Brewing Prosperity in East Africa

Coffee Initiative Final Report

TECHNOSERVE
Across East Africa, there are more than 5 million coffee farmers, the vast majority of them smallholders. Most of these farmers live in poverty, typically for three reasons: the small size of their farms limits the number of coffee trees they can cultivate, the trees they do have yield relatively few coffee cherries, and the coffee cherries they produce are sold at the unpredictable and generally low prices dictated by the commodity market for Arabica and Robusta beans.

But it doesn’t have to be this way. While increasing farm size may not be an option, productivity can be increased through improved, climate-smart farming techniques. Meanwhile, the growing conditions in the region are well suited for the production of high-quality coffee, and improved processing and sales channels allow farmers to benefit from the higher and more consistent prices offered by the growing specialty coffee market.

The Coffee Initiative worked to help bring those changes to East Africa’s coffee sector and assist more than a quarter-million farmers to boost their incomes. The initiative was launched in Ethiopia, Kenya, Rwanda and Tanzania in 2008 with a $47 million grant from the Bill & Melinda Gates Foundation to TechnoServe, an international nonprofit organization. In 2012, a second phase of the initiative was launched with an additional $18 million grant and focused on completing project activities in Kenya, Tanzania and Rwanda and expanding the project’s scope in Ethiopia. Between launch in 2008 and completion in 2015, the initiative benefited 267,987 farmers, increasing their incomes by an average of 27 percent.
AGRONOMY
Farmers harvest coffee cherries, the fruit containing the coffee beans. The farmers then sell the coffee cherries to the cooperative.

COOPERATIVES
Cooperative-owned wet mills process the coffee cherries, stripping away the pulp and leaving behind the coffee and an inner skin, called parchment.

COFFEE ECOSYSTEM
A variety of actors in the coffee sector provide financing for cooperatives and marketing services, and, in many cases, hull the parchment coffee, yielding unroasted beans called green coffee.

ROASTER
Firms from around the world purchase green coffee from cooperatives or traders and roast it, producing the coffee that consumers see in stores and cafes.

THE COFFEE PROCESS

OUR IMPACT BY COUNTRY

<table>
<thead>
<tr>
<th>Country</th>
<th>Beneficiaries</th>
<th>Average Coffee Income Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethiopia</td>
<td>160,524</td>
<td>21%</td>
</tr>
<tr>
<td>Kenya</td>
<td>52,565</td>
<td>26%</td>
</tr>
<tr>
<td>Rwanda</td>
<td>32,923</td>
<td>62%</td>
</tr>
<tr>
<td>Tanzania</td>
<td>22,275</td>
<td>13%</td>
</tr>
</tbody>
</table>

Coffee incomes will increase in future years as the adoption of agronomy best practices impact coffee tree production.
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The Future: Building on the Coffee Initiative
Smallholder coffee farmers in East Africa have long suffered from low productivity. The region’s per hectare coffee yields are 50 percent lower than those in Central America and just one-fifth of those observed on well-tended demonstration plots in the region. While some of the gap can be explained by limited use of productivity-boosting inputs, the primary reason for low yields is that few farmers have adopted good agricultural practices. In most of the farming communities, formalized training to teach basic farming skills has never been available, and farmers rely instead on what they have observed from relatives and neighbors.
Implementing the Farm College

To address this problem and provide farmers with the skills they need to improve their productivity, the Coffee Initiative developed the Farm College training program. 139,609 farmers attended more than half of the sessions in the two-year Farm College program. The Coffee Initiative recruited farmer trainers, many of whom were the daughters of local coffee farmers, to deliver the training. Each farmer trainer was responsible for training between nine and 13 groups of 30 or more farmers. Every training group selected a member who volunteered a demonstration plot, where farmers were able to participate in hands-on training and see for themselves how different techniques affected the coffee trees over time.

The monthly lessons on mulching, weeding, pruning, rejuvenation, erosion control, shade management, composting, coffee nutrition, integrated pest and disease management, coffee planting and the safe use of pesticides were designed to coincide with the coffee-tree growing cycle. Lessons were also tailored to local growing and market conditions—for example, highlighting the opportunity to cut back the use of pesticides in Kenya, where they are often overused, and putting a greater emphasis on rejuvenation in western Ethiopia, where coffee plants are frequently old and rarely well managed.

139,609 farmers trained
The Enthusiastic Stumper  Farmer trainers often report initial reluctance from farmers to stump their coffee trees—cutting an older tree down near its stump, so it grows back stronger, with more productive stems.

This is understandable, as the farmer loses whatever coffee that tree would yield for one to two years. The Farm College curriculum urges farmers to stump a small proportion of their coffee trees each year, so that they have a continuous income.

Birhanu Teka and Almaz Keteno took a more drastic approach. On their two-hectare farm in southern Ethiopia’s Sidama region, Birhanu and Almaz were harvesting almost nothing from their trees, which were old and only yielded cherries at the top, where they were hard to pick. In 2012, they sold just 100 kilograms of coffee cherry. So, the couple decided to stump two-thirds of their coffee trees—an entire hectare in one season. “I also attended the training, and we decided together; I had seen the demonstration plot,” Almaz said.

“At first, when the neighbors saw the stumping, they said, ‘Why do you stump this amount of coffee? Are you crazy? Why destroy your coffee?’” said Birhanu. “After two years, when they saw the change, they became interested, and now they are ready to stump.” The change the neighbors witnessed was dramatic: the couple’s coffee trees had grown back much more productive, and in 2015, the couple sold 2,100 kilograms of coffee cherry.
Farmers Saving Together  When Ayaye Turkana and a group of his fellow farmers from the village of Desrashale in Ethiopia’s Sidama region participated in the Farm College, they did not just learn about agronomy.

The program’s curriculum also included lessons on business skills, helping farmers throughout the region to better manage their farms. Ayaye and his neighbors learned how to track their revenue and expenses, as well as about the importance of saving. The lesson gave them an idea: “We all participated in agronomy best practices as well as business skills training, and after the lesson on savings, we decided, ‘Why don’t we establish our own savings group here?’” Ayaye recalled.

17 women and 17 men joined the savings group, paying a weekly contribution of between $0.25 and $0.50. Every week, they hold a meeting to evaluate members’ requests for loans, which are often used to finance side businesses, such as trading, grain milling, and animal husbandry. Some members have also used the loans for family educational expenses and, in at least one case, medical treatment.

