

Success Stories in Agriculture and Natural Resources
in Cameroon and Rwanda

The attached stories provide a few examples of successful agriculture and natural resources projects in two African countries--Cameroon and Rwanda. The stories try to capture the essence of USAID's presence, by explaining how particular individuals are benefiting from USAID-funded projects. Millie Konan, AFR/TR/ANR's part-time RSSA Communications Advisor, wrote the stories on the basis of site visits, consultations with mission agricultural officers, and existing project documents.

The stories are part of AFR/TR/ANR's ongoing efforts to document the results of USAID efforts in agriculture and natural resources. If you have success stories to share, please let us know.

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Research Increases Production of a Favorite Crop in Cameroon

by Millie Konan, USAID

Last year was a year of plenty for Joseph Vaidjo and his four wives who farm five hectares near Salak, a town in northern Cameroon. On a portion of their land, they planted a new variety of cowpea that yielded 20 times more than they had ever obtained before.

Quantities of seed for the new variety, called uya, became available after extensive testing by local agronomists working in a nearby research station. Scientists from Michigan State University and Purdue University collaborated with Cameroonian scientists (Institute of Agronomic Research, Ministry of Scientific Research and Higher Education) in the research effort. The U.S. Agency for International Development provided financial support for the research.

In Cameroon, cowpea is a favorite supplement to the traditional staple crops, sorghum and millet. As a high-quality protein, cowpea makes a valuable contribution to the family nutrition. About 80 percent of the farmers in the extreme north province grow cowpea. Yields have traditionally been low because of insect damage, diseases, drought and poor plant type.

Over a five-year period, researchers evaluated more than 600 breeding lines to identify a small number with acceptable characteristics and resistance to insects and diseases. The new varieties were made available to farmers through the extension services of SODECOTON, an agency that partners private and governmental interests for the production and marketing of cotton.

Joseph Vaidjo and his family ate about half of the cowpea they produced. They sold the remainder and bought a cow to help provide milk for the 17 children in their family. Dala Metchede, another farmer who benefited from increased yields, sold most of his cowpea production to obtain cash for unexpected medical needs. He credits the new variety with saving him from financial disaster.

Since cowpea is a favorite local food, farmers are able to sell any surplus. They use the foliage as forage for farm animals. One of the new varieties matures within a short time period, thus providing food in August before other crops are ready for harvest.

During the drought of 1984, most cereal crops in northern Cameroon failed, but farmers growing the new varieties of cowpea had high yields. That experience boosted demand for seed for the new varieties. Thanks to another U.S. government project, the Seed Multiplication Project, large quantities of seed were soon available to respond to this increased demand.

"Farmer response is amazing," reports Moffi Ta-ama, technical director for cowpea research in Cameroon. "Within one year, the amount of seed distributed increased six-fold--from one ton to six tons." Since cowpea is a nitrogen-fixing plant, increased planting also benefited local soils, adding a natural source of fertilizer.

Many families try to store seeds for planting the following year or for food during the months after harvest. But cowpea is highly vulnerable to insects and losses during storage are high.

Cowpea researchers are now focusing their efforts on improving techniques for storage. They are studying the effectiveness of local methods of treating seeds, such as storing with a local plant, and investigating possible ways to adapt recognized storage methods to the conditions on small farms in Cameroon. This research promises to reduce post-harvest losses and further increase the benefits derived from growing the new varieties of cowpea.

Credit Unions Stimulate Small Businesses in Cameroon

by Millie Konan, USAID

In 1981, Elizabeth Ntuchu started a small business to make knitwear and household items such as bed covers. At first, she worked alone, in a stall at an outdoor market. Over the years, she trained numerous employees, expanded her list of clients and moved to new modern quarters. Today, her company, The Rolling Enterprise, employs 22 persons.

