accounting Standards, applied on a basis consistent with that of the preceding year.

A handwritten signature in cursive script, appearing to read 'Kenneth M. Dye'.

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

Ottawa, Canada
June 2, 1989

Financial statements for the year ended March 31, 1989

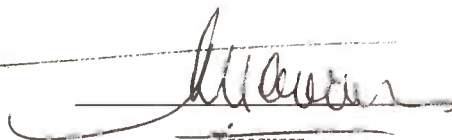
Balance sheet as at March 31, 1989

	1989	1988
ASSETS		
Current		
Cash and short-term deposits (Note 3)	\$26,897,087	\$18,804,032
Accounts receivable	888,653	739,013
Prepaid expenses	1,394,660	973,566
	<u>29,180,400</u>	<u>20,516,611</u>
Recoverable deposits	183,430	197,721
Property and equipment (Note 4)	4,770,484	3,427,620
Endowment funds (Note 5)	165,441	151,273
	<u>\$34,299,755</u>	<u>\$24,293,225</u>
LIABILITIES		
Current		
Accounts payable and accrued liabilities (Note 6)	\$12,373,696	\$ 9,421,661
Contract research (Note 7)	2,532,328	685,697
	<u>14,906,024</u>	<u>10,107,358</u>
Accrued employee separation benefits	2,722,679	2,541,719
Deferred rent - Head Office	2,616,835	2,921,709
Endowment funds (Note 5)	165,441	151,273
EQUITY		
Equity of Canada	13,888,776	8,571,166
	<u>\$34,299,755</u>	<u>\$24,293,225</u>

Approved:



President



Treasurer

Statement of operations
for the year ended March 31, 1989

	1989	1988
EXPENSES		
Development research activities		
Project grants	\$ 56,898,932	\$ 53,953,596
Centre-administered projects	6,777,332	6,301,802
Contract research (Note 7)	4,198,988	2,107,575
	<u>67,875,252</u>	<u>62,362,973</u>
Research-related activities		
Technical support	14,471,250	13,612,515
Program development support	6,382,458	5,265,836
Information dissemination	2,389,558	2,071,295
Development-research library	1,722,497	1,482,233
	<u>24,965,763</u>	<u>22,431,879</u>
Research operational support		
Regional offices	7,175,783	5,827,616
Division management	6,071,041	5,415,467
	<u>13,246,824</u>	<u>11,243,083</u>
Total research and support expenses (Schedule 1)	106,087,839	96,037,935
General management expenses (Schedule 2)	9,887,429	10,362,988
	<u>115,975,268</u>	<u>106,400,923</u>
REVENUE		
Grant from Parliament of Canada	114,200,000	108,100,000
Investment and other income	2,893,890	2,209,588
Contract research (Note 7)	4,198,988	2,107,575
	<u>121,292,878</u>	<u>112,417,163</u>
EXCESS OF REVENUE OVER EXPENSES	\$ 5,317,610	\$ 6,016,240

Statement of equity of Canada
for the year ended March 31, 1989

	1989	1988
Balance at the beginning of the year	\$ 8,571,166	\$ 2,554,926
Excess of revenue over expenses	<u>5,317,610</u>	<u>6,016,240</u>
Balance at the end of the year	<u><u>\$13,888,776</u></u>	<u><u>\$ 8,571,166</u></u>

Statement of changes in financial position
for the year ended March 31, 1989

	1989	1988
Operating activities		
Cash provided by operations		
Excess of revenue over expenses	\$ 5,317,610	\$6,016,240
Items not affecting cash		
Depreciation and amortization	995,099	944,724
Provision for employee separation benefits	551,298	356,694
Gain on disposal of equipment	<u>(27,883)</u>	<u>(79,157)</u>
	6,836,124	7,238,501
Changes in noncash operating assets and liabilities		
Accounts receivable	(149,640)	(183,314)
Prepaid expenses	(421,094)	(272,901)
Recoverable deposits	14,291	247,033
Accounts payable and accrued liabilities	2,952,035	1,447,121
Payment of employee separation benefits	(370,338)	(292,215)
Contract research liability	1,846,631	(229,992)
Deferred rent	<u>(304,874)</u>	<u>2,651,480</u>
	<u>10,403,135</u>	<u>10,605,713</u>
Investing activities		
Additions to property and equipment	(2,349,863)	(1,088,862)
Proceeds on disposal of equipment	<u>39,783</u>	<u>105,933</u>
	<u>(2,310,080)</u>	<u>(982,929)</u>
Increase in cash	8,093,055	9,622,784
Cash and short-term deposits, beginning of the year	<u>18,804,032</u>	<u>9,181,248</u>
Cash and short-term deposits, end of the year	<u><u>\$26,897,087</u></u>	<u><u>\$18,804,032</u></u>

Notes to financial statements as at March 31, 1989

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 Vote 50 for the years ended March 31, 1989 and 1988 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, conforming with International Accounting Standards, and reflect the following significant accounting 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:

	<u>Method</u>	<u>Rate (%)</u>
Computer equipment	Straight line	20
Leasehold improvements	Straight line	5-50
Office furniture and equipment	Diminishing balance	20
Vehicles	Diminishing balance	30
Telephone system	Straight line	20

Recognition of revenue

Parliamentary grants are recorded as revenue on an accrual basis.

Revenue in respect of contract research is recognized at the time the related project expenses are incurred. Contract research funds received in excess of expenses are included in current liabilities.

Accrued employee separation benefits

Employees are entitled to specified termination benefits, calculated at salary levels in effect at the time of separation as provided for by conditions of employment. The liability for these benefits is recorded as the benefits accrue to employees.

Deferred rent

Any rent-free period or other benefits associated with long-term leases are deferred and amortized over the term of the lease on a straight-line basis.

Pension costs

Employees 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

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. Monetary assets and liabilities are adjusted to reflect the rate of exchange in effect at year-end. Exchange gains and losses are included in operations for the current year.

3. Cash and short-term deposits

	<u>1989</u>	<u>1988</u>
Cash (bank overdraft)	\$ (179,966)	\$ 211,052
Short-term deposits		
Canadian chartered banks	27,077,053	13,731,820
Trust and mortgage companies	-	3,867,140
Commercial enterprises	-	994,020
	<u>\$26,897,087</u>	<u>\$18,804,032</u>

Cash and short-term deposits include \$2,654,512 (1988, \$756,979) held for contract research and the V International Conference on AIDS (acquired immune deficiency syndrome).

4. Property and equipment

	<u>1989</u>		<u>1988</u>	
	<u>Cost</u>	<u>Accumulated depreciation and amortization</u>	<u>Net</u>	<u>Net</u>
Computer equipment	\$4,693,405	\$2,100,336	\$2,593,069	\$1,715,871
Office furniture and equipment	1,920,671	1,146,008	774,663	624,332
Vehicles	1,363,216	620,584	742,632	540,545
Leasehold improvements	764,660	268,361	496,299	259,310
Telephone system	759,418	595,597	163,821	287,562
	<u>\$9,501,370</u>	<u>\$4,730,886</u>	<u>\$4,770,484</u>	<u>\$3,427,620</u>

Depreciation and amortization for the year amounted to \$995,099 (1988, \$944,724).

5. Endowment funds

In 1987, the estate of the late John Bene established a fund to provide a postgraduate fellowship in the field of social forestry. During the same year, a former member of the Board of Governors of the Centre established a fund for applied or mission-oriented research.

	<u>1989</u>	<u>1988</u>
Balance at the beginning of the year	\$151,273	\$138,465
Interest income	13,919	12,658
Donations received	5,000	5,150
Expenses	<u>(4,751)</u>	<u>(5,000)</u>
Balance at the end of the year	<u>\$165,441</u>	<u>\$151,273</u>
John Bene Governor	<u>\$154,882</u> <u>10,559</u>	<u>\$146,160</u> <u>5,113</u>
Total endowment funds	<u>\$165,441</u>	<u>\$151,273</u>

6. Accounts payable and accrued liabilities

	<u>1989</u>	<u>1988</u>
Accrued liabilities – projects	\$ 7,278,920	\$5,704,488
Accrued annual and other leave benefits	1,221,879	1,313,885
Other	<u>3,872,897</u>	<u>2,403,288</u>
	<u>\$12,373,696</u>	<u>\$9,421,661</u>

7. Contract research

Contract research relates to research conducted or managed by the Centre and to the V International Conference on AIDS organized by the Centre. Contract research is funded by other international agencies, the Canadian International Development Agency (CIDA), and other federal government entities.

Contract research expenses of \$4,198,988 (1988, \$2,107,575) include \$2,431,480 (1988, \$1,436,190) expended on behalf of CIDA. In addition, the Centre received \$24,511 (1988, \$56,489) as an administration fee from CIDA, which is included in investment and other income.

Contract research current liabilities of \$2,532,328 (1988, \$685,697) include \$608,257 (1988, \$332,537) held on behalf of CIDA.

8. Operating leases

The Centre has entered into various lease arrangements for office premises, equipment, and staff accommodation in Canada and in various countries. The total annual payments under such lease arrangements will be:

Year ending March 31

1990	\$ 5,808,867
1991	5,078,998
1992	4,568,377
1993	4,518,363
1994-1997	<u>19,746,318</u>
	<u>\$39,720,923</u>

9. Contractual commitments — project grants and program development

The Centre is committed to make payments up to \$104,400,000 during the next 4 years subject to funds being provided by Parliament and subject to compliance by recipients with the terms of project agreements. The Centre has also submitted formal grant offers to prospective recipients totaling \$43,600,000 and is awaiting acceptance of these offers.

10. Comparative figures

The 1988 figures have been reclassified to conform to the statement presentation adopted in 1989.

International Development Research Centre
Schedule of research and support expenses
 for the year ended March 31, 1989

	1989			1988
	Development research activities	Research-related activities	Research operational support	Total
Programs				
Agriculture, Food and Nutrition Sciences	\$21,911,128	\$ 5,064,039	\$ 1,206,258	\$27,133,926
Social Sciences	10,097,831	3,530,678	944,776	14,893,828
Health Sciences	8,784,650	2,916,391	999,033	11,817,968
Information Sciences	8,268,304	2,713,555	1,041,304	12,504,431
Earth and Engineering Sciences	6,859,979	1,562,983	518,921	6,032,825
Fellowships and Awards	5,664,225	874,305	315,723	6,856,112
				<i>83,274,083</i>
Program-related activities				
Regional offices	-	1,304,172	7,175,783	8,479,955
Communications Division	894,121	4,172,278	758,501	5,824,900
Special program activities	5,357,033	355,147	-	5,712,180
Development-research library	-	1,722,497	-	1,722,497
External liaison and relations	37,981	749,718	286,525	1,074,224
	<u>\$67,875,252</u>	<u>\$24,965,763</u>	<u>\$13,246,824</u>	<u>\$96,037,935</u>
				<u>\$106,087,839</u>

Schedule 2

Schedule of general management expenses
for the year ended March 31, 1989

	1989	1988
Salaries and benefits	\$6,117,923	\$ 6,523,077
Rent and utilities	1,546,887	1,460,730
Office and sundry	867,119	643,705
Travel and relocation	279,704	513,214
Governors' meetings	279,395	363,618
Depreciation and amortization	260,525	323,311
Professional and special services	283,168	270,587
Telecommunications	190,329	174,484
Working group expenses	19,041	62,258
Insurance	43,338	28,004
	<u>\$9,887,429</u>	<u>\$10,362,988</u>

Projects for which funds were approved during fiscal year 1988–1989¹

Agriculture, Food and Nutrition Sciences

88-0003 Chachafruto (Colombia)

For the Corporación Nacional de Investigación y Fomento Forestal, Bogotá, to increase the productivity of alternative sources of vegetative protein in the Colombian Andes and promote their cultivation within agro-silvo-pastoral systems. \$19 040 — 12 months.

88-0004 Pastoral systems in the Maghreb (Morocco)

For the Institut agronomique et vétérinaire Hassan II, Rabat, to test interventions to improve the living and working conditions of the people of the Moroccan steppes and the stability of the environment. \$100 000 — 15 months.

88-0007 Fish nutrition (Asia)

To enable the Asian Institute of Technology, Thailand, to develop feeding strategies using nonconventional feedstuffs as supplementary feeds to maximize fish production in fertilized pond waters. \$190 200 — 36 months.

88-0008 Marketing sorghum products (Lesotho)

For the Ministry of Agriculture, Maseru, to enable the Division of Agricultural Research to test ways of increasing the consumption of and demand for sorghum as food. \$99 700 — 24 months.

88-0018 Artisanal fisheries network (Chile)

For the Fundación para la Capacitación del Pescador Artesanal, Santiago, in collaboration with the Department of Biology and Marine Technology of the Pontificia Universidad Católica de Chile, Talcahuano, to establish a regional artisanal fisheries network to coordinate research and development, provide liaison, and facilitate the exchange of information, specialized training, and technology transfer among current and planned Centre-supported projects. \$167 500 — 24 months.

88-0019 Female fuelwood carriers (Ethiopia)

For the International Labour Office, Switzerland, in collaboration with the National Urban Planning Institute, Ethiopia, to contribute to the improvement

of the conditions of work and life of female fuelwood carriers in Addis Ababa. \$86 200 — 15 months.

88-0020 Vegetable-seed production (Thailand) — Phase III

For Chiang Mai University to increase the income of hill-tribe farmers through the production of high quality vegetable seed for sale to government agencies, the private sector, and farmers in Thailand and other Asian countries. \$347 100 — 36 months.

88-0021 Sesame for rice-based farming systems (the Philippines)

To enable the Central Luzon State University, Muñoz, to develop sesame varieties suitable for rice-based farming systems. \$68 500 — 60 months.

88-0022 Fish disease (the Philippines) — Phase II

To enable the Bureau of Fisheries and Aquatic Resources, Quezon City, to increase and strengthen its ability to prevent, control, diagnose, and treat diseases that cause serious losses to fish growers in the Philippines. \$204 000 — 36 months.

88-0023 Andean food processing (Peru)

For the Centro de Investigación, Educación y Desarrollo, Lima, to enable the Universidad Nacional del Altiplano, the Universidad Nacional de San Antonio Abad, the Universidad Nacional de San Agustín, and the Universidad Católica "Santa María" to develop improved techniques for harvesting, preserving, processing, and marketing crops and animal products in Andean farming communities in southern Peru. \$297 600 — 36 months.

88-0024 Food legumes (Indonesia) — Phase II

For the Agency for Agricultural Research and Development, Jakarta, to enable the Central Research Institute for Food Crops and the Bogor Research Institute for Food Crops to increase the production of food legumes to increase farm income and stability and improve nutrition. \$361 700 — 36 months.

88-0025 Alley-farming network for tropical Africa

To enable the International Institute of Tropical Agriculture, Nigeria, in collaboration with the International Livestock Centre for Africa, Ethiopia, to assist African national and international research programs to conduct on-station and on-farm research. \$250 000 — 60 months.

88-0026 Natural resource management in communal lands (Zimbabwe)

For the University of Zimbabwe, Harare, to enable the Centre for Applied Social Sciences to produce research findings of planning and policy relevance for the schemes involved, to augment community- and district-level capacity to plan and implement resource-management programs, and to provide a research context for an interdisciplinary graduate-training program in natural-resource management. \$303 740 — 24 months.

88-0027 Vegetable oil–protein system (Kenya)

To enable Egerton University, Njoro, to characterize the oil–protein system in Kenya to identify key research interventions for removing constraints to local oilseed production and processing and to use of edible oils and protein cake. \$234 100 — 9 months.

88-0028 Training project for pasture-seed production technology (eastern and southern Africa) — Phase II

To enable the International Livestock Centre for Africa, Ethiopia, to complement and strengthen the research-training activities of the Pasture Network for Eastern and Southern Africa in the area of pasture agronomy. \$51 010 — 6 months.

88-0029 Buffalo for draft power (the Philippines)

For the University of the Philippines, Los Baños, to enable the Department of Agricultural Economics to study various aspects of draft-animal power on small farms and to define future research, including the design of practical interventions. \$18 900 — 12 months.

88-0030 Fish nutrition network (Asia)

For the Agriculture, Food and Nutrition Sciences Division, IDRC, to establish a network for fish nutrition research in Asia. \$185 000 — 36 months.

88-0033 Seaweed (Chile) — Phase II

For the Universidad de Concepción to contribute to the appropriate management of natural seaweed resources in Chile as a base for expanded mariculture systems. \$10 000 — 12 months.

88-0036 Network coordinator (southern Africa)

For the Agriculture, Food and Nutrition Sciences Division, IDRC, to engage a part-time network coordinator to assist in the technical and administrative development of several Centre-funded projects in southern Africa concerned with

¹An asterisk indicates that the contract between IDRC and the recipient institution may not yet have been signed.

introducing and evaluating multipurpose species for semi-arid and arid planting. \$29 950 — 12 months.

88-0040 Tuna (Brazil)

To enable the Superintendencia do Desenvolvimento da Pesca, Brasília, to increase tuna catches by small-scale fisheries in the northeastern region through better knowledge of the seasonality and abundance of tuna and the use of artificial attractors. \$193 800 — 24 months.

88-0043 Apples (India)

For the Management Development Institute, Haryana, to improve the postharvest handling, processing, and marketing of the apple crop in Himachal Pradesh. \$74 500 — 24 months.

88-0046 Sustainable agriculture (the Philippines)

To enable the University of the Philippines, Los Baños, to improve the quality of life of the farmers on the project site and in other regions of the Philippines through developing and applying improved, sustainable agricultural practices. \$63 000 — 36 months.

88-0049 Oysterseed (Malaysia)

For the Universiti Sains Malaysia, Pulau Pinang, to develop and operate a pilot-scale hatchery for oysters (*Crassostrea belcheri*) using existing facilities at its Muka Head Biological Station, and to develop and disseminate hatchery and remote-setting technologies appropriate to this and other mollusks in the region. \$116 000 — 36 months.

88-0053 Reorienting extension education for rural Malaysia

For the Universiti Pertanian Malaysia, Selangor, to enable the Centre for Extension and Continuing Education to develop and test a new program for training extension agents based on client and agent needs, as well as on current and projected agricultural policies and technological innovations. \$108 000 — 33 months.

88-0055 Agroindustry studies (Latin America)

For the Centro Latinoamericano de Tecnología y Educación Rural, Colombia, to prepare and implement a support program to promote and establish rural agroindustries in Latin America. \$41 400 — 12 months.

88-0056 Fish-processing enterprises (Chile)

For the Centro de Educación, Desarrollo e Investigación de la Pesca Artesanal de Chile, Valparaíso, to establish a processing enterprise in an artisanal fishing community, so as to generate employment and income. \$179 900 — 24 months.

88-0057 Inga (Central America)

To enable the Centro Agronómico Tropical de Investigación y Enseñanza, Costa Rica, to promote the incorporation of selected species of the leguminous genus *Inga* into agroforestry systems on small farms in the humid tropics of Central America. \$73 900 — 10 months.

88-0061 Rice storage (Liberia)

For the University of Liberia, Monrovia, to enable its Agronomy Department to reduce on-farm postharvest rice losses by introducing improved storage and handling systems. \$69 000 — 24 months.

88-0063 Highland sweet potato (the Philippines)

For Benguet State University, La Trinidad, to enable the Northern Philippine Root Crop Research and Training Center, in collaboration with the Kalahan Educational Foundation, to improve the production of sweet potato (*camote*) with a view to enhancing food self-sufficiency among the northern highland people and to protecting fragile mountain soils. \$73 850 — 36 months.

