Science for Humanity

Rabaya, Bangladesh

Francisco Zepeda, Guatemala

IDRC

CANADA

IDRC Annual Report 1998–1999

Canada

INTERNATIONAL DEVELOPMENT RESEARCH CENTRE

FACES OF DEVELOPMENT

Conserving biodiversity in Bangladesh. Rabaya is a seed saver and collaborates with an IDRC project to ensure that local seed supplies can compete with exotic sources.

Breaking new ground in Guatemala. Francisco Zepeda is part of a group of villagers that have negotiated the right to control the forest resources that are their lifeblood. *See page 24.*

IDRC AT A GLANCE

The International Development Research Centre (IDRC) is a public corporation created by the Parliament of Canada in 1970 to help scientists and communities in developing countries do research to find solutions to their social, economic, and environmental problems.

IDRC MANDATE

To initiate, encourage, support, and conduct research into the problems of the developing regions of the world.

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p. 55 courtesy of François Gasengayire

Contents

Institutional Highlights

- **IDRC and the Social Sciences and Humanities Research Council** launched a new program of international development grants to encourage young Canadian researchers to study emerging issues affecting relations between Canada and the nations of Asia and Latin America.

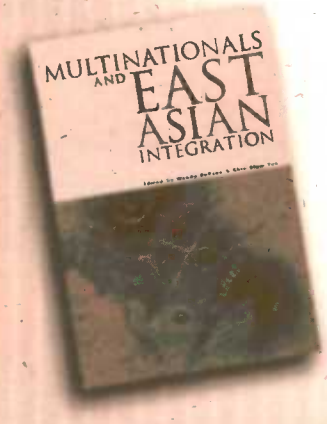
  For a detailed account of the new grants program see http://www.sshrc.ca/english/programinfo/grantsguide/idrc.htm

- IDRC also created a **new funding program** to stimulate **collaborative research on improving health conditions** in developing countries. Funded through the Centre's Ecosystem Approaches to Human Health program, the awards will bring Canadian universities, international agricultural research institutions, and local health and agricultural research organizations in developing countries together to understand better how the management of agricultural ecosystems affects human health. For example, researchers will attempt to identify environmentally friendly alternatives to agricultural chemicals, both to improve the population's health and to reduce health-care costs.

  More information about this new funding program can be found at http://www.idrc.ca/media/ecofund_e.html

- In 1998/99 **eight new governors** were appointed to IDRC's Board. They were Mervat Badawi, Margaret Catley-Carlson, Beryl Gaffney, Octavio Gómez-Dantés, Sir Alister McIntyre, Tom McKay, Francisco Sagasti, and Rodger Schwass.

  To learn more about IDRC's corporate governance and the particular expertise of its new governors see pages 63-69.



- Professor Wendy Dobson, Director of the Centre for International Business at the University of Toronto, and Professor Chia Siow Yue, Director of the Institute of Southeast Asian Studies (ISEAS) in Singapore, received the **Masayoshi Ohira Award** for their book, *Multinationals and East Asian Integration*, copublished by IDRC and ISEAS. The award recognized the two editors' outstanding contribution to the understanding of regional integration in East Asia. The Ohira Award is named after the former Prime Minister of Japan, the late Masayoshi Ohira, who is regarded as one of the architects of the modern, outward-looking Japanese state.

  A synopsis of Multinationals and East Asian Integration *can be found at http://www.idrc.ca/books/806.html*

- IDRC established a **special emergency fund to help El Salvador, Guatemala, Honduras, and Nicaragua with their recovery efforts in the aftermath of Hurricane Mitch.** The Fund for Reconstruction Studies was designed to help researchers and policymakers in the region identify the most effective and efficient strategies for rebuilding their devastated nations.

  For a more detailed account of the Fund for Reconstruction Studies, see http://www.idrc.ca/media/Mitch_e.html

- A 1997 study of IDRC's information systems and communications infrastructure identified a need to improve communication between the Centre's headquarters and its regional offices. In response, IDRC launched an **Intranet Pilot Project** to test the utility of an intranet as a tool for sharing information and for collaboration. The project has led to the creation of a Web Coordination Unit to consolidate the development of IDRC's public Internet site and the future directions of its intranet site.

  Details of IDRC's efforts to improve the use of information and communication technologies to streamline its operations and its program delivery can be found on page 58.

Program Highlights

- Canadian researchers are helping to **stalk a "cereal" killer** in Mali. *Striga* is a weed that infests an estimated two thirds of the fields devoted to cereal crops in Africa, resulting in crop losses of up to 70% among subsistence farmers. Specialists in the biological control of weeds at McGill University have identified a fungus that effectively controls *Striga*, resulting in better yields of sorghum. They have also developed a way for local women to produce and sell an inoculant made from the fungus, thereby increasing incomes along with food supplies.

  For details, see pages 33-38.

- Two decades of IDRC research have made it possible to draw up a long shopping list of **products made from local raw materials,** including dyes from indigo, essential oils from rosemary and thyme, carrageenan from algae, starch from cassava, and plywood glue from mimosa trees. Researchers are now sharing the results and lessons from some 20 of these projects as part of a network to improve the quality and marketing of natural, plant-based products in Africa.

  To learn about these efforts and how they can help generate both income and jobs in the developing world, read pages 51-56.

- As Guatemala recovers from a civil war of 36 years, its economic needs are great. Nevertheless, the government has set aside 1.6 million hectares of forest to **prevent the exploitation of the rich biodiversity** of its northern frontier. But this reserve is under threat from uncontrolled settlement by landstarved migrants and returning refugees. Community stewardship of forest resources can help to protect biodiversity by enabling people to earn a living through the sustainable use of forest products.

  Read about one such initiative on pages 21-26.

- The **Dnipro River is the third largest river in Europe, and one of its most polluted.** Despite its contamination by fallout from the Chernobyl disaster, toxic pesticides, industrial waste, and untreated sewage, it is the source of 70% of Ukraine's drinking water. Canada is helping to clean up the river through an IDRC-managed program that is revamping Ukrainian environmental policy while offering scientific and technical assistance.

  It is described on pages 45-50.

- The World Bank's *1998/99 World Development Report* calls for improved knowledge and information for environmental management and protection. The Economy and Environment Program for Southeast Asia (EEPSEA) is contributing to this effort in a region where the environment has been a victim of economic growth. EEPSEA is helping researchers undertake **economic analyses of environmental issues to guide policymaking** in directions that benefit the environment.

  An example of EEPSEA-funded research – a study that assessed the economic cost of the 1997 fires and haze in Indonesia – is highlighted on pages 27-32.

- To most people in the South, telephones, computers, fax machines, and the Internet are part of another world. But telecentres, which provide public **access to these information and communications technologies,** can bring that world under one roof in poor communities. Two IDRC initiatives are supporting a range of telecentre projects in Africa, Asia, and Latin America that aim to give poor people the tools to control their own development.

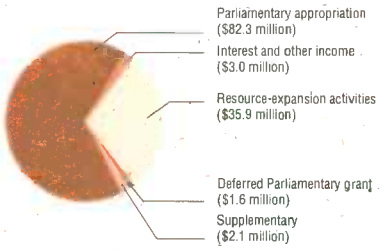
  The complex research issues associated with telecentres and their impact on development are described on pages 39-44.

Operational Highlights

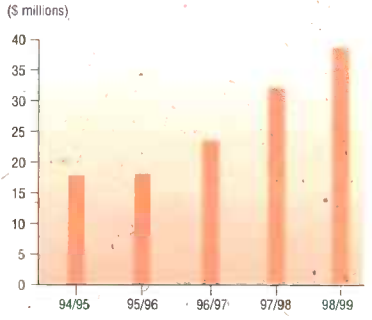
In 1998/99, the Centre continued its efforts to supplement its revenue by increasing its resource-expansion activities. This continued growth in resource expansion has allowed the Centre to maintain a high level of program expenditures despite the reduction in its Parliamentary grant. Much energy was spent on implementing new information systems to address the year 2000 challenge.

Revenue

The Centre's total revenues were $125.1 million, $3.7 million greater than last year. While the revenue recognized from the Parliamentary appropriation continued to decline, resource-expansion revenue reached a new high of $35.9 million, which is $6.4 million (or 21.8%) more than last year.

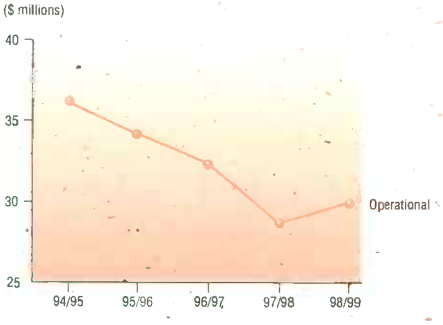


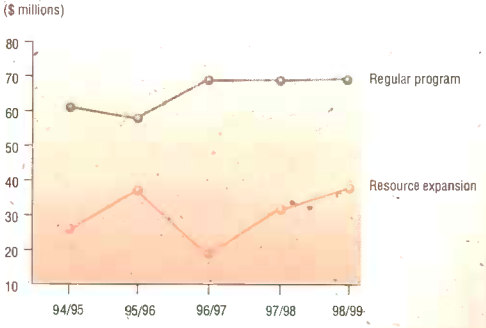
Non-Parliamentary revenue



Program and Operational Appropriations

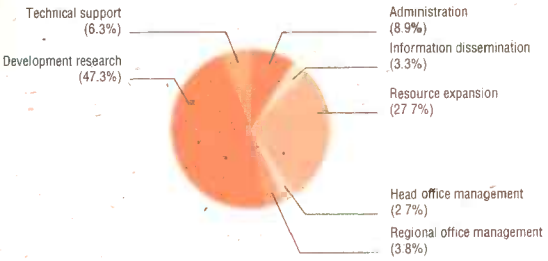
Appropriations on the Centre's regular program totaled $69.4 million, slightly higher than last year. Appropriations for new resource-expansion activities reached $38.3 million in 1998/99, $6.3 million greater than in 1997/98. The increase in the operational appropriations is largely due to investments made to improving the Centre's information systems and technologies. Appropriations for operational, regular program, and resource-expansion activities are illustrated in the accompanying graphs.





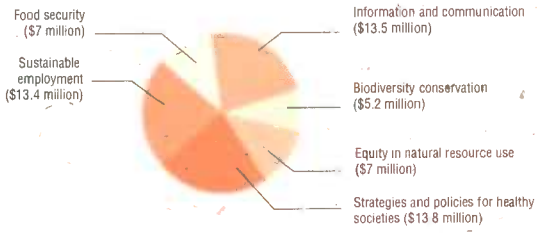
Expenses

Total expenses were $129.8 million, an increase of $12.1 million from the $117.7 million reported last year. This was due to increased spending on our regular and resource-expansion program activities. The relative amount the Centre spends on research and research-related expenses, compared with its administrative expenses, continues to increase because of the growth in resource-expansion activities.



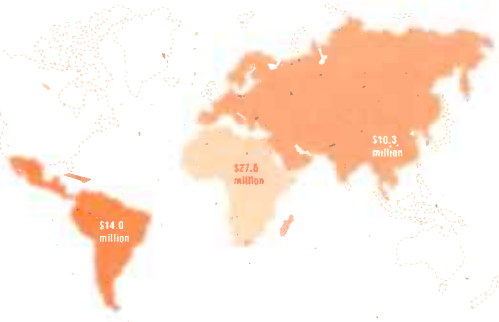
Research Appropriations by Program

Of the $69.4 million appropriated for program, a total of $59.9 million was allocated to new projects within the six major themes that constitute the Centre's programing framework. The remaining $9.5 million was allocated to corporate services and other within-Centre activities. The accompanying graph shows the amounts allocated to each of these themes.



Distribution of Research Appropriations in the South

Africa received the bulk of the Centre's support in 1998/99. The geographical distribution of the Centre's program and resource-expansion appropriations is shown here.



Africa	(39.6%)
Asia	(14.9%)
Latin America	(20.2%)

$12.2 million (17.5%) was appropriated for global and $5.4 million (7.8%) for within-Centre activities

Information Systems and Technologies

In July 1997, senior management approved a 3-year corporate information systems and technologies (IS/IT) business plan. In 1998/99, the 2nd year of this plan, the following activities were undertaken:

- Testing for year 2000 compliance: ongoing
- Oracle financial applications: configured and installed
- Integrated grants and project-management module: built and tested
- Desktop upgrades: completed
- Infrastructure (communication links and security): enhanced
- Predevelopment activities for human-resource and travel systems: initiated
- Intranet: pilot completed

Frequently Asked Questions

What does IDRC do and why?

IDRC was created under the basic premise that a country can develop only when its citizens have acquired the capacity to address their own development problems. In the Centre's 29 years of experience, this approach has proven to be very successful.

To help communities in the developing world find practical solutions to important development challenges, IDRC supports the work of Southern researchers and scientists. These dedicated professionals have developed innovative tools, techniques, and resources that meet the needs of their nations and their people. They have broadened the local knowledge base and thereby ensured that Southern communities have the ability to continue the development process with IDRC-initiated support. This capacity-building function has become the trademark by which IDRC is known internationally.

What is the difference between IDRC and CIDA?

The work of IDRC and the Canadian International Development Agency (CIDA) are complementary. IDRC focuses on helping scientists and communities in developing countries do research to find solutions to their social, economic, and environmental problems. This means that IDRC funds long-term research and takes front-end risks. CIDA, on the other hand, is the federal government body responsible for administering most of Canada's Official Development Assistance Program. CIDA focuses on the practical application of sustainable development. In fact, CIDA has often provided funds to implement the results of IDRC-funded research efforts.

How is IDRC different from other agencies and departments involved in international development?

IDRC has a degree of autonomy that enables it to fulfill a unique role within Canadian foreign policy. Its special status allows it the flexibility to build bridges and further Canadian causes, even when political reasons make it impossible for the government to be officially involved. For example, IDRC has funded research in the politically sensitive countries of Laos and Cambodia, helping them to rebuild their war-torn societies.

Moreover, IDRC's governance structure also distinguishes it from other Crown corporations and public enterprises. The Centre is led by an international Board of Governors with 21 members. Eleven governors, including the Chair, are from Canada; eight or nine governors are usually from developing countries; and the remaining governors are from developed countries.

Like any other federal department or agency, IDRC is bound by the general financial rules set out in the Financial Administration Act. But it is one of a handful of Crown corporations, including the Bank of Canada and the Canadian Broadcasting Corporation, that are exempt from the Act's specific rules governing Crown corporations. In practice, however, the Centre follows the Act closely. The Centre is also accountable to the Parliament of Canada and is audited annually by the Office of the Auditor General of Canada.

How is IDRC funded?

As a public corporation created by the Parliament of Canada, IDRC is funded through an annual Parliamentary grant. This is the Centre's main source of revenue. However, the Centre is increasingly generating funds from other sources, as provided for in the IDRC Act. Drawing on its international reputation and well-established networks, for example, the Centre has initiated cofunding arrangements with other donors. This approach allows IDRC to leverage its financial contributions and pursue a more ambitious program of research than would otherwise be possible. On some projects, the Centre leverages up to four dollars from other donors for every dollar it invests.

How does IDRC's work benefit the South?

IDRC has been supporting developing-country research for the past 29 years. The impact of this support is multifaceted and far-reaching. By providing training for thousands of Southern researchers, IDRC has helped create a critical mass of skilled personnel who are working to address development problems at the local, regional, national, and global levels. IDRC's support for specific research projects has meant that a wide range of innovative, effective, and much-needed technologies has been developed in the South. Policy research supported by IDRC is influencing the national policies of developing-country governments related to the environment, science and technology, economics, urban development, and more.

IDRC has also made a difference in the way research is conducted in the developing world. IDRC values a multidisciplinary, participatory approach to research that takes into account gender considerations. This inclusive methodology, which helps ensure the relevance of research, is one that is increasingly being adopted by Southern researchers.

For examples of the research IDRC supports, see the Centre's online magazine, Reports *at http://www.idrc.ca/reports or read about some of the appropriate technologies IDRC has helped to develop at http://www.idrc.ca/nayudamma/index_e.html.*

How does IDRC's work benefit Canadians?

Although IDRC focuses on addressing, through research, the development problems facing countries in the South, the Centre's work also benefits Canadians.

A number of the Centre's activities are carried out jointly with Canadian and developing-country researchers, with Canadian institutions frequently being called on to contribute as partners. In this way, IDRC creates links between academic, nongovernmental, and private-sector communities in Canada and abroad, providing unique opportunities for joint ventures, partnerships and the exchange of knowledge. Moreover, through the transfer of Canadian technology – such as radar technology – to the South, Canadians gain commercial benefits and the potential for new business opportunities and partnerships.

In our increasingly interdependent world, helping other countries also serves the best interests of Canadians. A wide range of issues – such as disease, environmental degradation, and underdevelopment – transcends borders. Improving environmental awareness and protection in the developing world means a better environment for the entire planet. The transmission of diseases across borders is reduced when health issues are addressed in countries worldwide. Addressing development challenges contributes to sustainable development and increased stability, and therefore has peace and security implications at regional and global levels.

Moreover, Canada's continued support of Southern science has won the country a great deal of respect and goodwill.

How can researchers apply for IDRC funding?

IDRC's principal approach is to support projects and partnerships proposed by developing-country research institutions. However, since this approach includes North–South partnerships, Canadian institutions may propose a research initiative to IDRC in collaboration with one or more developing-country partners. Of course, the researchers' area of interest must correspond with IDRC's current programing. IDRC's program officers then advise researchers as to how well the proposed initiative fits within IDRC's priorities, as well as the likelihood of IDRC funding the project. If the project seems promising, researchers may be asked to submit a project summary for preliminary evaluation. If that is successful, a full research proposal is requested for evaluation.

For complete information on how to approach IDRC for funding, and the criteria used to evaluate proposals, see http://www.idrc.ca/institution/proposition_e.html or request a copy of the brochure How to Apply for IDRC Funding from any IDRC office.

President's Message

Maureen O'Neil
President

Science for Humanity

Sometime in October, the world is expecting its six billionth human inhabitant. In all likelihood, the child will be born somewhere in the developing world. According to the World Health Organization, she is more likely than her parents and grandparents to have access to at least a minimum of health care, to safe drinking water, and to sanitation facilities. And she probably will be immunized against the six major diseases of childhood: measles, poliomyelitis, tuberculosis, diphtheria, pertussis, and tetanus. Thanks largely to these improvements, this "celebrated" addition to the human family can expect to live 66 years.

But a longer life does not necessarily mean a better one. Our planet's six billionth inhabitant and her family may number among the many in the developing world who mortgage the long-term health of their environment to meet their daily need for food, water, shelter, and livelihood. Poverty breeds poverty and, with each new generation, competition for dwindling resources increasingly leads to conflict.

Breaking this cycle of poverty by helping communities in the developing world find solutions to the problems they face is the reason IDRC was created. The Southern researchers the Centre supports search out the causes of pressing environmental, social, and economic problems and attempt to devise solutions that are sustainable and equitable. Their dedication and creativity has produced many notable successes since we opened our doors in 1970. But many challenges remain.

Year	World population	Time span (years)
1804	1 billion	—
1927	2 billion	123
1960	3 billion	33
1974	4 billion	14
1987	5 billion	13
1999	6 billion	12

– adapted from *Revision of the World Population Estimates and Projections* (United Nations 1998)

Meeting the Challenges

Kofi Annan, Secretary General of the United Nations, describes good governance as perhaps the single most important factor in eradicating poverty and promoting development. To improve their future, people must have a say in the decisions that affect their lives and their societies. This can only be accomplished through genuinely representative government with a commitment to freedom of speech, to freedom of association, and to concentrating what resources it has on improving their citizens' lives.

Helping people shape their future is also a central theme in the research IDRC funds. Participatory research that involves the poor in managing their environment and solving their problems is the rule rather than the exception. The Centre formally recognizes the link between poverty, democracy, and the environment in the way we carry out our business.

Shahera from Bangladesh: Indigenous knowledge forms an important element of the scientific research IDRC supports.

A good example of how IDRC involves disadvantaged groups in the work it supports can be found on **page 24**. It is an account of an IDRC-supported project in Guatemala's northern province of Petén, home to the Maya Biosphere Reserve. Here, local researchers are working with marginalized communities living within the reserve to develop livelihoods that are sustainable and that preserve its rich biodiversity. Local knowledge of the forest and its resources is enhanced by scientific research to develop management plans for extractive reserves for which the communities have exclusive rights. Given Guatemala's long history of conflict and the mistrust it breeds, the active involvement of local communities is a triumph in itself. The government's ongoing support is a hopeful sign for the future of peace and democratic rule in Guatemala.

The Maya Biosphere Reserve covers 1.6 million hectares of tropical lowland rain forest. It represents 19% of Guatemala's land base and 50% of its existing forests.