Drawing on lessons from the Farm College, a leadership committee carefully manages the money. Ayaye, currently the chairman of the committee, said, “We want to grow this group. We will not default!” So far, not a single borrower has.

Farm College provided training on basic business skills and record-keeping, and for many farmers, the introduction of a simple accounting sheet, designed for users with low levels of literacy, represented the first time that they were able to systematically track their own revenue and expenses. That data has empowered farmers to make better-informed decisions about farm management.
Impact

“Good agronomic practices are vitally important for helping farmers to improve their coffee yields and incomes. However, too often, farmers do not adopt new practices because there is not a clear return on the necessary investment in time, labor and purchased inputs. It is essential to instead promote new practices that are simple, impactful and economically viable for smallholder farmers—which is what I witnessed at Farm College training in Kenya.”

DR. CHRISTOPHE MONTAGNON, WORLD COFFEE RESEARCH

After the training, 56 percent of participating farmers had adopted at least half of the improved agricultural techniques, but the rate of adoption varied significantly by country. It was highest in Rwanda and lowest in Ethiopia, where farmers had significantly less familiarity with the best practices prior to Farm College.

The use of better agricultural techniques led to an average yield increase of 38 percent for farmers in Kenya, Tanzania and Rwanda one year after the completion of training, with yields expected to grow further in subsequent years. While final figures are not yet available in Ethiopia, because not enough time has elapsed since the training to measure the impact, a model developed by research firm NewForeSight projects that farmers who adopt stumping will more than double their yields within six years.
Planting Seeds for the Future  Coffee farmer Gerard Simon Kumburu struggled to earn a living. In 2008, his 1,400 coffee trees in Tanzania’s Mbinga region yielded just 500 kilograms of coffee parchment, which he sold for less than $600.

Sometimes, that income would not stretch far enough: “The main challenges I faced were paying for my children’s school fees, family medical care expenses, and difficulty in accessing inputs. I was indebted to the school. Sometimes my children would be sent home from school because of not paying,” Gerard said.

That began to change, however, when Gerard started to receive agronomy training from Farm College. The principal reason for the low yields from Gerard’s trees was that he wasn’t using proper farming techniques. “We did not know about compost, let alone how to make it,” Gerard said. He wasn’t correctly pruning his trees or applying the right pest-control products, either.

After receiving training, Gerard started to prepare compost and take better care of his trees. “We now have a schedule that we follow—it is planned according to the crop cycle. For example, we are systematic about pruning at the beginning of the season and clearing out small shoots in the middle of the rainy season;” he said.

By 2015, Gerard had planted an extra 400 coffee trees, and his total production had risen to the equivalent of 1,000 kilograms of parchment coffee. He sold that coffee for more than $1,600, which has allowed him to buy a solar panel, a motorbike, a few animals, and extra food. Most importantly, it has helped to ensure that his children can receive their education: “I have cleared my debts on my children’s school fees, and can now afford to pay for their school in advance,” he said.
Cooperatives and Wet Mills: Improving Quality and Sales

Due to its varietals, geography, climate, and soil, East Africa has the potential to produce Arabica coffee for specialty markets. If smallholder farmers are able to offer consistent, high-quality coffee, they can benefit from the specialty market’s higher, more stable prices, rather than facing the low and volatile prices offered by local traders supplying the commodity market.
As a lever to help farmers boost their income, the Coffee Initiative sought to help new and existing cooperatives to establish new wet mills and improve the operations of existing wet mills.

Unfortunately, much of the coffee quality in the region is lost at the processing stage, in which the skin and mucilage is removed from the coffee cherry, and the bean and a thin layer of parchment are left behind. Farmers in East Africa traditionally process their coffee by sun-drying or partially washing it, which cause a number of imperfections that affect the coffee’s flavor. With few exceptions, specialty coffee buyers instead look for coffee that has been wet-processed, yielding fully washed parchment coffee that tends to be more consistent in quality. Until recently, however, relatively few farmers in the region have had access to wet mills, facilities that wet-process coffee.

As of 2007, there were just 80 wet mills in Rwanda, 100 in Tanzania, and 742 in Ethiopia. Only Kenya had adopted the widespread use of wet processing and had 1,015 wet mills, though many of these were poorly managed and operated below capacity. Although international donors and national governments had recognized the need to expand washing capacity in the region, previous efforts had often neglected to develop viable business models for the wet mills, jeopardizing their sustainability and scalability.

As a lever to help farmers boost their income, the Coffee Initiative sought to help new and existing cooperatives to establish new wet mills and improve the operations of existing wet mills. The idea was that these wet mills would become profitable businesses that would sell coffee to specialty buyers and would pass a price premium onto farmers in their supply chain. The cooperatives would also be able to provide second payments to member farmers.

The Coffee Initiative’s work to support cooperatives also complemented the project’s agronomy work. The prospect of higher prices for their harvest would encourage farmers to invest the time and energy—and sometimes money—needed to adopt improved agricultural techniques and boost their yields. At the same time, for the wet mills to function as profitable businesses, they needed the higher volume of coffee produced as a result of those improved practices.

To support the creation of cooperatives, the construction of new wet mills, and the improvement of existing facilities, the Coffee Initiative assembled a team of business advisors who helped to encourage good governance at the cooperatives, provided managers with training on key business skills, and shared technical information about how to effectively operate a wet mill and produce high-quality coffee.
Asnake Nigat worked as a business advisor for the Coffee Initiative for six years. At any given moment, he supported between four and 10 cooperatives in Ethiopia’s Jimma region. The following represents a typical year for Asnake:

### June • July
**BUSINESS PLANS DEVELOPED**
At the turn of the fiscal year, Asnake helped cooperative managers to develop detailed business plans and budgets for the cooperatives.

### October • November
**THE HARVEST BEGINS**
As farmers began to harvest their coffee, Asnake coached the wet mill managers to ensure that all of the equipment and facilities were in good working condition and that the seasonal workers were hired and trained. Asnake also helped the cooperatives prepare for visits from specialty coffee buyers, who would come during harvest season to sample the coffee.