Mrs. Ntuchu is typical of many entrepreneurs in north-western Cameroon who have financed business growth through their credit union. "The government helped with money to buy machines," she explains, "but I had no capital. My credit union loaned me money to run the business. That assistance was crucial."

As a member of the Azira Credit Union, Mrs. Ntuchu participates in one of the oldest and largest credit unions in Cameroon. Azira started in 1967 with 13 members; it now has 6,000 members. Many other credit unions are just getting started and need assistance to become financially viable.

Since 1975, the U.S. Agency for International Development has been assisting in the growth of the credit union movement in Cameroon through a grant to the Cameroon Cooperative Credit Union League, an organization that helps develop affiliated credit unions. The Credit Union National Association of the United States is helping in this effort.

Most credit union members in Cameroon have never before participated in formal financial markets. Credit unions are friendly institutions, composed primarily of people who live in the same community or share a common occupation. Members may open an account with as little as three or four dollars. Banks are often distant, require much higher minimum deposits, and have other regulations that small savers and borrowers cannot meet.

"Our slogan is save regularly, borrow wisely, repay promptly," says Timothy Annoh, technical advisor to the Azira Credit Union. "Credit unions offer convenient deposit and loan facilities and they help members learn how to save and borrow wisely. During their first year of credit union participation, members often double their rate of saving."

Over the years, the credit union movement in Cameroon has expanded to provide services in hundreds of small communities. Currently, there are more than 68,000 members, with savings of more than \$30 million and loans of approximately \$20 million.

Even in the current economic climate, with reduced public expenditures and other financial constraints, credit unions have been able to attract and re-lend sizable amounts of private savings. Joseph Akoso, a farmer in Bafut, represented a common sentiment when he said: "In the credit union, I know my money is secure."

Many current members used to be skeptics. Fifteen years ago, Martin Allo argued that credit unions were not needed. But when he began to dream of starting his own business, he realized that bank regulations limited his options and that the small amount of capital available from traditional savings societies would be insufficient. Eventually, he became a credit union member and began saving.

In 1979, he obtained a loan to start his own business, a company that sells office machines and stationery. As the business grew, he continued to save and borrow. He borrowed to build a bigger store, to construct a new home, and to start a farm where he eventually hopes to retire. "With the help of the credit union, I became a big man," he admits, smiling with evident self-satisfaction.

By local standards, Martin Allo is now a wealthy man, but many members operate on a much smaller scale, saving and borrowing relatively small amounts of money. Joseph Akoso, a member of the Bafut Credit Union, borrowed \$100 last year to buy tools and seeds for farming. George Nehfinji borrowed about \$300 to send his younger brother to school.

Francesca Asoh borrowed \$700 to establish herself in the restaurant business. Her restaurant, an extra room on her home, is now a favorite meeting place for local residents who want good food and homemade beer. Michael Ngwa borrowed to buy soft drinks, snacks and other inventory for his neighborhood store.

By delivering financial services to small savers and borrowers, credit unions have provided a resource that was not available from banks. Many Cameroonians have learned how to use and manage credit and have started businesses of their own. By assisting in the development of the credit union movement, the U.S. government has stimulated the growth of rural financial markets and private enterprise in Cameroon.

Fish Ponds Catch On in Rwanda

by Millie Konan, USAID

Last year, a dozen women in the Mbazi area of Rwanda decided to build a fish pond. Local men laughed at them and said they couldn't do it--and for a brief time, the women's confidence wavered. Digging the fish pond was hard work and construction was taking too much time. They felt discouraged.

Instead of stewing about their difficulties, the women decided to use other skills to achieve their goal. They bought sorghum, made beer, and invited the men to build the pond for them, in exchange for free beer. "The beer worked," laughs the president of the women's group. "The men still thought we couldn't be fish farmers, but they helped build the pond anyway."

In subsequent months, the women carefully followed the advice of the fish culture extension agent. They put fingerlings in the pond, fed them, and maintained an appropriate environment. They did not allow their husbands to visit the pond, because they wanted to be personally responsible for the outcome.

