

On Common Ground

Report on the activities of IDRC 1976/77



©1977 International Development Research Centre
Postal address: Box 8500, Ottawa, Canada K1G 3H9
Head office: 60 Queen Street, Ottawa

Stanley, B.
IDRC

IDRC-087e

On common ground: Report on the activities of IDRC 1976-1977.
Ottawa, IDRC, 1977. 32p. illus.

/IDRC pub CRDI/. /Annual report/ of /IDRC/ — reviews the/
development research/ /research programme/s and /research project/s
supported by IDRC during the past year.

UDC: 338.001

ISBN: 0-88936-126-6

Microfiche Edition \$1

Contents

Some basic facts about IDRC	3
Introduction	4
Board of Governors	6
Officers of the Centre	7
Land and People	8
Water and Health	15
Farmers and Food	21
Summary of projects approved	28
Publications	29

Il existe également une édition française de cette publication

La edición española de esta publicación también se encuentra disponible

Some basic facts about IDRC

When was the IDRC set up?

The Centre was established by an Act of the Canadian Parliament assented to on 13 May 1970. The first meeting of the 21-member Board of Governors took place in October 1970.

Why was it set up?

It was set up (in the words of the Act) “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”.

The Centre was established as a public corporation, to give it the greatest possible measure of flexibility and autonomy while still being accountable to Parliament. Its funds are in the form of “untied aid”, which allows it to secure the best available professional skills and to finance projects in the most appropriate way, regardless of the origin of the research workers and the source of equipment.

Heavy emphasis is placed on support for research workers living and working in the developing regions. The great majority of projects are being carried out in those regions, and all of them are under the direction of a scientist or administrator of that region. Some research is financed by the Centre in Canada, at universities and elsewhere, in support of field projects in the developing regions. This emphasis has been taken to fulfill the objective of the Centre, as stated in the Act, “to assist the developing regions to build up the research capabilities, the innovative skills and the institutions required to solve their problems”. Most projects include a training element, and the Centre’s Human Resources Awards

Program also provides for the training and development of young professionals.

How much has been done?

From October 1970 to March 1976 the Board approved support for 503 projects, which required appropriations of \$94 million. A few projects involve expenditures of more than \$1 million, while others involve less than \$5000; the average has been about \$200,000. Some 94 projects have been completed. Research has been taking place in some 80 different countries.

What are the principal sectors in which research has been supported?

Research to improve food production and nutrition has been a foremost concern. Crop research in the semi-arid tropical regions was a starting-point for this agricultural research. Improvement of health care in rural communities, and an understanding of the many variables that influence couples in deciding the size of their families. An understanding of the processes of modernization and change, and of the social, economic, political and cultural consequences of change. Improvement of the means of collecting and disseminating information for and about development.

How international is IDRC?

The Board of Governors consists of 11 Canadians and 10 non-Canadians. Six Governors are drawn from developing countries.

The centre has established five regional offices — in Singapore, Bogota, Dakar, Cairo and Nairobi — four of which are headed by nationals of the region.

How does it fit in with the work of the Canadian International Development Agency?

IDRC has been the managing agent for several of CIDA’s two largest grants in agricultural research. Staff from each organization attend the other’s project review committee meetings. In general, IDRC supports the more innovative and risky research, and passes to CIDA proposals for larger-scale support of projects incorporating proven new technologies.

Introduction

The year under review, April 1976 to March 1977, has been an active one for the International Development Research Centre, and one during which the Centre has seen a number of its initiatives come to fruition.

The IDRC played a key role in the establishment of the International Centre for Agricultural Research in the Dry Areas, and was instrumental in bringing together a group of donors to establish the International Council for Research in Agroforestry, which will begin operations in the near future. Both these institutions are aimed at filling vital gaps in the research capabilities of the Third World.

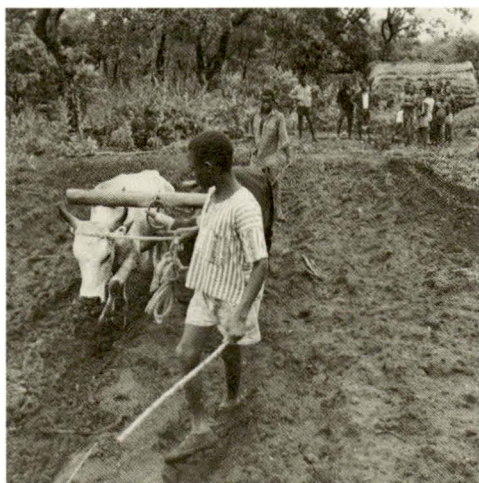
The Centre also continues to make a major contribution to the establishment and expansion of international information systems in fields such as agriculture, rural water supply and sanitation, and development sciences — systems that will provide for a worldwide exchange of scientific information.

What follows is a brief review of some of the research supported by the IDRC during the past year — new projects, continuing projects and completed projects. First, however, a few facts and figures.

During the year the Centre's international Board of Governors approved 137 new projects requiring a total appropriation of \$26.7 million — a considerable increase in activity over previous years. The Agriculture, Food and Nutrition Sciences Division undertook 55 new projects totalling \$12 million; the Social Sciences and Human Resources Division 25 new projects costing \$5.7 million; the Health Sciences Division 29 new projects for \$4.1 million; and the Information Sciences Division 21 new projects for \$4.5 million.

A further \$1.9 million was committed during the year in support of 216 Division Activity Projects — seminars, workshops and consultancies that are usually preliminary to the undertaking of a full-scale project. The Centre also continued to invest heavily in the training and development of young Third World professionals through its Human Resources Award program, which made available 87 grants totalling \$1.8 million.

During the year 42 projects were completed, bringing the total number of projects completed since the Centre opened its doors to 94. In addition, many projects have now entered a second or even a third phase, as researchers continue to build on the results of earlier years.



Agroforestry — the combination of crops, trees and animals on the same piece of land — is one area in which the Centre is concentrating its research support.

There have been several changes in the membership of the Centre's Board of Governors, including the welcome return of Mr Maurice Strong, who was a member of the Centre's original Board in 1970. Dr Louis Berlinguet, former Vice-Chairman of the Board and Chairman of the Executive Committee, relinquished these positions to take up the new staff position of Senior Vice-President.

There have also been a number of changes among the Centre's senior staff. Dr Lucien Michaud left his post as Vice-President, Canada and Donor Relations, to become President of Laurentian University. Cheik Hamidou Kane returned to his native Senegal to take charge of the redevelopment of the port of Dakar. His post as Vice-President, International, is now held by Mr Nihal Kappagoda of Sri Lanka, formerly the Centre's Regional Director in Asia. Mr Jon Church was appointed to the new post of Vice-President, Administration. A full list of the Governors and Officers of the Centre is included elsewhere in this publication.

A considerable proportion of the Centre's headquarters staff are Third World nationals, and the majority of the staff of the five regional offices are drawn from the regions they serve. The regional offices — in Bogota, Cairo, Dakar, Nairobi, and Singapore — are vital to the Centre's operations. They are in the front line, maintaining essential contact with the governments, research institutions, universities, research workers and scientists of the developing countries, and providing the communications link to ensure that the Centre's priorities remain relevant to the needs and aspirations of the nations of the Third World.

The Board of Governors

*Louis Rasminsky
Chairman of the Board of Governors
Ottawa, Canada

**Roger A. Blais
Vice-Chairman of the Board of Governors
Chairman of the Executive Committee
Montréal, Canada

*W. David Hopper
President and Chief Executive Officer
Ottawa, Canada

Aklilu Habte
Addis Ababa, Ethiopia

*Manuchehr Agah
Tehran, Iran

*Pierre Bauchet
Paris, France

*John Milton Bell
Saskatoon, Canada

Sir John Crawford
Canberra, Australia

*Norman T. Currie
Chairman of the Finance Committee
Toronto, Canada

Paul Gérin-Lajoie
Ottawa, Canada

Peter A. Green
Halifax, Canada

Dr. Ilunga Kabongo
Kinshasa, Zaire

*Archie R. Micay
Winnipeg, Canada

R. Stephen Milne
Vancouver, Canada

*The Hon. Rex. M. Nettleford, O.M.
Kingston, Jamaica

*T. W. Schultz
Chicago, U.S.A.

