

IDRC ANNUAL REPORT

1978/1979

A.R.
Dupl
IDRC



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

©1979 International Development Research Centre
Postal Address: Box 8500, Ottawa, Canada K1G 3H9
Head Office: 60 Queen Street, Ottawa

IDRC, Ottawa IDRC-003/79e, f
IDRC Annual Report 1978-1979, Ottawa, Ont., IDRC, 1979. 61 p.

/IDRC publication/. /Annual report/ of /IDRC/ — reviews the
/development research/ /research programme/s and /research project/s
supported by IDRC during the fiscal year 1978-1979.

UDC: 338.001

ISBN: 0-88936-212-2

Microfiche edition available

Annual Report 1978–1979

International Development Research Centre

Table of Contents

Letter of transmittal from Chairman	2
Introduction	3
The Board of Governors	9
Officers of the Centre and Regional Directors	10
Projects for which funds were approved during the fiscal year 1978–1979	11
Agriculture, Food and Nutrition Sciences	11
Communications	17
Health Sciences	17
Human Resources Program	19
Information Sciences	20
Senior Vice-President	22
Social Sciences	22
Special Governing Board Activities (President)	26
Division Activity Projects	27
Financial Analysis and Statements	28
Human Resources Awards	44
Publications and texts	50



INTERNATIONAL DEVELOPMENT RESEARCH CENTRE
CENTRE DE RECHERCHES POUR LE DEVELOPPEMENT INTERNATIONAL


July 27, 1979

The Honourable Flora MacDonald, P.C., M.P.
Secretary of State for External Affairs
Lester B. Pearson Building
Ottawa, Ontario

Dear Madam Minister:

I have the honour to transmit herewith the Annual Report of the International Development Research Centre for the fiscal year ending March 31, 1979, for submission to Parliament as required by Section 22 of the International Development Research Centre Act (Revised Statutes of Canada, 1970, 1st Supplement, Chapter 21).

Yours sincerely,


Roger A. Blais,
Vice-Chairman of the Board

Introduction

This report covers the ninth year of operation of the International Development Research Centre — the fiscal year from April 1978 to March 1979. During this year the Centre's Board of Governors approved 159 project proposals, slightly fewer than last year, requiring an appropriation of \$28 million.

This brought the number of projects and supplementary grants approved since the Centre began operations in 1970 to 849, at a total cost of \$154 million. Some 332 projects have now been completed, while many others have moved into a second or third phase of research activity, each phase building on the results of the previous one.

The next few pages give a brief description of some of the past year's new projects, and an indication of how they fit into the overall priorities of the four program divisions. Rarely stated in these brief descriptions, but nonetheless a vital component of virtually every project funded by the Centre, is the opportunity to broaden and enhance the skills of the local researchers involved. For a junior researcher involvement in an IDRC-supported project may provide a form of "apprenticeship," or perhaps the opportunity to pursue postgraduate work in a field of proven value. For the senior scientists there is the opportunity to develop research management skills, and to work and exchange ideas with their peers in other developing countries. Where it is felt to be necessary, provision for formal training or further education is built into the project proposal.

So when the Centre funds a project, it is not only supporting practical, results-oriented research, it is also meeting its other objective, which is "to assist the developing regions to build up the research capabilities, the innovative skills and the institutions required to solve their problems." The end result is an increase in competence and confidence — a strengthening of the country's research base that in the long run may provide greater benefits than the original project activity.

Agriculture, Food and Nutrition Sciences 60 projects — \$11 million

The semi-arid regions of the world have always been primary areas of concentration for the Centre's agricultural research program. In these areas the various food legumes such as peas, beans, and lentils, are of special importance. Not only are they able to withstand dry conditions, they also contain protein that is nutritionally complementary to cereal protein.

All over the developing world in recent years the Centre has helped to establish expertise in food legume improvement, and in the past year has continued to build on this experience. In Mali and Niger, two Sahelian countries hard hit by the droughts in that region, cowpeas are an important part of the local diet. Three-year projects have begun in both countries to improve the cowpea crop by developing varieties that are resistant to drought, pests, and diseases, and are readily accepted by the local farmers and their families from the point of view of cooking quality, flavour, and appearance.

In Egypt the faba bean — also known as the broad bean or the horse bean — is a staple food. Like most food legumes it has not received much attention from researchers. Over the next three years the bean will be closely studied by Egyptian scientists as part of the Centre's support program for legume improvement. And in Algeria a major project to improve four food legume crops has now entered a

two-year second phase in which the initial results will be subjected to on-farm testing.

Chick-peas and lentils are important for the rural population of Turkey, but yields are generally much lower than potential. A three-year project there will study the factors limiting yields, and develop improved agronomic "packages" for small farmers. The focal point for these and many other legume research projects is ICARDA (the International Centre for Agricultural Research in the Dry Areas). Established with IDRC assistance, ICARDA serves as a regional centre for research, and for the coordination of results from many cooperating countries, ensuring that the new technologies are available throughout the semi-arid regions.

Another major plank of the AFNS program is the cropping systems network. Growing several different crops — together or in sequence — on the same piece of land during a single year is one way of increasing productivity. In Bangladesh, Sri Lanka, and Thailand, IDRC-supported projects aimed at designing and testing rice-based cropping systems for small farmers all began second phase operations during the past year. In the first phase researchers have been able to produce two, even three crops of rice per year together with several other crops; in the second phase the successful experimental systems will be widely tested under actual farm conditions. The researchers have made detailed studies of the economic and social factors that influence the adoption of new systems.

All three projects are part of the cropping systems research program coordinated by IRRI, the International Rice Research Institute, which pioneered much of the cropping systems research. A three-year IDRC-grant to IRRI will support an outreach program that will make available the results of almost a decade of research to the small farmers of Asia.

In Costa Rica and El Salvador the Centre is supporting a three-year research program to introduce drought-resistant varieties into multiple cropping systems. The aim is to maximize food production in a region that is at present unable to provide even the minimum requirements for an expanding population. And in Africa a grant to the University of Swaziland will enable an interdisciplinary research team to examine the traditional mixed cropping systems used by African farmers. The team will develop improved systems to increase small farm production not only in Swaziland, but in much of rural Africa.

Increased production results in a need for more and better storage, and improved processing systems. Recognizing this need in the tropics, where food losses through spoilage can be as high as 30 percent or more, IDRC continues to support a strong program of research to improve postharvest technology. Rice is the major crop in Asia, and again the Centre is cooperating with IRRI in support of a network of projects in the region that are developing, testing, and evaluating village-level technology, such as solar dryers, simple threshers, and small mills.

Rice is also an important crop in much of West Africa. In Sierra Leone IDRC is supporting research into the development of solar dryers for rice and a number of other crops. The project complements several other Centre-supported projects in this field, and may have a widespread impact in other countries with similar conditions. The experience gained with rice dryers at IRRI is also being applied in Latin America — in Guatemala for instance, where IDRC is supporting research to adapt a flat-bed dryer for use by small-scale coffee farmers. Such a dryer could possibly be powered by methane gas derived from fermented coffee pulp wastes, thus providing a cheap source of fuel and a waste disposal system.

Fisheries are another important element in the AFNS program. It was an IDRC-supported project in the Philippines in 1976 that succeeded in breeding milkfish in captivity for the first time. That feat has since been repeated many times by scientists at the Southeast Asian Fisheries Development Centre (SEAFDEC), and in the three-year second phase of the project, now under way, they hope to

improve their techniques to the point where a reliable supply of fish fry can be made available to the region's many milkfish farmers. Milkfish are of major economic importance to much of southeast Asia, but their refusal to breed in captivity has long been a constraint to expansion of the industry.

Unlike Asia, Latin America has no longstanding tradition of fish farming. In Peru, however, scientists are attempting to improve the incomes of local fishermen and to develop an important source of food protein. IDRC, which has supported much research on shellfish cultivation in Asia and Africa, is supporting a three-year project which is being closely watched by several other Latin American nations.

Health Sciences

29 projects — \$4 million

A plentiful supply of clean water and adequate sanitation facilities are prerequisites to the health of a community. So it is natural that the closely linked fields of water supply and sanitation remain as high priorities for IDRC's Health Sciences division.

One of the basic problems in the area of rural water supply is usually the pump; too often it was manufactured somewhere else for a different kind of use. Breakdowns are frequent and repairs are difficult. The Centre has supported a project at the University of Waterloo, Ontario, to design a reliable pump that could be cheaply manufactured in developing countries. That pump is now being field-tested in projects in Ethiopia, Kenya, Malawi, Malaysia, Philippines, Sri Lanka, and Thailand, to see how it performs under actual working conditions, and to test local materials for its construction. A wind-powered pump using a new and highly sensitive type of rotor is also undergoing extensive testing in a Centre-supported project in Botswana. If successful the wind rotor could provide an economical alternative to expensive diesels for deep-water pumping.

Water management is also important. In Sudan the Centre is supporting a study of the social and economic aspects of water supply being carried out by the University of Khartoum in four diverse areas of the country. As a first step towards improving rural water supply, the study will ascertain who controls the water, and how. In Malaysia, where the rapid growth of palm oil production has resulted in widespread pollution from oil mills, the Centre is supporting a year-long study aimed at developing affordable treatment processes and controls.

Together with water management goes waste management. Sewers are an expensive way of handling the problem, and are not practical in rural areas, which is where most people in developing countries live. In an effort to develop inexpensive alternatives, IDRC is funding a network of research projects. In Thailand, for example, there is a two-year study to find useful methods of waste disposal, such as composting or reuse of waste products as fish feed. A similar project in Guatemala will study composting and biogas production systems. In Zambia a number of existing low-cost sanitation technologies for use in peri-urban areas will be evaluated.

There is also an urgent need to provide rural communities with basic health care services and health education. IDRC has pioneered research in health care delivery systems in many parts of the world, and continues to do so. In a new project in Indonesia, researchers are attempting to create a coordinated community health program and referral system for some 40 000 people who live in the "informal suburbs" of the big cities. In rural Bolivia a study is being made to determine the health problems facing three different geographic and linguistic rural areas, the existing resources for solving them, and the use now being made of these services. The information will be invaluable in planning improved services.

In the field of tropical diseases the HS division continues its support for the UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases, which is concerned with eradicating the six major tropical diseases that affect millions of people in the developing world. The division also supports a number of projects concerned with diseases that are not presently covered by the Programme. These include a study in Indonesia of the increasingly prevalent dengue hemorrhagic fever, and research in Guatemala on intestinal infections and related diseases that are often fatal in young children.

Similarly, in the field of contraceptive research, the division is supporting the development program being carried out by the International Committee for Contraceptive Research. This worldwide program is concerned with developing and testing new contraceptive technology for both men and women, and has already produced several promising leads.

Information Sciences 20 projects — \$3.5 million

Cooperation in information work has remained the main plank in the Information Sciences platform, particularly through the mechanism of international cooperative bibliographic information systems. Their territorial formula, by which each participating country processes the documents it produces, results in an equitable sharing of costs. In return for contributing its bibliographic records to the system, the country gains access to the literature of the rest of the world.

IDRC support has continued mainly to regional centres acting on behalf of their member governments. The Southeast Asian agricultural information network, which is linked to FAO's world system of agricultural information, has received a renewed grant, which like its earlier counterpart in Latin America, provides for new activities, such as the application of computer methods and the distribution of documents. In the field of population information, the grant to a regional centre for Latin America was renewed, with the objective of decentralizing some of the document collection and recording activities to national cooperating institutions. A first grant to an African regional centre for population information was also awarded. Both of these regional centres could form part of a world population information system, POPIN, the design of which was studied in some detail by the UN Population Division with the assistance of an IDRC staff member seconded for the purpose. For the information needed by development planners and policymakers, IDRC is continuing a demonstration of the proposed Development Sciences Information System (DEVSIS). In the last year, the demonstration has resulted in a joint bibliography and index to the Canadian and West German development literature. At the same time, several other countries have been producing indexes to their own development literature and are likely to be joining the demonstration to produce a truly multinational index.

In a large project covering the information from all sectors in one geographic region, IDRC joined several other donors in funding the planning stage of an information network for the Sahel. The project is intended to enable the eight member countries of the *Comité Interétats de Lutte contre la Sécheresse Sahélienne* to share information pertaining to the common problems of the Sahelian drought, but at the same time to help them develop national information policies and infrastructures.

In addition to the documentation aspect of international information systems, IS also continues to support the use of a common computer system for bibliographic manipulations. ISIS, a package of computer programs developed by

the International Labour Office for information retrieval and library management, is now used by many institutions, both national and international, some of which have drawn on IDRC for technical advice. In the past year, ISIS resource centres have been set up in Pakistan and Costa Rica, which will act as centres of expertise, training centres, and processors of AGRIS and DEVSIS records.

For its own bibliographic processing in Ottawa, the division has relied for the entire year upon MINISIS, an ISIS-related bibliographic system of its own design. This year gave sufficient experience and confidence in the system to permit transferring it to other institutions. MINISIS is used on a minicomputer cheap enough to be placed completely under the control of a single library or information centre. Many institutions, developed as well as developing, are therefore interested in acquiring it and much effort has been put into the guidelines for making it available in a variety of conditions ranging from profit-making systems houses to developing-country information centres.

In addition to meeting the needs of the IDRC library, MINISIS is being used in Ottawa to produce several special bibliographies including *Devindex* — the index of the DEVSIS demonstration — and *SALUS* — a bibliography on low-cost health care and health manpower training. The documents listed in these bibliographies are being microfiched so that a complete collection can be donated to appropriate institutions at the same time as the records on computer tape. The microfiche unit set up for this purpose can also provide single microfiche copies which are easily mailed on request.

Social Sciences

40 projects — \$6.5 million

The Social Sciences division's support for science and technology policy research has earned the Centre a worldwide reputation in this field. In the past year the Centre began funding a new two-year study linking six Central American countries in a cooperative effort to increase the effectiveness with which science and technology can contribute to the region's development objectives. In the Caribbean a similar project to establish the scope and limits of science and technology in that region entered a second two-year phase which will attempt to define the region's technological capabilities in specific sectors.

The division's concern with the processes of modernization and change also extends to the agricultural sector. In West Africa IDRC is cooperating with ICRISAT (International Crops Research Institute for the Semi-Arid Tropics, based in India) in a series of agro-economic studies. Based on earlier research in Indian villages, the African village studies will seek ways to remove constraints to development by studying such factors as cropping and labour patterns, farmers' attitudes, social organization in the villages, and access to markets. In Brazil, where the transformation of the agricultural sector has succeeded in making the country a net exporter of food, there are indications that employment in the sector may actually have declined. The Centre is now supporting a study of the impact of Brazil's agricultural development on the labour market — a study which may prove to be a model for several other Latin American countries that are undergoing similarly rapid change.

Education is an expensive but essential element in the development process. How best to utilize the funds available for education is a question of vital concern to all developing countries. In Nigeria IDRC is supporting a two-year project to systematically analyze the teacher's role, and to develop a low-cost, reliable method for monitoring and improving teacher performance. The research will be carried out by the West African Examinations Council, an organization of five

English-speaking countries. A Latin American study will attempt to determine the impact of preschool programs on grade one performance. The project, involving four countries, should help to solve the problems caused by slow progress and repetition in the early grades, where children may require three or four extra years to complete a primary education. A related project in the Philippines will test the retention of literacy and numeracy skills among primary school leavers. The project is one of several in different countries supported by a group of donors in an international effort to determine the "threshold level" of schooling.

The Social Sciences division is also responsible for research on population dynamics and policies. In Sierra Leone, where such research is in its infancy, the Centre is supporting a two-year study of fertility patterns in four rural chiefdoms. By providing accurate data on fertility levels and the use of and attitudes to various forms of contraception, the survey will contribute to the provision of adequate medical and family planning services in the country. Five countries are participating in a joint project, now in its second phase, to examine the cultural factors determining fertility levels and contraceptive use in the multiethnic societies of Southeast Asia. The second phase will further test the hypotheses developed in phase one, and report on the policy implications of the researchers' findings.

In Sudan the Centre is supporting an innovative study of that country's resettlement programs, which have reclaimed large areas of unproductive land over the past 20 years. While previous studies have invariably focused on the settlers themselves, this one-year study will examine the role of the managers of resettlement projects, their strengths and weaknesses, and draw up policy recommendations for use by the government in planning any future relocations.

The building of social science research capabilities in the developing regions is another of the division's priorities. In Africa, for example, IDRC helped to establish the Council for the Development of Economic and Social Research — the first voluntary scholarly organization on that continent to serve both the anglophone and francophone countries. The Council continues to receive IDRC support on a declining scale. It now has 49 active member institutions in 25 countries, and aims to identify and encourage policy relevant social science research in Africa.

All this was accomplished in spite of some considerable financial constraints. Worldwide inflation, the continued decline of the Canadian dollar, and a reduction in the anticipated amount of the grant from the Government of Canada, meant that the Centre's spending power was considerably reduced. In order to meet its long-term commitments and minimize the effect these budgetary restrictions might have on project activity, the Centre instituted a number of cost-cutting measures. These included some staff layoffs, reduction of certain staff benefits, and the closure or reduction in size of several overseas offices, including a substantial decrease (preparatory to closure) in the size of the Centre's regional office for east and central Africa in Nairobi.

Additional measures, such as a reduction of the Human Resources Awards program will take effect during the 1979-1980 fiscal year. New management and evaluation procedures developed during the past year will help to ensure that the core of the Centre's activity — the program projects — continues to be protected during what it is hoped will be a temporary period of constraint.

This report is necessarily brief, and confines itself to activities undertaken during the 1978-1979 fiscal year. A broader overview of the Centre's activities is provided in the annual review. The 1978 review, entitled *Searching* (IDRC-110e), is available from IDRC's Communications division. The 1979 review will be published near the end of the year.

The Board of Governors

- *Maurice F. Strong
Chairman of the Board of Governors
Ottawa, Canada
- **Roger A. Blais
Vice-Chairman of the Board and
Chairman of the Executive Committee
Montréal, Canada
- Ivan L. Head
President and Chief Executive Officer
Ottawa, Canada
- ***Manuchehr Agah
Tehran, Iran
- ****Allison A. Ayida
Lagos, Nigeria
- **Pierre Bauchet
Paris, France
- John Milton Bell
Saskatoon, Canada
- ****Gelia T. Castillo
Manilla, Philippines
- ***Sir John Crawford
Canberra, Australia
- **Norman T. Currie
Toronto, Canada
- Michel Dupuy
Ottawa, Canada
- ****Liliane Filion-Laporte
Montréal, Canada
- ****Ray A. Goldberg
Cambridge, USA
- ****Allan E. Gotlieb
Ottawa, Canada
- ****Carl-Goran Hedén
Stockholm, Sweden
- ****Louis H. Lorrain
Montréal, Canada
- ****Hadj Mokhtar Louhibi
Algiers, Algeria
- **The Hon. Rex M. Nettleford, O.M.
Kingston, Jamaica
- ****A. Jamil Nishtar
Islamabad, Pakistan
- ****John B. Stewart
Antigonish, Canada
- ****Manuel Ulloa E.
Lima, Peru
- ***Victor L. Urquidi
Mexico
- **Sir Geoffrey Wilson
London, England
- **William C. Winegard
Toronto, Canada
- * *Resigned on 29 August 1978.*
- ** *Reappointed during fiscal year 1978/79.*
- *** *Term expired during fiscal year 1978/79.*
- **** *Appointed during fiscal year 1978/79.*

Officers of the Centre at 31 March 1979

Ivan L. Head
President

Raymond J. Audet
Treasurer

Louis Berlinguet
Senior Vice-President

Jon Church
Vice-President, Administration

John Gill
Director, Health Sciences

Joseph H. Hulse
Director, Agriculture, Food and Nutrition
Sciences

Nihal Kappagoda
Vice-President, Planning

Reginald MacIntyre
Director, Communications

James C. Pfeifer
Secretary and General Counsel

David W. Steedman
Director, Social Sciences

John E. Woolston
Director, Information Sciences

Regional Directors

Asia (Singapore)
Jingjai Hanchanlash

East Africa (Nairobi)
E. Anthony Price

West Africa (Dakar)
Stanislas Adotevi

Middle East and North Africa (Cairo)
Salah Dessouki

Latin America (Bogotá)
Henrique Tono T.