When it was time to harvest, everyone wanted to see whether the women had been successful. Neighbors and friends gathered round as nets were drawn in and the catch was weighed. Much to everyone's surprise, the women's pond had the highest production of any pond in the region.

The women's success is just one example of many successful fish farming enterprises encouraged by a Fish Culture Project funded jointly by the U.S. Agency for International Development (USAID) and the government of Rwanda (Ministry of Agriculture, Livestock Production, and Forests). The project, initiated in 1984 and implemented by Auburn University's International Center for Aquaculture, is part of the Government of Rwanda's ongoing efforts to improve fish culture. The project's goal is to help Rwandans build and maintain profitable fish ponds. Auburn University staff work with Rwandan counterparts to conduct research, improve fish farming techniques, and train extension workers.

During its early months, the project introduced a pure strain of *Tilapia nilotica*, a prolific and fast-growing species that is appropriate for fish pond culture by small farmers. Rwandan farmers accepted the new strain because it grew so quickly and they liked its taste.

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With the new strain and the extension of improved techniques for pond management, fish production increased dramatically. Five years ago, an average rural pond produced only 300 kilos of fish per hectare per year. Now, rural fish ponds benefiting from project advice produce almost 1500 kilos per hectare per year--a five-fold increase.

"The high yields represent 'ont of the payoffs from the Agency's long-term support for research," says David Bathrick, director of the Office of Agriculture, Bureau for Science and Technology. Through a USAID-funded Collaborative Research Support Program, American and Rwandan scientists continue to build a scientific base for improved fish farming.

Extension agents play an important role in helping farmers learn the improved methods that increase production. They visit fish ponds on a regular basis, providing advice and teaching pond management techniques.

Kabanda Hermenigilde is the extension agent who works with the women of Mbazi. Altogether he serves 41 rural fish ponds. Like other agents, he travels from pond to pond by bicycle, following a regular schedule. In the mountainous terrian, bicycle travel is difficult, but he maintains his schedule in all kinds of weather. "I'm pleased when people follow my ideas," he admits. "But the harvest pleases me the most. At harvest, we see the results of our work."

"I also teach people how to cook fish," continues Mr. Hermenigilde. "Fish are not part of the traditional Rwandan diet, so people don't know how to prepare fish dishes."

"Eating fish used to be taboo," explains Nathanael Hishamunda, Director of the National Fish Culture Service. "Sometimes children caught fish in the river and put them with the family food as a joke. Parents threw the fish out because there were many superstitions about people who ate fish. In 1983, health centers around the country mounted a public relations campaign to teach people about nutrition. With new information about the value of fish, many people abandoned their superstitions and began to add fish to their diets."

In the rural areas, adults still eat fish only once a month, or once every two or three months. But parents are learning to add protein to their children's diets by mixing fish meal with staples such as beans and potatoes. Since electricity and storage facilities are generally unavailable, fish are sold fresh. Sales are brisk. In fact, as production has increased, so have prices. During the past year, prices have increased by 30 percent.

Overall, the U.S. government's contribution to fish culture development has reached more than 10,000 Rwandan families, bringing increased incomes as well as improved nutrition. When the women of Mbazi sold their fish, each member collected the equivalent of about 25 dollars--much more than they had ever obtained at one time from other farm sales. Vegetable sales, for example, may yield only 25 cents at one time. Surveys suggest that participation in fish culture activities increases a family's income by 14 percent or more.

With encouragement from government officials and project-trained extension agents, many Rwandans are discovering the rewards of fish farming. Like the women of Mbazi, they are increasing their incomes, improving their nutrition, and gaining new confidence in their own abilities.

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Protecting Gorillas and Rwanda's Tropical Forests

by Millie Konan, USAID

A mother gorilla and her baby snuggle together in a nest of branches and leaves. They look intently at a group of humans who sit just a few feet away. A large male gorilla yawns, stretches, and struggles to an upright position, towering above the mother and baby. Cameras click. Tourists smile. This is a moment to remember.