Dr. Soedjatmoko
Djakarta, Indonesia

Maurice F. Strong
Calgary, Canada

Victor L. Urquidi
Mexico

*Sir Geoffrey Wilson
Wantage, England

*William C. Winegard
Guelph, Canada

*Executive Committee member at 31 March 1977
**Finance Committee member at 31 March 1977

Officers of the Centre

President
W. David Hopper

Senior Vice-President
Louis Berlinguet

Vice-President, International
Nihal Kappagoda

Vice-President, Administration
Jon Church

Director of Administrative Services
John J. Comeau

Secretary and General Counsel
James C. Pfeifer

Treasurer
Raymond J. Audet

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

Director, Health Sciences
John Gill

Director, Information Sciences
John E. Woolston

Director, Publications
David Spurgeon

Director, Social Sciences and Human Resources
Ruth K. Zagorin

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 (Bogota)
Henrique Tono T.

Land and People

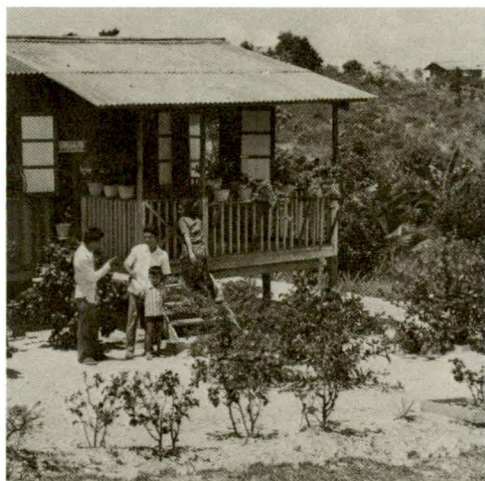
Two-thirds of the world's surface is covered with water. On the remaining one-third — an area of about 57 million square miles — live some four billion human beings. Man may venture onto the sea, or under it; he may fly in the atmosphere or beyond; but he must return eventually to terra firma. Like it or not, man's home for the foreseeable future is here on dry land. This is man's habitat — it is our common ground.

Habitat was the name given to the United Nations Conference on Human Settlements in Vancouver last year. Much of the emphasis at that conference was on the problems of the cities, but there were those who pointed out that virtually all humans live in settlements, and that the majority of these are small towns and villages in the rural areas of the developing countries. And what happens here in the rural areas of the world determines to a large extent what happens to the cities in the future.

Many of the problems of the cities, especially in developing countries, are the result of mass migration from the rural areas. All over the world people are leaving the land, moving from the villages and towns to the cities in search of a better life, with the result that already overcrowded cities become impossibly congested. Growth in city population far outstrips the city's ability to provide for its inhabitants. The word "megapolis" has entered the language — by 1985, according to economist Barbara Ward, there will be 273 cities with populations of more than one million, and there will be 17 with populations of more than 10 million. The possibility of urban collapse is very real in many of these centres; and as the problems encountered by New York City dramatically demonstrated during the past year, the dangers are by no means limited to the Third World. We are on common ground.

Some countries have made attempts to persuade, or coerce people back to the land, to resettle them in new communities away from the cities. Such solutions at best can only be partially successful, and in any event they beg the real question: why are the people leaving the rural areas to move to the cities? And its corollary: what can or should be done to make people want to stay in the small towns and villages?

The answers are many, complex and as yet incomplete. At risk of oversimplification, they can perhaps be summed up in a simple statement: if people are leaving the rural areas in search of a better life, then one solution is to make life better in the rural areas. As in good medical practice, the solution ultimately lies with prevention rather than cure.



A resettlement project in Malaysia — one solution to the problem of overcrowded cities is to improve life in the rural areas.

If conditions are to be improved for rural peoples, one of the basic requirements in many countries is land reform. When the farmer and his family have security, they are less likely to want to leave the land.

The redistribution of land, however, does not automatically solve all the problems; often there is also a need for organization, instruction and, above all credit, so that the small farmer can make the most of his land. The government of the Philippines has undertaken a unique project to ensure that these factors are not neglected in the national land reform program.

Small farmers are encouraged to form village associations, to which they contribute a small portion of their incomes as savings, and through which they receive training in modern farming techniques and cooperative organization. Only when it is ready is the association transformed into a "cooperative" under the management of a full-time government official. To retain their membership, farmers must continue to contribute savings and practice modern farming. Membership is important, because only members can obtain credit and participate in the land reform program.

For the past three years the IDRC has been supporting an evaluation by the University of the Philippines of the impact of the program, with the objective of making it more effective and efficient. The evaluation, now completed, has been a major undertaking. There are some 15,000 village associations in 40 of the country's 68 provinces. Some 8,000 people were interviewed nationwide to obtain comparisons between those provinces participating in the land reform program and those that are not. Preliminary reports indicate that the evaluation will benefit not only the country's 600,000 small farmers, but also their counterparts in other countries where the program's progress is being closely followed.

Such reforms, and other attempts to modernize rural areas in developing countries, inevitably have an effect on the traditional ways of life of the rural people. Concerned that any negative aspects of such change should be minimized, the Centre is supporting a number of projects in Africa and Asia that examine the processes of modernization and change and their impact on the lives of rural peoples.

Researchers in Indonesia and Malaysia are studying the effects of technological change on rural communities. In Kenya social scientists are seeking ways to bring about greater cooperation and understanding between central government planners and active local communities that are

attempting to bring about development through their own efforts. And in Nigeria, where the federal and state governments are restructuring the local government system inherited from the colonial era, a Centre-supported study was completed during the past year (see box).

Whatever plans governments may devise to speed the development of their countries, however, their implementation depends in large part on the efficiency and honesty of the bureaucracy. Yet little is known about either the extent or the effect of "negative bureaucratic behaviour" on development efforts.

The countries of Asia are concerned to find out, however, and in 1975 the Centre approved a grant to three governments that had requested support for a pioneering study of negative behaviour within their own bureaucracies. News of the study generated considerable interest in the region. Within a few months two more countries joined the original three, and during the past year proposals were received from five more, bringing the total number of participants to ten.

Nigeria's chiefs are more than a tradition

The rapid modernization of rural areas requires the active participation of all the people, and such participation requires an efficient system of local government. Aware of this need, the Nigerian government has in recent years given priority to restructuring all levels of government.

A determined effort is being made to design a new system of local government that will incorporate the best of what is traditionally African, and provide a link between the federal government and the country's 55 million people living in 19 States.

As part of that effort a team of researchers from the University of Nigeria at Nsukka recently completed an in-depth two-year study of local government institutions in three states. With the support of an IDRC grant, the researchers set out to determine the effectiveness of various traditional forms of local government, their impact (or lack of it) on development programs, and what the people thought about them.

Some of the study's conclusions were surprising. For example, 90 percent of those interviewed favoured retaining the rule of the chiefs, even though they were aware that not all the chiefs were

genuine, and that some had actually usurped their power. Many saw the chief as a sort of "father figure" whose authority held the community together and guaranteed the continuance of traditions. The researchers, however, felt that the chiefs should be more than mere custodians of tradition, and recommended that they be given an important role to play in the process of modernization, with political, socio-economic and judicial responsibilities.

The role of the modern chief was just one of the recommendations put forward by the University team, some of which have been rejected, but many of which have already been incorporated into the government's plans, a fact of which the researchers are justifiably proud.

