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Cette publication est aussi disponible en français.

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To Our Readers

Sharing the results of the research it supports has always been a part of how IDRC operates. However, the way we share the knowledge generated by Southern scientists has changed a great deal, especially in the past few years. IDRC's Reports *magazine is a case in point. Once a quarterly print publication, it is now an electronic digest that is updated daily. The advantage is more timely information, more often. Unfortunately, not every reader who had a postal address also has an electronic one. We believe strongly that the inability to navigate the byways of cyberspace should not prohibit potential readers from learning about and using the results of IDRC-supported research. The publication you hold in your hands is our attempt to bridge the gap between the wired world and its paper precursor. It is a compilation of articles that have appeared in* Reports Online *during the past year, and it is intended for an informed public concerned with the broad issues of international development and scientific research. I wish you happy and informed reading and, in the true spirit of IDRC, hope that you will share the publication with a colleague.*

Maureen O'Neil
President, IDRC

biodiversity
Conservation
sustainable employment
Africa.

CIDA Photo: Pierre St. Jacques, Mali

Combating Iron Deficiency in Ethiopia:

Exploring the Link between Iron Supplementation and Malaria

Iron-deficiency anemia is a major health problem in Ethiopia. But public health officials are in a quandary concerning how to increase the population's iron intake. At issue is whether giving people iron supplements actually does more harm than good by making them more susceptible to malaria, which is also widespread.

With funding from the International Development Research Centre (IDRC) and eight other organizations, scientists at McGill University in Canada and in Ethiopia have shown that iron supplementation may indeed increase the risk of contracting malaria. Their results – a product of the McGill-Ethiopia Community Health Project, a joint initiative to train health care professionals in postgraduate research – indicate a need to integrate iron deficiency treatment programs with those for malaria control.

Field trials

Hailemichael Gebreselassie and Zenaw Adam were the principal investigators of two large randomized field trials conducted in northwestern Ethiopia, where 64 percent of the population is exposed to malaria. Dr Gebreselassie is now the Head of the Department of Food Science and Nutrition Research at the Ethiopian Health and Nutrition Research Institute in Addis Ababa. His study involved children in the Beles Valley (Pawe) resettlement area between the ages of 5 and 14 years, who were mild to moderately anemic. The results showed that 20.2 percent of the 223 children receiving iron supplements had at least one clinical malaria attack over a 24-week follow-up period compared with 14.0 percent among the 222 children in a placebo group. Although the difference between the groups was not statistically significant, it does suggest an increased susceptibility to malaria infection among iron-supplemented children.

Dr Gebreselassie believes that the benefits of iron supplementation outweigh the potential risk of malaria infection.

Nonetheless, Dr Gebreselassie believes that the benefits of iron supplementation outweigh the potential risk of malaria infection. "Iron supplementation was found to markedly improve the [subjects'] iron status," he explains. Moreover, his study helped highlight areas where more research is needed. It also gave Ethiopia a useful database on iron-deficiency anemia, and local physicians are already applying the results.

More fevers

In the second study, Zenaw Adam, of the London School of Hygiene and Tropical Medicine, found that 63.9 percent of anemic women in Metema, Ethiopia, who were receiving iron supplements experienced fever episodes over the 12 weeks of the trial compared with 55.3 percent among women who received a placebo. Similarly, anemic children between the ages of 6 and 84 months who were receiving iron supplements had more fevers than children in the placebo group (68.9 percent vs. 58.9 percent).

"The difference between the two groups of children is not great," says one of the investigators, Theresa Gyorkos, an associate professor at McGill University and Associate Director of the Division of Clinical Epidemiology at Montreal General Hospital. "But we want to be cautious. Let's be sure that when we are treating anemia, we are not creating a malaria problem."

Public health education

Dr Gyorkos says that a key element of any integrated treatment program must include the education of health professionals in the field. This is particularly important in light of the prevalence of iron-deficiency anemia, which, until recently, had not been considered a public health problem in Ethiopia.

Iron-deficiency anemia is a health problem facing many Ethiopian children.
Photo: Janice Johnston, Ethiopia

"We know that anemia has been underestimated," she explains. More than 30 percent of Ethiopians suffer from the condition, whose symptoms include fatigue, weakness, and dizziness. In the worst cases, it can lead to liver damage, edema, and heart failure, and it increases the risk of death of pregnant women at delivery.

Preschool children

In another IDRC-funded study involving the McGill-Ethiopia team, Abdulaziz Adish examined the causes of anemia in preschool children. He says that about 42 percent of preschoolers are anemic, mostly due to iron deficiency. Apart from inadequate intake, the children also have problems absorbing what iron they do get. Dr Adish found many contributing factors including poverty, lack of clean water, illiteracy, maternal illness, and food insecurity. For example, Ethiopians rarely eat meat, which helps the body absorb iron.

Vitamin C can improve iron absorption, but it is in short supply. One successful and relatively inexpensive intervention involves the use of iron pots. Teff, an iron-rich cereal, is a staple of the Ethiopian diet. If teff is cooked in an iron pot with vegetables or meat, small amounts of vitamin C from these foods enable the body to make more efficient use of the iron that is both found in the food and leached from the pot, says Dr Adish.

Cooking in iron pots can help improve the absorption of iron, but the effects of long-term use need to be studied.
CIDA Photo: David Barbour, Ethiopia

Iron toxicity?

But before any community-wide program is implemented, Dr Adish recommends that more research on the issue be conducted. "We must determine if long-term use of iron cooking pots causes iron toxicity," he says.

According to Dr Gyorkos, these investigations have influenced health policy in Ethiopia by focusing attention on the iron deficiency problem. Results from the McGill-Ethiopia Community Health Project are also being incorporated into the country's new five-year plan for research in health and nutrition.

By Phillipa Rispin, a Montreal-based writer and editor (with files from Jennifer Pepall).

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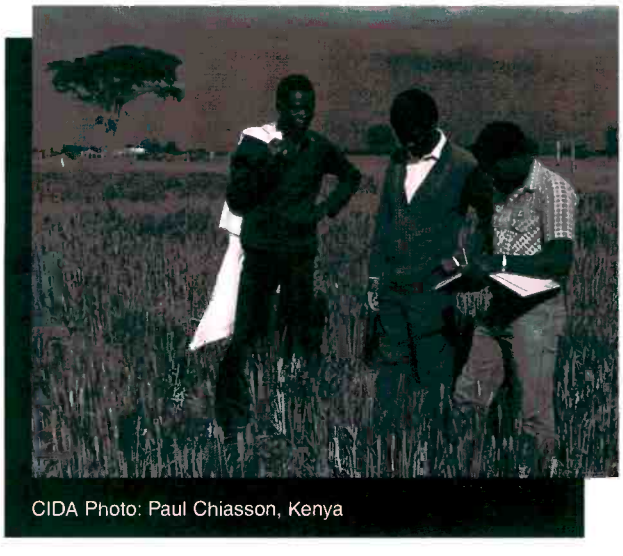
Restoring Soil Fertility in Western Kenya

The highlands of East and Central Africa have among the highest agricultural potential on the continent. The rainfall is adequate, and the temperatures are moderate. Despite this, crop yields in western Kenya are declining. Due to intensive agriculture over the last three decades, the soil of this densely populated region (500-1 000 people/km²) is being drained of its nutrients, particularly phosphorus.

Nearly 10 million people, most of whom are subsistence farmers, live in the western Kenyan area. Few of them have enough money to purchase adequate amounts of chemical fertilizer. As a result, they have seen the quality of their lands erode over successive harvests, says Amadou Niang, a researcher with the International Center for Research in Agroforestry (ICRAF). "In the maize fields of Kakamega, the plants are very small, sickly, and diseased," he adds. "For farmers, the yields are clearly inadequate – only one tonne of maize per hectare – even though the same area could generate 10 times more."



CIDA Photo: Paul Chiasson, Kenya

"In order for the environment to be restored and for food security to be achieved some day in western Kenya, it is absolutely necessary for phosphorus to be used and the entire society to be involved."

Amadou Niang, Principal Scientist,
International Center for Research in Agroforestry.

Pilot project

In 1994, scientists from the Kenyan Agricultural Research Institute and the Kenya Forestry Research Institute, in collaboration with ICRAF and the Tropical Soil Biology and Fertility Program (TSBF), launched a seven-year pilot project to help farmers in western Kenya manage their lands better. The team is receiving logistical and financial assistance from a variety of sources including farming cooperatives, non-governmental organizations, the International Development Research Centre (IDRC), and other agencies.

The conventional alternative to chemical fertilizers – organic fertilizers such as compost – is not entirely appropriate to the Kenyan situation. Although composts preserve soil humidity and provide some essential nutrients, they do not provide an adequate payback in terms of increasing phosphorus levels. In fact, huge quantities of organic residues are required to obtain relatively insignificant amounts of soil phosphorus. "The addition of phosphorus-rich fertilizer is absolutely indispensable," says Cheryl Palm, a researcher with TSBF. "What we still need to know is how to maximize its use."

A farmer tills the soil in western Kenya. Most of the 10 million people who live in this region are subsistence farmers.
IDRC Photo: Peter Bennett, Kenya

Tithonia shrub

So far, the team has discovered that the leaves of the tithonia shrub can be used to double or triple maize yields when used either alone or in combination with phosphorus fertilizer. Fresh tithonia leaves contain high amounts of several nutrients required by crops, including phosphorus. A common 'weed,' tithonia was introduced into Kenya during the 1920s. It originated in Mexico and is used by Kenyan farmers to mark the boundaries of their fields. The plant is also found lining some roadways.

With the help of around 200 local farmers, the researchers are testing a combination of phosphate rock and tithonia mulches to improve soil fertility. "Conventional, phosphorus-rich fertilizer costs about 130 shillings (CA $3) a kilo," notes Niang. "Phosphate rock is a raw material that is found in abundance in Tanzania and is sold at a better price" (55 shillings/kg) – although it is still too expensive for the majority of subsistence farmers.

CIDA Photo: Jim White, Kenya

Global responsibility

According to Palm, restoring soil fertility is a community and, indeed, a global responsibility. "In order for the environment to be restored and for food security to be achieved some day in western Kenya, it is absolutely necessary for phosphorus to be used and the entire society to be involved," she stresses. "We need to invest in the land to replenish the soil capital. Local, national, and international institutions should become involved in this investment."

Miguel Legault is a freelance journalist who works for television, radio, and print media.

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The Tanzanian Essential Health Interventions Project:

Improving the Health Care System

Nine out of every 10 schoolchildren living near the Mindu dam in the Tanzanian district of Morogoro have problems with blood in their urine or feces. They have schistosomiasis, a disease transmitted through the larvae of snails living in still water. If left untreated, schistosomiasis can damage the liver, spleen, and bladder, and can lead to cancer.

Construction of the dam created the problem. Morogoro residents use the resulting lake for a variety of domestic uses, thus spreading the disease. Because the damage from schistosomiasis happens gradually, people need concrete evidence of its long-term physical and financial impact in order to change their ways, says Charles Mayombana, a Tanzanian researcher working in the area with the Ifakara Health Research and Development Centre, an independent trust. The same is true for many of the district's other major health problems, which include malaria, pneumonia, diarrhea, HIV/AIDS, maternal mortality, malnutrition, anemia, and road accidents.

Harnessing local information

A CA $16.5-million project, involving the Government of Tanzania, the International Development Research Centre (IDRC), and other donors, is trying to find ways to harness locally specific information to improve the response of the health care system. The project is also offering Tanzanian officials alternative strategies for dealing with health threats, many of which have been worsened due to inadequate planning and inappropriate resource allocation.