Projects for which funds were approved during the fiscal year 1978-1979

Agriculture, Food and Nutrition Sciences

73-0143 (S1) (A) Sesame (Israel), supplement

For the Faculty of Agriculture, Hebrew University of Jerusalem, Jerusalem, to continue into a fourth growing season research aimed at reducing sesame losses through indehiscence induction and/or strong placentation by a mutation breeding program. \$23 000

74-0046 (S1) (A) Cassava (Malaysia), supplement

For the Agriculture, Food and Nutrition Sciences Division of IDRC to cover expenditures related to the placement of the Project Advisor on the Centre-administered portion of the Cassava (Malaysia) project to establish a research and training program on cassava for Malaysia and surrounding countries. \$43 100

74-0079 (S1) (A) Fish processing (Philippines), supplement

For the University of the Philippines at Los Baños (UPLB), Laguna, to provide salaries and travel funds for project staff to undertake field tests of fish dryers and identify areas for further research in a project to develop cheap efficient fish drying and smoking technologies. \$3700

74-0143 (S1) (A) By-products utilization (Guatemala) - phase II, supplement

For the Pan American Health Organization (PAHO), Washington, D.C., U.S.A., to enable the Institute of Nutrition of Central America and Panama (INCAP), Guatemala City, to cover expenses required to complete experiments developed from the current research and to cover expenses incurred in the hiring of a consultant economist. \$38 900

75-0032 (A) Rapeseed (India)

For the Indian Council of Agricultural Research (ICAR), New Delhi, and the G.B. Pant University,

Pantnagar, to breed high-yielding varieties of rapeseed of improved quality, and to develop optimum agronomic practices for various agroecological zones in Uttar Pradesh State. \$126 000 — 3 years

75-0065 (S3) (A) Striga (Sussex) — phase II, supplement 3

For the University of Sussex, Brighton, England, to cover overexpenditures on salaries and allowances as well as unforeseen patenting costs in a project to develop a cheap synthetic seed stimulant of *Striga* (parasitic weed of sorghum). \$3000

75-0072 (A) Millets (India)

For the Indian Council of Agricultural Research (ICAR), New Delhi, to enable it to support the All India Coordinated Millet Improvement Project to conduct research at five crops centres throughout India to develop improved varieties of the minor millets with desirable characteristics for tribal and hilly regions under rainfed conditions, together with improved agricultural management practices especially suited to low input conditions. \$530 000 — 2 years

75-0097 (A) Safflower (India)

For the Indian Council of Agricultural Research (ICAR), New Delhi, and the College of Agriculture, Indore, to breed high-yielding varieties of safflower of improved quality, and to develop optimum agronomic packages suited to the improved cultivars. \$100 800 — 3 years

75-0114 (A) Mustard (India)

For the Indian Council of Agricultural Research (ICAR), New Delhi, and the Plant Breeding Department, Haryana Agricultural University, Hissar, to undertake research to breed high-yielding varieties of mustard of improved quality, and to develop optimum agronomic packages suited to the improved cultivars. \$270 000 — 3 years

76-0077 (S1) (A) Cowpea processing (Nigeria), supplement

For the University of Ibadan, Ibadan, to meet rising costs due to inflation, complete research, and compile the final research analysis on a project to determine the acceptability and estimated selling price for mechanically dehulled and ground cowpea flour. \$2000

76-0091 (S1) (A) Small farm equipment (Ghana), supplement

For the Technology Consultancy Centre (TCC), University of Science and Technology, Kumasi, to assess the viability of the use of pedal-operated rice threshers in Ghana as part of a program to stimulate an agricultural support industry. \$5000

77-0125 (A) Pasture legumes (ICARDA)

For the International Centre for Agricultural Research in Dry Areas (ICARDA), Aleppo, Syria, to collect, identify, develop, multiply, and disseminate a range of productive forage plants adapted to the various climatic ecozones of the region in order to increase animal production, to conserve and protect the rural environment, and to establish a better integration of crop and livestock husbandry. \$583 300 — 2 years

77-0159 (A) Cowpea storage (Upper Volta)

For the Ministry of Rural Development, Ouagadougou, to reduce losses in cowpeas during storage through research to determine what improved storage techniques can be successfully applied to traditional farm and village storage systems. \$110 000 — 2 years

77-0162 (A) Solar rice drying (Thailand)

For the Asian Institute of Technology (AIT), Bangkok, to develop a low-cost method of drying paddy rice during wet season harvest by employing solar energy technologies. \$32 200 — 2 years

78-0001 (A) International Council for Research in Agroforestry (ICRAF) — phase II

For the International Council for Research in Agroforestry (ICRAF), Nairobi, Kenya, to complete its establishment phase and begin developing programs in agroforestry — a land management system integrating food, forest, and animal crops — in Africa, Asia, and Latin America. \$300 000 — 1 year

78-0006 (A) *Striga* (Upper Volta)

For the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Hyderabad, India, to enable it to undertake research at its Sorghum *Striga* Research Unit, Kamboinse

Research Station, Ouagadougou, Upper Volta, to develop methods to limit the incidence of *Striga* (a parasitic weed of sorghum, millet, and maize) through a program involving: tests of the synthetic germination stimulants produced in the *Striga* (Sussex) project; development and evaluation of control methods based on improved agronomic practices; and screening of sorghum and millet breeding material for resistance/tolerance to *Striga*. \$397 900 — 3 years

78-0007 (A) Lupino (Chile)

For the Institute for Technological Research (INTEC/CHILE), Santiago, to develop methods of substituting lupino for soy ingredients in presently used products without reducing their acceptability and nutritive qualities. \$96 000 — 1½ years

78-0008 (A) Sorghum/millet milling and quality (PRL)

For the National Research Council of Canada (NRC), Ottawa, Canada, to enable its Prairie Regional Laboratory (PRL), Saskatoon, to redesign and construct a prototype abrasion mill that could be used for the milling of the small grains of the semi-arid tropics (sorghum, millet, and food legumes). \$72 000 — 2 years

78-0023 (A) Grain milling (Botswana)

For Rural Industries Promotions (RIP), Gaborone, to determine the technical, operational, and economic feasibility of small-scale milling systems through developing and manufacturing small village-style decorticators and testing them in sorghum milling systems in three villages in Botswana. \$80 000 — 2 years

78-0024 (A) Cassava germ plasm (PRL)

For the National Research Council of Canada (NRC), Ottawa, to enable its Prairie Regional Laboratory (PRL), Saskatoon, to continue research to determine the practicality of the freeze preservation of cassava tissue for extended periods as an alternative to maintaining stocks of cassava germ plasm for breeding programs. \$25 000 — 1 year

78-0026 (A) Cassava nutrition (Thailand) — phase II

For the Faculty of Agriculture, Khon Kaen University, Khon Kaen, to undertake research to facilitate increased use of cassava in animal rations in both cassava-producing and cassava-importing countries, specifically to: identify the relationship between the chemical composition of cassava and its nutritive value for different livestock species; and identify the factors in animal rations with high

levels of cassava that impair livestock growth and seek methods of overcoming them. \$225 600 — 3 years

78-0027 (A) Crop drying (Guatemala)

For the Applied Research Division, Central American Institute for Industrial Research and Technology (ICAITI), Guatemala City, to develop and test an economically practical crop drying technology for small- and medium-sized *beneficios* (cooperative coffee processing centres) to assist the smaller and poorer coffee producers of the region; involves methane production from coffee pulp substrate as a fuel for the dryers. \$122 600 — 2 years

78-0031 (A) By-products (Kenya)

For the Department of Animal Production, University of Nairobi, Kabete, to evaluate and test nonconventional feedstuffs and agricultural and agroindustrial by-products and wastes for possible use in poultry production in Kenya, and to develop practical rations for the rural poultry industry using the most promising feedstuffs. \$164 000 — 3 years

78-0032 (A) Pasture legumes (Panama)

For the Faculty of Agriculture, University of Panama, Panama City, to undertake research to increase milk, meat, and poultry production in Panama by developing technologies for the cultivation of pigeon pea and *Leucaena* and their utilization in animal feeding, particularly during the dry season. \$154 800 — 3 years

78-0033 (A) Milkfish (SEAFDEC) — phase II

For the Southeast Asia Fisheries Development Centre (SEAFDEC), Rizal, Philippines, to continue to perfect and standardize the technology of spawning milkfish to ensure year-round adequate and dependable supply of milkfish fry, to reduce fry mortality during nursery rearing, to provide gravid female broodstock for hatcheries, to develop appropriate culture techniques for increasing harvest yields, and to effect the transfer of milkfish technology to other developing regions of Asia. \$421 100 — 3 years

78-0034 (A) Fish products (Guyana) — phase II

For the Ministry of National Development and Agriculture, Georgetown, to continue research to determine methods of using the fish by-catch of shrimp trawling as food, specifically: to collate and analyze the catch data from shrimp trawling operations gathered in phase I to establish quantities and seasonal availability of edible species; standardize production systems for salted,

smoked, and pickled fish; prepare marketing distribution systems for fish products; and further develop production processes for higher-quality fish products. \$273 300 — 3 years

78-0036 (A) Pasture development (Chile)

For the Faculty of Agriculture, Catholic University of Chile, Santiago, to undertake research to increase the availability and reduce the production costs of meat and milk through the development of improved forage-based feeding systems employing improved plant species, conservation techniques, by-products, and intensive and rational production designs to exploit local forage and feed resources. \$296 800 — 3 years

78-0039 (A) Plantains (Cameroon)

For the National Office for Scientific and Technical Research (ONAREST), to enable the Institute of Agriculture and Forestry Research (IRAF), Njombe, to undertake research to assist small farmers in increasing the production of plantains and associated crops in Cameroon, through a program of introducing, selecting, and testing plantain cultivars for desirable characteristics, and developing improved agronomic packages for plantains, bananas, and associated crops. \$162 000 — 3 years

78-0040 (A) Food legumes (Mali)

For the Institute of Rural Economy, Ministry of Rural Development, Bamako, to develop high- and stable-yielding cowpea cultivars resistant to drought, pests, and diseases adapted to the various agroecological zones within Mali and acceptable to farmers and consumers, and to develop appropriate agronomic packages for monocropped and intercropped cowpeas. \$212 000 — 3 years

78-0041 (A) *Orobanche* control (ICARDA) — phase II

For the International Centre for Agricultural Research in Dry Areas (ICARDA), Aleppo, Syria, to continue research to determine the effectiveness of various promising *Orobanche* (a parasitic weed of broad-leaved crops) control methods, and to develop them to practical economic systems for farmers: specifically, to test new synthetic germination stimulants produced in the *Striga* (Sussex) project, and identify and evaluate alternative control methods such as host resistance, herbicides, false hosts, and trap crops. \$106 000 — 3 years

78-0043 (A) Grain legumes (Algeria) — phase II

For the Institute for the Development of Major Crops, Ministry of Agriculture and Agrarian

Reform, El-Harrach, to continue and expand programs of breeding and agronomic research aimed at improving four major food legume crops (lentils, chick-peas, broad beans, and field peas), and conduct on-farm testing trials of improved varieties and cultural practices. \$197 300 — 2 years

78-0044 (A) Oilseeds (Egypt)

For the Field Crops Institute, Agricultural Research Centre, Cairo, to undertake research toward the improvement of oilseed production in Egypt as a source of edible oil and protein for human and domestic animal consumption, through developing oilseed cultivars of sesame, sunflower, rapeseed, and groundnuts with desirable characteristics adapted to the various agroecological regions of the country, together with appropriate agronomic packages. \$223 000 — 3 years

78-0045 (A) Varietal screening (Philippines) — phase II

For the University of the Philippines at Los Baños, Laguna, to undertake the second phase of a project to evaluate promising varieties for increasing cropping intensity and production in rice-based cropping systems in Asia: specifically, to screen large numbers of genotypes and phenotypes of selected upland crops (sorghum, cowpea, peanut, tomato, mung bean, sweet potato, and soybean). \$230 900 — 3 years

78-0046 (A) Drought-resistant crops (CATIE)

For the Tropical Agricultural Research and Training Centre (CATIE), Turrialba, Costa Rica, to increase the productivity of small farm cropping systems in semi-arid regions of Central America through research to identify, introduce, and test new crop varieties and species within traditional cropping systems, and to design improved systems. \$180 000 — 3 years

78-0047 (A) Rice research (WARDA) — phase II

For the West Africa Rice Development Association (WARDA), Monrovia, Liberia, to undertake second phase research at Richard Toll/Fanaye on the Senegal River aimed at increasing rice production in the region and in similar agroecological regions in West Africa: specifically, to select and test rice varieties with desirable characteristics, survey economic and agronomic practices and constraints on small rice growers, and determine the optimum management systems for rice production. \$679 000 — 3 years

78-0048 (A) Food legumes (Turkey)

For the General Directorate of Agricultural Research, Ministry of Food, Agriculture and

Animal Husbandry, Ankara, to develop high- and stable-yielding cultivars of lentils and chick-peas resistant to drought, cold, and disease with characteristics suited to easy harvesting, and to develop appropriate agronomic packages for small farmers in the different agroclimatic regions of Turkey. \$255 500 — 3 years

78-0049 (A) Cropping systems (Thailand) — phase II

For the Department of Agriculture, Ministry of Agriculture and Cooperatives (MOAC), Bangkok, to undertake phase II of a project to develop applied cropping systems technology and a coordinated research program to increase production and family incomes of small farmers in four rain-fed and partially irrigated rice-growing areas of Thailand representative of agroclimatic conditions in the country as a whole. \$587 700 — 3 years

78-0050 (A) Cropping systems (Sri Lanka) — phase II

For the Department of Agriculture, Peradeniya, to undertake phase II of a project to develop more productive and intensive cropping systems for rain-fed and tank-based rice lands in the intermediate and dry zones of Sri Lanka. \$195 000 — 3 years

78-0051 (A) Onion drying (Niger)

For the National Solar Energy Office (ONERSOL), Niamey, to develop methods for using available solar energy in Niger for drying onions through a program of research evaluating existing methods of dehydration, and designing, constructing, and testing multipurpose models of solar dryers suitable for village use. \$80 700 — 2 years

78-0053 (A) Postharvest rice systems (Korea) — phase II

For the College of Agriculture, Seoul National University, Suwon, to undertake phase II research to develop a modified rice postharvest system that will reduce the present high postharvest losses associated particularly with new high-yielding rice varieties: specifically, to identify, modify as required, and test a portable field thresher capable of threshing wet paddy and barley, as well as methods of on-farm grain drying using alternative sources of heat suitable for Korean farms. \$103 300 — 2 years

78-0054 (A) Sorghum milling (Sudan)

For the Food Research Centre, Shabat, to identify the dehulling system most suitable for village operation through a program comparing the

operating, technical, and economic efficiencies and quality of products from various alternative sorghum dehulling processes, and testing the most acceptable under village conditions in a sorghum-producing area of Sudan. \$137 700 — 2 years

78-0055 (A) Village-level rice milling (Thailand)

For the Agricultural Engineering Division, Department of Agriculture, Bangkok, to develop and test a village-level rice mill suitable for local manufacture, test and demonstrate advanced prototypes in the rural community, and stimulate local industry in manufacturing the most appropriate milling unit developed. \$77 500 — 2 years

78-0056 (A) Faba beans (Egypt)

For the College of Agriculture, University of Alexandria, Alexandria, to identify and develop simple, rapid methods for evaluating and predicting the cooking qualities of faba beans to guide plant breeders, agronomists, and others in efforts to develop improved lines and more desirable storage practices. \$105 100 — 3 years

78-0064 (A) Cropping systems (Bangladesh) — phase II

For the International Rice Research Institute (IRRI), Manila, Philippines, to manage, in cooperation with the Bangladesh Rice Research Institute (BRRI), Dacca, the second phase of a project to design and test more productive and profitable rice-based cropping systems for the farmers of Bangladesh and other Asian countries. Research activities will be carried out at six BRRI stations, studying the performance of double and triple rice-cropping patterns under irrigated conditions with measurements of yields, inputs, and returns. \$397 000 — 3 years

78-0065 (A) Timber grading (Mexico)

For the Institute for Research on Biological Resources (INIREB), Veracruz, in cooperation with the Division of Engineering, Autonomous Metropolitan University of Mexico City, to establish a grading system for the structural use of pine timber in Central America and Mexico, thereby improving the utilization of forest resources and reducing the cost of wood-frame structures. \$75 300 — 14 months

78-0073 (A) Forestry technology (Andean Pact) — phase II

For the Board of the Cartagena Agreement, Lima, Peru, to undertake phase II research in a project to determine industrially functional properties of tropical timber species of the Andean region:

specifically, to complete testing of structural properties of timber species, determine the relationships between defects and strengths of tropical hardwood structural members, and analyze and publish the technical data arising from the project. \$360 000 — 1 year

78-0078 (A) Food processing (Thailand)

For the Department of Technical and Economic Cooperation, to enable the Institute of Nutrition, Mahidol University, Bangkok, to undertake research to determine the convenience and acceptability within villages of a number of nutritionally adequate infant foods, and the acceptability of processing methods required to produce these foods. \$67 400 — 2 years

78-0085 (A) *Orobanche/Striga* (Sussex)

For the University of Sussex, Brighton, England, to isolate, identify, and synthesize the exudate from the roots of faba beans which causes *Orobanche* (broomrape, a parasitic weed of faba beans and other broad-leaved crops such as lentils, tomatoes, potatoes, etc., in the Middle East, North Africa, and elsewhere) seeds to germinate, and to produce and field-test economical germination compounds in a program to develop this method of weed control. \$88 600 — 2 years

78-0088 (A) Fertilizer development (IFDC) — phase II

For the International Fertilizer Development Centre (IFDC), Muscle Shoals, USA, to undertake phase II research in a project to evaluate the effectiveness of different sources, methods of processing, and application of phosphate fertilizers on soils of tropical and subtropical Latin America, with the aim of improving food and forage crop production by increasing the availability and uptake of phosphorus by crops. \$390 800 — 2 years

78-0090 (A) Mariculture (Peru)

For the Department of Pisciculture and Oceanography, National Agrarian University, La Molina, to develop, and demonstrate in pilot operations, practical culture systems for the three most important molluscan species (brown mussel or *choro*, scallop or *senorita*, and razor clam or *macha*) along the central coast of Peru. \$193 900 — 3 years

78-0092 (A) Cold-tolerant sorghum — phase II

For the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Hyderabad, India, to continue at the International Centre for Wheat and Maize Improvement (CIMMYT),

Mexico City, Mexico, a program of research to develop high- and stable-yielding cold-tolerant sorghums of good grain quality, well adapted to the wide range of conditions in frost-free mild winter areas, particularly the highlands of Eastern Africa, Central and Latin America, and Asia. \$122 500 — 1 year

78-0095 (A) Cropping systems outreach (IRRI)

For the Cropping Systems Program, International Rice Research Institute (IRRI), Manila, Philippines, to increase food production in South and Southeast Asia through the identification and demonstration of more productive rice-based cropping systems that are acceptable to small-scale farmers: specifically, to accelerate the transfer of technology and methodology to a greater number of Asian countries and rice-producing communities, providing advice, guidance, and support in the planning and execution of cropping systems research, and to measure all of the agronomic, economic, and social determinants that influence their adoption on small farms. \$619 000 — 3 years

78-0103 (A) Small farm modules (Colombia)

For the Foundation for the Application and Teaching of the Sciences (FUNDAEC), Cali, to design, test, and evaluate a continuous production system for small farmers in the Cauca Valley of Colombia and other similar regions that will diversify production and minimize risk, distribute farmers' labour more uniformly, and program production to better meet food and nutritional needs. \$49 500 — 2 years

78-0107 (A) Quinoa introduction (Colombia)

For the Colombian Institute of Sciences (COLCIENCIAS), Bogota, to introduce, test, and evaluate a wide range of quinoa (a food grain indigenous to the High Andes regions of South America) germ plasm from Peru and Bolivia under Colombian conditions, and select those with the greatest adaptation potential. \$14 800 — 2 years

78-0110 (A) Fish processing (Philippines) — phase II

For the Department of Food Science and Technology, University of the Philippines at Los Baños, Laguna, to improve the stability of dried fish products through improved drying processes: specifically, to field-test a dryer developed in phase I of the project, which uses agricultural wastes (rice hulls) commonly available in rural areas, establish the economic viability of nontraditional as opposed to traditional drying methods, and develop mechanisms for the introduction of

nonconventional dryers and the training of village fish processors in their use. \$70 000 — 1½ years

78-0112 (A) Intercropping (Swaziland)

For the Department of Crop Production, Agricultural College of Swaziland, University of Botswana and Swaziland, Luyengo, Swaziland, to undertake research to improve the principal intercropping patterns practiced by small subsistence farmers in Swaziland, through selection of high-yielding and adapted crop/crop mixtures of cereals (maize and sorghum), legumes (cowpeas, lima beans, phaseolus beans, mung beans, and groundnuts), sweet potatoes, cucurbits (pumpkins), and cotton. \$143 400 — 3 years

78-0113 (A) Solar crop dryers (Sierra Leone)

For the Department of Mechanical Engineering, Fourah Bay College, University of Sierra Leone, Freetown, to undertake research to reduce losses, improve product quality, and encourage increased production of rice and other crops such as peppers and sesame seeds through the development of low-cost, effective solar crop dryers suitable for use by farmers in Sierra Leone. \$46 800 — 2 years

78-0114 (A) Postharvest rice technology/NGA (Philippines) — phase II

For the Technical Research and Services Division, National Grains Authority (NGA), Quezon City, to undertake phase II research in a project to develop improved methods of threshing, drying, and milling rice and other food grains: specifically, to further improve drying and milling systems suitable to the wet harvests that result from second or third crops of high-yielding varieties, develop and test an effective system for the technical operation of existing bulk grain storage facilities in the Philippines, and develop and test a portable dockage tester for functional, accurate, and objective grain purity determination. \$135 000 — 2 years

78-0115 (A) Postharvest rice technology (Indonesia) — phase II

For the National Logistics Agency (BULOG), Jakarta, to undertake phase II research in a project to identify processes and equipment applicable to the various components of postproduction systems suitable for small farm conditions in Indonesia: specifically, to improve grain threshing, predrying and handling, and artificial drying, and to determine the economic efficiency of a dryer developed in phase I, evaluating its on-farm performance and acceptability. \$107 200 — 2 years

78-0116 (A) Sorghum/millet/cowpea utilization (Upper Volta)