Nigeria is one of the largest and most populous African nations. Its attempts to restructure and revitalize government at the local level are being closely watched by other African nations. And the knowledge gained by the Nsukka study will be shared by researchers in Africa and Asia who make up a network of Centre-supported projects concerned with the process of modernization and change in rural areas.

The studies, lasting two years, will begin by identifying and analyzing negative bureaucratic behaviour, which for this project is defined in terms of legal not moral criteria. The researchers will also study the differences between what is socially acceptable on the one hand, and what the law considers to be acceptable on the other. Finally, they will estimate the social and economic costs, and especially their effect on development programs.

Farming is naturally the primary occupation in rural areas, but there is also a need for alternative or supplementary sources of income and employment. Many developing countries are looking to small-scale industry to provide this alternative, but even where traditional industries already exist, they are all-too-often inefficient and poorly managed, and would benefit from expert advice. This is the role of TECHNINET Asia, a network of 11 organizations from nine Southeast Asian countries that was formed in 1973 with IDRC support, and entered its second phase during the past year.

Through a monthly newsletter, a technical information service and, most important, the training of a cadre of industrial extension officers who can respond to requests for assistance from small industries, TECHNINET is providing an important service for Asian industries, many of them in rural areas. During the second phase there are plans to expand the training program and "Asianize" the technical information service so that the network will be completely autonomous by 1980.

Another Centre-supported project in Asia concerned with the promotion of small-scale industries has just got under way. Researchers in seven countries will take a close look at government programs in support of small manufacturing enterprises, including financial and technical assistance, training and extension activities, and coordination among different agencies in the field.



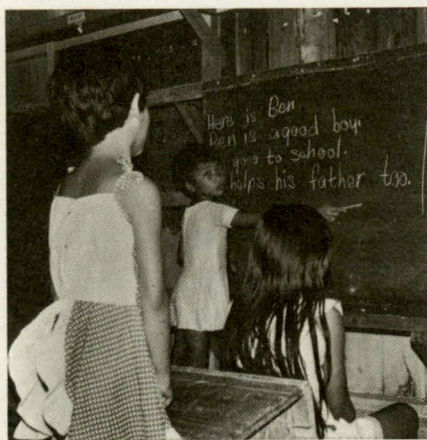
Basketweaving in the Philippines — small-scale industries like this one can benefit from the services provided by TECHNINET Asia.

IMPACT system helps spread the load

"Our concern is not with schools, it is with the education of our children." That simple statement sums up the concept behind an innovative attempt to provide universal primary education in Southeast Asia without the crippling costs normally associated with such an objective.

The scheme is called Project IMPACT. It began in 1974 at two separate rural locations, in Naga district in the central Philippines and near Solo in Indonesia. This experimental approach to the problems of mass education is being undertaken by the Southeast Asia Ministers of Education Organization (SEAMEO) through INNOTECH, the regional Centre for Education Innovation and Technology.

Peer group teaching in a village school — the IMPACT system allows children to get an education and help on the family farm.



Self-instructional booklets developed by the research teams and known as "learning modules" are the key to the IMPACT system. These modules follow the normal syllabus for Grades 4 to 6, but divide the learning into booklets covering about 3 to 5 hours work, and contain tests which are checked by a tutor or teacher.

Each child proceeds at his or her own pace, and is free to obtain help from parents or friends, older students acting as tutors, or teachers. To a large degree the children in fact teach and test each other. Comparative tests in both countries have shown that IMPACT students score higher than their counterparts in conventional schools.

The five schools at Naga and four near Solo have been transformed into learning centres — part library, part testing area, part administrative centre. Most of the studying is done outdoors, and the flexible system allows students to fit family duties into their schedule, so that in theory no child need "drop out" because of irregular attendance. The IMPACT system in fact tackles the issues of out-of-school youth by suggesting that they are not a separate category, but can catch up with studies at any time. Experiments with "learning posts" in village homes have also helped draw some out-of-school youth and even a few adults into the system again.

On the economic side, the system has spread the teaching load so that a school of 280 students that used to employ 10 teachers is now run by three or four instructional supervisors (the new name for teachers in the IMPACT system). This saving is one of the project's major achievements, and the teachers have shown remarkable adaptability in adjusting to their new role.

The second phase of Project IMPACT will not be completed at Naga and Solo until 1979, but it has aroused such interest in developing countries that the IDRC is preparing a booklet for publication in 1977. Entitled *Project Impact*, it will describe the progress of the first three years of the experiment.

In each country a minimum of 100 manufacturers — in sectors such as textiles, leather and wood products — will be asked about their experiences with government programs, as will the agencies concerned. The researchers will also look into the broader question of the place of small enterprises within national development programs. Care is being taken in this project to use common methodologies so that a comparative evaluation can be made at the end of the study.

The promotion of small-scale industry is accepted as an important development objective in many Third World countries; the study should yield findings that will assist in developing policies to meet that objective.

Another project in the field of science and technology research that could have broad application is now underway in Mexico. Its aim is to pave the way for the rational development of technologies that will be of real benefit to poor rural communities. The problem of relating appropriate technology to rural development is a complex one. The Mexican project is a pilot study that will begin by examining past experience in the field, and defining criteria for measuring the success, or failure, of a particular innovation.

It is a field which there is a great deal of uncoordinated activity, but there have been few attempts at an overall evaluation of such activities. This Centre-supported project, which is an integral part of a larger study of the rural economy being carried out by Mexican researchers, should help to provide some guidelines for planners, not only in Mexico but also in other countries concerned with linking new forms of technology to the problems of rural development.

Industry and technology, even on a modest scale, usually require some form of energy. There is little likelihood, however, that electricity can be made widely available in the rural areas of developing countries in the foreseeable future. The search for alternatives is complicated by the fact that surprisingly little is known about present or future energy supply and demand in rural areas. The government of Fiji, for example, plans to introduce rural industry to the islands, but is hampered by an almost total lack of information about rural energy supply.

Now a research team from the University of the South Pacific, supported by an IDRC grant, is surveying rural communities in selected areas to establish what are the present and future energy needs in the islands. As part of the project the researchers will also study alternative energy sources, with special emphasis on the feasibility of biogas production using waste vegetable matter.

The one-year study will also examine possibilities for local manufacture of plant hardware for new energy production, and will look into the sociological implications of any changes that may result from new energy supplies. To ensure contact between the project and the policymakers, an advisory committee has been set up consisting of both government and university experts.

Another reason families move away from rural areas is to seek better educational opportunity for the children. To provide a school and teachers for every village is beyond the resources of most countries, so the children must often travel long distances on foot in order to attend a school that is probably overcrowded and understaffed. Many of them never complete the primary grades, and only a tiny percentage pass through the secondary school system.

Since 1973 the Centre has been supporting Project Impact, an exciting experiment in the delivery of mass primary education in Indonesia and the Philippines (see box). This project, which entered its second phase during the

past year, has attracted considerable attention from educators in other developing countries, many of whom have visited the project sites over the past two years. As a result of one such visit the Centre received a proposal from the government of Malaysia for a project that would build on the achievements of the Impact experiment and determine if such a program could be replicated in a different social and cultural context.

The project, which was approved for funding at the end of the past year, is aimed primarily at improving the quality of education for children in rural areas, while at the same time reducing costs. It will become part of the Malaysian government's concerted program to eradicate poverty and provide educational equality throughout the country.

With education comes the need for information. In most developing countries newspapers circulate in the cities and large towns. Where they do penetrate to the village level they are often already dated, and in any case contain little that is of direct relevance to the rural people.

The need for a special kind of news media for rural areas was recognized at a seminar in Bali, Indonesia, in 1975, attended by communicators, publishers and policymakers from Asia and Africa. Such media should be able to report relevant news about science, technology and development in suitable language; to serve as an outlet for the views of rural people; and generally to provide a vehicle for non-formal adult education.