### December • January
**THE HEIGHT OF THE HARVEST**
At the height of the harvest season, Asnake helped the cooperative managers to track the volume of coffee they purchased, check that quality standards were maintained, and ensure that the prices being paid would not endanger the cooperatives’ ability to earn a profit. “I advise them, even if the price goes up, minimize your expenses,” Asnake said.

### April • May
**SUSTAINABILITY TRAINING**
Taking advantage of a relatively quiet period, Asnake would provide training to cooperative managers and members about the Coffee Initiative’s sustainability standards.

### February • March
**THE COFFEE SHIPS**
Asnake assisted managers as they performed one final quality-control screening before the coffee was shipped off. He would also provide support to the cooperatives’ accountants, who reconciled income and expenses from the harvest season.

### August • September
**WORKING CAPITAL SECURED**
In preparation for the upcoming harvest, Asnake worked with the cooperative managers and banks to secure working capital for the purchase of coffee cherries. At newly established cooperatives, Asnake also helped with outreach to encourage farmers to join the cooperative and sell their coffee cherries to the wet mill.
Impact

Between 2008 and 2015, the Coffee Initiative supported the construction of 195 new wet mills and improved operations at 145 existing mills. By the end of the initiative, these 340 wet mills processed a total of 7,922 metric tons of green coffee each year, sourced from 259,274 farmers.

The export price of green coffee from participating cooperatives has increased by an average of $1.54 per kilogram, and the farmers supplying the cooperatives earn an average premium of $0.43 per kilogram above the local farm-gate price.

As is to be expected of any group of small businesses, some of the cooperatives supported by the Coffee Initiative have failed, usually due to poor management. But the vast majority continue to operate as profitable businesses, despite the cyclical fluctuations in both local output and global coffee prices.
The Lasting Impact of the Coffee Initiative

The Coffee Initiative was conceived with the idea that the positive changes it catalyzed would continue after the project was completed. To see if that had occurred, the Coffee Initiative commissioned an evaluation in 2015 of the lasting impact of the project in places where work supporting cooperatives was carried out between 2009 and 2012. The report found that not only had the price premiums enjoyed by coffee farmers been maintained, they had actually grown over time.

“The step change in the price received by the farmer has been very significant. The overall conclusion from the data is that the gains recorded at the end line survey by TechnoServe have been maintained over the last three seasons and that this premium is nearly double the $0.53 per kilogram reported at the endline in 2012. There is also a general trend towards a gradual increase in the profitability of the mills over the past four years although there is a large range in the performance of the mills.”

TRIPLELINE COFFEE INITIATIVE EVALUATION, 2016
Managing Growth

Meanwhile, several of the cooperatives have grown enormously as a result of the Coffee Initiative. In 2006, for example, the COCAMU cooperative in eastern Rwanda had 86 members; with no wet mill, it sold just $13,000 of home-processed coffee. By 2014, three years after graduating from Coffee Initiative support, the cooperative had grown to 614 members, and it had four wet mills and nearly $400,000 in annual sales. As cooperatives have grown in size, the management skills they learned from the Coffee Initiative have helped them to handle the large volumes of coffee, growing need for working capital, and expanding membership.
Replicating Success in Jimma

In 2012, the Coffee Initiative worked with farmers in the Ethiopian village of Besheshe to form the Hunda Oli cooperative and build a wet mill. However, Hunda Oli’s chairman, Mustefa Abenako, recalled that it was difficult at first to recruit other members in a community with no history of cooperatives. Luckily, the group’s leaders had a convincing argument just down the road: the Duromina cooperative, which had been formed during the first phase of the Coffee Initiative in 2010, had won industry awards and become a financial success.

“Duromina showed us how viable the coffee business is,” said Mustefa. He and the other leaders persuaded 128 farmers to join during that first year. Like Duromina, Hunda Oli has attracted specialty roasters with its exceptional coffee, and the cooperative has experienced dynamic growth. Since its first season, the cooperative’s annual sales revenue has grown from roughly $255,000 to $460,000, and more than 153 farmers now sell coffee cherry to the cooperative. In 2015, the cooperative built a second wet mill, more than doubling Hunda Oli’s processing capacity.

Following the example of Duromina, Hunda Oli dedicates 15 percent of its profits to social projects. Since 2014, it has helped to expand the local school and funded the construction of waterlines to 400 homes, providing clean water to members and non-members alike.
The Coffee Ecosystem: Building Long-Term Success

Beyond farmers and cooperatives, a number of private- and public-sector organizations play important roles in East Africa’s coffee industry. To boost the profitability of cooperatives and the incomes of farmers, the Coffee Initiative worked to strengthen these market actors, forge new connections between them, and foster a more supportive coffee ecosystem.
Access to Appropriate Inputs

While coffee growers in Ethiopia rarely need to purchase inputs, many farmers elsewhere in the region do have to buy fertilizers and other products to compensate for poor soils. The Coffee Initiative commissioned soil and leaf studies in coffee-growing regions of Ethiopia, Tanzania, Rwanda, and Kenya to better understand the existing soil condition and nutrient needs in each country, allowing the development of localized fertilizer recommendations to include in Farm College trainings. However, in several countries, getting the appropriate fertilizers and other inputs into the hands of farmers was a longstanding challenge.

In Tanzania, for example, the soil study found that farmers in the Mbinga region could significantly boost their yields by applying coffee-specific fertilizers, rather than Urea, and these lessons were included in training provided to farmers. However, due to the relative remoteness of the region, there were no sales channels for these specialized inputs, and large agro-input distributors were unaware of the new demand and market opportunities in Mbinga. The Coffee Initiative worked with Yara Tanzania to appoint a distributor in the region to supply fertilizer to a decentralized network of seven retailers. Since then, the number of retailers offering Yara products has grown, and the company has appointed a second distributor in the region. “We now have stability in our business—we have a steady flow of reliable and repeat customers,” said Suzo Komba, manager of one of the distributors.