It is interesting to note that many of the markets in which the Guatemalan villagers of the Petén sell their forest-based products are international ones. Here is a case where the global marketplace has provided opportunities for a developing country. There are many other examples where market integration and other aspects of globalization have combined with the policies of national governments to hurt Southern societies. The Asian financial crisis is an obvious example. Less well known is how the ubiquitous allure of the global youth culture contributes to what Richard Mkandawire, the former director of the Commonwealth Youth Program, Africa Centre, calls the de-Africanization of that continent's young people. A growing number have no foothold in either the traditional economy based on kinship ties nor in the emerging economy linked to global trade. Furthermore, education systems in sub-Saharan Africa have had difficulty adjusting to fiscal constraints and a burgeoning youth population. Consequently, few provide the skills and knowledge young people require to look after themselves and their families and most leave the education system before their 12th birthday.

Globally, the number of young people between the ages of 15 and 24 is just over 1 billion. Eighty-four percent live in the developing world.

– *The State of World Population* (UNFPA 1998.)

The long-term development costs of not meeting the needs of this large segment of the population are impossible to disregard. To gauge the challenges faced by these "at risk" youth, IDRC's Assessment of Social Policy Reform program explored what IDRC could contribute to youth livelihoods and enterprise development in sub-Saharan Africa. The exploration proposed a strategy for targeting skills training to this large, heterogeneous group. The strategy would build on the motivation, strengths, and skills that young people have developed to survive, skills that are surprisingly similar to those of an entrepreneur. A Youth Livelihoods Knowledge Network, based at the Centre for Youth Studies in Venda University, South Africa, and at the Centre for Strengthening Informal Sector Training and Enterprise in Kenya, was also launched. It links practitioners, such as social workers and program managers, with researchers and decision-makers.

In sub-Saharan Africa, 45% of the population is under 15 years of age.

– *World Population Data Sheet* (Population Reference Bureau 1998)

To accommodate the 700 million young people expected to enter the labour force in developing countries between now and 2010, the International Labour Organization (ILO) projects that more than 1 billion jobs will have to be created.

– The State of World Population (UNFPA 1998)

The solution to underemployment and the lack of viable livelihood options for youth may come, in part, from the growth in small, medium, and micro-enterprises (SMMEs). This sector creates the majority of nonagricultural employment in all regions of the developing world. Smaller firms are an essential source of income and employment opportunities for the poor in general and for women and other marginalized groups in particular. Promoting SMMEs can help to expand employment outside existing industrial centres and, thereby, play an important role in local and regional development initiatives.

But SMMEs face many hurdles, from low levels of productivity to limited access to credit, information, and training opportunities. They also face new competitive challenges as a result of trade liberalization. Through its Small, Medium and Micro-Enterprises Innovation and Technology (SMMEIT) program, highlighted on **page 51**, IDRC has become an important source of research funding for this often neglected yet important sector.

Many African youth have neither a foothold in the traditional economy based on kinship ties nor in the emerging economy linked to world trade.

Whereas governments and their citizens are likely to agree on the need for immediate action on youth livelihood strategies, they appear to disagree sharply on the importance of environmental issues. In 1997, IDRC participated in the financing of a massive global survey that has shown that governments around the world, including those in developing countries like Nigeria and China, are out of step with their citizens' views on the environment.

The first international survey on the environment clearly indicates that people are now more concerned about their environment than they were seven years ago during the Earth Summit in Rio de Janeiro. Governments, on the other hand, have shifted their sights to the economy. The survey also pointed to a growing level of anxiety over children's health. In 19 of the 20 countries studied, more than eight in 10 people believe that environmental problems will affect their children's health. "People are fearing for the health of their children and grandchildren," says Doug Miller, the President of Environics International Ltd., the firm that conducted the poll. "It's a very potent, latent political force." He predicts that the strength of these and other environmental concerns are going to result in another "green wave of progress."

Dr. Pheviphanh Ngaosyvathn, a pioneer of the Laotian legal system, uses the Internet to contribute to a conference in Japan.

The relationship between a healthy environment and a healthy economy has been made forcefully in the North by more than 40 years of research in environmental economics. Through its support for the Economy and Environment Program for Southeast Asia (EEPSEA), featured on **page 27**, IDRC has helped to add this perspective to the economic agenda of the region's policy-makers. Until recently, the glitter of Southeast Asia's booming economy blinded many to the heavy environmental toll of double-digit economic growth. In the past year, however, EEPSEA researchers grabbed the attention of the Association of South East Asian Nations' environment ministers and the world when they released a study showing the cost, in dollars and cents, of the 1997 fires and haze in Indonesia.

EEPSEA researchers have made good progress in designing economic incentives to counteract the causes of resource depletion and environmental pollution. The Philippines, for example, has adopted resource pricing and the use of other economic instruments to help protect the environment as a matter of policy. Now, they are preparing to implement them.

An independent evaluation of EEPSEA by Mohan Munasinghe, former Chief of the Environmental Economics and Policy Division at the World Bank, found that the program met or exceeded most of the evaluation criteria and that the participation rate of women was remarkably high.

EEPSEA is a good example of a successful research network. Using Internet-based information and communication technologies (ICTs), EEPSEA alumni stay abreast of the latest developments in environmental economics and exchange ideas for future research. IDRC has found that ICTs linked to research networks are useful tools in reducing the isolation of developing-world researchers and speeding up the exchange of vital information and knowledge.

As IDRC's use of networks has grown, so too has the need to connect Southern researchers, institutions, and other partners to the networks we support. 1999 will see a two-year project, known as *Unganisha*, come to an end. The goal of the project was to explore and develop better means for collaborating between distant projects, between IDRC's program initiatives and program officers, and between different departments within IDRC. IDRC-funded projects were offered direct financial and technical support to connect project teams to the Internet and train them in the use of ICTs and in the publishing of documents on the World Wide Web. The *Unganisha* project has allowed developing-country researchers to avail themselves of the wealth of information found on the Internet and, more importantly, to add their voices to regional and global scientific debates and discussions.

Unganisha *is Swahili for connectivity.*

ICTs certainly contribute to knowledge sharing and IDRC's program delivery. The Centre is aware, however, of the potential of ICTs to accentuate the differences in wealth and in access to knowledge that already exist between the developed and developing countries and between the rich and poor within all nations. To try and circumnavigate this technology trap, IDRC asked the following question: is there not some way disadvantaged communities in the developing world can use ICTs to harness their capacities more effectively and leapfrog past some of the obstacles blocking their development? The response was the single largest venture the Centre has ever taken on: Communities and the Information Society in Africa, or Acacia.

With Acacia, IDRC is not looking to "wire" Africa. Rather, we shall work mainly with rural and disadvantaged communities, and particularly their women and youth, to demonstrate how ICTs can be used to solve development problems. This report documents one aspect of the research Acacia and its sister program in Asia, PAN Networking, have supported to date: the use of telecentres (see page 39).

Telecentres are just the latest in a series of tools IDRC has used since its inception to support information sharing. Timely, accurate information remains as vital to people and communities wishing to improve their access to health care as it is to financial markets and global banking institutions. For developing countries, however, simply gaining access to information or research results is not enough – it must be transformed into knowledge that individuals and communities can apply to their daily lives.

"Understanding how people and societies acquire and use knowledge, and why they sometimes fail to do so, is essential to improving people's lives."

– James Wolfensohn, World Development Report (World Bank 1998)

The process by which research results become knowledge that produces positive change in a village in the developing world is convoluted at best. Twenty-nine years of funding research for development has shown that many factors enter into the equation. A healthy environment and a well-functioning economy, formal education and cultural activities like art and music, the way a society is organized and the way businesses are managed: all may play a role. If the research we fund is to make a difference in people's lives, we must understand how and where it fits into this equation; we must see the big picture. But the tools of science are clumsy instruments for sketching the broad canvas. The forte of modern science lies in detail, in the rigorous discipline it demands, and in the quantifiable, reproducible results it generates. By combining the insights from many disciplines, however, the big picture is brought more clearly into focus. This is why IDRC now organizes its programing efforts around multidisciplinary teams.

The Road Ahead

This annual report offers encouraging signs that our multidisciplinary approach will give us the broader perspective we need to better address complex problems like biodiversity loss or poverty.

The year ahead will provide an opportunity to evaluate its effectiveness and make adjustments. In March 2000, our current programing framework will come to an end. To help us plan for the next five years, we have drawn upon the expertise of our governors, eight of whom are internationally recognized professionals from developing countries. We have sought the opinions of respected researchers in Canada and the developing world. And we have relied upon our regionally based staff for their perspective "from the field." Their insights remain vital to our understanding of the needs of the developing world, needs that the birth of humanity's six billionth member vividly underscores.

In 1955, 21 million children died before reaching the age of 5. In 1997, that number was 10 million.

Her birth somewhere in the developing world should be a reminder that 1.3 billion people still survive on less than $2 a day. It is also a testament to how, in the past, humanity has harnessed its collective intellect to overcome some of the serious problems it has faced. Throughout this century, child mortality rates have plummeted and life expectancy has risen, thanks to improvements in medicine and health care delivery. The challenge for IDRC and indeed for all development programs is to devise strategies that will allow everyone to develop the promise present in each of us at birth and to do so in a way that respects the integrity and limits of our biosphere. This is the essence of sustainable and equitable development, and it is a goal to which IDRC continues to strive.

In 1900, life expectancy was 45 years, by 1955 it had improved to 48 years and now stands at 66.

Maureen O'Neil

Maureen O'Neil
President

from Words to Work

Mandate

To initiate, encourage, support, and conduct research into the problems of the developing regions of the world.

Corporate Objectives

- To foster and support the production and application of research results leading to policies and technologies that enhance the lives of people in the developing regions of the world.
- To mobilize and strengthen the indigenous research capacity in the countries of those regions, particularly the capacity for policies and technologies that advance healthy and prosperous societies, food security, biodiversity, and access to information.

Themes

- Biodiversity Conservation
- Equity in Natural Resource Use
- Food Security
- Information and Communication
- Strategies and Policies for Healthy Societies
- Sustainable Employment

Program Complements

- Canadian Partnerships
- Evaluation
- Partnership and Business Development Office
- Program Support
- Public Affairs
- Research Information and Management Service
- Training and Awards

Program Initiatives, Secretariats, and Other Research Activities

- **Acacia: Communities and the Information Society in Africa** (page 39)
- Africa Technology Policy Secretariat
- Assessment of Social Policy Reforms
- Bella*net*
- Cities Feeding People
- Community-based Natural Resource Management
- Cover Crops for Sustainable Agriculture
- **Economy and Environment Program for Southeast Asia** (page 27)
- Ecosystem Approaches to Human Health
- Environment Management Secretariat
- Essential Health Intervention Project
- Gender and Sustainable Development
- International Model Forest Network Secretariat
- Learning Systems (Africa)
- Micro Impacts of Macroeconomic and Adjustment Policies
- Minga: Alternative Approaches to Natural Resource Management in Latin America and the Caribbean
- Mining Policy Research Initiative
- Micronutrient Initiative
- National Environment Policy Transition Project
- **Office for Central and Eastern Europe Initiatives** (page 45)
- Pan Networking
- Peacebuilding and Reconstruction
- **People, Land, and Water** (page 33)
- Research for International Tobacco Control
- **Small, Medium, and Micro-Enterprise Innovation and Technology** (page 51)
- **Sustainable Use of Biodiversity** (page 21)
- Sustainable Economic Development in Viet Nam
- Trade, Employment, and Competitiveness
- Trade and Industrial Policy Secretariat
- Unganisha
- Water Demand Management Research Network, Middle East and North Africa

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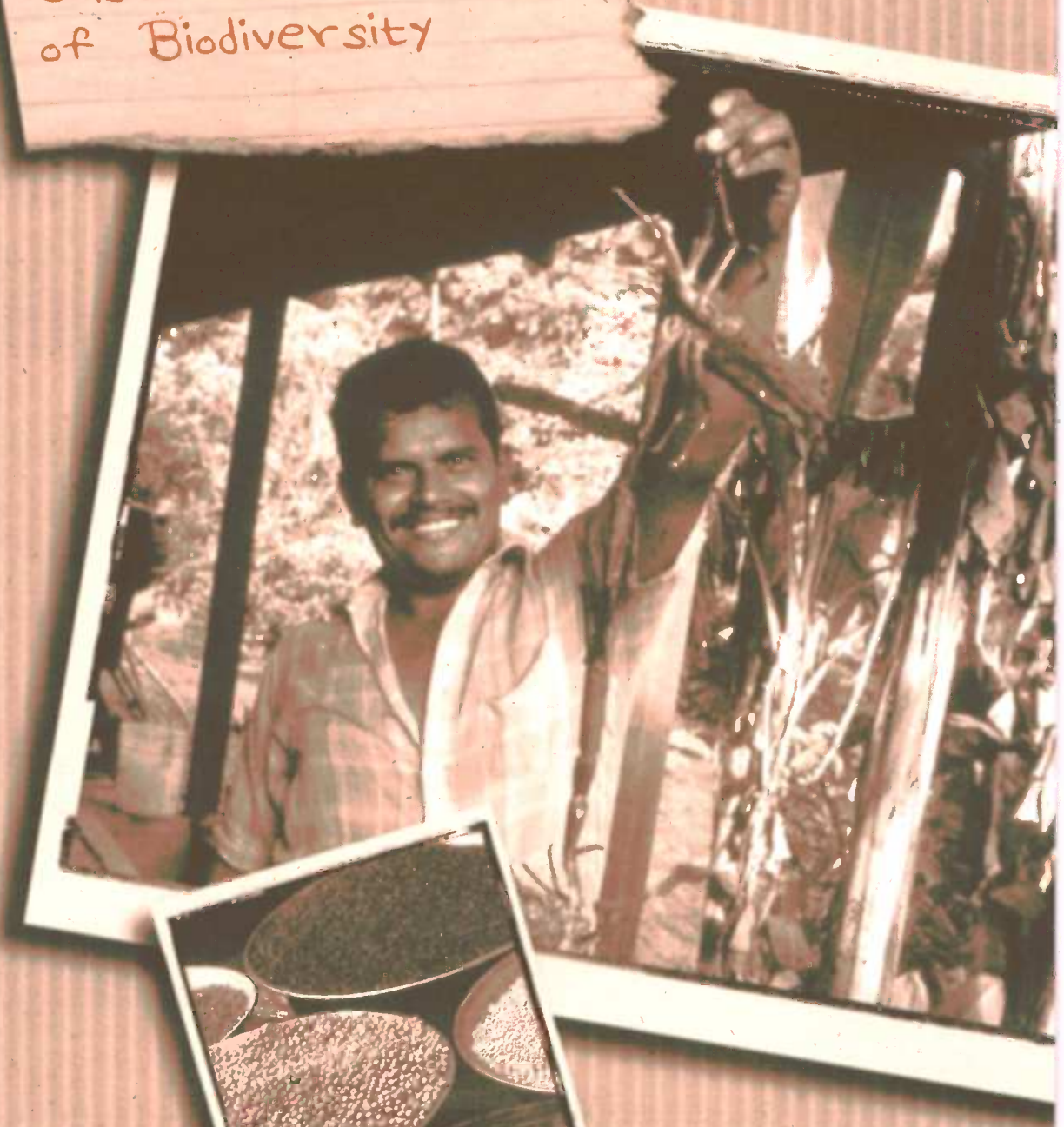
Theme: Biodiversity Conservation

Sustainable Use of Biodiversity



Sustainable Use of Biodiversity

The Challenge

The Earth's biological clock is ticking and with each passing second, more microorganism, plant, and animal species disappear. It is estimated that 100 species become extinct every day. Entire ecosystems are in jeopardy from habitat destruction, pollution, over-harvesting, and the introduction of non-native species. Globalization has added to these losses by contributing to the erosion of knowledge about biodiversity among local communities and indigenous peoples in the South, where biological resources are greatest.

We all depend on biodiversity – for food, for medicine, and for environmental equilibrium. Without varied genetic resources and equitable access to their benefits, our ability to adapt to change is compromised and our well-being threatened.

The Response

The Sustainable Use of Biodiversity (SUB) program initiative supports scientific research on local and indigenous knowledge, protection, and management of biodiversity. By promoting conservation, this research is designed to help communities that rely on biological resources for life's necessities: food, shelter, good health, and a secure livelihood. Beyond the community level, the SUB research program aims to influence national, regional, and global policy debates. For example, the SUB program initiative has helped to bring the perspectives of indigenous people to international meetings on the *United Nations Convention on Biological Diversity*, an agreement signed by 175 governments that commits them to action to conserve biodiversity.

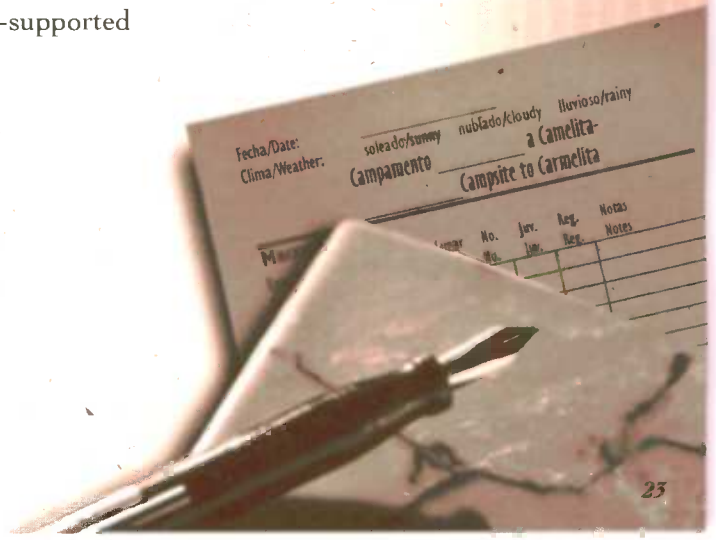
Biotechnology to botany, cultural practices to cultivation techniques – biodiversity issues cut across many fields. A network of projects on medicinal plants in Asia reflects the multidisciplinary nature of SUB-funded work; it involves research on the production and processing of medicinal plants, the safety of plant-based remedies, income opportunities for communities, and trade practices. SUB's projects also try to incorporate methods of analyzing the different ways women and men use biological resources. Promoting access to, and fair control over, these resources is another key research goal: to ensure that the variety of life on the planet serves a common future.

The Objectives

- Promote the use, maintenance, and enhancement of the knowledge, innovations, and practices of indigenous and local communities that conserve biodiversity.
- Support the creation of models for policy and legislation that recognize the rights of indigenous and local communities to genetic resources and to the benefits derived from those resources through intellectual property regimes.
- Develop incentives, methods, and policy options that facilitate community participation in the design and implementation of strategies for the conservation and development of agricultural and aquatic biodiversity.
- Support the development of sustainable livelihoods and incentives for the sustainable use of natural products, especially medicinal plants.

The Results

- Residents of a biosphere reserve in Guatemala have signed an agreement with the government that allows them to use forest resources for their livelihood while being responsible for sustainable forest management. **(Featured project)**
- More than 20 million seahorses are harvested annually as a source of traditional Chinese medicine. Researchers in Canada, the Philippines, and Viet Nam are studying the seahorse trade as a means to address the larger issue of the conservation of marine medicinals through resource management and community development.
- Laos's 40 major ethnic groups, each with different cultural traditions, have helped foster genetic diversity amid the country's extensive array of flora and fauna. The University of British Columbia has worked with the Laos government to draft legislation that will help protect and manage these genetic resources while ensuring domestic returns on any commercial development.
- Cuba, Nicaragua, and Panama have incorporated IDRC-supported research on medicinal plants into their national primary health-care programs.



Under new management

Guatemalan villagers assume control of a section of tropical forest reserve and discover new ways to earn income based on the sustainable use of the forest's resources.

The Government of Guatemala created the Maya Biosphere Reserve in 1990. It protects Central America's largest freshwater wetland.

Farmland is replacing forest as the population of Petén grows by 10% each year, two-thirds of that from migration.

Francisco Zepeda was skeptical. The 52-year-old had spent much of his life scaling trees in the forests of Petén to harvest chicle, a tree latex used in chewing gum. Now, an organization called ProPetén had come to his village, Carmelita, in the heart of the Maya Biosphere Reserve in northern Guatemala. It proposed that Zepeda continue to work as a chiclero but as part of a community-managed forest concession. How could such an arrangement possibly benefit him and other Carmelita residents?

Today, two years later, 70% of the villagers are employed and have formed a cooperative. They have bought a car for communal use and are building a school. They continue their tradition of harvesting forest products, but in ways that don't deplete local resources. Deforestation around the village has slowed dramatically. A fledgling ecotourism industry is developing, with visitors drawn by tropical forest canopies, flashes of rare birds, and ancient Mayan ruins.

All these gains stem from an agreement signed in 1997 with the Guatemalan government that created one of the largest forest concessions in Central America. The agreement gives the Carmelita villagers exclusive rights to use the resources in 54 000 hectares of the government-owned reserve. ProPetén, which was originally established as a local branch of the Washington-based Conservation International, helped the villagers to define the concession and draw up a management plan. The plan identifies areas for harvesting traditional renewable resources, such as chicle, allspice, and xate, an ornamental palm. Logging is allowed, but only selectively. The plan also sets aside critical habitats that must remain untouched. A community committee oversees the management of the concession; its first president was Zepeda.