The Asian Mass Communications Research and Information Centre (Amic), one of the co-sponsors of that seminar, has recently begun a follow-up project with the support of the IDRC. In the early stages Amic will study past and present experiments in operating rural news media, and assess the type of print media best suited to rural areas. The second phase will be a feasibility study on establishing an experimental development-oriented newspaper in a typical Asian village. The studies, the first of their kind, will be carried out in India, Philippines, Sri Lanka and Thailand over a period of 18 months.

Land tenure, essential services, good government, education and varied employment opportunities all contribute to a better standard of living. These are some of the "social" needs of people in rural areas. But life for rural peoples can never be secure so long as they are subject to the scourge of tropical diseases, the hazards of environmental degradation and the vagaries of the elements. What can be done to improve these aspects of rural life in the Third World is the subject of the next section of this review.

Water and Health

The close of the year under review saw another United Nations symposium — the Water Conference in Mar Del Plata, Argentina. That gathering focused on what had earlier been a major concern at Habitat: the need for fresh, clean water — for drinking, for washing, for irrigation — and the fear that water supplies, far from keeping pace with population growth are actually diminishing.

Again it is the rural areas in developing countries that are in greatest need, and it is here that the IDRC has been placing increasing emphasis in the past two years. The question of water supply, however, is a complex one. The installation of a pump or a well in a village does not of itself guarantee that health conditions in the village will improve. Lakes created by large scale irrigation dams can result in the spread of water-related diseases. And excessive irrigation can lead to the salination and waterlogging of irrigated areas, rendering them unfit for farming.

Water supply, then, must be considered not simply in terms of making more water available. It involves a whole range of disciplines — environment, health, hygiene, sanitation, appropriate technology, water management and use, education and training, and socio-political questions. It is in these areas that the IDRC is concentrating its research support.

One aspect of the water supply problem is technology. At the village level that usually means a hand pump, and the problem with hand pumps is that they very often don't work, largely because they are not designed for the type of intensive use they are getting. What is needed is an inexpensive, reliable pump that requires little maintenance and can be manufactured locally rather than imported. It might seem a simple requirement, but the fact remains that hand pump design has changed little in 100 years, and such changes as have taken place have been piecemeal modifications.

At the University of Waterloo in Canada a concerted effort is underway to design prototype pumping systems specifically for use in developing countries. The research team, supported by an IDRC grant, is concentrating on reliability under strenuous use, simplicity and low cost. Complete prototype systems will be supplied to researchers in developing countries for field testing and possible local manufacture. In addition the Waterloo team will develop a uniform guide for pump testing in order that an accurate assessment can be made of a pump's performance under conditions of actual use in rural areas.



Water supply in the marketplace at Blantyre, Malawi — what is needed is an inexpensive, reliable hand pump.

The same principles apply to another water technology project supported by the Centre, this one in Peru, where an evaluation of a new simplified water treatment plant is being undertaken. The plant is one of three developed by the technical assistance arm of the PanAmerican Health Organization (PAHO), which is concerned with making water treatment plants available to smaller communities in developing countries by reducing operation, maintenance and import costs to a minimum.

The experimental El Imperial plant in Peru incorporates a simplified technology that eliminates the need for pipes, pumps and any type of mechanical equipment. Only one part, the pressure feed chlorinator, is imported. The evaluation involves collecting extensive data on the plant's operation, programming the data through a computer to test the plant's efficiency, and determining what further modifications are needed so that construction and operation costs can be reduced still further.

For the really small community, however, the problems are more basic. In Nigeria an estimated 70 percent of the people live in communities with less than 1,000 population. Perhaps 10 percent of these people have access to "safe" water supplies — and because it is easier to provide water to larger communities, they have usually been passed over in water supply programs. These smaller settlements are the target of a project just begun by the University of Ibadan with the support of the IDRC.

The aim of the project is to devise appropriate technical and management strategies for improving water supplies at the village level. Since the availability and quality of water vary widely over the country, the multidisciplinary research team will operate in three representative areas. They will survey individual households and community leaders in 40 settlements to come up with a detailed analysis of existing water supply and use, related health factors, and the success or failure of any previous attempts at improvement. The survey will also provide field training for students from the University.

The data gathered will provide the basis for a proposed second phase of the project, which would lead to the development of alternative methods of improving rural water supplies. In view of the wide range of environmental conditions to be studied, the project could have application in many other African countries, and the Nigerian researchers have already established contact with other African researchers who could possibly become directly involved at a later stage.

Improved water supply alone will not yield full health benefits, however. Equally important is the safe disposal and treatment of wastewater and sewage, yet this is an area largely overlooked by both governments and donor agencies in developing countries. Most Third World nations cannot afford the high construction costs of conventional sewage disposal and treatment systems that are taken for granted in industrialized nations. Low-cost alternatives must be found for the traditional systems that pollute natural ground and surface waters and provide breeding grounds for disease-carrying insects and parasites.

In Tanzania, Ghana and Botswana the Centre is supporting research seeking such alternatives. Although the three are separate projects, their objectives are similar in many respects, and they comprise an informal network of researchers linking the different regions of Africa. Their common objectives include the study and adaptation of existing technology and methods, and the dissemination of information based on their findings — both nationally and internationally.

The IDRC was instrumental several years ago in bringing together a number of international organizations to form the Ad Hoc Working Group for Rural Potable Water Supplies and Sanitation, with the aim of promoting

Pond power!

Sri Mrisa is the president of the Biraharekrishnapur village council in the east Indian state of Orissa. He is very proud of the village's three fishponds. Until about a year ago the ponds were used for drinking water, washing, laundry, and some fish harvesting. On an average year the fish taken from the ponds brought in about 1000 Rupees. This year, says Sri Mrisa, the fish harvest brought in more than 22,000 Rupees.

The reason for the sudden dramatic increase in both the quantity and quality of Biraharekrishnapur's fish can be summed up in one word: polyculture. Fish farming has long been a tradition in rural India, but the traditional use of only one fish species in a pond resulted in poor yields, usually about half a ton per hectare of pond annually. Scientists at the Central Inland Fisheries Research Institute (CIFRI) found that polyculture — a combination of species with different feeding habits — plus proper pond fertilization and management, could produce a tenfold increase in yields.

These experiments however, were carried out under controlled conditions in the Institute's own ponds. Would

they produce the same results in remote villages? CIFRI approached IDRC for a grant to fund a demonstration and testing program in Orissa and West Bengal. Biraharekrishnapur was one of the villages selected.

The first step was to clear the ponds of unwanted fish, using an inexpensive locally developed process that works within 24 hours. Then the ponds were re-stocked with six species of carp — the Indian carp Catla, Rohu and Mrigal, and the exotic Silver, Grass and Common carp. Some are surface feeders, some column feeders and some bottom feeders. The ponds were fertilized once a month with manure and superphosphate. The villagers were entirely responsible for stocking, fertilizing and managing the ponds — CIFRI provides only technical advice and encouragement.

At the end of the first year the yield was 3.5 tons of fish per pond hectare — a success story that has been repeated in dozens of other villages in the two states as the CIFRI teams move on to a new set of villages each year.

Perhaps the most encouraging sign is that the villagers almost invariably opt to plough the extra money back into the community. In Biraharekrishnapur they will no longer have to use the ponds for drinking and washing water — Sri Mrisa says the 22,000 Rupees will be used to sink a 150 foot well and pump up clean, fresh water.

improvements in this important field through a global program of information, education, research and training. The Centre also agreed to become the Group's "lead agency" for information activities.

In Peru the Centre is supporting research at CEPIS (the PanAmerican Centre for Sanitary Engineering and Environmental Sciences) to develop plans for a regional information system with special emphasis on rural water supply and sanitation, to serve Latin America and the Caribbean. Once operational, such a system could well serve as a model for a specialized global information network that would be an essential component of the Group's overall program.