In Rwanda, where the importation of inputs is coordinated at national level, the Coffee Initiative recommended an NPK-fertilizer formula developed specifically for coffee and better suited to Rwanda’s soils. Based on this recommendation, the government shifted the products it purchased and distributed to farmers.
A New Sales Model for Lime in Kenya

One important outcome of the soil survey in Kenya was the creation of a lime recommendation map. Soils in central Kenya are very acidic, and as a consequence, nutrients (including applied fertilizers) are locked up in the soil, unavailable to the plant. Lime plays an essential role in correcting acidic soils, increasing the pH and releasing nutrients. However, most coffee farmers had never heard of lime, even though it is inexpensive and produced locally. To increase smallholder coffee farmers’ access to lime products, the Coffee Initiative formed a partnership with Homa Lime, a Kenyan lime mine. Whereas farmers in the past struggled to find such inputs on a consistent basis due to their rural location, Homa Lime ensured that farmers received their lime in a timely manner and at an affordable cost by selling it in bulk directly to their cooperatives. “Farmers would pay today, and we would have the lime to them tomorrow,” said Sales and Marketing Manager Joseph Alubakah.

Farmers in the Coffee Initiative participated in a specific training module that focused on the importance of lime and its proper application to soils. After participating in the training, the chairman of Kibugu Farmers Cooperative Society, Bernard Mwaniki, led the charge in purchasing lime for his farmers. “We learned that our soil is very acidic, so I went and bought many bags (of lime) so our farmers could see improvements in their coffee,” he said.

To date, Homa Lime has sold over 400 tons of lime to farmers in central Kenya enrolled in the Coffee Initiative and continues to sell to smallholder farmers in the region. The project “opened a market for us,” according to Joseph. “Since they brought awareness to farmers about lime, they are now asking for the product on their own.”
Access to Finance

Coffee cooperatives have a pressing need for financing. It costs $15,000 to install even a small wet mill, and cooperatives also need an average of more than $50,000 of working capital each year, as they must buy coffee cherry from farmers and then wait months to receive payment from buyers. However, few financial institutions in the region were prepared to meet the particular financing needs of the cooperatives.

To address this challenge, the Coffee Initiative partnered with lending institutions and provided training to allow bank employees to better understand the wet mill business and how they could design products that would meet the need of the cooperatives. By providing technical assistance to the cooperatives, the Coffee Initiative also increased the bankers’ confidence in the cooperatives.

In addition, the Coffee Initiative piloted a new SMS bookkeeping program in Ethiopia and Rwanda. Accountants at cooperatives were trained on how to enter financial and coffee-cherry stock information and transmit it via text message to a digital platform, which banks and other lenders can monitor in real-time. This increased transparency gave lenders more confidence to extend working capital. “The business is very risky. It requires more staff to manage. That is why SMS Bookkeeping is very helpful,” said Rose Nyirabavakure of the Development Bank of Rwanda. It also allowed the cooperatives themselves to better monitor revenues and expenses: “Each day I can see if the cost of operating is more than the price we can get [for the coffee cherries]. That way we can make sure we don’t end up in a financial crisis,” said Keiyru Kedir of the Biftu Gudina cooperative in Ethiopia. Three coffee exporter companies in Rwanda have now launched their own in-house SMS bookkeeping systems.

As a result of these efforts, cooperatives were able to access $3.2 million of financing for capital expenditure and $18.7 million of annual working capital with a 99% repayment rate.
Supporting a Cadre of Coffee Professionals

“The idea of becoming an entrepreneur started coming into my mind in 2010, when I was working with TechnoServe. I love doing something that can help poor people in rural areas—especially women.”

JOY TUSHABE, FORMER SENIOR BUSINESS ADVISOR IN RWANDA, NOW FOUNDER OF ISHEMA WOMEN’S WET MILL

“People come into the office and ask me to see the manager, and when I tell them that I am the manager, they ask, ‘Why are you so young?’”

SHADRACK SUJE, FORMER FARMER TRAINER IN KENYA, NOW SECRETARY MANAGER OF KIBUKWO COOPERATIVE

“I remember everything I learned at TechnoServe—that is why I am working here at RTC… I went directly from school to TechnoServe, and now my skills are wanted.”

JOYEUSE NIYIGENA, FORMER FARMER TRAINER AND BUSINESS ADVISOR IN RWANDA, NOW FARMER ADVOCATE AT RWANDA TRADING COMPANY

“If it wasn’t for the knowledge I gained whilst at TechnoServe, I wouldn’t have been able to secure this great job with DAE.”

WENDO SUDAYI, FORMER BUSINESS ADVISOR IN TANZANIA, NOW COFFEE PARTNERSHIP MANAGER FOR DAN & ASSOCIATES

“The skills I learned with the Coffee Initiative have helped me in my role working as the Field Operations Manager for the largest coffee exporter company in eastern D.R. Congo, where I’ve introduced many of the innovations we developed in Rwanda. I’ve also become an entrepreneur, as I’ve set up my own coffee wet mill business in my home village.”

JEAN PAUL TUNDA, FORMER BUSINESS ADVISOR IN RWANDA, NOW FIELD OPERATIONS MANAGER AT CAFELAC
Creating Market Linkages

For cooperatives to earn price premiums that can be passed on to farmers, they must be connected to buyers of premium coffee. The Coffee Initiative took several steps to improve the linkages between coffee cooperatives and purchasers. For example, it helped to install 35 cupping labs in the four countries and trained 225 cooperative leaders and farmers on cupping—the elaborate procedure used to evaluate the quality of coffee. This allowed cooperatives to better judge their own quality, in order to make improvements, and also gave them a “common language” to speak with specialty coffee buyers, who greatly value cupping scores.

The Coffee Initiative also actively reached out to specialty coffee buyers to alert them to the growing supply of high-quality coffee produced by participating cooperatives. As a result, Peet’s Coffee & Tea launched a blend sourced exclusively from participants in the Coffee Initiative, and multiple specialty roasters source single-origin coffee from cooperatives involved in the initiative.

“Entire coffee regions in East Africa that were largely ignored by specialty buyers prior to interventions by organizations like TechnoServe have now become highly sought-after sources of spectacular quality. The potential had been there all along, but was unrealized because some basic infrastructure was lacking and farmers did not have good access to knowledge or training. The coffees were mediocre at best, without much value. Today, these farmers are producing some of the world’s most exciting and delicious coffees and have successfully connected with the specialty marketplace.”

GEOFF WATTS, INTELLIGENTSIA COFFEE
Developing the Coffee Service Provider Model in Rwanda

In Rwanda, the Coffee Initiative developed a commercially sustainable model that would provide cooperatives with the services they need. Under the Coffee Service Provider (CSP) model, private coffee exporters provide working capital and price-risk management services to the cooperatives, offer high-quality milling services to remove the parchment from coffee, and manage sales of the cooperatives’ coffee to specialty buyers. In exchange, the CSPs receive a percentage (typically between 5 and 7 percent) of the final sales price.

