IDRC CRDI

LASTING IMPACTS

How IDRC-funded research has improved lives in the developing world

Managing natural resources

Restoring land, reaping benefits

Healthy environments. Access to natural resources. The balance between these two is a key issue in many developing countries. For 40 years, IDRC-supported researchers have come up with innovative ways both to reduce poverty and protect the natural resources on which communities depend.

Bamboo and rattan anchor an environmental revival

Bamboo and rattan are at the centre of major initiatives in Asia, Africa, and Latin America that are combatting global warming, fighting soil erosion, protecting forests, and enhancing communities' access to water.

When IDRC first supported pioneering research on these plants in 1979, the world knew little of their positive environmental potential. But this is changing thanks to work undertaken by the International Network for Bamboo and Rattan (INBAR), created by IDRC in the early 1990s.

In Allahabad, India, bamboo planting restored the fertility of soil degraded by brick mining, so farmers once again can grow crops. That project, which won the 2007 Alcan Prize for Sustainability, also raised the local water table by seven metres within five years.

A new bamboo plantation in China's Guizhou province reduced soil erosion in a mountainous area by 75%, while making degraded farmland and forests viable again. Meanwhile, manufacturing charcoal from sustainable bamboo in India, Tanzania, Ghana, Ethiopia, Mozambique, and the Philippines has prevented the deforestation that results when trees are cut to make fuel.

INBAR: LOU YIPING INBAR

Pioneering research on bamboo and rattan halted soil erosion and protected forests.

New bamboo-based building techniques developed in Latin America and since transferred to Uganda and Kenya have similarly reduced reliance on threatened forests while avoiding the use of concrete, a major producer of carbon dioxide.

Network based in Beijing

The first international workshops on rattan and bamboo in 1979 and 1980, both held at IDRC's Singapore office, blossomed soon after into the Bamboo and Rattan Research Network, the precursor to INBAR. Housed initially at IDRC, in 1997 INBAR became independent — and also the first international research organization to be based in Beijing. Since then, IDRC has supported INBAR's work through a series of grants.

From the beginning, the researchers recognized these traditional Asian crops' unique environmental role. "Like grass, you can cut bamboo and it will quickly grow back," INBAR director-general Coosje Hoogendoorn explains. Those grass-like qualities account for bamboo's restorative roles. Bamboo has roots, for example, that remain in the ground after the poles are cut. Those resilient roots prevent soil erosion and draw water closer to the surface in areas where the water table is low. Bamboo plants also absorb at least as much carbon dioxide as trees, providing a renewable buffer against global warming.

The research agenda for bamboo and rattan has focused largely on finding ways for poor communities to add value to raw materials by creating finished products. For example, one IDRC-supported INBAR project works with women in Tripura, India, who used to craft the raw bamboo sticks that were made into incense sticks elsewhere. Now, the women roll, scent, package, and even market the finished sticks. "It has been possible for women with virtually no income to get a reasonable income that helps them take care of their families," Hoogendoorn says.

IDRC: DAVID BARBOUR

New maize types have contributed to Oaxaca's biodiversity.

Maize gene banks help farmers adapt to new challenges

Small-scale farmers in Oaxaca, Mexico, now have access to more native corn varieties from across the region, allowing them to breed local strains more adaptable to environmental challenges. This was made possible by an innovative IDRC-funded program.

By the late 1990s, commercial hybrid varieties of maize (corn) were being promoted, and some traditional varieties — or landraces — had been lost. Farmers risked becoming dependent on new varieties requiring expensive pesticides, fertilizers, and irrigation. Having to buy hybrids from seed companies every year also threatened farmers' economic viability.

With IDRC support, researchers from the International Maize and Wheat Improvement Center and the Mexican natural resources agency INIFAP canvassed farmers and catalogued the attributes of preferred varieties. These were then "frozen in time" in maize gene banks.

Farmers were given access to landraces from the gene banks, allowing them to cross-breed new maize types that could adapt to environmental changes. New storage facilities also allowed them to save maize for sale when prices were higher. These incentives bolstered farmers' determination to preserve Oaxaca's biodiversity.

IDRC: NELL MCKEE

The popular Jiko cooking stove boosts green technology use in Kenyan households.

Ceramic stove eases strain on African forests

A cooking stove that has become popular in Kenya and neighbouring countries has taken pressure off Africa's threatened forests by reducing the demand for wood and charcoal.

IDRC began supporting research that led to the marketing of the ceramic Jiko stove in the mid-1980s. Today, surveys show that 80% of households in Nairobi and Mombasa use the stove, reducing their fuel consumption by up to 50%.

Developed by the Kenyan agency KENGO, the ceramic Jiko now "has become almost the standard stove in Kenya," says energy expert Stephen Karekezi.

Several thousand institutional-scale Jiko stoves have been distributed within Kenya. Large numbers have also been exported to Ethiopia, Rwanda, Tanzania, Uganda, and other countries. With a smaller combustion chamber and insulated sides, the ceramic Jiko boosts the efficient use of wood. And in homes, where charcoal is used, the greener technology allows poor families to use money otherwise spent on fuel toward the purchase of food.

FLICKR: OXFAM GB EAST ASIA

Research called for communal land tenure in Cambodia's new land law.

Securing land rights defuses conflicts in Cambodia

Hill people in Cambodia's Ratanakiri province set a powerful precedent that has served as a model for the country's land tenure laws. With IDRC support, they protected their livelihoods by establishing legal rights to their land and its resources.

In the early 1990s, the Cambodian government readily granted contracts to investors for rubber and palm oil plantations and logging. Unrestrained development endangered the region's forests — the source of food, fuel, medicine, and other essentials for local communities.

A team led by the regional United Nations Development Programme office worked with villagers to create detailed maps and plans showing the region's customary boundaries and allocation of resources. These efforts convinced the provincial governor to recognize the hill people's traditional use of the land. Developers were forced to back down.

The researchers also established the need to include provisions for communal land tenure in Cambodia's new land law. The participatory planning process used in Ratanakiri served as a model for the nation.

About Canada's International Development Research Centre
IDRC supports research in developing countries to promote growth and development. IDRC also encourages sharing this knowledge with policymakers, other researchers, and communities around the world. The result is innovative, lasting local solutions that aim to bring choice and change to those who need it most.

Read more about the lasting impacts of IDRC-funded research @ **www.idrc.ca/lastingimpacts**.

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