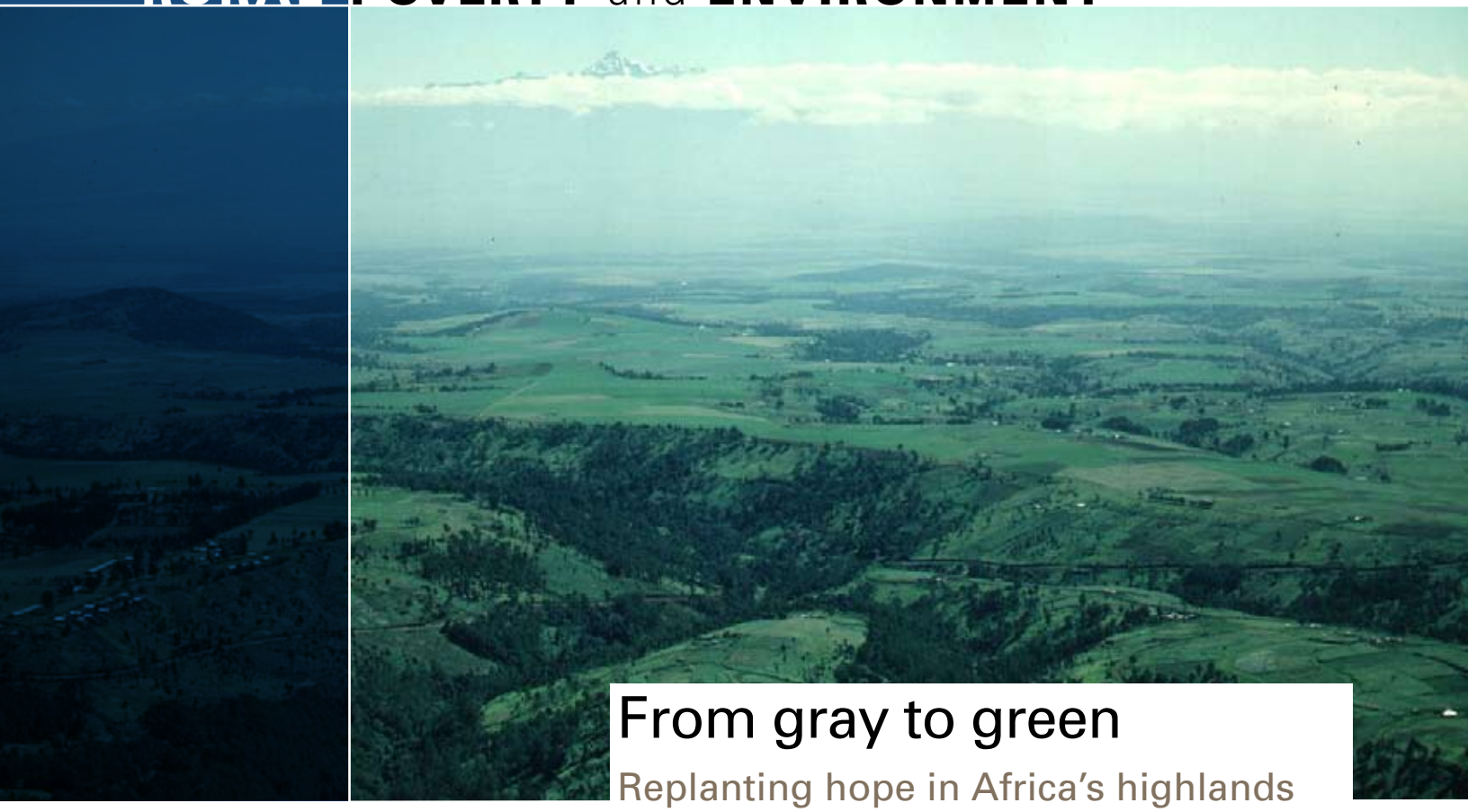

IDRC: Neil McKee

The highlands of Central and Eastern Africa have not escaped the effects of intense cultivation and environmental degradation.

From gray to green

Replanting hope in Africa's highlands

In Uganda's Kabale district, too many people had been trying to make a living from too little land. Because of overpopulation and exhaustion of the soil by intense cultivation, the area had gone into decline. Then, researchers and farmers — supported by the International Development Research Centre — joined forces to revitalize the region.

The pattern is common. People migrate to an area because its conditions are favourable for growing crops. However, over generations, so many farmers till that part of the earth that the environment becomes degraded, soil and water deteriorate, and people begin to suffer.

This is the case in the heavily populated, fertile, and intensively cultivated highlands of Central and Eastern Africa. These hills rise 1400 metres and more above sea level. They are the source of much of the water used in the lowlands and they produce half the region's food with minimum institutional support. But many districts in this zone have been in decline, owing mainly to the unsustainable expansion and intensification of agriculture.