Both tourists and gorillas are resting in the Volcanoes National Park, in Rwanda. The gorillas are in their natural habitat, surrounded by lush vegetation. They have just finished a typical breakfast of fruit, leaves, and bamboo shoots, and they expected the human visitors. For many years, they have had human visitors every morning. The gorillas are not afraid.

The tourists aren't sure how to feel. They push away visions of fierce Hollywood gorillas and focus on remembering the rules the guide explained to them. "When you visit gorillas in their home," he said, "there are certain rules of etiquette. Don't stare. Move slowly. Stay back. And if a gorilla starts running toward you, don't run away. Crouch down and appear submissive. The gorilla will stop a few feet away from you." None of the tourists wants to practice submission in the face of a running gorilla.

The gorillas stir, as if they are uneasy with the visitors' presence. The guide grunts softly and they relax. "I told them we came in peace," he whispers.

Tourists from all over the world come to Rwanda to see the mountain gorillas. Over the past 10 years, tourism in Rwanda has increased dramatically to become the country's second most important source of foreign currency.

Access to the gorillas and the park is carefully controlled by the Rwandan government (Office of Tourism and National Parks). Since 1979, the Mountain Gorilla Project has assisted the government in its efforts to protect the gorillas and their habitat. Several international conservation organizations participate under the leadership of the African Wildlife Foundation.

In 1988, the United States Agency for International Development provided a grant for the training of local teachers and park guides. The training permitted the expansion of conservation education programs so that both tourists and local residents could learn about the mountain gorillas and other unique resources in the Volcanoes National Park.

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Through conservation education and limited tourism, the Rwandan government hopes to save the mountain gorilla from extinction. Ten years ago, the gorillas were severely threatened. They were being killed by poachers at an alarming rate and their habitat was being disturbed by cattle and destroyed to make way for subsistence farms. Local residents viewed both the forest and the gorillas in terms of short-term needs; they did not understand the long-term value of these unique resources.

With conservation education in local schools and in the community, people began to understand the importance of the forest as a watershed and the gorillas as a unique asset. When researchers and tourists came from around the world to see the forest and the gorillas, local residents discovered that they could benefit from these resources; tourists hired porters, stayed in local hotels, and bought local produce.

The distribution of the film Gorillas in the Mist made Rwanda even more interesting to tourists. But the number of park visitors must be controlled. To protect the health of the gorillas, the government issues permits for a maximum of 30 tourists to see the gorillas each day.

Gorilla tourism cannot expand to meet international demand. Already the waiting list is months long. But Rwanda has other natural resources. The government is creating a network of parks and forest reserves to encourage tourists to spend more time and money in Rwanda. Activities underway include the creation of interpretive centers to enrich park visits, the development of local handicraft markets to stimulate local employment, and the provision of incentives for visits to other parks and forest reserves.

Francois Minani, a senior member of the Mountain Gorilla Project staff, is the most qualified Rwandan involved in conservation education in the country. He recognizes that the Mountain Gorilla Project is a successful model for conservation activities and park management in other areas of Rwanda.

In 1988, the U.S. government provided funds for forest management and tourism development in Nyungwe forest, a reserve in south-western Rwanda. "Nyungwe is one of the richest forests in Africa," says Robb Clausen, Coordinator of the U.S.-funded project. "The forest has 10 kinds of primates and 270 bird species." Visitors to Nyungwe will not see mountain gorillas, but they may see dozens of rare monkeys trooping through the lush green forest.

Through careful management, the Rwandan government plans to retain the natural environment in a large core area and to allow limited access to a buffer zone for logging and other uses. Plans also call for development efforts in the area surrounding the forest.