Carmelita illustrates the crux of ProPetén's work in the Maya Biosphere Reserve, namely that the conservation of biological diversity can be balanced with the economic needs of communities. The lessons that can be drawn from Carmelita are of critical importance for Petén, Guatemala's northernmost department and an area of rich biodiversity that is experiencing uncontrolled exploitation. With the end of the 36-year civil war in 1996, settlers flocked to uninhabited land in Petén, considered Guatemala's "final frontier." Oil and gas exploration resumed and pipelines and roads to oil sites became conduits for land-hungry migrants and repatriated refugees. Many of the migrants brought with them a slash-and-burn farming system that is ill-suited to the area's climate and soils. Cattle ranching and illegal logging are also responsible for clearing swaths of forest land.

To counter these threats, ProPetén focuses its efforts in the Maya Biosphere Reserve, a 1.6-million-hectare area in Petén that represents 19% of the country's land base and 50 % of its existing forests. ProPetén looks for economic alternatives to the ongoing destruction of the reserve's bio-diversity and is currently active in eight villages. Many people living in these communities

Peténeros have harvested chicle, *a tree latex used in chewing gum, for the last century. New monitoring tools, developed with IDRC support, can help ensure that the harvest of this and other forest products is sustainable.*

now earn a significant portion of their income from environmentally sustainable businesses, which are based on forest resources and low-impact tourism. ProPetén hopes that these businesses, coupled with local control over the resource base, will provide communities with an economic incentive to protect the reserve and deter new settlement.

ProPetén has helped to establish some 40 microenterprises, known as *ecoempresas*. Products include traditional sources of income, such as *chicle*, as well as new "product lines" – organic honey, potpourri, mushrooms, and medicinal plants. EcoMaya, a commercial and marketing arm of the ecoempresas, helps communities reach new international and national markets with their products. One of its early successes was an agreement with the UK-based The Body Shop to supply forest botanicals for its Christmas potpourri. EcoMaya also negotiated with an international ecotourism operator to book tours on locally operated forest trails.

Ecotourism is a particularly promising venture in the reserve. Tourism is Guatemala's second most important economic activity and ecotours off the beaten track appeal to a growing number of adventurous travellers. There are currently three low-impact tourist trails in the reserve, each one managed and operated by community ecotourism committees. Local people provide the equipment and pack mules, and act as guides, cooks, and interpreters.

The involvement of tourists in monitoring the ecology of the reserve is a novel feature of ecotourism activities. While hiking the trails, tour participants are asked to record animal sightings, trail conditions, and signs of human activity. Based on this data, communities and ProPetén can assess the impact of changes in the reserve and take action to reduce any encroachments.

Such monitoring and evaluation programs, developed with IDRC support, are standard features of all the ecoempresas. They help to determine the economic viability of each business, as well as its long-term sustainability. For example, a potpourri microenterprise found that the bark it harvested for dye could not survive large-scale commercial exploitation so it switched to another source.

ProPetén's work has not been without setbacks. In 1997, migrant farmers burned down a biological field station on one of the forest trails and held several staff hostage. Conflicts have eased with the introduction of greater consultation but there is still pressure from illegal settlers. In Laguna del Tigre, part of the reserve that is a national park, there are more than 4 000 squatters. ProPetén has started a new nongovernmental organization to help protect the park, which includes important freshwater resources. The organization's name sums up most of ProPetén's work in the reserve – it is Canan Kax, or Guardian of the Forest.

Carlos Soza Manzanero

Carlos Soza Manzanero heads up ProPetén and is a Peténero himself – his family harvested *xate*, an ornamental palm used in floral arrangements. As a young man, he studied in the United States but returned to his homeland to dedicate himself to preserving and maintaining Petén's cultural and natural resources.

"The future of Petén hinges on key people like Carlos Soza Manzanero."

Greg Love, Guatemala Program Coordinator, Conservation International

In 1997, Carmelita struck a deal with the Guatemalan government that gave the community formal resource rights to 54,000 hectares of land within the Maya Biosphere Reserve.

"What I found out was that [ProPétén] did not want our resources. They really wanted the people to get the benefits [from local resources] but to conserve their forests. This was a huge challenge – esta era un reto grandísimo."

*In 1997, Francisco Zepeda was elected President of the Carmelita Comité which oversees the management of the community's forest concession.

Future Directions

ProPetén is negotiating a forest concession agreement in another section of the reserve that will be double the size of the Carmelita concession. Future activities in the reserve are expected to concentrate on ecoenterprises, particularly ecotourism, and scientific research. The ultimate goal of the project is to become self-sustaining, with local communities assuming full responsibility for the management and use of the forest resources without outside technical and financial assistance.

The SUB program initiative will continue to focus its support on research networks and the integration of gender into biodiversity research. An important policy initiative is the Crucible II Project, a forum that brings together representatives of agricultural research institutions, indigenous people, nongovernmental organizations, academia, and industry. It is entering a new phase in developing policy options for the next round of global negotiations on intellectual property rights to genetic resources.

A worker in a Petén micro-enterprise prepares forest botanicals – seeds, leaves, bark, and flowers – to use in potpourri sold internationally under the trade name Gatherings.

Further Reading

Reports webzine, ***"Promoting Community Resource Management in the Maya Biosphere Reserve"*** http://www.idrc.ca/reports/read_article_english.cfm?article_num=258

Reports webzine, ***"Creating Ecologically Based Businesses for the Maya Biosphere Reserve"*** http://www.idrc.ca/reports/read_article_english.cfm?article_num=290

Reports webzine, ***"Combining Education and Conservation in the Maya Biosphere Reserve"*** http://www.idrc.ca/reports/read_article_english.cfm?article_num=216

SUB website: http://www.idrc.ca/biodiversity/

Conservation International website: http://www.conservation.org/

Theme: Equity in Natural Resource Use

The Economy and Environment Program for Southeast Asia

The Economy and Environment Program for Southeast Asia

The Challenge

A first-time visitor to Asia's cities will be shocked by the traffic congestion and pollution found almost everywhere. A trip of a few kilometres in Jakarta or Bangkok can be an ordeal, as gridlocked vehicles spew out thick clouds of black smoke. The problem is among Asia's most visible, with costs that can be measured in lost productivity and damage to people's health.

An hour's flight from Jakarta is a city where traffic flows smoothly and the air is clean. In Singapore, drivers have to pay hefty fees for car ownership permits: a "polluter pays" strategy that effectively reduces traffic congestion and pollution. Revenues finance a first-class public transportation system. This kind of policymaking, while exceptional, is critical in Southeast Asia where rapid economic growth has come at the expense of the environment. And as the depletion of valuable natural resources continues, more must be done to persuade governments in the region that environmental protection makes economic sense. Research in areas neglected by conventional economic analysis, such as the effect of pollution on health-care costs, makes a convincing case for policies that benefit both the environment and the economy.

The Response

The Economy and Environment Program for Southeast Asia (EEPSEA) was established in 1993 to support training and research in environmental and resource economics. Its goal is to strengthen local capacity for the economic analysis of environmental issues – whether it be assessing the damages to a river poisoned by copper mine waste in the Philippines or measuring the environmental consequences of liberalized trade in Sri Lanka and its impact on farmers. By calculating the costs of environmental problems – an innovative approach in the developing world – EEPSEA-supported research generates sound advice for policymakers.

The program's networking approach provides not only financial support but also meetings, resource persons, access to literature, publication outlets, and opportunities for comparative research across its 10 member countries: Cambodia, China, Indonesia, Laos, Malaysia, Papua New Guinea, the Philippines, Sri Lanka, Thailand, and Viet Nam. The focal point of EEPSEA's program is the biannual workshop, attended by researchers, practitioners, and policymakers from the region and around the world.

EEPSEA is funded by a sponsors group of seven donors. Senior scholars and policymakers from the region and international resource persons sit on an advisory committee that sets the program's priorities for research and training. IDRC administers EEPSEA through a small secretariat in Singapore and the Philippines.

The Objectives

- To generate policy-based research on key environmental and development issues facing Southeast Asia.
- To create a regional network of skilled local researchers in environmental and resource economics.
- To work in partnership with teaching and research institutions to broaden the impact of EEPSEA's activities.
- To serve as a catalyst for action that promotes sustainable economic development in the region.

The Results

- Findings from a study of the economic cost of the 1997 fires and haze in Indonesia were presented to ASEAN Environment Ministers in 1998. The study was also discussed by the UN General Assembly Committee on Humanitarian and Social Affairs. **(Featured project)**
- EEPSEA has provided training to some 150 people and supported about 65 research projects.
- More than 30% of people living in the Philippine capital of Manila have no access to the public water system. Most of these people are the city's poor, who are forced to buy water at inflated prices. Researchers examined ways to improve the water supply through economic incentives. Their results have played a role in drafting contracts for the privatization of Manila's water supply services.
- National parks in Thailand lack the money to counter such threats as illegal human settlement, forest fires, soil erosion, and pollution. Dr Adis Israngkura has designed a framework for an entrance fee system to finance park conservation. His research is being used to prepare master plans for two national parks.
- Shiqui (Susan) Zhang conducted EEPSEA-funded research on pollution from coal-fired power plants. In 1998, she represented China at two international meetings related to the *Montreal Protocol on Substances that Deplete the Ozone Layer*. She also received the first China Young Environmental Scientist Award.

Up in Smoke

A study puts a price tag on the damages caused by 1997 fires and haze in Indonesia.

Drought and El Niño helped to whip small fires into blazes in Indonesia during 1997. Damages amounted to US$4.5 billion

It was one of the worst environmental disasters of the century. For several months during 1997 and 1998, forest fires blazed in Indonesia, caused by uncontrolled land clearing and drought. They destroyed 5 million hectares – an area almost the size of Nova Scotia – in 1997 alone, and generated a noxious, choking haze that affected 70 million people in the region.

In response to the crisis, EEPSEA and World Wildlife Fund (WWF) – Indonesia launched a study to assess the economic value of the damage. Teams of researchers in Indonesia, Malaysia, and Singapore quickly swung into action, assisted by EEPSEA and WWF staff and international experts.

Using a variety of data and analysis methods, the researchers isolated several costs, including those relating to losses of timber, agriculture, biodiversity, forest products other than timber, industrial production, and tourism. The study also calculated short-term health costs, as the haze resulted in an increase in respiratory problems. Even using conservative estimates, the total damages came to US$4.5 billion – more than the damages assessed for purposes of legal liability in the Exxon Valdez and Bhopal disasters combined.

Researchers also presented the costs in terms of lost potential. In Indonesia, the value of the resources lost could have provided all of the country's rural poor with basic sanitation, water, and sewage services. Singapore's losses from tourism alone could have fully funded the country's Community Chest, comprising 50 charities benefitting 180 000 people, for three years.

In addition to making strong economic arguments, the study made several policy recommendations to prevent and contain future outbreaks of fire. These centered on changes in land-clearing practices, more sustainable forest management, and better use of fire-monitoring data.

About 80% of Indonesia's fires were set by plantation owners clearing new land. The rest were triggered by traditional "slash and burn" farming practices.

Tourism, an important source of revenue in Southeast Asia, accounted for a large share of the financial losses from the fires and haze.

The findings affected government thinking immediately. An interim report, presenting estimates for only haze damage, was submitted to the ASEAN Environment Ministers in February 1998 to help in the formulation of a regional haze action plan. After the meeting, when asked how much Singapore could help in dealing with Indonesia's fires, Singapore's Environment Minister said: "Even with a tight budget, we have to prioritize because if we do not help them, the economic losses to us and the entire region are tremendous. Whatever we can spend to help will be money well spent." Members of the UN General Assembly Committee on Humanitarian and Social Affairs also discussed the study at a meeting chaired by the Undersecretary General of the United Nations. The findings and recommendations continue to inform action plans and implementation projects in the region, such as early warning systems and land-clearing alternatives, to prevent the fires from returning.

The study generated extensive media coverage, with more than 130 citations from local television stations, CNN, BBC, CBC, the *Globe and Mail*, the *Financial Times*, and the *Washington Post*. Given its distribution by such news services as Reuters, it is likely that the report appeared in every major newspaper around the world.

FIRE AND HAZE RELATED DAMAGES (USD)

TYPE OF LOSS	LOST TO INDONESIA	LOST TO OTHER COUNTRIES	TOTAL
TIMBER	493.7	–	493.7
AGRICULTURE	470.4	–	470.0
DIRECT FOREST	705.0	–	705.0
INDIRECT FOREST BENEFITS	1077.1	–	1077.1
CAPTURABLE BIODIVERSITY	30.0	–	30.0
FIRE FIGHTING COSTS	11.7	13.4	25.1
CARBON RELEASE	–	272.1	272.1
SHORT TERM HEALTH	924.0	16.8	940.8
TOURISM	70.4	135.8	256.2
OTHER	17.6	181.5	199.1
TOTAL FIRE & HAZE	3799.9	669.6	4469.5

Indonesia bore the brunt of the fire and haze disaster, accounting for 85% of all damages. The Asian financial crisis made a bad situation worse.

Agus Purnomo

The head of WWF Indonesia, Mr Agus Purnomo, sent an e-mail to EEPSEA's headquarters in Singapore, suggesting that the two organizations collaborate on an economic study of fire and haze damages. Three weeks later, researchers were brainstorming in Jakarta. The speed with which the study got underway reflects the strength and mobility of EEPSEA's network of local researchers.

Mr Purnomo himself is a notable EEPSEA alumnus. He was in the first group of researchers sponsored by EEPSEA to attend a five-week course in environmental economics at Harvard University in 1993. After the course, he joined the Rockefeller Foundation in New York before returning to Asia to head WWF Indonesia, one of the most important players in the Indonesian environmental movement.

Short-term health costs from the haze were pegged at nearly $US 1 billion.

Jack Ruitenbeek

"One of the reasons for doing this study was to draw some policy attention to the problem. And it creates a lot more interest to say that damages have reached $5 billion rather than a lot of people were affected," explains Dr Jack Ruitenbeek, a leading expert in environmental economics based in British Columbia. Dr Ruitenbeek used many state-of-the-art valuation tools to design the methodology used in the study. For example, researchers had to determine an accurate way to separate the costs of the haze from those of the drought and the financial crisis. He praises EEPSEA's approach that uses international experts in an advisory capacity while letting local economists learn "on the job" by doing the research themselves.

Dr Ruitenbeek also teaches in EEPSEA's 5-week course in environmental economics in Los Baños, Philippines, which attracts students from throughout Southeast Asia.

Future Directions

Indonesia's Fire and Haze, a book-length version of the study, will be copublished in late 1999 by the Institute for Southeast Asian Studies and IDRC. In addition to detailed results of the study, the book will highlight the methodology the researchers used.

The Asian financial meltdown puts the environment at greater risk, as natural resources can be exploited for quick revenues. EEPSEA's role in focusing attention on the economic benefits of environmental protection will be even more important in this rapidly changing region. Future initiatives might include supporting national associations of environmental economists and holding seminars with journalists and nongovernmental organizations. New information technology also has the potential to widen EEPSEA's reach through interactive websites, distance learning, and electronic conferencing.

Among the study's recommendations: Indonesia shelve plans to convert 1 million hectares of peat forest to rice cultivation. Fires in these environments were hard to extinguish and created a "sulphuric acid" haze.

Further Reading

Reports webzine, ***"Investigating an Environmental Disaster: Lessons from the Indonesian Fires and Haze"***:
http://www.idrc.ca/reports/read_article_english.cfm?article_num=283

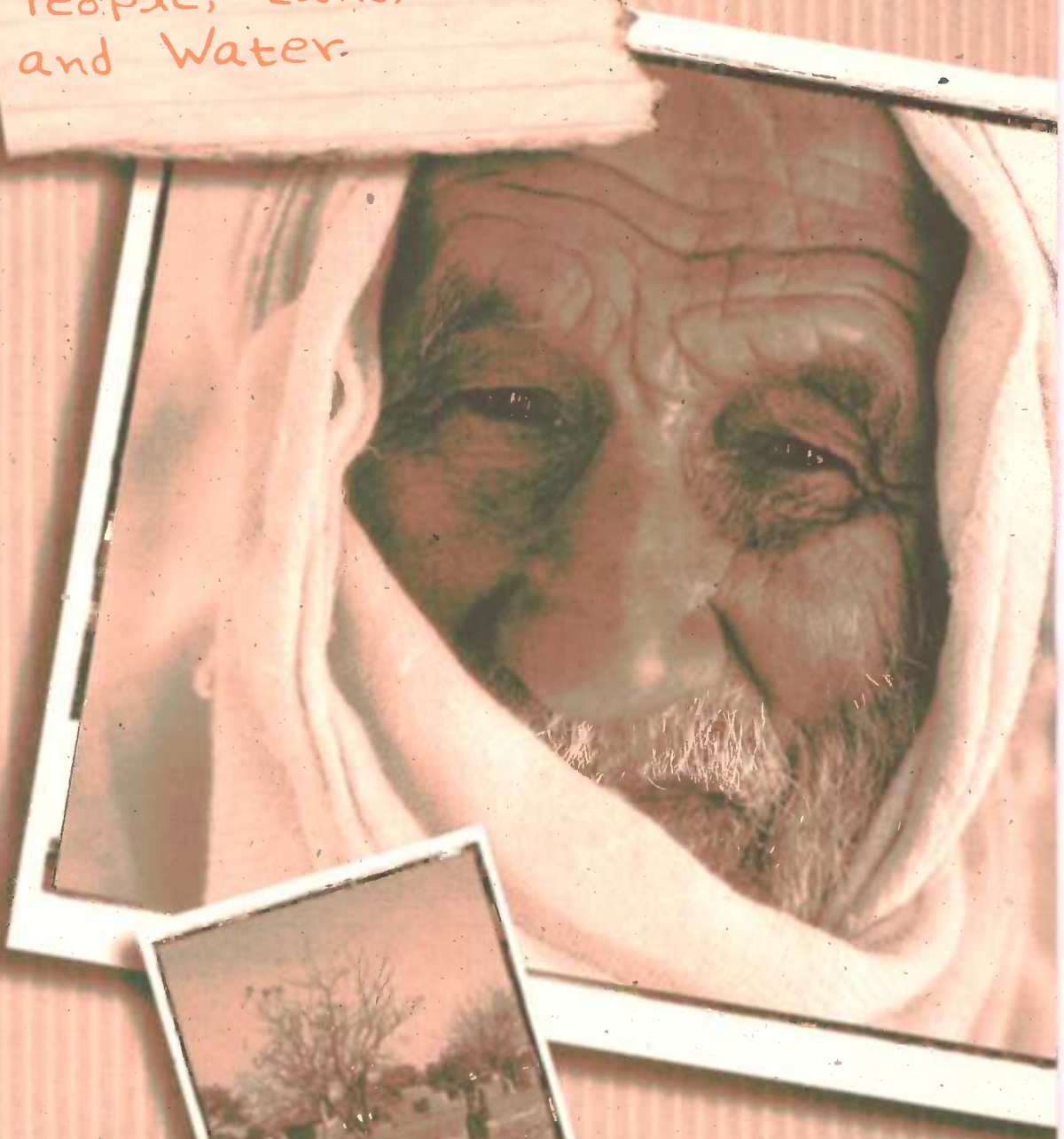
Reports webzine, ***"Counting the Cost of the 1997 Haze"***:
http://www.idrc.ca/reports/read_article_english.cfm?article_num=230

EEPSEA website: http://www.idrc.org.sg/eepsea/

Special report, ***"The Indonesian Fires and Haze of 1997: The Economic Toll"***:
http://www.idrc.org.sg/eepsea/specialrept/specreptIndofire.htm

Theme: Food Security

People, Land, and Water



People, Land, and Water

The Challenge

In much of rural Africa and the Middle East, people's dependence on land and water is immèdiate – they eat food grown with their own hands and drink water drawn from their own wells. So when the fields are exhausted and the wells run dry, suffering sets in quickly. This scenario is all too common, owing to the scarcity of water and arable land in these regions. The Middle East has run out of new sources of water to tap for its needs. In Africa, per capita food production has declined over the past decade. Human activity is at the root of these problems, contributing to desertification, pollution, and the inefficient use of water resources. At the same time, programs and policies developed to solve the problems fail because they seldom involve the affected people in their design or even take into account their needs, desires, and knowledge.

People, land, and water: a combination that, if unchecked, can lead to environmental degradation and human deprivation.

The Response

The People, Land, and Water (PLaW) program initiative works to provide secure sources of food, water, and income for rural people in the Middle East and Africa. It does this by supporting research to learn how men and women access and use their land and water resources and to suggest improvements. The focus is on two key issues: soil productivity and water management. PLaW projects range from research on how Kenyan farmers can sustainably increase maize yields to policy development for the joint Israeli–Palestinian management of an important source of water. All of PLaW's activities concentrate on fragile ecosystems where problems are most acute, such as the highlands of East and Central Africa and the arid lands of the Middle East and North Africa.

The PLaW program initiative capitalizes on IDRC's successful approach of bringing experts together with people who are directly affected by development problems. For example, a workshop in Uganda on the sustainable development of Lake Victoria brought together representatives of nongovernmental organizations, public and private organizations, international institutions, donors, and farming and fishing groups. Engaging people at the local level in research and examining problems from their perspective can determine the success and sustainability of development initiatives.