A mother and child at Turiani Hospital, Morogoro District in Tanzania. The TEHIP project is helping the health centre decrease child mortality through the use of innovative and cost-effective interventions.
Photo: Kanina Holmes, Tanzania

"[Tanzanians] may never have had that mirror held up to them to see their community problem," says Don de Savigny, research manager of the Tanzanian Essential Health Interventions Project (TEHIP). "They may know their family problem or their individual problem, but they don't know what they're facing as a population because not every family experiences a child death and not every family experiences each problem. But eventually many will, and most of the problems are preventable."

Maternal and child mortality

The maternal mortality rate in rural Morogoro, a three-hour drive from the coastal capital of Dares Salaam, is 778 for every 100 000 live births. Child mortality translates into 245 out of every 1 000 children dying before they reach the age of five. "The number of life years lost in Africa on a per capita basis is phenomenal," says Dr de Savigny.

TEHIP is the first project to test an idea presented in the World Bank's 1993 *World Development Report*. The report suggested that if 80 percent of the population in low-income countries has access to a minimum package of cost-effective, essential health interventions, the burden of disease – i.e. the total life years lost to premature death and disability – could decrease by 32 percent at low cost.

A medical assistant at the Turiani hospital demonstrates how to mix oral rehydration salts.
Photo: Kanina Holmes, Tanzania

New approaches

Over the next four years, the TEHIP team – with guidance from agencies such as the World Health Organization (WHO), the World Bank, and UNICEF – will facilitate the introduction of new approaches to priority setting and resource allocation in district level health planning. To evaluate the impact, they will also maintain a database tracking 170 000 people in Tanzania's Morogoro and Rufiji districts. The researchers are studying both illness and mortality patterns at the community level, and what kind of decisions people make when they get sick or to avoid illness. Using this data, the team will then assess the most cost-effective ways of saving and improving lives.

Project staff are addressing a wide range of issues, including childhood diseases, maternal health, emergency care, malaria, tuberculosis, leprosy, HIV, and sexually transmitted diseases. "It's dealing with the main issue of the day: How do we deal with this enormous health burden with severely constrained resources?" asks Dr de Savigny.

Fundamental reforms

In parallel, the Tanzanian government is carrying out fundamental reforms of its health sector. For example, user fees have been introduced for many basic medical services, and decision-making is now being decentralized. In addition, the government has agreed to gradually increase health care spending, which currently amounts to about US $7 per person.

TEHIP staff are trying to assist in Tanzania's health care reform process by working directly with district officials to draft new health plans based on local priorities and evidence. This project's success will ultimately be measured by the extent that each district puts these plans into practice, as well as subsequent improvements in population health.

Doing more with less

Already some changes are evident. At Turiani, a Roman Catholic mission hospital surrounded by rice paddies and the Uluguru mountains, 19 medical assistants are being taught to do more with less when treating childhood diseases. Rather than rely on conventional – and costly – equipment and laboratory tests, they will return to work at government clinics and dispensaries with the skills required to diagnose patients based on more obvious clinical signs and symptoms. "There is no extra tool other than the eyes, the hands, and a timing device," says Dr Leslie Mgalula, the TEHIP-WHO Liaison Officer.

The training, household surveys, and consultations with various levels of government are all being done without fanfare. "People at the community level do not need to know that this is a [development] project. In fact we're taking pains to be anonymous," says Dr de Savigny. "If this is really going to work, it has to be taken on board by the [health care] system, including the public."

Kanina Holmes is a Canadian journalist based in Tanzania and the 1996 winner of IDRC's Internship Award at the London-based Gemini News Service.

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Reinventing Home Economics in Canada and Africa

Today's market economy is highly dependent on the contributions of households to society – contributions that are generally ignored or undervalued by decision-makers. Meanwhile, the profession that exists to meet the needs of women and the small-scale economies of households faces an identity crisis: home economics is losing recognition and in some cases its relevance. In Kenya, where the per capita income is about CA $400 a year, a home economics student may learn how to polish silver, bake cream cakes, and serve afternoon tea. In Canada, the subject has been eliminated from the high school curriculum in several provinces.

These realities are driving an innovative research project initiated by the Canadian Home Economics Association (CHEA) and funded by the International Development Research Centre (IDRC). Its aim is to revitalize home economics by exploring how it can best address the human needs that are most critical in today's world, and improve its practice in both North and South.

The project evolved out of an earlier IDRC research initiative on transforming home economics in East Africa. In 1995, Lila Engberg, the first woman member of IDRC's Board of Governors and a Canadian home economist with a long history of working in Africa, served as a resource person for a research workshop conducted by members of the Home Economics Association for Africa. She saw an opportunity to include Canadian home economists who were dealing with similar issues. Collaboration among Africans and Canadians would point to new solutions and build on existing partnerships – the CHEA has worked with African home economists on various projects since 1981. (Most of these have been short-term activities, such as the establishment of day-care centres and the development of textbooks.)

CIDA Photo: Pierre St. Jacques, Mali

Group discussions

With renewed support from IDRC, three research teams consisting of Canadian and African home economists are using participatory action research methods in focus group discussions. So far, discussions have been held in Cameroon, Kenya, Uganda, Zimbabwe, Alberta, Nova Scotia, Prince Edward Island, and Quebec, involving practitioners, teachers, professors, and students of home economics. In classrooms, people's homes, and over potluck suppers, participants are encouraged to discuss the real-life problems faced by women and families as well as ways to change the nature and practice of home economics.

The profession's plight can be partially blamed on an unsupportive political climate. "The focus of the political and business leaders throughout the world is on macroeconomics

Home economics is an important subject, because it focuses on small-scale economies of households, but it must become more relevant to African realities.
IDRC Photo: Peter Bennett, Kenya

and the development of big business and industry, an export economy and global markets," says Dr Engberg. "What home economists ought to contribute is a better understanding of what goes on in households and how to support both the non-market and market work done in order to sustain individuals and family life."

Image problem

The research team has found that in many countries, home economists have an image problem. In Canada, they are often associated with 1950s-style homemaking. They are also losing their visibility, in part because of increasing specialization and name changes. Many high school and university home economics programs have been transformed into "family studies" or "human ecology" programs. And in some provinces, high school programs have completely disappeared.

In African countries, home economics is still part of the curriculum but students are often marginalized. In Kenya, for example, secondary school students who are considered "thick" are often directed into home science, which is viewed as an easy subject. At the university level, home economics students enrolled in supporting subjects have been told to leave the room or not pay attention because the lecturers believe that the students, who are mostly women, would not understand the material.

CIDA Photo: Pierre St. Jacques, Mali

Other difficulties

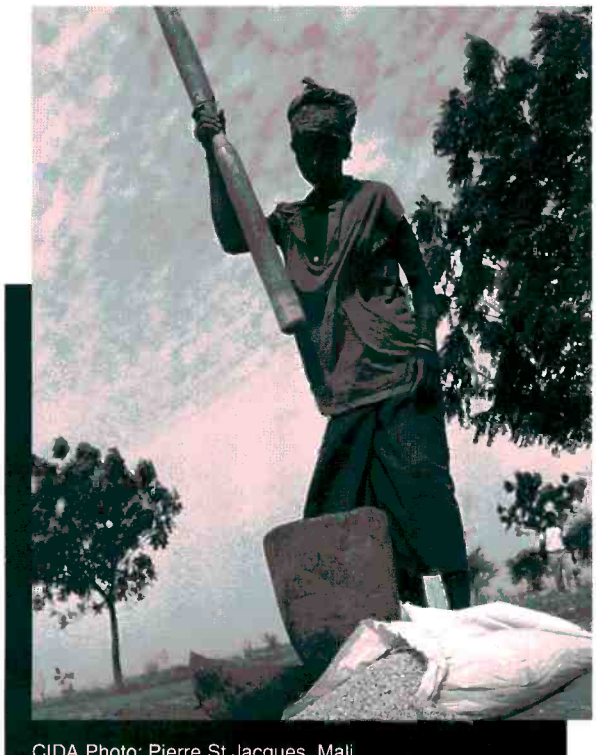
The curriculum itself poses other difficulties. In many countries, home economics courses do not address real-life conditions and problems, ignoring issues such as poverty, unemployment, the scarcity of clean water, barriers to education, male dominance, teen pregnancy, and political corruption. Meanwhile, in parts of Zimbabwe, female home economics students are expected to learn such technical tasks as how to vacuum carpets and bake a white cake, even though the ingredients may cost the average person the equivalent of two weeks' worth of income.

"We could try to change a recipe, but that in itself is not a solution," says Dr Engberg. "The project is trying to help African [teachers] examine their educational methods and pay attention to indigenous knowledge, and help students explore their own environment and resources." This means less reliance on textbook learning and more student participation in the classroom and in community projects.

CIDA Photo: David Barbour, Zimbabwe

Strengthening leadership

On a broader level in Africa, the project is strengthening the leadership of home economists. The researchers – Dorothy Jobolingo of Zimbabwe, Dorothy Rombo-Odero of Kenya, and Marie Louise Nwafo-Wandji of Cameroon – are working through their national associations to bring about change in their own countries. For example, Nwafo-Wandji succeeded in placing the need to reevaluate her profession's role on the agenda of the annual meeting of the Cameroon Home Economics Association.



CIDA Photo: Pierre St.Jacques, Mali

In Canada, the project is helping home economists acquire a more global perspective of their problems. "It was heartening to come to the realization that we share a lot of the same issues," says Maria Mayan, a lecturer in the Department of Human Ecology at the University of Alberta.

Turning point

"Right now, we're at a turning point in the profession. If home economics is going to have any meaning and impact, we have to ask who we are, what we are trying to do, and where we want to go in the future," concludes Dr Mayan. "This project asks those hard questions."

Jennifer Pepall is an Ottawa-based writer and editor.

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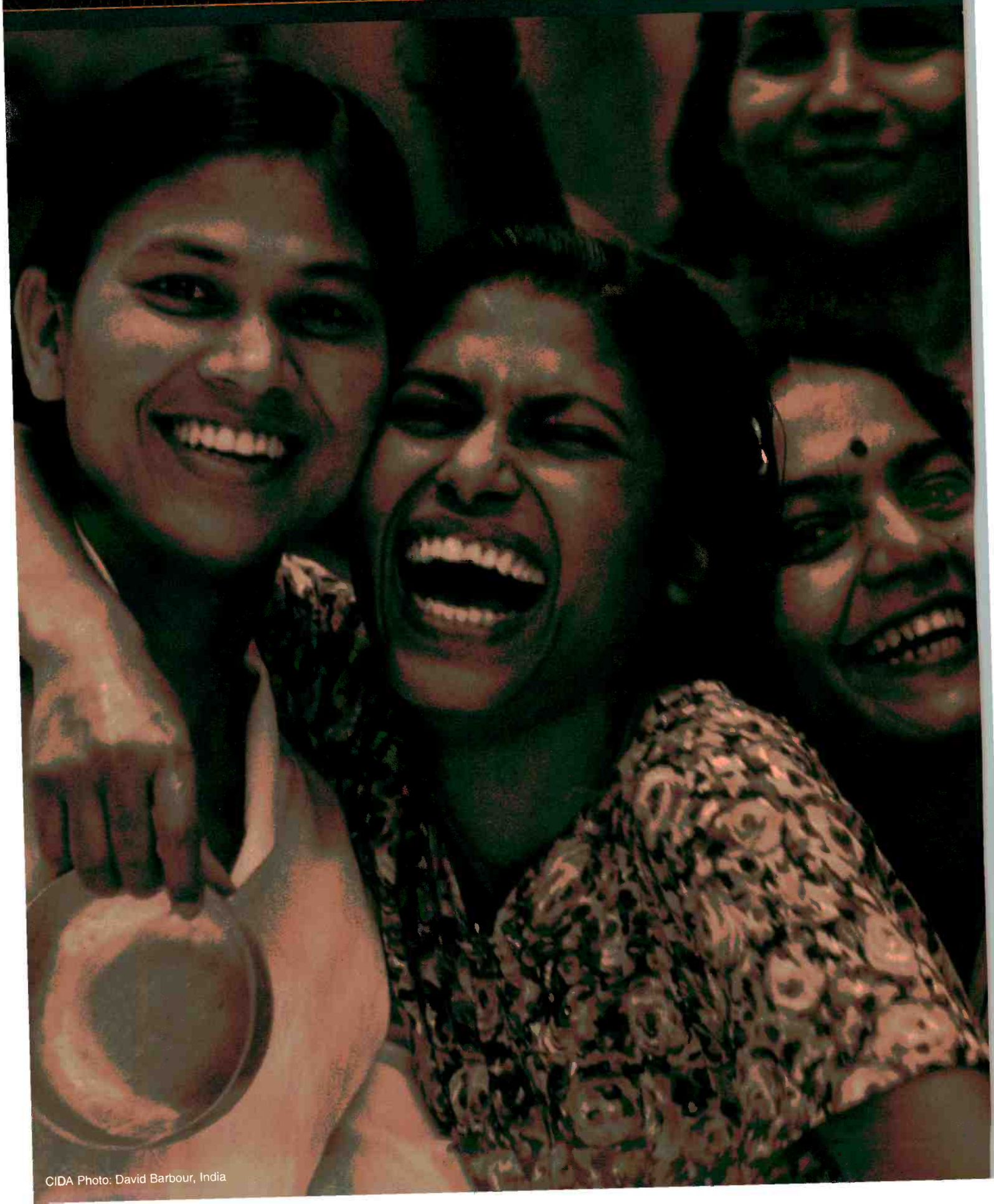
Policies for a Healthy Information Society