88-0064 Jojoba (China)

For the Academy of Sciences of China, Yunan, to enable the Kunming Institute of Botany to introduce improved strains or provenances of jojoba and develop plantation technology for cultivation under Chinese conditions. \$73 810 — 24 months.

88-0065 Sustainable agriculture newsletter (Malaysia)

For the Asia Regional Office of the Canadian University Service Overseas, Penang, to provide a forum for information exchange and rapid feedback on important issues related to sustainable agriculture. \$20 930 — 24 months.

88-0068 Seed production mechanisms (Global)

For the Agriculture, Food and Nutrition Sciences Division, IDRC, to conduct a study of nine Centre-supported breeding projects that have, with varying degrees of success, disseminated improved planting materials to farmers. \$111 225 — 18 months.

88-0081 Eucalyptus species improvement (Chile)

To enable the Instituto Forestal, Santiago, to prepare a national research program for the genetic improvement of eucalypts of proven potential. \$25 380 — 6 months.

88-0085 Shelterbelts (Tunisia) — Phase III

For the ministère de l'Agriculture, Tunis, to enable the Institut national de la recherche agronomique de Tunisie to disseminate, as widely as possible, the techniques for installing and managing

shelterbelts in irrigated areas. \$237 900 — 36 months.

88-0092 Regional seed centre (Zimbabwe) — Phase II

For the Zimbabwe Forestry Commission, Harare, to enable the Forest Research Centre to provide eastern and southern Africa with access to sources of certified tree seed for research and development purposes by developing facilities for training as well as for processing, storage, testing, and distributing quality seed of known origin. \$411 000 — 48 months.

88-0094 Research and development alternatives (Senegal)*

For the Institut sénégalais de recherches agricoles, Dakar, to develop and test a methodology for diffusing technical innovations that is based on direct collaboration between research institute, peasant association, and training institution, with the involvement of decision-makers. \$213 800 — 36 months.

88-0098 Rattan (Papua New Guinea)

For the Ministry of Forests, Boroko, and the Papua New Guinea University of Technology, Lae, to enable their departments of Forests and Forestry to quantify the distribution of rattan resources, develop techniques for their regeneration, and identify and provide improved methods of processing and use. \$188 200 — 36 months.

88-0099 On-farm testing (Ecuador)

For the Fundación para el Desarrollo Agropecuario, Quito, in collaboration with the Instituto Nacional de Investigaciones Agropecuarias, to improve the well-being of small farmers in Bolívar province by increasing the productivity of their maize-bean system through the combined efforts of research, extension, and support institutions in the region. \$70 000 — 12 months.

88-0107 Milk-production systems (Guyana) — Phase III

For the Caribbean Agricultural Research and Development Institute, Georgetown, to develop improved systems of livestock production for the intermediate savannas and coastal areas. \$357 200 — 36 months.

88-0108 By-products network (Africa) — Phase II

For the International Livestock Centre for Africa, Ethiopia, to strengthen national agricultural research programs in Africa to carry out appropriate research and development activities on the use of agricultural by-products for animal feed. \$330 600 — 24 months.

88-0109 Lentil and chickpea improvement and mechanization (Jordan) — Phase III

For the University of Jordan, Amman, in collaboration with the Ministry of

Agriculture, to enhance food-legume production through the critical evaluation of improved technologies, their transfer to farmers, and strengthening extension and other agencies involved in food-legume improvement. \$381 200 — 36 months.

88-0110 Crop-animal systems (Indonesia) — Phase II

For the Central Research Institute for Food Crops, Bogor, in collaboration with the Central Research Institute for Animal Sciences, to develop appropriate crop-animal production systems for rainfed uplands to increase small-scale farm productivity and stability in Indonesia's transmigrating areas. \$273 400 — 36 months.

88-0111 Root-crops pest management (eastern and southern Africa)

For the Commonwealth Agricultural Bureaux's International Institute of Biological Control, UK, to enable the Commonwealth Institute of Biological Control, Kenya, to assist national programs in the region to develop effective research programs on integrated pest management for root crops. \$297 100 — 24 months.

88-0113 Irrigated plantations (Senegal)*

For the Institut sénégalais de recherches agricoles, Dakar, to enable the department of forestry production research to help make the Senegal river valley self-sufficient in fuelwood and lumber, by way of irrigated plantations within the agricultural perimeters. \$148 200 — 36 months.

88-0114 Root crops (Liberia) — Phase II

For the Ministry of Agriculture, Monrovia, to enable the Central Agricultural Research Institute to increase the quantity and improve the quality of root and tuber crops. \$306 700 — 36 months.

88-0115 Rice farming systems (Burma)

For the International Rice Research Institute, the Philippines, to enable the Agriculture Corporation to strengthen the Burmese ability to conduct research on rice-based farming systems using low-input and cost-efficient technology, and to reduce field losses through improved harvesting and handling practices. \$488 400 — 36 months.

88-0116 Farming systems outreach (Global) — Phase IV

For the International Rice Research Institute, the Philippines, to assist national programs to generate technology by identifying more productive rice-based farming systems that are acceptable to small-scale farmers. \$868 000 — 36 months.

88-0117 Banana cropping systems (Uganda)

For the Ministry of Agriculture, Entebbe, in collaboration with the Rockefeller Foundation, to assist farmers to increase the productivity and profitability of their banana-based cropping systems. \$250 700 — 36 months.

88-0120 Tropical pasture evaluation (Ecuador) — Phase II*

For the Instituto Interamericano de Cooperación para la Agricultura, Quito, in collaboration with the Instituto Nacional de Investigaciones Agropecuarias, to improve animal production on small farms by developing improved pasture technologies suited to the agroecological conditions of the Ecuadorian Amazon Region. \$206 600 — 36 months.

88-0126 Rattan (Malaysia) — Phase II

For the Forest Research Institute Malaysia, Kuala Lumpur, to promote rattan cultivation by producing planting material, conserving genetic resources, and evaluating the economic aspects of intercropping systems. \$246 000 — 36 months.

88-0133 Data management (IRRI)

For the International Rice Research Institute (IRRI), the Philippines, in collaboration with the Southeast Asian Regional Center for Graduate Study and Research in Agriculture, to improve the efficiency of farming systems research by developing effective computer-based tools for data management and technology selection. \$224 200 — 36 months.

88-0134 Marine fish disease (Malaysia) — Phase II

For the Universiti Sains Malaysia, Penang, to develop practical methods to increase the fry-to-market survival of cage-cultured grouper and sea bass. \$166 000 — 24 months.

88-0135 Postproduction socio-economics (West Africa)

For the African Regional Centre for Technology (ARCT), Senegal, to strengthen the socioeconomic aspect of IDRC-supported projects in the region and to strengthen ARCT's socioeconomic capability, with a view to promoting the use of research results that are both economically viable and socially acceptable. \$363 000 — 36 months.

88-0137 Irrigation performance (Zimbabwe)

For the International Food Policy Research Institute, USA, in collaboration with the University of Zimbabwe, to develop a multidisciplinary research methodology for analyzing performance of irrigation systems and to test it on a cross-section of the major types of irrigation practice in Zimbabwe. \$197 300 — 36 months.

88-0146 Root crops (Malawi)*

For the Ministry of Agriculture, Lilongwe, to enable its Research Division to strengthen the national research program to enable it to carry out a comprehensive program on selection, testing, dissemination, agronomy, and integrated pest management for the major root crops. \$223 000 — 36 months.

88-0148 Rattan (Indonesia) — Phase II*

For the Ministry of Forestry, Bogor, and Gadjah Mada University, Yogyakarta, to enable the Agency for Forestry Research and Development and the Forest Research and Development Centre, in collaboration with the University's Faculty of Forestry and the Herbarium Bogoriense, to develop improved plantation and utilization technologies to ensure a sustained supply of rattan to meet present and future demands. \$187 500 — 36 months.

88-0151 FSR methodology application (Chile)

For the Grupo de Investigaciones Agrarias, Santiago, to develop a farming systems research (FSR) process to generate and transfer technology that meets the peasants' needs and improves their standard of living. \$192 200 — 36 months.

88-0157 Meat-handling systems (India)

To enable the Central Leather Research Institute, Madras, to determine the viability of establishing integrated rural-based systems of meat production, handling, and marketing in Andhra Pradesh, Tamil Nadu, Karnataka, and Rajasthan. \$191 700 — 18 months.

88-0162 *Prosopis* species (Argentina)

For the Instituto Argentino de Investigaciones en las Zonas Áridas, Mendoza, to exploit the naturally occurring gene pool for selection and genetic improvement of native *Prosopis* species. \$125 800 — 36 months.

88-0167 Dual-purpose cattle breeding (Venezuela)*

For the Universidad Central de Venezuela, Maracay, to enable its faculty of veterinary sciences to develop a methodology for the evaluation and genetic improvement of milked cattle in lowland tropical production systems and promote its application in Venezuela and other countries in tropical Latin America. \$239 500 — 36 months.

88-0173 Agricultural research planning (East Africa)

For the Intergovernmental Authority on Drought and Development (IGADD), Djibouti, to evaluate, appraise, and develop effective agricultural research programs in IGADD member countries. \$200 000 — 8 months.

88-0178 Indigenous trees (Mali) — Phase II*

For the ministère de l'Environnement et de l'Élevage, Bamako, to enable the Institut national de la recherche zootechnique, forestière et hydrobiologique to extend the areas occupied by three multiple-production agroforestry species after developing planting techniques and ensuring the durability of these species in natural forests. \$99 000 — 36 months.

88-0182 Women in postproduction systems (the Philippines)

For the Regional Centre for Graduate Study and Research in Agriculture, Laguna, to enable the National Post-Harvest Institute for Research and Extension, Isabela State University, and Visayas State College of Agriculture to define the postproduction environments of selected agricultural crops and to examine the status and role of different members of the farm household (especially women) in these environments. \$82 900 — 24 months.

88-0183 Crop-animal systems (Thailand) — Phase II*

For the Ministry of Agriculture and Cooperatives, Bangkok, to enable the Farming Systems Research Institute and the Khon Kaen Farming Systems Research and Development Unit to develop the methodology and technology for integrated crop-livestock research with particular reference to drought-prone areas in northeast Thailand. \$501 900 — 36 months.

88-0188 Andean pastures network (South America)

For the Pontificia Universidad Católica de Chile, Santiago, to strengthen and harmonize national research efforts aimed at increasing animal production and productivity in the highlands of South America through pasture improvement. \$438 600 — 36 months.

88-0189 Milk-production systems (Chile) — Phase II

For the Pontificia Universidad Católica de Chile, Santiago, to enable its faculty of agronomy to develop milk-production systems on the basis of a rational use of resources and to improve the socioeconomic status of the small-scale farmers of La Union. \$428 700 — 36 months.

88-0191 Artisanal fisheries (Peru)

To enable the Instituto del Mar del Perú, Callao, and the Universidad Nacional de San Agustín, Arequipa, to increase artisanal fisheries production in three coastal communities through a project wherein the biological aspect of managing fisheries resources, the production technologies used, and the relevant

socioeconomic aspects will be evaluated and improved by a multidisciplinary research group and the fishermen themselves. \$224 500 — 24 months.

88-0193 Small ruminant-oil palm systems (Malaysia)

For the Universiti Malaya, Kuala Lumpur, to enable the Institute of Advanced Studies to develop appropriate strategies for integrating small ruminants with oil-palm production. \$344 800 — 42 months.

88-0195 Inga species (Peru)

For the Instituto Nacional de Investigación Agraria y Agroindustrial, Lima, to explore the potential of *Inga* species as components of agroforestry technologies for a range of soil types and climatic conditions in the humid tropics. \$67 380 — 12 months.

88-0208 Plantain and banana improvement (Honduras) — Phase II

For the Fundación Hondureña de Investigación Agrícola, La Lima, to develop improved disease-resistant bananas and plantains and make them available worldwide. \$562 500 — 36 months.

88-0209 Goat production systems (Mexico) — Phase II*

For the Instituto Nacional de Investigaciones Forestales y Agropecuarias, Coahuila, to develop improved goat-production systems for small-scale farmers of the states of Coahuila and Zacatecas. \$249 100 — 36 months.

88-0220 Arid zone afforestation (Peru) — Phase II

For the Instituto Nacional de Investigación Agraria y Agroindustrial, Lima, to develop reliable low-cost techniques for establishing irrigated forest plantations for forage and wood production, shelter, and erosion control on sites unsuitable for agriculture in the arid coastal lowlands. \$243 000 — 36 months.

88-0222 Soil fertility (Tanzania)*

To enable the Sokoine University of Agriculture, Morogoro, to determine means of improving and sustaining soil fertility by biological processes through proper methods of plant-residue management. \$37 400 — 36 months.

88-0223 Native fruits (Colombia)*

For the Universidad Distrital "Francisco José de Caldas," Bogotá, to enable its faculty of forest engineering to diversify agricultural production in the marginal coffee-production areas of Colombia by developing improved technology for the cultivation of native fruits such as *lulo*. \$15 100 — 18 months.

88-0224 Yam regeneration and cropping systems (Jamaica)

To enable the Inter-American Institute for Cooperation on Agriculture, Kingston, in collaboration with the Ministry of Agriculture for Jamaica, to increase the supply of yams for local consumption in the short term, as well as the quantity and quality of yams available for export on a sustained basis. \$102 800 — 12 months.

88-0234 Multi-crop dryers (Thailand) — Phase II

To enable Chiang Mai University to provide farmers and traders in northern Thailand with effective drying methods to prevent crop spoilage and add value to their produce. \$157 000 — 30 months.

88-0236 Artisanal fisheries (Colombia)

For the Instituto Nacional de los Recursos Naturales Renovables y del Ambiente, Bogotá, to promote development of two artisanal fisheries communities in the region of Santa Marta, on the Atlantic coast, through the application of an integrated model that will coordinate fisheries-resource studies; appropriate capture, handling, processing, and marketing; and community development. \$502 300 — 36 months.

88-0240 Integrated root-crops program (the Philippines)*

For the Visayas State College of Agriculture, Leyte, to introduce an integrated approach bringing together technology generation, verification, and transfer within a single program of the Philippines Root Crop Research and Training Centre, encompassing activities not only in breeding, production, and processing, but also in appropriate information and communication systems as well as training. \$1 435 000 — 36 months.

88-0253 Vegetable oil-protein system (Kenya) — Phase II

To enable Egerton University, Njoro, to develop the institutional base and coordination capacity to ensure on-going research on oil-protein systems with a view to meeting national needs in an efficient and sustainable manner. \$223 100 — 7 months.

88-0254 Cassava technology (Paraguay) — Phase II

To enable the Secretaría de Extensión Agrícola y Ganadera, Asunción, to increase the income of small-scale farmers by developing more efficient technologies and systems for production and use of cassava. \$228 800 — 36 months.

88-0261 Pond culture (Ghana)

For the Council for Scientific and Industrial Research, Accra, to enable the Institute of Aquatic Biology to develop and test systems to increase pond fish

production on Ghanaian farms.
\$187 200 — 36 months.

88-0262 Bamboo and rattan (Sri Lanka) — Phase II

For the Ministry of Lands and Land Development, Colombo, to enable the Research Division of the Forest Department to increase the production of bamboo and rattan to supply local industries and to quantify and protect natural stands. \$178 300 — 36 months.

88-0263 Pasture Network for Eastern and Southern Africa — Phase II

For the International Livestock Centre for Africa, Ethiopia, to encourage appropriate pasture research by national agriculture research systems' scientists, aimed at increasing feed availability and reducing environmental degradation, by supporting the Pasture Network for Eastern and Southern Africa. \$462 000 — 24 months.

88-0264 Banana and Plantain Network — Phase V

For the International Network for the Improvement of Banana and Plantain (INIBAP), France, to further support the establishment and operations of INIBAP. \$200 000 — 12 months.

88-0265 Fertilizer evaluation and adoption (Global)

For the International Fertilizer Development Center, USA, through farmer participation in research, to develop and evaluate appropriate fertilizer practices on-farm, and to identify constraints to wider adoption of fertilizer use by small-scale farmers. \$1 074 350 — 36 months.

88-0267 Livestock production systems (Burundi) — Phase II*

For the Ministry of Agriculture and Livestock Production, Bujumbura, to allow the Burundi Institute for Agricultural Sciences (ISABU) to improve the livestock farming systems of the small farmers in the low-altitude region of Imbo and the high-altitude areas, and to strengthen ISABU's research capability. \$328 600 — 36 months.

88-0272 Africanized bees (Colombia) — Phase II*

For the Universidad Nacional de Colombia, Medellín, to improve small-scale bee production in southwest Antioquia. \$192 700 — 36 months.

88-0281 Agroecological characterization (Global)*

For the International Center for Agricultural Research in the Dry Areas, Syria, to make available to national institutions models for the characterization of variable agroecological conditions and their impact on agricultural systems; and, in doing so, to encourage and support interinstitutional collaboration in the

application of these tools to questions of national relevance. \$413 680 — 36 months.

88-0282 Cassava and sweet potato (Rwanda) — Phase III*

For the Ministry of Agriculture, Kigali, to enable the Institut des sciences agronomiques to strengthen the national capacity for root-crop research, thereby contributing to increased food production. \$240 000 — 24 months.

88-0287 Tropical production modules (Mexico)

For the Instituto Nacional de Investigaciones Forestales y Agropecuarias, Mexico, to develop integrated agro-silvo-pastoral management systems to increase the sustainable production of food and cash products for the benefit of the small-scale farmers of the Yucatan Peninsula of Mexico. \$406 800 — 48 months.

88-0292 Poplar improvement (India)

For the Y.S. Parmar University of Horticulture and Forestry, Nauni, to develop superior fast-growing varieties of poplar suited to the Himalayan foothills of India, to meet the local population's needs for fuelwood, fodder, and small timber, and at the same time protect the nationally important watersheds. \$264 800 — 60 months.

88-0293 Forest tree culture (Egypt)*

For Alexandria University, the American University in Cairo, and the Suez Canal University, Ismailia, to provide a solution to the problem of the growing demand for trees to protect crops and human settlements as well as to meet the national need for wood, fodder, and fuel. \$521 300 — 36 months.

88-0294 Silvopasture (India) — Phase II*

For the Indian Grassland and Fodder Research Institute, Jhansi, to increase the productivity of degraded grazing lands and wastelands in semi-arid pastoral areas by interplanting fast-growing shrubs and trees with pasture legumes and grasses that have high potential for animal feed and firewood production. \$455 390 — 60 months.

88-0296 Improved crops for small-scale farmers (Chile) — Phase II

For the Universidad Austral de Chile, Valdivia, to select and develop improved varieties and production techniques for potatoes, cereals, and other crops in Chile's Region X, thereby raising small farm productivity. \$369 000 — 36 months.

88-0299 Forestry economics adviser (Southeast and East Asia)

To enable the Chaiyong Chuchart Foundation, Thailand, to develop and strengthen forestry economics as an integral discipline in forest resource

management and forest utilization research. \$76 500 — 24 months.

88-0300 Fertilizer network (West Africa) — Phase III

For the International Fertilizer Development Centre, Togo, to develop and evaluate more effective techniques of integrated fertilizer use, using cost-effective fertilizer sources tailored to various African environments and cropping systems. \$158 400 — 12 months.

88-0305 Postharvest grain systems (Tanzania)*

To enable the Uyole Agricultural Centre, Mbeye, to improve postharvest practices of smallholders for grains for home consumption and surplus in the southern highlands. \$199 100 — 36 months.

88-0306 Postharvest technology for soy bean (Thailand)*

To permit the Department of Agriculture, Bangkok, to determine and define the possibilities of improving postharvest practices and techniques to commercialize the soy bean industry in Thailand. \$83 000 — 15 months.