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Canada

Gebre Medhin

In the highlands of Ethiopia, farmjers participate in the selection of disease resistant potato varieties.

The problem has become apparent in a variety of ways: small and increasingly fragmented holdings, the encroachment of farming on marginal or protected lands, the scarcity of water, debased grazing and forest resources, and diminished biodiversity. And as the ecosystem withers, human poverty, hunger, and conflict increase.

African Highlands Initiative: allied for progress

Better times, however, may be around the corner. Despite the seriousness of their problems, people in the affected areas have joined forces to tackle them. Founded in 1995, the African Highlands Initiative (AHI) is a collaborative research program that focuses on natural resource management and agricultural productivity. It brings together scientists, farmers, support groups, and governments.

The AHI is one of many programs of the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA), a consortium of the national research institutes of 10 countries in the region. ASARECA operates the AHI in partnership with the Consultative Group for International Agricultural Research led by the World Agroforestry Centre.

The AHI is funded by Canada's International Development Research Centre (IDRC) among other donors. During the early years of the AHI, IDRC also provided pioneering support for the development of its key principles and partnerships.

The basic approach of the AHI follows a new concept called "integrated natural resource management." The aim is to improve livelihoods by empowering participating stake-holders — in this case, farmers and other community dwellers — resolving conflicts, and encouraging new technologies to protect and improve the productivity of the natural resources. Thus, through a process of sharing, joint reflection, and participatory research, the AHI works directly with poor rural communities and farmers' groups to help them identify problems, set priorities, and find solutions.

> Kabale has been subject to rapid population increase and declining productivity.

Probably the most important function of the AHI is to offer communities a shared vision of a better future. As one Ethiopian farmer put it after participating in the work of the initiative, "I became aware that there is no so-called bad land. Unfortunately, we made it bad — but we still have the chance to reverse it."

The AHI runs pilot projects in Ethiopia, Kenya, Madagascar, Tanzania, and Uganda. One of these projects is at Kabale, a rural highland district in southwestern Uganda, at the border with Rwanda.

Kabale in decline

Kabale displays many of the characteristics of a typical East African highland. People first settled the area in 1944 and, since then, it has been subject to rapid population increase and declining productivity. Although the ground was never ideal — Kabale means "rocky, barren area" in the local dialect — population pressure has led to further deterioration of the soil and water resources.

With 350 people per square kilometre, Kabale is a crowded place. Although less than 30% of the land is arable, cultivation is intense. Plots have been subdivided so often that nowadays a family of six must subsist on less than half a hectare.

The pressure on the fragmented land has provoked many disputes. A study funded by IDRC documented 700 conflicts related to the sharing of natural resources in Kabale. This tension has involved farmers and has usually taken the form of domestic violence or of clashes over land.

Farmers, especially women, are poorly educated and income levels are extremely low. Because of the general hardship, some people have started looking elsewhere for a living. The young in particular are migrating to towns and to other places in search of land and a better livelihood. By 2002, Kabale's annual population growth rate was barely 0.9%, compared with 3.3% for Uganda as a whole.

Researchers and farmers together

Instead of migrating, however, some local people turned to the AHI for support. According to the initiative's regional coordinator, Ann Stroud, farmers in the subcounty of Rubaya asked the AHI to come to Kabale to "help them restore hope." They wanted guidance on how to organize themselves to deal with their crisis.

The AHI accepted the invitation. In line with its integrated, participatory approach, one of its first steps was to bring farmers and researchers together to exchange views on the problems in the region and on potential solutions. Not only did this exercise raise constructive questions and result in plausible answers, but it also built the confidence of farmers by drawing them immediately into the process of trying to understand and remedy their own situation.

Two dozen AHI-associated researchers from different partner institutions were assigned to work with various farmers' groups. Some 70% of local farmers were eager to take part in the project and, of these interested people, 70% were women.

According to the researchers and farmers, among the many problems that needed attention were declining soil fertility; pests and diseases that reduce the yields of important crops; socioeconomic issues that affect farm productivity — such as drunkenness, gender factors, unemployment, and marketing bottlenecks; and the lack of enforcement of regulations to control erosion.

Reviving the legal framework

All project partners felt that an essential early step was to revisit the local environmental bylaws.

In the 1950s, the colonial British government, concerned about mounting ecological damage in Uganda, had constructed retaining terraces and passed legislation that discouraged farming on slopes and hilltops. After the country gained independence in 1962, these legal measures remained on the books but were less stringently enforced. The result was a breakdown of the terraces and increased erosion — the kind of erosion that agronomist Tilahun Amede has said "takes away both our past and our future."