For the Food and Nutrition Unit, Ministry of Rural Development, Ouagadougou, to develop a procedure for evaluating the quality of sorghum, cowpea, and millet cultivars in Upper Volta, developing utilization tests for the three grains based on local foods, determining the standard physical and chemical characteristics of the grains, and establishing the acceptability of various new cultivars in comparison with traditionally grown varieties. \$77 300 — 2 years

Communications

75-0063 (S1) (C) Science news feature service (Asia), supplement

For the Press Foundation of Asia (PFA), Manila, Philippines, to meet expenses incurred in the remuneration and relocation of the writer-editor consultant and family to Canada in a project to produce and distribute a Science News Feature Service for the purpose of enabling Asian media to expand and improve their science and technology coverage. \$13 000

Health Sciences

74-0021 (S1) (H) Alternative waste-disposal methods (Tanzania), supplement

For the National Scientific Research Council, Dar es Salaam, to cover expenses related to a local seminar/training course to enable researchers and health officers to discuss the findings obtained in a project to adapt the multrum concept of waste disposal to tropical conditions. \$5371.74

77-0019 (S1) (H) Water supply and sanitation (Cohen), supplement

For the Health Sciences Division of IDRC to retain the services of Mr Myer Cohen as consultant to continue his consultations and discussions with the Board of Governors and Officers of the Centre regarding a future course of action in the rural water and sanitation field. \$19 500

78-0014 (H) Palm oil wastes (Malaysia)

For the Asian Institute of Technology (AIT), Bangkok, Thailand, in collaboration with the Department of the Environment, Ministry of

Science, Technology, and Environment, Kuala Lumpur, Malaysia, to undertake a detailed study of wastewater treatment processes applicable to palm oil factories. \$84 600 — 1 year

78-0015 (H) Excreta reuse (Guatemala)

For the Meso-American Centre for Studies on Appropriate Technology (CEMAT), Guatemala City, to enable CEMAT, the Appropriate Technology Study Centre (CETA), Faculty of Engineering, University of San Carlos, Guatemala City, and the Appropriate Technology Experimental Station (ICADA-CHOQUI), Quetzaltenango, to develop low-cost and easily maintainable technologies for the reuse of human excreta by Indian communities in Guatemala. \$128 240 — 1½ years

78-0016 (H) Water-pumping technology (Global)

For the Ministry of Water Development, Nairobi, Kenya, the Asian Institute of Technology (AIT), Bangkok, Thailand, and the Institute for Small Scale Industries (ISSI), Quezon City, Philippines, to enable them to test, under varying field conditions, an innovative water pump developed at the University of Waterloo, Waterloo, Canada. \$271 560 — 2 years

78-0017 (H) Self-help sanitation (Mozambique)

For the National Housing Directorate (NHD), Ministry of Public Works and Housing, Maputo, to investigate various means of treating and reusing excreta and household refuse in urban squatter settlements and to develop approaches for introducing latrines in low-income communities. \$52 550 — 2 years

78-0018 (H) Wind-power pumping (Botswana)

For Rural Industries Promotion (RIP), Gaborone, to field-test a wind energy conversion system for pumping water from deep (60-100 m) and shallow (10-20 m) boreholes. \$51 360 — 2 years

78-0019 (H) Water management (Sudan)

For the University of Khartoum, Khartoum, to investigate the social and economic aspects of water supply in the Sudan in order to suggest more rational management procedures for making better use of community contributions to, and involvement in, the national rural water supply program. \$75 130 — 2 years

78-0020 (H) Rural health centres (Papua New Guinea)

For the College of Allied Health Sciences, Madang, to undertake research to identify and

define what people in rural areas expect from health services, to develop and test modifications in services aimed at increasing community participation and support to the health services, and to devise an information system that would allow for the continuous monitoring and adjustment of health programs in response to changing community needs. \$118 600 — 3 years

78-0021 (H) Sperm inhibition (Chile)

For the National Centre for the Family (CENAF), Santiago, Chile, and Queen's University, Kingston, Canada, to investigate the immunological aspects of sperm enzymes essential for fertilization, and to examine how the enzymes could be inhibited in their action. \$128 005 — 30 months

78-0022 (H) Health care referral system (Indonesia)

For the Atma Jaya Foundation, Jakarta, to assess the resources available in the Penjaringan district of Jakarta, together with the health problems of the population, in order to define a realistic and coordinated community health program and referral system for public and private agencies servicing the district. \$51 600 — 30 months

78-0028 (H) Sanitation technology (Zambia)

For the National Housing Authority (NHA), Lusaka, to review and evaluate existing excreta technology systems in use in Zambia in terms of appropriateness for the varying socioeconomic and geophysical conditions existing in peri-urban areas, with a view to establishing design and operational criteria for appropriate low-cost sanitation technologies. \$25 090 — 6 months

78-0029 (H) Alternative waste-disposal methods (Tanzania) — phase II

For the Tanzania National Scientific Research Council to enable the Muhimbili Medical Centre, University of Dar es Salaam, Dar es Salaam, to continue monitoring and evaluating the effectiveness of a series of compost toilets established during phase I of the project. \$10 960 — 2 years

78-0037 (H) Environmental health (Thailand)

For the Applied Scientific Research Corporation of Thailand (ASRCT), Bangkok, and the Department of Tropical Medicine, Mahidol University, Bangkok, to develop guidelines for programs to improve health through modification of environmental factors in squatter communities in the Bangkok area, based on data collected on health, environmental, physical, and socioeconomic conditions. \$47 300 — 1½ years

78-0057 (H) Nurses career patterns (Korea)

For the Korean Nurses Association, Seoul, to investigate the career patterns of nurses in order to offer new directions and suggestions for national health personnel development and services planning in Korea. \$30 500 — 1 year

78-0067 (H) Health needs (Bolivia)

For the Centre for Planning and Coordination of Scientific and Technological Research of the Universities of Bolivia (CPCICT), La Paz, to enable the Department of Public Health, University of San Andres, La Paz, and the Department of Public Health, University of San Simon, Cochabamba, to survey health problems in varying geographic and ethnic regions in Bolivia, existing resources for solving them, costs of health services, and the use the population makes of these resources. \$117 148 — 1½ years

78-0068 (H) Sterilization side effects (Mexico)

For Juarez University of the State of Durango, Durango, to enable its Scientific Research Institute to determine the effect of different techniques of tubal occlusion on ovarian function and menstrual bleeding patterns in Mexican women, with a view to recommending guidelines for the procedures in the Mexican National Family Planning Program. \$47 780 — 2 years

78-0069 (H) Dengue hemorrhagic fever surveillance (Indonesia)

For the Biomedical Research Centre, National Institute for Health Research and Development (NIHRD), Jakarta, to undertake surveillance of dengue hemorrhagic fever (DHF) in selected areas of Indonesia to obtain further information on the relationship between the serotypes of dengue viruses being transmitted and the severity of the disease. \$137 500 — 3 years

78-0070 (H) Tropical disease research III (Global)

For the World Health Organization (WHO), Geneva, Switzerland, to continue support for the Special Programme for Research and Training in Tropical Diseases, in order to develop better tools to control tropical diseases and strengthen research capacities of endemic countries. \$75 000 — 1 year

78-0071 (H) Ethical review procedures/WHO/CIOMS (Global)

For the World Health Organization (WHO), Geneva, Switzerland, in collaboration with the Council of International Organizations of Medical Sciences (CIOMS), Geneva, Switzerland, to develop guidelines for the establishment of ethical

review procedures at the national level in developing countries, which governments and institutions can apply when participating in research that involves experimentation with human beings. \$80 000 — 26 months

78-0082 (H) Water-pumping technology (Malaysia)

For the Mechanical Engineering Department, University of Malaya, Kuala Lumpur, to test and refine a water pump that can be manufactured in Malaysia, and maintained at the village level using local resources. \$67 570 — 2 years

78-0096 (H) Contraceptive research (Global)

For the International Committee on Contraceptive Research (ICCR), through the Population Council, New York, USA, to continue activities in contraceptive development: specifically, pursuing research on advanced leads such as female progestin implants; contraceptive rings; steroid-releasing IUDs (intrauterine devices); Copper-T IUDs; sperm suppression; passive immunization; and to undertake studies to identify potential new leads and follow investigations on these. \$1 725 000 — 3 years

78-0097 (H) Wastes management (Thailand)

For the Asian Institute of Technology (AIT), Bangkok, to assess alternative options for wastes management in Thailand, including collection, disposal, and reuse of wastes in systems appropriate to rural and urban environments, including: developing design and operational criteria for selected methods of waste treatment; investigating the potential reuse of wastes as feed for fish; assessing the levels of pathogen transfer in various treatment processes; and determining the cost of different systems. \$130 800 — 2 years

78-0102 (H) Gastroenteritis/INCAP (Guatemala) — phase II

For the Pan American Health Organization, Washington, D.C., U.S.A., to enable the Institute of Nutrition of Central America and Panama (INCAP), Guatemala City, Guatemala, to reduce the incidence and prevalence of diarrheal disease in the community and improve gastrointestinal ecology by breaking the fecal/oral contamination cycle in the rural home through a sanitary education program to effect improved hygienic practices, particularly in mothers. \$372 900 — 2 years

78-0105 (H) Hand pump testing (Sri Lanka)

For Lanka Jatika Sarvodaya Shramadana Sangamaya (Inc.), Moratuwa, to field-test and develop a hand pump that can be manufactured

locally, be maintained by villagers, and be installed in hand-dug wells constructed by villagers. \$50 000 — 2 years

78-0125 (H) Rotavirus/INCAP (Guatemala) — phase II

For the Institute of Nutrition of Central America and Panama (INCAP), Guatemala City, to undertake phase II research to determine the source, characteristics, and mechanisms of action of rotavirus infections, and their association with diarrheal diseases and other chronic infections. \$80 000 — 1½ years

78-0128 (H) Ambulatory care (Korea)

For the Community Health Nursing Department, Nursing Research Institute, Yonsei University, Seoul, to evaluate the home visit nursing program developed by the Community Health Nursing Department at Wanju Christian Hospital, a provincial hospital in Kong Won province, and assess the adequacy of the program in terms of meeting the health care needs of rural and semiurban patients, and in identifying other health problems in patient families served. \$25 000 — 1½ years

78-0132 (H) Rural health services (Sri Lanka)

For the Medical Education Unit, Faculty of Medicine, University of Sri Lanka, Peradeniya, to determine health patterns in three rural communities in Sri Lanka with a view to assessing the training and subsequent performance of assistant medical practitioners (AMPs) in delivering health services. \$8150 — 1½ years

78-0134 (H) Rural water fluorides (Kenya)

For the University of Nairobi to enable the Department of Civil Engineering and the Department of Dental Surgery, in cooperation with the Ministry of Water Development, Nairobi, to prepare a national map of fluoride levels in surface and groundwater supplies in Kenya, establish the effects of fluorosis on the population — particularly in areas with high fluoride concentrations in water supplies — and assess the feasibility of using the Nalgonda technique or an adaptation for defluoridation of water supplies. \$28 810 — 2 years

Human Resources Program

Human resources development

To continue the Centre's program of awards to encourage and support the growth of individual

competence through training and research in the development field. \$1 800 000 — 1 year (See section on Human Resources for details of the program.)

77-0135 (HR) Pearson Fellowships

For the Human Resources Program of IDRC to continue the Pearson Fellowship Program into 1979, assisting the development of human resources in developing countries by giving outstanding young professionals an opportunity to pursue their professional interests in Canada, and at the same time give them an opportunity to learn about and travel in Canada. \$472 000 (1979-80)

77-0135 (S1) (HR) Pearson Fellowships, supplement

For the Human Resources Program of IDRC to meet increased costs and maintain the objectives of a fellowship program enabling outstanding young professionals from developing countries to work, study, and travel in Canada, thereby improving their professional competence. \$172 400 — 2 years

Information Sciences

75-0130 (S1) (I) AGRIS (Egypt), supplement

For the Ministry of Agriculture, Cairo, to meet the rising costs of training two documentalists and to train a third in a project to enable Egypt to participate in AGRIS (International Information System for the Agricultural Sciences and Technology). \$9900

76-0092 (I) Multilingual agricultural thesaurus

For the Information Sciences Division of IDRC to enable it to take part in the compilation of a multilingual controlled vocabulary (thesaurus) of agricultural terms that will improve indexing and retrieval of documents from the AGRIS (International Information System for the Agricultural Sciences and Technology) data base. \$143 000 — 1½ years

76-0125 (S1) (I) AGRIS corporate names, supplement

For the Information Sciences Division of IDRC to employ a consultant cataloger to edit, and a terminal operator to input into the computer, data gathered for an authority file of corporate authors for AGRIS (International Information System for the Agricultural Sciences and Technology). \$9000 — 6 months

76-0129 (I) Peasant education by cassette — FEPLAM (Brazil)

For the Padre Landell de Moura Educational Foundation (FEPLAM), Porto Alegre, to undertake research to determine whether participation in two rural education courses, structured around cassette recordings and supported by exercises and manuals, will influence or change the behaviour of farmers. \$188 350 — 26 months

77-0045 (I) Famille et développement — phase II (1979)

For the Information Sciences Division of IDRC to continue publication of the periodical *Famille et développement*, and to establish an autonomous, nonprofit international organization, l'Association Africaine d'Education pour le Développement (ASAFED) to assume full responsibility for the publication. \$100 000 — 1 year

77-0100 (I) Sahel information network (preparatory)

For the Sahel Institute, Bamako, Mali, to undertake preparatory activities for the development of a regional scientific and technical documentation and information network. \$359 000 — 3 years

77-0112 (I) Cooperation among national libraries (Southeast Asia)

For the Consortium of National Libraries and Documentation Centres of Southeast Asia (NLDC-SEA), Singapore, to develop an inter-library exchange network for the national libraries of Southeast Asia, with a view to providing each participating library with access to the collection of the others. \$358 600 — 3 years

77-0127 (I) Coconut information centre

For the Coconut Research Board, Lunuwila, Sri Lanka, to develop an information centre on coconuts that will acquire, classify, and store relevant literature, and will disseminate information in various forms to an international clientele. \$202 000 — 3 years

77-0151 (S1) (I) ISIS Outreach and future systems, supplement

For the Information Sciences Division of IDRC to recruit a computer programmer/analyst to handle additional development of the MINISIS system for the Centre-administered ISIS Outreach and future systems project. \$45 000

77-0161 (I) Latin American Population Documentation System (DOCPAL) — phase II

For the Latin American Centre for Demography (CELADE), Santiago, Chile, to continue operating

and developing DOCPAL, and particularly to strengthen national capabilities of participation, and to improve the associated computer systems. \$333 880 — 16 months

78-0010 (I) Information centre on sanitation
For the Asian Institute of Technology (AIT), Bangkok, Thailand, to establish an international information centre to support engineers, scientists, and technologists working in the field of sanitation. \$121 700 — 3 years

78-0012 (I) Population Information and Documentation System for Africa (PIDSA)
For the Regional Institute for Population Studies, Legon, Ghana, to establish and operate a Population Information and Documentation System for Africa (PIDSA), which will locate, process, store, and retrieve current population documents concerning Africa south of the Sahara, and make a variety of information services available to users. \$411 600 — 3 years

78-0061 (I) Planning information network (Latin America)
For the United Nations Economic Commission for Latin America (ECLA), Santiago, Chile, to undertake the design of an information network for economic and social planning and to initiate a pilot program with the participation of about 10 Latin American countries. \$279 780 — 1 year

78-0062 (I) Animal production documentation team (ILCA)
For the International Livestock Centre for Africa (ILCA), Addis Ababa, Ethiopia, to field a documentation team to locate, select, and microfilm nonconventional literature related to animal production systems in 16 African countries (Burundi, Cameroon, Chad, Ghana, Ivory Coast, Malawi, Niger, Nigeria, Rwanda, Somalia, Sudan, Tanzania, Uganda, Upper Volta, Zaire, and Zambia) and make the material available to research workers in Africa. \$187 350 — 2 years

78-0094 (I) MINISIS/Francophone African countries
For the Information Sciences Division of IDRC to provide French language training in the use of MINISIS (a set of computer programs developed at IDRC for information storage and retrieval and management of library operations) for users in Francophone African countries, thereby assuring a capability to implement MINISIS software, and also to respond to system failures that could arise in these countries as well as provide software support and continuously updated documentation in French. \$137 500 — 2 years

78-0098 (I) Information system for economic and social planning (Caribbean)
For the United Nations Economic Commission for Latin America (ECLA), Santiago, Chile, to enable the Caribbean Documentation Centre (CDC), Port of Spain, Trinidad and Tobago, to support the planning processes in the countries of the Caribbean by promoting the development of, and encouraging cooperation among, the information units that serve the region's planning community. \$95 177 — 1 year

78-0099 (I) Directory of experienced librarians and information personnel in Asia and Oceania (ELIPA)
For the Korean Institute of Science and Technology (KIST), Seoul, Korea, to create and maintain a computer data base on regional experienced library and information personnel in the developing countries of Asia and Oceania, and provide a referral service on personnel to governments and institutions in the region. \$25 495 — 3 years

78-0122 (I) Agricultural Information Bank for Asia (AIBA) — phase III
For the Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA), Laguna, Philippines, to strengthen and streamline its regional agricultural information network by completing the mechanization of its input and output and by introducing improved services to its users, and continue acting as a regional AGRIS (International Information System for the Agricultural Sciences and Technology) centre and information resource for participating Asian countries. \$480 480 — 3 years

78-0126 (I) National Information network and system (Jamaica)
For the National Council on Libraries, Archives and Documentation Services (NACOLADS), Kingston, to establish a National Library, a Socio-Economic Network, and a Scientific and Technical Information Network (STIN) as parts of a national organizational plan to coordinate all information services, thereby obtaining greater effectiveness and more economical use of limited resources. \$300 000 — 3 years

78-0129 (I) Avian hematozoa (Newfoundland)
For the International Reference Centre for Avian Haematozoa, Memorial University of Newfoundland, St. John's, Canada, to enable it to prepare a host-parasite index and continue information services for developing countries on avian hematozoa - blood parasites of birds, which might

provide research analogues for the study of insect-borne diseases in humans. \$11 000 — 4 years

undertake research in the biological sciences on problems related to the development of their countries. \$200 000 — 1 year

Senior Vice-President

77-036 (SVP) National Research Council (Egypt)

For the National Research Council, Cairo, to enable it to acquire specialized scientific research equipment for its laboratories. \$202 400 — 1½ years

78-0072 (SVP) Canadian area-specific learned societies — phase III (1979-80)

For the Canadian Association for African Studies (CAAS), Ottawa, the Canadian Asian Studies Association (CASA), Ottawa, and the Canadian Association for Latin American Studies (CALAS), Ottawa, to support specific projects of these learned societies undertaken with a view to fostering cooperation between Canadian and developing country researchers. \$132 000 — 2 years

78-0075 (SVP) United Nations Conference on Science and Technology for Development (UNCSTD)

For the Office of the Senior Vice-President of IDRC to undertake preparations for UNCSTD, including participation in and contributions to preliminary meetings, secondment of staff to UNCSTD Secretariat, sponsorship of a symposium in Canada, and preparation and publication of materials for the Conference. \$289 280 — 1½ years

78-0108 (SVP) Development of research in the Sahel (Africa) — phase II

For the Sahel Institute, Bamako, Mali, to continue to assist the countries of the Sahel by defining a policy for coordinating and supervising research and training projects, establishing practical terms for launching the Institute with regard to the orientation of the first research and training programs, and extending the secondment of an expert to the Institute. \$143 500 — 15 months

78-0111 (SVP) Royal Society of Canada/International Foundation for Science (1979)

For the Royal Society of Canada, Ottawa, in continuing support of the International Foundation for Science, Stockholm, Sweden, to enable young scientists from developing countries to

Social Sciences

74-0130 (S) Central American technology policy study

For the National Council for Economic Planning, Guatemala City, Guatemala, the Ministry of Planning, San Salvador, El Salvador, the National Council for Economic Planning, Tegucigalpa, Honduras, the Central Bank of Nicaragua, Managua, the National Council for Scientific and Technological Research (CONICIT), San Jose, Costa Rica, and the Ministry of Planning and Economic Policy, Panama City, Panama, to analyze and identify the factors that affect technology decisions at the regional, national, and sectoral levels of each country, and to design a series of regional and national technology policies that will contribute more effectively to development goals. \$394 000 — 2 years

76-0004 (S1) (S) Science and technology policy instruments (STPI) — phase II (dissemination), supplement

To enable the Social Sciences Division of IDRC to meet increased costs of meetings and undertake publication of a French language edition of the main comparative report of the STPI project, as part of a project to disseminate the results of science and technology policy research. \$90 000

76-0009 (S1) (S) Women's economic participation (Latin America), supplement

For the Centre for Population Studies, Buenos Aires, Argentina, the Centre for Sociological Studies of Paraguay, Asuncion, and the Centre for Social Research, La Paz, Bolivia, to update the Bolivia report and prepare and publish a comprehensive report including the results of all participants in a project to explore the nature and extent of women's economic participation. \$12 500

76-0044 (S1) (S) International Review Group on Population and Development, supplement