88-0309 Smallholder livestock development (Thailand) — Phase II

For the Kasetsart University Foundation, Bangkok, to enable Kasetsart University to develop appropriate management methods for fattening cattle on residues from baby-corn production, thereby generating increased income for smallholders. \$61 500 — 36 months.

88-0312 Seeds and plantations (Congo)*

For the Direction générale de la recherche scientifique et technique, Brazzaville, to enable the Centre d'études sur les ressources végétales to rebuild some of the ecosystems of the Mayombe Mountains by artificial regeneration of indigenous species. \$78 700 — 36 months.

88-0314 Agroforestry (Ghana)*

For the University of Science and Technology, Kumasi, to enable the Institute of Renewable Natural Resources, in collaboration with the International Council for Research in Agroforestry, to improve the productivity and sustainability of existing land-use systems by incorporating appropriate agroforestry technologies. \$123 600 — 12 months.

88-0326 Livestock production systems (Tanzania) — Phase II*

For the Tanzania Livestock Research Organization, Dar es Salaam, to enable the Livestock Production Research Institute and the Malya Research Station to develop and introduce improved production technologies for livestock in the traditional sector and to strengthen the Tanzania Livestock Research Organization. \$239 600 — 36 months.

88-0334 Aquaculture genetics (Indonesia) — Phase III*

To enable the Research Institute for Freshwater Fisheries, Bogor, to develop and apply genetic research methodologies and broodstock management strategies for deriving genetically superior strains of common carp and other species for aquaculture production. \$187 300 — 36 months.

88-0341 Root crops (Congo) — Phase III*

For the Direction générale de la recherche scientifique et technique, Loudima, to enable the Centre de recherches agronomiques de Loudima to remove the main obstacles hindering an increase in cassava production among small-scale farmers. \$155 500 — 36 months.

88-0380 Marine farms (Chile)

For the Pontificia Universidad Católica de Chile, Santiago, to enable the Departamento de Biología y Tecnología del Mar to evaluate the biological, technological, and economic parameters involved in a marine polyculture production system feasible for implementation in a small coastal lease. \$72 360 — 24 months.

88-1004 Rapeseed and mustard (India–Canada)

For the Indian Council of Agricultural Research, New Delhi, and Agriculture Canada, Saskatchewan, to improve the production and productivity of rapeseed and mustard in India by increasing yield potential, enhancing yield stability, and improving the quality of the oil and meal. \$538 000 — 48 months.

88-1016 Cucumbers (Barbados–Canada)

To enable the Barbados Agricultural Development Corporation, Christ Church, and Farmwest Management Ltd, Saskatchewan, to develop a production and marketing capability among small-scale vegetable growers in Barbados to improve farm income and family well-being. \$240 900 — 24 months.

88-1024 Plankton ecology (Chile–Canada)

For the Universidad de Concepción and Dalhousie University, Nova Scotia, to study the environmental processes (hydrological and biological) affecting the availability of plankton in the fjords of southern Chile to permit decisions on managing and expanding mariculture activities to be based on reliable estimates of the carrying capacity of the food supply. \$201 000 — 24 months.

88-1028 Monoclonal antibodies to crop viruses (IITA–Canada)*

To enable the International Institute of Tropical Agriculture (IITA), Nigeria, and Agriculture Canada, Ontario, through the

production and use of monoclonal antibodies, to provide a sound base of information on identification and distribution of viruses and their strains infecting major food crops in Africa, thereby assisting plant breeders in developing resistant cultivars. \$597 100 — 36 months.

88-1036 Lake productivity (Uganda–Canada)

To enable the Ministry of Animal Industries and Fisheries, Kampala, and the Freshwater Institute of the Department of Fisheries and Oceans, Manitoba, to predict the potential long-term fishery production of lakes Victoria and Kyoga through better understanding of lake productivity under the changing ecological conditions of the past two decades. \$109 700 — 36 months.

88-1039 Mollusk culture network (Global–Canada)

For the Lester B. Pearson Institute for International Development, Nova Scotia, to enable Dalhousie University to link into a formal network the several ongoing and proposed Centre-supported projects in mollusk culture, and to provide the network with the services of a scientific coordinator. \$249 300 — 24 months.

88-1043 Microbial control (Egypt–Canada) — Phase II*

For the National Research Centre, Cairo, and Agriculture Canada, Manitoba, to develop and introduce ecologically and economically acceptable pest-management systems based on *Bacillus thuringiensis*. \$496 900 — 36 months.

88-1048 Andean foods (Peru–Canada)

For the Centro de Investigación, Educación y Desarrollo, Lima, and the University of Manitoba, Winnipeg, to contribute to the development of improved techniques of harvesting, preservation, processing, and marketing of crops in Andean farming communities in southern Peru. \$390 400 — 36 months.

88-1051 Land reclamation (Kenya–Canada)

For Moi University, Eldoret, and the University of Toronto, Ontario, to characterize the specific environmental conditions that make the soils of semi-arid western Kenya vulnerable to erosion, so as to define and implement appropriate conservation measures and, at the same time, strengthen the research capabilities in this field at Moi University. \$379 150 — 36 months.

88-1052 Fisheries economics (Asia–Canada)

For the Asian Fisheries–Social Science Research Network (AFSSRN), the Philippines, and the Institute of Fisheries Analysis at Simon Fraser University, British Columbia, to increase the research competence and research output of the

AFSSRN, particularly in the area of capture-fisheries management. \$784 900 — 72 months.

88-1053 Fish microbiology (the Philippines–Canada)*

To enable the Southeast Asian Fisheries Development Center, Tigbauan, and Simon Fraser University, British Columbia, to assist the fish farmers and artisanal fishermen of Southeast Asia by developing methods to control epizootic ulcerative syndrome in fish and luminescent vibriosis in prawn. \$249 240 — 36 months.

Communications

88-0073 English version of “Nord-Sud” (Canada)

To enable Metavidea Associates, Quebec, to produce a television program about international development. \$50 000 — 3 months.

88-0100 Bamboo technology utilization (China) — Phase III

For the Chinese Academy of Forestry, Beijing, to enable the Subtropical Forestry Research Institute to disseminate knowledge of improved techniques for bamboo cultivation to bamboo farmers. \$44 867 — 36 months.

88-0119 Fisheries technology transfer in Latin America*

For the Pontificia Universidad Católica de Chile, Santiago, to enable the Departamento de Biología y Tecnología Marina to assist with the training and technological transfer activities carried out by the IDRC-supported projects on development of artisanal fisheries in Latin America. \$237 842 — 36 months.

88-0202 Promotion of microcomputer-based instrumentation package (Global)

For the National University of Singapore to identify strategic options to enable the use of the microcomputer-based package developed during the *Microcomputer-based instrumentation (Singapore)* project funded by the Centre, and to design and produce a set of multimedia communication materials to support the use of the package. \$100 000 — 24 months.

88-0219 Communication methodology in the eighties (Latin America)

For the Pontificia Universidad Javeriana, Colombia, to enable its Faculty of Social Communications to examine the changes that occurred in the 1980s attempting to produce a critical state-of-the-art review that will be useful both for planning research activities and decision-making in communications. \$15 084 — 10 months.

88-0258 Dissemination of ferrocement rainwater catchment system (the Philippines)*

For the Capiz Development Foundation, Roxas City, to promote the use of ferrocement rainwater catchment system technology throughout Capiz Province so as to ensure an adequate supply of potable water for the people of Capiz. \$302 500 — 60 months.

88-0289 Television series on the environment (Global)

To allow the BBC/Open University, UK, to produce a series of eight television video films on major aspects of the environment and the links between the environment and development. The series, to be produced in consultation with experts from IDRC, will constitute one element of an interfaculty course on development for students in a diploma program. \$335 000 — 12 months.

88-0408 Video for AIDS conference (Global)

To enable the Global Village Information Incorporated, Sweden, to promote better understanding of the link between human behaviour and the biomedical aspect of AIDS, particularly among the young, by providing a suitable teaching aid (video) for those working with young people. \$147 980 — 4 months.

88-1050 Training methods in video production (Global-Canada)

For the Instituto para América Latina, Peru, and Vidéo Tiers Monde, Quebec, to produce a training module based on video cassettes and a manual to allow Third World groups to use small-format video technology more efficiently to reach their objectives. \$89 628 — 12 months.

Earth and Engineering Sciences

87-1024 Sugar cane waste utilization (Cuba)

For the Centro Nacional de Investigaciones Científicas, Habana, and the University of British Columbia, Vancouver, to develop a feasible process technology to make better use of the by-products of sugar-cane processing. \$441 000 — 48 months.

88-0016 Silting of wells (West and Central Africa)

To enable the Inter-African Committee for Hydraulic Studies, Burkina Faso, to analyze the causes of silting of wells and bores in the sedimentary zone of West and Central Africa based on case studies in Cameroon and Senegal, so as to reduce, over the long run, the considerable financial cost to the states of the region of

the upkeep of such works. \$75 000 — 12 months.

88-0059 Erosion in Rufisque (Senegal)

To enable the Université Cheikh Anta Diop, Dakar, to broaden its knowledge of the functioning and dynamics of the coastal zone of Rufisque to improve the present protection solutions and eventually to propose more long-term, effective solutions. \$20 000 — 18 months.

88-0079 Process improvement in brass and bronze foundries (northern Thailand)

For Chiang Mai University to enable the Department of Industrial Engineering to improve the quality of the products of the bronze and brassware industry in northern Thailand. \$105 285 — 24 months.

88-0152 Laterite housing (Ghana)*

For the Building and Road Research Institute, Kumasi, to develop design and construction techniques for liveable and durable low-cost housing. \$203 550 — 36 months.

88-0196 Biomass roofing (India)

To enable the Development Alternatives, New Delhi, to develop a small-scale production technology for low-cost roofing sheets and other products such as ceilings and partition walls from pulp, paper, and board. \$165 600 — 24 months.

88-0286 Partially acidulated phosphate rock (Colombia)*

For Fosfos de Colombia, Cali, to define the economic and technical feasibility of producing partially acidulated phosphate rock from local deposits by small- and medium-scale enterprises. \$216 100 — 24 months.

88-0316 Foundry capacity utilization (Turkey)

For the Small Industry Development Organization, Ankara, to enable the Foundry Development Centre to increase the capacity utilization in small- and medium-sized foundries and adjoining machine shops in Ankara. \$196 000 — 36 months.

88-0400 Manual silk reeling (India)*

For the Asian Institute for Rural Development, Bangalore, to carry out a technical and socioeconomic assessment of the recently developed manual technologies for silk reeling available to the mulberry silk reelers in India. The project will establish a systematic field test to obtain information from the users on the technical and socioeconomic relevance of the new techniques. \$55 000 — 24 months.

88-1006 Institutional support: International Division of AUCC (Global)

To enable the Association of Universities

and Colleges of Canada (AUCC), Canada, to continue to carry out its functions to increase the role and participation of the Canadian universities in international cooperation and development. \$85 120 — 12 months.

88-1012 Geotechnology (Guinea-Canada)

For the ministère des Ressources naturelles et de l'Environnement, Conakry, and Laval University, Quebec, to supply the necessary geotechnical information for developing an urban plan for the city of Conakry. \$216 000 — 18 months.

88-1015 Location of gem deposits (Sri Lanka-Canada)

For the Institute of Fundamental Studies, Kandy, and Laurentian University, Ontario, to develop scientifically based prospecting methods for small-scale miners of gemstones. \$247 184 — 24 months.

88-1017 Hydrogeology (Mali-Canada)

For the École nationale d'ingénieurs, Bamako, and the Institut national de la recherche scientifique, Quebec, to enable the Département d'étude et de recherche de géologie and the Institute to establish the vulnerability of the aquifers that provide Bamako's potable water supply to pollution from human and animal wastes and to propose simple, economically feasible solutions to the problem. \$240 000 — 24 months.

88-1018 Stone and aggregate (Rwanda-Canada)

For the Université nationale du Rwanda, Kigali, and the University of Sherbrooke, Quebec, to develop the utilization of Rwanda's natural resources in the cut stone and aggregate industry. \$320 000 — 48 months.

88-1020 Earthquake dam safety (China-Canada)

For the Central Research Institute of Building and Construction, China; the University of Alberta, Edmonton; and the University of British Columbia, Vancouver, to ensure the safety of the large hydraulic-fill tailings dams in China. \$505 600 — 36 months.

88-1021 Latin American Foundry R&D Network (Latin America-Canada)*

For the Laboratorio de Entrenamiento Multidisciplinario para la Investigación Tecnológica, Argentina, and Queen's University, Ontario, to establish a network for foundry research and development (R&D) within Latin America so as to provide effective liaison between foundry scientists, engineers, and industries, and to coordinate training, technical assistance, and small R&D project grants. \$395 625 — 36 months.

88-1022 Microprocessor-based process control for tea drying (Sri Lanka-Canada)*

For the Computer and Information Technology Council of Sri Lanka, Colombo; the National University of Singapore; and Scada Systems Incorporated, Ontario, to develop a microprocessor-based control system, based on software developed in a previous Centre-supported project, for tea drying in small-scale processing units. \$397 763 — 24 months.

88-1027 Pozzolan housing (Uganda-Canada)

For the Department of Geological Survey and Mines, Entebbe, and the University of Toronto, Ontario, to carry out research to make low-cost pozzolan houses possible by involving community participation. \$405 776 — 36 months.

88-1029 Latin American Urban Hydrogeology Network (Latin America-Canada)*

For the Association of Geoscientists for International Development, Bolivia; the Universidade de São Paulo, Brazil; the Universidad Nacional Autónoma de México; and the University of Waterloo, Ontario, to support a coordinating structure on urban hydrogeology that will allow groundwater problems affecting urban areas to be adequately characterized, relevant research projects to be coordinated, researchers to be exchanged, and links between researchers and institutions established. \$327 800 — 36 months.

88-1031 Igneous phosphate (Ethiopia-Canada)

To enable the Ethiopian Institute of Geological Surveys and the Ethiopian Institute of Agricultural Research, Addis Ababa, and the University of Guelph, Ontario, to establish the scientific basis required for improving soil productivity using local rock and mineral resources. \$86 500 — 36 months.

88-1032 Rock mulching (Ethiopia-Canada)

To enable the Ethiopian Institute of Geological Surveys and the Ethiopian Institute of Agricultural Research, Addis Ababa, and the University of Guelph, Ontario, to establish the scientific basis required for improving soil productivity using local rock and mineral resources. \$165 000 — 36 months.

88-1033 Groundwater contamination in São Paulo (Brazil-Canada) — Phase II

For the Universidade de São Paulo and the University of Waterloo, Ontario, to investigate actual and potential contamination of groundwater supplies by heavy metals and organic compounds, and

to attempt to find ways to locate, characterize, and assess the situation in contaminated areas. \$225 070 — 24 months.

88-1034 Anthocyanic pigments (Burkina Faso-Canada)

For the Université de Ouagadougou and Simon Fraser University, British Columbia, to separate and describe the anthocyanic pigments from dyer's sorghum. \$63 000 — 12 months.

88-1035 Catchment area of the Marahoué River (Côte d'Ivoire-Canada)*

For the Université nationale de Côte d'Ivoire, Abidjan, and the University of Sherbrooke, Quebec, to evaluate the water resources of a typical Sahelian hydrographic basin, to better manage the resource; the evaluation to be based on hydrogeological and geophysical data obtained in the field and from the analysis of satellite surveys by a spatial-reference information system. \$357 518 — 36 months.

88-1037 Improving living conditions in disadvantaged areas of Conakry (Guinea-Canada)

For the Université de Conakry, Guinea, and the Technical University of Nova Scotia, Halifax, to improve housing quality in the poorer districts of Conakry, and to facilitate access to the new residential areas to be created. \$352 300 — 36 months.

88-1040 Precision casting (Chile-Argentina-Canada)*

For the Universidad de Santiago de Chile; Laboratorio de Entrenamiento Multidisciplinario para la Investigación Tecnológica, La Plata; and University of Toronto, Ontario, to develop appropriate industrial techniques to permit the application of precision casting methods in Chile and Argentina, while making maximum use of local raw materials. \$243 700 — 36 months.

88-1041 Fire resistance evaluation for housing (China-Canada)*

For the Ministry of Public Security, Beijing, and the National Research Council of Canada, Ontario, to reduce the loss of life and property damage due to fire by developing fire-resistance evaluation for housing. \$344 700 — 36 months.

88-1045 Shale brick production (Egypt-Canada)*

For the General Organization for Housing, Building and Planning Research, Cairo, and the National Research Council of Canada, Ontario, to develop a small-scale technology to produce acceptable burnt bricks using shale as the basic raw material. \$387 700 — 36 months.

88-1047 Latin American chemical technology network (Latin America-Canada)

For the Companhia de Desenvolvimento Tecnológico, Brazil, and the University of British Columbia, Vancouver, to establish a chemical technology network within Latin America to coordinate training, technical assistance, small research and development grants, and pilot-plant experimentation to accelerate the process of research, development, and transfer of technology to small- and medium-scale enterprises. \$453 100 — 36 months.

88-1054 Aquifer of Managua (Nicaragua-Mexico-Canada)*

To enable the Instituto Nicaragüense de Estudios Territoriales, Managua; the Universidad Nacional Autónoma de México; and the University of Waterloo, Ontario, to help find a solution to the water-supply problem of the city of Managua. \$151 300 — 24 months.

88-1056 Groundwater management: La Plata (Argentina-Brazil-Canada)*

To enable the Universidad de la Plata and the Universidad de Buenos Aires, Argentina; the Universidade de São Paulo, Brazil; and the University of Waterloo, Ontario, to establish the suitability, both in quantity and quality, of the groundwater resources of the La Plata region for water supply. \$203 400 — 36 months.

88-1058 Cast iron production from sponge iron (Egypt-Canada)*

For the Central Metallurgical Research and Development Institute, Helwan, and the Research and Productivity Council, New Brunswick, to develop the use of locally produced sponge iron as a replacement for imported haematite and high-purity pig iron in Egyptian small- and medium-sized foundries. \$239 500 — 36 months.

88-1059 Groundwater: Cochabamba Valley (Bolivia-Brazil-Mexico-Canada)*

For the Corporación de Desarrollo de Cochabamba (CORDECO), Bolivia; the Universidade de São Paulo, Brazil; the Universidad Nacional Autónoma de México; and the University of Waterloo, Ontario, to achieve a better understanding of the groundwater system in the Valley of Cochabamba; to develop an improved model of groundwater flow and quality to maximize the water use; and to strengthen the groundwater research capabilities at CORDECO. \$207 590 — 24 months.

88-1061 Seismic micro-zoning (China-Canada)

For the Comprehensive Institute of Geotechnical Investigation and Surveys, Beijing, and the National Research Council of Canada, Ontario, to draw together the existing observational,

analytical, and engineering-properties data to develop a set of useful guidelines for siting in earthquake-prone zones. \$219 250 — 30 months.

88-1062 Tara processing (Peru–Canada)*

For the Instituto de Investigación Tecnológica Industrial y de Normas Técnicas, Lima, and Simon Fraser University, British Columbia, to develop laboratory-scale technology for production of gallic acid, pyrogallol, and propyl gallate from tara fruit and to evaluate the economics of larger scale production. \$236 900 — 24 months.

88-1065 Feasibility study for the implementation of the Johore State Technology Centre (Malaysia–Canada)*

For the Universiti Pertanian Malaysia, Serdang; the Johore State Economic Development Corporation, Johor Baharu; and the Saskatchewan Research Council and the University of Saskatchewan, Saskatoon, to evaluate the feasibility of establishing a Johore Technology Transfer Centre including the details of its working, a business plan, and a projected budget. \$79 824 — 6 months.