Because it is built on commercially viable relationships, the model has continued to function after the Coffee Initiative wound down operations in Rwanda. Clay Parker of Rwanda Trading Company—one of the largest CSPs—said, “As long as the CSPs can find the fee structure that works for them, this model will stay around. Getting working capital and connecting with sales market are the primary needs of the coops, and the CSP direct model addresses both.”
Food Security and Nutrition: The Coffee Connection

Food security and nutrition are important to improving livelihoods in East Africa. Roughly 40 percent of children under the age of five in Rwanda and Ethiopia are stunted, as are more than 30 percent and 20 percent of their peers in Tanzania and Kenya, respectively.²

² UNICEF, WHO and World Bank: http://data.unicef.org/nutrition/malnutrition.html
Food Security and Nutrition: The Coffee Connection

Across the region, nearly all coffee farmers also grow staple food crops, such as maize, beans and root crops. Coffee is seen as an important source of cash, while food crops are saved for consumption at home or for sale on the local market. However, food-crop yields on small farms are low, primarily because farmers are not using the correct agronomy practices and cannot always purchase suitable inputs. For these families, increasing coffee incomes can be a powerful mechanism to increase food security. A survey of farmers in western Ethiopia, where nearly all smallholders grow both maize and coffee, found that nearly 87 percent of families supplemented their food supply by using their coffee income to purchase additional maize. The same survey found that 94 percent of respondents frequently used coffee income to purchase maize inputs.

“One cannot underestimate the role that coffee plays for food security of a large number of smallholder farmers in East Africa. Coffee income is an important source of income of these coffee farmers, especially during the lean period when food security issues are most severe. That income often also allows for access to agricultural inputs during the planting period of food crops, leading to significant positive spillover effects of coffee for the whole farm, and leading to further improvements of these smallholders’ food security situation.”

DR. BART MINTEN OF THE INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE
Maize Training

To improve food security in the region, the second phase of the Coffee Initiative sought to help coffee farmers in western Ethiopia increase their maize yields. The Farm College curriculum was revised to include modules on best practices for maize farming, and this training was delivered to 59,877 farmers.

Several of the improved techniques, such as the use of improved seeds and the application of fertilizer, required additional investment, which would normally present an obstacle to cash-strapped farmers. However, the higher coffee incomes enjoyed by many coffee growers—the result of better prices offered by wet mills—allowed them to purchase appropriate inputs in sufficient quantities.

In fact, the percentage of farmers using at least half of the improved maize-farming practices rose from a baseline of 29 percent to 80 percent, exceeding the target of 75 percent—and on average, the farmers who earned more cash from coffee adopted more of the maize best practices. In just one year, average maize yields increased by 24 percent, primarily as a result of more frequent weeding and the increased use of fertilizer and improved seed varieties.

Infant Nutrition Training

The Coffee Initiative also identified an opportunity to improve infant nutrition among Ethiopian coffee-farming families. These families often struggle to find affordable ways of meeting the nutritional needs of their children. Formal knowledge about nutrition is limited, so few farming families understand the importance of protein to a balanced diet—and because it is relatively expensive, protein is rarely provided to infants. Working with Alive and Thrive, a Bill & Melinda Gates Foundation grantee, the Coffee Initiative developed a training module to help farmers understand the need to provide nutritious meals to their young children based on food that could be found on their own farms or affordably purchased in their communities. It was rolled into the Farm College training delivered to farmers across Ethiopia.
Harvesting More Coffee and More Maize  On his hilly one-hectare farm in western Ethiopia, Aman Aboali grows coffee and maize. But prior to the Coffee Initiative, his income from both crops was disappointing.

“The farm did not produce enough to feed me from the proceeds,” he said.

He started receiving training from the Coffee Initiative in 2012, learning how to boost his coffee yields. By weeding, pruning and stumping his coffee trees, he doubled their average productivity, and his total coffee production rose from 3,400 kilograms of red cherry in the 2011/2012 harvest season to 6,600 kilograms in the 2014/2015 season. His coffee income increased by 64 percent to roughly $2,000 over the same period of time.

Harvesting More Coffee and More Maize  On his hilly one-hectare farm in western Ethiopia, Aman Aboali grows coffee and maize. But prior to the Coffee Initiative, his income from both crops was disappointing.

He reinvested part of this income in his maize farm. Through the Coffee Initiative, he had learned techniques to increase the maize productivity, too: double-row planting, the correct application of fertilizer, and the use of improved seed varieties adapted to local growing conditions. Adopting these practices represented an extra $35 of expenses each year, but Aman could now afford it: “Income from coffee helped with maize inputs,” he said. By 2015, his maize yields had increased by approximately 80 percent. Half of this maize was consumed at home, and he was able to sell the other 1,000 kilograms for about $140, using the proceeds to buy other foodstuffs.

Aman is providing for a growing family with that additional food and money. He got married two years after he began participating in the Coffee Initiative, and now he and his wife have an infant son. Aman has built a house for the family with his coffee income.

He has also opened a small shop to sell simple household goods. “Coffee built the shop,” he said. Today, more than 100 families come to his shop to buy oil, sugar, batteries and other items that are otherwise difficult to find in the small village of Amogurude. He hopes to soon expand the offerings at his store.

His biggest plans are for his infant son, however. “I want him to be an engineer,” he said, smiling.
Investing in Food Security

In Awaso, Ethiopia, two new maize and teff mills have roared into action within the past year. They’re not just churning out flour—they are also boosting the local food supply and making life easier for many of the village’s residents. “It will be an enormous benefit to the women of the community,” said Bedru Aba Firo, chairman of the Doyo Cooperative, which owns and operates the mills. Previously, women from the village had to travel to the nearest city to mill their grains. “Now, they will save time and money,” Bedru said.