For El Colegio de Mexico, Mexico City, to enable it to continue to support the International Review Group on Population and Development (IRG): specifically, to enable IRG to hold the last scheduled Regional Workshop with planners and

investigators, and complete preparation of final reports. \$16 240

76-0096 (S1) (S) Small manufacturing enterprises (Asia), supplement

For the University of Hong Kong, to participate in a project to determine the role of small enterprises in the development process and to evaluate government support for such enterprises. \$10 050

76-0123 (S1) (S) Agrarian reform (Peru), supplement

For the Peruvian Studies Institute, Lima, to disseminate the results and policy recommendations of a project to evaluate the agrarian reform program in Peru. \$23 000

77-0090 (S) Agricultural modernization and rural employment (Brazil)

For the Brazilian Centre for Analysis and Planning (CEBRAP), Sao Paulo, Brazil, to support a study that will examine the rapid agricultural development process in that country, its relation to the overall economic development of Brazil, and its potential impact on the labour market. \$80 000 — 1 year

77-0118 (S) Village level agroeconomic studies (West Africa)

For the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Hyderabad, India, to identify socioeconomic and other constraints to development in the semi-arid tropical areas of West Africa, and to evaluate alternative technological and institutional means of alleviating them, initially through a number of microlevel village studies in purposefully selected agroclimatic regions. \$500 000 — 2 years

77-0129 (S) Resettlement management (Sudan)

For the National Council for Research (NCR), Khartoum, to enable its Economic and Social Research Council (ESRC) to undertake research on the process of resettlement, focusing on the planning, managerial, and organizational aspects of such a process. \$31 000 — 1 year

77-0130 (S) Agricultural policy impact on employment (Central America)

For the Central American Institute for Business Administration (INCAE), Managua, Nicaragua, the National Planning Office, Government of Honduras, Tegucigalpa, and the Academy of Central America, San Jose, Costa Rica, to examine the microdeterminants of labour demand and supply in the agricultural sectors of their respective countries, and to identify and analyze

the interaction of national policies that affect the use of labour in the production of selected export and domestic crops. \$180 000 — 1 year

77-0131 (S) Sites and services evaluation — phase II

For the Salvadorean Foundation for Development and Low-Cost Housing, San Salvador, El Salvador, and the Ministry of Local Government and Housing, Lusaka, Zambia, to continue research in a project to evaluate sites and services schemes in their respective countries, assess their impact on people living in them, and develop information that would help in the efficient execution of such schemes and enable the formation of informed, intelligent policies regarding their management. \$300 000 — 22 months

77-0132 (S) International Food Policy Research Institute (IFPRI) — phase II

For the International Food Policy Research Institute (IFPRI), Washington, D.C., U.S.A., to continue to undertake analysis of world food policy issues. A second phase grant will allow IFPRI to continue to identify opportunities for expanding world food production, determine and publicize actions to effect a continued increase in the quantity and quality of food supplies, and to provide information from an expanded base of knowledge and objective analysis of world food problems, in order to indicate the opportunities and options open for their solution. \$2 000 000 — 2 years

77-0134 (S) Solo PAMONG National Centre (Indonesia)

For the State University of Surakarta, Solo, to undertake preliminary steps toward establishing an educational development and research centre that will undertake responsibility for the national expansion in Indonesia of the PAMONG modularized learning system designed to provide economical mass primary education. \$145 500 — 2 years

77-0138 (S) Household/demographic behaviour (Asia)

For Dacca University, Bangladesh, Kalyani University of West Bengal, Kalyani Nadia, India, The Council for Social Development, New Delhi, India, Sri Venkateswara University, Andhra Pradesh, India, and the University of Malaya, Penang, Malaysia to carry out research designed to increase the understanding of rural household organization, adaptation of households to social and technological change, and the implications of this adaptation for fertility and population growth. \$280 000 — 2 years

77-0141 (S) Research management (Asia) — phase II

For the Southeast Asian Regional Centre for Graduate Study and Research in Agriculture (SEARCA), Los Baños, Philippines, to coordinate teams in seven Asian countries (Bangladesh, India, Indonesia, Malaysia, Philippines, Sri Lanka, and Thailand) in the second phase of a project to strengthen research administration capabilities in support of modern agriculture in Asia: specifically, to gain a better understanding of the dynamics of agricultural research, institutionalize training of research managers, and provide improved communications within the agricultural research system in Asia. \$290 000 — 3 years

78-0002 (S) Frontier development policies (Brazil)

For the Centre for Regional Planning and Investigation (CEDEPLAR), Buenos Aires, Argentina, to study the social and economic changes resulting from the influx of settlers and investments into the frontier area Sao Félix do Xingu, Brazil, and compare frontier expansion policies followed in this area with those in other areas. \$43 000 — 1 year

78-0003 (S) Threshold studies in preschool and primary school achievement (Latin America)

For the Centre for Education Research and Development (CIDE), Santiago, Chile, to undertake a study to determine the impact of preprimary education in primary grades. \$24 900 — 10 months

78-0004 (S) Infant mortality study (West Africa)

For the Institute for Training and Research in Demography (IFORD), Yaoundé, Cameroon, to undertake a series of studies concerned with the measurement of infant mortality and with environmental, cultural, social, and economic correlates; to develop appropriate methods of measurement for the region; to give accurate data for policy consideration; and to train investigators in this type of research. \$168 567 — 2 years

78-0009 (S) Individual academic assistance (CLASCO)

For the Social Sciences Council of Latin America (CLASCO), Buenos Aires, Argentina, to resolve "critical situations" faced by social scientists in Latin America who are prevented from practicing their profession in their country of origin or residence for political reasons, to prevent the emigration of social scientists from the region, to encourage the repatriation of students who have

completed their studies outside of Latin America, and to strengthen social science institutions in the region. \$100 000 — 2 years

78-0013 (S) Fertility and family planning (Sierra Leone)

For Njala University College, University of Sierra Leone, Freetown, to undertake a research study to estimate fertility levels, analyze existing knowledge on family planning, and develop and test hypotheses on rural fertility change. \$24 000 — 1½ years

78-0025 (S) Caribbean technology policy studies — phase II

For the Institute of Development Studies, University of Guyana, Georgetown, Guyana, and the Institute of Social and Economic Research, University of the West Indies, Kingston, Jamaica, to undertake phase II research in a project examining technology transfer and policy in the Caribbean: specifically, to examine the technological potential of two or three economic sectors; establish future objectives for these sectors; review the science and technology policy process; and establish practical objectives for select sector planning. \$390 000 — 30 months

78-0038 (S) Dynamics of internal migration (Southeast Asia)

For the Social Sciences Division of IDRC, to administer through its Regional Office for Asia, the Research Awards Program on Population Issues in Development (RAPPID) aimed at developing research networks at the local and provincial level concerned with population and development issues in the Southeast Asia region. The first awards will support research on the consequences of rural out-migration in areas of origin in Thailand, Malaysia, Indonesia, and the Philippines. \$40 480 — 1½ years

78-0052 (S) Comparative study of apprenticeship (Latin America)

For the Centre for Education Research and Development (CIDE), Santiago, Chile, to undertake an examination of apprenticeship systems in six Latin American countries (Brazil, Chile, Colombia, Costa Rica, Peru, and Venezuela) with a view to recommending policies on the optimal development of such skills training systems as an approach to solving problems of unemployment and high dropout rates among youth. \$49 970 — 1½ years

78-0060 (S) Agricultural development (Chile)

For the Department of Agricultural Economics, Catholic University of Chile, Santiago, to examine

changes in the quantity, location, and composition of farm production, employment in the agricultural sector, and changes in real farm income and its distribution under the impact of changing economic policy in agriculture in Chile since 1974: to derive conclusions and recommendations that can be of immediate use for agricultural policymaking in situations of free markets in developing countries. \$105 000 — 2 years

78-0074 (S) A/D/C Regional Research and Training Program (Asia) 1979

For the Agricultural Development Council (A/D/C), Singapore, to continue support for the Regional Research and Training Program (Asia) designed to assist academic and government institutions in meeting emerging training and research needs in Asia, and to promote professional interaction of young Asian scholars across national borders. \$310 000 — 1 year (1979)

78-0076 (S) North-South Institute — phase II

For the North-South Institute, Ottawa, Canada, to continue to conduct independent, policy-relevant research and analyses in the field of international development from a Canadian perspective, particularly the financial, political, and cultural relationships among developed ("North") and developing ("South") countries. \$375 000 — 3 years

78-0077 (S) Technological change in metal working machinery sector (Latin America)

For Interamerican Development Bank (IDB), Washington D.C., U.S.A., and the UN Economic Commission for Latin America (ECLA), Buenos Aires, Argentina, to undertake studies to establish the range of technical choice in the metalworking sector of selected Latin American countries; illustrate how different techniques are chosen, adapted, used, and diffused; examine the relationship between investment decisions, technical choice, and technical change with productivity in domestic and international markets; and provide policy recommendations at the national and sectoral levels for development of the metalworking and machinery sector in Latin America. \$300 000 — 3 years

78-0079 (S) Curriculum diffusion (Sierra Leone)

For Njala University College, University of Sierra Leone, Freetown, to analyze ongoing curriculum innovation in four areas (English, mathematics, social studies, and science) of the core program of junior secondary schools, in order to identify the variables that influence the process of diffusion

and adoption of new curricula. \$24 500 — 3½ years

78-0080 (S) CODESRIA: social science networks in Africa — phase II

For the Council for the Development of Economic and Social Research in Africa (CODESRIA), Dakar, Senegal, to continue identifying and encouraging policy-relevant social science research in Africa, publishing and disseminating research results, and fostering greater communication and collaboration among African researchers and institutions across linguistic groups and geographic regions. \$155 000 — 3 years

78-0086 (S) Economics of tourism (Asia)

For the Chinese University of Hong Kong, Hong Kong, the Department of Economics, Chung-Ang University, Seoul, Korea, the Development Research Consulting Group, Katmandu, Nepal, the Asian Institute of Tourism, University of the Philippines, Quezon City, and the University of Sri Lanka, Vidodaya Campus, Gangodawila, Nugegoda, Sri Lanka, to undertake studies to describe and evaluate tourism as an economic option in comparison to other foreign exchange earning industries in their respective countries, and to prepare a detailed analysis of the tourism sector in order to make recommendations for the maximization of economic benefits. \$290 000 — 2 years

78-0087 (S) Investment laws (Jordan)

For the Royal Scientific Society, Amman, to enable its Economics Department to assess the Government of Jordan's investment incentives program, in order to determine the impact of fiscal incentives such as the provision of credit and tax concessions on the promotion of industrial and agricultural development through investment. \$19 800 — 1 year

78-0093 (S) Rural financial markets

For Korea University, Seoul, the University of Malaya, Kuala Lumpur, and the Technical Board for Agricultural Credit, Manila, Philippines, to analyze the workings of rural financial markets at the micro and macro levels in their countries, in order to recommend effective financial programs and policies for rural development: specifically, to define and measure the characteristics of the rural financial markets in these countries; examine the savings behaviour of rural households; investigate the behaviour of lenders in the formal and informal rural credit markets; and assess and prescribe policies designed to integrate the presently fragmented components of the financial system. \$228 000 — 1½ years

78-0100 (S) Employment and population distribution (Uruguay)

Centre for Information and Studies on Uruguay (CIESU), Montevideo, Uruguay, to develop a program of research to assess recent policies of government agencies and nongovernmental credit and marketing cooperatives on the pattern of agricultural development, employment, and population movement. \$49 000 — 2 years

78-0109 (S) Correlates of rural mortality (Argentina)

For the Population Study Centre (CENEP), Buenos Aires, to study the social, economic, and sanitary correlates of mortality in a rural region of Argentina, and use the data gathered to assess the adequacy of existing data and data collection systems for mortality measurement. \$26 700 — 1 year

78-0117 (S) Peasant employment, migration, and production (Chile)

For the Academy of Christian Humanism, Santiago, to examine changes in the agricultural sector of the Chilean economy since 1973, particularly as these relate to the seasonal migration, employment, income, and productivity of small peasant farmers with a view to assessing the impact of development policies affecting agriculture. \$85 000 — 2 years

78-0118 (S) Literacy retention in primary school

For the Education Program Implementation Task Force (EDPITAF), Ministry of Education, Manila, Philippines, to determine how many of the literacy and numeracy skills learned in primary school are retained by students through testing to discover whether a "threshold" level of schooling exists, identifying the key variables that affect the ability of school leavers to retain their literacy and numeracy skills, and identifying related policy areas. \$120 000 — 1½ years

78-0119 (S) Culture and fertility (Southeast Asia) — phase II

For the Institute of Southeast Asian Studies (ISEAS), Singapore, in collaboration with institutions in Indonesia, Malaysia, Philippines, Singapore, and Thailand, to undertake second phase research concerning variables that link ethnicity to fertility in each country and to determine whether generalizations for different ethnic groups may be made for the region as a whole, assess the policy implications of research findings, and permit junior investigators to gain experience in a more ambitious research program. \$162 250 — 2 years

78-0120 (S) Teacher effectiveness (Nigeria)

For the Test Development and Research Division, West African Examinations Council, Lagos, to

devise for Nigeria a systematic approach to the analysis of the teacher's role in the basic cycle of education, and to develop a low-cost, reliable method for monitoring and improving the teacher's performance with a potential for replication beyond Nigeria to other countries implementing mass education schemes. \$117 500 — 2 years

78-0121 (S) Policy overview of settlement programs (Latin America)

For the Regional Population Centre (CCRP), Bogota, Colombia, to develop a regional perspective and overview on population distribution and settlement policies, their implementation, and their impact in Latin America, and to disseminate conclusions based on this regional perspective, through a review of research undertaken previously in a project "Population Distribution Policies (Latin America)", and prepare summary reports on research into specific topics aimed at government officials, planners, and the public in the region. \$83 000 — 2 years

78-0123 (S) Studies in preschool and primary school interaction (Latin America)

For the Centre for Education Research and Development (CIDE), Santiago, Chile, to investigate the influence of preschool upon primary school performance in four countries (Argentina, Bolivia, Chile, and Colombia), in particular to: determine the impact of various forms of preschool exposure on grade one attitudes and achievements; examine specific and general skills gained in preschool; investigate the role of preschool in the reduction of present grade one patterns of repetition and desertion; and analyze the critical role of teacher attitudes and behaviour in preschool and lower primary. \$196 000 — 1½ years

Special Governing Board Activities (President)

78-0030 (SGB) Brandt Commission

For the Independent Commission on International Development Issues (ICIDI), Geneva, Switzerland, to enable the Commission to study the global issues arising from the economic and social disparities in the world community, identify desirable and realistic directions for development policy in the next decade, and prepare concrete proposals for accelerating social and economic progress in the developing countries. \$100 000 — 1 year

Division Activity Projects

During the year under review a total of \$1 287 191 was appropriated for 156 division activity projects. These projects, usually involving relatively small amounts, consist of two main types of activity:

Consultancies — contracts assigned on a limited term basis either to advise in the preparation of a project or to advise the Centre in specific areas in planning its overall program.

Meetings, workshops, and conferences — organized in support of specific projects or to bring together developing country scientists to explore new fields from which projects may result.

Division activity projects have provided support for a wide range of activities and are far too numerous to list here. The following are just a few examples:

- A preliminary study by a Malaysian forestry expert of the Asian plants that are used in the production of rattan, with a view to establishing regional priorities for research on rattan, which is now a major industry in many areas.
- Support for participation of developing countries in a practical workshop at Iloilo, Philippines, designed to demonstrate the use of various types of floating cages and other enclosures for use in fish culture projects.

- For the Ontario Institute for Studies in Education to produce a series of taped programs on the aims and the work of IDRC for distribution to schools across Canada and abroad.
 - To enable 14 scientists from developing countries in Asia, Latin America, and the Middle East to attend the 11th congress of the International Society of Soil Science, in Edmonton, on the theme of optimum soil utilization systems.
 - To allow two researchers from a Centre-supported project on public enterprises in the Caribbean to travel to Africa to act as resource persons at a seminar for managing directors of African public enterprises.
 - Support for a meeting in Bogota, Colombia, of specialists from 15 Latin American research institutions to discuss the problems and issues in development management, and to establish research priorities.
 - To bring together researchers from several Asian and African countries to establish common methodologies for field-testing a low-cost village hand pump developed on an IDRC grant.
 - For representatives of six developing country organizations to participate in an international seminar on selective dissemination of information, in Ottawa, and to hold discussion with IDRC information sciences staff.
- Some 65 consultancies and 91 meetings were funded under this program during the year.

Financial Analysis and Statements

The year 1978–1979 was one of considerable financial challenge for the International Development Research Centre. Several constraints tended to restrict the Centre's capability to support development research activity. The Parliamentary Grant on which the Centre relies to formulate its program budget, was limited to \$36.867 million or only \$2.367 million more than the previous year. This figure was considerably less than had been considered necessary to maintain normal program activity. Furthermore, the sharp decline in the value of the Canadian dollar in relation to other world currencies, plus continued inflationary pressures at home resulted in a significant decrease in the Centre's capability to discharge its mandate.

The Centre undertook several steps in an attempt to reduce the effect of these negative factors. In terms of direct project funding, the Centre managed to maintain the level of funding of new projects at a level identical to that achieved in 1977–1978 even though cash requirements for previously approved projects were \$5.0 million greater than in 1977–1978.

These accomplishments were made possible only after a conscious review of priorities, a significant curtailment of operational support infrastructure (especially overseas operations) and widespread reductions in administration costs. In order to meet the unexpected and higher funding demand of existing projects, it was also necessary for the Centre to appropriate approximately \$1.2 million from its equity.

As it looks to the future, the Centre recognizes the fact that financial constraints will likely remain for some years to come. The Centre has been advised that the Parliamentary grant for 1979–1980 will be \$36.867 million, the same level of funding as 1978–1979. This freeze takes place at a time when the trend continues towards a higher disbursement ratio on existing project commitments, and when a significant portion of limited resources has already been committed to previously approved projects. The Centre is faced with resources identical to the previous year, a higher rate of project expenditures and increasing operational costs.

The Centre is dedicated to the maintenance of an appropriate level of new program activity in order to meet project proposals from the developing countries, while at the same time limiting to a minimum operational support and administration costs.

Review of Fiscal Year 1978–1979

In its financial operations for the year under review, the Centre achieved most of the objectives set out in the budget. For purposes of this section, there has been excluded all amounts pertaining to contract research activities. Revenues of \$38.207 million exceeded the budgeted figure by some \$300,000. Total expenditures of \$39.360 million, on the other hand, exceeded budget projections by approximately \$1.7 million.

The Parliamentary Grant at \$36.867 million increased by \$2.367 million (6.9% over the previous year) but was somewhat less than had been requested. This grant level meant that the Centre could not continue its program of activity at the previous level, much less entertain any plans for growth in development research. Once advised of its grant level, therefore, the Centre took steps to curtail its non-project expenditures and realign its resources to meet the funding requirements of projects. In this context, steps were taken to reduce costs in the areas of operational and technical support, and in administration and research-related activities in order to channel more funds into direct research funding.

Interest and other income of \$1.340 million, an increase of 56.7% over last year, was of considerable help in providing the additional resources necessary to meet funding requirements. Through careful cash management, the Centre benefited from investment of surplus cash and from the high interest rates which prevailed during the year. Investment income at \$1.143 million increased by \$344,000 or 43.1% more than the previous year. Other income of \$197,000 relates mostly to the disposal of property and equipment, and sale of publications.

Expenditures increased 14.8% to \$39.360 million and were approximately \$5.1 million higher than those of the previous year. Most of the increase was directed to development research project payments which increased from \$19.5 million to \$24.9 million in the current year. In this respect, the Centre noticed a clear trend to a higher disbursement ratio on committed projects and attributes this trend to the decline in the value of the Canadian dollar. Grant recipients are not receiving the same amount in local currency as they had anticipated in their project budgets and as a result are requesting supplementary funds in order to meet the financial requirements of their projects.

Overall, the Centre was able to maintain the funding level for new projects at \$7.8 million, a figure identical to the level reached in the previous year and budgeted for 1978-1979. In view of the constraints endured, the accomplishment is a source of some pride to the Centre. Of the total expenditures, \$27.428 million were in respect of development research and research related activities. This represents an increase of \$5.006 million over the corresponding figure of \$22.422 million for the previous year.

Research Operational Support and Administration Costs

The impact of the initial reduction in the 1978-1979 grant level was absorbed mostly by modest revisions in the planned program of work and budget. However, the subsequent announcement that the Parliamentary Grant for 1979-1980 would be frozen at the same level as 1978-1979 left the Centre with no other alternative but to seek immediate and drastic reductions in both operational support and administration costs.

The more important of these reductions included an immediate freeze on staff hirings and an eventual net reduction in manpower, a reduction in the overseas postings of program personnel, the closure of the Nairobi regional office and several liaison offices, and a general curtailment in administration expenditures.

Although the full benefit of these measures is not fully reflected in the results of the current year and will not be achieved until 1979-1980, their immediate implementation had a positive effect in the year under review, and was instrumental in keeping operational support and administration costs to a favourable level. Furthermore, the beneficial effect of these restraint measures will continue to hold down the level of increase in these costs in 1979-1980. In retrospect, these steps were instrumental in meeting the increased funding requirements on committed projects and contributed greatly in improving performance and the ratio of funds expended for development research aid activity.