Asia



CIDA Photo: David Barbour, India

"Crops of Truth"

Conserving Agricultural Biodiversity in Andhra Pradesh, India

The land looks permanently thirsty, with rocky outcrops competing with patches of millet and pulses – crops that the farmers of Andhra Pradesh prize because they grow in the drylands and "don't desire water."

"People here have lived through years of drought, of devastation," says Periyapatna Venkatasubbaiah Satheesh, director of the Deccan Development Society (DDS). "They have steel in them to continue to live here, whatever the misery, whatever the wretchedness." What keeps them going is crops that demand nothing – not even water or good soil – which the farmers, in gratitude, call "crops of truth."

CIDA Photo: Oilip Mehia, India

"The women farmers have enriched us with insights and nuances about the intricate balance between their lives and crops, and we want to share that enrichment with the rest of the world."

P.V. Satheesh, Director, Deccan Development Society

Age-old bonds

But modern cultivation has threatened the age-old bonds between local farmers and traditional crops, which include foxtail millet, finger millet, sorghum, lentils, pigeonpea, and cowpea. Thirty years ago, up to 75 different varieties were grown in the region. The advent of hybrid seeds, chemical fertilizers, bore wells, and government loans has since lured many farmers into gambling on cash crops like cotton and sugarcane – sometimes tragically. In 1997, for example, a poor monsoon and heavy pest attacks devastated large tracts of cotton, causing several Andhra Pradesh farmers to commit suicide.

Other farmers and development workers are betting the other way, turning back the agricultural clock by delving into the living memory of farmers who still recall the rich diversity of seeds and crop patterns that could fertilize the soil, discourage pests, and weather a miserly monsoon.

In 1985, Satheesh and the Deccan Development Society began working in the semi-arid region around Zaheerabad, 110 km west of the Andhra Pradesh capital of Hyderabad. This region gets, on average, only 800 mm of rain a year, mainly during the monsoon season from July to September. But the parched soil cannot absorb the intense monsoon downpours, so most of it is wasted. The rest of the year, farmers grow crops that survive on subsoil moisture and nighttime condensation.

Women farmers in Andhra Pradesh, India, discuss the success of their seed preservation work.
Photo: Lionel Lumb, India

Poorest of the poor

DDS chose to work with the poorest of the poor – low-caste Dalits, who own small patches of often degraded and unproductive land. Satheesh soon found that women are generally more interested than men in reviving traditional crops: they prefer to play it safe by planting a variety of food crops rather than relying on a single cash crop. Women also understand the dietary and medicinal benefits of different grains, and for generations have selected and preserved seeds from one season to another.

The Society set out to build village-level seed-banks through sangams, or voluntary associations. The idea was to introduce farmers to permaculture or "designed organic agriculture." Satheesh and his colleagues discovered that local farmers already practiced an elaborate system of diverse crop-sowing, rotation, pest control, and fertilization. "People here have all along used diversity as a basic tool," he says. "We were able to build on this foundation, and eventually achieved a fusion of the two systems."

Today, the DDS project involves 3 600 families in 75 villages of Andhra Pradesh's Medak District. The Society is helping the sangam women grow and distribute hand-picked seeds to farmers, who repay them with fresh seed from their crops. Eventually, the women will become entrepreneurs, selling seed to large-scale farmers.

Using agricultural diversity

In 1995, Satheesh and other activists, farmers, and scientists participated in an agricultural diversity workshop in New Delhi hosted by the International Development Research Centre (IDRC). Following the workshop, IDRC launched the "Using Agricultural Diversity Network." Under this program, a steering committee – consisting of about 12 representatives from South Asian countries – solicits, reviews, and funds research activities proposed by farmers, grass-roots NGOs, and scientists that work with farmers.

Last year, DDS was awarded 350 000 rupees (about CA $14 000) to document Andhra Pradesh farmers' use of agricultural diversity through oral histories, videos, and slides. Over the winter, the Society recorded both what is grown and why on nearly 500 farms, and will do the same in the coming monsoon season. Groups of women farmers have already analyzed the initial results and ranked 32 key crop varieties. At the end of this year or early next year, DDS plans to stage a huge jatra, or village fair, which will highlight the Dalit women's work through videos, seed displays, cooking contests, and discussion forums.

"When we walk through the fields now," concludes Satheesh, "it's no longer just crops we see. The women farmers have enriched us with insights and nuances about the intricate balance between their lives and crops, and we want to share that enrichment with the rest of the world."

Lionel Lumb is an associate professor in the School of Journalism and Communication at Carleton University in Ottawa.

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Monitoring Rice Crops from Space

From Pakistan to Japan, it grows on more than one-third of the cultivated land and provides 35-80 percent of the total calories consumed by the majority of Asians. Such numbers illustrate the importance of rice in the South. Yet most rice-producing countries lack adequate data on how much rice is growing where, how well the current crop is doing, and whether or not their supply will meet demand – information that is vital to ensuring food security.

This critical information gap may soon be filled thanks to the IDRC-supported GlobeSAR project (SAR stands for synthetic aperture radar). This broad-reaching initiative helps developing countries benefit from data gathered by Canada's Earth observation satellite, RADARSAT, which was launched in November 1995. Unlike conventional optical satellites, RADARSAT's microwave technology can penetrate heavy clouds, fog, dust, and rain – even during the monsoon season – to record detailed land and water features, day or night, year-round.

CIDA Photo: Roger Lemoyne, China

"We had been looking at the possibility of rice monitoring since 1973, when LandSAT [an earlier generation satellite] first went up, but you couldn't get enough cloud-free days to monitor the growing season."

Brian Brisco, coordinator of the GlobeSAR project in China

Training sessions

The Canada Centre for Remote Sensing, which initiated the project in October 1993, trained participants from 10 developing nations in the interpretation of RADARSAT images and related software use. Since the satellite had yet to be launched, they used airborne SAR data that was processed to simulate RADARSAT imagery. Each country then explored the technology's potential across a broad range of disciplines, including crop and soil moisture monitoring, coastal management and mapping, flood and other natural disaster monitoring, and resource management.

Among other uses, China, Malaysia, Thailand, and Viet Nam looked at rice monitoring, successfully proving the feasibility of this application. "We had been looking at the possibility of rice monitoring since 1973, when LandSAT [an earlier generation satellite] first went up, but you couldn't get enough cloud-free days to monitor the growing season," says Brian Brisco, coordinator of the GlobeSAR project in China. Using RADARSAT, the goals of rice monitoring are: to determine the total area planted with rice, to estimate the yield, and to determine the environmental impact of rice production.

"Advanced rice production estimates are important from a food security viewpoint by providing an early warning of production shortfalls," notes Dr Suan-Pheng Kam, a GIS (geographic information system) specialist at the International Rice Research Institute in the Philippines. "The added advantage of mapping the actual location of rice areas [is that it provides] a more accurate assessment of the impacts of damage [to rice crops] from natural disasters such as floods or droughts. In the case of rice-exporting countries, it is important for estimating the production surplus for downstream decision-making on distribution, storage, and price-setting."

Monitoring rice crops can help improve food security by providing advance warning of production shortfalls.
CIDA Photo: Cindy Andrew, Viet Nam

Easier to identify

According to Dr Brisco, paddy rice is easier to identify than other crops because when the crop is first planted, the paddies are under water. At this stage, the SAR images appear very dark since water generates no direct backscatter – in other words, it returns no microwave energy to the satellite's antenna. "The images get brighter as the rice grows, then darker again as it matures," he says. "To determine where the rice is, all we have to do is look at the difference between images over time."

The sensitivity of radar to surface terrain also makes it useful for assessing the environmental impact of rice production. In some areas, rice farming causes extensive run-off and erosion. The resulting changes in surface roughness can be readily identified in RADARSAT images.

While the GlobeSAR project has ended, rice monitoring research around the world continues to build on the groundwork it laid. "China and Malaysia are very active in rice monitoring [today], and the International Rice Research Institute is also working with us on a related project," says Dr Brisco.

CIDA Photo: Cindy Andrew, Viet Nam

Research priorities

Post-GlobeSAR research is now focused on establishing a statistical relationship between rice growth and changes in radar backscatter. "Once we determine that relationship, we can estimate the leaf area index which, along with information on weather, temperature, and rainfall, can be used to estimate crop yield," says Dr Brisco. "By the end of RADARSAT 1, which has a five-year lifespan, we will have developed the rice monitoring application to operational capacity." He expects that rice monitoring will be ready for implementation by the time RADARSAT 2 – the next generation satellite – becomes a reality.

Karen Twitchell is an Ottawa-based writer and editor.

Resource Person

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www.idrc.ca/reports/read_article_english.cfm?article_num=139

Bamboo Mat Board:

An Environmentally Friendly Plywood Alternative

Their woven bamboo baskets, hand fans, and mats are sold by the roadside or in bazaars across India. Now, the traditional handicrafts of rural women are supporting India's construction industry, the furniture business, its giant film studios – and even helping to save the country's dwindling forests.

While bamboo baskets are used for everything from household storage to tea-pluckers' backpacks, the flat mats have inspired a rapidly growing industry. These four- by eight-foot mats are soaked in resin, then hot-pressed together in various thicknesses to form bamboo mat board, a substitute for plywood. These boards are generally as strong as or stronger than their plywood equivalent – and are less expensive.

The direct beneficiaries of this new technology are 18 000 low-income women, mostly from tribal areas of India. These women once received 18 rupees per mat (about CA $0.65), but now earn triple that amount – just over CA $2.

Bamboo mat weaving is traditionally done by women.
Photo: Lionel Lumb, India

New lease on life

In addition, the switch from plywood to bamboo mat offers a new lease on life for India's threatened natural forests. Hardwood trees take 40 to 80 years to reach a worthwhile logging size, but bamboo is ready to harvest in just two to five years. Using bamboo not only gives hardwood forests a chance to regenerate, it also fights soil erosion. Bamboo grows best in areas of heavy rainfall, which are prone to erosion after logging, and the plant's shallow root system holds soil well.