People, land, and water: a formula for finding solutions.

The Objectives

- To increase understanding of factors that enhance or damage land and water resources.
- To contribute to local and national polices that improve access to, and the availability and quality of, land and water resources.
- To develop and use communication strategies that promote participation in development initiatives.

The Results

- Fields tests in Mali have shown the effectiveness of a fungus in killing *Striga*, a weed that accounts for 4.1 million tonnes in lost cereal yields each year. **(Featured project)**
- Israelis and Palestinians from a range of disciplines – including law, economics, and hydrology – have developed options for the joint management of the Mountain Aquifer, which provides about half of Israel's drinking water. Senior government officials will participate in research on simulated models of the management options.
- Workshop participants in Jordan analyzed how Islamic philosophy and practices influence water resource management in Muslim countries. The workshop, the first ever held on this subject, took place under the auspices of a newly established research network on water demand management by rural and urban dwellers in the Middle East and North Africa.
- A new research network is working in collaboration with communities to improve the local management of natural resources in Southern Africa.
- The Eastern and Central Africa Program in Agricultural Policy Analysis will incorporate grassroots information and promote community participation in the design and evaluation of agricultural policies.

Biological warfare

In the battle against *Striga*, a weed that ruins cereal crops in West Africa, biological weed control could prove to be a winner.

In Mali, researchers found that the fungus, Fusarium oxysporum *suppressed the growth of the parasitic weed* Striga *by 54% to 90%.*

In Africa, crop losses due to Striga *push 4.1 million tonnes per year. Sorghum is especially hard hit.*

Marie Ciotola set down her backpack and stooped down to pull up yet another plant, being careful to keep the soil clinging to its roots. The research associate from McGill University in Montreal was on a three-month swing through Burkina Faso, Mali, and Niger. She was gathering plants and soil samples as part of a scientific detective hunt to control the spread of *Striga*, a weed that destroys cereal crops in Africa. Among the 250 organisms she isolated from her samples, she hoped to find an effective killer of the plant.

Striga, also known as witchweed, is the curse of subsistence farmers. Parasitic by nature, *Striga* compensates for the lack of its own root system by penetrating the roots of other plants, diverting essential nutrients, and stunting their growth. Thriving in areas of poor soil and limited plant diversity, it infests an estimated two thirds of the 73 million hectares devoted to cereal crops in Africa such as corn, sorghum, millet, and rice. Many experts consider *Striga* to be the greatest obstacle to food production in Africa, with crop losses of up to 70% among subsistence farmers and estimated losses of US$7 billion each year.

Herbicides that kill the weed are beyond the reach of farmers, as well as being harmful to their environment and their health. Natural substances, however, offer a safe, alternative method of control. The Biopesticide Research Laboratory at McGill, headed by Dr Alan Watson, conducts research in this area. In 1991, IDRC asked him to investigate such "biological warfare" against *Striga*. It was this initiative that saw Marie Ciotola go off to Africa.

Ciotola was looking for *Striga* plants that showed some sign of wilt or rot, which indicates the presence of a fungal pathogen in the soil. She isolated 250 organisms and selected several of the most promising to evaluate in the McGill laboratory. One gave consistently good results – *Fusarium oxysporum*. Not only did it attack the *Striga* plant but it also destroyed the seeds.

The production of the Fusarium *is perceived as "women's work" because it involves the drawing and boiling of water. It could be a new source of income for women.*

In 1994, field tests in Mali produced spectacular results: 90% of the *Striga* plants were wiped out but cereal plants remained untouched. At harvest time, yields of sorghum doubled. Subsequent tests have confirmed *Fusarium's* effectiveness. The most recent data, from 1997, show that 84% of the *Striga* was eliminated from test plots. The field tests have been conducted in collaboration with Mali's Institut d'économie rurale.

After these successes, the next challenge was to devise a way to produce the fungus locally in the form of an inoculant. Researchers first grew a *Fusarium* starter culture, which can be placed inside a small gelatin capsule. They found that traditional cooking pots can be sterilized over a fire and used to ferment a mixture of the starter culture and sorghum straw. The mixture is then dried and stored for up to several months. When planting season arrives, farmers can take the dried *Fusarium* down from the shelf and incorporate it with their seeds. Once the seeds are in the soil, the rain activates the inoculant.

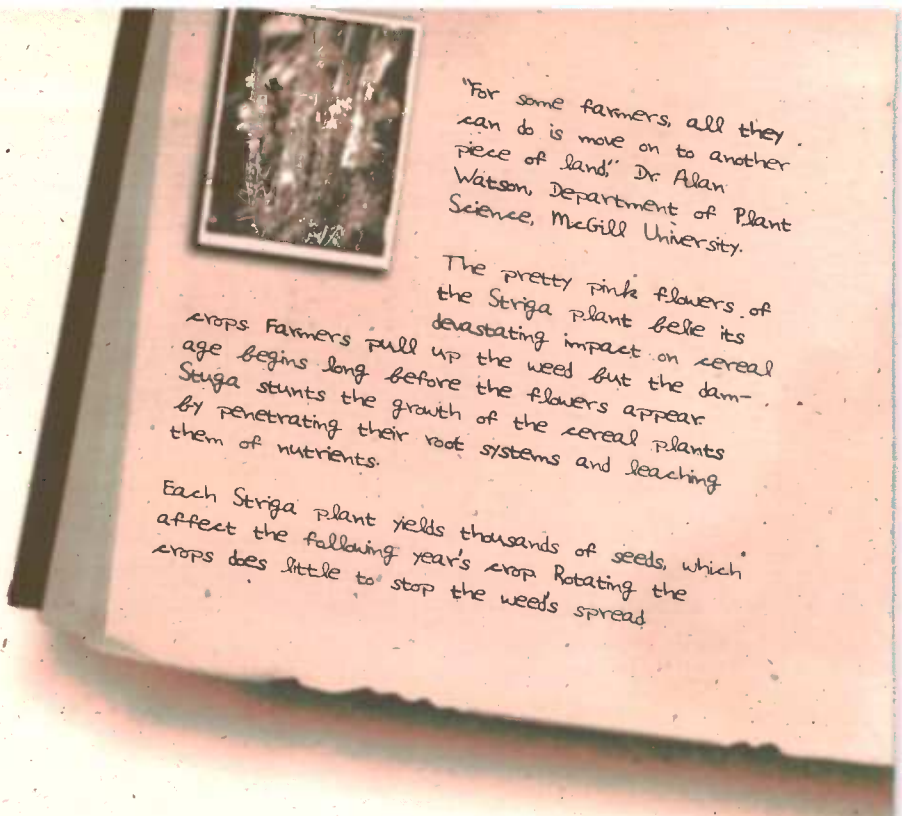
This ability to make the inoculant locally gives *Fusarium* a role beyond increasing food supplies. Roger MacLean, a graduate student working with Dr Watson, has suggested that its manufacture can give women in rural communities more economic and social power. MacLean conducted an extensive socioeconomic study of 100 farms and determined that women could produce *Fusarium* in small-scale cottage industries and sell it to farmers. The preparation of the dried fungus, involving cooking pots and boiling water, both fits into women's traditional sphere of work and provides a new source of income. In the process of trying to exorcise witchweed from farmers' fields, the introduction of *Fusarium* has shown how women's financial independence can complement the quest for food self-sufficiency.

Marie Ciotola and Roger MacLean

Marie Ciotola and Roger MacLean, both of McGill University, are key researchers in the *Striga* project. During a one-woman scientific expedition, Ciotola collected plant and soil samples to test for fungal pathogens. MacLean also conducted fieldwork, although his was among farming households. His research focused on how women could improve their economic status by producing the natural weed control and selling it to farmers.

Ciotola and MacLean are just two of the many Canadian researchers who, through their work on IDRC-supported projects, contribute their expertise while acquiring invaluable experience in the developing world.

Striga *affects the food security of some 100 million people on a continent where food production has not kept pace with population growth.*



Future Directions

The research team plans to continue field experiments with *Fusarium* and to involve farmers more actively in testing and data collection. Ideally, the testing will involve up to five villages and include the production of *Fusarium* by women. The researchers are also working toward the long-term goal of introducing *Fusarium* to other countries afflicted with *Striga*.

PLaW is exploring the opportunity to create a network for research on water demand management in South Africa that builds on PLaW's success in developing such a network for the Middle East and North Africa. PLaW is also working to establish a Water Hyacinth Information Clearinghouse to help control this inland water weed that affects the livelihoods of millions of people in Africa and the Middle East. In 1999, the initiative will also undertake an extensive evaluation of its program and projects.

The discovery of a biological control for Striga *could help other African countries where the weed afflicts cereal crops, such as Burkina Faso, Cameroon, Nigeria, Sudan, and Togo.*

Further Reading

Reports webzine, *"Fungus Fights Cereal Killer in Africa"* http://www.idrc.ca/books/reports/1996/28-01e.html

Nayudamma Information Bank, *"Controlling the Noxious Weed Striga"* http://www.idrc.ca/nayudamma/striga_e.html

PLaW website: http://www.idrc.ca/PLAW/

Theme: Information and Communication

Acacia: Communities and the Information Society in Africa

Acacia: Communities and the Information Society in Africa

The Challenge

With fewer than 4.8 telephones for every 1 000 people, it can take a long time – sometimes a full day's travel – to reach a public pay phone or to logon to the Internet in sub-Saharan Africa. In Canada, meanwhile, cell phones are tucked into purses and back pockets, and people impatient for faster connections to the Internet complain that telephone dial-up links are too slow.

There is a significant gap between the North and the world's poorest continent in access to information and communication technologies (ICTs). Excluding South Africa, only one person out of 9 000 has access to the Internet in Africa, compared with a world average of one in 38. These disparities are creating a further division between societies that are information rich and those that are information poor. As ICTs become ever more important tools in the hands of government, business, organizations, and individuals in the North, the developing world risks being left further behind. Having missed the industrial revolution, Africa cannot afford to miss the information revolution and its implications for social and economic development.

The Response

The Acacia Initiative, named after a tree that grows throughout sub-Saharan Africa, is a complex and ambitious program to help disadvantaged communities and social groups on that continent assert control over their own development through access to, and effective use of, ICTs. Just as ICTs have transformed life in industrialized countries, Acacia believes they can have a similar revolutionary impact in Africa.

To test this hypothesis, Acacia has launched an integrated program of demonstration projects and research in sub-Saharan Africa. It concentrates most of its efforts in four pilot countries: Mozambique, Senegal, South Africa, and Uganda. Activities focus on the areas of policy, infrastructure, technologies, human-resource development, capacity building, and applications. On the policy front, for example, Acacia is helping to harmonize ICT policies among the eight member countries of the West African Economic and Monetary Union.

Established in 1997, Acacia is an exercise in experimentation and learning. Each country represents a different laboratory in which to assess models of community access to ICTs and the larger issue of the role of ICTs in development. While there is general agreement that information is essential for development, there is less consensus on how it can best be shared. Many feel that ICTs are luxuries that detract from investment in such basic needs as the provision of safe water, primary health care, and education. Acacia represents an opportunity to demonstrate how ICTs can complement and advance these same development goals. A monitoring program – the Evaluation and Learning Systems for Acacia (ELSA) – will identify successes and failures, which in turn will guide Acacia's current activities and future investment in ICTs and development.

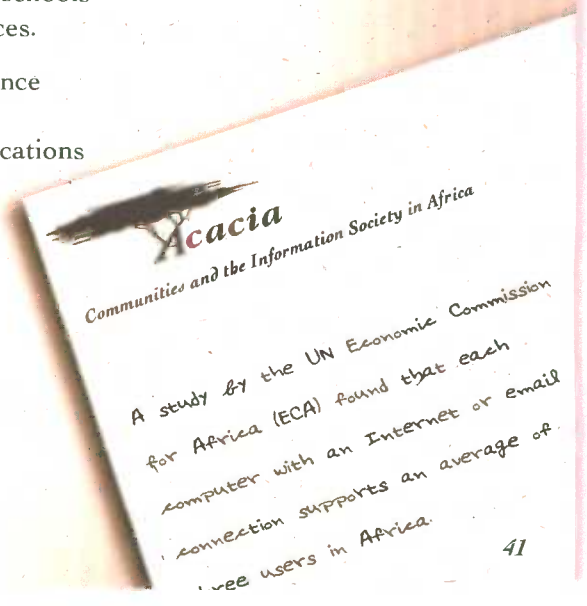
IDRC's focus on ICTs is not limited to Africa. It also funds communications infrastructure and ICT research projects in Latin America and Asia through the Pan Networking (PAN) Program Initiative. Acacia and PAN allow for the cross-fertilization of ideas, results, and experiences across projects, countries, and continents.

The Objectives

- To discover and demonstrate how disadvantaged sub-Saharan African communities, including their women and youth, can use information and communication in solving local development problems.
- To learn from Acacia's research and experience and to disseminate this knowledge widely.
- To foster international interest and involvement in using ICTs to support rural and disadvantaged community development, thereby increasing community access to information and communication technologies.

The Results

- Telecentres, which have been described as the Internet version of public phone booths, are one of Acacia's main vehicles for testing different approaches to providing community access to ICTs in Africa. IDRC also supports telecentre projects through PAN. **(Featured project)**
- For each of the four pilot countries, Acacia has developed a national strategy based on research studies and extensive consultation with key actors and decision-makers The national strategies are the blueprints by which projects are identified, information is shared, and results are translated into policy and action. As part of each strategy, Acacia has helped set up national advisory committees to provide input on local ICT development and projects.
- Senegal is undergoing a complex process of decentralization that gives local public authorities a greater role in decision making and provision of services. Acacia is helping to introduce information tools, such as software for budget management, to prepare local officials for their new responsibilities.
- Acacia has played an important role in promoting school networking and the development of online educational material in South Africa and Mozambique. These initiatives are of particular benefit to the many schools in these countries that geographically isolated and lacking in resources.
- Acacia is leading an initiative to establish African centres for excellence on universal access and rural connectivity in Dakar, (Senegal) and Nairobi,(Kenya) in partnership with the International Telecommunications Union (ITU), Nortel Networks, the Telecommunications Executive Management Institute of Canada and the Canadian government.



Development.net

Two IDRC program initiatives – Acacia and Pan Networking – are using telecentres to hook up poor communities to the Internet as well as giving them better access to phones, fax lines, and computers. The telecentres also form part of an extensive research effort to evaluate the impact of information and communication technologies on development.

The Nakaseke Multipurpose Community Telecentre serves villages north of Kampala, Uganda. It replaces telecommunications infrastructure lost during the civil strife from 1971 to 1986.

A 1993 study in Uganda showed that local government officials made a total of 40 000 trips a year to handle administrative matters that could have been dispatched with a phone call or letter, if these services had been reliable. Meanwhile, a continent away in Pondicherry, India, a recent survey of 19 villages found that there were only 12 public telephones to serve 22 000 people – and 3 of them were out of order.

Shared problems lead to similar solutions. IDRC, through its Acacia and Pan Networking (PAN) program initiatives, is supporting telecentre projects in both countries to provide public access to information and communications technologies (ICTs). Telecentres, which can range from simple phone shops to full-service facilities, enable rural villagers to retrieve helpful information and to exchange ideas with people as close as the next village or as far away as the other side of the world. In Uganda, a telecentre located in a library in Nakaseke offers several ICT services designed to advance rural development in an area that was devastated by two decades of civil strife. In an "information shop" in Pondicherry region, women are making phone calls and downloading health information from the Internet, using equipment set up in a village temple.

Nakaseke's library complements the telecentre with which it shares premises.

The World Bank has called telecentres "a powerful engine of rural development and a preferred instrument in the fight against poverty." Others take a more critical view, arguing that money is better spent on traditional forms of development assistance. To contribute to this debate, IDRC is experimenting with several models of telecentres in Africa, Asia, and Latin America to explore a host of difficult research questions. Do ICTs improve the quality of life? What kind of applications are of greatest benefit to poor communities? What can rural areas with high levels of illiteracy gain from the World Wide Web? How can Internet access, usually driven by commercial interests, be financially sustained in marginalized areas?

By introducing a variety of telecentres in different locations, IDRC is able to examine these issues under a range of conditions. Among the many telecentre projects supported by Acacia and PAN are the following:

Can information empower disadvantaged communities? Telecentres like this one in Mamelodi, near Pretoria, South Africa may provide answers.

- An effort to help indigenous peoples protect their culture and their lands in Equador through better access to ICTs. Telecentres equipped with computers and radio modems have been installed in three isolated communities in the Amazon rainforest.
- An initiative by the South African government to provide universal access to ICTs over the next decade by having a phone within five kilometres – an hour's walk – of every home. To meet this goal, telecentres are being established in disadvantaged and underserviced communities. Sites include a rural women's association, a community radio station, a post office, and a small business cooperative.
- A multipurpose telecentre in Timbuktu, Mali, developed in partnership with UNESCO and the International Telecommunications Union (ITU). This "high technology" telecentre will include resources for distance education and telemedicine as well as business support services.

Evaluation and assessment are important features of all the telecentre projects. Acacia has designed the Evaluation and Learning System of Acacia (ELSA) which will continually monitor telecentres for lessons in success or failure that can be applied to ongoing and future activities.

Although IDRC's telecentre projects are still in their early stages, some promising signs are emerging. In Timbuktu, doctors are sending emails to colleagues overseas and reading articles from medical journals on the Internet. In Pondicherry, a group of 40 women, all labourers with few assets, were able to get insurance policies for accidental loss of life or limb after using data obtained from their information shop. Another labourer found out about a government-sponsored credit and training program for manufacturing incense. She enrolled in the program and today supplies incense sticks to a local shop.

For people who may have never dialed a telephone in their lives, telecentres represent a chance to leap frog over old technologies. Acacia and PAN hope to prove that ICTs can also vault the poor over several stages of development to reap the social and economic benefits of the Information Age.

Esmé Modisane

Esmé Modisane is the project manager for the Mamelodi Area Community Information Services (MACIS). Modisane has thrown her energy into setting up a successful volunteer program to teach local youth computer skills. She has also recruited a group of young women as part of her "Women with IT" initiative to promote computer literacy. Already, some of these "graduates" have obtained jobs as a result of Modisane's training.

Modisane's 13 years as a community volunteer in Mamelodi help her in her job of matching information resources to community needs. She has worked with children, youth, parent groups, and the elderly. She was also active in the Mamelodi Feeding Scheme, which helped unemployed women in sewing, knitting, and food gardening projects.

Uma Rani and Sundari, volunteers who operate the Embalam Information Centre in Pondicherry, India are learning how to work with sound files.

Timbuktu, Mali

"Information is the fuel of medicine. Here we have none. Year by year, we are falling behind."

Physician in Timbuktu, Mali

Although Timbuktu has a population of half a million people, there are only five public telephones. The Multipurpose Community Telecentre supported by Acacia (in collaboration with ITU and UNESCO) can provide doctors with access to medical resources and information they need through telemedicine.

Future Directions

The telecentres are very much a work in progress. Several more are due to open, including Acacia-supported sites in Mali, Mozambique, Uganda, South Africa, and PAN sites in Mexico, Pakistan, and the Philippines.

The ambitious mission of the Acacia Initiative also continues to evolve with the program being extended to other countries in Africa with the collaboration of the United Nations Economic Commission for Africa. An international advisory council will be established to help guide and manage Acacia's activities. Acacia is also entering into new partnerships with the World Bank, the United Nations Development Program, UNESCO, the International Telecommunications Union (ITU), the African Development Bank, the European Union, other national donor agencies, and African telecommunications operators and providers.

Acacia will continue its work with the Information Technology Association of Canada to support the development of the African ICT private sector and to encourage Canada/Africa private sector partnerships.

Telécentres can present opportunities for entrepreneurs, such as this one in a Senegalese marketplace.

Further Reading

Acacia Initiative website: http://www.idrc.ca/acacia/

International Telecommunications Union: http://www.itv.int/ITU-D-UniversalAccess/

Uganda Acacia National Strategy website: http://www.acacia.or.ug/

Acacia Studies and Reports: http://www.idrc.ca/acacia/stcat.htm

Pan Networking Initiative website: http://www.idrc.ca/pan/

Pan Asia Networking website: http://www.panasia.org.sg/

Reports webzine, ***"Improving Access to Telecommunications in South Africa":*** http://www.idrc.ca/reports/read_article_english.cfm?article_num=267

Reports webzine, ***"Latin American Telecentres: The Community Networking Pilot Project":*** http://www.idrc.ca/reports/read_article_english.cfm?article_num=347

Theme: Strategies and Policies for Healthy Societies

The Office for Central and Eastern Europe Initiatives

The Office for Central and Eastern Europe Initiatives

The Challenge

The transformation of Eastern Europe and the countries of the Commonwealth of Independent States (CIS) after the collapse of the Soviet Union has been much more difficult and painful than imagined. By 1997, incomes had declined to the point that 120 million people – about a third of the region's population – lived below a poverty line of US$4 a day. Conditions in Ukraine, once an economic mainstay of the Soviet Union, reflect some of the challenges faced by these countries in their transition to democracy and a market economy.