> "Not only did these self-help measures reduce erosion on hilltops and limit siltation in valleys, but they also resulted in fewer disputes

Tilahun Amede

Reversing farm land degradation in Areka, Ethiopa through research.

IDRC: Peter Bennett

Farmers and researchers exchange views on the problems affecting the region.

IDRC

Mixed cropping; tobacco nursery in foreground and corn in background in Kenya.

The AHI researchers worked with farmers to choose bylaws relevant to current conditions and encouraged the formation of community-based "poverty task forces" to enforce these regulations. Not only did these self-help measures reduce erosion on hilltops and limit siltation in valleys, they also resulted in fewer disputes and, therefore, more time for productive work.

Success with the lowly potato

The project then moved on to conduct practical experiments aimed at improving crop production. The farmers decided to focus on the potato because it was the "highest income earner," delivering a substantial cash return to households in the district. However, even though the amount of land allocated to this crop had increased, production was declining. One reason was plain: farmers refuse to use fertilizer because they believe it "kills" the soil.

The issue of fertilizer use thus became the mutually agreed priority, or so-called entry point, for the "potato group." Together, farmers and researchers conducted experiments with fertilizer application, seed rates, and row planting. They collected the data jointly and discussed the research findings. The farmers harvested the tubers, graded them, and undertook a cost–benefit analysis.

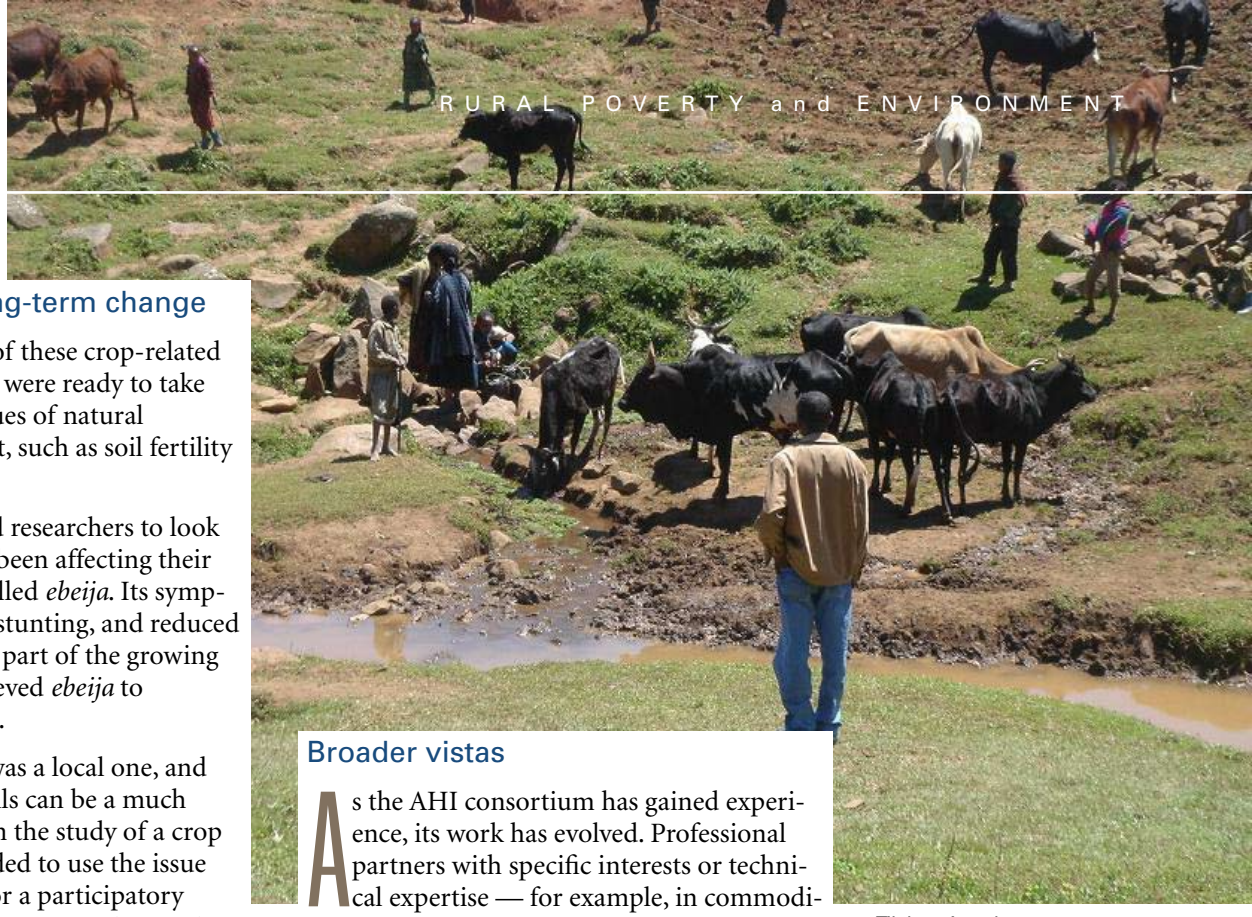
The findings persuaded farmers that what they had thought was barren land could be made productive by using fertilizer and other techniques. The economic analysis demonstrated that with fertilizer, ridging during planting, and a better seed rate, incomes actually doubled. The farmers "reaped" not only knowledge and confidence, but also money. Plus, the project helped increase food security in the district and reduce soil erosion.