Support for the Regional and Liaison Offices maintained abroad required an outlay of \$2.125 million, an increase of \$204,000 or 11% over the level for the prior year. Most of this increase is attributable to the high levels of inflation which persist in these regions and to the sharp decline in the value of the Canadian dollar, which have combined to decrease sharply purchasing power abroad. The cost of support for the Regional and Liaison Offices was 5.4% of total expenditures whereas in 1977-1978 it was 5.6%.

At \$5.311 million, Division Management and Technical Support expenditures exceeded those for the previous year by \$178,000, an increase of only 3%. Expenditures for Division Management and Technical Support accounted for 13.5% of total expenditures for the year as compared to 15.1% in 1977-1978.

The operating costs of the Administrative Divisions totalled \$4.496 million. This represents a reduction of \$116,000, 2.5% less than the figure for the previous year. Reference to Schedule 2 to the financial statements will indicate that savings were effected in all items of expenditure except Salaries and Benefits. Costs of administration were 11.2% of total expenditures in comparison to 12.1% for 1977-1978.

In all three areas of operations, expenditures were held below the budget provision. Effectively then, by maintaining such a low level of expenditures in these areas, the Centre was able to direct more funds towards the funding of development research activity. These results are very gratifying to the Centre.

Contract Research

The International Development Research Centre continues to act as the executing agent for other donor organizations. In the year under review, it continued its role of

executing agency in the establishment of the International Council for Research in Agro-Forestry. The Centre also continues to manage, on behalf of the Canadian International Development Agency, a project in Kenya. Expenditures, reported under "Contract Research" on the Statement of Expenditure and Revenue, totalled \$902,000 in 1978-1979. (The level of expenditures for the previous year is significantly higher because the Centre was then the executing agency for the World Bank for the establishment of the International Center for Agricultural Research in the Dry Areas (ICARDA) which had a substantial capital expenditure program.)

Revisions to the Financial Statements

During the course of the year, the Centre made several major changes to improve the usefulness of its financial reports. These changes related mainly to presentational aspects and to the capitalization of property and equipment.

In his Annual Report to the House of Commons for the year ended 31 March 1978, the Auditor General of Canada indicated that there was an urgent need for Corporations and Agencies which report to Parliament to improve their reports for the usefulness and relevancy of the information on spending plans in relation to their program objectives. Partly as a result of this recommendation, the Centre completely revised its reporting format and included additional informative statements, especially as they relate to Expenditures and Revenues. The Centre believes that the financial statements submitted in this Annual Report are more informative and representative of the nature of the Centre's program activities than has been the case in the past.

In view of these modifications, it would be useful to explain and define the captions under which expenditures are reported. Basically, the new presentation groups expenditures by category of research funding. "Development research", for instance, refers solely to expenditures made on approved research projects. Furthermore, it categorizes the expenditures firstly as direct grants to recipients (mostly in the developing countries) who manage and undertake their own research project, and secondly, expenditures made on projects which the Centre itself manages.

"Research related activities" comprise activities in direct support of development research. These consist of conferences, seminars, consultancies initiated to identify and formulate research projects, costs of publications and the dissemination of results of Centre-supported research projects, and of the development research library maintained at the Head Office.

The caption "Research operational support" relates to the operational infrastructure and includes the regional and liaison offices (maintained abroad to facilitate effective liaison with the grant recipients and to project the Centre's image in the developing countries) and costs of program personnel who provide the technical support, monitoring and management of research projects.

"Administration" consists of the administrative and service functions maintained to support the overall operations of the Centre.

The other significant change in the financial statements for the current year consists of the capitalization of the Centre's property and equipment. This change was undertaken in order to present a financial report which conforms with generally accepted accounting principles. In the last few years, the accounting principle on the capitalization of capital assets acquisitions was recognized by Canadian accounting bodies as being applicable to nonprofit institutions as well as to profit-oriented organizations. The adjustments and the net effect of this change in accounting policy on IDRC financial statements are fully detailed in the "Notes to the Financial Statements".

FINANCIAL HIGHLIGHTS
(Thousands of Dollars)

	<u>1979</u>	<u>1978</u>	<u>% Increase (Decrease)</u>
RESULTS OF OPERATIONS			
Revenues	<u>\$ 38,207</u>	<u>\$ 35,355</u>	<u>8.0%</u>
Parliamentary grant	36,867	34,500	6.9
Interest and other income	1,340	855	56.7
Expenditures	<u>\$ 39,360</u>	<u>\$ 34,088</u>	<u>15.5%</u>
Development research	24,920	19,529	27.6
Research related activities	2,508	2,893	(13.3)
Research operational support	7,436	7,054	5.4
Administration	4,496	4,612	(2.5)
Excess of expenditures over revenues	<u>\$ 1,153</u>	<u>\$ (1,267)</u>	<u>191.0%</u>
FINANCIAL POSITION			
Total assets	<u>\$ 10,273</u>	<u>\$ 10,453</u>	<u>(1.7)%</u>
Current assets	8,469	8,425	0.5
Other assets	1,804	2,028	(12.4)
Total liabilities	<u>\$ 6,812</u>	<u>\$ 5,838</u>	<u>16.7%</u>
Current liabilities	5,094	4,424	15.2
Other liabilities	1,718	1,414	21.4
Equity of Canada	<u>\$ 3,461</u>	<u>\$ 4,615</u>	<u>(25.0)%</u>
PROGRAM ACTIVITY			
Appropriations	<u>\$ 42,948</u>	<u>\$ 43,016</u>	<u>(0.2)%</u>
New projects	31,017	31,350	(1.1)
Regional and liaison offices	2,165	1,921	12.7
Division management/technical support	5,270	5,133	2.7
Administration	4,496	4,612	(2.5)
Commitments	<u>\$ 45,767</u>	<u>\$ 35,653</u>	<u>28.4%</u>
Projects	33,836	23,987	41.1
Regional and liaison offices	2,165	1,921	12.7
Division management/technical support	5,270	5,133	2.7
Administration	4,496	4,612	(2.5)

Above data does not include amounts related to contract research.

1978-79 ACTUAL vs BUDGET
(\$ Millions)

	<u>Actual</u>	<u>Budget</u>	<u>% Increase (Decrease)</u>
FINANCIAL ACTIVITY			
Resources			
Parliamentary grant	\$ 36.9	\$ 36.9	- %
Interest and other income	1.3	1.0	34.0
Total	<u>\$ 38.2</u>	<u>\$ 37.9</u>	<u>0.9%</u>
Requirements			
Existing projects	\$ 19.6	\$ 17.9	9.6%
New projects	7.8	7.8	-
Regional and liaison offices	2.1	2.2	(1.4)
Division management/technical support	5.3	5.5	(3.0)
Administration	4.5	4.8	(6.3)
Transfer to (from) Equity	(1.1)	(0.3)	319.3
Total	<u>\$ 38.2</u>	<u>\$ 37.9</u>	<u>0.9%</u>
PROGRAM ACTIVITY			
Appropriations	<u>\$ 42.9</u>	<u>\$ 44.1</u>	<u>(2.6)%</u>
New projects	31.0	31.6	(2.0)
Regional and liaison offices	2.1	2.2	(1.4)
Division management/technical support	5.3	5.5	(3.0)
Administration	4.5	4.8	(6.3)
Commitments	<u>\$ 45.7</u>	<u>\$ 41.3</u>	<u>10.9%</u>
Projects	33.8	28.8	17.3
Regional and liaison offices	2.1	2.2	(1.4)
Division management/technical support	5.3	5.5	(3.0)
Administration	4.5	4.8	(6.3)
Expenditures	<u>\$ 39.3</u>	<u>\$ 38.2</u>	<u>3.2%</u>
Projects	27.4	25.7	6.7
Regional and liaison offices	2.1	2.2	(1.4)
Division management/technical support	5.3	5.5	(3.0)
Administration	4.5	4.8	(6.3)

Above data does not include amounts related to contract research.

MANAGEMENT REPORT/
RAPPORT DE GESTION

Sector/Activity Secteur/Activité	(in thousands of dollars) (en milliers de dollars)		(Excluding Special Projects) (A l'exclusion des Projets spéciaux)		For the twelve months ended March 31, 1979 Pour les douze mois se terminant le 31 mars 1979		as at March 31, 1979 au 31 mars 1979	
	Approved Budget/ Approuvé	Approved Appropriations/ Affectations Approuvées	Commitments/ Engagements	Cumulative Commitments/ Engagements Cumulatifs 1978-79	Cash Payments During 1978-79/ Versements de 1978-79	Uncommitted Appropriations/ Crédits Non engagés	Outstanding Commitments/ Engagements En cours	Total Encumbrances/ Total des Imputations
1- Program Operations/ Activités des Programmes								
Agriculture, Food and Nutrition Sciences/ Sciences de l'Agriculture, de l'Alimentation et de la Nutrition	12,670	12,670	14,167	29,822	11,469	3,354	18,353	21,707
Health Sciences/ Sciences de la Santé	5,098	4,855	5,326	10,270	4,722	435	5,548	5,983
Information Sciences/ Sciences de l'Information	5,472	5,526	6,629	10,286	5,283	1,901	5,003	6,904
Social Sciences/ Sciences Sociales	8,212	8,054	8,234	14,681	6,284	4,031	8,397	12,428
Special Governing Board Activities/ Activités Spéciales du Conseil des Gouverneurs	725	321	311	462	346	-	116	116
2- External Liaison and Relations/ Liaison et Relations Extérieures								
Office of the Senior Vice- President/ Bureau du Premier Vice-Président	3,500	3,531	3,162	4,697	3,331	2,995	1,366	4,361
Office of the Vice-President - Planning/ Bureau du Vice-Président - Planification	2,303	2,222	2,196	2,260	2,217	-	43	43
Communications/ Communications	1,311	1,273	1,246	1,495	1,212	-	283	283
3- Administration/ Administration								
General Management/ Gestion Générale	4,797	4,496	4,496	4,496	4,496	-	-	-
TOTAL	44,088	42,948	45,767	78,469	39,360	12,716	39,109	51,825

International Development Research Centre
and
The Honourable Flora MacDonald, P.C., M.P.,
Secretary of State for External Affairs,
Ottawa, Ontario.

I have examined the balance sheet of the International Development Research Centre as at March 31, 1979 and the statements of expenditures and revenues, equity and changes in financial position for the year then ended. My examination was made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as I considered necessary in the circumstances.

In my opinion, these financial statements present fairly the financial position of the International Development Research Centre as at March 31, 1979 and the results of its operations and the changes in its financial position for the year then ended in accordance with generally accepted accounting principles applied, after giving retroactive effect to the method used to account for property and equipment as referred to in Note 3 to the financial statements, on a basis consistent with that of the preceding year.

J.J. Macdonell
Auditor General of Canada

Ottawa, Ontario
June 22, 1979

INTERNATIONAL DEVELOPMENT RESEARCH CENTRE
(Established by the International Development Research Centre Act)
Balance Sheet
as at March 31, 1979

	<u>Assets</u>		<u>Liabilities and Equity</u>	
	<u>1979</u>	<u>1978</u>	<u>1979</u>	<u>1978</u>
Current Assets				
Cash	\$ 368,876	\$ 142,986		
Short-term deposits (note 4)	7,628,531	7,805,902	\$ 4,961,154	\$ 4,053,342
Amounts receivable (note 5)	360,780	321,736		
Prepaid expenses	111,254	154,459	132,744	370,354
	8,469,441	8,425,083	5,093,898	4,423,696
Recoverable deposits				
	82,682	71,288	1,717,716	1,414,736
Property and equipment (note 6)				
	1,721,061	1,956,696		
			6,811,614	5,838,432
			3,461,570	4,614,635
	<u>\$ 10,273,184</u>	<u>\$ 10,453,067</u>	<u>\$ 10,273,184</u>	<u>\$ 10,453,067</u>

The accompanying notes and schedules are an integral part of the financial statements.

Approved:

R.J. Audet

Treasurer

Ivan L. Head

President

INTERNATIONAL DEVELOPMENT RESEARCH CENTRE

Statement of Expenditures and Revenues
for the year ended March 31, 1979

	<u>1979</u>	<u>1978</u>
Expenditures		
Development research		
Project grants	\$ 20,251,485	\$ 15,465,184
Centre projects	4,668,732	4,064,020
	<u>24,920,217</u>	<u>19,529,204</u>
Research related activities		
Project development and support	1,179,195	1,591,247
Information dissemination	740,163	696,366
Development research library	588,505	605,512
	<u>2,507,863</u>	<u>2,893,125</u>
Research operational support		
Regional and liaison offices	2,125,134	1,920,617
Division management and technical support	5,311,001	5,133,096
	<u>7,436,135</u>	<u>7,053,713</u>
Contract research		
Project grants	902,001	4,050,684
Total research and support activities (Schedule 1)	<u>35,766,216</u>	<u>33,526,726</u>
Administration (Schedule 2)	4,495,979	4,612,494
Cost of operations	<u>40,262,195</u>	<u>38,139,220</u>
Revenues		
Grant from Parliament of Canada	36,867,000	34,500,000
Interest and other income	1,340,129	855,388
Contract research	902,001	4,052,480
	<u>39,109,130</u>	<u>39,407,868</u>
Excess of expenditures over revenues (revenues over expenditures)	<u>\$ 1,153,065</u>	(\$ 1,268,648)

The accompanying notes and schedules are an integral part of the financial statements.

INTERNATIONAL DEVELOPMENT RESEARCH CENTRE

Statement of Equity
for the year ended March 31, 1979

	<u>1979</u>	<u>1978</u>
Equity of Canada - beginning of year		
As previously reported	\$ 2,772,026	\$ 1,697,970
Adjustment for change in capitalization, depreciation and amortization of property and equipment (note 3)	1,842,609	1,648,017
As restated	4,614,635	3,345,987
Excess of expenditures over revenues (revenues over expenditures)	1,153,065	(1,268,648)
Equity of Canada - end of year	<u>\$ 3,461,570</u>	<u>\$ 4,614,635</u>

The accompanying notes and schedules are an integral part of the financial statements.

INTERNATIONAL DEVELOPMENT RESEARCH CENTRE

Statement of Changes in Financial Position
for the year ended March 31, 1979

	<u>1979</u>	<u>1978</u>
Source of Funds		
Operations		
Excess of revenues over expenditures	\$ -	\$ 1,268,648
Add items not affecting working capital		
Depreciation and amortization	-	261,221
Accrual of employee separation benefits	-	520,199
Loss on disposal of property and equipment	-	220
Funds provided by operations	-	2,050,288
Proceeds from disposal of property and equipment	195,965	18,367
	<u>195,965</u>	<u>2,068,655</u>
Use of Funds		
Operations		
Excess of expenditures over revenues	1,153,065	-
Add (deduct) items not affecting working capital		
Depreciation and amortization	(307,923)	-
Accrual of employee separation benefits	(509,654)	-
Gain on disposal of property and equipment	114,021	-
Funds required for operations	449,509	-
Acquisition of property and equipment	154,232	472,584
Increase in recoverable deposits	11,394	20,526
Payment of employee separation benefits	206,674	167,815
	<u>821,809</u>	<u>660,925</u>
Increase (decrease) in working capital	(625,844)	1,407,730
Working capital - beginning of year	4,001,387	2,593,657
Working capital - end of year	<u>\$ 3,375,543</u>	<u>\$ 4,001,387</u>

The accompanying notes and schedules are an integral part of the financial statements.

International Development Research Centre

Notes to Financial Statements

for the year ended March 31, 1979

1. Nature and Objectives

The International Development Research Centre is a Corporation, without share capital, established by the Parliament of Canada through the International Development Research Centre Act which received Royal assent on May 13, 1970. The annual grant received from the Parliament of Canada is pursuant to External Affairs Vote 40 for both the years ended March 31, 1978 and 1979.

The objectives of the Centre are 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 accompanying financial statements have been prepared in accordance with Canadian generally accepted accounting principles. Significant accounting policies are as follows:

Research expenditures

Expenditures for development research, research related activities and contract research are charged to operations at the time of disbursement, or as provided for under contractual agreements.

Foreign currency translation

Foreign transactions are translated into Canadian dollars by the use of an average exchange rate which closely approximates the rate in effect at the transaction date. Exchange gains or losses are reflected in the determination of cost of operations for the current period.

Monetary assets and liabilities as at March 31, 1979 have been translated to Canadian dollars at the rate of exchange in effect at that date.

Contract research

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

Depreciation and amortization

The methods and rates employed annually to provide for the depreciation and amortization of property and equipment are recorded as follows:

	Method	Rate
Residence	Straight line	25 years
Office furniture and equipment	Diminishing balance	20%
Computer hardware and systems software	Straight line	5 years
Vehicles	Diminishing balance	30%
Leasehold improvements	Straight line	15 years

3. Changes in Accounting Policies

Capitalization, depreciation, and amortization of property and equipment

During the year, the Centre adopted the policy of recording expenditures of a capital nature as property and equipment and introduced depreciation and amortization accounting to all capital assets. In prior years capital expenditures, with the exception of land and residence, were expensed in the year of acquisition.

Under the new policy, a retroactive adjustment was made to Equity of Canada at April 1, 1977 of \$1,648,017 representing the capitalized net book value of property and equipment purchased in prior years. The cost of property and equipment and accumulated depreciation and amortization have been recorded in the accounts to date.

Had this policy change not been made, the excess of expenditures over revenues for the current year would have increased by \$231,459. The excess of revenues over expenditures for the year ended March 31, 1978 was restated and increased by \$194,592 from that previously reported.

4. Short-term Deposits

	1979	1978
Canadian chartered banks	\$6,422,150	\$2,959,100
Commercial enterprises	839,058	992,460
Exchange certificates (non interest bearing)	367,323	177,764
Governmental enterprises	—	3,676,578
	<u>\$7,628,531</u>	<u>\$7,805,902</u>

5. Amounts Receivable

	1979	1978
Balance due from disposal of property and equipment	\$ 165,449	\$ —
Staff travel advances	93,992	186,689
Accrued interest	44,502	54,071
Costs to be recovered from other organizations	23,909	50,940
Others	32,928	30,036
	<u>\$ 360,780</u>	<u>\$ 321,736</u>

6. Property and Equipment

	Cost	Accumulated Depreciation and Amortization	1979 Net	1978 Net
Leasehold improvements	\$1,173,559	\$ 336,133	\$ 837,426	\$ 943,647
Office furniture and equipment	719,452	367,190	352,262	375,301
Computer and systems software	472,192	183,525	288,667	376,093
Vehicles	218,259	85,464	132,795	147,568
Residence	104,076	19,165	84,911	89,087
Land	25,000	—	25,000	25,000
	<u>\$2,712,538</u>	<u>\$ 991,477</u>	<u>\$1,721,061</u>	<u>\$1,956,696</u>

7. Accounts Payable and Accrued Liabilities

	1979	1978
Accrued liabilities — projects	\$3,608,030	\$2,450,734
Accrued annual and other leave benefits	1,208,287	1,105,132
Accounts payable and accrued liabilities — others	144,837	497,476
	<u>\$4,961,154</u>	<u>\$4,053,342</u>

Accrued liabilities for projects represent the value of payments provided for under project agreements but not yet disbursed as of March 31, 1979.

8. Contractual Commitments and Contingent Liabilities

Project grants and project development and support

Subject to funds being provided by Parliament, the Centre is committed to make grants totalling \$35,899,864 against approved projects during the next four years.

The Centre has also submitted formal grant offers to prospective recipients totalling \$4,227,640 and is awaiting acceptance of these offers.

Leases

The Centre has entered into various lease arrangements for office premises, equipment, and staff accommodation, in Canada as well as various countries. The total liability over the

next three years under such lease arrangements in effect as of March 31, 1979 amounts to \$3,820,709 with \$1,347,421 representing lease costs for the next fiscal period.

Contract research

As at March 31, 1979, the Centre has commitments under various contract research agreements totalling \$666,410 which will be met by funds provided under such agreements.

9. Reclassification

Certain figures for the preceding year have been reclassified to conform to the current year's presentation.

Schedule 1

INTERNATIONAL DEVELOPMENT RESEARCH CENTRE

Schedule of Research and Support Activities
for the year ended March 31, 1979

Expenditures	Development Research	Research Related Activities	Research Operational Support	Contract Research	1979 Total	1978 Total
Programs						
Agriculture, Food and Nutrition Sciences	\$ 9,827,784	\$ 198,573	\$ 1,441,641	\$ -	\$ 11,467,998	\$ 8,360,082
Social Sciences	4,722,683	254,514	1,295,362	-	6,272,559	5,470,017
Health Sciences	3,934,243	23,922	763,934	-	4,722,099	4,555,484
Information Sciences	3,630,639	196,007	868,297	-	4,694,943	4,281,436
Human Resources	2,082,266	-	-	-	2,082,266	1,881,124
Program related activities						
Regional and Liaison Offices	-	92,462	2,125,134	-	2,217,596	1,920,617
External Liaison and Relations	583,962	167,727	508,445	-	1,260,134	1,082,862
Information Dissemination	38,640	740,163	433,322	-	1,212,125	1,264,775
Development Research Library	-	588,505	-	-	588,505	605,512
Special Governing Board Activities	100,000	245,990	-	-	345,990	54,133
Contract research	-	-	-	902,001	902,001	4,050,684
Total research and support activities	\$ 24,920,217	\$ 2,507,863	\$ 7,436,135	\$ 902,001	\$ 35,766,216	\$ 33,526,726

Schedule 2

INTERNATIONAL DEVELOPMENT RESEARCH CENTRE

Schedule of Administration Expenditures
for the year ended March 31, 1979

	<u>1979</u>	<u>1978</u>
Salaries and benefits	\$ 2,605,242	\$ 2,444,290
Rent and accommodation	846,328	849,463
Telecommunications	279,197	290,693
Office expenses	275,350	315,938
Professional and special services	123,953	176,911
Depreciation and amortization	122,573	143,024
Travel and relocation	119,690	200,042
Governors' meetings	78,829	138,051
Insurance	44,817	54,082
	<u>\$ 4,495,979</u>	<u>\$ 4,612,494</u>

Human Resources Awards

In keeping with the Centre's commitment to invest in the training and development of young professionals, nearly every project supported by the Centre includes funds specially earmarked for this purpose.