Executive Office

88-0203 Defence and development in Southeast Asia — Phase II

To enable the Institute of Southeast Asian Studies, Singapore, to disseminate the results of the research work at the national level through a series of national dissemination workshops, and to strengthen the collaborative research work between researchers and military officers on the sensitive issue of defence expenditure and its impact on development. \$101 900 — 12 months

Fellowships and Awards Division

88-0013 The Hague Academy of International Law scholarships (Global)

To enable the Hague Academy of International Law, the Netherlands, to assist in training young legal scholars from developing countries in aspects of international law and to offer Canadian support for training programs for legal practitioners and researchers from the Third World. \$30 000 — 12 months.

88-0017 Fellowships for human response to global change (Global)

To enable the International Federation of Institutes of Advanced Studies, Ontario, as the acting Secretariat for the Human Response to Global Change (HRGC) program, to offer fellowships to two nationals of developing countries, to

provide them with a training opportunity within the planning and implementation of the HRGC program, and, at the same time, to ensure that a Third World perspective is included in the program. \$70 000 — 18 months.

88-0041 FRIM–INTAN forestry research management training (Southeast Asia)

To enable the Forest Research Institute Malaysia (FRIM) and Institut Tadbiran Awam Negara (INTAN), Malaysia, to provide project leaders from eight AFNS-funded activities with a broad yet substantively relevant understanding of the theory and practice of research management. \$18 100 — 6 months.

88-0042 Technological transfer for timber industries (Brazil)

For the Universidad de São Paulo to enable the Instituto de Pesquisas Tecnológicas, in cooperation with the International Union of Forest Research Organizations, USA, to identify appropriate methods for transferring wood-processing knowledge and technology from laboratories to industries in South American countries and to train personnel for this purpose. \$57 485 — 6 months.

88-0044 Health services applied-research methods (Dominican Republic)

To enable the Universidad Autónoma de Santo Domingo, through an intensive training workshop in applied-research methods, to strengthen several research institutions in Central America and the Dominican Republic to improve the quality of the research proposals submitted to IDRC and other donors. \$59 711 — 6 months.

88-0045 Research projects development and analysis (West and Central Africa)

For the Institut de formation et de recherche démographiques, Cameroon, to assist researchers and students at social science research institutions in the region to formulate research projects suitable for acceptance by funding institutions. \$151 135 — 6 months.

88-0058 Use of microcomputers in health research and data analysis (eastern and southern Africa) — Phase II

For the University of Nairobi, Kenya, to enable the Department of Food Technology and Nutrition to familiarize its staff with potential applications for microcomputers in research and training and to introduce them to up-to-date data-handling techniques. \$71 992 — 6 months.

88-0096 Training course on fish reproduction techniques (Brazil) — Phase III

To enable the Centro de Pesquisas e

Treino em Aquicultura, São Paulo, to provide practical and theoretical training in fish reproduction, induced spawning, and larvae rearing in IDRC-sponsored fisheries projects in Latin America and the Caribbean, with a view to upgrading local research capability in freshwater fish aquaculture. \$78 710 — 6 months.

88-0097 Women's political participation (Latin America)

To enable the Centro de Investigación para la Acción Femenina, Dominican Republic, to introduce the participants to the study of research related to women's participation in social processes, particularly those related to public administration and local government. \$28 405 — 6 months.

88-0131 Consortium Graduate School (the Caribbean) — Phase IV

For the University of the West Indies, Jamaica, to continue to provide integrated institutional support to the Consortium Graduate School of the University to strengthen its teaching and research capacity. \$588 806 — 36 months.

88-0143 Research and training in rural economy (West Africa) — Phase IV

For the Université nationale de Côte d'Ivoire, Abidjan, to enable the Centre ivoirien de recherche économiques et sociales (CIRESES) to reinforce the institutional support of IDRC to CIRESES by creating eight study awards and two research fellowships for postgraduate students completing their doctorates in the 1988–1989 academic year. \$101 555 — 12 months.

88-0144 Farm machinery master's program (Thailand)

For Khon Kaen University to help university and government agencies to implement the national mechanization plan by supporting four of their staff in the master's degree program on farm machinery offered by the University's Department of Agricultural Engineering. \$38 740 — 30 months.

88-0145 Training of trainers for CIPS (the Philippines)

For the Philippine Partnership for the Development of Human Resources in Rural Areas, Metro Manila, to train 15 junior research-trainers from nine development-oriented nongovernmental organizations currently applying and testing the Community Information and Planning System (CIPS). \$18 920 — 12 months.

88-0149 Approaches to training women in development research (Congo)

For the Direction générale de la recherche scientifique et technique, Brazzaville, to

promote the participation of women in science and technology by teaching 40 women scientists how to formulate a research project, to define priority themes with respect to women and development, and to understand the problems related to the development of female scientific resources. \$28 058 — 3 months.

88-0150 Human resources development in fisheries research (Nepal)*

For the Fellowships and Awards Division, IDRC, to enable the National Centre for Aquaculture and Allied Training of the Department of Agriculture, Kathmandu, to train senior and junior scientists and technicians in various aspects of fisheries research for better and more efficient implementation of the country's program to develop its fisheries. \$113 200 — 40 months.

88-0176 Internship program (Global)

For the Fellowships and Awards Division, IDRC, to provide training opportunities to candidates from institutions or projects in which IDRC has an expressed commitment. \$230 000 — 24 months.

88-0206 Internship program (Global) — Phase II

For the Fellowships and Awards Division, IDRC, to allow eight interns to participate in the ongoing work of a division or regional office of IDRC over a 2-year period. \$270 000 — 24 months.

88-0229 University publishing in Latin America and the Caribbean

For the Centro Regional para el Fomento del Libro en América Latina y el Caribe, Colombia, to support the training of 19 university publishers from Latin America and Caribbean universities to develop skills in disseminating research results and planning and management for publishing. \$39 140 — 6 months.

88-0244 Research methods focusing on gender issues (eastern and southern Africa) — Phase III

To permit the Eastern and Southern Africa Management Institute, Tanzania, to continue to develop a cadre of researchers who have appropriate skills and are sensitive to gender-balanced research and to strengthen the network of researchers and development workers interested in gender-focused research. \$130 000 — 12 months.

88-0245 Training in basic principles of agro-economic analysis (Senegal)*

To enable the École nationale d'économie appliquée, Dakar, to introduce researchers in the natural sciences to the basic principles of economic analysis and to help them acquire the basic tools needed to complete such analyses. \$75 190 — 6 months.

88-0279 Management training for health-care administration (West Africa)

For the Centre africain d'études supérieures en gestion, Senegal, to use the research results of the Centre's project *Research in health management and administration* to develop a program for public-health administrators of all levels, consisting of a number of courses in management of health services for francophone Africa. \$486 600 — 36 months.

88-0313 Women in Development awards — Phase II

To enable the Social Sciences Division, IDRC, to provide support for a second set of Women in Development (WID) training awards. \$200 000 — 24 months.

88-0368 Environment and development awards (Global)

To enable the Social Sciences Division, IDRC, in collaboration with the Fellowships and Awards Division to support 10 or more students or advanced researchers to undertake or to contribute toward undertaking training projects on environment and development. \$200 000 — 24 months.

88-1003 Research management workshop (Africa-Canada)

For the University of Manitoba, Winnipeg, to enable the Department of Agricultural Economics and Farm Management to provide a group of African students completing doctoral and master's degrees in agriculture in Canada with the communications and managerial skills required to assume a research management role. \$89 800 — 6 months.

88-1005 Young Canadian researchers award program (Global)

For the Fellowships and Awards Division and the Communications Division, IDRC, to contribute to the growth of a research capacity in Canada that is responsive to Third World priorities by supporting Canadians at various stages of their academic and professional careers in research or training undertaken in a Third World country. \$570 000 — 12 months.

88-1011 Training of educational researchers (Tanzania-Canada)

To enable the University of Dar es Salaam, Tanzania, and the University of Alberta, Edmonton, to strengthen and improve the human resources of the Department of Education of the University of Dar es Salaam. \$73 200 — 48 months.

Health Sciences

88-0001 Women, water, and sanitation (Egypt) — Phase II

For the American University in Cairo to enable the Social Research Centre to

monitor and evaluate the impact of a hygiene education program and water-supply and sanitation interventions on hygiene behaviour and environmental conditions in two study villages, site of the Phase I project. \$155 980 — 20 months.

88-0037 Traditional fertility regulation (Nigeria)

For the Obafemi Awolowo University, Ile-Ife, to enable the Faculty of Health Sciences to explore the possibility of using traditional medical practitioners to promote effective family-planning programs among the rural Yoruba of southern Nigeria. \$60 768 — 24 months.

88-0051 Health impact of social development programs (Costa Rica) — Phase II

To enable the Instituto Costarricense de Investigación y Enseñanza en Nutrición y Salud, Tres Ríos, to determine the internal and external factors influencing the impact of primary health care and nutrition-supplement programs on rural communities. \$163 580 — 18 months.

88-0052 Community participation in maternal and child health, family planning, and PHC (Sri Lanka) — Phase II

For the University of Peradeniya to enhance the efficacy of rural primary health care (PHC) services by encouraging village health volunteers and community health committees and evaluating the effectiveness of this approach in the study areas. \$69 510 — 24 months.

88-0062 Evaluation of a preschool feeding program (Kenya)

For Kenyatta University, Nairobi, to enable the Department of Home Economics to characterize and evaluate current health and nutrition practices in preschool child centres, with a view to developing policy guidelines for improving the centres' operations. \$39 000 — 18 months.

88-0071 Evaluation of environmental sanitation (Brazil)

For the Universidade Federal de Bahia, Canela, to enable its Departamento de Hidráulica e Saneamento, in collaboration with the London School of Hygiene and Tropical Medicine, UK, to study the effect of environmental factors, particularly low-cost sewerage, on diarrheal diseases, intestinal nematode infestations, and nutritional status, with a view to supporting the development of public health policy. \$151 190 — 24 months.

88-0072 Water quality (Malawi)

For the University of Malawi, Zomba, to enable the Centre for Social Research, to investigate water quality and water-use patterns in rural areas and to determine what, if any, contamination occurs between the water-supply source and

consumption in the home. \$73 740 — 24 months.

88-0084 Schistosomiasis transmission (Botswana)

For the University of Botswana, Gaborone, to enable its Department of Biology to elucidate relevant aspects of the bionomics of snail intermediate hosts of *Schistosoma mansoni* for use in planning schistosomiasis control in Ngamiland. \$46 043 — 24 months.

88-0104 Integral system for recycling organic waste (Mexico)

For the Grupo de Tecnología Alternativa, Mexico, to measure the impact of a low-cost system of collecting and treating waste products (the Sistema integral de reciclamiento de desechos organicos) on community development and the factors required to keep it operating. \$239 500 — 30 months.

88-0125 Operational assessment of a national tuberculosis control program (the Philippines)

For the Philippine Tuberculosis Society, Quezon City, to identify operational problems related to case-finding and treatment activities of the Strengthened National Tuberculosis Control Program and to offer solutions to these problems. \$149 270 — 13 months.

88-0139 Problem-oriented nutrition research (Africa)

For the World Health Organization, Switzerland, to promote the development of applied nutrition research focused on local-level problems in Africa and to strengthen research capacity in West Africa. \$242 880 — 18 months.

88-0142 Applied nutrition research (East Africa) — Phase II

For the University of Nairobi, Kenya, to enable the College of Agriculture and Veterinary Sciences to train East African nutritionists in applied research methodology, thereby strengthening their ability to carry out their duties in nutrition planning and research. \$153 150 — 24 months.

88-0164 Evaluation of nutrition-education project (Jamaica) — Phase II

For the Caribbean Food and Nutrition Institute, Kingston, to conduct an interim evaluation focusing on the distribution of educational materials, the application of a monitoring tool, and the process in which materials are used. \$30 012 — 9 months.

88-0165 Impact of family planning on fertility (Kenya)*

For Kenyatta University College, Nairobi, to enable the Department of Geography to measure trends in fertility in the Chogoria area of Eastern Province and to establish the relative effectiveness of the various methods of contraception in use. \$30 600 — 18 months.

88-0168 Risk factors of cutaneous leishmaniasis (Costa Rica)

For the Universidad Nacional, Heredia, to enable the School of Veterinary Medicine to identify risk factors for the transmission of cutaneous leishmaniasis in children and quantify them through a case-control study. \$280 995 — 36 months.

88-0171 East Africa Pesticide Network

For the Kenya Medical Research Institute, Nairobi; the Tropical Pesticides Research Institute, Tanzania; and the Ministry of Labour, Uganda, to assess the health hazards posed by pesticide handling, storage, and use on agricultural estates and small farms where coffee, cotton, and other important crops are grown, with a view to developing strategies for preventing and controlling pesticide poisoning. \$852 740 — 42 months.

88-0174 Epidemiology of HIV-1 and HIV-2 (Nigeria)*

For Obafemi Awolowo University, Ile-Ife, to enable the Obafemi Awolowo University Teaching Hospital to determine annually, over 5 years, the point seroprevalence rates of infections with human immunodeficiency virus (HIV) in cluster samples drawn from urban and rural population zones. \$964 790 — 60 months.

88-0177 *Brugia malayi* (Indonesia) — Phase II

For the Ministry of Health, Jakarta, to enable the National Institute for Health Research and Development to identify the sociobehavioural factors involved in the transmission of *Brugia malayi* (filariasis) in transmigrant populations with a view to devising appropriate interventions for minimizing the disease in resettlement communities. \$91 670 — 30 months.

88-0180 PHC workshop (Costa Rica)

For the Centro Internacional de Investigación y Asesoría en Salud, San José, to permit the Asociación Internacional de Investigación y Asesoría en Salud to identify and analyze national and subregional experience in developing, implementing, and evaluating primary health care (PHC) programs to increase their efficiency and effectiveness. \$82 420 — 12 months.

88-0181 Evaluation of rural water-supply projects (Sierra Leone)

For the University of Sierra Leone, Freetown, to enable Njala University College to evaluate the efficiency and effectiveness of foreign-aided schemes to provide rural villagers with water-supply systems. \$149 260 — 30 months.

88-0190 Integrated district diagnosis and health planning (Kenya)

For the African Medical and Research Foundation, Nairobi, to facilitate the implementation of a more decentralized

process of planning, programing, and resource allocation by developing an improved but affordable health-information system applicable to East African districts. \$360 105 — 36 months.

88-0205 Health development project at Pahou: institutional capacity building (Africa)*

For the Université du Bénin, Cotonou, to enable the Faculty of Health Sciences to become a focal point for research and training relating to an all-African primary health-care initiative and to provide support for research that will fine-tune health and development activities in the Ouidah district and inspire African programs for applied health research on different subjects. \$1 522 140 — 24 months.

88-0211 Iron supplementation delivery schemes (Thailand)

For Mahidol University, Nakorn Pathom, to enable the Institute of Nutrition to study various approaches to ensuring that women receive iron supplementation during pregnancy. \$73 190 — 30 months.

88-0212 Environmental control of malaria (Nepal)*

To enable the Nepal Malaria Eradication Organisation, Kathmandu, to identify bioenvironmental methods of malaria control that are suited to local conditions and that can be implemented with community participation. \$107 231 — 30 months.

88-0213 Biological control of malaria (Peru)

For the Universidad Peruana Cayetano Heredia, Lima, to enable the Alexander von Humboldt Institute of Tropical Medicine to develop and field test a simple technique for optimal local production of *Bacillus thuringiensis* var. *israelensis* H-14 (Bti) using coconut water as a medium. \$49 425 — 18 months.

88-0214 Diagnosis of dengue (Brazil)

To enable the Fundação Oswaldo Cruz, Rio de Janeiro, to introduce and study the use of a rapid diagnostic method for dengue fever when applied in a network of national public-health laboratories. \$98 030 — 24 months.

88-0215 AIDS diagnosis (Global) — Phase II

To enable the Program for Appropriate Technology in Health, Canada, to optimize and develop an accurate, noninstrumented, inexpensive "dipstick" immunoassay to detect HIV-1 (human immunodeficiency virus) that can be used for blood screening for AIDS (acquired immune deficiency syndrome) and can be manufactured in developing countries. \$244 450 — 24 months.

88-0216 Community control of malaria (Colombia)

To enable the Corporación para Investigaciones Biológicas, Medellín, to compare three strategies for malaria control in an under-developed area, and measure their cost and efficacy against the traditional system now used by government agencies. \$248 878 — 30 months.

88-0221 Dracontiasis (Mali)

To enable the Institut national de recherche en santé publique, Bamako, to study the epidemiology of dracontiasis within a nomadic population. \$13 270 — 12 months.

88-0227 Impact of vitamin A supplementation on childhood morbidity and mortality in Ethiopia*

For Addis Ababa University to improve interventions for reducing mortality and morbidity in Ethiopian children; and to offer the opportunity to build and expand Ethiopian institutional expertise in the areas of epidemiology; program planning, conduct, and evaluation; and in biostatistics and data processing. \$961 515 — 36 months.

88-0230 Community control of acute respiratory infections (Cuba)*

To enable the Instituto de Medicina Tropical "Pedro Kouri," Habana, to obtain more complete and accurate information on acute respiratory infection morbidity and mortality, and to introduce and measure a group of health-care interventions. \$152 010 — 36 months.

88-0233 Determinants of protein-energy malnutrition (Malawi)*

For the University of Malawi, Zomba, to enable its Chancellor College to determine the prevalence of malnutrition in children aged 0-36 months. \$59 293 — 16 months.

88-0243 Participatory strategies in water supply (Costa Rica)

To enable the Fundación Tecnológica de Costa Rica, Cartago, to build on the successful community participation strategies developed in the Centre project *Hand pump technology (Costa Rica)*, and adapt these strategies to include the participation of community members as instructors in introducing and using water-supply technologies, and to investigate the application of ferrocement technology in the rehabilitation of shallow wells. \$118 760 — 12 months.

88-0246 Corneal eye infections (Nepal) — Phase II*

For Tribhuvan University, Kathmandu, to reduce the incidence of visual impairment and blindness due to corneal infections through early antibiotic therapy and community education in rural areas as a direct support to primary health care to

achieve "Health For All By 2000." \$270 340 — 48 months.

88-0247 Arsenic contamination (Chile)

For the Universidad de Chile, Santiago, to assess the level of exposure and the possible health effects attributable to arsenic in the drinking water and food of the inhabitants of small communities in an altiplano region of north-east Chile and to determine the efficacy and feasibility of a simple system to remove arsenic. \$297 000 — 24 months.

88-0251 Senegalese society and AIDS (Senegal)*

For the ministère du Plan et de la Coopération, Dakar, to enable the Bureau de recherches médicales et pharmaceutiques to study the perception and understanding of AIDS (acquired immune deficiency syndrome) among both the general population and a risk population (prostitutes) so as to increase the acceptability of AIDS-prevention measures. \$73 740 — 12 months.

88-0252 Health and nutrition in the elderly (Jamaica)

For the University of the West Indies, Kingston, to enable the Department of Social and Preventive Medicine to assess the health and nutritional status of the elderly and their relationship to various demographic and socioeconomic characteristics. \$94 180 — 24 months.

88-0255 Malaria surveillance (Brazil)

For the Universidade Federal do Rio de Janeiro to enable the Centro de Tecnología to apply a microcomputer-based image-information system for assessing malaria in communities and to provide decision-making support for prevention and control measures. \$86 060 — 24 months.

88-0256 Japanese encephalitis (Thailand)

For the Ministry of Public Health, Bangkok, to enable the National Institute of Health, Department of Medical Sciences, Nonthaburi, to determine the immune status of children in northern Thailand to Japanese encephalitis virus. \$58 150 — 15 months.