In the eight years since Ukraine's independence, the country has fallen from 45 to 102 in the United Nations Development Program ranking of countries, according to indicators that measure the quality of life. Death rates have climbed and estimates of people living in poverty range up to 70%. Unemployment, housing shortages, inadequate diets, smoking, alcoholism, and a crisis in health care have contributed to these statistics, as have severe environmental problems. Fallout from the Chernobyl disaster and high levels of air and water pollution mean that 70% of Ukrainians live in areas considered environmentally dangerous.

A massive effort, akin to that offered to Africa, Asia, and Latin America, is needed to help Ukraine and its neighbours in Central and Eastern Europe in their struggle to rebuild their devastated societies.

The Response

The Office for Central and Eastern Europe Initiatives (OCEEI) was established in 1993 as a unit within IDRC to develop and manage Centre activities in the region. Its inception reflected a shift in Canadian foreign policy, which called for a Canadian presence and program of assistance in Eastern Europe and CIS countries to help in the transition process.

OCEEI is well placed to support this process. In working with partners in Central and Eastern Europe, OCEEI draws on IDRC's 29 years of experience in the developing world and its global network of contacts and resources. It also offers technical expertise, project management, help in building research networks, and support services. Its approach is based on enhancing the knowledge and skills of local researchers so that they can target and address issues of critical importance to their countries. For example, OCEEI has trained Ukranian personnel to identify ways to reduce waste in polluting industries by conducting environmental audits. The training has lead to the formation of a Ukranian nongovernmental organization to carry out these audits. This kind of capacity building ensures that countries like Ukraine can capitalize on their own resources to move ahead in the new directions demanded by political, economic, and social reforms.

The Objectives

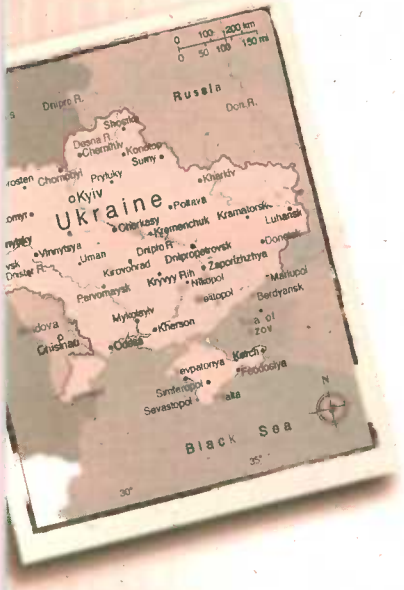
- To find innovative solutions to problems in Eastern and Central Europe in collaboration with local research partners.
- To undertake research that aims to enhance the quality of life for people in the region.
- To support the process of political, economic, and social reform.
- To foster links between societies in Canada and in Eastern and Central Europe.

The Results

- In 1991, Canada was the first Western country to recognize Ukraine's independence and to extend an offer of technical assistance. The Environmental Management Development in Ukraine program, a massive clean-up effort for the Dnipro River Basin, was the first Canadian initiative in the country and continues to be the largest. **(Featured project)**
- IDRC founded Cooperation House in Kyiv to provide logistical support and office services to a number of Ukrainian and Canadian organizations working on development projects in the country. Pooling resources and information under one roof saves time, money, and effort, and strengthens the organizations' impact.
- An environmental audit of a meat-packing plant in Vatutio found inadequate water supplies and an excessive discharge of fat and organic waste into the municipal sewer system. Measures introduced to solve these problems have saved the plant US$79 000 in one year and cut down on pollution.
- Local and national stations in Ukraine, as well as an international television network, have broadcast a series of public education videos on the environment of the Dnipro River. Discussions have been held about airing the videos in Canada.
- A new program for pumping well water in Kherson, Ukraine, has eliminaed the saline contamination of the city's water supply.

Water Rescue

A Canadian initiative helps to clean up Ukraine's most important – and most polluted – river.



The Dnipro, Europe's third largest river, drains 60% of Ukraine. Heavily polluted, it remains the country's main source of drinking water.

The Dnipro River is the Nile of Ukraine, providing irrigation, hydroelectric energy, a transportation route, and 70% of the country's drinking water. Its beauty inspired Cossacks of old to call it "God's Heaven on Earth." Today, however, pollution levels in the Dnipro have created some hellish problems.

Radiation from the Chernobyl disaster, heavy applications of pesticides and herbicides, industrial pollution, and untreated sewage from municipalities have all combined to make the waters of the Dnipro a toxic current. Its contamination has contributed to Ukraine's status as one of the most environmentally degraded republics of the former Soviet Union. Since Ukraine has limited sources of fresh water, cleaning up the river is one of the country's top priorities.

A program funded by the Canadian International Development Agency and managed by IDRC is helping to do just that. The first phase of the Environmental Management Development in Ukraine (EMDU) program generated more than 60 activities, which ranged from cleaning polluted water and controlling water quality to providing technical and scientific assistance to Ukrainian personnel and educating the public about environmental problems. The program's initiatives include the introduction of "green" technologies to polluting industries, the use of environmental audits to improve water and energy management, and the completion of an important baseline water-quality study that lays the scientific groundwork for rehabilitating the river.

Zaporizhzhya, a city in southern Ukraine, was singled out for immediate attention because it suffers from severe problems with pollution and water availability. An estimated 50% of the waste water collected in the city bypasses treatment plants and is dumped into the Dnipro. To help save water and reduce sewage, a pilot project installed 1 400 reconditioned water meters donated by the City of Edmonton. Experience shows that when water is metered, consumers are more likely to conserve water and pay their bills and authorities have a greater incentive to detect and repair leaks in water mains.

EMDU, however, provides more than the nuts and bolts of pollution control and water conservation – it also addresses the mechanics of institutional reform, namely overcoming the Soviet legacy of inefficient central planning and policymaking.

A Chernobyl victim receives treatment; Ukraine remains one of the most environmentally degraded republics of the former Soviet Union.

Nearly 20 billion cubic metres of untreated effluent – the equivalent of one-third of the Dnipro's annual flow – is dumped into the river each year. Environmental audits can help to reduce this waste.

This legacy meant that there was considerable duplication of effort among Ukrainian institutions. Three agencies would typically be responsible for identical work, such as measuring water quality. Each used different standards, however, making comparisons impossible. Data was often hoarded, part of a culture of secrecy left over from the Soviet government. EMDU once had to buy satellite maps of Ukraine from Canadian sources because the Ukrainian versions were considered state secrets.

In contrast, EMDU has promoted collaboration and the sharing of information by bringing together Ukrainian experts who used to work independently. For example, three institutions cooperated in conducting the baseline water-quality survey and in developing a joint action plan based on their findings. EMDU also works to improve management practices in Ukrainian institutions and organizations. Its efforts with the Zaporizhzhia Vodokanal, the agency responsible for the water supply and waste treatment in the municipality, have made the city eligible for a loan from the European Bank for Reconstruction and Development to modernize its utilities. Finally, the program has helped Ukrainian authorities establish their own management committee to review and prioritize proposals for research projects on the river. The selected projects are then suggested to IDRC for funding.

This "learning by doing" strategy reflects IDRC's years of experience in helping people find their own solutions to problems in the developing world. EMDU has successfully transferred the approach to Eastern Europe, where existing scientific and technical capacity has accelerated the learning process. The model has been hailed by Ukrainian authorities, including Prime Minister Valery Pustovoitenko, and EMDU has been formally recognized in Ukraine's National Environmental Plan, adopted by the country's parliament in February 1998.

Ihor Iskra and Myron Lahola

Ihor Iskra (pictured here on the right), a Ukranian engineer and IDRC Liaison Officer with the Environmental Management Development in Ukraine program (EMDU) describes the Dnipro as "everything for Ukraine: its life, irrigation, energy supply, drinking water supply, transportation artery, and so on." The biggest challenge he faces is changing people's attitude so that they care more about the river.

Next to Mr. Iskra is Myron Lahola, the Director of IDRC's Kyiv Office. On leave from his job as an engineer with the City of Edmonton, Lahola sees EMDU as much more than cleaning up a river. "That implies that you're out there with shovels or something. We ultimately are concerned with cleaning up the river, but we're doing it more in the policy development, capacity building, and technology transfer type of way."

EMDU supported Ukraine's Institute of Colloidal Chemistry's development of equipment for cleaning tap water. This unit is designed for institutional settings like hospitals and daycare centres.

Vasyl Tarasiuk, Director of Maintenance for the city of Zaporizhzhia's water supply and waste treatment agency talks to a recipient of one of the City of Edmonton's refurbished water meters. Edmonton's water utility donated 1,400 water meters to an IDRC pilot project. Testing showed that as much as 40% of Zaporizhzhia's treated water is lost during distribution. Water pricing is such that customers pay for this inefficiency. Simply repairing leaks promptly and promoting water conservation could avoid the more costly expansion of water treatment plants to meet demand.

Future Directions

EMDU's achievements are important milestones in the cleanup of the Dnipro River. But the enormity of the task and the political and economic environment still pose tremendous challenges to the rehabilitation effort, which could take as long as 40 years. To signal Canada's commitment to the initiative, EMDU entered a second phase in October 1997. The second phase has narrowed the focus to areas with a greater chance of reform, such as water toxicology, public outreach, drinking water quality, and environmental audits centered on plants in the heavily industrialized Zaporizhzhia–Dnipropetrovsk corridor.

OCEEI is expanding its programing beyond Ukraine as part of an agreement with the United Nations Development Programme to help rehabilitate the Dnipro River in Russia and Belarus through a Global Environmental Facility project.

Canadian and Ukrainian organizations working on development projects in the region can share resources at OCEEI's Cooperation House in Kyiv.

Further Reading

Reports webzine, ***"Rehabilitating the Dnipro River"*** http://www.idrc.ca/reports/read_article_english.cfm?article_num=374

"Lessons learned from the EMDU project," An address by Jean-H. Guilmette, Director of OCEEI at the ECWATECH-98 Congress in Moscow http://www.idrc.ca/oceei/moscow.html

Canada-Ukraine Monitor, ***"Rehabilitating Ukraine's Dnipro River: IDRC"*** http://www.idrc.ca/oceei/article1.html

OCEEI website: http://www.idrc.ca/oceei/

Theme: Sustainable Employment

Small, Medium, and Micro-Enterprise Innovation and Technology

Small, Medium and Micro-Entreprise Innovation and Technology

The Challenge

It is hard to earn a living in much of the developing world. Formal unemployment rates are high, and the Northern ideal of full-time, secure, salaried employment is beyond the grasp of the majority of the poor. In South Africa, for example, almost 40% of those able to work remain jobless. Such figures translate into poverty, lost potential, and arrested economic and social development. A stronger small business sector could reverse this trend. Already, most jobs in the developing world outside of agriculture are created not by large firms or the public sector, but by small and micro-enterprises, including the vast numbers of informal sector enterprises operating outside the "official" economy. But smaller firms face many constraints: outdated technology, limited access to credit and training, a lack of state support, and increased competition because of trade liberalization. Programs and policies to overcome these obstacles could transform small and micro-enterprises into thriving sources of productive employment and income.

The Response

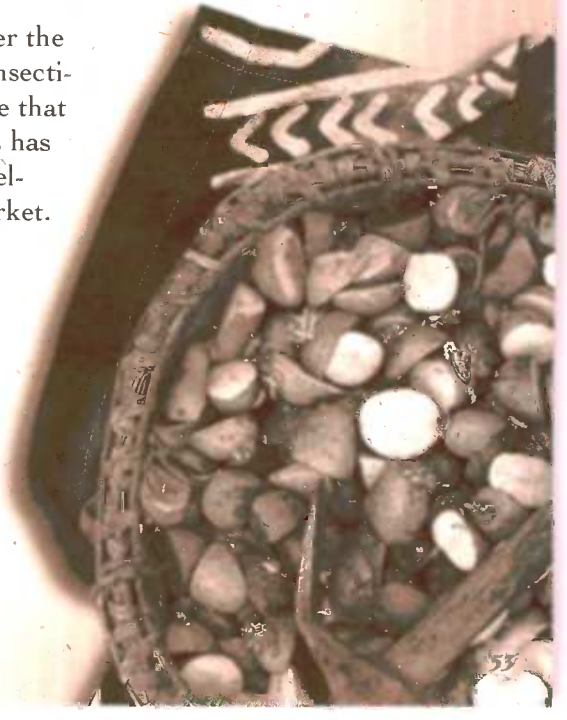
The Small, Medium, and Micro-Enterprise Innovation and Technology (SMMEIT) program initiative builds on IDRC's tradition of involvement in the small enterprise sector, making the Centre an important source of research funding in this area. Much of IDRC's early support focused on small-scale technologies – a durable hand pump and groundnut sheller were early success stories. But although technology is a key to development, it does not unlock all doors. SMMEIT continues to support research on the development and transfer of technologies, but as part of a broader strategy to address other small business needs. Improved access to markets, financing, training, and business advice are therefore critical research issues. SMMEIT also works to promote policies that encourage small enterprise innovation and development, such as favourable regulatory practices. Whether they be high-tech start-ups or street vendors, SMMEIT recognizes that flourishing small businesses play an important role in relieving poverty through job creation.

The Objectives

- To support the development, transfer, and marketing of technologies for use by the small enterprise sector, especially technologies that process local raw materials into nonfood natural products such as dyes, cosmetics, and pharmaceuticals.
- To promote the identification, dissemination, and application of improved practices in small enterprise support services and related policies.

The Results

- Products developed with IDRC support – ranging from essential oils to cassava-based adhesives – were showcased at a meeting of a research network devoted to improving the quality and marketing of natural products in Africa. **(Featured project)**
- More than 50 small-scale tanneries in Bolivia, Colombia, and Ecuador have reduced industrial pollution and boosted their profitability and competitiveness, thanks to research on managerial and technical improvements by the nongovernmental organization PROPEL.
- The World Association of Industrial and Technological Research Organizations and the United Nations Industrial Development Organization have developed a manual, based on IDRC research, to restructure industrial research institutions. The aim is to strengthen links between the research community and the private sector, particularly small enterprises.
- Researchers in South Africa are determining how many women eke out a living as street vendors and how their work contributes to the economy. This information will be used to lobby for policy and infrastructure changes that support the women's businesses.
- Malaria is responsible for as many as half the deaths of children under the age of five in Africa. Research has shown that bednets treated with insecticides are a highly effective method to control the disease. A task force that uses market-based approaches to promote the distribution of the nets has published a directory of suppliers for sub-Saharan Africa, and is developing information packages to encourage local firms to enter this market.



Industrial plants

Plants provide the raw material for the production of traditional dyes in Guinea and essential oils in Morocco. Projects involving these industries belong to a research network that looks to plant-based products as sources of economic opportunity for poor communities.

IDRC support in Guinea is helping to preserve the traditional art of dyeing cloth with the indigo plant. Textiles make up the largest sector of the country's craft industry, a major producer of manufactured goods.

For centuries, women in Guinea have dyed cloth with the midnight blue shades of the indigo plant and their work is famous throughout West Africa. It is also part of an important economic sector; the craft industry produces about 40% of Guinea's manufactured goods and involves an estimated 10% of the population. Women, however, are switching to commercial synthetic dyes, which are easy to use and available in many colours. In the process, they are losing the ability to compete in an international marketplace that puts a premium on natural products.

Researchers in Guinea, aided by Canadian expertise, are reinvigorating the traditional textile sector with a new method of extracting dye from the indigo plant and with improved dyeing techniques. These advances, which have been adopted by several women's cooperatives, have lowered costs and increased production of the rich blue dye, while reducing the demanding physical labour associated with traditional dyeing. The success of the project has attracted financial support from other donors and the Guinean government.

Despite these accomplishments, problems remain. The project is entering a second phase to explore the full economic potential of the technologies through research on the wide-scale commercialization of locally produced dye, the identification of other natural dyes, marketing, quality control, and the dynamics of the textile industry as a whole. The project will also benefit from the resources, experience, and knowledge concentrated in an IDRC research network on the development of products from plant materials.

The Network for the Valorization of Plant Materials in Africa brings together researchers from some 20 IDRC projects in 14 countries to share information and expertise. The network has evolved from years of IDRC-supported research on improving peoples' livelihoods through the production of marketable goods from local raw materials.

Examples of projects that are part of the network – including the dyeing initiative in Guinea – illustrate this approach. In Morocco, researchers have worked with small-scale producers to commercialize essential oils derived from aromatic plants. The oils are exported and used in soaps, perfumes, and cosmetics. In Senegal, coastal communities harvest red algae as a source of carrageenan, a substance used in products ranging from printing inks to ice cream.

The network, which began in 1994, applies these experiences to address issues and problems shared by its members. Most of its activities relate to the quality and marketing of natural products, the sustainable management of natural resources, and community involvement in the development and adoption of new technologies. Members exchange information through workshops, electronic communications, and meetings. The network also gives small research grants to support the work of its members, such as a project to refine essential oil technologies developed in Morocco.

The Moroccan project demonstrates the impact of research that focuses on technology as just one element of a multifaceted investigation. Like Guinea, Morocco has a centuries-old artisan tradition; cottage industries for extracting essential oils have existed since the 7th century. Equipment for distilling the oils was unproductive and the sector as a whole suffered from a lack of innovation and research. A team of Moroccan and Canadian researchers improved the technology as one part of an integrated effort to boost the competitiveness of the sector. The result was a series of important breakthroughs:

- Little scientific information existed about the plants used to make essential oils – sagebrush, rosemary, thyme, verbena, henna, and rose. The project studied and described the chemical composition of several plants and identified a new species of rosemary.
- The project's analysis of exports, trade volumes, market trends, and the structure of the essential oils industry helped to identify the sector's problems and potential.
- A newly equipped scientific laboratory and trained staff enable researchers to analyze plant material in Morocco rather than sending it to overseas laboratories.
- In 1997, new products developed or commercialized by the project generated an estimated US$500 000.
- Building on the project's work, the Moroccan government has initiated a national program on adding value to aromatic plant resources.
- The project has generated interest in essential oil production in Canada, particularly among small firms and producers in the Saint-Jean region of Quebec.

Thanks to the African research network, the achievements of this project are now being shared on a broader scale. The Moroccan researchers are providing expertise to a second project in Guinea, which is studying aromatic plant extracts. At the same time, the Moroccans are receiving network support for technical research. Network members hope that such collaboration in the scientific community will lead to more secure livelihoods for a larger number of the developing world's poor.

François Gasengayire

Before the bloodshed in Rwanda, François Gasengayire was a leading scientist in that country. He was a lecturer in organic chemistry at the Université Nationale du Rwanda and was the director general of the Rwandan Institute of Scientific and Technological Research. He had also served on many international committees on science and technology.

At the outbreak of violence in 1994, Dr Gasengayire hid with the Barnabite Fathers and then managed to flee the country. Later that year, he assumed his current responsibilities as the leader of the IDRC-supported Network for the Valorization of Plant Materials in Africa. Of his survival of the Rwandan tragedy, he says: "In a word, I was lucky." Dr Gasengayire is based in IDRC's regional office in Nairobi.

This shea nut press was designed in an IDRC project. Ways to refine the extracted butter and provide additional income for women of the Sahel are now being explored.

From science to action

Researchers in Senegal are helping coastal communities improve family incomes and replenish the region's soil by exploiting the commercial potential of a prolific red algae, Hypnea musciformis. The algae is an important source of carrageenan, a thickening ingredient and stabilizer used in cosmetics, medicines, printing inks, and foods.

Nylon webs suspended in the warm coastal water simulate coral and allow communities to harvest algae virtually free of sand and other contaminants. Local people already earn about CA$120 a month selling unprocessed red algae, but Senegalese scientists foresee higher incomes from marketing semi-processed carrageenan. Scientists have also found another use for the algae, as a compost to increase crop yields and improve animal feed.

Future Directions

In September 1998, IDRC approved a second phase of the Network for the Valorization of Plant Materials in Africa. This phase will focus on the wider dissemination and commercialization of technologies developed on IDRC projects. Plans are also under way for a companion network in Latin America, to be launched later this year.

Through its own projects and links with other donor agencies, the SMMEIT program initiative is working to distill "good practice" guidelines for small enterprise programs. SMMEIT will increasingly focus research on means of supporting entrepreneurship and enterprise development by groups that are traditionally hard to reach, such as isolated rural communities and women. Information and communication technologies may provide cost-effective ways to help meet this goal.

Artemisia, or sagebrush, in Morocco: this nondescript shrub is a source of essential oils for the export market.