The mills were financed from Doyo’s substantial coffee profits, but it was not long ago when the cooperative was struggling just to survive. Doyo was founded during Ethiopia’s communist regime, and without a wet mill, it sold members’ coffee cherry at low prices. With support from the Coffee Initiative, it built a wet mill, expanded the volume of coffee it processed, improved its operations and quality control, and forged connections with specialty coffee buyers, including Peet’s Coffee & Tea. By 2014, its annual revenue had grown to more than $190,000, allowing it to make investments to improve local food security.
Gender: Empowering Women on the Farm and Beyond

Across East Africa, women play a vital role in smallholder agriculture. However, as is the case in many parts of the world, women farmers have less access to extension services, appropriate inputs, and credit than do men. Additionally, cultural norms in East Africa frequently label coffee farming as “men’s work,” often locking women out of decision-making processes and preventing them from sharing in coffee revenues. This gender gap does not only harm women—it also depresses overall farm productivity and income.

“If we want to make coffee sustainable, we need to make sure women throughout the coffee value chain also benefit from coffee and break the barriers that are stopping them from doing so.”

EMEBET TAFESSEE,
THE ETHIOPIAN COFFEE EXPORTERS ASSOCIATION
At the outset of the project, the Coffee Initiative set a target that 30 percent of the farmers trained would be women, far exceeding the 5 percent of global extension services that a Food and Agriculture Organization (FAO) survey found were accessed by women. However, when a pilot farmer training initiative was conducted in Ethiopia, just 4 percent of the participants were women.

To reach more women farmers, the Farm College program implemented specific elements to encourage higher rates of female participation. First, when recruiting farmers to participate in training, the importance of women attending training was openly discussed within the communities at sensitization meetings, often led by community leaders. At the training session, husbands were encouraged to bring their wives, and those couples attending together were asked to explain to the group why this was a good idea, encouraging others to do the same. In each group, a woman was elected to serve as either the focal farmer or deputy focal farmer.

Because women in rural East Africa often have time-consuming domestic responsibilities like childcare and food preparation, farmer trainers took care to make sure that these did not become obstacles that prevented women from participating in the training session. For example, the farmer trainers worked with group members to select training times and locations where they would be more accessible to women. Group members were also encouraged to bring their children to the sessions.

When the full Farm College program was rolled out with these approaches, female participation rose to 36 percent.
“I Thought There Was Something to Learn” As a girl in a conservative region of Jimma, Ethiopia, Almaz Dejene never had the opportunity to go to school. Nevertheless, the now-52-year-old coffee farmer is an enthusiastic learner.

So in 2012, when she found out that the Coffee Initiative would be offering agronomy training in her village, she was quick to register—and she took her husband, Alemu, along with her. “I had no doubt of the benefit,” Almaz said. “I thought there was something to learn.”

Almaz and Alemu farmed two hectares of land in the village of Bulbulo, growing coffee and maize. But their coffee yields were low, and the couple did not earn much from the crop. “We picked the cherries of older trees; we didn’t stump or prune. We sold in small amounts,” said Alemu.

Based on what they learned from the farmer trainer, the couple stumped one-eighth of a hectare in each of the following years. They applied the other lessons from Farm College: coffee-farming techniques, like pruning, best practices for growing maize, and basic lessons on infant nutrition. They also planted an additional 3,000 coffee trees, doubling their holdings.

The impact was soon visible on the farm. Before receiving the training, they had produced 1,900 kilograms of red cherry. By 2014, those yields had increased to 4,500 kilograms. They have seen a similar impact on their maize yields, as well, which doubled to 2 metric tons by 2014.

And while coffee prices have fluctuated, the higher yields have meant higher incomes for the couple.

Almaz bought a donkey, and Alemu bought a cow. The couple provides food to their extended family and applies what they learned in the infant-nutrition module to their grandson.

And Almaz—a woman who loves learning but who never had a chance to go to school—was able to pay for her daughter to attend school and earn a diploma in animal science.
A New Approach to Recruiting Female Farmer Trainers

The Coffee Initiative set a target for women to fill 30 percent of the farmer trainer roles, and to reach that mark, the project made a point of advertising the positions in places like markets and churches where women often congregate. However, program managers knew that in the rural East African communities where they were recruiting trainers, men typically have more self-confidence and greater experience, and thus are more successful in interviews. As a result, the Coffee Initiative implemented a different approach to the selection process, inviting a large pool of candidates to training courses for a period of eight days. During this time, the candidates were trained on coffee agronomy and adult training methodology, which helped to close the gender gap in self-confidence and technical knowledge. At the end of the eight days, each candidate trained real coffee farmers on a particular lesson, with the strength of that training and the performance throughout the two courses serving as the primary criteria for selection. The women shone, and this hiring methodology yielded a more gender-balanced result than would have been the case using traditional interviews. Over the total life of the Coffee Initiative, 39 percent of project staff were women, exceeding the original target.

Supporting Female Membership and Leadership in Cooperatives

The Coffee Initiative also worked to empower female leaders at coffee cooperatives, which are typically led by men in East Africa. Because decisions made by cooperative leaders—such as how to invest profits and what community projects to support—affect men and women differently, it is vitally important to encourage greater gender balance in those roles. In the Coffee Initiative, the training provided to cooperatives included women-friendly leadership and membership policy guidelines—such as scheduling meetings at convenient times for women and ensuring that both male and female farmers are targeted for recruitment—and the cooperatives were evaluated based on how they implemented those policies. A gender lead was appointed for each project region and led discussions about the importance of including women in leadership and decision-making roles. Additionally, female members at each cooperative elected a representative to ensure that their views and concerns received consideration in the decision-making process.

Over the life of the Coffee Initiative, 39% of project staff were women, thanks in part to an innovative recruitment approach that overcame typical barriers to formal employment for women.
Breaking Down Gender Barriers at Kapkiyai Farmers Cooperative

If you were to visit Kapkiyai Farmers Cooperative in Kenya’s Nandi Hills seven years ago, you might have noticed something striking: all 38 members were men. At the time, women existed on the periphery of the coffee industry in Kapkiyai. Although women played essential roles to coffee production, such as picking ripe cherries and carrying the loads down the hills after harvest, men owned the coffee trees, decision-making process, and the profits reaped from their production.

In 2010, Kapkiyai began to receive support from the Coffee Initiative, and the training in both agronomy and the management of the cooperative and wet mill emphasized gender inclusion in the coffee industry. With time, Kapkiyai management began to see the potential of including women in the cooperative. “Women are the ones that look after the children. They are the ones that work on the farms. They are the ones that bring the coffee down the hills (to the cooperative for processing). It was time for them to get involved in sales,” said Chairman David Saina.