Complementing this in-project training, the Centre has supported additional programs designed to promote the professional competence of scientists in developing countries. The Southeast Asia Population Research Awards Program (SEAPRAP), supported jointly with the Ford Foundation, has as its goal to expand population research capability in Southeast Asia by encouraging young researchers to develop proposals and to execute them in a local setting under the sponsorship of a senior research advisor in his or her institution.

With IDRC support, the Agricultural Development Council is continuing its regional research and training program in Asia. The objectives of the project are: to stimulate and improve the research and training capabilities of young scholars and mid-career professionals in both academic and government institutions; to increase the opportunity for research on crucial problems by scholars of the region; and to make available material relevant to the region for use in teaching and research.

The Centre grant to the Council for Asian Manpower Studies provides opportunities for research and training to Asian researchers in the

field of Manpower Studies. Similarly, the Social Science Research Training Program of the University of Indonesia, funded by IDRC and the Ford Foundation, was set up to enhance the development of social sciences in Indonesia by providing research training opportunities to potential social science professionals in that country.

The Centre's Human Resources awards program, designed both to assist Third World researchers and to increase the present available resource base in Canada of professionals with training in the problems of development, was renewed for a ninth year.

A description of the eight award categories listed below is given on the following pages, together with a list of the candidates selected to receive awards during the coming year.

- Thesis Research awards — Ph.D. degree (Canada)*
- Thesis Research awards — Ph.D. degree (Students from Developing Countries)*
- Research Associate awards (Canada)
- Research Associate awards (Developing Countries)
- Senior Research Associate*
- Research Fellows*
- Pre-Post Project Training awards
- Pearson Fellowships

A brief outline of the work undertaken by candidates having received awards during the year under review is also given.

* These awards will not be offered in 1979-1980

Thesis Research Awards — Ph.D. degree (Canada)

This award is intended for the Canadian graduate student who has already made a commitment to the field of development by his choice of thesis topic. It is given to support research for the Ph.D. Thesis after course work has been completed. The research will generally be conducted in a developing country.

Awards are for Canadian Citizens and are made by means of an annual competition. During 1978-1979 four awards were made.

AWARDED

Ms. A.K. Bernard, Department of Adult Education, Ontario Institute for Studies in Education (OISE), University of Toronto
Means/ends congruence as an approach to formative evaluation within the context of a Thai non-formal education programme. Location: Thailand

D.A. Doherty, Department of Anthropology, McGill University
Maasai pastoral potential: a study of ranching in Kenya. Location: Kenya

M.J. Rosberg, Department of Anthropology, University of Wisconsin
Fishermen, farmers and developers: socio-economic changes and adaptive strategies in San Andres Island, Colombia. Location: Colombia

J.H. Voss, Department of Anthropology, University of Toronto
A comparative analysis of the impact of co-operative programs on small-scale agriculturalists in Japan and the Philippines. Location: Philippines-Japan.

Thesis Research Awards — Ph.D. degree (Students from Developing Countries)

This award is designed to enable graduate students from developing countries, registered in Canadian universities, to undertake their thesis research in their home country. Candidates must be citizens of developing countries, in Canada on a student visa. The financial and academic terms of the awards are similar to those for Canadian students.

This program was conceived as a small contribution to counteract the "brain drain." Many developing country students are obliged to do a "Canadian" thesis because they lack the funds to undertake their field work at home. The awards will permit a number of students to do thesis work more relevant to development problems, and to be more easily integrated into the research communities in their own countries.

AWARDED

A.T.M.N. Amin, Department of Economics,
University of Manitoba

The role of the informal sector in employment, income distribution, and evolving intermediate technology: a case study of the metropolitan economy of Dacca. Location: Bangladesh

S.H. Barrington, Department of Animal Science,
University of British Columbia

Nutritional and environmental effects on milk production and conception rates in dairy cattle. Location: Trinidad

D.A. Morales-Gomez, Department of Educational Planning, Ontario Institute for Studies in Education (OISE), University of Toronto
Workers' education in Latin America: the educational role of producer co-operatives in Mexico. Location: Mexico

G. Ntunaguza, Faculty of Education Sciences,
University of Montreal

Research on the educative innovation aspect in the implementation of efficient mass primary education based on the IMPACT program.

Location: Burundi

V.D. Teye, Department of Geography, University of Manitoba

A comparative examination of some social and economic consequences of tourism and development in Ghana. Location: Zambia-Ghana

RECOMMENDED (March 1979)

V. Nallainayagam, McGill University

Q. Shahabuddin, McMaster University

T. Srivenkataramana, University of Windsor

G. Tsafak, Université Laval

Research Associate Awards (Canada)

These awards are designed to provide a "sabbatical year" for Canadian professionals at the mid-career level, to undertake training, research, or investigation in the field of international development. The aim is to allow Canadians already involved in international development to update their skills and knowledge, and to encourage others who have little or no experience in developing countries to explore this field.

Ten awards are offered annually to Canadian citizens and landed immigrants with 3 years residence in Canada.

AWARDED

J. Barry, Bangkok, Thailand

Broadening of experience in educational planning and development with emphasis on improvement of learning strategies for deprived areas (urban/rural). Location: U.S.A. and U.K.

A.R. Berger, St. John's, Newfoundland
Study on practical approaches to the building of geosciences in developing countries. Location: Venezuela, Thailand, Sri Lanka, Tanzania, Ghana, U.K., and Bolivia

L. Bouffard, Sherbrooke, Quebec

The adaptation of education for rural areas in Rwanda. Location: Belgium

W. Combs, Calgary, Alberta

Study of the technology and economics of sheep milk production. Location: Greece

A.M. Friend, Ottawa, Ontario

Research on environmental information systems for the purpose of strategic development planning. Location: United Kingdom

N.S. Hopps, Winnipeg, Manitoba
Studies towards a Masters degree in Community Health. Location: United Kingdom

A.F. Huston, Moose Jaw, Saskatchewan
Research on the prevention and treatment of childhood disabilities. Location: Jamaica and Bangladesh

C.R. McGorman, Toronto, Ontario
Studies towards a Masters degree in community health. Location: United Kingdom

T.P. Phillips, Guelph, Ontario
Research on the agro-economics of cassava as a renewable energy source. Location: Brazil

M.J.J. Rousseau, Rio de Janeiro, Brazil
Courses in economics and political sciences at the University of Montreal, and research on the role and importance of private national socioeconomic development institutions. Location: Canada

Research Associate Awards (Developing Countries)

Awards made in this category are designed to assist Third World professionals engaged in activities associated with development in their countries to spend a year in research or training appropriate to their career development.

Award holders are selected from nominated candidates, rather than by open competition. During 1978–1979, 22 award holders took up tenure (some of these were candidates selected the previous year) and 10 candidates were recommended for awards.

AWARDED

S.A. Adeyanju, Nigeria
Evaluation of agro-industrial by-products as animal feed. Location: U.S.A.

A.S. Akishule, Kenya
M.Sc. course in environmental health engineering. Location: Kenya

K.C. Alexander, India
Study of changing labour cultivator relations in South India with special reference to the emergence of peasant organizations. Location: U.S.A.

N. Bakry, Egypt
Research and training in pesticide hazards. Location: U.S.A.

M.M. Bose, India
Research on the relative contribution by individual internodes to the total height and their genetic control in rice. Location: Philippines

W.L.Y. Chan, Hong Kong
To study herbivorous fish culture systems. Location: U.S.A., Singapore, Malaysia, India, Thailand, and the Philippines.

N.J. Daghir, Lebanon
Work on newly established procedures of characterizing naturally occurring toxins in food and feed legumes and in desert plant seeds. Location: U.S.A.

D.M. De Silva, Sri Lanka
M.Sc. course in history and social studies of science. Location: United Kingdom

A.E.M. El Nimr, Egypt
Research on optimization of the bioavailability of locally applied ophthalmic drugs in relation to drug/eye protein binding. Location: U.S.A.

I. Garcia-Marengo, Nicaragua
Studies in the special program for urban and regional studies of development areas. Location: U.S.A.

A.A. Gomez, Philippines
To write a book entitled Multiple cropping. Location: Philippines

A.A. Hassan Moawad, Egypt
Studies and research on the ecology of symbiotic n-fixation on rhizobium legume specificity. Location: U.S.A.

S.D. Limaye, India
Studies of recent advances in the field of ground-water exploration and development. Location: Canada

C. Moore, Cuba
Translation and defence of "Doctorat d'état" thesis on African development and foreign intervention; the problems of Cuban aid to African countries. Location: Sénégal.

P. M. Mutibwa, Uganda
Historical research on Madagascar and the Indian Ocean Islands of Mauritius, Reunion, Comores and The Seychelles. Location: Kenya.

A. Ndiaye, Sénégal
Research on crop pest populations in the humid tropics particularly in Sénégal, Ivory Coast and Togo. Location: Togo.

B. A. Ntim, Ghana

Research on small scale foundry plants, glass plants and windmills. Location: Canada and U.K.

W. S. Okoth, Kenya

Studies on marine geology and marine affairs. Location: Canada.

S. E. M. Omer, Sudan

Research on mechanisms of insecticide resistance in anopheles mosquitoes. Location: U.S.A.

R. S. Ramakrishna, Sri Lanka

To study courses and specialized facilities available at the Trace Analysis Research Centre. Location: Canada.

B. A. Tan, Malaysia

Specialized training in research techniques and methodology in the area of family planning and fertility control. Location: U.S.A.

M. Villarroel, Bolivia

Academic studies in communications as well as practical study of rural communication programmes in Colombia, Brazil and Argentina. Location: Mexico.

RECOMMENDED (February 1979)

R. D. Arenas, Colombia

D. Chaudhary, India

I.A.H. El-Eraki, Egypt

P. Friedman, Cuba

R. Keita, Mali

Krasae Chanawongse, Thailand

E. O. Lee, Korea

J. M. Montemayor, Philippines

Mubyarto, Indonesia

G. D. Ojuando, Kenya

I. M. Omari, Tanzania

G. E. Perry, Colombia

B. Rana, India

M. Abd-El-Rehim, Egypt

B. Riascos, Colombia

K. Sathyanarayanaiah, India

F. C. Sercovich, Uruguay

M. Singarimbun, Indonesia

F. Valdez, Philippines

R. Varadarajan, India

Senior Research Associate Award

This award is designed for senior professionals in the field of development, both in Canada and in developing countries. Awards are offered by a process of nomination and selection by a committee presided over by the Chairman of the Board.

AWARDED

G. Landau, Brazil

Research project on institutional approaches to the integrated development of international river basins with special reference to the Amazonian Pact. Location: Multi-country.

J. S. Sarma, India

Study on different aspects of agricultural policy in India. Location: U.S.A.

M. S. Wionczek, Mexico

Book on the UNCTAD negotiations on international code of conduct for technology transfer. Location: Mexico.

Research Fellows

Through the Research Fellowships, the Centre aims to recognize excellence and major contributions by senior researchers in the development field. This Award provides the opportunity for senior research scholars to draw the greatest benefit from their previous experience through a year of research, reflection, and writing.

Two appointments may be made each year by the Executive Committee of the Board of Governors on the recommendation of the President.

AWARDED

H. E. English, Canada

Study on the means of achieving effective trade policies among developing countries, and between these and the more industrially advanced states with focus on the Association of S. E. Asian Nations. Location: Peru, Singapore, and Australia.

C. R. Pratt, Canada

Research on the political economy of Canadian aid: trade and investment policies towards the Third World. Location: Canada, Europe, and East Africa.

Pre-Post Project Awards

This award program is intended to provide training for individuals from developing countries prior to their participation in an IDRC-supported project, and to further the training of others who have been associated with IDRC projects.

Nomination and selection for this award are made by the appropriate program division in cooperation with the Human Resources program. The number of grants to be awarded annually is variable, as is the level of the grant; the nature and location of training are dependent upon the individuals selected. The awards given during the year under review are:

PRE-PROJECT AWARDS

G. Draper, Trinidad

Study on the development of a Caribbean training programme. Location: India, Singapore, and the Philippines.

R. C. Ishengoma, Tanzania

Advance training in research methods and wood utilization. Location: Canada.

M. Kiguel, Argentina

Practical training in research design and methodology on a diagnosis of the macro-economics of health policy in Argentina. Location: Argentina.

K. K. Kuria, Kenya

To acquire skills relevant for research in comparative endocrinology. Location: Canada.

C. Maynard, Dominica, W.I.

Study on the development of a Caribbean training programme. Location: India, Singapore, and the Philippines.

H. Sinaga, Malaysia

To attend a course on new approaches to teacher education. Location: United Kingdom.

POST-PROJECT AWARDS

B. O. Adenaike, Nigeria

M.Sc. degree in information science. Location: United Kingdom.

C. Arbaiza, Peru

Post-graduate course in timber structures and technology. Location: United Kingdom.

L. Cruz, Colombia

Master's programme in nutrition. Location: Guatemala.

T. I. Daud, Indonesia

Master's programme in agricultural and resource economics. Location: Indonesia, U.S.A.

P. Dirdjosanjoto, Indonesia

Master's degree in area studies (South East Asia). Location: United Kingdom.

E. Marshall, Chile

Ph.D. programme in economics. Location: U.S.A.

N. Mbere, South Africa

M.A. degree in sociology. Location: United Kingdom.

A. D. Mulenga, Zambia

Master's programme in social planning. Location: United Kingdom.

L. A. Ohiorhenuan, Trinidad

Master of philosophy in economics. Location: Nigeria.

R. P. Pal, India

Fish health training programme. Location: U.S.A.

H. S. Parks, Korea

Course in medical sociology. Location: United Kingdom.

I. Shrestha, Nepal

Diploma in community health. Location: United Kingdom.

P. Soedarno, Indonesia

Master's programme in agricultural economics. Location: The Philippines.

B. T. Soegijoko, Indonesia

Ph.D. programme in the Department of Urban and Regional Studies of the Massachusetts Institute of Technology. Location: U.S.A.

Pearson Fellowships

The Pearson Fellowships are designed for young public servants from developing countries to give them an opportunity of pursuing their professional interest in Canada. The Canadian Missions in developing countries are responsible for nominating candidates. The Fellowships are confined each year to a particular field of concentration. During the year under review, nine Fellowships were awarded for research or training in the field of Health Sciences.

AWARDED

W. G. Bomba, Malawi

Planning, conduct and evaluation of the health education component. Location: Ottawa, Ontario.

S. A. Goma, Zambia

Food and drug protection. Location: Ottawa, Ontario.

J. D. Manda, Malawi

Demography and public health administration. Location: Regina, Saskatchewan; Calgary, Alberta.

B. A. R. Megat, Malaysia

Training of health manpower. Location: Toronto, Ontario.

M. M. Nsiala, Zaire

Public health: epidemiology. Location: Montreal, Quebec.

A. O. Okusanya, Nigeria

Public health: epidemiology. Location: Montreal, Quebec.

D. Somchai, Thailand

Nutrition and national food policy. Location: Toronto, Ontario.

E. M. El-Tayeb, Sudan

Public health: epidemiology. Location: Calgary, Alberta.

E. G. M. de Valdivieso

Child and maternal health care. Location: Calgary, Alberta.

Publications and texts

Publications et textes

Centre Publications Publications du Centre

IDRC-003/78e,f

IDRC Annual Report 1977-1978/Rapport annuel 1977-1978, Ottawa, IDRC/CRDI, 1978. 84 p.

IDRC-084f

Les arbres dans l'aménagement des terres sous les tropiques: une solution à la faim, J.G. Bene, H.W. Beall, et A. Côté, Ottawa, CRDI, 1978. 55 p.

IDRC-088f

Le projet IMPACT: une expérience d'enseignement primaire généralisé; rapport intérimaire sur les projets IMPACT (Philippines) et PAMONG (Indonésie) organisés par l'INNOTECH, Clyde Sanger, Ottawa, CRDI, 1979. 56 p.

IDRC-089s

Los primeros cinco años de la División de Ciencias Agrícolas, Alimentos y Nutrición, Bogotá, CIID, 1978. 48 p.

IDRC-092a

(Arabic edition of *Sharing experience — DEVSIS: an information service for decision-makers*), Ottawa, IDRC, 1978. 35 p.

IDRC-094f

Des arbres et des hommes: description du programme de recherches forestières subventionné par le Centre de recherches pour le développement international, Clyde Sanger, en collaboration avec Gilles Lessard et Gunnar Poulsen, Ottawa, CRDI, 1978. 52 p.

IDRC-101e

Man and tree in tropical Africa: three essays on the role of trees in the African environment, Gunnar Poulsen, Ottawa, IDRC, 1978. 31 p.

IDRC-102e

Low-cost technology options for sanitation: a state-of-the-art review and annotated bibliography, Witold Rybczynski, Chongrak Polprasert, and Michael McGarry, Ottawa, IDRC, 1978. 184 p.

IDRC-103e

Biogas technology in the Third World: a multidisciplinary review, Andrew Barnett, Leo Pyle, and S.K. Subramanian, Ottawa, IDRC, 1978. 132 p.

IDRC-104e

Housing Asia's millions: problems, policies, and prospects for low-cost housing in Southeast Asia, Stephen H.K. Yeh and A.A. Laquian, editors, Ottawa, IDRC, 1979. 244 p.

IDRC-106e

Travelers to the tropics: guidelines for physicians, R. Dupuis, J. Keystone, J. Losos, and A. Meltzer, Ottawa, IDRC, 1978. 36 p.

IDRC-107s

Cáqueza: experiencias en desarrollo rural, Hubert Zandstra, Kenneth Swanberg, Carlos Zulberti, y Barry Nestel, Bogotá, CIID, 1979. 374 p.

IDRC-109e

Science and technology for development: main comparative report of the Science and Technology Policy Instruments project, Francisco Sagasti, Ottawa, IDRC, 1978. 112 p.

IDRC-110e

Searching: report of the activities of IDRC 1978, Ottawa, IDRC, 1979. 32 p.

IDRC-110f

Quête d'avenirs: rapport d'activité du CRDI 1978, Ottawa, CRDI, 1979. 32 p.

IDRC-111e

Cultural action and social change: the case of Jamaica; an essay in Caribbean cultural identity, Rex M. Nettleford, Ottawa, IDRC, 1979. 239 p.

IDRC-112f

Project de réseau d'information et de documentation scientifiques et techniques pour le Sahel: étude d'une stratégie documentaire en vue de la création d'un tel réseau pour le CILSS à l'Institut du Sahel, Djiby Sall et Maurice D. Catherinet, Ottawa, CRDI, 1978. 78 p.

IDRC-113e

Canadian development assistance: a selected bibliography 1950-77, Shirley B. Seward and Helen Janssen; Jane Beaumont, editor, Ottawa, IDRC, 1978. 62 p.

IDRC 114e

Cassava harvesting and processing: proceedings of a workshop held at CIAT, Cali, Colombia, 24-28 April 1978, Edward J. Weber, James H. Cock, and Amy Chouinard, editors, Ottawa, IDRC, 1978. 84 p.

IDRC-119e, f

Devindex 1977: Index to 1977 literature on economic and social development produced in Canada and the Federal Republic of Germany • Index de la littérature sur le développement économique et social produite au Canada et en République fédérale d'Allemagne en 1977, Gisèle Morin-Labatut, editor/rédactrice, Ottawa, IDRC/CDRI, 1978. 200 p.

IDRC-120e

Fish farming: an account of the aquaculture research program supported by the International Development Research Centre, Bob Stanley, with the collaboration of W.H. Allsopp and F. Brian Davy, Ottawa, IDRC, 1978. 40 p.

IDRC-122e

International Development Research Centre Projects 1970-1978, compiled by Rowan Shirkie, Ottawa, IDRC, 1979. 92 p.

IDRC-122f

Centre de recherches pour le développement international: projets 1970-1978, Rowan Shirkie, compilateur, Ottawa, CRDI, 1979. 96 p.

IDRC-123e

Sorghum and millet: food production and use: Report of a workshop held in Nairobi, Kenya, 4-7 July 1978, Sally Vogel and Michael Graham, editors, Ottawa, IDRC, 1979. 64 p.

IDRC-TS10s

Cambio social y migración interna: una reseña de hallazgos investigativos en América Latina, Alan Simmons, Sergio Diaz-Briquets, y Aprodicio A. Laquian, Bogotá, CIID, 1978. 71 p.

IDRC-TS11f

Evolution sociale et migration interne en Afrique, Alan Simmons, Sergio Diaz-Briquets, et Aprodicio A. Laquian, Ottawa, CRDI, 1978. 55 p.