88-0266 Community participation in dental health (the Philippines)*

For the University of the Philippines, Manila, to enable the College of Public Health to improve the dental-health status and knowledge, attitude, and practices of the urban poor, particularly children ages 2-14 years, through the development and testing of a community-managed preventive program in three selected areas of Metro Manila. \$89 600 — 36 months.

88-0270 Research in human reproduction (Global) — Phase II

For the World Health Organization (WHO), Switzerland, to provide funding

to the special program of research, development, and research training in human reproduction being carried out under the auspices of WHO. \$450 000 — 24 months.

88-0273 Hydrams (Malaysia)*

To enable the Universiti Malaya, Kuala Lumpur, to develop an appropriate hydram for use in community water-supply projects in developing countries. The hydram will be constructed from locally available materials and will be easily assembled, operated, and maintained by villagers. \$72 400 — 24 months.

88-0274 ORT—health education (Mexico)

To enable the Grupo Consultor Ciclope Sc, Mexico, to increase the use of oral rehydration therapy (ORT) in rural areas. \$167 560 — 18 months.

88-0275 Agrobased wastewater (Thailand)*

To enable the Asian Institute of Technology, Bangkok, to develop an effective technology for treatment and recycling of agrobased industrial wastewaters that is economic and applicable for use in Thailand or in a tropical region. \$132 630 — 30 months.

88-0276 Attitudes toward abortion (Cuba)

For the Ministerio de Salud Pública, Habana, to enable the Instituto Nacional de Endocrinología to identify psychosocial factors that contribute to the high abortion rate of women in Habana. \$14 030 — 12 months.

88-0288 Cervical cancer (Nicaragua)*

To enable the Ministerio de Salud Pública, Managua, to identify knowledge, attitudes, and practices of women aged 20-60 years with respect to cancer of the cervix and uterus in Managua (Region III) and to measure the incidence of acute dysplasia and cancer of the cervix or uterus in the study population. \$44 659 — 18 months.

88-0295 Improving family welfare services (India)*

For the Indian Institute of Management, Gujarat, to enable its Public Systems Group to improve the match between government family welfare programs and the community needs. \$50 200 — 24 months.

88-0298 Tuberculosis defaulters (Nicaragua)*

To enable the Centro de Investigación y Estudios de la Salud, Managua, to determine the principal factors influencing tuberculosis patients' attitudes toward treatment and proneness to irregularity and abandonment. \$54 010 — 12 months.

88-0301 Critical risk factors (Colombia)*

To enable the Pontificia Universidad Javeriana, Bogotá, to identify controllable "critical" risk factors in acute diarrhea, acute respiratory infection, and malnutrition in children aged under 5 years in low-income communities. \$17 300 — 12 months.

88-0302 Preparation and distribution of weaning foods (Peru)*

To enable the Instituto de Investigación Nutricional, Lima, to develop nutritionally adequate and culturally acceptable preparations and food mixes for use by the mothers in community feeding centres; to determine if the distribution of these prepared foods results in an adequate frequency and amount of feeding by weaning-aged children; and to teach mothers the best way to feed their weaning-aged children, taking into account nutritional factors, availability of foods, and hygienic preparation practices. \$137 415 — 32 months.

88-0308 Sentinel site surveillance to measure health impact (Mexico)

For the Universidad Autónoma de Guerrero, Acapulco, to enable the Centre for Tropical Disease Research to implement a rapid epidemiological assessment methodology in Guerrero and to refine it for wider application in other developing countries. \$203 813 — 36 months.

88-0310 Design of a cost and management model for hospitals (Colombia)

To enable the Fundación la Previsora para la Seguridad Social, Bogotá, to contribute to the modernization of public-hospital management and to seek a solution to problems concerning labour relations and workers' benefits. \$71 950 — 6 months.

88-0321 Community participation in health promotion at the district level (Egypt)*

For the Suez Canal University, Ismalia, to enable the Faculty of Medicine to identify ways to involve the community to maximize community participation in identifying, planning, and evaluating programs for health promotion in collaboration with other sectors. \$246 922 — 18 months.

88-0323 Slum Improvement (Indonesia)*

To enable the Wahana Lingkungan Hidup Indonesia, Jakarta, to develop the capability of nongovernmental organizations based in Jakarta to create an awareness and instigate appropriate action within slum communities living along the Ciliwung River so that they can improve their own environment. \$35 229 — 12 months.

88-0327 Indoor air pollution (China)*

For Shanghai Medical University to enable the Department of Environmental Health to reduce the burden of respiratory disease in Shanghai residents using coal-stove cook stoves by introducing a ventilation device to improve indoor air quality. \$134 480 — 36 months.

88-0329 Byssinosis (China)*

To enable the Guangzhou Occupational Disease Prevention and Treatment Centre, Huang Po Dong, in collaboration with the Department of Hygiene, Medical College of Guangzhou Jinan University, to determine the prevalence of byssinosis syndrome in Guangzhou and thereby provide a scientific basis for defining improved diagnostic criteria and developing appropriate control and preventive measures (including an improved dust standard) as part of an on-going surveillance program. \$114 510 — 24 months.

88-0330 Nutrition training and education (the Philippines)

For the University of the Philippines, Manila, to enable the Department of Nutrition, College of Public Health, to field test a community-based nutrition training module within the primary health care framework. \$101 000 — 24 months.

88-0340 Community water-treatment systems (Colombia)*

To enable the Universidad del Valle, Cali, to evaluate the effectiveness of community-managed, low-cost water-supply systems in Colombia and to contribute to their improvement. \$90 760 — 15 months.

88-0342 Maternal nutrition in subsistence farmers (Malawi)*

For the University of Malawi, Zomba, to enable the Department of Home Economics to identify priority areas regarding health and nutritional status of rural women to formulate relevant programs and policies. \$245 675 — 24 months.

88-0344 Message for improving rural hygiene (Nepal)*

For the Ministry of Health, Kathmandu, to improve health conditions in a rural study area. \$25 520 — 24 months.

88-0351 Occupational health (Tanzania)*

For the University of Dar es Salaam to enable the Institute of Development Studies to study a sample delivery system for occupational health care. \$13 780 — 18 months.

88-0353 MHC in Uttar Pradesh (India)*

To enable the Sanjay Gandhi Post-Graduate Institute of Medical Sciences, Lucknow, to study the pattern and usefulness of available mental health care

(MHC), to document community expectations regarding MHC, and to determine alternative patterns of MHC based on community expectations. \$42 570 — 12 months.

88-0359 Prevention of persistent diarrhea (Chile)*

To enable the Instituto de Nutrición y Tecnología de los Alimentos, Santiago, to reduce the effect of persistent diarrhea in children under 2 years of age by means of structured programs. \$66 280 — 24 months.

88-0363 Environmental epidemiology (Latin America)

To enable the Secretaría Ejecutiva Permanente del Convenio Andres Bello, Colombia, to strengthen the skills of a core group of researchers in the Andean subregion to enable national institutions to react appropriately to problems of environmental epidemiology, as well as to improve the quality of research proposals submitted to IDRC in that field. \$177 634 — 36 months.

88-0369 Community participation in health care delivery (the Philippines)*

For Saint Louis University, Baguio City, to enable its College of Nursing to develop and evaluate the effectiveness of strategies for promoting community participation in the planning and delivery of health services. \$90 930 — 24 months.

88-0372 Research in primary health care (the Philippines)*

To enable the Institute of Philippine Culture, Quezon City, to gain an understanding of the development processes and context of primary health care (PHC) and to contribute to the development of a rapid methodology of profiling a community that could be used for initiating and planning a sustainable PHC project. \$80 380 — 24 months.

88-0373 Delivery of primary health care in Cebu City (the Philippines)*

For the University of San Jose-Recoletos, Cebu City, to enable the Research Planning and Scholarship Centre to identify the predominant health problems of the urban poor in seven *barangays* in Cebu City and to analyze the appropriateness and effectiveness of primary health care services available to this population. \$104 570 — 24 months.

88-0375 Sac-sac (the Philippines)*

For Silliman University, Dumaguete City, to enable its College of Nursing to carry out a community analysis of the health needs of Sac-Sac *barangay* using a participatory methodology with a view to developing a more appropriate and effective model of community-managed primary health care. \$35 880 — 24 months.

88-0378 Adolescent sexuality education (Colombia)*

To enable the Comité Regional de Educación Sexual para América Latina y el Caribe, Bogotá, to design systematic programs for sexual and family-life education with the participation of adolescents, parents, and teachers. \$187 300 — 36 months.

88-0381 Measles immunization (the Philippines)*

For the University of the Philippines, Manila, to enable the College of Medicine, in collaboration with the Maternal and Child Health Services of the Department of Health and the Research Institute for Tropical Medicine, to determine the effectiveness of the Edmonston-Zagreb measles vaccine administered to infants at 6 months of age versus the current practice of administering Schwarz measles vaccine at 9 months of age. \$130 620 — 24 months.

88-0385 Childhood diarrheal disease (China)*

For the Tianjin Medical Institute to enable the School of Public Health to study the diarrheal disease epidemiology among children in Tianjin Ji county with the objective of evolving a relevant health-education program aimed at preventing and controlling the disease. \$79 880 — 24 months.

88-0387 Ecology of leishmaniasis (Colombia)*

For the Universidad de Antioquia, Medellín, to enable the Centro de Investigaciones Médicas to determine the prevalence of cutaneous leishmaniasis in the community of Montebello, to identify the *Leishmania* species, and to study the link between the vector species, animal reservoirs, and flora and fauna, with a view to understanding transmission of the disease and formulating recommendations for its surveillance and control. \$92 775 — 24 months.

88-0391 Evaluation of Chagas' disease control (Brazil)*

For the Universidade de Brasilia to enable the Nucleo de Medicina Tropical e Nutricao to study an integrated approach to control of Chagas' disease using community participation through health education, insecticide attack, and house improvement in an endemic area of *Trypanosoma infestans* transmission. \$178 010 — 36 months.

88-0397 Schistosomiasis control: a community-based approach (Zimbabwe) — Phase II*

For the Ministry of Health, Harare, to enable the Blair Research Laboratory to evaluate an integrated, community-based control program for schistosomiasis as a component of an existing primary

health-care system. \$193 030 — 36 months.

88-0401 Sexual practices and risk factors for AIDS (Senegal)*

For Environnement et développement du Tiers Monde-SYSPRO, Dakar, to enable the Institut fondamental d'Afrique noire to participate in the study and prevention of acquired immune deficiency syndrome (AIDS) and to examine the mode of transmission in Senegal. \$42 820 — 12 months.

88-0402 Participatory evaluation of PHC (Colombia)*

To enable the Asociación Vecinos Solidarios, Bogotá, to evaluate its strategy for primary health care (PHC), with respect to its theoretical basis and its contribution to the health of the residents of *barrio Atenas* in Bogotá, and to draw up lines of action that, with the participation of the community, should strengthen the strategy's effectiveness. \$60 362 — 12 months.

88-0403 HIV transmission (Mexico)*

For the Secretaría de Salud, Mexico, to enable the Directorate of Epidemiology, to analyze the risk factors associated with heterosexual transmission of human immunodeficiency virus (HIV) among sexual partners of HIV-seropositive subjects and examine the significance of heterosexual transmission in rapidly expanding marginal urban areas. \$224 470 — 36 months.

88-0405 Condom acceptability and use (Nigeria)*

For the University of Nigeria, Nsukka, to enable the Department of Sociology and Anthropology to identify the social, religious, economic, psychological, and cultural factors that determine condom acceptance and use. \$81 420 — 27 months.

88-0409 Personal and domestic hygiene and diarrhea (Zimbabwe)*

For the Ministry of Health, Harare, to enable the Blair Research Laboratory to determine the current knowledge, attitudes, and hygienic practices related to diarrheal disease as baseline information for the introduction of specific health and hygiene education programs in a rural community. \$95 730 — 18 months.

88-1001 International health exchange program (Global) — Phase V

For the Canadian Society for Tropical Medicine and International Health, Ontario, to enable Canadian health professionals and medical students to undertake international health activities in developing countries. \$350 000 — 12 months.

88-1030 Research in health-management administration (West Africa-Canada)*

For the Centre africain d'études

supérieures en gestion, Senegal, and the University of Montreal, Quebec, to set up a department of health services management at the Centre as a means of improving national health in the francophone countries of Africa. \$595 610 — 48 months.

Information Sciences

88-0009 Translation of TECHNINET manual into Bengali (Asia)

For TECHNINET Asia, Singapore, to enable it and the Bangladesh Small and Cottage Industries Corporation to produce a Bengali version of TECHNINET's Industrial Extension Manual that will serve as a guide for local extension officers to upgrading the productivity of small and cottage industries in Bangladesh. \$25 248 — 12 months.

88-0010 TROPMED museum and reference centre for mosquito-borne diseases (Southeast Asia) — Phase II

For the Southeast Asian Ministers of Education Organization's Tropical Medicine and Public Health Project (TROPMED), Thailand, to achieve a greater impact on the users in the region through networking activities and consolidation and promotion of the existing program. \$155 500 — 24 months.

88-0011 National agricultural information network (Congo)

For the ministère du Développement rural, Brazzaville, to reinforce the infrastructures in its Documentation Centre so that it can function as a central agricultural information service for the Ministry and the agencies under its guidance. \$103 279 — 36 months.

88-0014 Establishment of SISA (Africa)*

For Addis Ababa University, Ethiopia, to establish a school of information studies for Africa (SISA) offering a regional postgraduate program leading to a master's degree in information science. \$1 365 000 — 60 months.

88-0015 RESADOC (Sahel) — Phase III

For the Institut du Sahel, Mali, to enable the Réseau sahélien d'information et de documentation scientifiques et techniques (RESADOC) to complete its organization by providing it with operational structures for regional and national coordination. \$395 000 — 36 months.

88-0032 Consumer Information Resource Centre (India)

To enable the Consumer Education and Research Centre, Ahmedabad, to establish the Consumer Information Resource Centre with special emphasis on the use of

law to redress consumer grievances. \$168 700 — 36 months.

88-0034 Cooperatives data-base design (Tanzania)

For the Co-operative College, Moshi, to prepare a detailed system design for a pilot data base for agricultural cooperatives and to train the personnel necessary to implement this data base. \$95 000 — 24 months.

88-0035 Industrial information system: preliminary phase (Kenya)

For the Kenya Industrial Research and Development Institute, Nairobi, to study the country's industrial sector with a view to improving its performance through greater emphasis on research and development and information. \$76 730 — 12 months.

88-0039 Tea information services (China)

For the Chinese Academy of Agricultural Sciences, Beijing, to enable the Tea Research Institute to support the government's "Sparks" program by disseminating technology and information to tea farmers and entrepreneurs and to share China's experience and achievements with other developing countries. \$233 600 — 36 months.

88-0047 CRO library expansion (Côte d'Ivoire)

To enable the Centre de recherches océanographiques (CRO), Abidjan, to strengthen its present library by a better organization of its collection, processing, and dissemination activities. \$100 095 — 36 months.

88-0050 West Indian legislation indexing project

For the University of the West Indies, Barbados, to enable the Faculty of Law Library to produce an automated, computer-searchable data base of West Indian legislation. \$33 500 — 12 months.

88-0069 Information and documentation on public health (Senegal) — Phase II

For the ministère de la Santé publique, Dakar, to enable the Direction de la recherche, de la planification et de la formation to strengthen the documentation centre by giving it more efficient means of managing and disseminating information. \$97 000 — 30 months.

88-0070 Records management (Uganda)*

To enable the Government of Uganda, Entebbe, to host a 1-month records-management workshop aimed at promoting the effective management of records for development and public administration. \$74 000 — 6 months.

88-0083 Schistosomiasis information centre (Egypt)

For the Theodor Bilharz Research Institute, Cairo, to establish an information centre on schistosomiasis in support of research in the field by providing specialized information services, at the national and international levels, to researchers, practitioners, policymakers, and planners. \$168 000 — 24 months.

88-0087 POPIN-Afrique (Cameroon)

For the Economic Commission for Africa, Ethiopia, to enable the Institut de formation et de recherche démographiques to participate more actively in the POPIN-Afrique network and to enhance its role as subregional centre for the francophone countries of Africa. \$125 000 — 24 months.

88-0091 Information system on children (Latin America)

For the Inter-American Children's Institute, Uruguay, to assist the efforts of national child-protection agencies in Latin America to improve the quality of life and future prospects of disadvantaged and abandoned children by developing and testing a factual microcomputer-based information system on children. \$156 700 — 24 months.

88-0093 Geographic information system for Dongting Lake (China)

For the National Remote Sensing Center of China, Beijing, to enable the Laboratory of Resources and Environment Information System to collect, organize, and package environmental and socioeconomic spatially related data to improve the efficiency of decision-makers in dealing with flood-damage control and management in the Dongting Lake Region. \$234 400 — 36 months.

88-0127 Development of an industrial information service (Mali)

For the ministère de l'Industrie, de l'Hydraulique et de l'Énergie, Bamako, to enable the Direction nationale des industries to promote industrial enterprises through a more active information policy based on a better organized and equipped information service. \$110 100 — 24 months.

88-0132 Reprography group training (West Africa)

For Information Sciences Division, IDRC, to upgrade the competence of 10-15 technicians, who work mainly in institutions that have acquired reprographic material through IDRC projects, in using and maintaining micrographic equipment. \$64 000 — 9 months.

88-0140 Means of information for rural development (Cameroon) — Phase II

For the Institut africain pour le

développement économique et social, Yaoundé, to consolidate and diversify the information and popularization services already available to development agents serving young peasants in northwestern and southwestern Cameroon. \$233 000 — 24 months.

88-0160 Public enterprise evaluation by expert systems (Peru)

For the International Centre for Public Enterprises in Developing Countries, Yugoslavia, and the Corporación Nacional de Desarrollo, Peru, to increase the efficiency and effectiveness of public enterprises to ensure that they fulfill their role as instruments of national development and do not become economic liabilities. \$240 000 — 14 months.

88-0175 Standard formats for recording human rights events (Global)

For HURIDOCs (Human Rights Information and Documentation Systems) International, Norway, to allow a HURIDOCs task force to develop standard formats for enabling humanitarian and human-rights organizations to record and exchange information on individual events and cases. \$25 600 — 24 months.

88-0185 Amazon information centre (Ecuador)*

For the Ministerio de Relaciones Exteriores, Quito, to enable the Department for the Development of Frontiers and Amazon Region to support the government in a rational and orderly development of the Amazonia by providing improved access to, and dissemination of, information. \$48 415 — 24 months.

88-0187 Development and access networking experimentation and information system for Syria

To enable the Scientific Studies and Research Centre, Damascus, to develop computerized bibliographic data bases at the national level in the fields of scientific and technical information and socioeconomic information, in cooperation with existing research libraries and documentation centres. \$222 000 — 24 months.

88-0192 ISER-CGS information and documentation system (the Caribbean)

For the University of the West Indies, Jamaica, to assist its Institute of Social and Economic Research (ISER) and Consortium Graduate School (CGS) of Social Sciences in developing an information analysis system. \$244 000 — 36 months.

88-0197 Information provision for rural development (Botswana-Malawi-Tanzania)*

For the University of Botswana,

Gaborone, to enable the Department of Library Studies to carry out a task-based analysis of the skills required by an effective information provider for rural development and to draw up a suitable curriculum for such a person; to study how rural communities seek and obtain information; and to design and implement a pilot rural-information system that addresses these behaviours and patterns. \$50 465 — 24 months.