Earlier this year, the Nyungwe Forest Project issued a calendar, with pictures of the white-faced monkeys and quotes from Habyarimana Juvenal, the President of Rwanda. "We must live in harmony with our environment," said President Juvenal, "and we must manage that environment in a thoughtful way. It's essential."

The Mountain Gorilla and Nyungwe Forest Projects are demonstrating the realities of thoughtful management. For those who have had the opportunity to visit the gorillas and experience the richness of Rwanda's forests, there is no reasonable alternative. These natural environments instill renewed appreciation for the beauties of nature and deep concern for the welfare of Earth's fellow creatures.

Trees Bring Hope in Rwanda

by Millie Konan, USAID

During the past three years, Sawuya Asiya and her family have planted lots of trees on their small farm in the Gituza region of Rwanda. In the vegetable garden near their house, they planted papaya and avocado trees. Elsewhere they planted leucaena, sesbania and other species. "We planted lots of trees to increase the value of the fields and improve the soil," says Mrs. Asiya.

Planting trees is a new activity for families in this area. Three years ago, the United States Agency for International Development funded an agroforestry project in Gituza. When the project began, thousands of Ugandan refugees were living in a camp in the area. The government of Rwanda asked for U.S. government help to meet their fuelwood needs. With direction from CARE International, the project has been able to meet the needs of both refugees and permanent residents.

The results of the project are visible everywhere. Trees dot the hillsides, line agricultural plots and grow in gardens. "First we created a nursery," says Jacques de Cuypere, the CARE Project Director. "During the past three years, this nursery has produced three million seedlings. We did research to find out which species grew best in different locales."

Although other projects have given seedlings to farmers, CARE found that farmers were willing to pay for the seedlings. For farmers who took project courses, the charge for seedlings was reduced. The courses provided information on how to select trees, where to plant them, and how to care for them.

With this incentive, many farmers began integrating trees with agriculture--for example, by planting trees that provide nitrogen to the soil, thus adding a natural fertilizer. They also learned techniques of soil conservation--for example, how to create anti-erosion ditches by digging trenches on the contour and planting grasses and trees.

Extension agents visited farmers after the courses to reinforce the training. By listening to the farmers they were able to learn from them and to include their practical experience in subsequent courses.

Recently, a survey documented the many changes that have occurred. When the project began, area farmers never practiced soil conservation. Now 40 percent of farmers are using agroforestry practices for erosion control. The number of farmers using trees with other crops has doubled. Survey results also showed that increasing numbers of farmers are integrating trees with field crops, using live trees as fences, and planting fruit trees around homesteads.

In addition, with the involvement of local residents, the project reforested 6,000 acres of degraded hillsides. Project staff carefully matched species with different environments to ensure that most of the trees would survive and grow well. Thousands of young trees are already contributing to soil and water conservation. As they mature, the new forests can be cut and re-planted according to a plan in order to meet long-term needs for fuelwood and forage.

By keeping the costs of reforestation at a minimum and by charging a fee for seedlings, the project demonstrated economic efficiencies. The payments helped reduce the costs of running the nursery. In the long run, the payments also increase the likelihood that Rwandans will be able to sustain project activities by applying funds from the sale of seedlings to the continued management of forest resources. As people become accustomed to paying for seedlings, private enterprises may also flourish.

The government of Rwanda (Ministry of Agriculture, Livestock Production, and Forests) is currently promoting the establishment of tree seedling nurseries throughout the country and more than 1500 nurseries have been created. The nurseries are making it possible for many Rwandan families to enjoy the benefits of trees.

"From the trees we get fruits to eat, fuelwood to burn, and poles for construction, says Mrs. Asiya. "When the trees are big enough, we can sell some of these products to earn money." Trees also improve the soil and conserve moisture, enhancing the natural environment for agriculture.

The agroforestry project in Gituza has encouraged Mrs. Asiya and many other Rwandans to plant trees that contribute to their everyday needs. The trees offer hope that life can be a little better in the future.