IDRC-TS13e

Biological synopsis of the manatee, K. Ronald, L.J. Selley, and E.C. Amoroso, Ottawa, IDRC, 1978. 112 p.

IDRC-TS14e

Information retrieval and library management: an interactive minicomputer system, Faye A. Daneliuk, Ottawa, IDRC, 1978. 16 p.

IDRC-MR1

Literacy: a summary review, Ottawa, IDRC, 1978, 59 p.

IDRC-MR2

The genesis, conduct, and utilization of educational research: a report on a workshop reviewing four national education assessment studies — Indonesia, Malaysia, the Philippines, and Thailand, Susan Mowat, rapporteur, Ottawa, IDRC, 1978. 104 p.

IDRC library bulletin/Bulletin de la bibliothèque du CRDI, Ottawa, IDRC/CRDI, 1978-1979.

The IDRC Reports/Le CRDI Explore/CIID Informa

(Michelle Hibler, Editor-in-Chief/rédactrice en chef)

Published in three separate language editions, this is a quarterly magazine about the work supported by the International Development Research Centre and about related activities in the field of international development, and is available on request from the Centre's Communications Division.

Cette revue trimestrielle, consacrée aux recherches financées par le Centre de recherches pour le développement international et aux activités connexes dans le domaine du développement international, est publiée en éditions anglaise, française et espagnole, et peut être obtenue sur demande à la Division des communications du Centre.

IDRC Features/Reportage CRDI

This monthly news features service on scientific, technical, and educational subjects pertinent to development, is provided free of charge to selected newspapers and magazines in the developing world.

Ce bulletin mensuel d'information sur l'actualité scientifique, technique et éducative dans le domaine du développement, est distribué gracieusement aux principaux journaux et revues publiés dans le monde en voie de développement.

Publications by Centre staff
Publications rédigées par les cadres du Centre

If the material listed in this section cannot be obtained from normal sources (authors, libraries, bookstores), IDRC will try to supply copies. In case of short supply, preference will be given to individual researchers in developing countries.

Si vous ne pouvez obtenir les ouvrages sous-mentionnés chez les dépositaires habituels (auteurs, librairies, bibliothèques) le CRDI s'efforcera de fournir les exemplaires demandés. Vu l'approvisionnement limité pour certaines publications, les stocks en voie d'épuisement seront, de préférence, réservés aux chercheurs particuliers des pays en voie de développement.

Allsopp, W.H.L.

Ecological aspects of cage culture of fish. Working paper presented at the Workshop on Floating Cages and Net Pen Enclosures, SEAFDEC/IDRC — Tigbauan, Iloilo, Philippines, 12-21 February, 1979. 20 p. mimeo.

Broadbent, Kieran P.

Agricultural information services in developed countries and their contribution to agricultural research. Paper presented at the Scientific Literature Service Seminar/Workshop on Agricultural Information: Its Availability, Organization, and Dissemination, Rizal, Manila, Philippines, 11-13 April 1977, 15 p. mimeo.

_____ *A Chinese English dictionary of China's rural economy*. Famham Royal, Bucks, Great Britain, Commonwealth Agricultural Bureaux, 1978. 406 p.

_____ Information and the rural community in developing countries: the case of the Philippines. *Community Development Journal* (Coleraine, N. Ireland), 13(1), p.35-42, 1978.

_____ An invisible good. *Ceres* (Rome), 11(3), 19-23, May-June 1978. (*Ceres*, Food and Agriculture Organization of the United Nations, Via delle Terme di Caracalla 00100, Rome, Italy.)

Danieliuk, F.A. and Edwards, A.

MINISIS: a minicomputer based bibliographic system. Paper presented to West Canada ASIS 10th Annual Meeting, Winnipeg, Canada, 27-29 September 1978. 11 p. mimeo.

Daniels, W.D.

NGO (Nongovernmental organizations) cooperation with IDRC: use of research. Notes for

presentation to Canadian Council for International Cooperation/Science Council of Canada workshop, Food and Agricultural Development: the Voluntary Sector, Ottawa, Canada, 30 August-1 September 1978. 10 p. mimeo.

Doggett, Hugh

The *Striga* situation. Paper presented at the *Striga* Workshop, Khartoum, 5-8 November 1978. 7 p. mimeo.

Fleury, Jean-Marc

La forêt potagère. *Québec Science* (Sillery, PQ), 16(11), 15-20, juillet 1978. (le Magazine *Québec Science*, C.P. 250, Sillery, PQ, Canada G1T 2R1)

Gall, William J.

World-wide international consultation on packaging. League for International Food Education (LIFE) *Newsletter* (Washington), January 1979, p. 1-3. (LIFE, 1126 Sixteenth Street, NW, Washington DC 20036, USA)

Head, Ivan L.

Text of a speech by Ivan L. Head, President, International Development Research Centre, to the Annual Meeting of the United Nations Association of Canada, Montreal, 26 May 1978. 15 p. mimeo.

_____ Challenge for change in Third World agriculture. Opening remarks to a seminar in Edmonton, Alberta, 28 September 1978. 7 p. mimeo.

_____ The IDRC concept of essential needs. Address to the World Bank Conference on Essential Needs, Montreal, Quebec, 24 October 1978.

_____ IDRC, technology, and international legal norms. Text of a speech to the International Law Association, Canadian branch, annual dinner meeting, Ottawa, 26 October 1978. 20 p. mimeo.

_____ The North-South dialogue and its strategic implications. Address to the National Defence College of Canada, Kingston, Ontario, 12 December 1978.

_____ UNCSTD: an appreciation. Text of a speech to a joint meeting of the Ottawa branches of the Society for International Development and the Canadian Institute of International Affairs, Ottawa, 17 January 1979. 16 p. mimeo.

_____. Canada's stake in the developing world. Text of a speech to the Canadian Club of Calgary, 21 February 1979. 19 p. mimeo.

Hulse, J.H.

The food scientist in international development. Paper presented at the Australian Institute of Food Science and Technology Annual Conference, Melbourne, Australia, 29 May 1978. 18 p. mimeo.

_____. Food research — for whose benefit?

Paper presented to the 21st Conference of the Canadian Institute of Food Science and Technology (CIFST), Edmonton, Alberta, 25–28 June 1978. 22 p. mimeo.

_____. Human implications of protein

utilization. Paper presented to the International Symposium on Protein Utilization, University of Guelph, Guelph, Ontario, Canada, 13–16 August 1978. 33 p. mimeo.

_____. Food and population. Discussion

paper presented to the UNCSTD (United Nations Conference on Science and Technology for Development) Symposium of Non-Government Agencies, Singapore, 20–28 January 1979. 9 p. mimeo.

_____. The role of food processing and

distributing industries. Paper presented to the Symposium on World Food Policy — Global Food Insecurity, York University, Toronto, Canada, 24 March 1979. 21 p. mimeo.

Hulse, J. H. and Pearson O. E.

Food and agricultural research — its past and future contribution to agricultural, social and economic development. Paper presented to the UNCSTD (United Nations Conference on Science and Technology for Development) Symposium of Nongovernment Agencies, Singapore, 20–28 January 1979. 36 p. mimeo.

_____. How nutrition priorities can be

integrated into crop improvement programs. Paper presented at the XIth International Congress of Nutrition, Rio de Janeiro, Brazil, 27 August–1 September 1978. 18 p. mimeo.

Ker, A. D. R., Moorse, M. W., Watts, E. R., and Gill, B. N.

Agriculture in East Africa: an introduction to principles and practices. London, Edward Arnold (Publishers) Ltd., 1978. 218 p.

Leatherdale, D.

Provisional thesaurus of sorghum and millet terminology. Hyderabad, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), 1978. 306 p. mimeo. (ICRISAT, 1–11–256 Begumpet, Hyderabad 500016, India)

McGarry, Michael G.

Appropriate technology in civil engineering. In Charles G. Gunnerson and John M. Kalbermaten, editors, *Environmental impacts of international civil engineering projects and practices: proceedings of a session sponsored by the Research Council on Environmental Impact Analysis of the American Society of Civil Engineers (ASCE) Technical Council on Research at the ASCE National Convention in San Francisco, California, 17–21 October 1977*. p. 202–231. New York, ASCE, 1978. (ASCE, 345 East 47th Street, New York, NY 10017, USA. US \$16.00.)

_____. Sanitary sewers for undeveloped countries — necessity or luxury? *Civil*

Engineering-ASCE (New York), August 1978, p. 70–75. (ASCE, 345 East 47th Street, New York, NY 10017, USA.)

_____. Research in rural water supplies and sanitation. Paper presented to the meeting of the World Health Organization Research Study Group on Appropriate Technology for the Improvement of Environmental Health at the Village Level, Delhi, India, 16–20 October 1978. 11 p. mimeo.

_____. The importance of waste re-use.

Paper presented to the Symposium on Engineering, Science and Medicine in the Prevention of Tropical Water-Related Diseases, London, England, 11–14 December 1978. 10 p. mimeo.

_____. Appropriate technologies for water supplies and sanitation in northern communities. Paper presented at the Symposium on Utilities Delivery in Northern Regions, Edmonton, Alberta, 19 March 1979. 19 p. mimeo.

Miller, Elizabeth K. and Wild, Kate

A strategy for international information systems. *Special Libraries*, 69(11), 435–442, November 1978.

Nestel, Barry L.

Caqueza — extension in Latin America. *Agrologist* (Ottawa), 7(4), 12–13, Autumn 1978. (*Agrologist*, Suite 907, 151 Slater Street, Ottawa, Canada K1P 5H4.)

Schafer, M. E.
International Development Research Centre and computerized retrieval services. In *Information Services in Canada*, proceedings, CAIS, 1976. p. 17-24.

_____. Administrative accountability in the library. In *Proceedings of the 11th Annual Conference, Association for Population Libraries and Information Centers — International*. Atlanta, Georgia, 1978.

Simmons, Alan B.
Slowing metropolitan city growth in Asia: policies, programs, and results. *Population and Development Review* (New York), 5(1), 87-104, March 1979. (Population Council, One Dag Hammarskjöld Plaza, New York, NY, USA 10017.)

Spurgeon, David
Post-harvest crop losses: tragic inefficiency in the Third World. *The Christian Science Monitor* (Boston), Wednesday, 8 November 1978. p. 14. (*Christian Science Monitor*, One Norway Street, Boston, MA, USA 02115.)

Turnbull, Deborah A.
List of products, manufacturers, and suppliers. Prepared for: the Workshop on Floating Cages and Net Pen Enclosures, SEAFDEC/IDRC, Iloilo, Philippines, 12-21 February, 1979.

_____. (compiler). *A current awareness bibliography for IDRC fisheries projects*, Vancouver, B.C., Vol 3(1), 39 p., March 1979.
Wild, K. S.

DEVSIS and other programs of IDRC's Information Sciences Division in Latin America. Paper presented to Seminar on Developing a Public Administration Information Network for Latin America and the Caribbean, Bridgetown, Barbados, 5-11 November 1978. 8 p. mimeo.

Woolston, J. E.
Can international information systems help to solve national problems? Paper presented to Symposium on Policy Research, Public Decision-making, and Social Choice, Gramada, Brazil, 5-8 December 1978. 9 p. mimeo.

_____. Statement on the program of work of the Information Sciences Division (distribution restricted), IDRC, 1978. 52 p. mimeo.

_____. *Scientific and technical information in Pakistan: the report of a joint IDRC/UNDP*

mission, October-November 1976. Ottawa, IDRC, 1978. 63 p. (Pakistan Science Foundation, P.O. Box 1121, Islamabad, Pakistan.)

Yaciuk, Gordon
Locally grown grain characteristics as illustrated by grain grown in Senegal. Paper presented at Design and Operation of Medium and Large Scale Storage Systems in High Temperature/Low Humidity Areas Seminar, Washington, DC, USA, 23 May 1978. 18 p. mimeo.

_____. Postharvest technology in Senegal: current practices and future needs. Paper presented at the Sixth International Cereal and Bread Congress, Winnipeg, Canada, 16-22 September 1978. 7 p. mimeo.

_____. The role of women in postharvest technology in Senegal. Paper presented at the Challenge for Change in Third World Agriculture Seminar, Edmonton, Canada, 28-29 September 1978, sponsored by the Alberta Institute of Agrologists and IDRC. 21 p. mimeo.

_____. La véritable signification de la haute température/basse humidité sur le stockage des grains en zone sahélienne — The real meaning of high-temperature/low-humidity to grain storage in the Sahelian zone. Paper presented to the CEAQ (Communauté économique pour l'Afrique de l'Ouest) Seminar, Ouagadougou, Upper Volta, 28 November 1978. 7 p. mimeo.

Publications/research supported by IDRC Publications/recherches subventionnées par le CRDI

Periodicals/périodiques

Abstracts on Cassava (Manihot esculenta Crantz), Centro do Informacion de Yuca (CIY), Centro Internacional de Agricultura Tropical (CIAT) (Cassava Information Centre, International Centre of Tropical Agriculture), Apartado Aéreo 67-13, Cali, Colombia, S.A.

ADIPA Newsletter, Association of Development Research and Training Institutes of Asia and the Pacific (ADIPA), P.O. Box 2-136, Bangkok, Thailand.

Agriasia: a current bibliography of Southeast Asian agricultural literature, Vol. II, 1978, Agricultural Information Bank for Asia, Southeast Asian Regional Centre for Graduate Study and Research in Agriculture (SEARCA), College, Laguna 3720, Philippines.

Agricultural Development Council, A/D/C Training and Research Forum Series, A/D/C Regional Research and Training Program, Tanglin P.O. Box 84, Singapore 10, Republic of Singapore.

Agrindex, AGRIS Coordinating Centre. FAO, Rome. (Subscriptions available from Apimondia (publisher), Corso Vittorio Emanuele 101, 00186 Roma, Italia.)

APIC Journal, Asian Packaging Information Centre, Eldex Industrial Bldg., 12th floor, 21A Ma Tau Wei Road, Hunghom, Kowloon, Hong Kong.

Asian Geotechnical Engineering Abstracts, Current Awareness Service, Digest, Journal Holdings List, Conference Proceedings, Holdings List, AGE News, and AGE Research Report Holdings List. Asian Information Centre for Geotechnical Engineering, P.O. Box 2754, Bangkok, Thailand.

Awareness List/Bulletin signalétique, International Educational Reporting Service (IERS), Palais Wilson, 1211 Geneva 14, Switzerland.

Awareness List/Bulletin signalétique Special Series: Educational Technology, International Educational Reporting Service (IERS), Palais Wilson, 1211 Geneva 14, Switzerland.

Awareness List/Bulletin signalétique Special Series: Lifelong Education, International Educational Reporting Service (IERS), Palais Wilson, 1211 Geneva 14, Switzerland.

Awareness List/Bulletin signalétique Special Series: Literacy, International Educational Reporting Service (IERS), Palais Wilson, 1211 Geneva 14, Switzerland.

Cassava Newsletter, Trudy Brekelbaum Martinez, editor, Cassava Information Center, International Centre of Tropical Agriculture (CIAT), Apartado Aéreo 67-13, Cali, Colombia, S.A.

DEVSIS Newsletter, DEVSIS Study Team, c/o International Labour Office, 1211 Geneva 22, Switzerland.

Documentacion Socioeconomica Centroamericana, No. 1, Dic 1978, Confederacion Universitaria Centroamericana (CSUCA), Ciudad Universitaria "Rodrigo Facio", San José, Costa Rica, C.A.

Famille et Développement, Centre de recherches pour le développement international, B.P. 11007, Dakar, C.D. Annexe, Sénégal.

Grain Legume Current Titles, International Grain Legume Information Centre, IITA, PMB 5320, Ibadan, Nigeria.

Indice Agrícola de America Latina y el Caribe, Hugo Caceres Ramos and Orlando Arboleda S., editores, Centre Interamericano de Documentacion, Informacion Publica, Apartado 10281, San José, Costa Rica, C.A.

Innovation: Newsletter of the International Educational Reporting Service, International Education Reporting Service, Palais Wilson, 1211 Geneva 14, Switzerland.

Irricab: current annotated bibliography of irrigation, and Irrinews, International Irrigation Information Center, P.O. Box 49, Bet Dagan, Israel.

Journal of Ferrocement, International Ferrocement Information Center (IFIC), Asian Institute of Technology, P.O. Box 2754, Bangkok, Thailand.

PIDSA Abstracts, Regional Institute for Population Studies, University of Ghana, P.O. Box 96, Legon, Ghana.

Resumenes Analíticas en Educacion, Gonzalo Gutiérrez N., editor, Centro de Investigacion y Desarrollo de la Educacion, Almirante Borroso 22, Santiago 1, Chile, S.A.

Resumenes Analíticas sobre Yuca, Centro de Informacion de Yuca, Centro Internacional de Agricultura Tropical (CIAT), Apartado Aéreo 67-13, Cali, Colombia, S.A.

Resumenes sobre Poblacion en América Latina/Latin American Population Abstracts, Sistema de Documentacion sobre Poblacion en América Latina (DOCPAL), Centre Latinoamericano de Demografia, Casilla 91, Santiago, Chile, S.A.

Sylvia Africana: forestry research in Africa, a quarterly newsletter, Gunnar Poulsen, editor, Forestry Cooperative Research Project, P.O. Box 30677, Nairobi, Kenya. (Aussi disponible en français.)

TECHNONET Asia Newsletter, Digest, Asian Network for Industrial Technology and Extension, Technonet Centre, RELC International House, 30 Orange Grove Road, Tanglin P.O. Box 160, Singapore 10, Singapore.

Tropical Grain Legume Bulletin, International Grain Legume Information Centre, International

Institute of Tropical Agriculture, PMB 5320, Ibadan, Nigeria.

Waterlines: the journal of appropriate water technologies, Intermediate Technology Publications Ltd., 9 King Street, London WC2E 8HN, England.

Yuca: Boletín Informativo, Trudy Brekelbaum Martinez, editora, Centro de Información de Yuca (CIY), Centro Internacional de Agricultura Tropical (CIAT) (Cassava Information Centre, International Centre of Tropical Agriculture), Apartado Aéreo 67-13, Cali, Colombia, S.A.

Other publications and texts Autres publications et textes

Acharya, M. Use of resources in the rural sector: a case study of two village panchayats in Nepal; draft. Den Haag, 1978. 149 p. mimeo.

Agricultural Information Bank for Asia. *Livestock production in the tropics: a preliminary bibliography of South and Southeast Asian literature with reference to basic studies elsewhere covering the period 1966-1976*. Asian Bibliography Series No. 2. Laguna, Philippines, Southeast Asian Regional Centre for Graduate Study and Research in Agriculture, 1978.

Baksh, A. *Education, unemployment and mobility in Guyana*. Edmonton, Department of Educational Foundations, University of Alberta, 1978. 422 p. Thesis, University of Alberta, 1978.

Bambara Groundnut (Voandzeia Subterranea Thouars) Abstracts of the World's Literature 1900-78. Ibadan, Nigeria, International Grain Legume Information Centre, IITA, August 1978. 55 p.

Belloti, Anthony and van Schoonhoven, Aart. *Cassava pests and their control*. Series 09EC-2, November 1978. Cali, Cassava Information Centre, CIAT, 1978. 7 p. (CIAT, Apartado Aéreo 67-13, Cali, Colombia, S.A.)

_____. *Plagas de la Yuca y su Control*. November 1978, Cali, Colombia, Centro de Información Sobre Yuca, Centro Internacional de Agricultura Tropical (CIAT), 73 p. (CIAT, Apartado Aéreo 67-13, Cali, Colombia, S.A.)

Best, Rupert. *Cassava drying*. Series 05EC-4, March 1979. Cali, Cassava Information Centre, CIAT, 1979. 24 p. (CIAT, Apartado Aéreo 67-13, Cali, Colombia, S.A.)

Boyd, Ronald K. Summary training report the Bangladesh Visiting Scientist Program, April 3-28, 1978. West Lafayette, Indiana, Laboratory for Applications of Remote Sensing, Purdue University, 1978. mimeo. (Laboratory for Applications of Remote Sensing, Purdue University, 1220 Potter Drive, West Lafayette, Indiana 47906.)

Brockman, H. Carlos. *Procesamiento digital de datos multispectrales área de saqueadero*. La Paz, GEOBOL, mimeo. Proyecto Experimental Programa del Satellite Tecnológico de Recursos Naturales ERTS, Bolivia Servicio Geológico de Bolivia (GEOBOL), Ministerio de Minería y Metalurgia, Casilla de Correo 2729, La Paz, Bolivia, S.A.

Cadelina, Rowe V. Population characteristics, production and land utilization practices of shifting cultivators in Negros Island, Philippines. South-east Asia Population Research Awards Program (SEAPRAP) Research Report no. 20. SEAPRAP, Singapore, 1977. 89 p. mimeo. (SEAPRAP, International Development Research Centre, Tanglin P.O. Box 101, Singapore 10, Singapore.)

CARIS — *Agricultural research in developing countries volume 1: research institutions*, Rome, FAO, 1978. 633 p.

CARIS — *Agricultural research in developing countries volume 2: research workers*, Rome, FAO, 1978. 633 p.

CARIS — *Agricultural research in developing countries volume 3: research programmes*, Rome, FAO, 1978. 1302 p.

Cassava Information Center, CIAT. *Cassava workers directory*, Cali, Colombia, Cassava Information Center, Centro Internacional de Agricultura Tropical (CIAT), May 1978. 54 p. (CIAT, Apartado Aéreo 67-13, Cali, Colombia, S.A.)