The need for information and education is paramount if health is to be improved in rural areas. It has been observed that parasitic and infectious diseases such as hookworm, typhoid, cholera and dysentery persist in small rural communities even where a supply of pure water is available. The problem is poor hygiene — water becomes contaminated when stored in unsanitary containers, and diseases are passed quickly from one family member to another if basic preventive measures are not taken.

In Guatemala a team of researchers supported by the IDRC is studying the domestic routine of families in such villages. They hope, by winning the confidence of the people, to be able to isolate the cycle of contamination and infection — a cycle that results in a staggering 96 percent of the people in some areas being almost continuously subject to debilitating disease. If they succeed, their findings will enable other researchers to detect similar health risk situations, and to develop programs of sanitary education tied to water use in the home that will break the cycle of disease.

Funding was also approved at the close of the year for the establishment of a six-country network that will link Africa, Asia, Latin America and the Middle East in a study of wastewater disposal. The six projects will concentrate on the potential of stabilization ponds in the treatment of wastes, and the possibility of making sewage disposal profitable by using the ponds for fish production.

Aquaculture, or fish farming, is a traditional practice throughout much of Asia. Fish are often raised in community ponds that also serve as a supply of water for washing and drinking. Such systems are obviously inefficient in many respects. Properly maintained and stocked ponds are capable of producing far larger quantities of fish — and providing money to pay for a clean water supply, as happened in one Centre-supported project in India (see box).

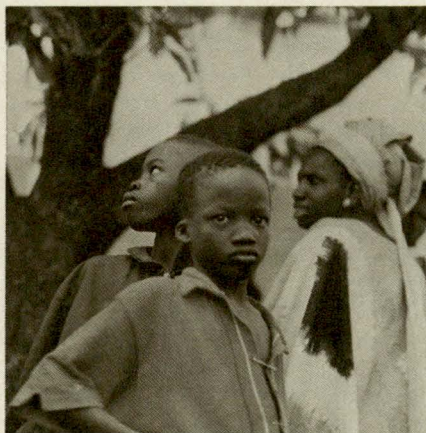
The Indian project is part of a network of aquaculture projects the Centre is supporting in Asia. The most recent of these is in Singapore, where the government is making a determined effort to reduce the island's dependence on imports for 75 percent of its fish by developing intensive fishculture systems. The project will concentrate on management and disease control, induced breeding techniques, and the development of fish feed technology.

The success of the three-year project could have far-reaching consequences for the development of aquaculture in the tropics, especially in island communities.

Another field in which India and Singapore share a common concern is that of population. Too many people place too great a strain on water supply and sanitation systems, as well as other vital resources. Not surprisingly, both countries are leaders in the field of family planning and population research. In recent years the IDRC has supported a series of studies of Singapore's population policies, and this year approved a grant that will enable Indian scientists to continue development and testing of an experimental contraceptive vaccine.

The vaccine, developed entirely by Indian scientists at the All-India Institute of Medical Sciences, has been hailed by Western scientists as a "major breakthrough in biomedical research". Further testing is vital, however, and

Tropical diseases can be beaten



It is estimated that about one million children die of Malaria in Africa each year.

Fifteen years ago there were about 60,000 known cases of malaria in India. In 1975 there were about four million. In Africa about one million children die of malaria each year, and about one adult in four suffers from malaria fever at some time. Worldwide there are about 200 million malaria sufferers.

What has happened is that the parasites that cause the severest form of the disease have developed resistance to the major anti-malarial drugs, and the mosquitoes that carry the parasites have developed resistance to many insecticides. It is a deadly combination. Dr Adetokunbo O. Lucas, former president of the Nigerian Medical Research Council, says that the disease is now so deeply entrenched in the environment in some parts of the world that insecticides and drugs have no real effect.

Dr Lucas is optimistic, however, that malaria and other tropical diseases that affect a total of one billion people in the Third World, can be beaten. He now heads the World Health Organization's Special Programme of Research and Training on Tropical Diseases, an internationally funded cooperative effort that for the first time puts research into tropical diseases on something like an equal footing with other fields of medical research.

The concept of such a program was enthusiastically endorsed by members

of the World Health Assembly early in 1975. The same year the IDRC, as one of the earliest supporters of the idea, was instrumental in bringing together groups of scientists to assess the current global research capacity and to develop the specialized task forces that are the Programme's front line weapons.

There are several of these task forces — working groups of top scientists — and each is concentrating on a specific problem. The Programme itself is not concerned only with malaria, it will also tackle other major tropical diseases such as leprosy, schistosomiasis (snail fever), onchocerciasis (river blindness) and trypanosomiasis (sleeping sickness). It was in malaria research that the first breakthrough came, however, when Dr. William Trager of the Rockefeller University of New York succeeded in maintaining a laboratory culture of *Plasmodium falciparum* for several months. This is the first time a continuous culture of any of the malaria parasites has been maintained for any length of time, and represents a significant step towards the development of an anti-malarial vaccine.

The IDRC is continuing to support the Special Programme, which now also has pledged for long-term financial support from many other countries and institutions around the world.

this will be carried out under the auspices of the International Committee for Contraception Research (ICCR) in six countries over a period of several years.

The hCG vaccine, as it is known, acts against a hormone called human chorionic gonadotrophin (hCG), preventing the completion of the fertile cycle that is essential for a successful pregnancy. There is also a strong possibility that the vaccine may be effective in the treatment of cancer in women and men, an aspect that also requires further study.

The project is part of a major international effort centred on the work of the ICCR, which has established a collaborative worldwide network of adequately supported scientists to develop new forms of contraceptive technology. The IDRC is supporting several parts of this program.

In the semi-arid tropics, a region in which the Centre has consistently supported a great deal of research, the farmer needs a reliable source of irrigation if he is to improve his situation. Yet the development of large-scale dams and irrigation schemes for purely socio-economic gain, without regard for the implications to health, often brings misery and disease to the rural people also. Tropical diseases carried by insects that live by the water or parasites that live in it already affect millions of people in rural Africa. Man-made lakes and waterways often help to make these diseases even more widespread.

Until very recently, research to combat tropical diseases has received very little support, but in 1975 the World Health Organization, assisted by the IDRC, began to draw up a special program for tropical disease research. At the end of 1976 the program was approved by the World Health Assembly, and it is already beginning to produce some promising leads (see box).

The battle against disease is one aspect of the problem — there is also a need to know more about irrigation: how water behaves in different soils, how much water different crops consume, and more about irrigation technology and equipment. Nowhere is this need more acute than in the semi-arid tropics. In 1975 the IDRC provided a grant to establish the International Irrigation Information Centre (IIIC). Its aim: to collect and evaluate information about the use of water on the farm, and to make that information available to the people directly concerned: farmers, researchers and extension workers.

It was a pilot project, based in the Middle East, where much of the research in this field is carried out. During the first year the embryo centre achieved its preliminary goals, and this year the IDRC approved a further three-year grant that will enable the IIIC to consolidate its position and seek additional funding from other sources. Already the IIIC is publishing quarterly an irrigation newsletter and an annotated bibliography, both of which will be expanded. The first of a series of specialized reviews has been produced and the Centre's documentation service has attracted requests for information from over 30 countries.

So far this review has dealt only in passing with the work of the people who make up the bulk of any rural population — the farmers. The largest percentage of the Centre's budget, however, is devoted to research in agriculture and food production, to helping improve the lot of the small farmer. This aspect of the Centre's work is the subject of the third and final section of this review.

Farmers and Food

In the past year there have been signs that the world's spiralling rate of population growth has begun to decline. Not that the population is getting smaller, but that it is growing more slowly. Such a trend, if it continues, is encouraging, but it should not lead to any heady optimism, a sense that the problems are now as good as solved. Far from it. The fact remains that the global population is still increasing rapidly, and that even if it were miraculously to cease to do so overnight, there would still be millions of hungry people, malnourished people, starving people in the world. There would still not be food for everyone.