Further Reading

Reports webzine, *"Return of Traditional Dyes in Guinea"*
http://www.idrc.ca/books/reports/V231/dyes.html

Reports webzine, *"The Sweet Smell of Success"*
http://www.idrc.ca/books/reports/V212/success.html

Valorisation de la biomasse végétale par les produits naturels
edited by François-Xavier Garneau and Guy Collin (IDRC 1995)
http://www.idrc.ca/books/775.html (in French only)

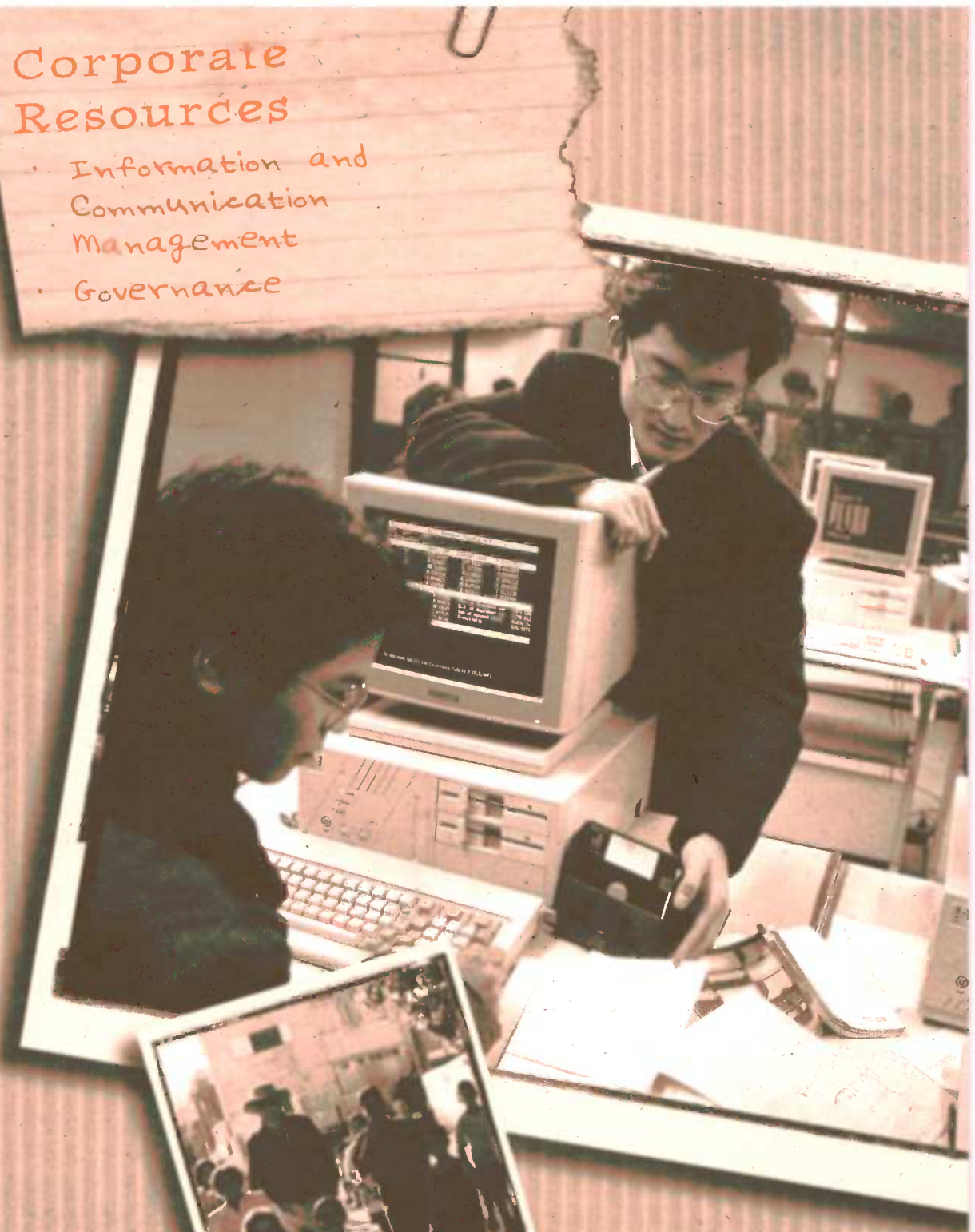
Reports webzine, *"Harvesting Red Algae for Senegalese Coastal Communities"*
http://www.idrc.ca/reports/read_article_english.cfm?article_num=291

Nayudamma Information Bank, *"Traditional Dyes – Guinea"*
http://www.idrc.ca/nayudamma/dyes_e.html

SMMEIT website: http://www.idrc.ca/smmeit/

Corporate Resources

- Information and Communication Management
- Governance



Retooling for the Information Age

The Challenge

IDRC has always recognized the vital role information plays in the development process. From its inception, it has supported research on information problems and on information and communication technologies (ICTs) while helping developing countries to strengthen their ICT infrastructures.

IDRC has also invested in ICTs to meet its own needs and those of its partners. From public websites to virtual private networks, from e-mail to discussion lists, ICTs are transforming the way IDRC delivers its programs and runs its operations in seven regional offices across six time zones. The ongoing challenge is to ensure improved technologies are matched by more effective information and communication management.

The Response

To streamline its operations, IDRC approved a corporate information system/information technology (IS/IT) business plan for managing the process of upgrading its information systems and infrastructure. Developed in 1997, the plan set priorities for improving key business applications and the corporate information technology infrastructure over a three-year period. Staff and management in Ottawa and the regional offices were consulted, and expert advice on the strategic use of information and related technologies came from IDRC's Advisory Committee on Information Management (ACIM) and external consultants.

The anticipated benefits from implementing the plan include systems that are year 2000 (Y2K) compliant; increased regional office and headquarter access to corporate and research databases; a stronger IDRC presence on the Internet; faster and more reliable communications; a more powerful infrastructure; and a better supported user community.

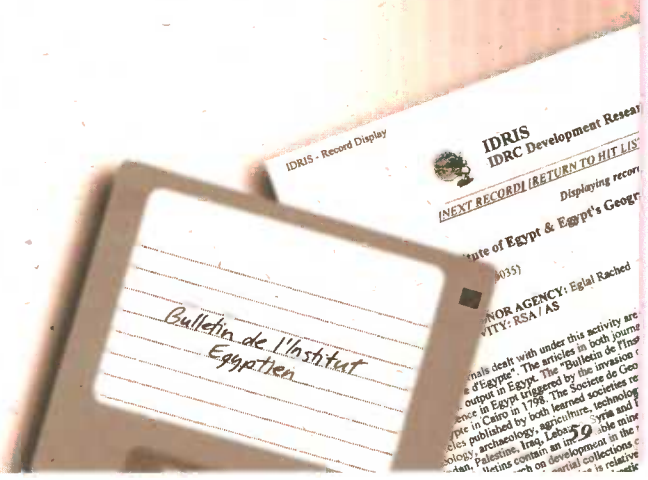
Technological improvements on the operations side will support IDRC's growing use of research networks, which have become indispensable to efficient scientific research, and the Internet. The Internet is now the Centre's primary means for communicating and sharing information with its partners in the developing world.

The Objectives

- To upgrade communication and information infrastrucutre and "at risk" systems before January 1, 2000.
- To improve and adjust practices for managing information to meet the requirements of new technologies.
- To ensure that information shared among headquarters and regional offices is in "real" time.
- To consolidate and strengthen communications with IDRC partners in the South.

The Results

- A new, integrated financial and grants management system that is Y2K compliant will allow IDRC employees around the world to share information more easily and work on a "real time" basis.
- IDRC's Y2K strategy will eliminate or manage the risks IDRC faces from computer system failures and its exposure to developing-country systems.
- IDRC has created a network of websites that link its offices and many of its partner institutions.
- Sharing research results with its partners in the South is a key element of IDRC's approach. To ensure that Southern project teams have adequate technology and the means to communicate amongst themselves and to take full advantage of the information resources at IDRC and on the Internet, IDRC launched Unganisha, an initiative to extend connectivity to its partners.
- IDRC's Research and Information Management Service (RIMS) has developed two development databases: BIBLIO, its library catalogue, and IDRIS, a complete collection of IDRC's project descriptions. They are easily accessible by researchers and the public alike through the Internet. The databases, holding the cumulative experience of 29 years of research for development, offer an important means of building research capacity by looking to past lessons and results.



The 24-hour work day

As the business day ends at IDRC's Ottawa headquarters, it is just beginning for IDRC employees in Singapore. The Centre's business plan for updating its information and communications infrastructure will ensure that all IDRC staff have access to the most recent information available regardless of where they work. Improvements in IDRC's business practices should result in more cost effective and efficient program delivery.

New information and communication technologies will give IDRC field personnel access to the information they need to do their jobs.

Upstream improvements to IDRC's information and communication systems will be felt in downstream improvements to program delivery.

Streamlining Operations

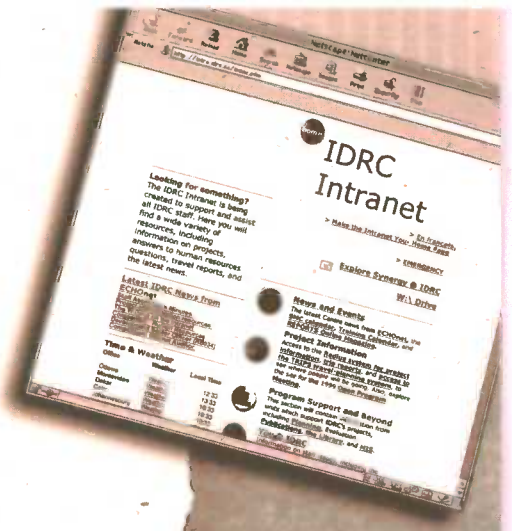
In 1997, IDRC developed and launched a corporate IS/IT business plan that was a blueprint for implementing and managing a far-reaching information and communications strategy. The current year saw the three-year implementation phase come fully on stream. Among the range of activities undertaken:

- IDRC introduced a new financial and grants management system based on an Oracle database management system and suite of applications. To operate effectively and securely, a virtual private network was created (a secure network using Internet technology and infrastructure) to provide IDRC's regional offices with secure access to core financial, project, and program information. The system will meet the needs of the regional offices for accurate and timely information 24 hours a day, seven days a week.
- The Centre identified critical Y2K business functions and conducted a full review of the technologies the Centre is using for its operations. Based on the results, management embarked upon a program to update software and applications that were not compliant. A Centre-wide contingency plan was developed to cope with the potential impact of the Y2K bug on Centre activities, including its capacity to operate and to respond to Parliament, and its ability to ensure the safety of its personnel, both at headquarters and around the world.

Improving program delivery and information sharing

- IDRC launched its public website in 1996. It now contains some 10 000 pages of information and receives about 70 000 visitors a month. A survey of website visitors revealed a high level of satisfaction among those accessing the site: 84% rated the site as either "good" or "excellent"; 77% indicated they were "satisfied" or "highly satisfied" with the site's content; and 70% of the respondents said they found the site either "easy" or "very easy" to navigate. Its rapid growth and heavy use has made it a key tool in IDRC's communications and information-sharing strategy.

D.Batkhuu dreams of sharing the wisdom captured in traditional Mongolian texts or sudars with an international public. Knowledge sharing is at the core of IDRC's "connectivity" efforts.



- A Web Coordination Unit was created to consolidate the development of the public website and to initiate an internal website, or Intranet. An Intranet pilot project was launched to test a series of tools designed to provide easy access to corporate information that ranges from human resource information to staff travel reports. An electronic internal newsletter was also developed that enables any staff member to post news items or share information of interest. An internal survey showed that positive gains could be made through better sharing of information within IDRC.

- A two-year project called Unganisha will end this year. The name is taken from the Swahili word for connectivity. The project's goal was to explore and develop better means for collaborating between distant projects, between IDRC's program initiatives and program officers, and between different departments within IDRC. Designed as a short-term project, Unganisha gave IDRC-funded projects a jump-start by offering direct financial and technical support to connect project teams to the Internet and to train them to use ICTs and to publish documents on the World Wide Web. It also supported help desks in developing countries and the cooperative development of training materials. The Unganisha project has allowed a number of developing-country researchers to avail themselves of the wealth of information found on the Internet and, more importantly, to add their voices to regional and global scientific debates and discussions.

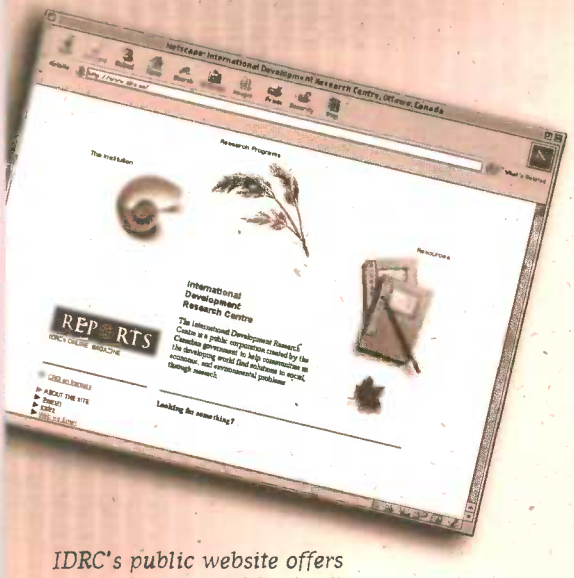
- IDRC continues its active participation in Bella*net*, a multidonor initiative that supports collaboration within the development community through the use of ICT's. Such collaboration and information sharing strengthens the impact of development programs.

- MINISIS is a computer-based information management and retrieval system software designed, developed, and distributed by the MINISIS Systems Group of IDRC since the 1970s. The MINISIS suite of products is used around the world in over 60 countries, with a particular focus in the developing world. The suite of software has evolved since its creation. It now contains a database management engine, a generic user-friendly interface to develop databases, and a Web interface that allows for data entry and presentation over the Internet. As well, applications for archives, museum management, and libraries exist.

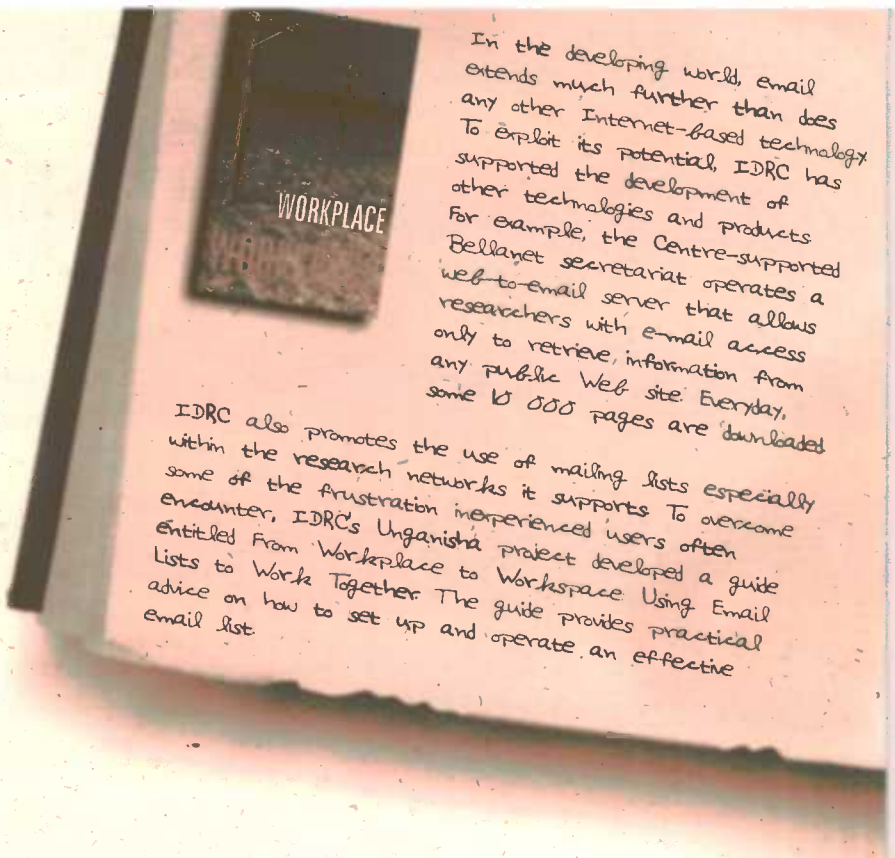
To improve the sharing and management of information, knowledge, and resources has always been a top priority at IDRC. As it approaches the 21st century, the Centre has introduced new systems for financial and project management and an Intranet for the exclusive use of IDRC personnel. The Intranet gives them access to a range of information, including trip plans, project evaluation reports, and the internal news bulletin *Echonet*.

The Centre has also introduced an Intranet-based groupware to help build work teams, whose members could be across the hall or around the world. The groupware offers a host of tools for sharing information: a notice board, a calendar, a project manager, a contact list and document manager, e-mail, a discussion forum, a scheduler; and room and equipment reservation system.

All of these are available to every Centre employee from any Internet connection.



IDRC's public website offers researchers a wealth of information. The site now receives 70,000 visitors a month.



In the developing world, email extends much further than does any other Internet-based technology. To exploit its potential, IDRC has supported the development of other technologies and products. For example, the Centre-supported Bellanet secretariat operates a web-to-email server that allows researchers with e-mail access only to retrieve information from any public Web site. Everyday, some 10 000 pages are downloaded.

IDRC also promotes the use of mailing lists especially within the research networks it supports. To overcome some of the frustration inexperienced users often encounter, IDRC's Unganisha project developed a guide entitled From Workplace to Workspace: Using Email Lists to Work Together. The guide provides practical advice on how to set up and operate an effective email list.

Future Directions

IDRC will renew its corporate IS/IT business plan to ensure that information technology continues to be used in support of the corporate program strategies and to safeguard investments made to date.

Collaborative work tools will be developed for the Centre's Intranet that enable employees to share documents, contact names, work calendars, and important news items. Available to Centre staff from any Internet access point in the world, these tools should further improve the two-way flow of information within IDRC.

Information related to IDRC's research resources and projects is accessible through the public website. More of this information will be linked to full-text documents.

MINISIS™
International Development Research Centre
Centre de recherches pour le développement international

In 1983, IDRC-supported MINISIS was the first text database system, both inside and outside of China, to operate fully in Chinese. Innovation remains its trademark.

Further Reading

IDRC public website: http://www.idrc.ca

IDRC Resources website: http://www.idrc.ca/resources/

MINISIS website: http://minisis.idrc.ca/minisis/

Unganisha website: http://www.idrc.ca/unganisha/

Nayudamma Information Bank, ***"MINISIS: Information Management Tools"*** http://www.idrc.ca/nayudamma/minisis_96e.html

Bellanet website: http://www.bellanet.org/

Corporate Resources: Governance

The Centre is unique among Canadian public corporations because of the international composition of its 21-member Board of Governors. The IDRC Act requires that only the Board's Chairman, Vice-Chairman, and nine other members be Canadians. The international complement of the current Board is made up of eight governors from developing countries and one from the United States.

This international dimension means that, in the boardroom, the Centre has a window on the South and evolving development issues and needs. The leadership and perspective provided by governors from outside Canada help to keep the Centre's programs relevant to the developing world while setting them within a broader international context.

Over the last two years, the Board has strived to improve its effectiveness by focusing more attention on corporate governance issues. For direction, they have looked to information from the Office of the Auditor General and to the guidelines on corporate governance in Crown corporations and other public enterprises prepared by the Department of Finance and Treasury Board of Canada. Reporting on the Centre's corporate governance also reflects these guidelines.

Stewardship of the Corporation

Board Responsibilities

The Board of Governors sits at the apex of the Centre's corporate structure. It provides strategic leadership, sanctions the general orientation of the Centre, and approves certain key financial, administrative and human-resource policies. It must also approve the Centre's annual program of work and budget.

Over the past fiscal year, the Board has helped prepare the Centre for the challenges of the new millennium. It has guided the development of the Corporate Strategy and Program Framework (CSPF), which will set the Centre's objectives for a five-year period, beginning in 2000. This process marks an evolution of the Board's role. While it once focused on individual projects – more than 70 in one meeting – it now addresses broader issues of strategy and policy. In addition to its contribution to the CSPF, the Board reviews the annual reports of program initiatives (PIs) and approves the creation of any new PI or secretariat. It continues to discuss projects, but only those few that raise a significant policy issue. This year, the Board also assessed the results of an employee climate survey about IDRC's working environment and reviewed the Centre's preparations for the year 2000.

Much of the Board's work, such as its deliberations on the CSPF, look to the Centre's future. But it must also establish accountability for the present. To fulfil this responsibility, the Board receives regular reports from IDRC staff and management. Along with the Centre's audit regime, these reports help to ensure that corporate objectives are being met and that resources and assets are protected and well managed.

The annual audit regime includes both internal and external audits. The Board has also approved a resolution to invite the Auditor General to conduct a special examination or value for money audit of the Centre. These are designed to provide the Board with an independent opinion and assessment of the Centre's systems and practices. The Auditor General has previously conducted a value for money audit of the Centre. These audits are conducted approximately every five years.

Although the Governor in Council is ultimately responsible for Board appointments, the Board does plan and advise on its own succession. The Board also appoints Officers of the Centre: the three Vice Presidents; the Treasurer, and the Secretary. Most recently, the Board approved the appointment of a new Vice-President of Resources and Chief Financial Officer, set to take effect in August 1999 when the incumbent officer retires.

Public Policy Objectives

The IDRC Act, which sets out the Centre's mandate and objectives, has underpinned Centre activities for its 29-year existence. The Board ensures that the Centre adheres to the IDRC Act and its mandate to initiate, encourage, support, and conduct research into the problems of the developing world. The Board also ensures that Centre management and staff comply with Canadian laws.

Communications

The Board reviews and approves an annual communications strategy, which sets out a framework for communicating effectively with the Government of Canada, other stakeholders, and the public.