Cassette — *Foro: Un Sistema de Comunicación Participativa* Montevideo, Uruguay: Instituto de Promoción Económico Social del Uruguay (IPRU), (Cerrito 475, 1er Piso, Montevideo) 1978, 157 p.

Comisión Económica para América Latina, Centro Latinoamericano de Documentación Económica y Social, CEPAL/CLADES. *Bibliografía analítica sobre documentos menos diseminados producidos por agencias de integración de América Latina y el Caribe 1970-1978*.

Santiago, Chile, CEPAL/CLADES, 1978. 410 p. (CEPAL, Avenida Dag Hammarskjöld, Casilla 179 D, Santiago, Chile, S.A.)

_____. *Directorio de las unidades de información para el desarrollo América Latina y el Caribe. Directorio de siglas.* CLADES/PROY. REG./DIR/9. Santiago, Chile, CEPAL/CLADES, 1978. 15 p. (CEPAL address as above.)

_____. *Directorio de unidades de información para el desarrollo. Argentina — sector económico.* CLADES/PROY. REG./DIR/12/Add 1. Santiago, Chile, CEPAL/CLADES 1978. 75 p. (CEPAL address as above.)

_____. *Directorio de unidades de información para el desarrollo. Bolivia.* CLADES/PROY. REG./DIR/13. Santiago, Chile, CEPAL/CLADES, 1978. 46 p. (CEPAL address as above.)

_____. *Directorio de unidades de información para el desarrollo. Brazil.* CLADES/PROY. REG./DIR/15. Santiago, Chile, CEPAL/CLADES, 1978. 58 p. (CEPAL address as above.)

_____. *Directorio de unidades de información para el desarrollo. Colombia.* CLADES/PROY. REG./DIR/7. Santiago, Chile, CEPAL/CLADES, 1978. 125 p. (CEPAL address as above.)

_____. *Directorio de unidades de información para el desarrollo. Costa Rica.* CLADES/PROY. REG./DIR/20. Santiago, Chile, CEPAL/CLADES, 1978. 66 p. (CEPAL address as above.)

_____. *Directorio de unidades de información para el desarrollo. El Salvador.* CLADES/PROY. REG./DIR/21 Rev. 1. Santiago, Chile, CEPAL/CLADES, 1978. 59 p. (CEPAL address as above.)

_____. *Directorio de unidades de información para el desarrollo. Ecuador.* CLADES/PROY. REG./DIR/16. Santiago, Chile, CEPAL/CLADES, 1978. 52 p. (CEPAL address as above.)

_____. *Directorio de unidades de información para el desarrollo. Guatemala.* CLADES/PROY. REG./DIR/5. Santiago, Chile, CEPAL/CLADES, 1978. 49 p. (CEPAL address as above.)

_____. *Directorio de unidades de información para el desarrollo. Medio Ambiente.* CLADES/PROY. REG./DIR/10. Santiago, Chile,

CEPAL/CLADES, 1978. 103 p. (CEPAL address as above.)

_____. *Directorio de unidades de información para el desarrollo. Mexico.* CLADES/PROY. REG./DIR/11. Santiago, Chile, CEPAL/CLADES, 1978. 66 p. (CEPAL address as above.)

_____. *Directorio de unidades de información para el desarrollo. Nicaragua.* CLADES/PROY. REG./DIR/13. Santiago, Chile, CEPAL/CLADES, 1978. 29 p. (CEPAL address as above.)

_____. *Directorio de unidades de información para el desarrollo. Panama.* CLADES/PROY. REG./DIR/22. Santiago, Chile, CEPAL/CLADES, 1978. 29 p. (CEPAL address as above.)

_____. *Directorio de unidades de información para el desarrollo. Paraguay.* CLADES/PROY. REG./DIR/6. Santiago, Chile, CEPAL/CLADES, 1978. 39 p. (CEPAL address as above.)

_____. *Directorio de unidades de información para el desarrollo. Peru.* CLADES/PROY. REG./DIR/14. Santiago, Chile, CEPAL/CLADES, 1978. 116 p. (CEPAL address as above.)

_____. *Directorio de unidades de información para el desarrollo. Estado Libre Asociado de Puerto Rico.* CLADES/PROY. REG./DIR/19. Santiago Chile, CEPAL/CLADES, 1978. 42 p. (CEPAL address as above.)

_____. *Directorio de unidades de información para el desarrollo. República Dominicana.* CLADES/PROY. REG./DIR/21. Santiago, Chile, CEPAL/CLADES, 1978. 36 p. (CEPAL address as above.)

_____. *Directorio de unidades de información para el desarrollo. Uruguay — Servicios pertenecientes a la Universidad de la República.* CLADES/PROY. REG./DIR/18. Santiago, Chile, CEPAL/CLADES, 1978. 40 p. (CEPAL address as above.)

_____. *Directorio de unidades de información para el desarrollo. Venezuela.* CLADES/PROY. REG./DIR/17. Santiago, Chile, CEPAL/CLADES, 1978. 93 p. (CEPAL address as above.)

_____. *Directory of development information Units. Jamaica.* CLADES/PROY. REG./DIR/24. Santiago, Chile, CEPAL/CLADES, 1978. 57 p. (CEPAL address as above.)

- _____. *Directory of development information units. Trinidad and Tobago*. CLADES/PROY. REG/DIR/3/REV. 1. Santiago, Chile, CEPAL/CLADES, 1978. 59 p. (CEPAL address as above.)
- _____. *Directorio regional de unidades de informacion para el desarrollo/Regional directory of development information units*. CLADES/PROY. REG/DIR/25. Santiago, Chile, CEPAL/CLADES, 1978. 2 vol. (CEPAL address as above.)
- _____. *Informacion y documentacion educativa en la Republica Argentina. Volumen I. Sintesis y resultados principales de un inventario (pre-informe)*. CLADES/PROY. REG/DIA/3. Santiago, Chile, CEPAL/CLADES, 1978. 57 p. (CEPAL address as above.)
- _____. *Informacion y documentacion educativa en la Republica Argentina. Volumen II. Metodologia y analisis detallado de un inventario (pre-informe)*. CLADES/PROY. REG/DIA/3. Santiago, Chile, CEPAL/CLADES, 1978. 104 p. (CEPAL address as above.)
- _____. *Informacion y documentacion para el desarrollo en Colombia. Volumen I Sintesis y resultados principales de un inventario (pre-informe)*. CLADES/PROY. REG/DIA/5. Santiago, Chile, CEPAL/CLADES, 1978. 70 p. (CEPAL address as above.)
- _____. *Informacion y documentacion para el desarrollo en Colombia. Volumen II. Metodologia y analisis detallado de un inventario (pre-informe)*. CLADES/PROY. REG/DIA/5. Santiago, Chile, CEPAL/CLADES, 1978. 88 p. (CEPAL address as above.)
- _____. *Informacion y documentacion para el desarrollo en Guatemala. Volumen I. Sintesis y resultados principales de un inventario (pre-informe)*. CLADES/PROY. REG/DIA/4. Santiago, Chile, CEPAL/CLADES, 1978. 65 p. (CEPAL address as above.)
- _____. *Informacion y documentacion para el desarrollo en Guatemala. Volumen II. Metodologia y analisis detallado de un inventario (pre-informe)*. CLADES/PROY. REG/DIA/4. Santiago, Chile, CEPAL/CLADES, 1978. 82 p. (CEPAL address as above.)
- _____. *Informacion y documentacion para el desarrollo. Informe regional de diagnostico*. CLADES/PROY. REG/DIA 20. Santiago, Chile, CEPAL/CLADES, 1978. 2 vol. (CEPAL address as above.)
- _____. *Information and documentation for development in Trinidad and Tobago. Volume I. Summary and main results of an inventory*. CLADES/PROY. REG/DIA/2. Santiago, Chile, CEPAL/CLADES, 1978. 67 p. (CEPAL address as above.)
- _____. *Information and documentation for development in Trinidad and Tobago. Volume II. Methodology and detailed analysis of an inventory (draft report)*. CLADES/PROY. REG/DIA/2. Santiago, Chile, CEPAL/CLADES, 1978. 94 p. (CEPAL address as above.)
- _____. *Information and documentation for development. Regional diagnosis report*. CLADES/PROY. REG/DIA/21. Santiago, Chile, CEPAL/CLADES, 1978. 2 vol. (CEPAL address as above.)
- Crane, Eva. *Bibliography of Tropical Apiculture*. London, International Bee Research Association, 1978.
- Dayao, Benefa M., editor. *Livestock production in the Tropics — a preliminary annotated bibliography of South and Southeast Asian literature with reference to basic studies elsewhere covering the period 1966–1976*. Laguna, Philippines, Agricultural Information Bank for Asia (AIBA), 1978. 184 p.
- _____. (editor). *Indonesian Agricultural Bibliography (1975–1977)*. Laguna, Philippines, Agricultural Information Bank for Asia. Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA), 1979. 156 p.
- de Mel, Ronnie. Text of a speech by The Honourable Ronnie de Mel, Minister of Finance, Government of Sri Lanka, to the Board of Governors of the International Development Research Centre, March 1978, Colombo, Sri Lanka. 8 p. mimeo.
- Directoria de Bibliotecas y Centros de Documentacion de Bolivia* 1978. La Paz, Bolivia: Ministerio de Planamiento y Coordinacion. Sistema y Fondo Nacional de Informacion para el Desarrollo (SYFNID), 1978. 109 p.
- Directory of national sources of information for small scale industry*. March 1979. Technonet Asia (Singapore) and University of the Philippines.

- Institute for Small Scale Industry (UPISSI) E. Virata Hall, U.P. Campus, Dilliman, Quezon City, Philippines, 210 p.
- Egyptian Documentation and Information Centre for Agriculture (EDICA). *EGYPTAGRI: Egyptian agricultural bibliography, volume I*, 1978. Cairo, EDICA, 1978. 136 p. (EDICA, Documentation and Publication Division, Foreign Relations Department, Ministry of Agriculture, Nadi El-Seid Street, Dokki, Cairo, Egypt.)
- Ferrocement and its applications — a bibliography* volume 1, 1978. International Ferrocement Information Center. 56 p. (Asian Institute of Technology, P.O. Box 2754, Bangkok, Thailand.)
- Fong, Chan Onn. Socio-economic determinants of fertility in peninsular Malaysia. SEAPRAP Research report no. 19. Singapore, Southeast Asia Population Research Awards Program (SEAPRAP), 1978. 43 p. mimeo. (SEAPRAP % IDRC, Tanglin, P.O. Box 101, Singapore 10, Singapore.)
- Gutierrez, Gonzalo. *Seminario Nacional Sobre La Informacion Educacional en Chile: Su Comunicacion, Necesidades E. Impacto 13 y 14 de Setiembre de 1978. Informe Final*. 1978, Santiago, Chile. Centro de Investigacion y Desarrollo de la Educacion. Almirante Borroso 22, Casilla 13608. 41 p.
- Hossain, A., and Chandhury, M. U. *Report on the Bangladesh Applied Research and Training Program in Remote Sensing*. Dacca, Bangladesh, Bangladesh LANDSAT Programme, 1978. (Bangladesh ERTS (LANDSAT) Programme, House No. 605, Road No. 18, Dhanmondi R.A., Dacca, Bangladesh.)
- Ibekwe, G. O. *Cassava bacterial blight. Abstracts of Literature, supplement*. Ibadan, Nigeria, International Institute of Tropical Agriculture, August, 1978. 102 p.
- Instituto Interamericano de Ciencias Agricolas, Centro de Informacion y Documentacion Agrícola (IICA-CIDIA). *Bibliografia sobre ciencias de la informacion (aportes del IICA)*. Documentacion e informacion agricola No. 66. San José, IICA-CIDIA, 1978. (IICA-CIDIA, Direccion de Informacion Publica, Apartado 10281, San José, Costa Rica.)
- International Grain Legume Information Centre, IITA. *Cowpeas (Vigna unguiculata L. Walp): Abstracts of World Literature. Volume I: 1950-1973*. Ibadan, Nigeria, International Grain Legume Information Centre, International Institute of Tropical Agriculture (IITA), 1978. 343 p. (IITA, PMB 5320, Ibadan, Nigeria.)
- International Rice Research Institute. *Interpretive analysis of selected papers from "Changes in rice farming in selected areas of Asia"*. Manila, International Rice Research Institute, 1978. 166 p. (IRRI, P.O. Box 933, Manila, Philippines.)
- Kachachi, S. Flow of development technology to developing countries: present barriers and future potentials. Baghdad, Ministry of Planning, Republic of Iraq, 1978. 39 p. mimeo.
- Kikula, I. S., King, R. B., Mascaramhas, A. C., and Ngana, O. *Remote sensing in Tanzania: Rukwa project experience*. Dar es Salaam, BRALUP, University of Dar es Salaam, 1978.
- Kodagoda, Nandadasa, Fonseka, Rajah, and Mendis, Nelum, editors. *Proceedings: Seminar on science writing, Faculty of Medicine, Sri Lanka University, Colombo, 14th-18th February 1977*. Moratuwa, Sri Lanka University Press, 106 p.
- Kumar, P. *Economics of water management*. New Delhi, Heritage Publishers, 1978. 117 p. (Heritage Publishers, M-116, Connaught Circus, New Delhi-110001, India. US\$4.00, Rs20.)
- Lozano, J. Carlos, Toro, Julio César, Castro, Abelardo, and Bellotti, Anthony C. *Production of cassava planting material*. Series GE-17. Cali, Colombia, Cassava Information Centre, Centro Internacional de Agricultura Tropical (CIAT), September 1977. 28 p. (CIAT address as above.)
- McBride, Stewart Dill. *Famille et Développement — Sub-Saharan Africa's Self-Help Magazine* New York, Cycle Communications, 1978, 18 p. (Write to Ann Leonard, P.O. Box 3923, Grand Central Station, New York 10017, U.S.A.)
- Means, Gordon P., editor. *The past in Southeast Asia's present*. Ottawa, Secretariat, Canadian Society for Asian Studies (CSAS), 1978. 206 p. (CSAS, 209C, 151 Slater Street, Ottawa, Canada K1P 5H3.)
- Muangman, Debhanom. Report on a pilot study of village volunteers in family planning at Po Thong District 1975-1977, Angthong Province, Thailand. Mahidol University, Faculty of Public Health, Bangkok, 115 p. mimeo.

- Nathalang, Wadanyu. *Housing in Thailand: Southeast Asian low-cost housing study*. Bangkok, Applied Scientific Research Corporation of Thailand (ASRCT) Press, (ASRCT Press, 196 Phahonyothin Road, Bang Khen, Bangkok 9, Thailand.)
- Odimuko, C.L. Urban migration, remittances, and development in Southeastern Nigeria. Kingston, Queen's University, 1978. 240 p. mimeo. Thesis, Queen's University, Kingston, Canada, 1978.
- Olatunbosun, David A., in collaboration with Bolodeoku, J. O., Arowolo, O. O., and Adadevoh, B. K. Infertility and subfertility in rural Western Nigeria: a report submitted to IDRC, Ottawa, Canada, January 1978. Lagos, University of Lagos, College of Medicine, 1978. 248 p. mimeo.
- Partaningrat, Winarti, editor. *Masterlist of Southeast Asian microforms*, Singapore, Southeast Asian Branch of the International Council on Archives (SARBICA) 1978. 682 p.
- Paul, B. K. and Pama, R. P. *Ferrocement*. Bangkok, International Ferrocement Information Center (IFIC), Asian Institute of Technology, 1978. 149 p. (IFIC, Asian Institute of Technology, P.O. Box 2754, Bangkok, Thailand.)
- Philippine Agricultural Bibliography* (1975-1977). Laguna, Philippines: Southeast Asian Regional Centre for Graduate Study and Research in Agriculture (SEARCA), 1978. 223 p.
- Primers for Small Business Management*. Rizal, Philippines: Economic Development Foundation, November, 1978. 39 p.
- Proceedings cassava protection workshop CIAT, Cali, Colombia 7-12 November 1977*. May 1978, Cali, Colombia, Centro Internacional de Agricultura Tropical, 244 p.
- Programa ERTS, Bolivian Geological Service (ERTS/BGS). *Experiencia Boliviana sobre la utilizacion de sistema de coleccion de datos*. La Paz, Bolivia, ERTS/BGS, 1978. (ERTS/BGS, Casilla de Correo 2729, La Paz, Bolivia, S.A.)
- _____. Informe tecnico proyecto de investigacion Boliviano-Chileno. La Paz, Bolivia, ERTS/BGS, 1978. (ERTS/BGS address as above.)
- A project on extension cases documentation by videotape. Rizal, Philippines, Economic Development Foundation, 1978. 11 p.
- Regional Organization for Inter-Governmental Cooperation and Coordination in Population and Family Planning in Southeast Asia (IGCC). *Project identification meeting: lactation and fertility. A report on the project identification meeting: lactation and fertility held in Kuala Lumpur, Malaysia, 23-24 February 1978*. IGCC, Kuala Lumpur, 1978. 57 p. (IGCC, P.O. Box 550, Kuala Lumpur, Selangor, Malaysia.)
- Report of the CARICOM Regional Bibliography Meeting*, Caribbean Community Secretariat (CARICOM), Georgetown, Guyana, 23 May 1978. 48 p.
- Report on the compilation of a masterlist of Southeast Asian microforms: a joint SARBICA and CONSAL project*. Singapore, Institute of Southeast Asian Studies on behalf of the SARBICA-CONSA Regional Microfilm Clearinghouse, 1978. 15 p.
- Ricaldi, V., and Berger, A. *On groundwater information capabilities and needs of developing countries*. St. John's, Association of Geoscientists for International Development (AGID), 1978. (Dr Anthony Berger, Secretary-Treasurer, Association of Geoscientists for International Development, Department of Geology, Memorial University, St. John's, Newfoundland, Canada.)
- Setiadi, Bernadette N. Relationship between several socio-psychological variables and the decision to follow the family planning program. SEAPRAP Research report no. 18. Singapore, Southeast Asia Population Research Awards Program (SEAPRAP), 1977. 44 p. mimeo. (SEAPRAP% IDRC, Tanglin P.O. Box 101, Singapore 10, Singapore.)
- Shainberg, I. and Oster, J. D. *Quality of irrigation water*. IIRC Publication no. 2. Bet Dagan, Israel, International Irrigation Information Centre (IIRC), 1978. 65 p. (IIRC, Volcani Center, P.O. Box 49, Bet Dagan, Israel.)
- Solomon, F. and Stern, P. H. *Possibilities for a new water supplies and sanitation journal for developing countries*. London, Intermediate Technologies Publications Ltd., 1977. (Intermediate Technologies Publications Ltd., 9 King Street, London WC2E 8HN, England.)

Southeast Asian Fisheries Development Center (SEAFDEC). SEAFDEC-IDRC Milkfish research project: first phase report 1975-1978. Rizal, SEAFDEC, 1978. 5 v. (SEAFDEC, Aquaculture Department, Corner de la Rosa/Salcedo Streets, Makati, Rizal, Philippines.)

Sugar cane production — an annotated bibliography (1966-1976). Laguna, Philippines. Agricultural Information Bank for Asia. Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA), 1978. 357 p.

TIES regional project final report. Rizal, Philippines. Economic Development Foundation, Vol 1-3, November 1978. 75 p.

Tribhuvan University, Institute of Medicine. Rural health needs: report of a study in the primary health care unit (district) of Tanahu, Nepal. Kathmandu, Tribhuvan University, Institute of Medicine, 1978. 111 p. (Tribhuvan University, Institute of Medicine, Health, Manpower Development Research Project, Maharajgunj, Kathmandu, Nepal.)

Trocki, Orrawin. Attitudes toward family planning SEAPRAP, and population education among teachers and students. (SEAPRAP) Research report no. 21. SEAPRAP, Singapore, 1978. 128 p. mimeo. (SEAPRAP % International Development Research Centre, Tanglin P.O. Box 101, Singapore 10, Singapore.)

United Nations Conference on Trade and Development (UNCTAD). *Development research*

institutes and the New International Economic Order: report of a meeting of representatives of development research institutes, Geneva, Switzerland, 10-12 July 1978. Geneva, UNCTAD, 1978. 33 p.

Wong, Luke S.K., editor, *Housing in Hong Kong: a multi-disciplinary study.* Hong Kong, Heinemann Educational Books (Asia) Ltd., 1978. 334 p. (Heinemann Educational Books (Asia) Ltd., Yik Yin Building, 321-323 To Kwa Wan Road, Kowloon, Hong Kong.)

Viet, J. *Macrothesaurus for information processing in the field of economic and social development.* Paris, Organization for Economic Cooperation and Development, 1978. 438 p. (OECD, 2 rue André Pascal, 75775 Paris CEDEX 16, France.)

_____. *Macrothesaurus for information processing in the field of economic and social development,* New English Edition, Paris, Organization for Economic Cooperation and Development, 1978. 438 p.

_____. *Macrothesaurus para el Tratamiento de la Informacion relativa al Desarrollo Economica y Social.* Paris, Organizacion de Cooperacion y Desarrollo Economico, 1979. 428 p.

Winged beans — abstracts of the world's literature 1900-1977. The International Grain Legume Information Centre, IITA, PMB 5320, Ibadan, Nigeria, May 1978. 68 p.