> "The success of the farmer-led potato research effort had a multiplier effect. The farmers clearly saw the value of better land management.

The success of the farmer-led potato research effort had a multiplier effect. The farmers clearly saw the value of better land management. The lessons learned during the project could easily be applied to other crops, such as maize, wheat, and beans. In fact the same grassroots approach was used in the development of an informal seed multiplication system and associated seed businesses. And the positive results were made available to nonparticipating farmers through exchange visits and training sessions.

Adopting the *zaï* water conservation system has reversed degradation in Areka.

Tilahun Amede



Tilahun Amede

Addressing water scarcity for livestock and people is a first step in improving resource managementin Ginchi.

Short-term gain, long-term change

Following the success of these crop-related activities, the farmers were ready to take on more complex issues of natural resource management, such as soil fertility and conservation.

In Rubaya, farmers asked researchers to look into a problem that had been affecting their beans — a blight they called *ebeija*. Its symptoms include yellowing, stunting, and reduced plant growth in the later part of the growing season. The farmers believed *ebeija* to be a soil-related disorder.

Although this problem was a local one, and although the study of soils can be a much more complex affair than the study of a crop disease, researchers decided to use the issue as another entry point for a participatory research project. The focus was on improving the management of the crops and increasing the low fertility of the soil, which was contributing to the prevalence of the blight.

Farmers were taught experimentation techniques and left to make their own assessments. After two or three seasons, they became confident in their ability to choose the bean varieties and the soil management practices that brought the best return, while also controlling the blight. And the skills and confidence they gained allowed them to take their experiments to new levels.

Although the farmers realized that this relatively short period was insufficient to demonstrate long-lasting improvements in soil fertility resulting purely from their activities, they did benefit from the immediate adoption of legumes, the planting of trees, and the application of manure. According to Stroud, "We wanted short-term gains that would also secure long-term interest and positive changes, so that farmers could see immediate results and get engaged in new practices that also have longer-term benefits."

Broader vistas

As the AHI consortium has gained experience, its work has evolved. Professional partners with specific interests or technical expertise — for example, in commodities or soil management — have started taking more of the initiative in their grassroots work with farmers and this has allowed the AHI's core team to widen its own outlook.

Consequently the AHI no longer seeks just to improve livelihoods at the farm level; now it also aims to confront fundamental problems from a broader perspective. Recognizing that many natural resource issues are inherently social or political in nature, the consortium has begun looking at key factors, such as a commodity marketing chain, or government policies that may affect the resolution of a particular conflict. Thus, the partnership has grown to include agencies and groups that work for the poor by promoting the necessary adjustments at the institutional and policy levels.

In geographic terms too, the AHI has broadened its viewpoint. It now targets whole ecosystems or watersheds. It may investigate such concerns as the landscape flow of water and soils, the relation between land use and water management, or the administration of communal resources. In fact, the AHI and

> AHI and farmers have already completed an assessment of landscape-level problems in watersheds in Ethiopia, Kenya, and Tanzania.

Tilahun Amede

Diffused light allows for longer storage of potato seeds in Areka.

farmers have already completed an assessment of landscape-level problems in watersheds in Ethiopia, Kenya, and Tanzania.

The AHI experience in Kabale and other sites has provided many lessons. Among the most important is the knowledge that people in situations of poverty and environmental degradation are eager for support and ready to work together to improve their practices, engage in local agreements for managing their resources, increase their incomes, resolve conflicts, and enhance their own capacities to contribute as humans and citizens. How to scale these AHI efforts is the next challenge for the team, its partners, and supporters such as IDRC.

For more information on the African Highlands Initiative, please consult www.africanhighlands.org

This brief was prepared by Patrick Kavanagh based on a case study by Ken Opala, Ann Stroud, and Luis Navarro.

IDRC's Rural Poverty and Environment (RPE) program is a global program launched in 2005 to support research that meets the needs of the rural poor who live in fragile or degraded ecosystems in Africa, Asia, Latin America and the Caribbean, and the Middle East. Its goal is to strengthen institutions, policies, and practices that enhance food, water, and income security.

For information visit
www.idrc.ca/rpe

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