Professor V.P.K. Nambiar welcomes IDRC governors Tom McKay and Rodger Schwass to a medicinal plants project in Kerala State, India.

Working with Management

Board and management relations

The Board has an effective working relationship with Centre management. The Board has clearly defined, in collaboration with the President, the matters it expects her to submit to the Board for discussion and approval. In addition to a report given at each meeting, the President submits an annual report to the Board on the year's achievements and future objectives.

The day-to-day management of the Centre is entrusted to the Senior Management Committee (SMC), which comprises the President, the Vice-Presidents of the three branches of IDRC (Program, Resources, Corporate Services), Regional Directors, the Director of the Policy and Planning Group and the General Counsel. It meets regularly and prepares recommendations on most of the broad issues that come before the Board. SMC also attends all open sessions of the Board and has other points of formal and informal contact with governors.

Board independence

The Board has established various structures and procedures that allow it to function independently of management. The roles of the Chairman and the President, who is the CEO, are separate: the Chairman manages the affairs of the Board; the President is responsible for Centre management. The Chairman and the President are both appointed by Governor in Council, the latter appointment being on the recommendation of the Board and the former being on a part-time basis.

The Board meets three times a year. Every session includes an in-camera discussion and reports from Board committees. The Board has three standing committees: the Executive Committee, the Finance and Audit Committee, and the Human Resources Committee. The Board will also establish ad hoc committees to deal with particular issues, as the occasion arises. In some cases, the Board has obtained independent advice from experts outside the Centre. The Board is kept informed of current government policy through the participation of the President of the Canadian International Development Agency, who sits as an ex officio member of the Board.

The Board has a stringent conflict of interest policy to maintain the highest standard of integrity for its members and for the Centre as a whole.

The position of the CEO

The Board sets objectives for the President and assesses whether those objectives are being met. When the position is vacant, the Board assists the federal government in the selection of a President by identifying the skills and characteristics it judges as essential for the job and recommending one or more candidates.

Functioning of the Board

Renewal of the Board

The IDRC Act specifies that at least 11 of the governors must have experience in international development or a background in the natural sciences, or social sciences, or technology. This combination of skills, experience, and background are reflected in the composition of the Board, which this year saw the introduction of eight new members.

Education of governors

New Board members receive extensive background material on the Centre, including a briefing manual, and participate in orientation sessions. All Board members make at least one trip during their term to visit IDRC projects. Their first-hand observations help to inform Board decision-making and keep it relevant to needs in the South. Outside experts will also occasionally address the Board on specific development issues.

Compensation

The Governor in Council sets the honoraria for Board members. Governors receive $250 for each day they attend Board meetings or engage in Board business as well as $250 to prepare for each meeting. Board members who sit on committees receive an additional $250 for participating in, and preparing for, committee meetings.

Responsibility for corporate governance

The Board has established guidelines for corporate governance that are based in part on those recommended by the Department of Finance and Treasury Board of Canada. It also incorporates recommendations from the Office of the Auditor General's review of the Centre's yearly financial statements. The Board continues to refine its corporate governance practices and policies.

IDRC Governors Marie-Angélique Savané and Tom McKay visit a natural resources management project in Hong Ha, Viet Nam.

Board of Governors

Gordon S. Smith, Chairman, Board of Governors, Victoria, Canada
Former Deputy Minister of Foreign Affairs and the Prime Minister of Canada's personal representative (Sherpa) for economic summits

Maureen O'Neil, President, IDRC, Ottawa, Canada
Former President of the North–South Institute and Chair of the International Centre for Human Rights and Democratic Development

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Mervat Badawi, Safat, Kuwait
Director, Technical Department for the Arab Fund for Economic and Social Development

Marie Battiste, Saskatoon, Canada
Associate Professor, Indian and Northern Education Program, University of Saskatchewan, and Executive Director of the Apamuek Institute in Eskasoni, Nova Scotia

Herb Breau, Ottawa, Canada
Businessman and former Member of Parliament

José J. Brunner, Santiago, Chile*
Minister of the Presidency, Office of the Minister Secretary-General of Government, Chile

Albert J. Butros, Jubeiha, Jordan**
Professor of English, University of Jordan, former special advisor to HRH Crown Prince Hassan of Jordan, and former Jordanian ambassador to the United Kingdom

Margaret Catley-Carlson, New York, United States
Former President of the Population Council in New York and former President of the Canadian International Development Agency

Joan E. Foley, Toronto, Canada*
Professor of Psychology, University of Toronto

Beryl Gaffney, Nepean, Canada
Former Member of Parliament and former Councillor of the City of Nepean and of the Regional Municipality of Ottawa-Carleton

Jacques Gérin, Montréal, Canada
Consultant, Hatch & Associés, inc., former Deputy Minister of Environment Canada, and former Vice-President of the Canadian International Development Agency

Octavio Gómez-Dantés, Cuernavaca, Mexico
Director of Health Policy at the Center for Health Systems Research of the National Institute of Public Health of Mexico

Jon K. Grant, Toronto, Canada*
Chairman, Board of Canada Lands Corporation Limited and former President and Chief Executive Officer of Quaker Oats

Donna S. Kaufman, Toronto, Canada**
Barrister, solicitor, and consultant

Huguette Labelle, Gloucester, Canada
President, Canadian International Development Agency

Miguel de la Madrid Hurtado, Mexico City, Mexico***
Director, Fondo de Cultura Economica and former President of Mexico

Dan M. Martin, Chicago, United States
Director, World and Environment Resources Program, John D. and Catherine T. MacArthur Foundation

Sir Alister McIntyre, Kingston, Jamaica
Chief Technical Advisor, CARICOM Regional Negotiating Machinery, and former Vice Chancellor, University of the West Indies

Tom McKay, Kitchener, Canada
Certified management accountant, consultant, and former Chief Administrative Officer for the City of Kitchener

Ivy F. Matsepe-Casaburri, Bloemfontein, South Africa
South Africa's Minister for Post, Telecommunications and Broadcasting and former Premier, Free State Province of South Africa

Jean-Guy Paquet, Québec City, Canada
President and Chief Executive Officer, National Optics Institute; former President of the Université Laval; and Chief Executive Officer of Laurentian Life Inc.

Vulimiri Ramalingaswami, New Delhi, India
Professor of National Research, Department of Pathology, All-India Institute of Medical Sciences, and physician and medical researcher

Sir Shridath Ramphal, Guyana****
Co-chairperson, Commission on Global Governance, and former Commonwealth Secretary-General

Francisco Sagasti, Lima, Peru
President, FORO Nacional/Internacional, and former Chief of Strategic Planning at the World Bank

Marie-Angélique Savané, Dakar, Senegal
Consultant, sociologist, and former Director, Africa Division, United Nations Population Fund

Rodger Schwass, Tara, Canada
Professor Emeritus and Senior Scholar, Faculty of Environmental Studies, York University

Paulynn Sicam, Makati City, Philippines
Peace and Human Rights Desk, Benigno Aquino Foundation, and former Commissioner in Charge of Education and Information, Philippine Commission on Human Rights

Olav Slaymaker, Vancouver, Canada
Professor of Geography, University of British Columbia

Senior Management Committee

Maureen O'Neil, President
Former President of the North–South Institute and Chair of the International Centre for Human Rights and Democratic Development

Ray Audet, Vice-President, Resources, and Chief Financial Officer
Joined IDRC from Canadair Ltd in 1971 as Comptroller, became Vice-President, Resources, in 1983, and Chief Financial Officer in 1995

Pierre Beemans, Vice-President, Corporate Services
Development expert and former Director General of the Canadian International Development Agency

Caroline Pestieau, Vice-President, Programs
Economist, permanent member of the now disbanded Economic Council of Canada, and former Research Director and Head of the Montréal Office of the C.D. Howe Institute

John Hardie, Director, Policy and Planning,
Former agricultural economist with the Overseas Development Administration (UK) and Agriculture Canada

Robert Robertson, General Counsel
Barrister and solicitor of the Ontario Bar

Roger Finan, Regional Director, South Asia Regional Office
Chartered management accountant with broad international experience acquired in the private and public sectors of Europe and the developing world

Eglal Rached, Regional Director, Regional Office for the Middle East and North Africa
Renewable resources and agriculture specialist with research interests in dryland water management and desertification

Eva M. Rathgeber, Regional Director, Regional Office for Eastern and Southern Africa
Former Research Fellow, Centre for Developing Area Studies, McGill University, Montréal, Canada

Randall W. Spence, Regional Director, Asia Regional Office
Former senior economist, Government of Kenya

Carlos Seré, Regional Director, Regional Office for Latin America and the Caribbean
Agricultural economist and former senior economist in the Tropical Pastures Program of the International Centre for Tropical Agriculture

Sibry Tapsoba, Regional Director, Regional Office for West and Central Africa
Former Professor, Institut des sciences de l'éducation, University of Ouagadougou, and instructor at l'École nationale d'administration et de magistrature, Burkina Faso

Marc Van Ameringen, Regional Director, Regional Office for Southern Africa
Former consultant and market researcher, Investment and Hotel Consultants Inc.

* term ended November 1998

** term ended June 1998

*** resigned May 1998

**** resigned June 1998

Financial Report
1998-1999

HIGHLIGHTS

Parliamentary Grant

IDRC's Parliamentary grant for 1998/99 was $86.5 million. Our grant for 1999/2000 is expected to be slightly higher at $86.8 million.

Change in Accounting Policy

Funds for capital asset additions are now recorded as deferred revenue – capital assets on the balance sheet and are recognized as revenue on the same basis as the amortization expense.

Resource Expansion

Resource-expansion revenues reached a new high of $35.9 million, $6.4 million more than in 1997/98.

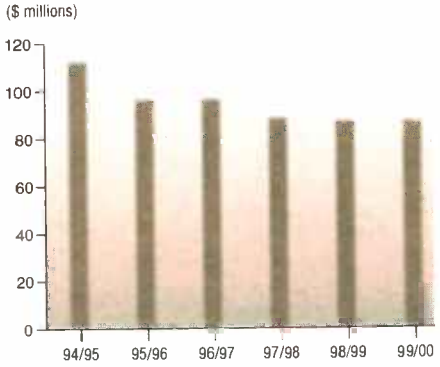
IS/IT Plan

1998/99 was the 2nd year of a 3-year corporate plan to renew and replace information systems and technologies within the Centre. As well as enhancing the overall architecture and infrastructure to ensure fast and reliable communications with our regional offices and partners in development, four corporate systems were replaced or upgraded. The principle areas of upgrade were the financial (grants) and project-management systems.

INTRODUCTION

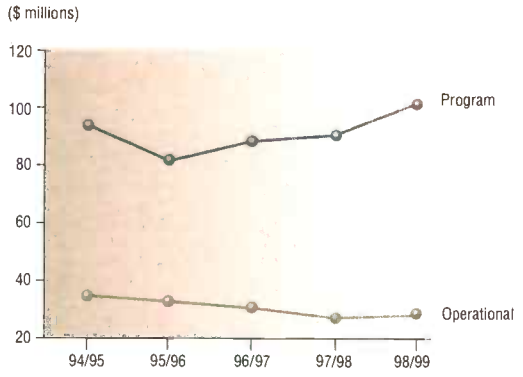
IDRC's primary source of funds available for operations is its annual Parliamentary appropriation (grant). For 1998/99, the grant was $86.5 million, $1.6 million lower than the amount received in 1997/98. The grant for 1999/2000 is expected to be $86.8 million. Figure 1 illustrates the changes in the Parliamentary grant since 1994/95.

Figure 1 **Parliamentary grant: 1994/95 to 1999/2000**



During this period, IDRC has been able to maintain a high level of program expenditures because of the growth in resource-expansion activities. Program and operational expenditures over the last 5 years are illustrated in Figure 2.

Figure 2 **Program and operational expenditures: 1994/95 to 1998/99**



IDRC's first corporate business plan in information systems and technologies (IS/IT) was approved by senior management in July 1997. Motivating factors in approving the plan were overall corporate efficiency and effectiveness, year 2000 issues, and equitable and enhanced access to information by the Centre's regional offices. IDRC's information needs and its operational requirements are complex for an organization its size. The business-plan model has been an effective and valuable management tool to ensure maximum return on the Centre's IS/IT investment and that all such investments respond to corporate programing needs.

REVENUE

Table 1 **Revenue ($000) for 1998/99 and 1997/98**

	1998/99			1997/98	
	Revised budget	Actual	Variance from budget (%)	Actual	% change (actual)
Total revenue	**$122 462**	**$125 050**	**2.8%**	**$121 355**	**4.3%**
Parliament appropriation (grant)					
Regular	83 288	82 347	1.1%	85 850	4.1%
Supplementary	5 550	2 113	–61.9%	1 800	17.4%
Resource-expansion activities	30 000	35 907	19.7%	29 487	21.8%
Investment Income	1 200	2 343	95.3%	1 832	27.4%
Amortization – deferred capital assets	1 624	1 626	0.1%	1 338	21.5%
Other income	800	714	–10.8%	1 048	–31.9%

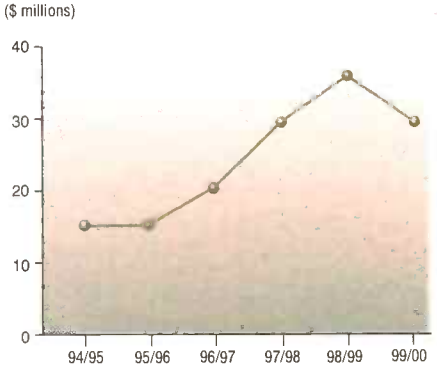
For the reporting period, revenues were $125.1 million, representing an increase of $3.7 million (3.0%) from the previous year's total of $121.4 million.

In 1993/94, IDRC received a supplementary grant of $15.0 million to carry out a health-support initiative in Africa. This activity was ongoing during 1998/99, with recorded expenditures of $2.1 million. The unspent portion of this grant ($8.1 million) is reported as deferred revenue on the balance sheet.

The portion of the grant used to purchase capital assets is now recorded as deferred revenue – capital assets on the balance sheet. This deferred revenue is recognized as revenue on the same basis as the depreciation expense.

IDRC has continued in its efforts to diversify its revenue base. Funds from resource-expansion activities are managed or administered by IDRC on behalf of other organizations. Activities include cofunding of projects, administering of secretariats, and contracting of IDRC staff to administer or conduct development research for other organizations. To 31 March 1999, these revenues and expenditures totaled $35.9 million, an increase of $6.4 million (21.8%) over last year. Of this amount, $23.7 million was for the Micronutrient Initiative. For 1999/2000, IDRC estimates a revenue of $31.0 million for resource-expansion activities. Figure 3 illustrates the growth in resource-expansion revenue over the last 5 years, with a projection for 1999/2000.

Figure 3 **Resource-expansion revenue: 1994/95 to 1999/2000 (projected)**



EXPENSES

Total expenditures for 1998/99 amounted to $129.8 million, compared to $117.7 million in 1997/98.

Table 2 **Expenses ($000) for 1998/99 and 1997/98**

	1998/99			1997/98	
	Revised budget	Actual	Variance from budget (%)	Actual	% change (actual)
Total expenses	**$129 344**	**$129 834**	**0.4%**	**$117 671**	**10.3%**
Research activities and related expenses					
Development-research activities	64 194	61 377	–4.4%	56 581	8.5%
Resource-expansion activities	30 000	35 907	19.7%	29 487	21.8%
Technical support	9 370	8 716	–7.0%	9 063	–3.8%
Regional office management	5 265	5 253	–0.2%	4 816	9.1%
Information dissemination and library	4 510	4 345	–3.6%	4 569	–4.9%
Head office management	3 836	3 676	–4.1%	3 623	1.5%
Administration	13 208	12 231	–7.4%	11 188	9.3%
Administration costs recovered on expansion activities	(1 400)	(1 671)	19.4%	(1 456)	14.8%
Special operational fund	361	—	–100.0%	—	—

DEVELOPMENT-RESEARCH ACTIVITIES — Development-research expenses reflect the direct costs of all scientific and technical research projects supported by IDRC. These activities are the focus of IDRC's mandate. They include program activities that are identified, developed, and managed by developing-country researchers and projects that are supported by the Centre. For 1998/99, development-research activities totaled $61.4 million, or 47.3% of total expenditures. This is up $4.8 million (8.5%) from the level reported last year. For 1999/2000, IDRC plans to disburse $60.4 million on development research.

RESOURCE-EXPANSION ACTIVITIES — Resource-expansion activities reflect the direct costs of research activities managed or administered by IDRC on behalf of other organizations, including such activities as the cofinancing of projects, administering of secretariats, and contracting of IDRC staff to administer or conduct development research for other organizations. For 1998/99, resource-expansion expenses totaled $35.9 million, $6.4 million (21.8%) higher than last year. Of this amount, $23.7 million is derived from the Micronutrient Initiative

TECHNICAL SUPPORT — Technical support expenses represent the cost of program personnel whose role is to assist in the development of new projects, to monitor ongoing research projects, and to provide specialized support to recipients. For 1998/99, these expenses amounted to $8.7 million, $0.3 million (3.8%) less than last year.

REGIONAL OFFICE MANAGEMENT — IDRC's regional offices play an important role in enhancing the effectiveness of the support the Centre provides to research activities in developing countries. IDRC's field presence fosters special knowledge and awareness of developing-world research and development conditions. The overseas offices are situated in Egypt, India, Kenya, Senegal, Singapore, South Africa, and Uruguay. For 1998/99, the cost of operating these offices was $5.3 million, $0.5 million (9.1%) higher than last year.

INFORMATION DISSEMINATION AND LIBRARY — The dissemination of information and the maintenance of a specialized development research library are an important part of IDRC's role in promoting research. In addition to being an excellent research tool for employees, the library is open to the public. The costs of operating the library and disseminating information were $4.3 million in 1998/99, $0.2 million (4.9%) less than 1997/98.

HEAD OFFICE MANAGEMENT — The role of head office management is to provide support and guidance to IDRC's program of work. These expenses amounted to $3.7 million.

ADMINISTRATION — To support its overall operation and corporate responsibilities, IDRC requires policy, executive, administrative, and service functions. These functions are discharged by the Board of Governors, the President's Office, and Resources Branch. Administration expenditures for the year totaled $12.2 million, $1.0 million (9.3%) greater than last year.

ADMINISTRATION COSTS RECOVERED ON RESOURCE-EXPANSION ACTIVITIES — IDRC recovers its indirect administrative expenses on resource-expansion activities by charging a percentage on expenditures incurred. This year, overhead costs recovered totaled $1.7 million. The comparative figure for 1997/98 was $1.5 million.

OPERATIONS — Table 3 displays the relative share of program and operating expenditures for the last 5 years. The program to operations ratio has steadily improved over the years because of the growth in resource-expansion activities and the decrease in IDRC's costs of operations.

Table 3 **Program and operational expenditures ($000): 1994/95 to 1998/99**

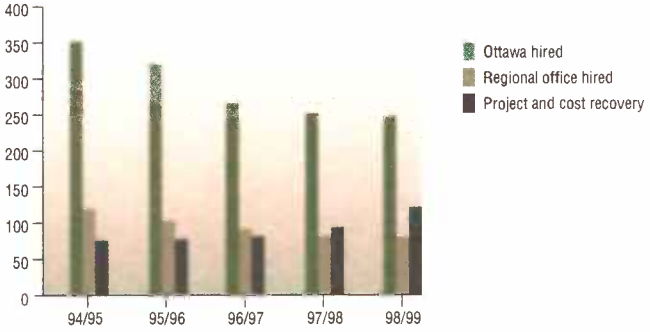
	1998/99	1997/98	1996/97	1995/96	1994/95
Program	101 629	90 437	88 379	81 530	95 165
% of total	78.3%	76.9%	74.2%	71.3%	73.2%
Operational*	28 205	27 234	30 654	32 828	34 865
% of total	21.7%	23.1%	25.8%	28.7%	26.8%

* Net of administration costs recovered on resource-expansion activities. Note that operational expenditures include technical support, regional office management, head office management, and administration and exclude the transition costs incurred in 1995/96.

HUMAN RESOURCES

As at 31 March 1999, IDRC employed a total of 248 Ottawa-hired, 80.5 regional office-hired, and 121.8 project and cost-recovery staff.

Figure 4 **Staffing levels: 1994/95 to 1998/99**



APPROPRIATIONS

Table 4 **Appropriations ($000) for 1998/99 and 1997/98**

	1998/99			1997/98	
	Revised budget	Actual	Variance from budget (%)	Actual	% change (actual)
Total appropriations	**$143 120**	**$137 604**	**–3.9%**	**$129 530**	**6.2%**
Regular program	72 180	69 446	–3.8%	68 887	0.8%
Resource-expansion activities	38 900	38 282	–1.6%	31 952	19.8%
Operational*	32 040	29 876	–6.8%	28 691	4.1%

* Excluding cost recovery.

For the year ending 31 March 1999, IDRC's total appropriations were $137.6 million, up $8.1 million (6.2%) from last year.