88-0199 INFIS (Indonesia) — Phase II
For the Directorate General of Fisheries, Jakarta, to upgrade the capability of the Indonesian Fisheries Information System (INFIS) network so as to optimize its efforts in organizing, processing, and disseminating fisheries information in support of activities to develop national fisheries. \$353 900 — 36 months.

88-0226 ISI statistical education video series: feasibility assessment (Global)
To enable the International Statistical Institute (ISI), the Netherlands, to determine the extent to which video-based instructional techniques, now available in developed countries, can be used in statistical education and training in developing countries by evaluating the effectiveness of an existing video-cassette course in basic statistical methods in selected developing countries. \$73 400 — 12 months.

88-0235 Strengthening the industrial information service of SONEPI (Senegal)
To enable the Société nationale d'études et de promotion industrielle (SONEPI), Dakar, to support the development of small- and medium-sized industries by providing the Industrial Information Service of SONEPI with the means to improve the collection, processing, storage, and dissemination of industrial and technological information. \$180 980 — 36 months.

88-0238 Poisons information pilot centre (Uruguay)
For the Universidad de la República, Montevideo, to enable the Centro de Información y Asesoramiento Toxicológico to enhance its information capabilities and to participate fully in the *Poisons Information Package for Developing Countries* project, coordinated by the International Program on Chemical Safety as the regional pilot centre for Spanish-speaking Latin America and the Caribbean. \$152 400 — 24 months.

88-0241 Regional information system on food technology (Africa) — Phase II
For the Centre régional africain de technologie, Senegal, to develop mechanisms of exchange and dissemination of information on food technologies in Africa and to put in place

methods of efficiently transmitting this information to end users. \$285 700 — 36 months.

88-0242 Rural technology information service (India)*
For the Institute of Engineering and Rural Technology, Allahabad, to enable the Centre for Development of Rural Technology to strengthen its information capabilities to improve and expand its services to users in India. \$85 545 — 36 months.

88-0248 Information system for juvenile courts (Colombia)
For the Instituto SER de Investigación, Bogotá, to contribute to the improvement of the processing, storage, analysis, flow, and exchange of vital information necessary for expedient and rapid administration of justice for juveniles in Colombia. \$94 100 — 18 months.

88-0257 Soil management information services (Global)
For the International Board for Soil Research and Management, Thailand, to disseminate information on soil management among national agricultural research systems to help increase food and agricultural production. \$351 900 — 36 months.

88-0269 Bihar: an evaluation of change (India)
For the University of Delhi to enable the Kironi Mal College to demonstrate the relevance of digital mapping techniques for analyzing spatially related data and to create a comprehensive geographic information system for Bihar to fulfill the mapping needs of the Centre for Policy Research and the Planning Commission for evaluating socioeconomic change in Bihar. \$103 450 — 24 months.

88-0280 MINISIS resource centre: India
To enable the Shreemati Nathibai Damodar Thackersey Women's University, Bombay, to establish a MINISIS Resource Centre to provide better and more direct service to local users of MINISIS (Interactive Minicomputer System for Information Retrieval and Library Management). \$174 340 — 36 months.

88-0285 Pilot cattle information system (Egypt)*
For Cairo University to enable its College of Agriculture to help design and develop a national cattle-improvement program for Egypt, capable of collecting, processing, storing, and distributing the information needed to identify and select superior producing animals as well as to improve management in the enrolled herds. \$179 300 — 36 months.

88-0303 DISC (Asia and the Pacific) — Phase III
To enable the International Centre for

Diarrhoeal Disease Research, Bangladesh, to complete the consolidation of the activities of the Diarrhoeal Disease Information Service and Documentation Centre (DISC) begun in the previous phase to ensure their long-term viability. \$132 150 — 24 months.

88-0304 Industrial development information service (Somalia)*
To enable the Ministry of Industry and Commerce, Mogadishu, to strengthen its industrial information service to enable it to establish a technical information service for manufacturing enterprises and to enhance its publishing capabilities. \$205 200 — 24 months.

88-0307 Mapping trypanosomiasis epidemiology (Kenya)
For the Kenya Trypanosomiasis Research Institute, Kikuyu, to update and consolidate knowledge on the distribution of tsetse and other fly vectors and the diseases that they transmit to humans and livestock and to make available information that could be used in the rational reclamation of tsetse-infested lands. \$125 400 — 30 months.

88-0317 Philippines upland research*
For the University of the Philippines at Los Baños to enable the Institute of Environment Sciences and Management to construct a profile of research on the uplands; to develop a system for classifying upland-related research with respect to classifications used in Southeast Asia and Asia-Pacific; and to develop a computer-based compilation with annotated bibliography and sourcing index for Philippine uplands research. \$10 000 — 15 months.

88-0318 REDUC network: management and technology support (Latin America)
To enable the Centro de Investigación y Desarrollo de la Educación, Chile, to reorganize, strengthen, and extend support provided to participants in the Latin American Network of Documentation in Education (REDUC) to ensure that the network is up-to-date with respect to recent developments in the areas of technology and management, and is better able to respond to the increasing demands of its users. \$240 000 — 24 months.

88-0320 Pilot training program for Arab agricultural documentalists (Africa)
For the Arab Organization for Agricultural Development, Sudan, to develop an effective training program and refresher courses in standard documentation methods for agricultural documentalists, with a view to facilitating the exchange of agricultural information and the ultimate development of the Arab Information System Network. \$145 200 — 36 months.

88-0324 Information for planning and research (Togo) — Phase II

For the ministère du Plan et des Mines, Lomé, to enable the Centre for Technical Documentation to computerize and expand its documentation operations, thus increasing its impact and preparing its role as coordinator of the future national information network. \$163 000 — 36 months.

88-0338 Documentation and information system: ARCEDEM (Africa)

To enable the African Regional Centre for Engineering Design and Manufacturing (ARCEDEM), Nigeria, to develop a fully operational documentation centre for keeping member states up-to-date on technological progress through the national centres and other industrial establishments in the region. \$192 500 — 24 months.

88-0339 Ferrocement information network activities for rural development (Asia)*

For the Asian Institute of Technology, Thailand, to enable its International Ferrocement Information Centre and the Library and Regional Information Centre to enhance the outreach programs of the Ferrocement Information Network so that their services and output reach the greatest possible number of users in Asia. \$194 100 — 36 months.

88-0347 MINISIS resource centre: West Africa

To enable the African Intellectual Property Organization, Cameroon, to establish a MINISIS Resource Centre that will be responsible for actively promoting MINISIS (Interactive Minicomputer System for Information Retrieval and Library Management) and training and supporting its new and existing users in the region. \$224 380 — 36 months.

88-0354 Documentation and information system on transportation (Senegal)*

For the ministère de l'Équipement, Dakar, to enable its Direction des études et de la programmation to establish a coordination centre for the documentary component of a documentation and information system for transport. \$101 790 — 24 months.

88-0356 National scientific and technological information network (Ghana)*

To enable the Council for Scientific and Industrial Research, Accra, to establish a sustainable national system for identifying, collecting, storing, retrieving, repackaging, and timely dissemination of scientific and technological information to research scientists, government planners and policymakers, public and private industries and manufacturers, and rural

peasant farmers, and cottage industries. \$220 100 — 24 months.

88-0357 Communicating low-cost building techniques (India)*

To enable the Communication Centre of Scientific Knowledge for Self-Reliance, France, to produce five information packages on roof construction using local resources (skills and materials) according to climatic conditions. \$55 100 — 12 months.

88-0361 National agricultural information system (Burkina Faso) — Phase II*

For the ministère de l'Agriculture et de l'Élevage, Ouagadougou, to enable the Centre national de documentation agricole (CNDA) to strengthen the country's national agricultural information system, by computerizing CNDA's bibliographic data capture and by strengthening some of the system's components. \$141 400 — 24 months.

88-0371 FAMESA manual on science, technology, and management information systems (Africa)

To enable the International Centre of Insect Physiology and Ecology, Kenya, to develop a manual on integrated information systems aimed at research administrators and managers of research and development institutes. \$201 800 — 30 months.

88-0390 Bamboo information centre (India)*

To enable the Kerala Forestry Research Institute, Peechi, to establish a bamboo information centre concentrating on organizing and disseminating Indian research data. \$119 000 — 36 months.

88-0411 Information-communication system for rural communities (the Philippines)*

To enable the International Institute for Rural Reconstruction, Cavite, to test a set of strategies that employs appropriate two-way communication channels for identifying and delivering relevant information on development to poor rural families in the Philippines. \$199 000 — 36 months.

88-1009 Written languages of China (China-Canada)

For the Institute of Nationality Studies, Beijing, and Laval University, Quebec, to enable the Chinese Academy of Social Sciences and the International Centre for Research on Bilingualism to provide the Chinese government with the necessary scientific information to formulate and implement a language-planning policy. \$230 000 — 24 months.

88-1010 Teaching documentary data processing (Morocco-Senegal-Canada)*

For the École des sciences de

l'information, Morocco; Université Cheikh Anta Diop, Senegal; and the University of Montreal, Quebec, to improve the quality of data-processing training for librarians, archivists, and documentalists in their respective institutions and to lay the foundation for a permanent program for cooperation and exchange between them. \$349 000 — 36 months.

88-1038 Industrial information and communication (CARIRI-Canada)*

To enable the Caribbean Industrial Research Institute (CARIRI), Trinidad and Tobago, and the Centre for Industrial Research of Quebec, St Foy, to enhance CARIRI's ability to promote the use and application of technical and industrial information to solve technical and managerial problems and to establish the infrastructure for an industrial information extension service capable of ongoing identification of the changing technical needs of small- and medium-sized industries. \$221 420 — 24 months.

Social Sciences

88-0002 Manufacturing sector studies (Kenya) — Phase II

For the University of Nairobi to enable its Department of Economics to gather information on the aspects of Kenyan industry not covered in Phase I, to examine wholesale- and retail-marketing practices and freight charges by sea and air, and to explore the potential for increasing trade offered by the Preferential Trade Area for Eastern and Southern Africa. \$46 000 — 12 months.

88-0005 Technology in the vegetable-oils industry (Nigeria)

For Ahmadu Bello University, Zaria, to explore ways of revitalizing Nigeria's vegetable-oils industry. \$32 960 — 18 months.

88-0006 Economic policy options (Costa Rica)

For the Instituto Centroamericano de Administración de Empresas, Alajuela, to develop a general equilibrium model of the Costa Rican economy suitable for use in policy analysis. \$99 040 — 12 months.

88-0031 Contraceptive continuation and discontinuation (the Gambia)

To enable the Gambia Family Planning Association, Banjul, to understand the various factors associated with contraceptive acceptance and use among clinic clients. \$63 100 — 26 months.

88-0048 Infanticide and baby dumping (Zimbabwe)

For the Committee for Abandoned Babies, Harare, to collect data on the social and economic background of women charged

with infanticide and baby dumping, to examine the circumstances surrounding the offenses, and to explore how preventive educational and other rehabilitation programs might reach vulnerable women. \$99 200 — 18 months.

88-0054 Success and failure in the timber industry (Cameroon)

To enable the École supérieure des sciences économiques et commerciales, Douala, to study the factors explaining the success or failure of the small-scale logging industry and sawmills in Cameroon to propose solutions to political decision-makers. \$24 300 — 24 months.

88-0060 Ethics, beliefs, and attitudes toward family planning (Kenya)

For the University of Nairobi to consider a dimension that is typically missing in the study of family planning, that is, people's moral and ethical beliefs and the ways in which these influence their acceptance or nonacceptance of family-planning programs. \$23 700 — 12 months.

88-0066 Public-private sector balance (Global)

For the Organisation for Economic Cooperation and Development, France, to study the changing roles of the public and private sectors, with particular reference to Argentina, Bolivia, Cameroon, and Ghana. \$76 780 — 15 months.

88-0067 Natural resource use and technology diffusion in rural Mexico

To enable the Grupo Interdisciplinario de Tecnología Rural Apropriada, Mexico, to examine the pattern of use of natural resources (wood and water) and the diffusion of technology (cook stoves and water-collection devices) in a rural community (Cheranatzicurin), with a view to improving policies and programs for rural development. \$149 150 — 24 months.

88-0074 Cooperatives (Burkina Faso)

For the Université de Ouagadougou to enable the Centre d'études, de documentation, de recherche économique et sociale (CEDRES) to analyze the potential role of three types of cooperative institution — village groups, agricultural cooperatives, and savings and credit banks — in rural development, and to reinforce the research and training capacity of CEDRES. \$103 000 — 36 months.

88-0075 Food-policy reform (Nicaragua)*

For the Universidad Centroamericana, Managua, to undertake a comparative analysis of the economic and political conditions that prompted food-policy reforms in selected socialist countries during the 1980s, with an in-depth analysis of the impact of such reforms on Nicaragua. \$30 910 — 24 months.

88-0076 Resource allocation, ethnicity, and education (Sri Lanka)

For the International Centre for Ethnic Studies, Colombo, to identify policy recommendations for allocating education resources in Central Province so as to improve ethnic relations. \$45 800 — 12 months.

88-0077 Financial markets and inflation (Argentina) — Phase IV

For the Centro de Estudios de Estado y Sociedad, Buenos Aires, to analyze and evaluate the impact of the Austral Plan on savings, investment, and finance. \$138 350 — 24 months.

88-0078 Political culture and the state in Central America

To enable the Universidad de Costa Rica, San José, to identify research issues and priorities for the Central American Master's Program in Sociology in two areas: political culture in Central America and the changing role of the state in Central America. \$40 000 — 12 months.

88-0080 Business associations and public policy in Central America

For the Facultad Latinoamericana de Ciencias Sociales, Costa Rica, to describe and analyze the evolution, structure, and function of business associations in Central America. \$28 000 — 6 months.

88-0082 Inventory of environmental research and development activities (Nigeria)*

For the Nigerian Environmental Study Team, Ibadan, to initiate the process of formulating a policy on environmental research and development and a plan of action for Nigeria. \$66 920 — 18 months.

88-0086 Child-to-child (India)

For the Aga Khan Foundation, Switzerland, to describe the implementation process involved in each of the seven Foundation-sponsored child-to-child pilot projects in India, and to evaluate the impact of each. \$67 000 — 24 months.

88-0088 Princes and counsellors: the role of technicians in forming policy decisions (Chile)

For the Instituto Latinoamericano de Estudios Transnacionales, Santiago, to examine the role of technocrats in managing state apparatus and in formulating national social policies. \$107 360 — 24 months.

88-0089 Small industrial development (Thailand)

For the Economic Society of Thailand, Bangkok, to enable Thammasat University to examine small-scale industries with particular reference to the role they play in regional development and the promotion of exports. \$68 500 — 24 months.

88-0090 Producer services (Malaysia)

For the Universiti Malaya, Kuala Lumpur, to enable its Faculty of Economics and Administration to provide new and useful data on service producers for government planners, decision-makers in service industries, and researchers. \$72 000 — 24 months.

88-0095 Regional industrialization (Malaysia)

For the Universiti Malaya, Kuala Lumpur, to enable its Faculty of Economics and Administration to examine several development issues deemed important by policy planners for enhancing the development of small-scale industries. \$61 000 — 18 months.

88-0105 Liberalization of agricultural marketing (Nigeria)*

For the University of Ibadan to enable the Department of Economics to examine the impact of liberalization policy on Nigeria's agricultural marketing and pricing system and hence the ability of the system to meet the needs of small-scale farmers effectively and efficiently. \$91 210 — 24 months.

88-0106 Food-marketing policy (eastern and southern Africa)

For the University of Oxford, UK, to enable the International Development Centre to analyze the impact of liberalizing food markets in eastern and southern Africa and obstacles to implementing various policy reforms. \$86 700 — 24 months.

88-0112 Macroeconomic research (Brazil) — Phase IV

For the Pontificia Universidade Católica, Rio de Janeiro, to analyze the effects of alternative macroeconomic policies, particularly those designed to cope with the public-sector deficit, under distinct scenarios in the medium and long run. \$139 300 — 24 months.

88-0118 Demographic projections: 1985-2010 (Colombia)

For the Departamento Administrativo Nacional de Estadística, Bogotá, to compile census data and demographic estimates for 1951-1985 so as to evaluate vital statistics and make projections of the future population structure of the country. \$13 360 — 5 months.

88-0121 Technical support services to the Group of Twenty-four (Global)*

For the United Nations Conference on Trade and Development, Switzerland, to assist developing countries by providing technical briefings and studies on international issues that are currently under negotiation or will come up for decision at a later stage in discussions of the Interim Committee of the International Monetary Fund (IMF) and of the Joint Development Committee of the IMF and

the International Bank for Reconstruction and Development and in other bodies. \$236 890 — 26 months.

88-0123 Urban energy consumption and air-pollution network (Asia)
For Tsing Hua University, China; the University of Hong Kong; the Systems Research Institute, India; the University of the Philippines; and Chulalongkorn University, Thailand, to develop a better understanding of patterns of household energy consumption in the context of urbanization in south and southeast Asia and to explore the links between such patterns and exposure to air pollution in several cities in the region. \$445 130 — 24 months.

88-0124 Regional development and indigenous minorities in Southeast Asia*
For the Universiti Malaya, Kuala Lumpur; the Thai University Research Institute, Bangkok; the Mountain People's Culture and Development Centre, Thailand; and the Montanosa Research and Development Centre, the Philippines, to study the impact of regional development programs on indigenous minorities in Thailand, Malaysia, and the Philippines. \$258 800 — 24 months.

88-0128 Technical education and employment (India)
For the Gujarat Research Society, Bombay, to continue work on the relationship between technical education and employment with emphasis on determining the utility of the technical training received by women at industrial training institutes and on preparing guidelines for its improvement. \$43 000 — 14 months.

88-0136 Adapting the Montessori approach to preprimary education (the Philippines)
For the Zonta International Club and the Bicol Institute of Development Technology, Metro Manila, to examine the effectiveness of a Montessori approach to preschool education in the context of poverty as well as the impact of an adapted Montessori system upon teachers, parents, and community leaders. \$61 000 — 12 months.

88-0141 Urban housing strategies (Lesotho)*
For the National University of Lesotho, Roma, to enable the Institute of Extramural Studies to examine the housing conditions of female-headed households and make recommendations for their improvement. \$15 460 — 16 months.

88-0147 SPSS training (West and Central Africa)
For the Direction de la statistique, Senegal, to offer short-term training in the use of the statistical package for the social sciences (SPSS) microcomputer software

to researchers working on IDRC-funded projects. \$132 387 — 3 months.

88-0153 Labour market participation (Paraguay)
For the Centro Paraguayo de Estudios Sociológicos, Asunción, to enable the Grupo de Estudios de la Mujer Paraguaya to develop a profile of women workers. \$77 230 — 18 months.

88-0156 Popular housing and community development (Peru)
For the Centro de Estudios para el Desarrollo Regional, Arequipa, to stimulate community self-help among the inhabitants of the unserviced squatter settlement known as Cono Norte, to allow them to finance, organize, and build their homes through mutual assistance. \$108 400 — 24 months.

88-0158 Drought and famine survival strategies (Sudan)*
To enable the Economic and Social Research Council, Khartoum, to identify household responses to drought in 10 pastoral and 10 agricultural communities in Darfur Province and to assess the impact of these responses on households' general resistance to drought in the future. \$62 200 — 18 months.

88-0159 Diagnosis of technical school graduates (Ecuador)
To enable the Instituto de Investigaciones Socio-Económicas y Tecnológicas, Quito, to carry out a quantitative and qualitative diagnosis of the situation that graduates from the agricultural and industrial streams of technical high schools have faced over the past 5 years. \$78 600 — 18 months.