India first tried to produce bamboo mat board (BMB) back in 1963, but the hot-press technology was imperfect, production costs too high, the bonding process erratic, and the appearance marred by ugly glue deposits. With financial support from the International Development Research Centre (IDRC), scientists at the Indian Plywood Industries Research and Training Institute (IPIRTI) in Bangalore persevered until they got it right.

"What we have now is a product that is technologically perfect. In fact, wherever you have a plywood factory, you can manufacture bamboo mat board."
Venkatesh Sivananda, co-director of IPIRTI

Simple modification

"What we have now is a product that is technologically perfect. In fact, wherever you have a plywood factory, you can manufacture bamboo mat board," says Venkatesh Sivananda, co-director of IPIRTI. All it takes to make the switch is a simple modification of existing machinery and some training, which the institute provides.

According to Dr Sivananda, BMB has already replaced about 20-25 percent of plywood sales. This figure could increase through better promotion and new contracts, particularly from the Indian government, which is the biggest plywood consumer – using the product for its offices and railway carriages.

Bamboo mat board is a versatile building material that can be used to make doors, interior walls, furniture, boxes, and other products. Photo: Lionel Lumb, India

Technology transfers

Through the International Network for Bamboo and Rattan (INBAR), bamboo mat board is now being promoted beyond India's borders. At a workshop that it organized in 1994, INBAR introduced BMB to seven other Asian nations: Bangladesh, China, Lao PDR, Malaysia, Nepal, Thailand, and Viet Nam. This technology could also be transferred to Africa and Latin America.

One of the key benefits of bamboo mat board is that it can be manufactured by small factories right where the bamboo is grown, says Dr Cherla B. Sastry, INBAR's executive director. "No one needs to be displaced, or lured to a city, and there are virtually no transport costs." He notes that 10 plywood factories have already started making the boards in bamboo-growing areas of India, and it is easy to make other products using bamboo and rattan.

Lionel Lumb is an associate professor in the School of Journalism and Communication at Carleton University in Ottawa.

Resource Person

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www.idrc.ca/books/reports/1997/34-01e.html

The Versatility of Bamboo Mat Board

A tour of the Indian Plywood Industries Research and Training Institute (IPIRTI) with one of its scientists and industry trainers, Shankarayya Shivasangayya Zoolagud, reveals the versatility of bamboo mat board (BMB). Its products include doors, interior walls, desks (in combination with rubberwood), sewing machine covers, and reusable and folding fruit boxes. The herring-bone pattern on these boxes is attractive, and the varnished finish is smooth to the touch.

Two recent BMB innovations have exciting commercial potential. One is a grain storage bin, which is both rat- and waterproof. This is important in rural India, where large amounts of food grain are lost to rodents and through poor storage facilities. The other is corrugated BMB roofing, which IPIRTI hopes will replace the environmentally unfriendly asbestos roofing widely used in India. Even though BMB roofing sheets are a mere 3 mm thick, they are stronger than asbestos and should have a much longer life.

Bamboo mat board is also extremely flexible and can be bent into different shapes. (One of the largest markets is India's film industry, which buys BMB for its movie sets.) It can be combined with conventional wood, adds Dr Zoolagud. "If customers prefer a traditional look, we use bamboo mats for the interior panels, and traditional plywood veneer on the outside. That way we can save 50-70 percent of the natural wood."

Bangladeshi Women and the Grameen Bank

Romena returned home from her village loan centre to find her husband enraged because she had not prepared his morning meal. At the centre, she had been forced to wait for hours until all members of her lending group had paid their weekly installments. Even though she had borrowed money for his brown sugar business, he gave her a beating before storming out of the house.*

Romena is a member of the Grameen Bank, a world-renowned microcredit institution in Bangladesh. Her story was recorded by Aminur Rahman, a doctoral student in anthropology at the University of Manitoba who, in 1994, set out to examine how the Bank has improved the lives of women. Instead, he uncovered some disturbing findings: out of the 120 female borrowers in his study, 70 percent reported an increase in verbal and physical aggression from male relatives after taking out loans. And while their loans were intended to help them earn income, most of these women were reduced to "middle men," borrowing money on behalf of their spouses or male relatives.

CIDA Photo: Roger Lemoyne, Bangladesh

"I accepted research findings that the process of empowerment is going on. I wanted to see whether this empowerment would be sustainable for the long run,"
Aminur Rahman, University of Manitoba

Unexpected results

These results were "totally the opposite of what I expected. It was a shock," says Rahman, who was partly funded by the International Development Research Centre (IDRC) under the Young Canadian Researcher Award program. Although the Grameen Bank is hailed as a Bangladeshi success story for extending loans to poor rural women, he notes that "there are still many borrowers who become vulnerable and trapped by the system. They are unable to succeed."

As of 1994, the Grameen Bank had loaned more than US $1 billion to 2.02 million members, 94 percent of whom were women. Today, its 1 046 rural branches serve more than half of the villages in the country. Besides providing credit to those who lack physical collateral, the Bank's programs are designed to achieve social goals such as raising living standards and improving women's status in society.

Empowerment

Rahman credits his thesis advisor, Professor Raymond Wiest, for stimulating his interest in the Grameen Bank. Rahman developed the idea for his research while writing a paper for an economics course. He became convinced that access to credit translates into more power and influence for women in their households and in the community. "I accepted research findings that the process of empowerment is going on. I wanted to see whether this empowerment would be sustainable for the long run," he explains.

During his study, Rahman lived for 11 months in a village that hosts one of the oldest Grameen programs. Women's loan centres had operated there since 1980. He soon found

The Grameen Bank has been credited with improving the lives of women in Bangladesh. However, research questioning the success of microcredit programs is emerging. CIDA Photo: Roger Lemoyne, Bangladesh

that, far from being empowered, village women were being exploited as a link to capital. Of his 120 informants, 108 said that men had encouraged or influenced them to join the Bank as a way to acquire funds for their own use. In one case, a man threatened to send his wife back to her birthplace and remarry unless she took out a loan. Overall, more than 60 percent of the loans were used by men.

Debt burden

In addition, Rahman found that 78 percent of the total microloans in the village were used for different purposes than those approved by the Bank. About 30% were used to meet household needs, such as paying a dowry, buying medicine, or paying fees to broker agencies that arrange overseas employment for household members. These expenses create a debt burden for women, forcing them to borrow money from other lenders, appeal to men to pay off the loan installments, or sell household produce that their families would otherwise consume. For example, Rahman met several Bank members who sold hens with hatching eggs, or rice and fruit on the strength of future harvests, to collect enough money to pay their installments.

The pressure to pay these installments also creates household tensions. Under the Grameen Bank's system of peer group lending, a group of borrowers is collectively responsible for each individual loan. Like Romena, women may encounter verbal and physical aggression from male relatives because of the forced delays at village banks. Violence can also erupt if a woman does not get a loan or receives a smaller loan than expected. Rahman cites the example of Yuri*, whose application for a second loan was effectively vetoed by another member, Rani*. Yuri's husband beat her and then confronted Rani, which brought Rani's husband into the dispute. In the end, both families suffered physical injury.

Victims of violence

"The examples of Romena and Yuri suggest that women become victims of violence primarily because of their powerlessness in society," says Rahman. "In the household they are powerless in relation to their husbands and in the loan centres they are powerless before influential members and bank workers who are mostly men."

Despite his findings, Rahman does not count himself among the Bank's critics, noting that it has proved responsive to recent demands for change. He believes that microcredit is an effective tool for development, if used properly. In the Grameen Bank's case, he recommends that women only be allowed to borrow an amount of money that they themselves can manage. The Bank should also ensure, through closer supervision, that they use the money themselves. "The Bank has a really good objective but there is a gulf between its philosophy and its field realities," he concludes.

Central elements

Microcredit and microenterprise are becoming central elements of development initiatives and Rahman hopes that his research findings will help improve project planning while stimulating discussion and generating new research on the impact of microcredit programs. Rahman recently presented his paper, "Poor Women in the Micro-Credit Program of the Grameen Bank: Rhetoric and Realities," at the 1998 Western Social Science Association meeting in Denver, Colorado, where he was awarded the Graduate Student Paper prize.

[* not their real names]

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Resource Person

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www.idrc.ca/reports/read_article_english.cfm?article_num=264

CIDA Photo: David Barbour, Bangladesh

Dilu's Story

Aminur Rahman tells the story of Dilu*, who became a member of the Grameen Bank in 1980. As a model client, she was one of two members invited to lay the foundation for the local Bank building in 1987. In the intervening years, however, she became increasingly indebted to the Bank. By 1993, her household was only able to pay its installments by borrowing from moneylenders, leasing out land, and selling their cows. To free the family from debt, Dilu became a factory worker in Malaysia through a labour exporting firm in Dhaka. Dilu's husband paid the firm a placement fee with the help of a Grameen Bank loan. In total, Rahman found 13 cases where loans were being used for these purposes.

[* not her real name]

Grameen Bank Reforms

When Aminur Rahman was conducting his initial research in 1994/95, there were several demonstrations by Grameen Bank members over the unfairness of repayment terms. On his return to Bangladesh in 1997, he found that the Bank had changed some of its policies in response to these demands. For example, members no longer had to pay weekly interest on the total amount of the loan, but rather on the remaining balance. Another new policy applied to members of 10 years' standing, who were now eligible to withdraw the amount they had each contributed to a group reserve fund. Many of them used their lump sum payments to pay off their debts. "These changes give some hope that the Bank can change as an institution," says Rahman.

Reassessing the Bank's Success

Research questioning the Grameen Bank's success is beginning to emerge. Previous studies have been quantitative, focusing on the number of women involved in the program, investment of loans, the loan recovery rate, and profit margins. Aminur Rahman, however, based his study on anthropological methods – the first time such an approach has been used to examine the Bank's record. These methods included participant observation, unstructured and in-depth interviews, and the collection of case studies. Moreover, Rahman was born in Bangladesh, so he has a better understanding of the language and culture than other researchers. "The women said they told me [their stories] because I came as a brother, stayed with them in their village, and ate with them," he says.

In his paper, "Poor Women in the Micro-Credit Program of the Grameen Bank: Rhetoric and Realities," Rahman cites some of the more recent qualitative research that has cast a critical light on Grameen Bank programs. These include:

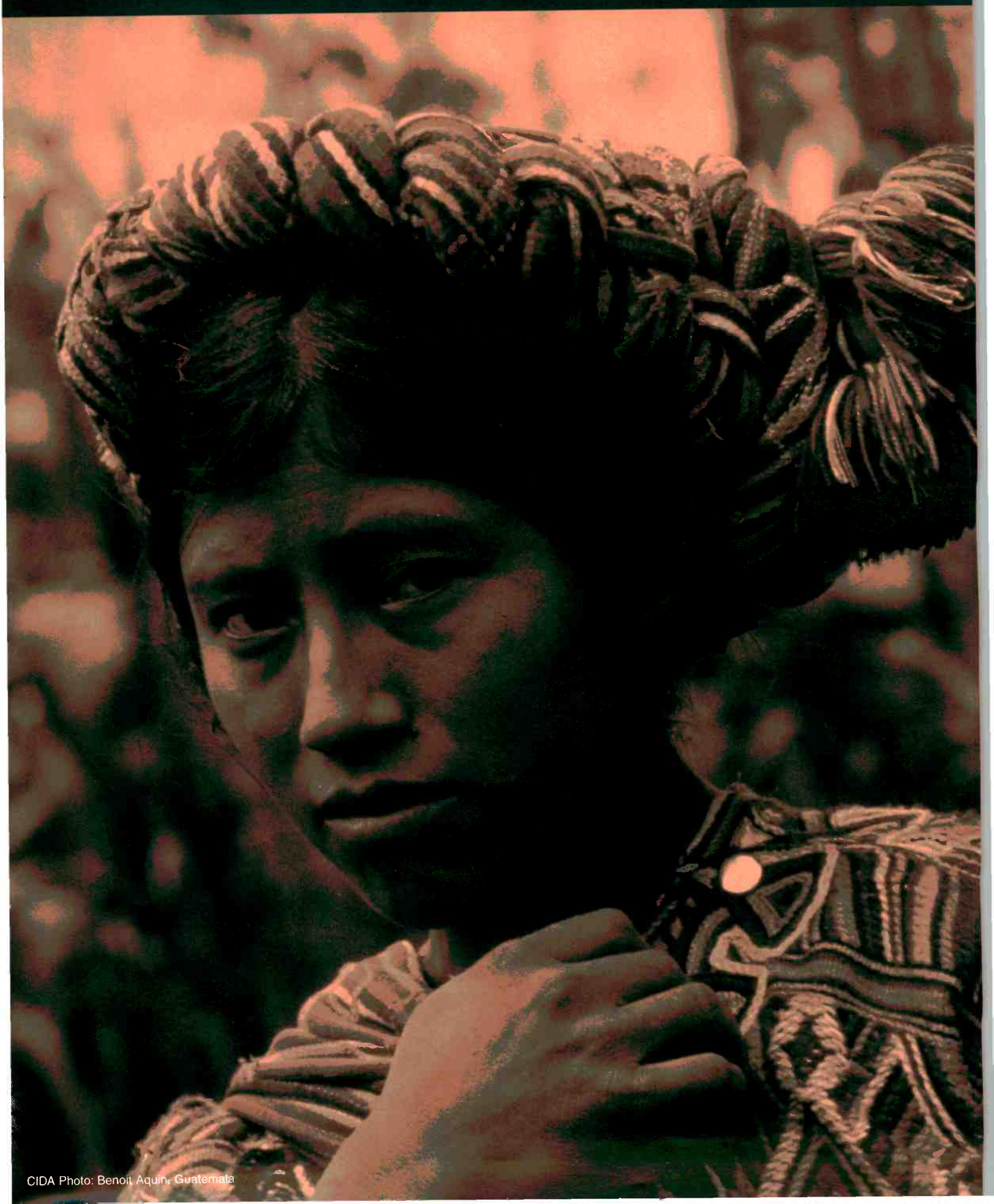
Goetz, M and R. Sen Gupta. (1996) "Who Takes the Credit? Gender Power and Control over Loan Use in Rural Credit Programs in Bangladesh." World Development 24(1):45-64

Matin, I. (1997) "The Renegotiation of Joint Liability: Notes for Madhupur." In Who Needs Credit, ed. Wood, G. and I. Sharif, pp. 262-270. University Press Limited, Dhaka.

Todd, H. (1997) "Women at the Centre: Grameen Borrowers After One Decade." University Press Limited, Dhaka.

For a non-academic account that questions the Bank's success, see: "Microcredit, microresults" by Gina Neff in the Left Business Observer. [http://www.panix.com/~dhenwood/Micro.html]

Latin America



CIDA Photo: Benoit Aquin, Guatemala

Improving Workplace Conditions in the 'Maquilas' of Central America

Hot, unventilated and overcrowded workplaces, abuse, sexual harassment, unpaid overtime, and dismissal for pregnancy: these are just a few of the labour issues faced by more than 335 000 factory workers – most of them female – in Central America's five free trade zones.

A few years ago, women's groups from Guatemala, Nicaragua, El Salvador, and Honduras met in El Salvador to address the deplorable working conditions in the region's rapidly growing 'maquilas' – factories in free trade zones that manufacture cheap goods for North American markets. The meeting resulted in the launch of the Network of Central American Women in Solidarity with Women Maquila Workers, which is dedicated to improving working conditions in each country.

The Network's research – which underpins training, education, lobbying and other activities – is supported by the International Development Research Centre (IDRC), the Vancouver-based Trade Union Group (TUG) and CoDevelopment Canada (CoDev), Oxfam-Canada, Oxfam-Quebec, and the Canadian International Development Agency (CIDA).

Maquila workers preparing to negotiate the Code of Ethics with the owner of a Maquila factory.
MEC Photo, Nicaragua

Major success

In February, the Network celebrated its first major success when 500 maquila workers saw the Nicaraguan Minister of Labour sign into law a Code of Ethics, which was developed by Network members in consultation with the workers. Leading up to this event, the Network had persuaded each maquila factory owner in Nicaragua to endorse the Code, which includes such basic guarantees as a safe working environment, the right for pregnant women to retain their jobs, and payment for overtime work.

"You can imagine the impact this had on these women, who are not educated, who have never played a role in public policy, and who suddenly see that their vision is now the Minister's vision too," says Barbara Wood, one of the project's supporters and coordinator of TUG.

Passion and energy

"Many of the women in the Network came out of the union movement and they have a lot of passion and energy to change conditions for women workers," she adds. "But they

Nicaraguan Minister of Labour, Wilfred Navarro, at the signing ceremony for the Ministerial Resolution on Work in Maquilas.
MEC Photo, Nicaragua

saw that the confrontational approach of unionization is not going to work at this point because women workers are afraid of losing the only source of income they have, and because the factory owners are very closed to unions. So the Network chose to work directly with women in their communities on issues of health education and labour rights."

So far, research conducted by the Network has helped to establish baseline survey information, document working conditions, and bolster lobbying efforts with hard evidence of workplace abuse. The Network has also developed various resources, ranging from brochures explaining the rights of women workers and where to go for help, to a regional public awareness campaign called 'Jobs Yes, But with Dignity.'

Improvements

"Even though the research is still being completed, there have already been improvements," says Wood. "Beatings, sexual harassment, and firings due to pregnancy still occur, but are now less frequent. It is still common, however, for companies not to pay their portion of health benefits."

In future, the Network plans to continue its involvement in lobbying factory owners and government officials for workplace changes, as well as in the education and training of female maquila workers. Other priorities include monitoring regional compliance with the Code of Ethics and increasing international awareness of the issues facing maquila workers. Last year, for example, the project mounted a public education campaign in Canada, in which two maquila workers discussed their experiences with students and union workers. "The Network has asked us to make the Canadian public aware of their situation and of their struggles. The importance of international solidarity cannot be stressed enough," concludes Wood.

Pattie LaCroix is a Vancouver-based writer.

Resource Persons

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www.idrc.ca/reports/read_article_english.cfm?article_num=244

Economics of the Maquila Industry

Maquila workers typically work 80 to 90 hours during a six- or seven-day work week, with a base monthly pay of approximately US $75 plus overtime. Ninety percent of maquila workers are women aged 18 to 25, and many are single mothers. In Nicaragua, for example, 48 percent of maquila workers are single mothers. Exports from Nicaragua's free trade zone totaled US $220 million in 1997 and are expected to reach US $300 million this year. At present, 100 percent of these exports are destined for the US market.

The number of maquilas in Central America has almost doubled in the past two years. Most of these tax- and tariff-free enclaves are located near urban centres and feature tightly secured, fenced-off compounds in free trade zones. But there is now a movement to issue free trade zoning factory licences so that foreign investors can build enterprises anywhere in the region.

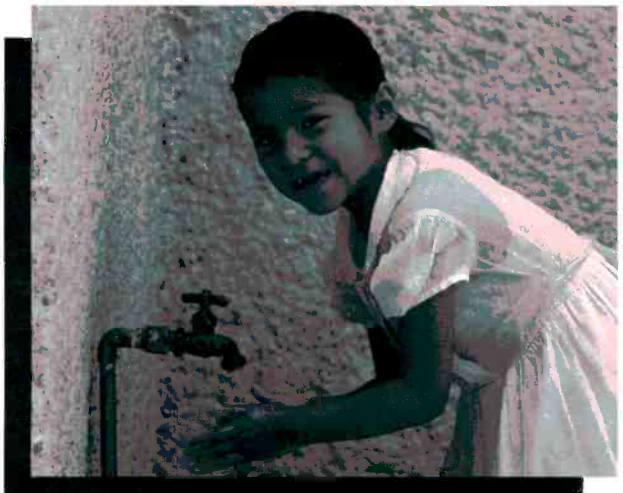
"Free trade zones really took off in Central America in the late '80s and '90s because of the lack of civil wars that raged a decade before. There is a regional unemployment rate ranging from 35 to 70 percent, so governments have to do something to avoid massive civil unrest. [Their solution is to] make conditions as acceptable as possible for foreign investment by not enforcing their own national labour codes," says Jim Rader, Program Director of CoDevelopment Canada.

Ensuring a Sustainable Water Supply:

The University of Costa Rica's Master's Program in Water Resource Management and Hydrogeology

Last August, some 50 high-ranking government ministers, vice ministers, and institute directors met in Managua, Nicaragua, to consider the future of the city's water supply. According to Managua's master water supply plan, dependence on an aquifer located right below the city should be reduced. The plan claims that the aquifer – the sole source of water since 1925 – has been pumped too hard in recent decades and cannot supply Managua's growing population much longer. It recommends searching for an alternative water source far away from the city.

But the news they heard that day challenged the master plan. In a detailed presentation, a graduate student working with the Nicaraguan Ministry of the Environment and Natural Resources argued that the Managua aquifer still has plenty of water left. It needs more care and management – including protection from potential sources of contamination – but the aquifer is in excellent condition overall.



CIDA Photo: David Barbour, Mexico

"Prior to this program, you could count on one hand all of the trained hydrogeologists throughout Central America."

David Bethune, Costa Rica Master's Program

Study could save millions

This study, which could ultimately save Nicaragua millions of dollars in unnecessary construction costs, is the product of Oscar Cruz, one of the first recipients of a Master's in Water Resource Management and Hydrogeology from the University of Costa Rica's Escuela Centroamericana de Geologia. Launched in 1993 with financial support from the International Development Research Centre (IDRC), the program is unique in Latin America. Its goal is to help the region increase its capacity in hydrogeology and thereby reduce its dependence on foreign expertise.

The two-year Master's Program evolved out of the Latin American Urban Water Management Network, which was initiated by IDRC in the mid-1980s. The idea for a graduate program came from the late Robert Farvolden, a former professor and Dean of Science at the University of Waterloo in Ontario, and co-founder of the Waterloo Centre for Groundwater Research. "Prior to this program, you could count on one hand all of the trained hydrogeologists throughout Central America," says David Bethune, a Waterloo graduate who works with the Costa Rica program.

No shortage of work

According to Bethune, there is no shortage of work in the region for people with training in hydrogeology – a discipline that provides critical information and analysis for the exploration,

In Latin America, 80 percent of the urban population relies on groundwater for drinking water, irrigation and other purposes.
CIDA Photo: Pat Morrow, Peru

development, and management of groundwater resources. In Latin America, 80 percent of the urban population relies on groundwater for drinking water, irrigation, and other purposes. But the rapid growth of urban areas is placing greater stress on available water resources. At the same time, increased industrialization, the intensive use of agrochemicals, and inadequate sewage treatment systems translate into a greater potential for water contamination.

To address such issues, the University of Costa Rica program has adopted a multidisciplinary approach, providing instruction in both groundwater science and engineering concepts as well as water resource management in general, says Bethune. Courses began in early 1995 and are currently being taught by professors from Costa Rica, Brazil, Canada, and the United States. (Eventually, the goal is to fill all faculty positions with Latin Americans.)

"We're accepting professionals who are employed by water institutes in the region," says Bethune. "Many of these employees have some practical experience in hydrogeology. They are motivated students who are often receiving a full salary from their employers. What we do is bring them to Costa Rica for two years and train them at a fairly high level." In cases where a candidate is not affiliated with a specific institution, he adds, "we try to foster an affiliation to get some level of support from their home country."

Thesis projects

When choosing thesis projects, "we sit down with the directors of the students' institutes to find out what they would like us to work on," continues Bethune. "Often, they ask us what we think they should be doing." This process ensures that students and staff work mainly on applied hydrogeological problems, often of national importance. Meanwhile, the Master's Program gains access to the technological and human resources of different institutes (as well as linkages to international organizations supporting these institutes, such as the International Atomic Energy Agency, the Canadian International Development Agency, and the Pan American Health Organization).