The majority of farmers in the Third World, however, are subsistence farmers. The subsistence farmer knows nothing about global trends, his concerns are more immediate: to grow enough food to feed his family, and, if luck is with him, to have a little left over to sell at the market. For him, his family and his neighbours, a bad year is not just a disaster, it is a tragedy.

In this situation change, any kind of change, is a risk — perhaps too great a risk. Yet his very subsistence is in itself testimony to his tenacity and traditional skills, skills that combined with the products of modern agricultural research could enable him to break out of the subsistence cycle. In its support of research into improving agriculture and food production, the IDRC has placed greatest emphasis on the small farmer, believing that a country's or a region's drive for greater self-sufficiency in food must begin here.

In Africa and Asia the Centre is supporting a network of projects concerned with cutting food losses through the improvement of postharvest systems.

In Senegal one of the most promising of these projects has just entered its second phase. During the first three years researchers at the National Agricultural Research Centre (CNRA) developed techniques for processing, drying and storing grains that are based on traditional methods and use local materials and labour rather than expensive imported equipment. Two young African scientists were also trained in postharvest research.

The second phase of the project will test the complete systems under real-life conditions in two Senegalese villages of different sizes. Simple mechanical threshers developed at CNRA will be compared with hand threshing. Storage racks that make maximum use of the sun and wind to dry the grain rapidly will be constructed from available materials. Grain storage trials will use both improved traditional bins and an innovative multicompartment silo

developed at CNRA and constructed from concrete blocks manufactured on the spot. In the larger village a cooperatively-owned mill will also be used, similar to one established in rural northern Nigeria in a Centre-supported project there.

The researchers believe that their findings will be valuable to almost all rural communities in West Africa, and once the final evaluation has been completed, a regional workshop will be held to demonstrate the results of the Senegal project to as many countries as possible.

Rice may be the Asian crop *par excellence*, but it is also widely grown by small farmers in other parts of the world, including West Africa. In Ghana a project began this past year that aims to adapt and test a pedal-operated rice thresher developed at the International Rice Research Institute in the Philippines under local conditions. Twenty of the machines will be made available to small rice growers whose farms are too small to qualify them for government assistance, such as the use of a combine harvester.

The project is being carried out by the Technology Consultancy Centre of Kumasi University. The researchers hope that by bringing simple mechanization within reach of the small farmers (who already produce 60 percent of Ghana's rice) they will not only increase rice production, but will stimulate an agricultural support industry to manufacture and maintain basic machines and equipment.

African farmers traditionally use the dried stalks of sorghum to build fences, granaries, even houses — the stalks are a useful by-product. Research into other possible uses of agricultural by-products is as yet limited, but the potential is enormous. In Egypt, for example, the four main crops — cotton, corn, rice and cane sugar — produce an estimated 8.3 million tons of by-products, yet this huge potential resource is largely unused, in spite of the fact that Egypt has a pressing need for animal protein, and currently must import feed for its livestock.

At the University of Alexandria a new project is being funded by the Centre aimed at increasing the country's meat production by making more efficient use of those agricultural wastes. The researchers will develop processing techniques to improve the digestibility and nutritive value of the by-products, and test the resulting feed supplements in trials at the University's experimental farm.

The three-year project will also involve training for a significant number of animal science students, and detailed economic studies of the newly developed feed production techniques. If the technology can be kept simple and inexpensive, its potential for use in many areas of the developing world can be imagined.

The IDRC grant will also enable Egyptian scientists to visit other projects tackling similar problems, including Mexico, where researchers at the National Council for Science and Technology have been studying the use of sugar cane as a cattle feed supplement for the past two years. The Centre recently agreed to fund a second two-year phase of this project, during which scientists will be able to test the full potential of the sugar cane based feed supplement, and assess the economic benefits to both the small farmer and the small sugar mill operator.

Diseases and pests that affect staple crops can also drastically reduce the food supply. Sorghum, grown by small farmers throughout the semi-arid tropics, is prey to the parasitic witchweeds of the *striga* family that can reduce the yield from a single sorghum crop by 50 percent or more, and eventually render the land unfit for sorghum cultivation. With IDRC support a new chemical treatment has been developed that may be able to destroy the

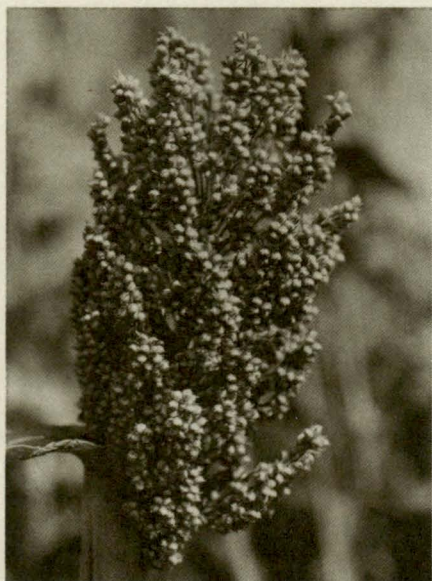
hitherto indestructible weeds (see box) and is now undergoing intensive field testing.

The root crop cassava is also a staple throughout much of Africa, Asia and Latin America. Almost since its inception the IDRC has supported a growing network of cassava research, with the emphasis on increasing production at the small farm level. Part of this effort is the search for an effective means of controlling the green spider mite, *Mononychellus tanajoa*, a tiny but extremely destructive pest that is particularly harmful to young cassava plants. The mite,

An end to the witchweeds?

Sorghum ranks fifth among the world's cereal crops, and has the potential to do much better. In the semi-arid tropics it ranks second only to maize, and is a staple food for at least 400 million people. Scientists predict sorghum production could be quadrupled in developing countries, outstripping both wheat and maize.

But in Africa and Asia there are vast areas of arable lands where sorghum can no longer be grown. The reason is something the farmers call witchweed and the scientists call *Striga* spp. These are parasitic weeds. Their seeds may lie dormant in the soil for up to 20 years, to be activated only by a stimulant produced by the root of a suitable host plant — such as sorghum.



Sorghum provides food for millions.

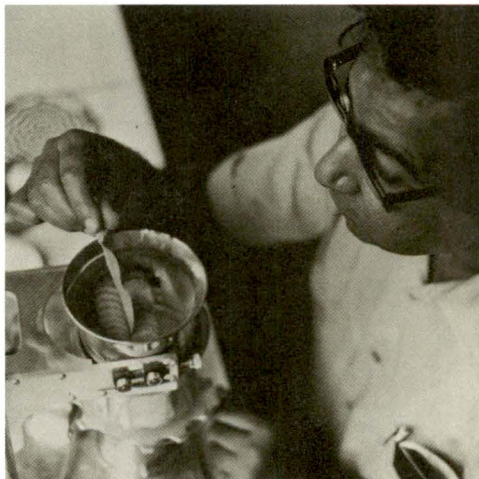
Then the witchweeds reappear. Drawing nutrients from the host plants, they drastically reduce the sorghum yield, and produce beautiful yellow flowers that spread millions more seeds in the soil. Repeated attempts to grow sorghum on the land simply enable the witchweeds to multiply to the point where it is no longer worthwhile planting a sorghum crop.

Since 1973 the IDRC has been supporting research at the University of Sussex, England, to develop a cheap synthetic stimulant that will cause the weeds to germinate prematurely — and die for lack of a host plant. The key is strigol — the chemical exuded by the roots of sorghum and some other plants, and only identified in 1972. If the scientists could develop a chemical compound with the same stimulant properties as strigol, and if it could be mass-produced economically in developing countries, a major constraint to sorghum production would be removed.

During the first four years of painstaking research, the group at Sussex, under Professor Alan Johnson, succeeded in producing synthetic compounds that will germinate the seeds of both *Striga* and another parasitic weed, *Orobanche*, in the laboratory. The Centre is now supporting a further two years of research to make the compounds more stable in a variety of soils, to develop pilot-scale production of the most potent stimulants, and to carry out extensive field testing in Egypt, India, Nigeria and Tanzania.