88-0161 Integration of women into industrial development (Kenya)
For the Centre for Action Research, Nairobi, to develop a research methodology and a set of instruments to examine the extent and nature of female employment in the agroindustrial sector of the economy. \$14 400 — 12 months.

88-0163 Small associative businesses (Peru)
For the Instituto Peruano de Empresas de Propiedad Exclusiva de Trabajadores, Lima, to study the feasibility of setting up small, community-managed industrial enterprises in Villa El Salvador, a community south of Lima. \$23 800 — 12 months.

88-0166 Integrated community-based rural education (Mexico)
For the Centro de Estudios Educativos, Mexico, to design, implement, and assess an integrated community-education program to overcome the negative effects of school failure and to increase the relevance of basic education in rural areas. \$190 000 — 34 months.

88-0169 Development strategies for the remote areas (Nepal)*
For Tribhuvan University, Kathmandu, to enable the Research Centre for Nepal and Asian Studies to delineate appropriate short- and medium-term strategies for the development of the remote areas. \$183 800 — 24 months.

88-0170 School-based teacher training and support (Indonesia)
For the Ministry of Education and Culture, Jakarta, to enable the Office of Educational and Cultural Research and Development to investigate the implementation, impact, and dissemination of the professional support system in primary schools in some replication areas. \$215 000 — 27 months.

88-0172 Self-medication among the urban poor (Peru)
To enable the Centro Latinoamericano de Trabajo Social, Lima, to develop a methodology suitable for the study of health consultations occurring in pharmacies in popular *barrios* of Lima, to generate knowledge about the implications of such consultations, and to prepare public health-policy recommendations. \$38 500 — 12 months.

88-0179 Social relations and economic conditions of rural women (India)
For the Centre for Social Research, New Delhi, to analyze critically the socio-structural changes in rural households in the process of development. \$85 960 — 24 months.

88-0186 Occupational health and rural community education (Peru)
For the Huayuna Instituto de Promoción y Desarrollo, Lima, to investigate the toxic effects of exposure to pesticides and defoliants on persons in agricultural occupations in Peru and to evaluate changes that may be brought about by education and by creation of an epidemiological monitoring system. \$200 000 — 48 months.

88-0198 Utilization of social sciences research (Latin America)
For the Facultad Latinoamericana de Ciencias Sociales, Chile, to carry out a series of case studies and research-supporting activities that will aid understanding of the process of using knowledge produced by social research, and to identify initiatives to promote its wider use. \$235 000 — 36 months.

88-0200 Women and Natural Resource Management Network (Africa)
For the Environment Liaison Centre, Kenya, to highlight women's knowledge about the environment by providing support for a set of studies on women and

natural resource management in Africa. \$753 100 — 36 months.

88-0204 National languages policies in education systems (Burkina Faso—Côte d'Ivoire—Guinea—Mali—Mauritania—Senegal)*

For the ministère de l'Enseignement de base et de l'Alphabétisation de masse, Burkina Faso; the Université d'Abidjan, Côte d'Ivoire; the département de l'Éducation nationale, Guinea; the ministère de l'Éducation nationale, Mali; the ministère de l'Éducation nationale, Mauritania; and the Université de Dakar, Senegal, to evaluate the policy on use of national languages of each country's education system, to propose new strategies for these national languages, and to produce a comparative synthesis. \$394 900 — 24 months.

88-0210 Posthurricane rehabilitation (Jamaica)

For the University of the West Indies, Mona, to replace equipment originally obtained through Centre grants and damaged by Hurricane Gilbert and to fund about six urgently needed research endeavours dealing with problems resulting from the hurricane in the areas of agriculture, nutrition, and the social sciences. \$675 000 — 24 months.

88-0218 Education and social structure (Chile) — Phase IV

To enable the Programa Interdisciplinario de Investigaciones en Educación, Santiago, to undertake a research program involving social actors such as teachers and parents to study aspects of school system administration that influence social participation. \$143 000 — 18 months.

88-0225 Community power (Nicaragua)*

To enable the Instituto de Investigaciones Económicas y Sociales, Managua, to assess the effectiveness of the Sandinista Defence Committees as organizations in charge of responding to people's needs and as actors involved in policy-making and in implementing development policy. \$54 750 — 24 months.

88-0237 Industrial restructuring (Uruguay) — Phase II

To enable the Centro de Investigaciones Económicas, Montevideo, to design and evaluate the main options for industrial strategy and alternative policies, with a view to assessing their impact on the most relevant variables for the economic development of the country. \$180 430 — 24 months.

88-0249 Institutional support for CODESRIA (Africa) — Phase V

For the Council for the Development of Economic and Social Research in Africa (CODESRIA), Senegal, to carry out several activities to support fundamental

and problem-oriented social science research in Africa and to strengthen CODESRIA as an institution capable of carrying out such activities in the future. \$1 016 330 — 36 months.

88-0250 Rural industrialization in Asia

To enable Kasetsart University, Thailand; the Universiti Pertanian Malaysia; and the Mahaweli Authority of Sri Lanka to measure the supply of, and demand for, nonagricultural labour in specified regional development areas in south and southeast Asia, with a view to matching this labour with the resource endowments of these locations as well as the potential demand for goods. \$239 000 — 24 months.

88-0259 Network support for Thai qualitative research*

For Chulalongkorn University, Bangkok, to strengthen the capacity of the Thai Association of Qualitative Researchers to effectively provide qualitative research training and promote the use of such methodology in community-development related research. \$166 000 — 30 months.

88-0277 Natural disasters and high-risk zones in Central America

For the Consejo Superior Universitario Centroamericano, Costa Rica, to develop adequate methods of prevention to confront the natural disasters common to the Central American region. \$289 200 — 17 months.

88-0278 Educational efficiency and the teaching-learning process (Costa Rica)

For the Universidad de Costa Rica, San José, to enable the Instituto de Investigación para el Mejoramiento de la Educación Costarricense to examine the factors determining the efficiency of the teaching-learning process to develop a program for improving the quality of education in marginal urban areas in Costa Rica and other Central American countries. \$72 500 — 36 months.

88-0297 Workers' education and union participation (Chile)

To enable the Centro de Estudios Sociales, Santiago, to examine various experiences in union education carried out in Chile over the last 10 years to assess their relevance to adult education and to explore their correspondence with the objectives of workers' organizations. \$55 000 — 18 months.

88-0311 Economic participation and migration (Nepal)*

To enable the Center for Women in Development, Kathmandu, to assess the impact of migration on the economic participation of women and on overall national development. \$84 500 — 18 months.

88-0315 Rural income and employment (Botswana)*

For the University of Botswana, Gaborone, to enable the Department of Economics to facilitate diversification and growth of the rural economy through better understanding of the impact of the range of policies affecting rural income flows. \$50 600 — 18 months.

88-0319 Forest exploitation and the environment (Uruguay)

For the Centro Interdisciplinario de Estudios sobre el Desarrollo, Montevideo, to investigate alternative uses of Uruguay's natural resources and their environmental impact and the range of technical, social, and political factors that determine how such resources are managed. \$100 950 — 20 months.

88-0322 Land, law, and policy in Uganda*

For Makerere University, Kampala, to enable the Makerere Institute of Social Research and the Faculty of Law to examine the limitations of the system of state land control in Uganda under the Land Reform Law of 1975. \$134 400 — 36 months.

88-0325 Urban agriculture in Kampala (Uganda)*

For Makerere University, Kampala, to enable the Makerere Institute of Social Research and the Department of Agricultural Economics to learn how urban agricultural activity in Kampala is organized. \$4 800 — 12 months.

88-0328 Unregulated urban housing submarkets (Kenya)*

For the University of Nairobi to enable the Department of Land Development to document the market organization and operation of housing submarkets in three urban centres; to analyze the evolution of new land-holding systems and tenure forms in unplanned settlements; to develop a methodology for forecasting the growth of uncontrolled settlements and the development of housing submarkets; and to propose policy guidelines for improved housing strategies for the urban poor. \$112 200 — 24 months.

88-0331 Formulation of a medium-term plan for technology development (Malaysia)*

To enable the Ministry of Science, Technology and Environment, Kuala Lumpur, to review current science and technology policy and recommend a new long-term science and technology plan for the nation. \$218 370 — 18 months.

88-0332 Artisanal fisheries (Kenya) — Phase II

For the University of Nairobi to study the artisanal and commercial sectors of Lake Victoria fishery as parallel activities and to test the hypothesis that, with suitable

technological and institutional intervention, the artisanal sector can not only survive the threat from the commercial sector, but also improve the living conditions of those working in it, absorb a greater labour force, and compete favourably with the emerging commercial, export-oriented sector. \$80 000 — 36 months.

88-0333 Research and training in population and development (Egypt) — Phase V

To enable the Population Council, USA, to identify and analyze the problems of development in the Middle East that are related to population issues and to identify and strengthen individual, institutional, and national capacity in research on population and development. \$230 900 — 24 months.

88-0335 Teaching and learning in Aymara urban schools (Bolivia)
For the Centro Boliviano de Investigación y Acción Educativas, La Paz, to examine teaching and learning practices in urban Aymara schools so as to identify and assess those variables that hinder or enhance the capacity of bilingual children to learn to read and write. \$102 700 — 30 months.

88-0336 Microenterprise promotion in secondary schools (Thailand)
For the Office of the National Education Commission, Bangkok, to enable its Research Division to explore and develop an appropriate training model for the promotion of microenterprises in secondary schools so as to help students to become self-employed. \$177 700 — 45 months.

88-0345 Small-scale enterprise sector (Uganda)*
For the Ministry of Planning and Economic Development, Kampala, to enable the National Research Council to study the small-scale economic sector in the urban economy of Uganda, and to recommend to the relevant government authorities how to improve the performance of this sector and enhance its contribution to building an integrated, self-sustaining, independent national economy. \$75 000 — 16 months.

88-0346 Resettlement of displaced populations in the commune of Tombouctou (Mali)*
To enable the Municipalité de Tombouctou to assist rural reconstruction by contributing to the conservation of the environment and to food self-sufficiency and by giving direction to the policy of settling nomads and defining more precisely and realistically the struggle against desertification. \$156 400 — 12 months.

88-0348 Urban management (Nigeria)*

To enable the Nigerian Institute of Social and Economic Research, Ibadan, to assess the financial and human resources required by specific local governments to carry out their constitutionally assigned functions. \$77 300 — 18 months.

88-0352 Impact of refugee resettlement (Zambia)*

For the University of Zambia, Lusaka, to enable the Institute of African Studies to examine the long-term consequences for the refugees of being either self-settled or scheme-settled and the impact of refugees on the material living conditions and the physical security of surrounding host populations. \$110 000 — 12 months.

88-0358 Action-research training program (Indonesia)

For the Sebelas Maret University, Surakarta, to enable the Research Centre to develop an effective action-research training program for future use in training development workers in Indonesia. \$142 000 — 33 months.

88-0360 Population education program at Al-Azhar University (Egypt)

For Al-Azhar University, Cairo, to enable the International Islamic Center for Population Studies and Research to survey the knowledge and attitudes of Muslim students at the University toward population and population trends, to examine curricula (both theological and scientific) to identify content concerning population issues, and to consider how population studies could be included in the curriculum or if they must be taught separately. \$26 900 — 12 months.

88-0364 Migration and urbanization: the case of Douala and Yaoundé (Cameroon)*

To enable the Direction nationale du deuxième recensement général de la population et de l'habitat, Yaoundé, to supply the authorities with necessary census information for making decisions. \$208 100 — 24 months.

88-0374 Education and cultural transformations of Andean Indians*

To enable the Centro Andino de Acción Popular, Ecuador, to continue studying the effects of education on Indian cultures and traditional knowledge, and to establish a mechanism to link researchers and institutions, disseminate research results, and strengthen the research capacity of Andean countries. \$190 500 — 36 months.

88-0376 Rural women's access to land (Tanzania)*

To enable the University of Dar es Salaam to examine the situation of women in rural areas (Pare), where both customary laws and civil laws coexist with regard to land ownership. \$29 800 — 30 months.

88-0377 Emerging settlement patterns in Narmada (India)*

To enable the Institute of Regional Analysis, Bhopal, to assess the impact of the Narmada Dam Project on settlements in the region in socioeconomic, cultural, and ecological terms and to develop, with the participation of the people likely to be affected, appropriate strategies for smoothing the process of transformation and reducing its ill-effects. \$237 000 — 36 months.

88-0379 Rural food security (Zimbabwe)*

For the University of Zimbabwe, Harare, to enable the Department of Economics to investigate the apparent contradiction between rising marketed food surpluses and continuing food insecurity and malnutrition in communal areas. \$206 500 — 30 months.

88-0389 Education and work network (Latin America)*

To enable the Centro de Estudios de Población, Argentina, to establish a regional mechanism to bring together researchers and research institutions working on issues related to education and work. The aim of the network will be to facilitate the exchange of information on research results, to carry out collaborative work, to prepare reviews and evaluations, and to identify problem areas for future research. \$65 800 — 24 months.

88-0392 Mothers and the transformation of gender practices (Argentina)*

To enable the Grupo de Estudios Sociales para la Transformación, Buenos Aires, to examine the nature of the negotiation process between men and women within the family and to analyze the long-term effects on young adult children. \$67 300 — 12 months.

88-0393 Women, land rights, and environment (Nigeria)*

To enable the University of Ibadan to investigate the rights of rural women in the Lagelu Local Government area of Oyo State with respect to access to land under statutory laws, customary laws, and the normative system within the community and the family. \$29 110 — 36 months.

88-0398 Women's work and structural adjustment (Latin America and the Caribbean)

To enable the International Center for Research on Women, USA, to focus attention on the recessionary effects of adjustment policies resulting from the debt crisis on women's life in Latin America and the Caribbean and to generate information to help policymakers minimize the negative social effects produced by economic adjustment in the region. \$71 860 — 18 months.

88-0404 Urban land market in Cuenca and Machala (Ecuador)*

To enable the Corporación de Estudios Regionales, Guayaquil, to study the urban land market in Cuenca and Machala. \$33 800 — 12 months.

88-0406 Statutory laws, customary laws, and village practices (Thailand)*

To enable Chiang Mai University to examine the application of statutory and customary laws and their relationship with and impact on intrahousehold decision-making and patterns of community political participation of men and women in rural northern Thailand. \$34 980 — 24 months.

88-1007 Structural adjustment and financial liberalization (Tunisia–Canada)

For the Université de Tunis and the University of Montreal, Quebec, to analyze and evaluate, for Tunisia, various problems and economic-policy alternatives where macroeconomic, monetary, and financial aspects are central and which have become urgent in recent years. \$349 944 — 36 months.

88-1008 Family farms (Brazil–Tunisia–Canada)*

To enable the Universidade Estadual de Campinas, the Universidade Federal da Paraíba, the Universidade Federal do Rio Grande do Sul, Brazil; the ministère de l'Agriculture, Tunisia; and the University of Quebec, Rimouski, to examine adaptation and operation mechanisms of family farms in Brazil, Tunisia, and Canada. \$125 100 — 36 months.

88-1023 Village hydraulics, extension, and community participation (Togo–Canada)

To enable the Université du Bénin, Togo, and the University of Quebec, Hull, to study the implantation process of the village hydraulics project (VHP–CUSO) and to fine tune extension methods characterized by Canadian University Service Overseas's (CUSO) intervention and the participation of VHP recipient communities to the various phase of the project. \$80 900 — 24 months.

88-1025 Proposal to establish an industrial-policies network (West and Central Africa–Canada)*

For the Conseil pour le développement de la recherche économique et sociale en Afrique, Senegal, and the University of Montreal, Quebec, to increase African capacity to analyze economic policy measures that are being and will be applied by various African governments in the structural readjustment of their economies. \$1 356 000 — 36 months.

88-1026 Low-cost travel modes in Ningho (China–Canada)*

To enable Tongji University, China, and

the University of Calgary, Alberta, to document and evaluate the existing role of low-cost travel modes in meeting the needs of the urban population and present guidelines for their inclusion in the process of overall planning for transport. \$236 200 — 25 months.

88-1042 Land use and food production (Dominican Republic–Canada)

For the Universidad Católica Madre y Maestra, Santiago de los Caballeros, and the University of Sherbrooke, Quebec, to identify the interrelations of the various systems of land use and to determine the local potential for food production according to a number of evolution scenarios. \$349 550 — 36 months.

88-1055 Summer institute on gender and development (Global–Canada) — Phase II

To enable St Mary's University, Nova Scotia, in collaboration with Dalhousie University, to assist students to identify research questions, examine methodological debates and advances, and analyze the existing literature on women and development with a view to upgrading the ability of students to conduct and supervise high quality social science research on women and gender relations. \$195 000 — 24 months.

Division activity projects

Apart from the activities described in the preceding pages, IDRC funds several 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 topic, 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. There are also funds available to IDRC's regional offices to support activities in their respective regions.

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 to a total cost of \$8.5 million. The following are examples.

- Two seminars were organized to discuss ways of helping farmers stop the use of dangerous pesticides in northern Thailand.

- All past information on the Pearson Fellowships was collected by a consultant thus laying the groundwork for a comprehensive evaluation of the program.
- As part of a study examining the impact of the South on the North, a Canadian professor researched changes wrought upon the environment by various activities in developing countries.
- A consultant visited India to find nongovernmental organizations interested in using information science methodologies as a way of helping the disadvantaged.
- At an AIDS workshop in Indonesia, guidelines were established to promote education and information about the disease among the public and health professionals.
- Ten scientists from Africa and Latin America participated in a workshop on how to create small-scale industries based on the use of natural extracts from indigenous plants.
- A workshop brought together specialists from Brazil, China, India, and Zimbabwe to discuss strategies for sustainable rural industrialization.
- Experts from several countries, institutions, and social science disciplines met at a workshop that focused on Latin American issues — in particular, the human dimensions of change.
- African scientists met in Swaziland to discuss ways to implement programs on economically sustainable agroforestry.
- An 8-day field trip to the largest lake in Xinjiang, China, was organized to examine why the lake may dry up, adding to the already difficult problem of desertification in the province.
- Two leading African forestry officials attended an international bamboo workshop in India to explore the possibilities of improving species in Africa.

Fellowships

Pearson fellowships

Pearson fellows undertake a program of academic study focusing on public administration and management in the Faculty of Administration of the University of Ottawa and the School of Public Administration of Carleton University, Ottawa, ON, Canada, with practical attachment with a government department.