IDRC's appropriations to regular programs represent the value of funding for activities approved during the fiscal year. Disbursements on these activities may extend 5 or more years into the future. Regular program appropriations are reported at $69.4 million, slightly higher than last year. Next year, the regular program appropriation level is set at $65.5 million. Figures 5 and 6 show research appropriations by region and by program theme for 1998/99.

Figure 5 **Research appropriations by region for 1998/99**

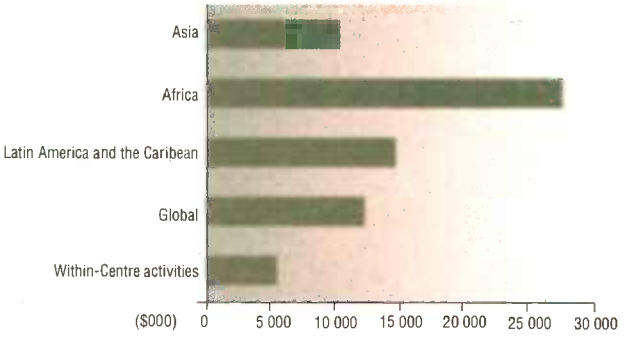
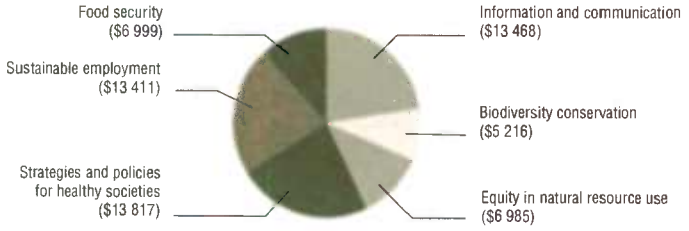


Figure 6 **Research appropriation ($000) by program theme for 1998/1999**



During the year, IDRC signed agreements with other donor agencies to administer a total of $38.3 million. This amount includes $33.3 million for the Micronutrient Initiative. The duration of these activities may also extend several years into the future. In dollar terms, about 35.5% of IDRC's total program portfolio is for resource-expansion activities. Next year, IDRC expects to sign $42.9 million in new resource-expansion agreements.

RESPONSIBILITY FOR FINANCIAL STATEMENTS

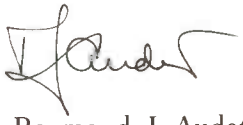
The financial statements presented in this annual report are the responsibility of management and have been reviewed and approved by the Board of Governors of the Centre. The financial statements, which include amounts based on management's best estimates as determined through experience and judgements, have been properly prepared within reasonable limits of materiality and are in accordance with generally accepted accounting principles. Management also assumes responsibility for all other information in the annual report, which is consistent, where applicable, with that contained in the financial statements.

Management maintains financial systems and practices to provide reasonable assurance as to the reliability of financial information and to ensure that assets are safeguarded and the operations are carried out effectively and in accordance with the International Development Research Centre Act and bylaws of the Centre. The Centre has an Internal Audit department whose functions include reviewing internal controls and their application on an ongoing basis.

The Board of Governors is responsible for ensuring that management fulfils its responsibilities for financial reporting and internal control. The Board benefits from the assistance of its Finance and Audit Committee in overseeing and discharging its financial management responsibility, which includes the review and approval of the financial statements. The Committee, which is made up of governors, meets with management, the internal auditors, and the external auditors on a regular basis.

The Auditor General of Canada conducts an independent examination in accordance with generally accepted auditing standards. His audit includes appropriate tests and procedures to enable him to express an opinion on the financial statements. The external auditors have full and free access to the Finance and Audit Committee of the Board.

Maureen O'Neil
President



Raymond J. Audet
Vice-President, Resources and Chief Financial Officer

Ottawa, Canada
22 June 1999

AUDITOR GENERAL OF CANADA

VÉRIFICATEUR GÉNÉRAL DU CANADA

AUDITOR'S REPORT

To the International Development Research Centre
and the Minister of Foreign Affairs

I have audited the balance sheet of the International Development Research Centre as at 31 March 1999 and the statements of operations and changes in equity and cash flows for the year then ended. These financial statements are the responsibility of the Centre's management. My responsibility is to express an opinion on these financial statements based on my audit.

I conducted my audit in accordance with generally accepted auditing standards. Those standards require that I plan and perform an audit to obtain reasonable assurance whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation.

In my opinion, these financial statements present fairly, in all material respects, the financial position of the Centre as at 31 March 1999 and the results of its operations and its cash flows for the year then ended in accordance with generally accepted accounting principles.

R. Flageole

Richard Flageole, FCA
Assistant Auditor General
for the Auditor General of Canada

Ottawa, Canada
28 May 1999

FINANCIAL STATEMENTS: BALANCE SHEET

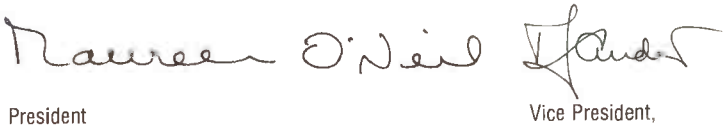
as at 31 March 1999 (in thousands of dollars)

	1999	1998 (Restated, Note 3)
ASSETS		
Current		
Cash and short-term investments (Note 4)		
Unrestricted	8 424	13 162
Restricted	22 681	20 575
Accounts receivable (Note 5)	12 293	4 989
Prepaid expenses	1 974	5 035
	45 372	43 761
Long-term investments (Note 6)	2 983	7 079
Capital assets (Note 7)	7 069	4 554
Recoverable deposits	145	153
Endowment funds (Note 8)	354	348
	55 923	**55 895**
LIABILITIES		
Current		
Accounts payable and accrued liabilities (Notes 5 and 9)	8 028	6 925
Restructuring liability (Note 10)	—	562
Deferred revenue (Note 11)	27 872	24 417
	35 900	31 904
Deferred revenue — long term (Note 11)	4 119	6 394
Accrued employee termination benefits	3 104	2 808
Deferred rent — head office	936	662
Endowment funds (Note 8)	354	348
	44 413	42 116
DEFERRED REVENUE — CAPITAL ASSETS (Note 12)	7 069	4 554
EQUITY (Note 3)	4 441	9 225
	55 923	**55 895**

Contingencies (Note 19)

The accompanying notes form an integral part of the financial statements.

Approved on behalf of the Board:



President

Vice President,
and Chief Financial Officer

Statement of Operations and Changes in Equity

for the year ended 31 March 1999 (in thousands of dollars)

	1999	1998 (Restated, Note 3)
REVENUES		
Parliamentary appropriation (grant) (Note 13)	82 347	85 850
Supplementary Parliamentary appropriation (grant) (Note 14)	2 113	1 800
Funding for resource-expansion activities (Note 15)	35 907	29 487
Investment income	2 343	1 832
Amortization of deferred revenues — capital assets (Note 12)	1 626	1 338
Other income	714	1 048
	125 050	**121 355**
EXPENSES		
Research activities and related expenses		
Development-research activities	61 377	56 381
Resource-expansion activities (Note 15)	35 907	29 487
Technical support	8 716	9 063
Regional offices management	5 253	4 816
Information dissemination and library	4 345	4 569
Head office management	3 676	3 623
	119 274	107 939
Administration	12 231	11 188
Administration costs recovered on resource-expansion activities (Note 15)	(1 671)	(1 456)
	129 834	**117 671**
Excess of revenues over expenses (expenses over revenues)	**(4 784)**	**3 684**
Equity at beginning of the year		
Equity at beginning of the year as previously stated	13 779	9 172
Decrease as a result of retroactive application of the change in accounting policy (Note 3)	(4 554)	(3 631)
Equity at beginning of the year, as restated	**9 225**	**5 541**
Equity at end of year	**4 441**	**9 225**

The accompanying notes form an integral part of the financial statements.

Statement of Cash Flows

for the year ended 31 March 1999 (in thousands of dollars)

	1999	1998 (Restated, Note 3)
Cash flows from operating activities		
Excess of revenues over expenses (expenses over revenues)	(4 784)	3 684
Items not affecting cash		
Amortization of capital assets	1 626	1 338
Gain on disposal of capital assets	(19)	(118)
Employee termination benefits	540	489
Amortization of deferred revenue — capital assets	(1 626)	(1 338)
Amortization of deferred rent	274	274
	(3 989)	4 329
Net change in working capital other than cash and short-term investments	(483)	4 367
Change in deferred revenue — long term	(2 275)	(1 380)
Net cash flows from (used in) operating activities	**(6 747)**	**7 316**
Cash flows from financing activities		
Capital funding	4 141	2 261
Net cash flows from financing activities	**4 141**	**2 261**
Cash flows from investing activities		
Additions to capital assets net of proceeds on disposal of equipment	(4 122)	(2 143)
Increase in restricted cash	(2 106)	(422)
Change in long-term investments	4 096	(7 079)
Net cash flows used in investing activities	**(2 132)**	**(9 644)**
Net decrease in cash	**(4 738)**	**(67)**
Unrestricted cash and short-term investments, beginning of the year	13 162	13 229
Unrestricted cash and short-term investments, end of the year	**8 424**	**13 162**

The accompanying notes form an integral part of the financial statements.

NOTES TO FINANCIAL STATEMENTS

All values are in thousands of dollars unless otherwise stated.

1. AUTHORITY AND OBJECTIVE

The International Development Research Centre (the Centre), a corporation without share capital, was established in 1970 by the Parliament of Canada through the International Development Research Centre Act. The Centre is funded mainly through an annual appropriation (grant) received from the Parliament of Canada. For purposes of the Income Tax Act, the Centre is deemed to be a registered charitable organization.

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

2. SIGNIFICANT ACCOUNTING POLICIES

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

A) Parliamentary appropriations

A portion of the Parliamentary appropriation (grant), which is equal to the capital assets purchased during the year, is recorded as deferred revenue – capital assets on the balance sheet and is amortized on the same basis and over the same period as the related capital assets. The remainder of the Parliamentary appropriation is recorded in the statement of operations in the year for which it is approved.

Parliamentary appropriations for specific projects are deferred and recognized as revenue when the related project expenses are incurred.

B) Other revenues

Funds received or receivable in respect of resource-expansion activities are deferred and recognized as revenue when the related project expenses are incurred.

All other revenues are recorded on the accrual basis of accounting.

C) Capital assets and amortization

Capital assets are recorded at cost and amortized over their estimated useful lives on a straight-line basis. The estimated useful life of each capital asset class is as follows:

Computer equipment	3 years
Software	3 or 5 years
Office furniture and equipment	5 years
Vehicles	3 years
Telephone system	5 years
Leasehold improvements	Remaining term of lease

D) Investments

Short-term investments are recorded at the lower of cost and market value. Long-term investments are recorded at cost. When there is a loss in value that is other then a temporary decline, the long-term investment is written down to recognize the loss.

E) Endowment funds

Endowment funds include amounts received by way of bequest, gift, or donation and are generally specific as to purpose. Expenditures relating to these funds are charged against the relevant portion of the endowment in the year they are incurred.

F) Foreign-currency translation

Foreign-currency transactions are translated into Canadian dollars either by the use of an average exchange rate that closely approximates the rate in effect at the transaction date or the actual rate in effect at the transaction date. Monetary assets and liabilities are adjusted to reflect the rate of exchange in effect at year-end. Exchange gains and losses are included in operations for the current year under other income.

G) Accrued employee termination benefits

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

H) Deferred rent

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

I) Pension costs

Employees participate in the Public Service Superannuation Plan administered by the Government of Canada. Contributions to the Plan are required from the employees and the Centre. These contributions represent the total pension obligations of the Centre and are recognized in the accounts on a current basis. The Centre is not required under current legislation to make contributions with respect to actuarial deficiencies of the Public Service Superannuation Account.

3. CHANGE IN ACCOUNTING POLICY

Before 1999, funds received to purchase capital assets were recorded as revenues in the year they were received. Funds for capital assets additions are now recorded as deferred revenues – capital assets on the balance sheet and are amortized on the same basis as the related assets. The effects of this change in accounting policy, which has been applied retroactively, are a reduction in equity, an increase in deferred revenues – capital assets on the balance sheet of $7 069 (1998, $4 554), and an increase in excess of expenses over revenues of $2 514 (1998, $923).

4. CASH AND SHORT-TERM INVESTMENTS

	1999	1998
Cash	8 157	2 193
Short-term investments		
Canadian chartered banks	8 932	17 515
Federal government	4 096	—
Commercial companies	9 913	13 889
Foreign-owned banks	7	140
	31 105	**33 737**

The Centre is authorized to invest in interest-bearing securities such as issued by the above-noted entities. These funds are invested in short-term money market instruments that are rated R-1 or better by a recognized bond-rating agency. The investment vehicles consist primarily of banker's acceptances, term deposits, and short-term notes.

As at 31 March 1999, the average yield of the portfolio was 5.11% (1998, 4.83%) and the average term to maturity was 59 days (1998, 76 days). The fair market value of the investment portfolio as at 31 March 1999 approximates the net book value.

The Centre has various banks accounts, some of which have a line of credit associated with them. As at March 31 1999, all balances in these line of credit accounts were nil.

Of the total cash and short-term investments, $22 681 (1998, $20 575) is restricted for specific research activities as follows:

	1999	1998
Resource-expansion activities	14 563	14 440
Health support – Africa	8 118	6 135
	22 681	**20 575**

5. ACCOUNTS RECEIVABLE AND PAYABLE

Accounts receivable and accounts payable are incurred in the normal course of business. All are due on demand and noninterest bearing. The carrying amounts of each approximate fair value because of their short maturity. A significant portion (65%) of accounts receivable are due from the Canadian International Development Agency (CIDA) and do not present a significant credit risk. Of the total accounts receivable, $10 142 (1998, $3 417) is for resource-expansion activities.

6. LONG-TERM INVESTMENTS

These funds are invested in Government of Canada bonds.

As at 31 March 1999, the average yield of the portfolio was 5.63% (1998, 5.63%) and the average term to maturity was 4.6 years. The fair market value of the investment portfolio as at 31 March 1999, is $3 198 (1998, $7 279).

7. CAPITAL ASSETS

	Cost		Accumulated amortization		Net book value	
	1999	1998	1999	1998	1999	1998
Computer equipment	6 757	6 904	4 915	4 738	1 842	2 166
Leasehold improvements	1 759	1 710	1 090	854	669	856
Software	3 528	555	40	—	3 488	555
Office furniture and equipment	1 754	1 604	1 296	1 226	458	378
Telephone system	1 359	1 273	999	900	360	373
Vehicles	855	826	603	600	252	226
	16 012	**12 872**	**8 943**	**8 318**	**7 069**	**4 554**

The Centre is capitalizing the costs for its software. The amortization of the majority of these costs commences in the year the systems become operational. Amortization expense for the year is $1 626 (1998, $1 338).

8. ENDOWMENT FUNDS

In 1987, the estate of the late John Bene established a fund to provide a postgraduate fellowship in the field of social forestry. The Centre administers this fund as well as other endowment funds such as the Governor's Fund and the AIDS Fund.

	1999	1998
Balance at the beginning of the year	348	202
New contributions	—	142
Interest income	16	10
Expenses	(10)	(6)
Balance at the end of the year	**354**	**348**
John Bene	290	287
Other	64	61
Total endowment funds	**354**	**348**

9. ACCOUNTS PAYABLE AND ACCRUED LIABILITIES

	1999	1998
Accrued liabilities – projects	2 281	2 122
Trade payables	3 051	2 317
Accrued annual and other leave benefits	1 883	1 979
Other	813	507
	8 028	**6 925**

10. RESTRUCTURING LIABILITY

During the year ended 31 March 1996, the Board of Governors approved a restructuring of the Centre's programs and operations at its head office and regional offices. The total cost of this restructuring, which included severance packages paid to employees under the special compensation and assistance program and other related costs, was estimated at $5.5 million. As at 31 March 1999, no amounts remained outstanding (1998, $0.6 million). A total of $0.6 million (1998, $0.9 million) was paid during the year.

11. DEFERRED REVENUE

Deferred revenue includes the unspent portion of funds received, or receivable on resource-expansion activities as well as the portion of the supplementary Parliamentary appropriation (grant) received in March 1994 (see Note 14) that has not yet been used as at 31 March 1999. Details of these balances are as follows:

	1999	1998
Current		
Resource-expansion activities	23 873	20 579
Supplementary Parliamentary appropriation (grant)		
Health support – Africa	3 999	3 838
	27 872	**24 417**
Long term		
Supplementary Parliamentary appropriation (grant)		
Health support – Africa	4 119	6 394
Total	**31 991**	**30 811**

Of the total deferred resource-expansion activities, $8 411 (1998, $15 285) was received during the year from CIDA and $8 026 (1998, $1 078) is receivable from this organization at year-end. A further $573 (1998, $3 600) is also recorded as a prepaid expense.

12. DEFERRED REVENUES – CAPITAL ASSETS

Funds received to purchase capital assets are recorded as deferred revenues – capital assets on the balance sheet. They are included in revenues on the statement of operations and changes in equity on the same basis as the amortization expense.

	1999	1998
Balance at beginning of year	4 554	3 631
Capital assets purchased	4 141	2 261
Amortization	(1 626)	(1 338)
Balance at end of year	**7 069**	**4 554**

13. PARLIAMENTARY APPROPRIATION

A portion of the total approved and received Parliamentary appropriation is deferred and recorded on the balance sheet as deferred revenues – capital assets. The remainder of the Parliamentary appropriation is recognized as revenue on the statement of operations and changes in equity.

	1999	1998
Parliamentary appropriation approved and received	86 488	88 111
Deferral for capital assets purchased (Note 12)	(4 141)	(2 261)
Parliamentary appropriation in statement of operations and changes in equity	**82 347**	**85 850**

14. SUPPLEMENTARY PARLIAMENTARY APPROPRIATION (GRANT)

In March 1994, the Centre received a supplementary Parliamentary appropriation (grant) of $27 million. This money was restricted as follows: $15 million to underwrite a health support package in Africa and $12 million for the Micronutrient Initiative. While the portion relating to the Micronutrient Initiative was fully spent in 1995/96, the activity pertaining to the health support package in Africa is still ongoing. For the current fiscal year, funding recognized on this activity amounted to $2.1 million (1998, $1.8 million). The remaining unspent portion of $8.1 million (1998, $10.2 million) is reported as a deferred revenue (see Note 11).

15. RESOURCE-EXPANSION ACTIVITIES

Resource-expansion activities relate specifically to research conducted or managed by the Centre on behalf of other organizations. This research is funded by CIDA, other Government of Canada entities, and other agencies. A breakdown of the funding for resource-expansion activities is provided below:

	1999	1998
CIDA	27 723	24 399
Other agencies	7 386	4 345
Other Government of Canada entities	798	743
	35 907	**29 487**

The Centre also recovers administration costs on resource-expansion activities. This amounted to $1 671 (1998, $1 456), of which $1 012 (1998, $1 000) was recovered from CIDA.

16. OPERATING LEASE COMMITMENTS

The Centre has entered into various lease arrangements for staff accommodation in various countries and for office premises and equipment in Canada and abroad. The Centre's lease agreement for premises at its head office expires in 2007. The total minimum annual payments under various lease arrangements will be as follows:

1999/00	5 290
2000/01	5 239
2001/02	5 030
2002/03	5 048
2003/04	4 752
2004–07	19 318
Total	**44 677**

17. CONTRACTUAL COMMITMENTS – PROJECT GRANTS AND PROJECT DEVELOPMENT

The Centre is committed to make payments up to $131.7 million (1998, $135.3 million) during the next 4 years subject to funds being provided by Parliament or external partners and subject to compliance by recipients with the terms of project agreements. The Centre has also submitted formal grant offers to prospective recipients totaling $1.4 million (1998, $1.7 million) and is awaiting acceptance of these offers.

18. RELATED PARTY TRANSACTIONS

In addition to those related party transactions disclosed elsewhere in these financial statements, the Centre is related in terms of common ownership to all Government of Canada created departments, agencies, and Crown corporations. The Centre enters into transactions with these entities in the normal course of business.

19. CONTINGENCIES

A claim of approximately $0.8 million relating to a leased property in India remains outstanding at the end of the year. Based on the advice of legal counsel, management is of the opinion that it is not possible to determine the amount of the liability, if any, that may result from settlement of this claim.

The Centre is a defendant in other pending lawsuits. In management's opinion, the outcome of these other actions is not likely to result in any material liabilities.

20. THE YEAR 2000 ISSUE

The year 2000 issue arises because many computerized systems use two digits rather than four to identify a year. Date-sensitive systems may recognize the year 2000 as 1900 or some other date, resulting in errors when information using year 2000 dates is processed. In addition, similar problems may arise in some systems that use certain dates in 1999 to represent something other than a date. The effects of the year 2000 issue may be experienced before, on, or after 1 January 2000 and, if not addressed, the impact on operations and financial reporting may range from minor errors to significant systems failure, which could affect the Centre's ability to conduct normal business operations. It is not possible to be certain that all aspects of the year 2000 issue affecting the Centre, including those related to the efforts of the customers, suppliers, or other third parties, will be fully resolved.

21. COMPARATIVE FIGURES

Certain 1998 comparative amounts have been reclassified to conform to the financial statements presentation adopted in 1999.