Bethune notes that students are maintaining contact with the Master's Program and each other after graduation. "They help each other on projects and problems. I think in that way we are creating the seeds for a really solid network of hydrogeologists," he concludes.

John Eberlee is the Features Editor of IDRC's Reports Online.

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www.idrc.ca/reports/read_article_english.cfm?article_num=181

Central American Centres of Excellence

In Central America, academic institutions in each country have been designated as the centre for specialized training in different fields. For example, the Escuela Centroamericana de Geologia at the University of Costa Rica is now the regional centre for hydrogeology training. Under this arrangement, the university treats anyone from the seven Central American republics (Panama to Belize) as if they came from the host country.

Communicating with Indigenous Peoples:

Lessons from Guyana

Effective two-way communication is an essential component of development activities involving indigenous peoples, suggests a study on intercultural communications in Guyana.

"A lot of development experts assume the answer is to provide better technology, but the real focus should be on improving communication, rather than on improving the tools," concluded Ellen Hagerman, a recent graduate of the Université du Québec à Montréal. In 1996, as part of her Master's thesis, Hagerman spent six months in Surama, an Amerindian village located in south central Guyana near the edge of the Iwokrama International Rainforest. (Surama is about 90 minutes away from Georgetown by air and 24 hours by gravel road.) Her field work was funded by the International Development Research Centre (IDRC), under the former Young Canadian Researcher Award program.

Communication barriers

"I initially proposed looking at how communication flowed within the village, because the Iwokrama program is attempting to learn how to improve communications with Amerindian villages," she said. But the focus soon evolved into an exploration of communication barriers between the Amerindian villagers and "outsiders" – such as government officials, development workers, tourists, and even herself.

"From the perspective of their relationship with outside organizations, the villagers felt frustrated that people were constantly coming in and telling them: 'Here are your problems and here are the solutions,' without really taking the time to understand their situation," reported Hagerman. On one occasion, representatives of a government department and a UN agency arrived unannounced in Surama. "Along the road, they collected any of the villagers they could find." But they failed to include the village councillors – "both of whom were annoyed to discover that they had been left out of the meeting."

Hand pumps

Following introductions, the visitors asked: 'What are your water needs?' The Amerindians replied: 'We don't have any water problems.' Indeed, Hagerman told them that she had never been sick from the water. But after 15 minutes of "pretending to consult," they concluded that the villagers needed hand pumps from India, which the Government of Guyana would supply.

"Even when the schoolmaster indicated that the village had already had negative experiences with hand pumps, the representatives readily concluded that the villagers had surely not maintained them properly," she noted. "Thus, while one could argue that the officials did make some effort to pose questions to the villagers, they tended to react to responses with a 'we know better' patronizing attitude."

Academic jargon

On another occasion, representatives from Surama and neighbouring villages were invited to a public consultation on land-use policy in Guyana, organized by the government in partnership with the Atlanta-based Carter Centre. The consultation got off to a poor start when villagers received a 75-page document prior to the event. "The Amerindians were completely baffled by the text," said Hagerman. "Despite my own familiarity with the academic jargon, when asked to read through the document in order to provide some assistance to the villagers, it took me nearly two days to sift through the contents," she added.

The actual meeting was scheduled for 9 AM at a location 18 miles from Surama. "The majority of us had to leave very early in the morning to arrive on time," she reported. "Although many came on bicycles (most people had to double-ride someone), along the way we encountered a village captain from a neighbouring village who had left in the middle of the night since he had to walk to the meeting." Hagerman learned that on some previous occasions, "captains would paddle in for two days to get there on time and find out the meeting was canceled." Not surprisingly, many villages view two-way radios as a communication priority.

Makushi women from Surama, an Amerindian village near Guyana's Iwokrama rainforest.
Photo: Ellen Hagerman, Guyana

Land-use forum

During the land-use forum, the speaker made a four-hour presentation, discussing issues such as "the protocol for setting up ministries." Although he occasionally stopped to ask if there were any questions, the Amerindians remained silent. "After he left, they admitted that they didn't have a clue what he had said." According to Hagerman, the level of language used at this event intimidated the villagers and reinforced their impression that "they are unable to participate. They fear: 'Well, we're not educated enough.' Yet if you ask them in a way they can understand and in an atmosphere they feel comfortable in, they will articulate their concerns."

"I really think there is a minimum of time that needs to be dedicated [to consultations]. Some of the Amerindians pointed out that, for the amount of money that is spent to fly people in, if you're not going to do it right then don't bother coming," said Hagerman.

Recommendations

Among her findings, Hagerman recommends that government officials and development workers involved with indigenous communities make the occasional effort to stay with them, rather than at the nearest tourist facility. "When you do that, you are already establishing a communications barrier," she stressed. "Just being able to stay for a couple of days in a village means a tremendous amount to them."

Since her field work ended, Hagerman has briefed the Iwokrama team, which has responded positively to her research. "I felt that people were genuinely interested in making adjustments and in asking me for suggestions," she concluded.

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Resource Person

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www.idrc.ca/reports/read_article_english.cfm?article_num=261

Clash of Two Cultures: Amerindians and "Ecotourists"

According to Ellen Hagerman, tourism is happening on a very small scale in the Iwokrama region because it is expensive to get to Guyana, and flights to the area are irregular. But the industry has already heightened tensions in Amerindian villages, eroding their collective spirit and distorting the local economy. For example, jealousy has arisen between villages and between neighbours because some people have landed higher-paying jobs than others. Another potential problem arose when a tourist paid US $20 for a small handwoven basket – the normal price that villagers pay for a larger basket is only US $2.

One day, Surama residents hosted a visit by a group of students staying at a nearby ecotourism resort. The Amerindians "bent over backwards" to make them feel welcome by performing a dance and demonstrating how they lived, but the tourists "displayed a lack of respect for the Amerindian culture by dressing very informally and showing little interest in their culture," said Hagerman. To make matters worse, "the Amerindians overheard them making patronizing comments. For many of the villagers, the whole experience reinforced their feelings of being marginalized."

Promoting Community Resource Management in the Maya Biosphere Reserve

The theory is simple: if you help people develop stable livelihoods from the sustainable use of their local resources and provide them with a strong economic incentive, they will protect their environment and preserve local biodiversity. One of the testing grounds for this controversial hypothesis is Central America's largest protected area, the Maya Biosphere Reserve.

Created in 1990 by the Government of Guatemala, the Reserve covers 1.5 million hectares of tropical lowland forest in the country's largest and northernmost department, Petén. It protects Central America's largest freshwater wetland, Laguna del Tigre, and is home to many rare or endangered species such as the scarlet macaw. Hundreds of archeological sites – remnants of the great Mayan civilization – are silent reminders of the region's cultural significance.

The organization spearheading this experiment in sustainable development is ProPetén, a local branch of the Washington-based Conservation International (CI). According to its director, Carlos Soza Manzanero, Guatemala's demographics and land tenure system are placing an enormous strain on the Reserve. Eleven million souls eke out a living in a country roughly the size of Newfoundland. Most of them lack access to productive land, which is controlled by a small but powerful minority.

Harvesting chicle, a tree latex used in chewing gum.
Photo: Kevin Conway, Guatemala

Land rush

The relative stability and order brought by the 1996 Peace Accord, which ended some 35 years of bitter armed conflict, has sparked a land rush. Many Guatemalans believe that the Accord permits them to settle on uninhabited land, including protected areas. As a result, thousands of hopeful new migrants and repatriated refugees leave Guatemala's crowded highlands every year and head for the Petén – the country's final frontier. Adding to the pressure on the Petén's resource base is illegal logging, and oil and gas exploration, which continue inside the Reserve.

Despite the country's urgent need for more farmland and resources, Guatemalans have chosen to set aside 19 percent of their landbase – or 50 percent of existing forests – as a legacy for future generations and a gift to the planet. The question now is: will this experiment work?

Carmelita

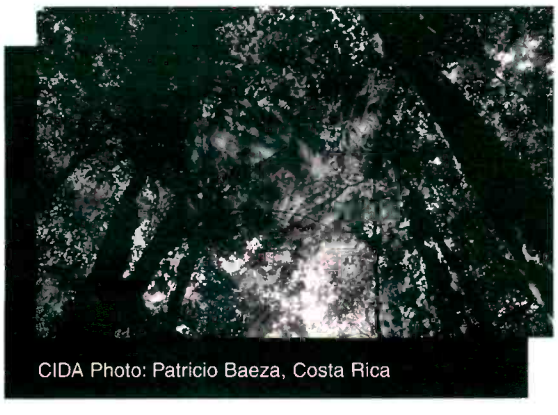
The answer, so far, is unclear. Satellite photos taken over several years by the University of Maine show the forests retreating and the soils eroding. But Soza can point to several significant successes such as Carmelita, a community of forest harvesters located in the heart of the Reserve.

"This is a village of 75 families," says Soza. "On November 14 [1997], they signed an agreement with the government that gave them a piece of forest." Under its terms, the villagers do not own the land, but have the right to use its resources. In addition, "Carmelita now has a management plan for its area. It was [created] with the community and support from foresters, biologists, and other technical people. The plan is for 25 years and it is renewable. So if it doesn't develop political problems, because that can happen easily in Guatemala, then they will have it forever."

Innovative concession

With support from IDRC, ProPetén and the citizens of Carmelita "defined" the area traditionally used by the community – a 54 000-hectare "concession" that is specified in the November 14th agreement. According to Soza, this is the largest concession in Latin America and one of the most innovative because it provides the rights to both timber and non-timber resources.

The concession's management plan clearly establishes where and how resources can be harvested. For example, areas have been set aside for harvesting traditional renewable resources including: chicle, a tree latex used as the base for chewing gum; xate, a palm popular in funeral floral arrangements in southeastern United States; and pimienta or allspice. The plan allows logging, but community members are limited to a selective harvest of 162 hectares per year within a specified 8000-hectare parcel of their concession. The management plan also identifies critical habitat, which must remain untouched.



CIDA Photo: Patricio Baeza, Costa Rica

Recent colonists

"The plan is not perfect, but it will get better," states Soza. "In that sense, this is sustainability – it is what we are trying to do with other communities," such as El Cruce a dos Aguadas. Unlike the forest harvesters of Carmelita, who have lived there for close to 100 years, residents of El Cruce are relatively recent colonists who left the Guatemalan highlands in the late 1970s. They brought with them a slash-and-burn farming system, which is ill-suited to the local climate and soils. Attempts to remove the settlers met with stiff opposition. "El Cruce barred entry to the community and burnt the local CONAP (Guatemala's National Council for Protected Areas) offices," he explains.

Rather than resort to strong-arm tactics, the government asked ProPetén for help. The resulting agreement reached by both parties differs markedly from the one involving Carmelita residents – a reflection of how the two different communities make a living. For example, Carmelita's forest harvesters hold communal rights to their concession's resources while the farmers of El Cruce were given individual rights to their plots of land.

Unique legal framework

ProPetén's legal counsel, Mario Manzilla, notes that each agreement has its own unique legal framework. The El Cruce agreement calls for the creation of a *unidades de manejo comunitario* or community management unit. The land-use plan supports farming and the rearing of livestock. It limits the size of the settlement, specifies and limits the area under cultivation, and clearly indicates conservation areas designed to act as wildlife corridors.

Buoyed by these successes, ProPetén intends to test its theory beyond the borders of Guatemala. The Maya Biosphere Reserve is part of the larger *Selva Maya* (Mayan Forest), which extends into Belize and Mexico. Discussions to develop a collaborative conservation plan involving the three neighbours are now under way.