Arce, Gloria (the Philippines)

Chavez, Jose Manuel (Peru)

Goel, Anurag (India)

Ikfat, Mushfeka (Bangladesh)

Jasan, Lokman Hakin Mohd. (Malaysia)

Jawula, Mahamadu (Ghana)

Jayawardena, Chandrasiri (Sri Lanka)

Kalebe, Tedson A. (Malawi)

Maakwe, Galaletsang (Botswana)

Medina Recio, Arelis L. (Dominican Republic)

Menon, Yesodhara (India)

Niang, Mbaye (Senegal)

Petro Koni Zeze, Georges (Central African Republic)

Rwabukwisi, Jean-Marie (Rwanda)

Sabo, Issa (Niger)

Uriarte, Rosario (the Philippines)

Wade, Emmie S. (Zimbabwe)

Project-related awards

Ababe, Shewangizaw (Ethiopia)
Undertake doctoral studies in ecology with particular reference to plant-insect relationships; Department of Biology, Carleton University, Ottawa, ON, Canada

Ametonou, François (Bénin)
Undertake studies toward a master's degree in information sciences; School of Library Sciences, University of Montreal, Montreal, PQ, Canada

Brito Bacellar, Olavo (Brazil)
Undertake courses on demographic analysis, social research methodology statistics, and policy evaluation; Department of Demography, University of Montreal, Montreal, PQ, Canada

Castilla, Juan Carlos (Chile)
Undertake training in the field of fisheries;

Department of Zoology and School of Fisheries, University of Washington, Seattle, WA, USA

Gadiel, Anna (United Republic of Tanzania)

Undertake a master's degree in agricultural economics; University of Guelph, Guelph, ON, Canada

Gamsore, Lilibzanga F. (Burkina Faso)
Undertake a training course on agricultural cooperatives; University of Sherbrooke, Sherbrooke, PQ, Canada

Institut panafricain pour le développement (Burkina Faso)
Support a training seminar in documentary techniques organized by the Institut panafricain pour le développement-Sahel West Africa; Regional Branch-Sahel West Africa, Institut panafricain pour le développement, Ouagadougou, Burkina Faso

Kakabou, Baba (Togo)
Undertake studies toward a master's degree in agronomic design engineering, with concentration in crop production; Université du Bénin, Lomé, Togo

Kamar, Margaret (Kenya)
Undertake a master's degree in forestry with particular reference to moisture conservation in agroforestry; School of Graduate Studies, University of Toronto, Toronto, ON, Canada

Lombardi, Cintia (Brazil)
Undertake graduate studies leading to a master's degree in sociology with special reference to medicine; Royal Holloway and Bedford New College, University of London, London, UK

Maramba, Petronella T.E. (Zimbabwe)
Undertakes a master's degree program in development studies specifically on women and development; Institute of Development Studies, The Hague, the Netherlands

Mushobozy, Deux Kyanjweli (United Republic of Tanzania)
Undertake a master's degree in pest management; Department of Environmental Biology, Simon Fraser University, Burnaby, BC, Canada

Nang'ayo, Francis L. (Kenya)
Undertake a master's degree in applied agricultural entomology; University of Guelph, Guelph, ON, Canada

Ndiaye, Babacar (Senegal)
Undertake studies in earth sciences; University of Quebec, Chicoutimi, PQ, Canada

Ogutu, Richard (Uganda)
Undertake doctoral studies to strengthen the capacity in carrying out its mandate relating to freshwater fisheries research; Department of Zoology, University of Manitoba, Winnipeg, MB, Canada

Ouedraogo, Jacques Gueda (Burkina Faso)
Undertake a training course on agricultural cooperatives; Institute for Research and Training for Cooperatives, University of Sherbrooke, Sherbrooke, PQ, Canada

Sapkota, Maheshwar (Nepal)
Undertake a doctoral degree program in animal science; University of the Philippines at Los Baños, Laguna, the Philippines

Taban, Eban L. (Kenya)
Attend a 3-month course on health information systems for primary health; School of Tropical Medicine, Liverpool, UK

Thapa, Bijaya Kumar (Nepal)
Undertake a doctoral degree program in education; Faculty of Education, University of Alberta, Edmonton, AB, Canada

Vandou, Bagda (Côte d'Ivoire)
Complete research toward a doctoral degree in rural economics; Faculté des sciences économiques, Université d'Abidjan, Abidjan, Côte d'Ivoire

Zvietcovich, Guillermo (Peru)
Undertake a training course on promotion of agroindustries; Instituto de Fomento Agroindustrial, Sabanilla, Costa Rica

Program-related awards

Alpha, Aboubacrine (Mali)
Take part in a seminar on the digital simulation of free surface flow; Université Mohammed d'Ingénieurs, Rabat, Morocco

Balde, Oumar (Senegal)
Take part in a seminar on the digital simulation of free surface flow; Université Mohammed d'Ingénieurs, Rabat, Morocco

Barah, John Bosco (Cameroon)
Undertake the training course in integrated fish farming; Freshwater Fisheries Research Centre, Regional Lead Centre in China, Wuxi, China

Bouraima, Saadou (Bénin)
Take part in a training course on the comparative analysis of rural development experiments; École Internationale de Bordeaux, Talence, France

Cai, Jianfeng (China)

Undertake graduate studies leading to a master's degree in agricultural communications; Department of Agricultural Journalism, University of Wisconsin, Madison, WI, USA

Charoen, Khaoparisuthi (Thailand)

Undertake a study on rural research and rural policy; Institute of Development Studies, Brighton, Sussex, UK

Chui, James (Kenya)

Undertake studies for a doctoral degree in soil sciences; Department of Soil Science, University of Nairobi, Nairobi, Kenya

Coly, Seni (Senegal)

Take part in a seminar on the digital simulation of free surface flow; Université Mohammed d'Ingénieurs, Rabat, Morocco

Das Gupta, Monica (India)

Research attachment within the context of the project *Birth interval dynamics — Phase II*; School of Public Health, Harvard University, Boston, MA, USA

Dayao, Benefa (the Philippines)

Attend a 3-week course on training methods; Asia and Pacific Programme for Development Training and Communication Planning, United Nations Development Programme, Bangkok, Thailand

De Luna, Ellen (the Philippines)

Participate in a 4-week training workshop on production techniques for extension audiovisual aids; Asia and Pacific Programme for Development Training and Communication Planning, United Nations Development Programme, Bangkok, Thailand

Dong, Luying (China)

One-year study attachment to participate in the International Workshop on Models and Policy Making; Systems Research Institute, Pune, India

Duan, Junhu (China)

Undertake a 2-week training internship in project financial and administrative management; IDRC Regional Office, Singapore

Egana, Loreto (Chile)

Undertake graduate studies leading to a doctoral degree in education; University College of Wales, Cardiff, UK, and Programa Interdisciplinario de Investigaciones en Educación, Santiago, Chile

Elenga, Maixent (Congo)

Take part in a seminar on the digital simulation of free surface flow; Université Mohammed d'Ingénieurs, Rabat, Morocco

Elepano, Arnold R. (the Philippines)

Undertake a doctoral degree in agricultural engineering specializing in

postharvest technologies; Department of Agricultural Engineering, Queen's University, Kingston, ON, Canada

Espinola, Viola (Chile)

Undertake graduate studies leading to a doctoral degree in education; University College of Wales, Cardiff, UK

Fagtanan, Constanca (the Philippines)

Participate in the second Asia-Pacific training course on the latest developments in ferrocement technology; International Symposium of Ferrocement, New Delhi, India

Forbin, Innocent (Cameroon)

Participate in a training course in integrated fish farming; Freshwater Fisheries Research Centre, Regional Lead Centre, Jiangu, China

Gadou, Abeinicalse (Côte d'Ivoire)

Take part in a seminar on the digital simulation of free surface flow; Université Mohammed d'Ingénieurs, Rabat, Morocco

Geethananda, Hema (Sri Lanka)

Undertake a master's of librarianship program; College of Librarianship, University College of Wales, Aberystwyth, UK

Girma, Beshah (Ethiopia)

Undertake graduate studies leading to a doctoral degree in education sciences; McGill University, Montreal, PQ, Canada

Gonzalez, Echeverri German (Colombia)

Undertake graduate studies leading to a doctoral degree in epidemiology; Department of Epidemiology, McGill University, Montreal, PQ, Canada

Hawa, Ali Farah (Somalia)

Undertake a master's course in applied human nutrition; University of Nairobi, Nairobi, Kenya

Kabonajoro, Rashidi (Burundi)

Undertake studies for a doctoral degree in conservancy (science and techniques); Université Cheikh Anta Diop, Dakar, Senegal

Kawau, Ferdinand (United Republic of Tanzania)

Undertake a master's course in applied human nutrition; University of Nairobi, Nairobi, Kenya

Kayondo, J.F. Kenguga (Uganda)

Participate in a training workshop to provide basic skills in epidemiological research methodology; Arusha, United Republic of Tanzania

Kiyaga-Nsubuga, John (Uganda)

Undertake doctoral courses in international regional studies; Department of Political Science, University of Toronto, Toronto, ON, Canada

Kouassi, Auguste (Côte d'Ivoire)

Undertake a training course on the comparative analysis of experiments in rural development; École Internationale de Bordeaux, Talence, France

Koumba, Rene Paul (Gabon)

Undertake a training course on the comparative analysis of experiments in rural development; École Internationale de Bordeaux, Talence, France

Laurent, Nounamo (Cameroon)

Undertake a training course on the comparative analysis of experiments in rural development; École Internationale de Bordeaux, Talence, France

Leon Velarde, Carlos (Peru)

Undertake doctoral studies in animal and poultry science; University of Guelph, Guelph, ON, Canada

Li, Junfeng (China)

One-year study attachment to participate in the International Workshop on Models and Policy Making; Systems Research Institute, Pune, India

Maboshe, M. (Zambia)

Participate in a training workshop to provide basic skills in epidemiological research methodology; Arusha, United Republic of Tanzania

Matricia, Titiek (Indonesia)

Undertake a master's degree in biology on carp genetics; Department of Biology, Dalhousie University, Halifax, NS, Canada

Mchihyo, Edwin P. (United Republic of Tanzania)

Undertake a master's degree in agrogeology; Department of Land Reform, University of Guelph, Guelph, ON, Canada

Mejri, Salah (Tunisia)

Undertake a training course on the comparative analysis of experiments in rural development; École Internationale de Bordeaux, Talence, France

Meiebou, M. (Togo)

Undertake a training course on the comparative analysis of experiments in rural development; École Internationale de Bordeaux, Talence, France

Mutonkoley, Mianda (South Africa)

Undertake doctoral studies in development sociology; Department of Sociology, Laval University, St Foy, PQ, Canada

Mwobobia, Isaac (Kenya)

Participate in a training workshop to provide basic skills in epidemiological research methodology; Arusha, United Republic of Tanzania

Nate, Marissa C. (the Philippines)

Complete graduate studies in plant

pathology; University of the Philippines at Los Baños, Laguna, the Philippines

Ndamba, Jerikias (Zimbabwe)
Participate in a training workshop to provide basic skills in epidemiological research methodology; Arusha, United Republic of Tanzania

Ndoutoumou, Ndoumou (Gabon)
Undertake studies toward a master's degree in library science; School of Library Sciences, University of Montreal, Montreal, PQ, Canada

Ngaba-Waye, Adoum (Chad)
Undertake doctoral studies in conservancy (science and techniques); Université Cheikh Anta Diop, Dakar, Senegal

Ntilivamunda, Tharcisse (Burundi)
Undertake doctoral studies in conservancy (science and techniques); Université Cheikh Anta Diop, Dakar, Senegal

Nzonda, Marcel (Congo)
Undertake a training course on the comparative analysis of rural development experiments; École Internationale de Bordeaux, Talence, France

Ousmane, Abdou (Niger)
Take part in a seminar on the digital simulation of free surface flow; Université Mohammed d'Ingénieurs, Rabat, Morocco

Padilla, Jose E. (the Philippines)
Undertake the field research, data analysis, and thesis preparation requirements of doctoral program in economics specializing in fisheries; Simon Fraser University, Burnaby, BC, Canada

Rojas, Patricio V. (Chile)
To undertake studies in forestry on the topics of silviculture and genetics; University of São Paulo, Piracicaba, Brazil

Rutatora, D.F. (United Republic of Tanzania)
To undertake a doctoral degree in extension education; University of Toronto, Toronto, ON, Canada

Samiano, Arsenio R. (the Philippines)
Undertake a master's degree program in agronomy with specialization in farming systems; Asian Institute of Technology, Bangkok, Thailand

Sarr, Amaandou (Senegal)
Take part in a seminar on the digital simulation of free surface flow; Université Mohammed d'Ingénieurs, Rabat, Morocco

Sayre, Elmer V. (the Philippines)
Undertake graduate studies leading to a doctoral degree in community development; University of the Philippines at Los Baños, Laguna, the Philippines

Shaukat, Ali (Pakistan)
Undertake an applied study attachment;

Poison Unit, New Cross Hospital, London, UK

Souma, Gérard (Senegal)
Take part in a seminar on the digital simulation of free surface flow; Université Mohammed d'Ingénieurs, Rabat, Morocco

Soumana, Idressa (Niger)
Take part in a training course on the comparative analysis of rural development experiments; École Internationale de Bordeaux, Talence, France

Sutrisna, Ir Ida Bagus (Indonesia)
Participate in the 4-week training workshop on production techniques for extension audiovisuals; Asia and Pacific Programme for Development Training and Communication Planning, United Nations Development Programme, Bangkok, Thailand

Talavera, María Luisa (Bolivia)
Undertake graduate studies leading to a master's degree in education; Departamento de Investigaciones Educativas, Centro de Investigación y Estudios Avanzados, México, Mexico

Timoulali, Youssef (Morocco)
Undertake studies toward a master's degree in geology and remote sensing; Faculty of Arts and Sciences, University of Montreal, Montreal, PQ, Canada

Virada, Somswadi (Thailand)
Undertake a training course on women's studies; Summer Institute on Gender and Development, Saint Mary's University, Halifax, NS, Canada

Yosuf, Melkie Edris (Ethiopia)
Undertake a master's course in applied human nutrition; University of Nairobi, Nairobi, Kenya

Zanze, Marguerite (Senegal)
Undertake studies toward a doctoral degree in veterinary science; École inter-États des sciences et médecine vétérinaires, Dakar, Senegal

Zhang, Zhang (China)
Undertake a 2-week training internship in project financial and administrative management; IDRC Regional Office, Singapore

Zoungoula, Germain (Central African Republic)
Undertake intensive training and in-depth research in higher education teaching; Teaching Service, University of Montreal, Montreal, PQ, Canada

Zourhani, Makhlof (Algeria)
Take part in a seminar on the digital simulation of free surface flow; Université Mohammed d'Ingénieurs, Rabat, Morocco

Young Canadian researchers' award

Adams, Alayne (London School of Hygiene and Tropical Medicine)
Study seasonal food shortage in the Sahel and its nutritional and socioeconomic implications for vulnerable households in partial fulfillment of the requirements for a doctoral degree; Institut du Sahel, Bamako, Mali

Bell, Kim (Dalhousie University)
Undertake research on life-cycle analysis for enhancement and management of anadromous goby fisheries in partial fulfillment of doctoral degree; Department of Zoology, University of West Indies, Mona, Jamaica

Berneche, Francine (University of Montreal)
Undertake research in the Caribbean on the application of distance teaching methods to studies in library science and information science in the French-speaking Caribbean; University Library (Caribbean-Guiana), Kingston, Jamaica

Casey, Joanna (University of Toronto)
Undertake research on the place of indigenous wild food resources in the agricultural economy of the Gambaga Escarpment of northern Ghana in partial fulfillment of the requirements for a doctoral degree; Department of Botany, Food Science, and Nutrition, University of Ghana, Legon, Accra, Ghana

Chiasson, Héléne (Macdonald College of McGill University)
Undertake thesis research in Guinea in partial fulfillment of the requirements for a doctoral degree; Université de Conakry, Conakry, Guinea

Corat, Saniye Gulser (Carleton University)
Undertake field research on agroindustrial complexes in partial fulfillment of the requirements for a doctoral degree; Ministry of Higher Education and Scientific Research, Institute of Human Sciences, Yaoundé, Cameroon

Coumans, Catharina (McMaster University)
Undertake research for a thesis "Building basic Christian communities — indigenization and change in the Philippines" in partial fulfillment of the requirements for a doctoral degree; Institute of Philippines Culture, Ateneo de Manila University, Quezon City, the Philippines

Fédération professionnelle des journalistes du Québec (Canada)
Support for the North-South bursary program to train professional journalists

with at least 3 years' experience;
Fédération professionnelle des journalistes
du Québec, Montreal, PQ, Canada

Ferguson, Elaine (University of Guelph)
Undertake research on a new dietary
method for use in less industrialized
countries in partial fulfillment of the
requirements for a doctoral degree;
Institute of Medical Research, Madang,
Papua New Guinea

Himbara, David (Queen's University)
Undertake research on the role of
indigenous entrepreneurs in Kenyan
development in partial fulfillment of the
requirements for a doctoral degree in
political science; Institute for Develop-
ment Studies, University of Nairobi,
Nairobi, Kenya

Johnson, Darryl Grant (Technical
University of Nova Scotia)
Undertake research on architectural design
toward a master's degree; Department of
Civil Engineering, Pontificia Universidad
Católica del Perú, Lima, Peru

Lalonde, Gloria (McGill University)
Undertake research in India on gender
ideology and women's work in rural India
in partial fulfillment of the requirements
for a doctoral degree; Department of
Sociology, University of Delhi, New
Delhi, India

Lee, Geoffrey Kay (Technical University
of Nova Scotia)
Undertake research on architectural design
toward a master's degree; Department of
Civil Engineering, Pontificia Universidad
Católica del Perú, Lima, Peru

MacDonald, Laura Catharine (York
University)
Undertake research on promoting
participation by nongovernmental
organizations and community groups in
Central America; Instituto de
Investigaciones Económicas y Sociales,
Managua, Nicaragua

McInnes, Brent (University of Ottawa)
Research on gold in the New Guinea
island arc and exploration strategies for its
discovery; Department of Minerals and
Energy, Geological Institute of Papua New
Guinea, Port Moresby, Papua New Guinea

Montejo, Maria Elisa (Laval University)
Undertake research for a doctoral thesis
entitled "Women in rural environments
and ideologies: a comparison between
Mexico and Colombia"; Asociación
Colombiana para el Estudio de la
Población, Bogotá, Colombia

Ramos, Victor (Laval University)
Undertake research toward a doctoral
degree in anthropology on the emigration
and adaptation of Paraguayan immigrants;
Facultad de Humanidades y Ciencias

Sociales, Universidad Nacional de
Misiones, Misiones, Argentina

Rowe, Gerald (University of Western
Ontario)
Complete research on the elucidation of
the mechanisms underlying the effect of
substrate amino-acid composition on
insect toxicity yield in strains of *Bacillus*
thuringiensis (Bt); Centro Nacional de
Protección Vegetal, Dirección General de
Tecnología Agrícola, Managua, Nicaragua

Schmidt, Margaret (University of British
Columbia)
Undertake research on a microcomputer-
based assessment of deforestation and
forest degradation in the Jiku Khola
watershed in Nepal using a geographic
information system; Integrated Survey
Section, Kathmandu, Nepal

Shackell, Nancy (Dalhousie University)
Undertake research on the relationship
between developmental stability and level
of heterozygosity in *Tilapia* in partial
fulfillment of the requirements for a
doctoral degree; National Inland Fisheries
Institute, Kasetsart University, Bangkok,
Thailand

Sinclair, Pamela (Dalhousie University)
Undertake research on genetic improve-
ment of fish growth rates in tropical
aquaculture in Thailand in partial
fulfillment of the requirements for a
master's degree; Nong Kai Fisheries
Station, Nong Kai, Thailand

Tegler, Brent A. (University of Guelph)
Research on vegetative control of wind
erosion and dust emissions in Sahelian
West Africa in partial fulfillment of the
requirements for a doctoral degree in
environmental biology; École normale
supérieure, Sahel, Mali

Gemini award

Spencer, Christina (*The Ottawa Citizen*)
Internship with the Gemini News Service
and field research in India; Gemini News
Service, London, UK

John G. Bene fellow- ship in social forestry

Rewald, Michael (York University)
Follow-up and dissemination of the results
from community forestry studies in
tropical rainforests in Central America.
Instituto Nacional de Investigaciones
Forestales y Agropecuarias, Quintana
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Other

Kimasha, G.F.R. (United Republic of
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Undertake postgraduate diploma studies in
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Undertake postgraduate diploma studies in
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Training

De Silva, Sena S. (Sierra Leone)
Undertake research on the development of
fish nutrition; Department of Zoology,
National University of Singapore,
Singapore

Publications

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