The aim now is to bring the new chemical to the point where it can be made commercially available to small farmers as rapidly as possible.

A scientist at the Commonwealth Institute for Biological Control in Trinidad collects tiny mites from a cassava leaf.



which is found in much of Latin America and the Caribbean, was accidentally introduced into East Africa some years ago, and, thanks to the mite's remarkable ability to drift long distances on wind currents, is spreading rapidly. It is feared it may soon cover the entire continent if unchecked.

For the past two years scientists at the Trinidad station of the Commonwealth Institute of Biological Control have been exploring the possibilities of using the mites' natural enemies to control them. They were able to identify and study no less than 14 predator insects that prey on green spider mites. The most promising of these will now take part in the second phase of the project, which will involve their controlled release in the actual environmental conditions of East Africa. Special quarantine facilities have been constructed by the East African Agricultural and Forestry Research Organization (EAAFRRO). Here the scientists will release the predators and observe their effect on the mite populations, and on the cassava plants. They hope these studies will lead to a breakthrough in biological control that would be of immediate benefit to the small farmer whose cassava crop today is threatened by the spread of the mites.

The slash-and-burn shifting cultivation technique traditionally used by small farmers in the humid tropics is a wasteful system, since it depletes both the forest and the soil, and leaves large areas of land unused over many years. Before any large scale change can be made, however, it is necessary to understand more about agroforestry — the combination of food crops, trees and animals on the same piece of land — a field in which little research has been done. The IDRC is now supporting three closely related projects in Nigeria, Cameroon and Ghana that will greatly increase the available knowledge of agroforestry techniques in this region.

While the approach and methodology of each project will vary, they share a common general objective: to develop systems that will increase both food and wood production, improve the productivity of the land and provide greater income and security for the small farmer.

Agroforestry will be given greater international attention as a result of a study of research priorities completed by the Centre during the past year. The study, which was carried out by an international working group of experts, concluded that there is a great need for more research and more information on agroforestry, and recommended a coordinated international effort. The Centre convened a meeting of international donor agencies in November, at which a

committee was formed to establish the International Council for Research in Agroforestry (ICRAF), which will begin operations early in 1978.

In the semi-arid tropics small farmers face a different set of problems. Once the trees have been cut, they will not grow back unassisted, and without trees to provide shade and retain moisture the land may rapidly turn to desert. Since 1974 the Centre has been supporting a growing network of savannah forestry projects in the semi-arid regions of Africa, all of which have the common aim of preventing further depletion of treed areas and the resultant erosion of agricultural land. There are now 11 projects in the network. In order to gain maximum benefit from this concerted effort, the African researchers and administrators involved requested IDRC support in establishing, as a pilot project, a coordinating organization.

With IDRC funding for four years, the project will provide expert African research advisors who will visit each of the 11 projects several times each year, design training manuals and courses, prepare state-of-the-art reviews and generally ensure the effectiveness of the network. During the fourth year there will be an independent evaluation of the project's activities. It is a novel approach for this region of Africa, and one that could open up an entirely new strategy for the development of forestry in semi-arid areas.

The development of new varieties and new crops is another way in which small farmers can be helped to become more productive. Considerable progress has been made in recent years at the International Centre for the Improvement of Maize and Wheat (CIMMYT) in Mexico on the development of new lines of sorghum that will thrive at low temperatures. To consolidate this work the IDRC is funding a further two years' research in Mexico that will be carried out, at CIMMYT's request, under the supervision of scientists from the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) in India, where the bulk of the world's sorghum research is conducted. Such a cold-tolerant sorghum would make the crop more widely available to small farmers in highland tropical areas of Asia, Africa and Latin America, and provide security for farmers who at present are faced with the prospect of severe losses as a result of a sudden cool spell.

CIMMYT has also been instrumental in the development of triticale, a hardy hybrid cross between wheat and rye. The true test of this new grain, however, is its ability to adapt to other regions of the world. The IDRC is supporting a number of triticale outreach projects that will help improve the grain's adaptability. In northern India, for example, where the foothills of the Himalayas provide a challenging testing ground, with a wide variety of agro-climatic conditions and little or no irrigation.

The Indian Council for Agricultural Research asked for IDRC support in expanding a small-scale triticale improvement program. The Indian scientists believe that triticale will be able to out-yield both wheat and barley in the unirrigated areas. The project will test a wide range of triticales in order to produce lines suitable to the region that are nutritionally superior to local grains, and, equally important, are acceptable to the local people for use in making products such as *chapati*, the unleavened bread that is a staple in many Indian homes.

Quinoa is not a new crop — in fact it is known to have been cultivated in the Andean region of Latin America in the time of the Incas. It is a member of the chenopod family, and is believed to be among the most nutritious grains in the plant kingdom. Quinoa is still grown by hillfarmers in Bolivia, Peru and Ecuador, but until recently there have been no attempts to develop it as a major crop. Now the IDRC is supporting a research program at the Bolivian Institute of Agricultural Technology to develop improved, high-yielding, disease-

resistant varieties that will allow an increase in production and reduce that country's dependence on grain imports.

The project will involve the collection, classification and selective breeding of the most promising varieties, and their introduction at the farm level. It will also provide much-needed training opportunities for young Bolivian researchers. For the farm families who scrape a precarious living from the Andean highlands, it will bring a better income and improved nutrition.

Keeping ahead of the paper chase

Researchers in agriculture, forestry and fisheries write a quarter of a million new scientific and technical papers every year. Most of this research can be applied in many parts of the world, but because publishing and library services in developing countries are usually quite limited, there is a constant risk that research programs there will be launched in ignorance of work done elsewhere on the same subject. Western-based services involve costly duplication, require scarce foreign exchange, and often do not include important developing-country literature, especially if it is not published in scientific journals.

Helping developing countries to draw upon and contribute to the world's storehouse of agricultural knowledge can therefore have immeasurable benefits, and forms a major part of the IDRC's Information Sciences program. Transferring information among many disparate researchers in developing countries implies a systematic arrangement, recognized by FAO in its AGRIS, AGLINET and CARIS projects, which involve governmental participation.

AGRIS is a bibliographic system that, since January 1975, has been listing recent agricultural documents. Each participating country appoints a national centre to collect, classify and index documents produced within its territory — a job that in any case is vital for national planning purposes. The records from individual countries are sent in a standard form to the AGRIS Coordinating Centre where they are condensed into a printed bibliography, copies of which are distributed free to

participants. Centres with adequate computer facilities can receive the same information on magnetic tape and use it for specialized services tailored specifically to their needs.

By themselves, however, bibliographic references are useless: people generally need to read original documents. AGRIS is therefore accompanied by AGLINET, a network of cooperating agricultural libraries through which the original literature can be made available. The third system, CARIS, identifies and records agricultural research institutions, researchers and their current programs, enabling anyone to consult directly the source of any particular knowledge.

The IDRC's efforts to help developing countries participate in AGRIS have been concentrated on regional centres in Latin America and Southeast Asia, which collect literature from countries in their region, process it for input to AGRIS and provide various forms of output service. They also disseminate material that is important regionally but is not within the AGRIS subject scope. These centres provide a focal point round which national activities can develop and eventually branch off, so training is another important function.

The basic concepts of AGRIS developed out of INIS, an intergovernmental bibliographic system that has been successfully serving the nuclear energy industry for the past 10 years. Similar "mission-oriented" systems are either now operating, or are being considered, for population, education, development studies and other fields of direct concern to developing countries.

The rapid dissemination of information about recent research findings is vital to agricultural development, to enable scientists working in similar fields to coordinate their efforts, exchange ideas and avoid duplication of effort. The IDRC is already supporting the activities of specialized international agricultural information centres for cassava, grain legumes and farm irrigation, and during the past year approved a further grant to help establish a centre for information on sorghum and millet.