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www.idrc.ca/reports/read_article_english.cfm?article_num=258

Photo: Kevin Conway, Guatemala

Negotiating Land-use Agreements

In both Carmelita and El Cruce, the villagers helped define and plan the process by which their land-use agreements were created. Local knowledge was validated by ProPetén's scientific and technical staff. IDRC supported some of this analysis, which included satellite and aerial photo imaging, forestry surveys, and an assessment of the local biodiversity. "The information was presented and analyzed by all the partners and the community. The community then chose from among the [management] options that were developed," states ProPetén's legal counsel, Mario Manzilla.

After reaching a consensus, both communities put in place a system for monitoring and managing their activities. This is in keeping with ProPetén's desire to transfer this capacity to the local level. In doing so, Carmelita and El Cruce revived a traditional form of community organization, involving a local *comité* (committee) comprised of leaders elected for two-year terms. Their role is to establish the rules for land use and the penalties for not following these guidelines.

At this point, support for the land-use plans was sought from CONAP. IDRC, through ProPetén, provided technical assistance to CONAP officials, who approved the plan and drew up a legal contract transferring user rights to the community. The contract was then approved by the federal government. This process has been so successful that CONAP has asked ProPetén to develop a model that it can implement in the rest of the Reserve.

From Dissenter to Supporter

Francisco Zepeda has spent his whole life in the forests of Petén. When Carlos Soza Manzanero and his team from ProPetén first approached the villagers of Carmelita with the idea of a partnership, the 52-year-old chiclero (a chicle harvester) was among its vocal opponents. Thirty-seven years of civil war and the increasing "invasions" by migrant farmers had made him mistrustful of outsiders.

"I was very skeptical about what was going to happen," he says. "And I started to see the people of ProPetén working with other people, studying chicle and xate – it was strange." So Zepeda began his own investigation into what ProPetén was all about.

"What I found out was that [ProPetén] 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 grandisimo.*"

Zepeda's conversion is now complete – he was elected President of the Carmelita Comité, which will oversee the management of the community's concession.

Global

CIDA Photo: Pat Morrow, Nepal

Promoting Urban Farming over the Airwaves

Farming usually takes place in the countryside, requires lots of space, but produces lots of food. But for millions of people jammed into the rapidly growing cities of the South, space – like food – is often in short supply. So a rooftop garden or a herd of plump guinea pigs raised in cages could spell the difference between hunger and relative prosperity.

That is why the Toronto-based Developing Countries Farm Radio Network (DCFRN), a member of the Support Group on Urban Agriculture (SGUA), obtained funding from the International Development Research Centre (IDRC) to create a series of radio scripts designed to teach people how to farm in urban areas. The scripts are a response to communications needs identified by the SGUA in 1996.

"It seemed pretty clear that if more people in cities could raise their own fresh food, it would improve many, many people's lives," explains Jennifer Pittet, managing editor of the Network.

These seedlings are being grown in an urban rooftop garden, and will later be sold.
Photo: Luc Mougeot, Chile

"There's one radio for every 10 people in the developing world, even in places with no telephones and electricity, transistor radios are usually available."
Jennifer Pittet, Developing Countries Farm Radio Network

Ideal medium

And radio, she adds, is an ideal medium to reach people who are unable to read or, if they can read, do not have access to newspapers, magazines, or books. "There's one radio for every 10 people in the developing world," Pittet says. Even in places with no telephones and electricity, transistor radios are usually available.

As a result of the Network's efforts and its 1 500 partners – who mainly include broadcasters, but also community groups and teachers – listeners in 121 countries got a chance to learn:

- how to grow guinea pigs for meat and for sale;
- how to grow vegetable vines in small spaces;
- how to turn their rooftops into gardens;
- how to reduce lead levels in produce from urban gardens;
- how to use old tires as gardening pots; and
- how to grow fruit in the city.

Ecologically sound farming

For Network staff, the urban farming project represents a mild departure. The DCFRN began in the 1970s with a target audience of traditional farmers. Its goal was to teach ecologically sound agricultural practices, based on locally available resources, for small-scale farms. "We try as much as possible to produce information that our listeners need," says Pittet.

Then, in 1992, the Network was asked to create four urban agriculture scripts for a conference of mayors held in Brazil. Those scripts were well received, says Pittet, "so we decided we'd like to do some more." Ideas for the scripts came from "a number of routes." The guinea pig script, for instance, was based on a suggestion from an American group that works with livestock farmers and a previously broadcast script about raising rabbits in the city.

700 million potential listeners

She says a typical DCFRN script is written in Toronto in English, translated into French and Spanish, and then sent to all 1 500 participants, who translate it into 237 local languages and dialects. Each script has the potential to reach almost 700 million people, based on audience numbers of local participants. But realistically, not everyone who could listen actually tunes in. Still, the Network estimates that the urban agriculture scripts reached perhaps 25 million people around the world.

Of course, no one knows how many listeners have started growing vegetables on their roof or guinea pigs in their back yard. "It's very difficult to get results from the field about improved health or increased production in a city," says Pittet. "I like to think that just placing this stuff on the airwaves gets the ideas into people's consciousness. They may not go out right away and put a garden on the rooftop, but they might later on if they see someone else doing something."

Michael Smith is a freelance science writer based in Toronto.

Produce grown without soil at a school estate in a working class district.
IDRC Photo: Luc Mougeot, Chile

Resource Person

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www.idrc.ca/reports/read_article_english.cfm?article_num=226

Urban Agriculture Radio Scripts: Selected Responses

Between April and September 1996, the Developing Countries Farm Radio Network distributed six urban agriculture radio scripts, which reached an estimated 25 million people worldwide. The scripts were used in radio programs, newspapers, magazines, newsletters, workshops, conferences, group discussions, lecture discussions, extension programs, and as teaching aids in schools. Here is how some Network members responded to the scripts:

> People who live in slums that surround the cities don't have the money to buy vegetables to satisfy their basic needs. With the explanation provided by the Network materials, people admitted that it was now possible to have vegetable vines in small spaces through the whole year. At present, there are several people trained and they are implementing this idea.
>
> In the near future, we want to give this training to people who live in apartment buildings, so that they can use the space on their balconies to produce vegetables. We hope that the Network will continue to produce topics on food production in the city.
>
> *Faustina Ravirez Burgos, Paraguay*

> "Grow vegetable vines in small spaces" and "Raising guinea pigs for meat or money" were so handy for WOFAN [Women Farmers Association of Nigeria] News. "Raising guinea pigs" fit in well with our program for encouraging rabbit production in northern Nigeria. Sixty extension workers were trained and each trainer is expected to train 20 rural women.
>
> *Salamatu Garba, Nigeria*

> We found the scripts useful to our region as [they] provide appropriate information regarding raising vegetables and animals aside from the farmers' traditional knowledge of farming methods. Scripts were translated into the local dialect for easy comprehension. We received letters from listeners, and others personally visited our office requesting copies of scripts to be used for reference in their farming activities.
>
> *Professor Jose T. De Leon, Philippines*

> Space always seems to be a problem and our soils are very clayey, which makes any form of cropping difficult. Tire gardens are gardens where we can modify that soil for a micro- and macroclimate and, consequently, produce vegetables. Demonstration and pilot project students were amazed at how easy it is to find 'space' to grow food.
>
> *Shamela Rambadan, Trinidad and Tobago*

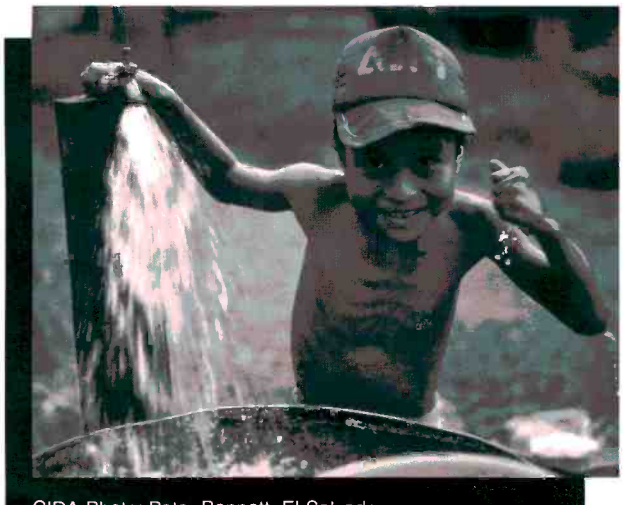
Detecting the Presence of Waterborne Chemicals:

Alternative Water Tests for the South

Dampen a piece of absorbent paper with a sample of untreated water. Place some buttercrunch lettuce seeds on the paper. Incubate them at room temperature for four to five days. Compare the length of the emerging seedlings or roots with those of seeds grown under normal conditions with potable water that is not chemically contaminated.

If the water is relatively free of contaminants, the seeds will grow at a normal rate, notes Barney Dutka, a scientist at Environment Canada's National Water Research Institute (NWRI) in Burlington, Ontario. But if the water contains elevated levels of toxic chemicals, the seedlings may not grow, the roots may not grow, or the seeds may fail to germinate. "You can get a variety of reactions depending on what chemicals are present in the water and at what concentrations."

This and other simple 'bioassays' were featured at a water-testing workshop held last winter in Cornwall, Ontario. Organized by the International Development Research Centre (IDRC), the workshop brought scientists from several countries together to practice alternative testing methods and pave the way for their eventual use in the South.



CIDA Photo: Peter Bennett, El Salvador

"We selected a battery of tests based on simplicity, inexpensiveness, and the possibility of performing them under developing world conditions."

Barney Dutka, National Water Research Institute, Environment Canada

Larger problem

According to Dutka, the presence of chemical contaminants in drinking water supplies is a larger problem in some parts of the world than the presence of microbiological contaminants such as bacteria and viruses. Exposure to waterborne chemicals such as pesticides, herbicides, and heavy metals can have a severe impact on human health, causing health effects ranging from dizziness and tunnel vision to extensive neurological damage.

Although commercial water tests are available, they are relatively time-consuming and beyond the means of most developing countries. For example, to test river water samples for 50 different chemical substances could cost between CA $5 000 and $10 000 – an amount that far exceeds the per capita income in many countries. By comparison, a 250-gram package of buttercrunch lettuce seeds – enough for 50 000-100 000 tests – costs about CA $30.

Different ranges

Unlike standard commercial tests, which identify and measure the concentration of chemical contaminants in water, the alternative tests measure the actual effects of toxic compounds or mixtures of compounds present in water, and are designed to be used collectively. "These tests are not the most sophisticated and they're not the most sensitive, but they will react

Is it safe to drink? The presence of chemical contaminants in drinking water supplies is a serious problem in many countries.
IDRC Photo: Denis Marchand, Chile

just as well as the most expensive commercial tests," says Dutka. "They all have different ranges, which is why you use a group of tests. Not all bioassays respond to the same chemicals in the same way."

IDRC's interest in homegrown chemical tests evolved out of previous work in Chile. "We went down there in the early 1990s, collected samples from different areas, brought the sediments and waters back to Canada, and conducted bioassays on them. We found that every water sample contained some toxic chemicals and a lot of the chemicals were pesticides," he recalls.

Water-testing workshop

In 1996, IDRC hosted a workshop in Ottawa to assess various tests for drinking water toxicity and identify the most appropriate ones with the help of experts from Canada and the South. "We selected a battery of tests based on simplicity, inexpensiveness, and the possibility of performing them under developing world conditions," he says. In addition to the buttercrunch lettuce test, the participants chose methods involving onion bulbs, microscopic worms, freshwater crustaceans, and freshwater polyps.