Kapkiyai held a special general meeting to discuss the advice put forth by the Coffee Initiative business advisors. At the meeting, which consisted of both board members and farmers, the cooperative passed the Kapkiyai Women in Coffee Resolution, granting women the right to become full contributing members in the cooperative. Following the decision, a number of husbands gave their wives a segment of their own trees.

Today, 106 of the 398 members of the Kapkiyai Farmers Cooperative Society are women. Women also produced 55,000 kilograms of the 200,114 total cherry produced by Kapkiyai in 2015, a contribution that played a significant role in helping the cooperative purchase an eco-pulper, a new pulping machine that processes 1,500 kilograms of coffee cherry per hour. “Without women, we would not have this machine,” said Chairman Saina.

Women have also made inroads into the cooperative’s decision-making process by rising into leadership positions. Dorcas Jeptanui is both the chairlady of the Women in Coffee group and a member of the cooperative’s management committee. Chairman Saina said, “Dorcas is a contributor, let me tell you. She empowers the women. That is why these ladies said, ‘We want Dorcas, not you.’”

For the new female members of the cooperative, greater inclusion in the coffee industry has changed their lives. Techla Ngeny waved her hands in the air and said, “I am excited to have my own money and not have my husband question how to use it. I am very glad to pay my children’s school fees and to give them pocket money to get home from school.”
Sustainability: Environmental and Social Responsibility

It is not just a moral imperative that coffee be grown and processed in a way that respects the natural environment and protects the livelihoods, health and safety of the people who produce it—with consumers and roasters increasingly concerned about sustainability, it is a business imperative, too. For those reasons, the Coffee Initiative worked with coffee growers and cooperative managers to strengthen social and environmental responsibility on farms and at wet mills.
The production of high-quality coffee requires specific weather, soil conditions, amounts of sun exposure and plant varietals, making it sensitive to environmental changes. While farmers cannot prevent climate change, they can reduce its impact on their livelihoods by using a range of approaches to increase their farms’ resilience. The Coffee Initiative’s Farm College curriculum therefore included training on climate-smart farming practices that would allow coffee farms to both adapt to the impacts of climate change and better protect the environment.

For example, farmers learned how to use mulch and shade to reduce plant and soil temperatures—vitally important in places where temperatures are expected to rise and threaten coffee productivity and quality. Composting serves to both retain soil moisture and reduce the need for synthetic fertilizer, the production of which generates greenhouse gases. Farmers also received training on how to plant vetiver grass and other techniques to prevent soil erosion, use fertilizers more efficiently in order to cut down on waste, and plant trees that reduce carbon in the atmosphere.

At most pre-existing coffee wet mills in East Africa, social and environmental responsibility was simply not considered a priority. Temporary laborers were often subjected to long hours, poor working conditions and sub-minimum wages, and child labor was used at some wet mills. Meanwhile, farmers supplying the wet mills would often complain about the lack of financial transparency at their cooperative. As a result, the Coffee Initiative trained and evaluated wet mills on a set of basic sustainability standards covering labor practices, occupational health and safety, environmental responsibility, and economic transparency. Coffee Initiative staff also made the business case for sustainability, demonstrating how responsibly operated wet mills had, on average, lower operating expenses.

After providing training, business advisors helped each cooperative to conduct an internal evaluation of their sustainability practices and develop an action plan to resolve the problems that were identified. Then, the Coffee Initiative conducted an independent audit of each cooperative, assigning them to categories based upon how many of the mandatory and recommended best practices they had adopted. While this evaluation was not a formal certification program, it did prepare cooperatives to participate in mainstream certification.
The Dobena Wicho cooperative in Sidama, Ethiopia had a serious problem: before it began to work with the Coffee Initiative, the wastewater and pulp produced by its three wet mills often overflowed the shallow pond where it was stored, polluting the nearby Kola River.

“We had old pulping machines that dumped toxic water from pulping into the river. Further, we suffered because wet mills above us on the river were also polluting, which affected the water we used to process cherries. In the year before [the Coffee Initiative] worked with us, we had two trucks of cherries rejected by the union for being polluted. And the wet mills smelled of pollution. It had gotten so bad that it was posing a health risk to both people and animals. There was a problem producing vegetables in the area,” recalled Dobena Wicho Cooperative Secretary Desta Roda.

It is a common problem among older wet mills, which often send decaying organic waste into waterways across the region. “Six woredas in our zone are suffering from hazardous environmental pollution created by the overflow of wastewater and pulp from the coffee processing plants. As result, communities and animals who use the polluted waters are suffering from different health problems,” said Ato Shitaye of the Sidama Zone Environmental Protection and Forestry Authority.

The Coffee Initiative worked with Dobena Wicho to develop a holistic solution to its wastewater problem. The managers and workers received training on tracking and reducing their water usage, and the cooperative installed a pulp hopper to separate out the wastewater from the coffee pulp, which was composted and distributed to farmers for use as organic fertilizer. The Coffee Initiative helped the cooperative to plant a vetiver grass wetland to absorb much of the wastewater, with the remaining water evaporating harmlessly in a reinforced pool.

The Coffee Initiative helped other cooperatives to implement this innovative solution, and corporate partners continue to support its rollout at additional wet mills.
The Future: 
Building on the Coffee Initiative

Across East Africa, there are still millions of smallholder coffee farmers who live in poverty, and empowering them to raise their income and standard of living requires more investment in the sector. The Coffee Initiative demonstrated how interventions focused on agronomy, the construction and operation of wet mills, sustainability, and supportive sector ecosystems can not only transform livelihoods in farming communities, but also boost the profits of businesses in the coffee value chain. In so doing, it helped to crowd-in precisely the kind of investments that the region’s coffee farmers need.
New Partnerships

Looking at the impact of the Coffee Initiative, international coffee buyers saw that investments in the region’s coffee-farming communities could increase the available supply of coffee that met their sustainability and quality standards. Institutional donors and nonprofits saw that those same investments had a significant development impact for coffee farmers. As a result, TechnoServe has been able to launch partnerships worth more than $25 million to support the region’s coffee sector.