Since its inception the IDRC has committed about \$3 million to agricultural information programs. A good portion of this has helped developing countries participate in programs such as AGRIS, a computerized global system for information on agricultural science established by the FAO. As part of its continuing role in AGRIS, the Centre approved several grants during the past year (see box).

At a different level, there is an equally important need to find new low-cost techniques of communicating directly with the small farmer. In Uruguay the Centre is supporting a pilot project using small cassette tape recorders to bring the message of rural development to small isolated communities or individual farms, and to allow them to communicate with each other. Trained volunteers lead discussion groups through each pre-recorded program, and the people can record their reactions on the blank side of the tape, to be replayed to other groups. Feedback from many groups can be condensed and redistributed on new cassettes for further discussion and comment.

The aim of the cassette forum is to foster cooperative rural development activities among neighbouring groups. Initially the experiment is being tried in two areas of the country, but if it succeeds it could become a national program, and perhaps spread to other countries with similar problems that have already indicated an interest in such low-cost means of rural animation. For the farmers and their families it means, perhaps for the first time, regular access to new ideas, new attitudes and new knowledge.

The IDRC functions a little like the cassette forum — serving as a catalyst, bridging the gap between scientists, administrators and policymakers in different countries, different regions, different disciplines. Like the tape recorder, the Centre is in a sense a tool to be used by the developing countries, a tool that also can bring new ideas, new attitudes and new knowledge to help speed the development process.

It is that ability to continually produce and absorb new knowledge that differentiates man from the other inhabitants of this small planet. It is the search for new ideas, the drive for self-improvement, the need for common solutions that link our disparate cultures, that bring together Egyptians, Mexicans and Ethiopians, Ghanaians and Filipinos, Kenyans and Trinidadians. Here, too, we are on common ground.

PROGRAM PROJECTS
APPROVED TO MARCH 31, 1977
(1000's)

Region of Activity	PROGRAM DIVISIONS							% OF TOTAL
	Agriculture, Food & Nutrition Sciences	Information Sciences	Health Sciences	Social Sciences & Human Resources	Publications	Canada & Donor Agency Relations	TOTAL	
Africa	13,166	1,591	2,582	3,053	–	216	20,608	21.92%
Asia	16,830	4,616	5,368	9,743	114	–	36,671	39%
Caribbean & Latin America	8,307	1,806	4,051	4,832	–	–	18,996	20.20%
Global	864	2,417	2,554	4,711	–	–	10,546	11.21%
Canada	2,131	1,192	445	3,378	7	59	7,212	7.67%
TOTAL	41,298	11,622	15,000	25,717	121	275	94,033	
% OF TOTAL	43.92%	12.36%	15.95%	27.35%	.13%	.29%		100%

PROGRAM PROJECTS
APPROVED IN FISCAL YEAR 1976–77
(1000's)

Region of Activity	PROGRAM DIVISIONS							% OF TOTAL
	Agriculture, Food & Nutrition Sciences	Information Sciences	Health Sciences	Social Sciences & Human Resources	Publications	Canada & Donor Agency Relations	TOTAL	
Africa	4,888	248	203	416	–	216	5,971	22.35%
Asia	3,417	2,640	604	1,880	42	–	8,619	32.36%
Caribbean & Latin America	2,702	577	1,841	993	–	–	6,113	22.88%
Global	583	1,015	1,310	1,246	–	–	4,154	15.54%
Canada	486	–	105	1,207	7	59	1,864	6.98%
TOTAL	12,076	4,480	4,099	5,724	49	275	26,721	
% OF TOTAL	45.19%	16.77%	15.34%	21.49%	0.18%	1.03%		100%

Publications

IDRC-003/76e,f

IDRC Annual Report 1975-76/CRDI Rapport annuel 1975-76, Ottawa, 1976. 64 p.

IDRC-017e

Natural durability and preservation of one hundred tropical African woods, Yves Fortin and Jean Poliquin, Ottawa, 1976. 131 p. Also available in French (IDRC-017f).

IDRC-066e

Food production in India: a perspective, W. David Hopper, Ottawa, 1976. 30 p.

IDRC-067e

Science and technology policy implementation in less-developed countries: the methodological guidelines for the STPI project, Ottawa, 1976. 78 p.

IDRC-068e

Education research priorities: a collective view, Ottawa, 1976. 26 p.

IDRC-069e

Low-cost rural health care and health manpower training: an annotated bibliography with special emphasis on developing countries (Volume 2), Frances Delaney, Ottawa 1976. 182 p.

IDRC-070e

Walking on two legs: rural development in South China, Elizabeth and Graham Johnson, Ottawa, 1976. 72 p.

IDRC-071e

African cassava mosaic: report of an interdisciplinary workshop held at Muguga, Kenya, 19-22

February 1976, Barry L. Nestel, editor, Ottawa, 1976. 48 p.

IDRC-072e

Projects: 1976 supplement, Claire Veinotte, editor, Ottawa, 1976. 28 p. Also available in French (IDRC-072f) and Spanish (IDRC-072s).

IDRC-073e

Interface: IDRC review 1975/76, Bob Stanley, Ottawa, 1976. 32 p. Also available in French (IDRC-073f) and Spanish (IDRC-073s).

IDRC-074e

Village health workers: proceedings of a workshop held at Shiraz, Iran, 6-13 March 1976, H. A. Ronaghy, Y. Mousseau-Gershman, and Alexander Dorozynski, editors, Ottawa, 1976.

IDRC-076e

Intercropping in semi-arid areas: report of a symposium held at the Faculty of Agriculture, Forestry and Veterinary Science, University of Dar es Salaam, Morogoro, Tanzania, 10-12 May 1976, J. H. Monyo, A. D. R. Ker, and Marilyn Campbell, editors, Ottawa, 1977. 72 p.

IDRC-077e

Tsetse: the future of biological methods in integrated control, Marshall Laird, editor, Ottawa, 1977. 220 p.

IDRC-79e,f

Devindex Canada: index to 1975 Canadian literature on economic and social development, Gisèle Morin-Labatut, editor, Ottawa, 1976. 58 p.

IDRC-080e

Proceedings of the fourth symposium of the International Society for Tropical Root Crops held at CIAT, Cali, Colombia, 1-7 August, 1976, James Cock, Reginald MacIntyre, and Michael Graham, editors, Ottawa, 1977. 277 p.

IDRC-082e

Computer simulation of soil-water dynamics: a compendium of recent work, Daniel Hillel, Ottawa, 1977. 216 p.

IDRC-TS3e

Optical character recognition: use of OCR techniques in decentralized data collection for bibliographic information systems, H. W. Groenewegen and J. Marshall, Ottawa, 1976. 96 p.

IDRC-TS4e

Approaches and priorities in rural research in India, V. S. Vyas, Ottawa, 1977. 12 p.

IDRC-TS5e

Evaluation of the CARIS project, Ottawa, 1977. 32 p.

IDRC-LP5

Directory of persons in Canada with overseas experience in library and information services; F. W. Matthews and Doreen Fraser, compilers, Ottawa, 1976. 16 p.

IDRC-LP6e

IDRC library thesaurus, Ottawa, 1976. (various pagings). Also available in French (IDRC-LP6f) and Spanish (IDRC-LP6s).

IDRC-LP7e,f,s

Acronyms list, 1976/Liste de sigles, 1976/Lista de siglas, 1976, Ottawa, 1976. 100 p.

The IDRC Reports/Le CRDI Explore/CIID Informa

(Bob Stanley, Editor-in-Chief)

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 Publications Division.

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.

A complete list of current IDRC publications in English, French and Spanish is available from: Distribution Unit, Publications Division, IDRC, Box 8500, Ottawa, Canada. K1G 3H9.

Text: Bob Stanley

Photos:

Neill McKee — pp. 9, 11, 16, 19, 23, 24

Clyde Sanger — p. 12

FAO — p. 5