Seven months later in Cornwall, scientists from Argentina, Chile, Colombia, Costa Rica, India, Mexico, Turkey, and Ukraine came together to learn now to conduct the different bioassays. They then returned home with the cultures and supplies needed to perform them in their own laboratories. The scientists are now participating in an IDRC-supported intercalibration exercise coordinated by the NWRI. Over the next year, each investigator will receive six series of unidentified water samples containing toxic chemicals and will analyze them using the different bioassays. Their results will be used by NWRI to determine how the different tests perform in each laboratory, and in relation to each of the chemicals or mixtures of chemicals.

Science projects

This exercise will likely be followed by field trials in which investigators analyze locally obtained water samples. IDRC also plans to invite schools from around the world to take part, through science projects for students. Participants could be linked through the Internet, allowing scientists and schoolchildren to compare notes about global water conditions.

According to Gilles Forget, Senior Scientist at IDRC, the potential benefits of these alternative tests extend well beyond the laboratory. "In the hands of local communities, they can be powerful tools, enlightening them of the need to protect their own environment," he explains. In addition to showing whether or not their drinking water is safe, test results can help communities to lobby for pollution controls and to adopt more sustainable farming practices.

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Assessing the Peace and Conflict Impact of Development Projects

"It is quite possible that a project may fail according to limited developmental criteria but succeed according to broader peacebuilding criteria... It is (also) possible that a project may succeed according to predetermined developmental criteria but fail in terms of a beneficial impact on peace."

– *From:* "A Measure of Peace: Peace and Conflict Impact Assessment (PCIA) of Development Projects in Conflict Zones" – *Working Paper #1, Peacebuilding and Reconstruction Program Initiative and the Evaluation Unit, IDRC, March 1998.*

International development and aid organizations are starting to think hard about the ways their projects may trigger conflict or advance peace in the world's unstable regions.

"There is increasing recognition that development and humanitarian initiatives can have negative impacts," says Kenneth Bush, author of the working paper on Peace and Conflict Impact Assessment (PCIA). On the other hand, they can also have positive but unintended peacebuilding impacts, which are therefore "undocumented and unable to inform future development work."

Dr Bush, a Senior Research Associate in the International Development Research Centre (IDRC)'s Peacebuilding and Reconstruction Program Initiative, defines PCIA as "a means of evaluating...and anticipating...the impacts of proposed and completed development projects on: 1) those structures and processes that strengthen the prospects for peaceful coexistence and decrease the likelihood of the outbreak, reoccurrence, or continuation of violent conflict, and; 2) those structures and processes that increase the likelihood that conflict will be dealt with through violent means." He explains that while there is increasing awareness of the need to consider the potential impact of the conflict environment on a development project, it is equally important to consider the ways in which a project affects the dynamics of peace and conflict – directly and indirectly.

Potential impacts

The paper argues that any development project set in a conflict-prone region may reduce, create or intensify violent conflicts by: changing access to individual or collective resources, especially nonrenewable ones; creating or exacerbating socioeconomic tensions; changing the material basis of economic sustenance or food security; or changing the content of, or control over, existing political, economic or social systems.

Dr Bush began working on the PCIA concept in 1996, while conducting research for the OECD-DAC (Development Assistance Committee) Task Force on Conflict, Peace and Development Cooperation. He proposed that for some development projects, peace and conflict impacts could be assessed in the same ways that gender and environmental impacts already are.

The idea was first tested on his word processor. Searching an OECD template document on environmental impact assessment, Dr Bush simply replaced references to environmental with peace and conflict. "Ninety-five per cent of it actually made sense, which to me indicated that there was something there," he says. Soon, OECD-DAC task force members had placed PCIA on their agendas. In 1997, IDRC's Evaluation Unit recruited him to further develop the concept.

Field research

Supported by the Evaluation Unit, Dr Bush traveled to "hot zones" in Mozambique, South Africa, and Uganda to interview IDRC partners and field workers. He also visited the headquarters of government, multilateral, and United Nations organizations to interview policy makers and program officers. His aim was to understand the dynamics of conflict, the challenges of postwar reconstruction, and both the positive and negative of development projects in conflict zones.

The resulting paper provides "an approach to guide our interpretation and assessment of the impact of the widest range of development projects in a more systematic manner than is currently the case." Dr Bush outlines the logic of PCIA, discusses preproject and postproject considerations for anticipating and evaluating development impacts in conflict-prone regions, and provides a series of sample questions to help spark further debate.

He says the next step for the development community is to develop formal evaluation tools for use by different actors. "International donors might rely on [PCIA] to guide project selection, funding decisions and monitoring, whereas implementing or operational agencies might well use it to design projects and to guide operational decisions. The PCIA may also be used by communities themselves within violence prone regions as a means of assessing the utility, relevance and efficacy of outside-sponsored development initiatives," suggests the working paper.

PCIA toolkit

Dr Bush stresses that any PCIA toolkit must be more interpretive than a simple checklist, because of the complexity of most development projects and conflicts. He notes that current projects often fail when administrators judge results against narrow preset goals.

"If a PCIA tool is to be useful, it will have to be the product of the interaction and synergies of the full spectrum of the peacebuilding community," his paper concludes.

Humanitarian efforts, such as those to help refugees, may have unforeseen effects on peacebuilding.
CIDA Photo: David Barbour, Sudan

And "if the argument for the need to integrate peace and conflict issues into mainstream development work is to stand a chance conceptually and programmatically, then it will first need to make a convincing case for its necessity and its utility." In other words, PCIA tools must be easy to buy into and to integrate into development programs.

Since January 1998, IDRC has held two major workshops to discuss the PCIA framework and to advance PCIA from a concept to a programming reality. Meanwhile, the challenges of assessing the impact of international initiatives in conflict-prone regions are also being addressed by working groups at the World Bank, the US Agency for International Development, the Overseas Development Council, the United Kingdom's Department for International Development, and the Canadian International Development Agency.

Further development

Building on the growing interest in the potential of PCIA, IDRC intends to support its further conceptual development in closer consultation with Southern researchers and development practitioners. Simultaneously, the Centre hopes to work with other donor and implementing agencies to promote the integration of PCIA tools and approaches into their current policies and programming.

Keane J. Shore is an Ottawa-based writer and editor.

PCIA: Extracting Lessons from the Field

According to Dr Kenneth Bush, "any development worker active in [conflict-prone] areas already conducts his or her own peace and conflict impact assessment intuitively." Field workers in conflict and postconflict zones generally apply experience, interpretation, and intuition to the agendas they receive from headquarters both to ensure their own survival and to achieve project goals.

Dr Bush hopes to formalize and systematize this field-level lore for project planners, in order to help them "compare risk and impact across projects. The costs of not doing so are extremely high in financial, institutional, programming, and most importantly, human terms," he argues.

For more information

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www.idrc.ca/reports/read_article_english.cfm?article_num=262

Applying for IDRC Funding

To fulfill its mandate, IDRC encourages and supports research into the problems of the developing regions of the world. To this end, IDRC provides financial assistance to developing-country research centres and, to a lesser extent, individual researchers. Individuals or institutions interested in pursuing a project idea with IDRC should familiarize themselves with the Centre and ensure that their proposed avenue of research fits within its current programming interests.

They should also note:

- IDRC's principal approach is to support projects and partnerships proposed by developing-country research institutions. IDRC supports fewer stand-alone projects from individual researchers than it once did. Larger research programs and networks are more often funded, and increasingly in collaboration with other donors. This approach does not exclude South-North partnerships, and Canadian institutions may propose an initiative in collaboration with one or more developing-country partners.

- IDRC does not generally support stand-alone requests for travel, conference participation, or training. However, partial funding for conferences is occasionally provided as part of IDRC's network-building efforts.

- Partnerships involving other developed countries are most likely to be considered when funding is available from other donors, providing the partnership is seen as a means of strengthening IDRC-supported research in developing countries.

- Where essential, IDRC may provide funds to help lay the groundwork for project initiatives. For example, travel funds may be available for researchers in various locations to meet and finalize their joint submission, in collaboration with an IDRC representative. In most cases, this category of funding is available only for out-of-pocket costs, not salaries or fees, and only after IDRC personnel have expressed an interest in the proposed avenue of research.

- IDRC funds and administers a number of award programs in the field of international development. These are geared primarily to graduate students from Canada. IDRC also offers a number of training awards and research fellowships, on an individual basis, that are directly related to IDRC's programs and projects. Applicants may be either Canadian or from a developing country. More information on IDRC's Training and Awards program can be found at http://www.idrc.ca/awards/.

Individuals or research centres interested in IDRC support can contact IDRC to obtain a copy of *How to Apply for IDRC Funding*. This detailed brochure explains how researchers can approach IDRC, outlines the process for submitting a research proposal, and describes IDRC's proposal evaluation procedures. The brochure is also posted on IDRC's Web site at www.idrc.ca/institution/proposition_e.html.

To familiarize themselves with IDRC's approach and program priorities, researchers can consult IDRC's Web site at www.idrc.ca or contact IDRC to obtain copies of the following documents: Corporate Program Framework *(www.idrc.ca/cpfl);* Linking People and Ideas *(www.idrc.ca/institution/eprogram.html);* Current Program Initiatives *(www.idrc.ca/eprogram.html#pi).*

How to Reach Us

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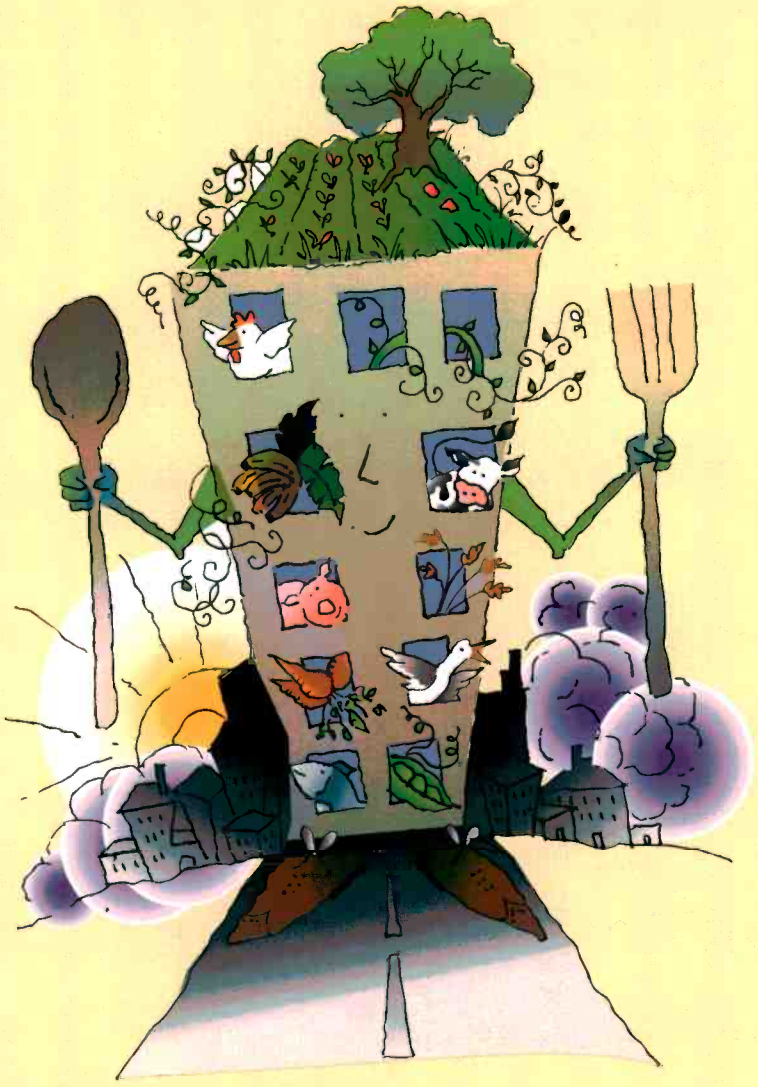

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On the Internet, see www.idrc.ca/cfp and www.cityfarmer.org