**NEW PARTNERSHIPS**

<table>
<thead>
<tr>
<th>PARTNER/PROGRAM</th>
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<tbody>
<tr>
<td>South Sudan</td>
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<tr>
<td>Nespresso and USAID: Agronomy training and support for new cooperatives and wet mills</td>
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<tr>
<td>Ethiopia</td>
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<tr>
<td>Nespresso and IDH: Agronomy training and support for cooperatives and wet mills</td>
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<tr>
<td>JDE and IDH: Agronomy training and support for cooperatives and wet mills</td>
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<tr>
<td>Mother Parkers: Reducing wastewater pollution at wet mills</td>
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<tr>
<td>Rwanda</td>
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<tr>
<td>Rwanda Government: agronomy training</td>
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<tr>
<td>Kenya</td>
</tr>
<tr>
<td>Nespresso: Agronomy training and support for cooperatives and wet mills</td>
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</table>
Local Investment

The Coffee Initiative also demonstrated the business case for smaller investments by domestic businesses in the region’s coffee sector. The wet mills’ profitability and ability to yield higher quality coffee inspired exporters like the Rwanda Trading Company and Tanzania’s Dan & Associates to invest in constructing their own new wet mills, providing farmers with additional premium markets for their coffee.

In Ethiopia, the private sector took on many of the tasks that had been carried out by the Coffee Initiative. As the project ended, Nib Bank wanted to continue to provide working capital to coffee cooperatives, but the bank was afraid that without technical assistance to the cooperatives, the default rate could increase. The bank worked out an agreement with the regional coffee union and the cooperatives, in which the union would hire a business advisor to provide technical assistance.

“From this branch, we suggested the business advisor arrangement. We had built confidence in the business. The business advisor would work with the cooperatives to prepare business plans, and the union would vet and combine into one business plan,” said Geremew Gebeyehu of Nib Bank. The union hired former Coffee Initiative business advisors, and the bank was able to disburse loans at a reasonable rate and without collateral demands. The Rwanda Trading Company provides similar services to its client wet mills, as well.
What Is Needed Next

While there has been some investment in agronomy, much more is needed to unlock the potential of the region’s coffee sector. Not only are improved yields central to increasing farmer incomes, they also provide the volume of coffee necessary for a wet mill to run at a profitable capacity level. But the private sector is understandably reluctant to carry the entire burden of funding what is, at least in part, a public good.

The way forward is therefore to forge partnerships between businesses, the public sector, and nonprofit organizations to work across the value chain and build upon the success of the Coffee Initiative. That kind of cooperation has the potential to consolidate a profitable coffee sector in East Africa and transform the livelihoods and lives of millions of farmers across the region.
Athanasie’s Story  When Athanasie Musabyimana gave birth to her daughter in a Tanzanian refugee camp, she named her Nzamwitakuze: “I will give you a name if you survive.” It was 1994, and Athanasie, her husband, and young son had just fled the genocidal violence in their native Rwanda.

“We were packed together like blades of grass,” she said.

Two years later, with the return of peace to Rwanda, the growing family was able to go back to its small coffee farm in the eastern part of the country. However, shortly thereafter, Athanasie’s husband died of malaria, leaving her alone to tend to the farm, her two young children, and her aging parents. In 2006, with low coffee yields and prices, she earned just $160. With support from the Coffee Initiative, however, both improved. TechnoServe helped her local cooperative, COCAMU, to build a wet mill in 2007, and the Coffee Initiative supported COCAMU to bolster its operations. The cooperative’s improved coffee was sought after by roasters and COCAMU earned a premium that benefited farmers like Athanasie.

In 2009, Athanasie enrolled in training from the Farm College, hoping to boost the productivity of her 634 coffee trees. “I learned better composting, better pruning, and how to use NPK fertilizer for coffee. But what I really learned was how to rejuvenate my trees,” she said. Between 2008 and 2010, her trees’ productivity increased by more than 50 percent, as did her coffee income. The following year, she used the extra money to purchase more land and plant an additional 700 coffee trees.

Now, those new trees are producing coffee cherries, and Athanasie’s coffee income grew to more than $430 in 2015. Athanasie has been able to purchase health insurance for her extended family and acquire more land, where she is growing maize to provide the household with greater food security and a diversified source of income. She has plans to renovate her house and, most importantly to her, she has been able to pay the school fees for her children. Nzamwitakuze, who Athanasie had once feared might not even survive, has recently completed the first stage of secondary school—thanks to coffee.
## Coffee Initiative Targets and Results

<table>
<thead>
<tr>
<th>INDICATOR</th>
<th>TARGET</th>
<th>ACHIEVED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of farmers</td>
<td>222,500</td>
<td>267,987</td>
</tr>
<tr>
<td>Number of wet mills</td>
<td>342</td>
<td>340</td>
</tr>
<tr>
<td>Coffee volume (metric tons)</td>
<td>11,350</td>
<td>7,922</td>
</tr>
<tr>
<td>Export (FOB) price increase ($/kg)</td>
<td>$0.45</td>
<td>$1.54</td>
</tr>
<tr>
<td>Farm-gate price increase ($/kg)</td>
<td>$0.40</td>
<td>$0.43</td>
</tr>
<tr>
<td>Cupping labs installed</td>
<td>35</td>
<td>35</td>
</tr>
<tr>
<td>Cuppers trained</td>
<td>123</td>
<td>225</td>
</tr>
<tr>
<td>Farmers trained in agronomy</td>
<td>110,000</td>
<td>139,609</td>
</tr>
<tr>
<td>Coffee yield improvement</td>
<td>12%</td>
<td>38%</td>
</tr>
<tr>
<td>Percent of farmers adopting best practices</td>
<td>50%</td>
<td>56%</td>
</tr>
<tr>
<td>Working capital mobilized</td>
<td>$20.1 million</td>
<td>$18.7 million</td>
</tr>
<tr>
<td>Capex mobilized</td>
<td>$2.2 million</td>
<td>$3.2 million</td>
</tr>
<tr>
<td>Bank analysts trained</td>
<td>8</td>
<td>57</td>
</tr>
<tr>
<td>New banking instruments released</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>New CSPs or CSP services established</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>Average increase in coffee income</td>
<td>N/A</td>
<td>27%</td>
</tr>
</tbody>
</table>

### TechnoServe’s Mission

We work with enterprising people in the developing world to build competitive farms, businesses and industries.
A sampling of specialty coffees sourced from Coffee Initiative-supported cooperatives in Ethiopia.